



UNDERGRADUATE STUDY

UNIVERSITY OF WASHINGTON

GENERAL CATALOG 2000-2002

UNDERGRADUATE STUDY

UNIVERSITY ADMINISTRATION

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THE UNIVERSITY OF WASHINGTON

www.washington.edu/home/about.html



Founded in 1861, the University of Washington is the oldest state-assisted institution of higher education on the Pacific coast. From its original site on a 10-acre tract of wooded wilderness that is now located in downtown Seattle, the campus has grown to comprise 703 acres of trees, landscape, and buildings. Located between the shores of Lake Washington and Lake Union, it is in a residential section of the city that long has been considered one of the most attractive in the nation.

Enrollment at the University in autumn quarter 1999 was 35,559, of which 25,638 were undergraduates and the balance were in professional and graduate programs. Almost 90 percent of the undergraduates enter as freshmen from Washington high schools or as transfer students from Washington community colleges or other colleges and universities in the state. The grade-point average for the regularly admitted freshman class entering in autumn quarter 1999 was 3.62. In 1999, the full-time teaching faculty of the University numbered 3,015 members.

Mission Statement

Founded 4 November 1861, the University of Washington is one of the oldest state-supported institutions of higher education on the Pacific coast. The University is comprised of three campuses: the Seattle campus is made up of sixteen schools and colleges whose faculty offer educational opportunities to students ranging from first-year undergraduates through doctoral-level candidates; the Bothell and Tacoma campuses, each developing a distinctive identity and undergoing rapid growth, offer diverse programs to upper-division undergraduates and to graduate students.

The primary mission of the University of Washington is the preservation, advancement, and dissemination of knowledge. The University preserves knowledge through its libraries and collections, its courses, and the scholarship of its faculty. It advances new knowledge through many forms of research, inquiry, and discussion; and disseminates it through the classroom and the laboratory, scholarly exchanges, creative practice, international education, and public service. As one of the nation's outstanding teaching and research institutions, the University is committed to maintaining an environment for objectivity and imaginative inquiry and for the original scholarship and research that ensure the production of new knowledge in the free exchange of diverse facts, theories, and ideas.

To promote their capacity to make humane and informed decisions, the University fosters an environment in which its students can develop mature and independent judgment and an appreciation of the range and diversity of human achievement. The University cultivates in its students both critical thinking and the effective articulation of that thinking.

As an integral part of a large and diverse community, the university seeks broad representation of and encourages sustained participation in that community by its students, its faculty, and its staff. It serves both non-traditional and traditional students. Through its three-campus system and through educational outreach, evening degree and distance learning programs, it extends educational opportunities to many who would not otherwise have access to them.

The academic core of the University of Washington is its College of Arts and Sciences; the teaching and research of the University's many professional schools provide essential complements to these programs in the arts, humanities, social sciences, and natural and mathematical sciences. Programs in law, medicine, forest resources, oceanography and fisheries, library science, and aeronautics are offered exclusively (in accord with state law) by the University of Washington. In addition, the University of Washington has assumed primary responsibility for the health science fields of dentistry and public health, and offers education and training in medicine for a multi-state region of the Pacific Northwest and Alaska. The schools and colleges of architecture and urban planning, business administration, education, engineering, nursing, pharmacy, public affairs, and social work have a long tradition of educating students for service to the region and the nation. These schools and colleges make indispensable contributions to the state and, with the rest of the university, share a long tradition of educating undergraduate and graduate students towards achieving an excellence that well serves the state, the region, and the nation.

Board of Regents
February 1981; revised February 1998



President's Message

A university is a community of scholars and artists, a place where faculty and students communicate with each other to enrich human understanding. Universities have played an essential role in societies for hundreds of years, promoting learning and culture, generating new knowledge, and training professionals in specialized callings. The University of Washington is one of the finest universities in the world.

It is also an exciting place to be, with a lively interplay of teaching, research, and public service. Its contributions to the state, the nation, and the world will continue to grow as we face the challenges of the twenty-first century.

Richard L. McCormick
Richard L. McCormick, President

ACADEMIC CALENDAR

2000-2001

Summer Quarter 2000

Full-term and term a classes begin June 19
Independence Day holiday July 4
Term a classes end July 19
Term b classes begin July 20
Full-term and term b classes end ... August 18

Autumn Quarter 2000

Classes begin September 25
Veterans Day holiday November 11
Thanksgiving recess November 23, 24
Last day of instruction December 6
Final examinations December 7-14

Winter Quarter 2001

Classes begin January 2
Martin Luther King, Jr.'s
Birthday holiday January 15
Presidents Day holiday February 19
Last day of instruction March 9
Final examinations March 12-16

Spring Quarter 2001

Classes begin March 26
Memorial Day holiday May 28
Last day of instruction June 1
Final examinations June 4-8
Commencement June 9

2001-2002

Summer Quarter 2001

Full-term and term a classes begin June 18
Independence Day holiday July 4
Term a classes end July 18
Term b classes begin July 19
Full-term and term b classes end ... August 17

Autumn Quarter 2001

Classes begin October 1
Veterans Day holiday November 11
Thanksgiving recess November 22, 23
Last day of instruction December 12
Final examinations December 13-20

Winter Quarter 2002

Classes begin January 7
Martin Luther King, Jr.'s
Birthday holiday January 21
Presidents Day holiday February 18
Last day of instruction March 15
Final examinations March 18-22

Spring Quarter 2002

Classes begin April 1
Memorial Day holiday May 27
Last day of instruction June 7
Final examinations June 10-14
Commencement June 15

For directory assistance, call the University switchboard, (206) 543-2100.

Address correspondence to:

University of Washington
(Name of office and box number)
Seattle, Washington 98195



The University of Washington reaffirms its policy of equal opportunity regardless of race, color, creed, religion, national origin, sex, sexual orientation, age, marital status, disability, or status as a disabled veteran or Vietnam era veteran. This policy applies to all programs and facilities including, but not limited to, admissions, educational programs, employment, and patient and hospital services.

Any discriminatory action can be a cause for disciplinary action. Discrimination is prohibited by Presidential Executive Order 11246 as amended; Washington State Governorial Executive Orders 89-01 and 93-07; Titles VI and VII of the Civil Rights Act of 1964; Washington State Law Against Discrimination RCW 49.60; Title IX of the Education Amendments of 1972; State of Washington Gender Equity in Higher Education Act of 1989; Sections 503 and 504 of the Rehabilitation Act of 1973; Americans with Disabilities Act of 1990; Age Discrimination in Employment Act of 1967 as amended; Age Discrimination Act of 1975; Vietnam Era Veterans' Readjustment Act of 1972 as amended; other federal and state statutes, regulations; and University policy. Coordination of the compliance efforts of the University of Washington with respect to all of these laws and regulations is under the direction of the Assistant Provost for Equal Opportunity, Dr. Helen Remick, University of Washington, Equal Opportunity Office, Box 354560, 4045 Brooklyn Avenue Northeast, Seattle, WA 98195, (206) 685-3263/V or 543-6452/TTY.

Additional information concerning the equal opportunity and affirmative action policies and procedures, including complaint procedures, is in the Operations Manual, D46.1, D46.2, D46.3, and D46.4, and the UW Handbook, Vol. IV, p. 44.



Dates in this calendar are subject to change without notice. A detailed calendar with the latest information on registration is printed in each issue of the quarterly Time Schedule and can be found online at www.washington.edu/students/reg/calendar.html

Information on reasonable accommodation for students with disabilities is available from the following offices: for classroom and academic-related accommodation, call Disabled Student Services, (206) 543-8924/V, (206) 543-8925/TTY, or email at uwdss@u.washington.edu; for other non-academic related information and accommodation, call Disability Services Office, (206) 543-6450/V, (206) 543-6452/TTY, or email at access@u.washington.edu.

Copies may be purchased from the University Book Store, 4326 University Way Northeast, Seattle, Washington 98105, (206) 634-3400.

Because curriculum revisions and program changes usually occur during the two-year period the *General Catalog* is in circulation, students should assume the responsibility of consulting the appropriate academic unit or adviser for more current or specific information. The *General Catalog* is updated regularly at the University's Web site (www.washington.edu). The quarterly *Time Schedule* (www.washington.edu/students/timeschd) gives information on courses offered, class hours, and classroom locations, and has the latest calendar dates, fees, and details on registration.

All announcements in the *General Catalog* are subject to change without notice and do not constitute an agreement between the University of Washington and the student.

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Dean and Vice Provost

Frederick L. Campbell
220 Mary Gates Hall

Undergraduate Gateway Center

171 Mary Gates Hall
 depts.washington.edu/mgh171

Academic Counseling and New Student Orientation

Undergraduate Advising

 www.washington.edu/students/ugrad/advising/advuac.html

Students who do not make a definite choice of major when entering the University are designated premajor students. An adviser in the Undergraduate Advising Center will assist them in designing a program of studies to meet general requirements and will provide them information about possible major fields. The Undergraduate Advising Center also provides the following: assistance in exploring academic options; information about degree programs; pre-professional advising for such areas as medicine, dentistry, and law; options for students on academic probation; preliminary career counseling; a wide range of information on registration, course offerings, degree requirements, and administrative procedure.

dures. Premajor students are expected to select a major by the time they have earned 105 credits. Transfer to a department major from premajor status sometimes requires completion of prerequisite courses, attainment of a minimum specified GPA, or selection by the department from among a group of prospective majors.

New Student Orientation

Orientation is the opportunity to get ready for life at the University of Washington before classes actually begin. Along with their new classmates, incoming students come onto campus for one or two days and are introduced to campus life by student orientation leaders. Students have found that orientation offers them the opportunity to hear firsthand about the experiences of current students at the UW, as well as about strategies to help them make the most of their college experience. In addition, students register for classes, hear about different majors, make connections with other students, and begin to explore the wealth of campus resources and opportunities available at such a large institution.

Transfer and Returning Student Interest Groups

Transfer and Returning Student Interest Groups (TRIGs) create small learning communities to help incoming students navigate the University. Each TRIG brings transfer and returning students with similar interests together to enroll in one or two academic courses in common, along with a small 1-credit seminar, which is led by an experienced UW undergraduate. TRIGs are available for students who have chosen a major as well as for students who have yet to decide on a major.

UW Link

New undergraduate students entering the University of Washington have the opportunity to have a direct email link to the UW through the UW Link program. As new students create their email accounts, they are assigned to their "UW Link," an email address that connects them with a staff person within the Office of Undergraduate Education. The goal is for students to use this service to ask questions and voice concerns about issues of importance to them, and in return receive information and help specific to their situation, the end result being a personal, easy, and reliable connection to the UW.



Edward E. Carlson Leadership and Public Service Center

Director

Michaelann Jundt

Service Learning



www.washington.edu/students/carlson/

The Carlson Leadership and Public Service Center coordinates service and service-learning programs that enable students to volunteer with community-based organizations to address a broad range of issues as part of their course work. Students engage in direct service, research, educational outreach, the arts, advocacy and activism, and technological support.

Freshman Interest Groups

Freshman Interest Groups (FIGs) make the University smaller and less imposing by providing incoming freshmen a chance to meet, discuss, and study with other freshmen who have similar interests. The program is offered only autumn quarter of a student's freshman year.

Each FIG consists of 20 to 24 students who share a cluster of two or three courses organized around a common theme, such as engineering, international relations, or the ancient world. In addition to sharing these classes, students in each FIG attend a weekly class led by an undergraduate peer instructor. These weekly meetings create a learning community, introducing students to campus resources, computing and technology, and social issues encountered by new students. Of equal importance, FIGs help with adjustment to college by providing a support group of other freshmen as well as a resource in the knowledge and experience of a peer instructor.

Freshman Seminars

A Freshman Seminar is a 1-credit course taught by a senior UW faculty member. The seminar topics cover a vast range of disciplines and are based on each faculty member's area of research or specialty study. The course's limited enrollment of only 12 to 15 students gives freshmen the opportunity to participate in a small, discussion-oriented class. This allows first-year students the opportunity to make connections with faculty early in their college careers and to explore topics of interest in a casual environment. Students can enroll in a Freshman Seminar every quarter of their freshman year.

Internships

The internship Program provides students with information about local, national, and international internships; how to obtain an internship; and how to arrange academic credit by working with a faculty mentor.

The Pipeline Project

Director

Christine Stickler

The Pipeline Program links undergraduate students with educational and service opportunities with the Seattle Public Schools. Options include volunteer service, service learning placements, and educational seminars.

Undergraduate Research

Director of Experiential Learning

Janice DeCosmo

Undergraduate Research Program

A collaborative effort of the UW Office of Research and Undergraduate Education, the Undergraduate Research Program maintains a listing of faculty research projects open to undergraduate students. Students have the option to enroll for credit.

NASA Space Grant Program

The Washington NASA Space Grant Consortium provides education and research opportunities to Washington citizens related to NASA's missions on Earth and in space. Space Grant programs include college and university scholarships, graduate fellowships, research opportunities, teaching resources, public programs and more, offered through a network of affiliate institutions around the state. At the UW, Space Grant undergraduate scholars and researchers benefit from financial assistance, faculty mentors, and research opportunities on campus and at NASA centers.



Merit Awards for Students

Scholarship Program



www.washington.edu/students/ugrad/scholar/uso/

The Undergraduate Scholarship Program provides information to current UW undergraduates about various merit-based scholarships. Services include quarterly newsletters, scholarship workshops, and applications and information.

Mary Gates Endowment for Students

The Office of Undergraduate Education administers the Mary Gates Endowment for Students research-training grant and leadership grant competitions. These grants are designed to support the education of students involved in faculty research and a wide variety of leadership activities on campus and in the community.

University Honors Program

211 Mary Gates Hall

Director

Ana Mari Cauce

Associate Director

Randolph Y. Hennes



depts.washington.edu/uwhonors/

The four-year Honors Program features special counseling, honors courses, honors sections of regular courses, faculty/student colloquia, and opportunities for independent study. It provides expanded opportunities for undergraduate education to those students who show exceptional intellectual promise.

Admission Requirements: To be considered for admission to the University Honors Program at entrance, students must apply during their final high school semester to the Director of Honors. Selection is based on high school records, test scores, and recommendations from the secondary school. Students also may seek admission based on superior academic performance during their freshman year at the University.

Graduation Requirements: The University Honors curriculum consists of two parts: a general-education component and a component in the student's major department. The general education component, which satisfies Areas of Knowledge requirements, consists of three sequences of courses, each lasting three quarters. One of these sequences is taken in Western Civilization, one in World Civilization, and one in the Natural Sciences. Each sequence carries 15 credits total. In addition, students complete 4 additional credits of honors seminars.



Program on Africa

Director

Lucy Jarosz

Program on the Environment

Directors

John M. Palka
John M. Wallace

Undergraduate Majors



www.washington.edu/students/ugrad/advising/majmenu.html

To graduate from the UW, students must complete one of the majors listed below. In many cases, the student need not make a final choice until the beginning of the junior year, although programs with considerable mathematics and science (e.g., engineering and premedicine) include lock-step requirements that must be started early on if the student expects to finish in four years.

Students can enter some majors directly (e.g., those in Ocean and Fishery Sciences, most in Forest Resources, and some in Arts and Sciences), but most students start out as premajors. As premajors, they take courses to fulfill general requirements and admission requirements for the major. Many majors require one or two years of pre-admission course work, although a few require more. Admission to many majors is competitive, which means students may not be accepted even if they complete all the prerequisite course work, depending on their grades and other factors.

The *General Catalog* shows requirements for all majors, but students should see an adviser to ask about changes, course sequences, or new options.

Satisfactory Progress



www.washington.edu/students/reg/satprog.html

Students admitted to the University to pursue baccalaureate degrees are expected to make satisfactory progress toward the attainment of the degree and are expected to enter a major and to graduate after completion of a reasonable number of credits.

By the time undergraduate students have completed 105 credits, they must either be accepted in their major or have their premajor status extended temporarily by an adviser. Extensions are normally granted only to students who are in the final phases of completing admission requirements for a major to which they have a reasonable chance of acceptance.

Students who do not either declare a major or have their premajor status extended by the time they have earned 105 credits will have a "hold" placed against registration for the following quarter.

Students must normally graduate with their first baccalaureate degree by the time they have completed 30 credits beyond the credits required for the first degree or concurrent degrees. Departmental advisers may grant extensions beyond the 30-credit limit.

Postbaccalaureate students are expected to be either preparing for admission into a degree program, seeking an additional baccalaureate degree, or working toward a certificate. Students admitted as "postbaccalaureate undeclared" must declare a major by the time they have earned 30 credits beyond their last degree, and once a degree objective has been declared, must make progress toward that degree as evidenced by the courses they have completed satisfactorily. Advisers may grant extensions beyond the 30-credit limit.

The Committee on Admissions and Academic Standards may terminate a student's enrollment if the student demonstrates lack of academic progress as evidenced by excessive course repeats, course drops, or University withdrawals and cancellations. The student may be reinstated with the approval of the student's college and the committee. EOP students may be reinstated in consultation with the Office of Minority Affairs.

The second component begins when a student, usually by the junior year, is accepted into a department that offers an honors curriculum. Such a student is graduated "With College Honors" in the appropriate discipline. A student who is not a member of the University Honors Program but who demonstrates superior abilities in a particular field of study may, at the invitation of that department, participate in a departmental honors curriculum and receive a degree "With Distinction" in the major field.

An honors degree can be earned through the following departments and programs within the College of Arts and Sciences: Anthropology; Art History; Asian Languages and Literature; Atmospheric Sciences; Biochemistry; Biology; Botany; Chemistry; Classics; Comparative History of Ideas; Comparative Literature; Comparative Religion; Computer Science; Economics; English; General Studies; Geography; Geological Sciences; Germanics; History; Jackson School of International Studies; Linguistics; Mathematics; Microbiology; Music; Near Eastern Languages and Civilization; Neurobiology; Philosophy; Physics; Political Science; Psychology; Romance Languages and Literature; Russian, East European, and Central Asian Studies; Scandinavian Studies; Slavic Languages and Literatures; Sociology; Speech and Hearing Sciences; Speech Communication; Women Studies; Zoology.

An honors degree may also be earned through the College of Engineering.

By special arrangement, it is possible for students to complete a degree "With College Honors" in departments not offering a formal honors option.

Intercollege Programs

The following programs, described in detail in other sections of the catalog, are administered by the Office of Undergraduate Education.

General Studies

171 Mary Gates Hall

Director

Lindsay Michimoto

General Studies provides students an opportunity to obtain an interdisciplinary degree. Students may pursue an individually designed "atypical major" or one of several organized interdisciplinary programs. Requirements for the Bachelor of Arts or Bachelor of Science degree are shown in the Arts and Sciences section of this catalog.

Also offered under General Studies are the following: freshman seminars (GEN ST 197); independent fieldwork (GEN ST 350); supervised study (GEN ST 391); courses for students participating in special programs (GEN ST 199 and 470); and a general studies Evening Degree program through UW Extension with options in the humanities and social sciences.

Center for Quantitative Science

Director

B. Bruce Bare

Undergraduate Majors by College and School

College of Architecture and Urban Planning

Architectural Studies‡
 Construction Management‡
 Community and Environmental Planning‡
 Landscape Architecture‡

College of Arts and Sciences

American Ethnic Studies
 African-American Studies
 Asian American Studies
 Chicano Studies
 American Indian Studies*
 Anthropology
 Applied and Computational Mathematical Sciences‡
 Art‡
 Interdisciplinary Visual Arts‡
 Studio Art‡
 Ceramics‡
 Fibers‡
 Industrial Design‡
 Metals‡
 Painting‡
 Photography‡
 Printmaking‡
 Sculpture‡
 Visual Communication Design‡
 Art History‡
 Asian Languages and Literature‡
 Chinese‡
 Japanese‡
 Korean‡
 South Asian Languages (Hindi, Sanskrit, Tibetan)‡
 Asian Studies (options include China, Japan, Korea, South Asia, Southeast Asia, and general studies)
 Astronomy
 Atmospheric Sciences‡
 Biochemistry
 Biology‡
 Cell and Molecular Biology‡
 Ecology, Evolution, and Conservation Biology‡
 Botany
 Canadian Studies
 Chemistry
 Cinema Studies‡
 Classics
 Classical Studies
 Classics
 Greek
 Latin
 Communications‡
 General Communications (Media Studies)‡
 Journalism‡
 Comparative History of Ideas
 Comparative Literature
 Comparative Religion (Religious Studies)
 Computer Science‡
 Dance‡
 Drama‡
 Economics‡
 English‡
 Environmental Studies*‡
 Ethnomusicology*‡
 European Studies
 French

General Studies (interdisciplinary, student-designed)‡
 Geography
 Geological Sciences
 Germanics
 German Language and Literature
 German Area Studies
 History‡
 History‡
 History and Science‡
 International Studies‡
 Italian
 Jewish Studies
 Latin American Studies
 Linguistics‡
 Romance Linguistics‡
 Mathematics‡
 Microbiology‡
 Music‡
 Near Eastern Languages and Civilization
 Arabic
 Hebrew
 Near Eastern Civilization
 Persian
 Turkic
 Turkish
 Neurobiology‡
 Philosophy‡
 Physics
 Political Science‡
 Psychology‡
 Religious Studies (Comparative Religion)
 Russian, East European, and Central Asian Studies
 Scandinavian Studies
 Danish
 Norwegian
 Scandinavian Area Studies
 Swedish
 Slavic Languages and Literatures
 East European Languages and Culture
 Russian Language and History
 Russian Language, Literature, and Culture
 Society and Justice‡
 Sociology‡
 Spanish‡
 Speech and Hearing Sciences‡
 Speech Communication‡
 Statistics‡
 Women Studies
 Zoology‡

School of Business Administration

Accounting Option‡
 Business Administration‡
 Certificate of International Studies in Business‡
 Information Systems Option‡

School of Dentistry

Dental Hygiene (completion program only)‡

College of Education

Requires completion of a bachelor's degree before entry as a graduate student into the Teacher Certification Program in elementary or secondary education‡

College of Engineering

Aeronautics and Astronautics‡
 Chemical Engineering‡
 Civil Engineering‡



Computer Engineering‡
 Electrical Engineering‡
 Industrial Engineering‡
 Materials Science and Engineering‡
 Ceramic Engineering‡
 Metallurgical Engineering‡
 Mechanical Engineering‡
 Technical Communication‡

College of Forest Resources

Conservation of Wildland Resources
 Environmental Horticulture and Urban Forestry
 Forest Engineering‡
 Forest Resources Management
 Paper Science and Engineering
 Wildlife Science

School of Library and Information Science

Informatics

School of Medicine

Clinical Health Services (MEDEX Program)‡
 Laboratory Medicine‡
 Medical Technology‡
 Rehabilitation Medicine‡
 Prosthetics and Orthotics‡

School of Nursing

Nursing‡

College of Ocean and Fishery Sciences

Fisheries
 Oceanography

School of Public Health and Community Medicine

Environmental Health‡

School of Social Work

Social Welfare‡

* Offered through General Studies

† Offered through Comparative Literature

‡ Major has selective admission based on such factors as number of credits earned, prerequisite courses completed, and GPA

Undergraduate Minors

Undergraduate students have the option of completing a minor. Minors require the completion of at least 25 credits, 15 of which must be taken in residence at the UW. There are no departmental admission requirements for minors. Students may declare an approved minor when they have earned 90 credits or more. A cumulative GPA of 2.00 is required for courses within the minor. Some departments do not offer minors. Requirements for minors established as of spring 2000 are shown in the academic programs section of this catalog. A list of currently offered minors is available at the Undergraduate Advising Center, 171 Mary Gates Hall.

Undergraduate Degrees

The UW grants the following degrees upon satisfactory completion of appropriate programs of study in the departments, schools, and colleges:

Bachelor of Arts	B.A.
Bachelor of Arts in Business Administration	B.A.B.A.
Bachelor of Clinical Health Services	B.C.H.S.
Bachelor of Fine Arts	B.F.A.
Bachelor of Landscape Architecture	B.L.Arch.
Bachelor of Music	B.Mus.
Bachelor of Science	B.S.
Bachelor of Science in Aeronautical and Astronautical Engineering	B.S.A.&A.
Bachelor of Science in Ceramic Engineering	B.S.Cer.E.
Bachelor of Science in Chemical Engineering	B.S.Ch.E.
Bachelor of Science in Civil Engineering	B.S.C.E.
Bachelor of Science in Computer Engineering	B.S.Comp.E.
Bachelor of Science in Construction Management	B.S.C.M.
Bachelor of Science in Electrical Engineering	B.S.E.E.
Bachelor of Science in Engineering	B.S.E.
Bachelor of Science in Fisheries	B.S.Fish.
Bachelor of Science in Forest Resources	B.S.F.
Bachelor of Science in Industrial Engineering	B.S.I.E.
Bachelor of Science in Mechanical Engineering	B.S.M.E.
Bachelor of Science in Medical Technology	B.S.Med.Tech.
Bachelor of Science in Metallurgical Engineering	B.S.Met.E.
Bachelor of Science in Nursing	B.S.Nurs.
Bachelor of Science in Technical Communication	B.S.T.C.

Admission



www.washington.edu/students/uga/

Street address: 320 Schmitz Hall, 1410 NE Campus Parkway. Hours: M-F, 8-5
Postal address: UW, Office of Admissions, Box 355840, Seattle, WA 98195-5840
(206) 543-9686
askuwadm@u.washington.edu.

Applications are available on the Admissions Web site, by email, or by phone at (206) 543-5150, 24 hours a day.

Application closing dates:

Freshmen, see page 15

Transfer students, see page 17

International students, see page 18

Postbaccalaureate students, see page 19

Application fee is \$35.

The Office of Admissions provides the following services:

- admission applications and departmental information for all categories of undergraduate applicants;
- admission counseling by appointment, telephone, postal and electronic mail for prospective undergraduates—freshmen, transfers, and postbaccalaureates, both U.S. and international—and their families;
- information sessions for prospective freshmen, on-campus events and programs such as campus tours, Student Visitation Program, Honor Student Invitational, Minority Scholar Invitational, and Plan-A-Transfer Day;
- outreach programs such as college fairs, diversity outreach, and visits to schools and colleges;
- transfer credit evaluation for admitted and enrolled students, including those participating in dual-credit programs such as Running Start and college-in-the-high-school (see Freshman Admission section below);
- application processing for applicants for nonmatriculated status during Summer Quarter (see Educational Outreach section of this catalog).

To request disability accommodation in the application process, contact the Office of Admissions at (206) 543-9686 (voice) or 1-800-833-6388 (Washington State Relay Service TDD).

Campus Visits



www.washington.edu/students/uga/experience.html

Students and their parents are encouraged to call, write, or visit the campus. Free campus tours are available without reservations every weekday, except holidays. Tours leave 320 Schmitz Hall at 2:30 p.m. Additionally, the Office of Admissions Student Visitation Program offers prospective freshmen and transfer students the opportunity to be a student for a day, stay overnight in a residence hall with a student host, meet with an admissions counselor, and take a guided tour of the campus. Contact the Student Visitation Program at least four weeks in advance for further details; (206) 543-5429; visituw@u.washington.edu.

Freshman Admission



www.washington.edu/students/uga/fr/

A freshman applicant is one who has not attempted college course work *after leaving high school*. This classification includes participants in the Washington State Running Start Program who will graduate from high school before enrolling at the UW.

Information Sessions

Freshman information sessions, offered to prospective freshmen and their families, consist of a presentation by an Admissions staff member, followed by questions and discussion. They take place every Friday (except holidays) at 1:30 p.m. in the Office of Admissions, 320 Schmitz Hall. Reservations are not required.

Admission Policy

Admission to the University of Washington is competitive, which means that there are more applicants who meet the minimum qualifications than the University can accommodate. Applicants are evaluated and ranked on their completion of core subject requirements, their grades and test scores, and supplemental factors.

The University's policy is to offer admission to those applicants who are most able to benefit from and contribute to the University's educational resources. In selecting the freshman class, the University does not make its admission decisions solely on the basis of academic performance. Important academic objectives are furthered by classes composed of students having talents and skills derived from diverse backgrounds.

Factors that indicate this diversity include, but are not limited to: ethnic or cultural awareness; activities or accomplishments; educational goals; living experiences, such as growing up in an unusual or disadvantaged environment; and special talents. The list is not exhaustive, and the factors are not of equal weight; moreover, no single factor is sufficient to confer admission. Furthermore, no factor will confer admission on an academically unqualified applicant.

Freshman Profile

Autumn Quarter 1999	
Admission Applications Received	12,785
Students Offered Admission	9,817
<i>Admitted = 76.8%</i>	
Freshmen Enrolled	4,515
<i>Yield = 46.0%</i>	

Freshman Class Profile

Minority Students	30.4%
Asian American	24.8%
Black/African American	1.8%
Hispanic	2.9%
Native American	0.9%
Caucasian	54.0%
Other / Not Reporting	14.4%
International Students	1.2%
Washington Residents	84.6%
Out-of-State	15.4%
Women	51.5%
Men	48.5%
Received Financial Aid or non-need based aid from the UW	37.9%

High School Achievement

Mean High School GPA	3.63
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Test Scores	<i>Middle 50% Range</i>
SAT Verbal	510 - 630
SAT Math	530 - 650
ACT Composite	22 - 27

Rank in Class

39% in top 10% of high school graduating class
76% in top 25% of high school graduating class
97% in top half of high school graduating class

Graduation

In the class of 1992, 37% of UW freshmen graduated in 4 years, 64% in 5 years, and 71% in 6 years.

Retention

90% of UW freshmen return for the sophomore year.

Average Class Size

All undergraduate classes	35
Freshman/sophomore classes	40
Junior/senior classes	29

Core Subject Requirements



www.washington.edu/students/uga/subreqs.html

In order to ensure that students entering the University have an appreciation for the liberal arts and are adequately prepared to succeed in their college career, the UW faculty has determined that all freshman and transfer applicants must complete a minimum level of preparation in six academic subjects. These requirements are known as the *core subject requirements*. The table on page 13 summarizes the number of years of study required in each core subject.

Almost all successful applicants will have satisfied these requirements through high school course work, which is generally defined as course work completed in grades 9-12. Because these are *admission*—not graduation—requirements, they must be completed before enrolling at the UW.

High School Core Subject Requirements

If taken in high school:

If made up through college course work:*

ENGLISH

4

Four years of study are required, at least three of which must be in composition and literature. *One* of the four years may be satisfied by courses in drama as literature, public speaking, debate, journalistic writing, business English, or English as a Second Language (ESL). (English courses taken in foreign countries are considered ESL, except those taken in Australia, Canada, Ireland, New Zealand, and the United Kingdom.) Courses that are generally *not* acceptable include those identified as remedial or applied (e.g., acting, basic English skills, developmental reading, library, newspaper staff, remedial English, review English, vocabulary, yearbook/annual).

For the composition/literature component, generally any course with an English or Writing prefix is acceptable. (However, courses such as developmental or speed reading, vocabulary, or remedial English are not acceptable.) *One* of the four years may be satisfied by a college course in speech, drama as literature, journalistic writing, business English, ESL, or engineering/technical writing.

MATHEMATICS

3

Three years of mathematics study are required, at the minimum level of algebra, geometry, and advanced (second-year) algebra. (Preferably, the second year of algebra included a component of introductory trigonometry, but this is not mandatory.) More advanced mathematics courses are recommended, such as trigonometry, mathematical analysis, elementary functions, and calculus. Arithmetic, pre-algebra, business mathematics, and statistics courses will not count toward the requirement. An algebra course taken in the eighth grade may satisfy one year of the requirement if second-year algebra is completed in high school.

If your high school preparation in mathematics was insufficient, you must complete one of the courses listed below:

- A course in intermediate algebra. At UW Educational Outreach, as well as at many community colleges in Washington, MATH 098 (formerly 101) is the necessary course. The course must be completed with a grade of "C" (2.0) or better, *even though it does not transfer to the UW as college credit and the grade earned in the course is not used in computing the transfer GPA.*
- A course in trigonometry or its equivalent. The course must be completed with a grade of "C" (2.0) or better.
- MATH 107 (Mathematics: A Practical Art) or its equivalent. The course must be completed with a grade of "C" (2.0) or better.
- Mathematics courses with intermediate algebra as a prerequisite (except statistics courses). This includes any higher-level math course such as elementary functions, calculus, and beyond.

SOCIAL SCIENCE

3

Three years of study are required in history or in any of the social sciences, e.g., anthropology, contemporary world problems, economics, geography, government, political science, psychology, sociology. Credit awarded for student government, leadership, community service, or other applied or activity courses will not count toward the requirement.

Courses in the social sciences—e.g., anthropology, economics, ethnic studies, history, philosophy, political science, psychology, sociology—will count toward the requirement.

FOREIGN LANGUAGE

2

Two years of study are required, so that the applicant completes the second full year of study in a single foreign language. The two years must be in sequence, with no repetition of any prior term of study. Any natural language that has been formally studied may be used to satisfy this requirement, including American Sign Language (ASL, the language of the deaf community), and languages no longer spoken, such as Latin and ancient Greek. However, neither computer "languages" nor forms of deaf signing aside from ASL are acceptable. A foreign-language course taken in the eighth grade may satisfy one year of the requirement if the second-year course is completed in high school.

For admission, each quarter of language in college is considered equivalent to one year in high school. Applicants who have never studied a foreign language will need to complete **10** quarter credits (two terms) of a single foreign language. However, an applicant who studied French for one year in high school needs to complete only the second quarter (e.g., FRENCH 102) or the second semester of a first-year language sequence. Of course, a student may prefer to begin with 101 to refresh his/her memory.

The foreign-language admission requirement will be considered satisfied for students from non-English-speaking countries who entered the United States educational system at the eighth grade or later. Applicants who believe they have acquired sufficient knowledge of a foreign language without formal study should contact the Office of Admissions to arrange for an examination.

Applicants who have a documented disability that would interfere significantly with the study of a foreign language may petition to substitute course work about a foreign culture for the language requirement. ASL course work as well as proven proficiency with this language are accepted by the UW as meeting foreign-language requirements. Consult with an Admissions counselor for further information.

SCIENCE

2

Two years of science are required, of which one full year—both semesters in the same field—must be completed in the basic principles of biology, chemistry, or physics, with a laboratory experience. The second year of science may be completed in any course that satisfies the high school's graduation requirement in science. Two years of agricultural science are equivalent to one year of science.

College science courses with a lab will count toward the laboratory science portion of the requirement. Any course in astronomy, atmospheric science, biological structure, biology, botany, chemistry, environmental science (but not environmental studies), genetics, geology, oceanography, physical anthropology, physical geography, physics, or zoology will count toward the second-year requirement, as will introductory courses in biological or physical science.

THE ARTS

1/2

One-half year or one trimester of study is required in the fine, visual, or performing arts, to be chosen from art appreciation, band, ceramics, choir, dance, dramatic performance and production, drawing, fiber arts, graphic arts, metal design, music appreciation, music theory, orchestra, painting, photography, print making, and sculpture. Courses generally not acceptable include architecture, color guard, creative writing, drafting, drill team, fashion design, interior design, sewing, speech, woodworking, and yearbook.

Two quarter credits (2 semester credits) chosen from any of the following subjects will satisfy the requirement: art, art history, cinema/filmmaking, dance, music, and photography; any course in drama except drama-as-literature courses. Courses in architecture are generally not acceptable, except for those in architectural history.

ACADEMIC ELECTIVES

1/2

Electives are courses in the six subject areas (defined above) in which you have completed more than the minimum number of years.

One-half year of study is required, to be chosen from the six subject areas defined above.

Two quarter credits or 1.5 semester credits chosen from the six subject areas described above count toward this requirement.

*In general, 5 quarter credits (or 3 semester credits) at the college level count as the equivalent of one year of high school study.

For applicants whose high school preparation is insufficient in *any* subject, there are several ways to satisfy a core requirement before enrolling at the University. In general, 5 quarter credits (or 3 semester credits) of college-level course work at a college or university count as the equivalent of one year of high school study. Applicants should contact Admissions if they have taken or are planning to take a course in high school that is not mentioned here but may satisfy one of the core subject requirements.

Grading Requirements

For any core subject taken in high school, a passing grade, including a D, is acceptable. Also acceptable is a grade of Pass in a course taken on a Pass/Not Pass basis. See *Mathematics* entry in the table for additional grading requirements.

Academic Performance

The applicant's academic performance, as measured by grades and test scores, is a major factor in the admission decision. No student with a cumulative high-school grade-point average (GPA) below 2.00 will be considered for admission.

Admission Index

The number of qualified applicants exceeds the number of spaces available for new students at the UW. To determine an applicant's competitive standing for admission, the UW uses a statewide system for Washington public universities. This system, based on a student's probability for academic success, determines competitive standing by calculating an Admission Index (AI) for each student. The AI is based on two factors—GPA and test scores—with GPA being the predominant factor. The Index ranges from a low of 0 to a high of 100. The state-mandated minimum to qualify for consideration to the UW is a 28 AI.

An *unweighted* GPA based on a 4.00 scale is calculated for every applicant.

Test Scores

Applicants for freshman admission are required to submit scores from one of the following tests:

- Scholastic Assessment Test (SAT I)
- American College Test (ACT)

If an applicant submits more than one set of scores from the same test, or scores from different tests, the highest combined score from a single test date will be used. In other words, the best mathematics score from one test date will not be combined with the best verbal score from another test date.

Freshman Admission Review

Applicants not selected solely on the basis of the Admission Index receive a comprehensive review. The remainder of the freshman class is selected after this review. Both academic and personal elements are considered at this time. While commitment to intellectual development and academic progress continues to be of primary importance, the Personal Statement forms an integral part of this review. (Complete instructions for writing the Personal Statement are included with the application for admission.)



The following are the primary elements considered in the Freshman Review:

- completion of a substantial number of academic courses beyond the required minimum, particularly courses at advanced levels, such as four years of foreign language and mathematics through calculus;
- senior year curriculum, i.e., the number and level of core courses;
- enrollment in Advanced Placement, International Baccalaureate, or honors courses;
- enrollment in college and university courses;
- academic awards;
- school and community activities;
- educational and economic disadvantage, cultural awareness, and personal adversity;
- grade trends;
- persistent evidence of an unusually competitive grading system in the high school; and
- documented evidence of exceptional artistic talent.

Participants in Dual Credit Programs: Running Start Program and College-in-the-High-School

The *Running Start Program* allows 11th- and 12th-grade students to enroll in certain colleges for college credit. *College-in-the-high-school*, which may go under names such as dual enrollment or dual credit, allows high school students to take college courses at their local high school and receive college credit. Students who matriculate (enroll to earn a degree) at another college or university after leaving high school are not considered freshman applicants.

Admission Policy

Running Start applicants are evaluated for admission on the basis of high school and college grades, admission test scores, and supplemental materials.

- They must satisfy UW core subject requirements for admission by completing the appropriate high school or college courses. See page 13 for a complete discussion of these requirements.
- Whether high school or college grades weigh more heavily in the admission decision depends on the number of transferable credits completed and on file in the Admissions Office by the application closing date (January 15 for autumn quarter). If a significant number of transferable college credits are on file—75 or more—the college grades are more likely to have the greater impact on the admission decision.

Application Procedures

- Use the freshman application; it contains important instructions you will need to complete your application file properly.
- Apply by the January 15 freshman application closing date for summer (degree status) or autumn, *regardless of the number of college credits you have taken or will have taken*.

Recommendations for Academic Planning

Running Start students will benefit from recognizing this tension: in many aspects of the admission and transfer process, they are considered as high school applicants while in other ways they are treated as transfer students. As much as the University would like to simplify this process, it probably can't! In particular, applicants who have completed a significant number of college credits are well advised to begin to think about academic planning, so that they make the most of Running Start transfer credit. Many of the pages in *Transfer Admission & Planning*, especially the section on academic planning, will be helpful.

- Keep in mind that you have established a college record. Grades you earn now could affect admission to your intended major.
- If you anticipate earning an associate degree through Running Start, you will be expected to declare a major at the end of your first quarter at the UW. See Satisfactory Progress Policy, page 9.

Transfer Credit Policy



www.washington.edu/students/#TRANSFER

The UW grants full transfer credit for dual-credit courses if they are college level, recorded on a college transcript, and satisfy UW transfer credit policies, as specified in the Academic Credit section of this catalog.

Scholarships

Students in dual-credit programs are eligible for consideration for freshman scholarships, no matter how many college credits they have or will have completed, as long as they graduate from high school before enrolling at the UW.

Filing an Application

An application form and detailed instructions on how to apply are included in the *Freshman Admission Packet*, available from the Office of Admissions. An online version of the application is available at www.washington.edu/students/uga/tr/.

Application Checklist for Freshman Applicants

A complete application file consists of:

- Application
- \$35 nonrefundable application fee
- Personal Statement
- Official high school transcript
- Official test scores from SAT I or ACT
- Two official transcripts from each college or university ever attended

Filing Dates

Quarter

Autumn
Winter
Spring
Summer (degree status)
Summer (non-degree status)

Closing Date

January 15
September 15
December 15
January 15
June 1

Transfer Admission



www.washington.edu/students/uga/tr/

In general, a transfer applicant is someone who has attempted college credit after leaving high school. Transfer applicants are urged to obtain a copy of *Transfer Admission & Planning* from the Office of Admissions.

University Admission Policy

Admission to the University of Washington is competitive, which means that there are more applicants who meet the minimum qualifications than the University can accommodate. Transfer applicants are evaluated and ranked on their completion of core subject requirements, their grades and test scores, and supplemental factors.

The University's policy is to offer admission to those applicants who are most able to benefit from and contribute to the University's educational resources. The University does not make its admission decisions solely on the basis of predicted academic performance. Important academic objectives are furthered by classes composed of students having talents and skills derived from diverse backgrounds.

Factors that contribute to this diversity include but are not limited to: cultural awareness; activities or accomplishments; educational background and goals; living experiences, such as growing up in an unusual or disadvantaged environment; and special talents. This list is not exhaustive, and the factors are not of equal weight; moreover, no single factor is sufficient to confer admission. Furthermore, no factor will confer admission on an academically unqualified applicant.

Personal Statement

All transfer applicants should submit a Personal Statement. Although technically not required of applicants qualifying for admission under the Direct Transfer Agreement, it is strongly recommended. Complete instructions for the Personal Statement are provided in *Transfer Admission & Planning*.

Pathways to Transfer Admission

All transfer students must satisfy the core subject requirements (described above under Freshman Admission and in the table on page 13). Next, the University will consider applicants for admission through one or more of three pathways:

- the *Direct Transfer Agreement* pathway, for applicants from Washington community colleges
- the *pathway for applicants to competitive professional programs* from Washington community colleges, and
- the *comprehensive review* pathway.

The Admissions staff, in reviewing applications, will do everything possible to find a successful pathway for each applicant; an applicant does not have to identify a pathway on the application. At the same time, applicants can maximize their chances of being admitted by becoming familiar with the criteria of each pathway and then working toward those that are most compatible with their situations (e.g., state residency, choice of major, GPA).

The three pathways are described below. Exceptions are discussed on page 19, Applicants Seeking Special Admission Through an Appeal.

The Direct Transfer Agreement Pathway for Transfers from Washington Community Colleges

The Direct Transfer Agreement is an admission policy for residents of the state attending Washington community colleges.

The Direct Transfer Agreement ensures admission only to premajor status in the College of Arts and Sciences but *does not* promise admission to any other school or college nor to any particular major or professional field of study within the University. (See page 22, Associate Degree Agreement with Washington Community Colleges.)

To qualify for admission under the Direct Transfer Agreement, an applicant must meet *all* of the following criteria:

- be classified as a resident of Washington State,
- transfer directly from a Washington community college,
- complete all core subject requirements by the time of *matriculation* at the UW (i.e., the point at which the student enrolls for the purpose of earning a degree),
- complete an approved academic associate degree at a Washington community college, and
- earn a Transfer GPA of at least 2.75 in all transferable academic course work at the time the first associate degree was completed and at the time of admission. *The GPA includes course work completed at all colleges attended.* (See page 17 for a detailed discussion of the Transfer GPA.)

Application Timeline

If an applicant plans to complete the associate degree after admission but before enrolling at the UW, only one quarter of course work may be in progress.

Example: An applicant expects to complete the associate degree in spring 2001 and intends to enroll at the UW autumn 2001. The applicant must submit transcripts through winter 2001.

Recommendation:

Step 1: In January 2001, submit application, high school transcript, and an *initial set* of college transcripts showing grades through autumn 2000. This will start an application file and give Admissions staff time to review the application.

Step 2: In late March or early April, ask the community college to send Admissions an *updated* transcript showing winter 2001 grades.

Maintaining DTA Eligibility

An applicant will *not* qualify for admission under the Direct Transfer Agreement if:

- after obtaining the associate degree, the applicant *matriculates* (enrolls in a degree-earning program) at a four-year institution,
- the applicant fails to complete the associate degree before matriculating at the UW,
- the Transfer GPA is below 2.75 at the time the associate degree is awarded, or
- after completing the associate degree, the applicant continues to enroll at a community college or enrolls at a four-year college or university as a nonmatriculated student, and the Transfer GPA drops below 2.75.



The Pathway for Applicants to Competitive Professional Programs from Washington Community Colleges

Some UW professional programs require a pattern of course work that differs markedly from that required for the associate degree. In such cases, transfer students may face difficult choices, especially when they have progressed as far as they can at the community college. In order to enable such students at Washington community colleges to transfer to the UW, the Office of Admissions assigns to these students the same admission priority it gives to associate degree holders.

Washington community college students who are state residents will be given priority for UW admission, in the same manner as that specified in the Direct Transfer Agreement, if they have:

- completed at least 90 credits,
- completed all core subject requirements,
- earned a Transfer GPA of 2.75 or higher from all colleges attended, and
- are admitted to professional programs with selective admission criteria (e.g., business, engineering, nursing).

This priority will be granted regardless of the applicant's Admission Index.

The Comprehensive Review Pathway

In the comprehensive review, the Admissions staff considers many factors, including grades, test scores, and supplemental academic and personal factors.

To determine an applicant's competitive standing for admission, the UW first assigns an Admission Index (AI) for each applicant. The AI is based on two factors—GPA and test scores—with GPA being the predominant factor. The Index ranges from a low of 0 to a high of 100.

A minimum cumulative GPA of 2.00 is required. Beyond that, however, *there is no one GPA that will guarantee admission, and in fact, to be competitive, applicants must present Transfer GPAs that are considerably higher.* See below, page 17, for a discussion of the Transfer GPA. Applicants needing more information are encouraged to contact Admissions for counseling.

The most competitive applicants are admitted based on their AIs. Remaining applicants are evaluated based on their AIs and a comprehensive review. The Personal Statement is a vital part of this review.

These academic and personal factors are considered in the comprehensive review:

- preparation for an academic program at the UW and potential to complete a UW degree in the major of choice;
- documented academic or artistic awards and achievements;
- evidence of a need to enroll at the UW;
- improved grades after an extended absence from college or evidence of a new maturity in approaching college work;
- cultural awareness (as reflected in the Personal Statement);
- community service, leadership, and work experience;
- educational and economic disadvantage and personal adversity (as reflected in the Personal Statement, family income, and educational background)

“How Does the UW Make Admission Decisions?”

Some universities require transfer students to complete a minimum number of credits before transferring. The UW has no such stipulation. However, as the table below demonstrates, the basis for the decision changes with the number of transferable college credits an applicant has completed.

This table attempts to answer four related questions:

1. At what point is my high school GPA no longer a factor in the admission decision?
2. Does Admissions need a high school transcript from every transfer applicant?
3. Does Admissions need test scores from every transfer applicant?
4. Will my chances for admission change if I complete additional transfer credits?

Credits Completed by Closing Date	Basis for Admission Decision
0–14 transferable ¹ quarter credits HS record	<ul style="list-style-type: none"> • Must complete core subject requirements. • Applicant must meet freshman admission criteria based on HS GPA, test scores, supplemental factors. • A minimum GPA of 2.00 for all transferable college course work is still required.
15–39 transferable ¹ quarter credits HS & College record	<ul style="list-style-type: none"> • Must complete core subject requirements. • Applicant's high school record must meet freshman admission criteria based on HS GPA, test scores, supplemental factors. • Applicant's college record must meet transfer admission criteria based on Transfer GPA, test scores, and supplemental factors (see above). High school and Transfer GPAs are not combined.
40–74 transferable ¹ quarter credits (40 credits must be completed and on file by the closing date, and 30 graded ²) College record	<ul style="list-style-type: none"> • Must complete core subject requirements. High school GPA is not considered, although a HS transcript should be submitted to verify completion of core subject requirements. • Applicant's college record must meet transfer admission criteria based on Transfer GPA, test scores, and supplemental factors (see above).
75 or more transferable ¹ quarter credits (60 credits must be completed and graded ²) College record	<ul style="list-style-type: none"> • Must complete core subject requirements. High school GPA is not considered, although the high school transcript must be submitted to verify completion of core subject requirements. • Applicant's college record must meet transfer admission criteria based on Transfer GPA, test scores, and supplemental factors (see above). • All applicants are urged to submit test scores: see page 17 for details. However, applicants with high Transfer GPAs may not need test scores to be admissible.
90 or more transferable ¹ credits from a Washington community college, with an A.A. or A.S. degree or admitted to competitive professional programs College record	<ul style="list-style-type: none"> • Must complete core subject requirements. High school GPA is not considered, although the high school transcript must be submitted to verify completion of core subject requirements. • Transfer GPA must meet 2.75 minimum. • A.A. holders: see Direct Transfer Agreement, page 15. • Applicants to competitive professional programs, see above.

¹ *Transferable quarter credits:* attempted for college-level academic courses at regionally accredited colleges and universities. Credits attempted but not successfully completed, i.e., those for which a grade of “F” was earned, will be included in the GPA calculation. *Quarter credits:* offered at institutions on a quarter system; 1 semester credit = 1.5 quarter credits.

Vocational-technical credit: The UW transfers up to 15 credits earned in vocational-technical/occupational programs only if they are included as part of a Washington community college academic associate degree. These credits will not be used in the calculation of the Transfer GPA.

² *Graded credits:* credits taken for a grade (not pass/fail or satisfactory/not satisfactory) in college-level academic courses at regionally accredited institutions. Credits earned in vocational-technical programs do not count as graded credit. (See Restrictions on Transfer Credit, p. 21 for a list of other courses not considered academic course work and therefore not included in the computation of graded credit.)

Test Scores

Applicants for transfer admission, except those qualifying under the Direct Transfer Agreement (DTA), are required to submit scores from one of the following tests:

- Scholastic Assessment Test (SAT or SAT I),
- American College Test (ACT), or
- Washington Pre-College Test (WPCT) if WPCT taken by June 1, 1989.

When students submit scores from more than one test or multiple scores from the same test, Admissions always uses the *highest combined score from a single test date*. The best mathematics score from one test date will not be combined with the best verbal score from another test date.

All transfer applicants, including those applying under the DTA, are urged to submit test scores. Because the minimum Admission Index (AI)—and therefore the minimum transfer GPA without test scores—varies from quarter to quarter, it is not possible to predict exactly what GPA will be needed for admission. Submitting test scores will *not* hinder someone's chances for gaining admission. However, neglecting to submit scores that may have been required or, if not required, could possibly have resulted in a higher AI, will definitely hurt an applicant's chances for admission.

Applicants often assume that test scores, like the high school transcript, are required only of freshman applicants. Although an admission decision can sometimes be made without scores, applicants should assume that they are, in fact, required. Even applicants expecting to qualify under the Direct Transfer Agreement may benefit from having test scores on file. *The bottom line is that submitting scores only ensures that an application will be complete; test scores will never work against an applicant.*

Institutional SAT I and ACT

The Office of Educational Assessment (OEA) offers a locally-scored Institutional SAT I and ACT for transfer applicants, either those who did not take an admission test while in high school or those who wish to improve their score. Space is limited, and students are urged to register early for the desired test date. The nonrefundable test fee is \$35.

- The OEA will not forward scores to other universities. The exam is only for admission to the UW.
- Students who expect to participate in intercollegiate athletics may not use the Institutional SAT I to qualify for eligibility. They must take the SAT I or ACT on a national testing date; contact OEA at (206) 543-1170, oea@u.washington.edu, or the test center nearest you for a schedule.

The Transfer GPA

This is how the UW computes the Transfer GPA, which is used in computing the GPA portion of the Admission Index and the cumulative GPA for Direct Transfer applicants.

- All transferable academic courses, from all regionally accredited colleges the student has attended, in which the student has received grades between 0.0 and 4.0 on a 4.0 grading scale. Within this grading scale, Admissions uses the grade assignments and repeat policy of the home institution. Although the UW uses a decimal scale for grading students in its own courses, transfer grades are not converted to a uniform decimal scale.
- All transferable academic credit from two-year colleges, even if the student has earned more than 90 transferable credits from two-year colleges. (See Transfer Credit, Notable Restrictions on Transfer Credit.)

The Office of Admissions does *not* include in the Transfer GPA:

- Courses considered to be below college level
- Math courses equivalent to MATH 098 (intermediate algebra)
- Certain religion courses that teach from a particular doctrinal perspective or that teach preparation for a ministry
- Developmental or remedial courses
- Courses in study skills
- Lower-division military-science courses
- English as a Second Language courses
- Vocational/technical courses
- Courses recorded with a grade of "Incomplete" (unless changed to "F" at home institution)

- Courses recorded with a grade of "Pass" or "Satisfactory"
- PE activity credits in excess of 3 quarter credits.

The Transfer GPA and Admission to Majors

The Transfer GPA is used only for *determining admissibility to the University*. Some undergraduate programs at the University, such as business administration or engineering, have selective admission policies. When they review transcripts, they may calculate the GPA differently; for example, some departments use only courses in the major field or the GPA earned in the last 45 credits.

Admission to the Major

Transfer applicants are strongly urged to begin academic planning early in their college career and to contact directly the program(s) they are interested in well before applying for admission to the University. All of the majors available at the UW are listed on page 10, organized by school/college. Majors marked with a ‡ symbol have admission requirements beyond those required for admission to the University.

There are three types of departmental admission policies at the UW:

- Open. These majors are open to applicants at the time of admission to the UW or any time thereafter.
- Minimum Requirements. These majors have minimal admission requirements, such as completing 10 credits of introductory courses with a cumulative GPA of 2.50. Majors in this category *generally* admit all applicants who meet the minimum requirements, without any further screening or selection. However, some of these majors may make exceptions, depending on the number of applicants they receive for a given quarter. Many of the majors with minimum requirements also require that new students enroll at the UW before applying to their program.
- Competitive. These majors have competitive admission standards, which fluctuate from quarter to quarter depending on the number of applicants. Fulfilling University admission requirements does not guarantee admission to a specific department or program. The degree of competitiveness varies greatly from major to major. In addition, some of these majors require that new students enroll at the UW before applying to their program. An applicant who declares one of these majors on the admission application but is not admissible to it may be required to enter the UW as a premajor to complete the college courses required for admission to the major of choice.

Applicants to majors marked with a ‡ symbol on page 10 should file a University application and submit all other necessary materials at least six weeks before the departmental deadline, to allow time for the department to request any supplementary information from the applicant. In most cases, applicants must also file a separate application with the department. Complete information on departmental admission requirements and procedures may be obtained from the appropriate department.

Filing an Application

An application form and detailed instructions on how to apply are included with *Transfer Admission & Planning*, available from the Office of Admissions. There is also an online version of the application at www.washington.edu/students/uga/tr/.

Application Checklist for Transfer Applicants

A complete application file consists of:

- Application
- \$35 nonrefundable application fee
- Personal Statement
- Official high school transcript
- Two official transcripts from each college or university ever attended
- Official test scores
- List of activities (optional)

Filing Dates

Quarter	Closing Date
Autumn	April 15
Winter	September 15
Spring	December 15
Summer (degree status)	April 15
Summer (non-degree status)	June 1

International Students



www.washington.edu/students/uga/in/

International applicants are those who are neither U.S. citizens nor refugees nor immigrants to the United States. The University of Washington has a limited number of spaces for matriculated (degree-seeking), undergraduate international students. In recent years there have been eight or nine applicants for each available place. All applications for a given year are reviewed and compared to determine which applicants have the strongest academic records. Admission for summer/autumn (summer quarter continuing into autumn) or for autumn quarter is offered to as many of the most highly qualified students as space allows.

Admission to the UW is highly competitive for international applicants. The following factors are considered in the admissions process.

Freshman and Transfer Applicants

To be eligible for consideration, applicants:

- Must have completed at least 12 years of primary and secondary school, equivalent to 12 years of school in the U.S. The final four years of this schooling must include **adequate scholastic preparation** in academic subjects (see Core Subject Requirements, p. 13).
- Must have attained school marks or examination scores that place them in the **top 10 percent** of students successfully completing secondary school in their country, or present a university or college record of high quality.
- Must have demonstrated basic **proficiency in the English language**, unless their country of origin is one of the following: Australia, Canada, Ireland, New Zealand, United Kingdom. To demonstrate English proficiency, they must take the Test of English as a Foreign Language (TOEFL) and have official scores sent to Admissions by the application closing date. The Michigan Language Test (MLT) administered by the University of Washington may be substituted for the TOEFL.

The minimum examination scores for admission consideration are:

Paper-based TOEFL	540
Computer-based TOEFL	207
UW-administered MLT	85%

If the examination score is within the ranges shown below, the applicant will be required to take an English proficiency test that will determine whether remedial courses in English as a Second Language (ESL) will be required upon enrolling at the University:

Paper-based TOEFL	540-579
Computer-based TOEFL	207-236
UW-administered MLT	85%-89%

Previous ESL courses or courses in English composition, even when taken in the United States, do not provide exemption from, nor are they a substitute for, the English proficiency test requirement.

- Must have adequate financial resources to pay for tuition, fees, expenses, and housing. If the student is required to take ESL courses, there will be an additional fee for each ESL course, up to a maximum of five ESL courses. Total estimated costs are shown on the Statement of Financial Responsibility but are subject to increase without notice.

Postbaccalaureate Applicants

Postbaccalaureate applicants are those who, before enrolling at the UW, have completed or will have completed a bachelor's degree considered equivalent to a U.S. degree. Postbaccalaureate is an *undergraduate* matriculated status for students wishing to pursue further undergraduate course work, either a second bachelor's degree or preparation for graduate or professional school.

Postbaccalaureate admission is highly competitive and based on two factors: postsecondary scholastic achievement and the supplemental statement, described below. *Fewer than twenty international postbaccalaureates were admitted in 1999.* To be eligible for admission consideration, postbaccalaureates must meet the criteria described for freshmen and transfers above, with two exceptions:

- (1) They are exempt from the core subject requirements.
- (2) Those who earned a first bachelor's degree in the U.S., Australia, Canada, Ireland, New Zealand, or the United Kingdom are exempt from the English proficiency requirement.

See below, Postbaccalaureate Admission, for more information about the statement of purpose required of postbaccalaureate applicants.

Admission for Summer Quarter Only (Nonmatriculated Status)

International students wishing to study temporarily at the UW without seeking a bachelor's degree may enter only in the summer quarter and are *not* permitted to continue at the University after that quarter. If you wish to apply for summer quarter admission, you must submit the application form and the \$35 application fee **before June 1**. After that date, applications must be submitted in person. Academic credentials are not required for summer quarter admission. See the Educational Outreach section of the catalog for more information about Summer Quarter.

The University cannot provide I-20 forms or give other assistance in obtaining F-1 visa status for nonmatriculated enrollment in summer quarter. Such students must have F-1 status already through enrollment at another U.S. college or university, or be able to enter the United States on a visitor's visa or other nonstudent visa.

Filing an Application

An application form and detailed instructions on how to apply are included with the *Undergraduate International Admission Application*, available from the Office of Admissions. There is also an online version of the application at www.washington.edu/students/uga/in/. See also the policies governing English proficiency under Educational Outreach, ESL Department.

Application Checklist for International Applicants

A complete application file consists of:

- Application form, signed and dated
- Application fee (US\$35), check or draft payable through a U.S. bank to the University of Washington
- Statement of Financial Responsibility, completed, signed, and dated. A bank letter may be submitted as additional evidence of your financial resources, but it is *not* a substitute for the Statement of Financial Responsibility.
- Official TOEFL scores ordered from TOEFL office, or UW MLT scores
- *Optional* Official SAT I scores ordered from College Board ATP or official ACT scores ordered from the ACT Service
- Academic credentials (transcripts)
- Official secondary school credentials, original or photocopies certified by school, with English translations
- Official college, university, or other postsecondary credentials, original or photocopies certified by school, with English translations
- For postbaccalaureates only: supplemental statement

Filing Dates

Quarter	Closing Date
Autumn	January 15
Summer (degree status)	January 15
Summer (non-degree status)	June 1

Postbaccalaureate Admission



www.washington.edu/students/uga/pb/

Postbaccalaureate is a matriculated status reserved for students who are working toward a second bachelor's degree, or preparing for entrance to graduate or professional school. Only a small number of applicants are admitted every quarter as postbaccalaureate students because the University's primary commitment is to undergraduates who are completing their first bachelor's degree. A student who is inadmissible as a postbaccalaureate may still take advantage of many educational opportunities at the UW by enrolling as a *nonmatriculated* student through UW Educational Outreach (see Educational Outreach section of this catalog).

Admission Policy

All postbaccalaureate applicants must submit a Statement of Purpose (discussed below) at the time of application to the University. A portion of applicants may be admitted in summer (degree status) and autumn quarters on the basis of grade-point average (GPA) alone, but the Statement of Purpose is required regardless of GPA. *An application submitted without the statement will be considered incomplete and will not be reviewed.*

Undergraduate GPA

In calculating the cumulative undergraduate GPA, the Office of Admissions uses all grades earned at accredited four-year colleges and universities prior to the completion of the first bachelor's degree. Grades from community college course work, graduate study, or any course work taken after the first bachelor's degree are not included when the Office of Admissions calculates the GPA for routine admission. Such work can be considered in the review of the Statement of Purpose.

Choice of Major

All postbaccalaureate applicants must indicate on the admission application their intended major or goal for postbaccalaureate study (examples: History, Accounting, premed, preparation for grad school in psychology). *Applicants who do not indicate a choice of major will not be considered further.*

Admission in Winter and Spring Quarters

Because admission to the University is more strictly limited in winter and spring quarters than in summer (degree status) and autumn quarters, Admissions cannot guarantee that any postbaccalaureate applicants will be admitted on the basis of GPA alone for winter or spring.

Statement of Purpose

Statements of Purpose are reviewed by the Postbaccalaureate Review Committee (PRC). Decisions are made on a rolling basis: the earlier an applicant's supplemental file is complete, the earlier the file will be reviewed. The applicant will be notified in writing of the final decision after evaluation of transcripts and the Statement of Purpose.

What to Include in the Statement of Purpose

Applicants should answer the following questions in their Statements of Purpose:

- Why are you pursuing further studies? How did you reach the decision to go into your particular field? What are your long term academic and professional goals? *Be as specific as possible.*
- If you are preparing to enter a second undergraduate, graduate, or professional program (such as medical, dental, or law school), what courses do you intend to take? If, on the other hand, you are ready to begin work in your major immediately, you do not need to list all of the courses comprising the major.
- For how many quarters do you plan to enroll?
- Why is it necessary for you to enroll at the UW? Do other four-year universities or community colleges offer what you need at this time? Can you meet your goal as a nonmatriculated student, attending classes through UW Educational Outreach? (If you are planning to take specific courses in preparation for a graduate or professional program, be aware that access to courses in a particular quarter is not guaranteed.)
- If you are seeking admission to an undergraduate program with selective admission criteria: are you assured departmental admission? Your statement will be strengthened by a letter of support from the department. Applicants preparing for graduate school should meet with an adviser in the department for an assessment of their chances for future admission. Please be aware that *postbaccalaureate applicants who are not accepted to their major of choice will not be admitted to the University.*
- If you feel your undergraduate GPA is low: why might it be an unreliable indicator of your academic potential? Those students with postbaccalaureate course work on record, be it from a community college, four-year school, or graduate program, may use this opportunity to point out subsequent high performance if it is relevant to their academic plans at the UW.

Format of the Statement of Purpose

The Statement of Purpose will be evaluated as part of the admission decision; content as well as form (spelling, grammar, punctuation) will be considered.

The Statement of Purpose should be submitted on 8.5 x 11" plain white paper; there is no special form. It should be 2-4 pages in length. Double-space your lines, and use only one side of each sheet. Put your name at the top of each page, and attach the pages to your application.

Letters of Recommendation

Applicants may submit letters of recommendation. The Office of Admissions suggests that an applicant submit no more than three, judiciously selected and preferably from faculty who can attest to academic promise in the applicant's intended field of study.

Letters of recommendation that will be arriving under separate cover should be listed in the Statement of Purpose and addressed to:

PRC Coordinator, University of Washington, Office of Admissions, Box 355840, Seattle, WA 98195-5840.

Filing an Application

An application form and detailed instructions on how to apply are included with the *Postbaccalaureate Application Packet*, available from the Office of Admissions.

Application Checklist for Postbaccalaureates

A complete application file consists of:

- Application
- \$35 nonrefundable application fee
- Two official transcripts from each baccalaureate institution attended
- Statement of Purpose
- Letters of recommendation (optional)

Filing Dates

Quarter	Closing Date
Autumn	April 15
Winter	September 15
Spring	December 15
Summer (degree status)	April 15
Summer (non-degree status)	June 1

Special Categories of Admission

Applicants Seeking Special Consideration Through an Appeal



www.washington.edu/students/uga/special.html

The University's admission policies comply with Washington Higher Education Coordinating Board regulations and faculty-authorized requirements. It is the responsibility of the Office of Admissions to apply these standards consistently and fairly. The faculty recognizes, however, that exceptions are warranted in unusual circumstances.

Applicants who have been denied may write a letter of petition requesting special consideration if they believe there are extenuating circumstances *not explained in their application file*, or if they believe an error has occurred in the initial evaluation.

Petitions are normally submitted *after* the initial review of the application file has been completed; they are reviewed by the Committee on Admissions and Academic Standards.

Immigrant Applicants Whose First Language Is Not English

If your first language is not English, or if you have attended school in a non-English speaking country, you are strongly encouraged to request from the Office of Admissions *Pamphlet 3: Guidelines for Applicants Whose First Language Is Not English*. This pamphlet describes alternate routes to satisfying the core subject requirements for admission in English and foreign language; and the English proficiency (ESL) requirement for graduation at the UW.

Applicants with Home Schooling



www.washington.edu/students/uga/homeschool.html

Students are increasingly being schooled at home. In recognition of this trend, the Office of Admissions provides the following guidelines to assist home-schooled applicants to become eligible for admission consideration. Home-schooled students are encouraged to contact Admissions for counseling as soon as they begin their college-preparatory curriculum.

Core Subject Requirements

Home-schooled students must complete study in each of the core subject areas described on page 13 and provide a transcript that includes course title or subjects studied, duration of study, content, and assessment of performance or grade. Preferably, courses completed at home will be transcribed by a national agency.

Home-schooled students must additionally furnish documentation to validate learning in core subjects not completed at a high school. Documentation can be scores from SAT II subject tests, ACT subscores, Advanced Placement or International Baccalaureate exams, or college course work. For more information on which exams will be used to evaluate learning in each core subject area, contact Admissions.

Admission Criteria

Many home-schooled students take courses such as science or foreign language at a high school and therefore have a transcript. However, to the extent that graded course work completed at a high school is missing, greater weight will be placed on scores from college admission tests, such as ACT and SAT I, and on the personal statement in making an admission decision.

Recommendations of private instructors or tutors are helpful when accompanied by a description of the instructor's professional qualifications. Portfolios are not required.

Returning Former Students

Nonmatriculated Students



www.outreach.washington.edu

Many students find their educational needs met through nonmatriculated (non-degree) enrollment. Matriculated status is reserved for students who have met competitive admission standards and who are enrolled primarily for the purpose of earning a degree. For more information about nonmatriculated enrollment, consult the Educational Outreach section of this catalog.

Auditors

Individuals who wish only to audit University courses should apply for admission with nonmatriculated standing. (See the Educational Outreach section of this catalog.) Attendance in courses as an auditor is by consent of the instructor involved and is conditioned by the extent to which space is available. Permission to audit is ordinarily granted for lecture classes only. An auditor may not participate in class discussion or laboratory work, and the auditor's registration may be canceled at the discretion of the instructor. No record of audited courses is kept. Regular tuition and fees are charged. To receive credit for an audited course, the student must register for the class for credit in a subsequent quarter.

Other Application Forms

Financial Aid

Application for financial aid is a process entirely separate from application for admission. Interested students should contact the University's Office of Student Financial Aid, 105 Schmitz Hall, (206) 543-6101; or the counselors at their own school for information about financial aid availability. International students are not eligible for financial aid. Additional information on financial aid appears in the Student Services section of this catalog.

University Housing

Space in University housing is limited, and admission to the University does not automatically reserve residence hall space. Additional information on student housing appears in the Student Services section of this catalog.



Academic Credit

Credit

The basic rule for determining academic credit is 1 credit represents a total student time commitment of 3 hours each week in a 10-week quarter, or a total of 30 hours in a quarter. Total time includes time spent in class, if any; time devoted to individual conference with instructors; time devoted to reading or other study, problem solving, writing, laboratory work, exercises, or any other activity required of the student. A specified number of credits must be earned for a degree.

There are three basic types of credit:

Residence credit is academic credit earned in courses offered by the UW through the quarterly Time Schedule and other approved courses offered by UW Extension. To gain residence credit, students must register for such courses during the official registration period.

Extension credit or credit earned through examination is credit earned by completing courses offered as extension courses or credit earned through special examinations. Such courses are not included in the UW grade-point average.

No more than 90 total extension credits, including a maximum of 45 credits from other institutions, may be counted toward the baccalaureate degree. Ordinarily, extension and independent (correspondence) study credits may not be applied toward the final year.

Transfer credit is credit earned at another institution that is accepted by the University as being applicable toward satisfaction of degree requirements.

Quarter Credit Versus Semester Credit

Colleges and universities that operate on a semester system award semester credit. The UW awards *quarter credit*. To convert quarter credits to semester credits, multiply by two-thirds. To convert semester to quarter credits, multiply by 1.5. For example, a student who earns 30 credits at an institution on a semester calendar would have earned 45 quarter credits at the UW.

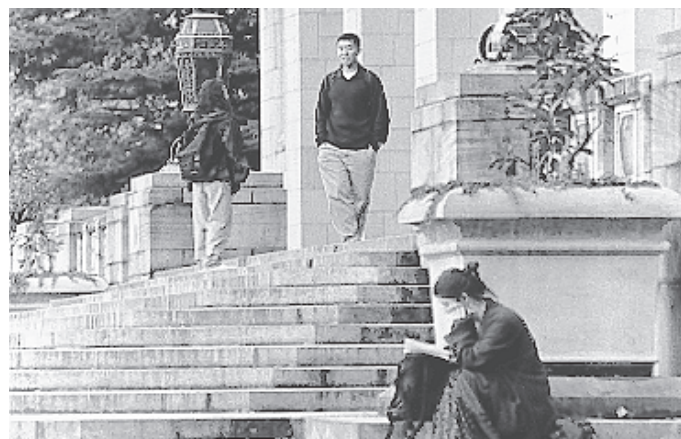
Alternative Credit Options

The UW does not award general credit for work or life experience. However, two avenues exist for obtaining credit under select circumstances.

- Once enrolled at the UW, students may explore the possibility of obtaining departmental approval for transfer of credit earned through course work taken at an unaccredited institution. Contact Admissions.
- Students may arrange to challenge specific UW courses via credit by examination if the same knowledge has been gained through independent study outside a formal educational setting. See Earning Credit by Special Examination section below.

Both situations require a formal approval process and a \$25 fee per course.

In addition, students often earn credits from internships and community service, but these experiences are always tied to a specific UW course offering and involve an academic component.



Transfer Credit



www.washington.edu/students/uga/transfer/trcrweb.html

To students pursuing a first bachelor's degree, the Office of Admissions awards transfer credit according to the guidelines discussed below. *It reserves the right to accept or reject credits earned at other institutions of higher education.* In general, it is University policy to accept credits earned at institutions fully accredited by their regional accrediting association, provided that such credits have been earned through university-level courses (see exceptions below) appropriate to the student's degree program at the University.

The UW subscribes to the statewide *Policy on Inter-College Transfer and Articulation Among Washington Public Colleges and Universities*, endorsed by the public colleges and universities of Washington as well as the State Board for Community and Technical College Education, and adopted by the Higher Education Coordinating Board. The policy deals with the rights and responsibilities of students and the review and appeal process in transfer credit disputes.

The Transfer Guide



www.washington.edu/students/#TRANSFER

The online *Transfer Guide for Community Colleges in Washington*, updated monthly, contains course equivalencies for all community and technical colleges in Washington. (If you do not have access to the Web, request from Admissions or from your community college adviser a copy of the equivalency tables for your college.) The equivalencies tables show what UW courses students will receive credit for when taken from a Washington state community or technical college. Use the tables for academic planning, especially when your intended major has specific prerequisites.

Transfer Credit Evaluation

The Office of Admissions completes a course-by-course evaluation of transfer credit after an admitted student pays the \$100 Enrollment Confirmation Deposit (see p. 30) and shortly before the student's orientation session or advising and registration date.

The information recorded on the transfer credit evaluation—including the transfer of credits and the Transfer GPA—becomes part of the student's permanent record at the UW. If a student applies to an academic program with additional admission requirements, transfer course work and the Transfer GPA will be considered.

The evaluation is not an official transcript. The official UW transcript—which is sent to other institutions, employers, etc.—does not include the Transfer GPA or a detailed listing of the transfer credit the UW awarded; it merely lists the other colleges the student has attended and the total number of transfer credits awarded. Transfer grades are not included in the UW GPA.

Postbaccalaureate students are not awarded transfer credit; they receive no transfer credit evaluation from the Admissions Office. Students working toward a second baccalaureate degree should consult with their academic adviser to learn how credit from other universities may apply toward their UW degree.

Restrictions on Transfer Credit

Community College Credit

A maximum of 90 credits from community college course work may be applied toward the credits required for the bachelor's degree. *All* of the credits transferred from two-year colleges may be used toward graduation requirements, but a student must still complete at least 90 credits of course work at the UW or at another baccalaureate-granting institution (see also senior-residency requirement, below).

Extension Credit from Other Schools

Extension credit, including correspondence courses, earned at other schools may not exceed 45 credits. Military credit, discussed below, is included in the 45-extension-credit limit.

Foreign Language Courses

Students who have completed two or more years of a high school foreign language receive no college credit for an entry-level course (e.g., FREN 101) in the same language when that course is completed after matriculation at the University. Transfer students who complete such a course before matriculation at the UW are eligible to receive transfer credit.

Military Credit

Credits earned in Armed Forces Training Schools (AFTS) and through USAFI and DANTES may not exceed 30 credits and are included in the 45-extension-credit limit. Official transcripts or DD-214 or DD-295 forms must be submitted, and credit will not be awarded until after the student has enrolled. Scores received in such course work are not included in the transfer GPA. No credit is awarded for MOS.

Native Language

First-year (elementary) or second-year (intermediate) foreign-language credit is not granted either by examination, by course completion, or by the Advanced Placement program in a student's native language. "Native language" is defined as the language spoken in the student's home during the first six years of his or her life and in which he or she received instruction through the seventh grade.

Out of Sequence Courses

In mathematics or foreign languages credit is not awarded for prerequisite courses completed after a more advanced-level course has been completed. For example, students will not be awarded credit for SPAN 102 if it was taken after SPAN 103.

Overlapping Content

If a department considers two of its courses to have overlapping content, credit will be awarded for only one. For example, credit is granted for either PHYS 114 or PHYS 121. Other departments in which such overlapping courses occur include Astronomy, Chemistry, Computer Science, Economics, Geological Sciences, Linguistics, Statistics, and foreign languages. Restrictions of this kind are noted in this *Catalog*, generally as part of the course description.

Physical Education

No more than 3 quarter credits will be allowed for physical education activity courses.

Restricted Transfer Credit

Transfer credit will not generally be awarded for vocational or technical courses. However, a maximum of 15 quarter credits will be awarded in transfer for college-level vocational-technical courses when they have been allowed as electives within the 90 credits comprising an academic associate degree from a Washington community college. Courses in this category are those which would ordinarily provide specialized training for an occupation (e.g., allied health, bookkeeping, electronics, or physical therapy assistant). When allowed, these credits will apply only toward the elective credit component of a baccalaureate degree at the UW. Such courses are not included in the Transfer GPA.

ROTC Credits

Credits earned in first- and second-year military training courses may not be counted in the basic 180 credits that are required for graduation. Up to 18 credits of third- and fourth-year courses may count, depending on the restrictions of the UW school/college from which the student graduates.

Final-Year Residency Requirement

The University generally requires that at least the last 45 credits of a baccalaureate degree be completed in residence at the UW.

Courses Receiving No Credit

The University reserves the right to deny credit for courses that are not compatible with those offered in its baccalaureate degree programs. Some general categories of courses never receive transfer credit. Examples include:

- courses below college level (usually numbered below 100)
- repeated courses or courses with duplicate subject content
- course work earned at an institution that did not hold at least candidacy status with its regional accrediting association when the course work was taken
- courses that provide instruction in a particular religious doctrine
- mathematics courses considered below college level, including basic math, business math, and beginning and intermediate algebra
- courses offered for non-credit continuing-education units
- remedial English (e.g., reading, vocabulary development, grammar, speed reading, or any courses that are preparatory to an institution's first Freshman Composition course)*
- courses providing instruction in English as a Second Language (100-level or above)*

- remedial courses in any academic discipline (100- level and above)*
- lower-division ROTC courses*
- non-academic/vocational-technical courses*

*Up to 15 credits may be awarded for courses numbered 100 and above if included as electives within an academic associate degree from a Washington community college. See also the sections on Restricted Transfer Credit and Direct Transfer Agreement.

Appeal Procedure

If not all courses transfer as the student had anticipated, and the academic adviser cannot explain the discrepancy, the student should consult an admission specialist in the Office of Admissions. Further appeal can be directed to the UW Transfer Officer in the Admissions Office.

Class Standing

A student's class standing is determined by the total number of transfer credits awarded by the UW, not by the number of years of college study or completion of an associate degree.

The following table lists the required credits for each class:

Freshman	0-44
Sophomore	45-89
Junior	90-134
Senior	135 or more

Satisfying UW graduation requirements depends not only on the number of credits completed (a minimum of 180) but also on completion of all college and major requirements.

Applying Transfer Credit to Degree Requirements

Before a student first registers for classes at the University, he/she should meet with an academic adviser to plan a program of study. The adviser determines how the transfer credits shown on the evaluation may be used to meet UW degree requirements. For example, Admissions awards a student 120 transfer credits, but only 100 of those credits can be applied toward graduation requirements for a student's degree program. Credits that do not apply to specific requirements may still be used as electives—if any electives are needed—toward meeting the minimum UW credit total required for graduation.

The Associate Degree Agreement with Washington Community Colleges

Many community college students who plan to transfer to the University ask about the advantage of earning an associate degree before they transfer. There are two separate agreements that may benefit such students. *Both agreements apply only to students with academic-transfer (as opposed to vocational-technical) associate degrees, and only to those whose degrees are from community colleges in Washington.*



The **Direct Transfer Agreement**, assures students of priority consideration for admission to the UW. (See Transfer Admission on page 15 for a complete discussion). Admission under the Direct Transfer Agreement does not guarantee admission to any specific program within the University.

The other agreement, called the **Associate Degree Agreement**, affects how courses from the community college apply toward *graduation* requirements from some colleges/schools at UW. To qualify for the agreement, a student must complete all the requirements for the associate degree before regular admission to UW; earlier enrollment as a nonmatriculated student in summer quarter, UW Extension, or UW correspondence courses, however, is allowed. Unlike the Direct Transfer Agreement, the Associate Degree Agreement may also apply to students who have matriculated at another four-year institution between earning the associate degree and transferring to the UW.

Benefits of the Associate Degree

The primary benefit is that students may count transfer courses toward Areas of Knowledge (formerly distribution) requirements if the community college counted them, even if the courses are not listed as counting for Areas of Knowledge in the *UW Transfer Guide*. Humanities courses will count for Visual, Literary, & Performing Arts; social-science courses for Individuals & Societies; and natural-science courses for the Natural World. (Note: Completing the Areas of Knowledge requirement does not automatically mean that an applicant has fulfilled the core subject requirements. See page 13 for the discussion of admission core subject requirements.) There are three possible pitfalls, however:

- No more than 15 credits in the student's major department may be counted for Areas of Knowledge.
- Some courses will not be counted for both Areas of Knowledge and proficiency (e.g., for a student in the College of Arts and Sciences who has only one foreign language, the first year of that foreign language would not count for Visual, Literary, & Performing Arts, because it must be used for the foreign-language proficiency requirement instead).
- A course that does not transfer for credit (e.g., intermediate algebra) does not count toward graduation requirements.

Many students with associate degrees have earned fewer than the required credits in each of the three Areas of Knowledge (the Natural World, Individuals & Societies, and the Visual, Literary, & Performing Arts), and thus will be completing the requirements at the UW. Students are not exempted from other specific general-education requirements of their UW school/college.

Bachelor Degree Planning

Students often assume that work on a major does not begin until the junior year. It is important to investigate the requirements of any intended major. Some community colleges have associate-degree options that allow students to earn the A.A. while fulfilling the requirements of specific UW majors. Lacking those options (and depending on the likelihood of being admitted without recourse to the Direct Transfer Agreement), students may sometimes be better off not earning the associate degree, particularly for programs outside the College of Arts and Sciences, such as engineering or business, that have very specific prerequisites. In some cases, it may even be better to transfer with fewer than 90 credits. For example, students planning to major in certain languages may need to start earlier than their junior year if course work is available only at the UW. Students in some pre-professional programs such as premedicine or predentistry will probably not need to transfer early, but they should talk with an adviser at the UW late in their freshman year.

Earning Credit by Special Examination

With departmental approval, regularly admitted and currently enrolled students may "challenge a course," by special examination to gain credit without being enrolled in specific courses.

1. For independent study.
2. For work completed with private teachers.
3. For work completed in unaccredited institutions if a formal examination is deemed necessary by the chair of the concerned department(s). (In some cases, credit may be validated without an examination. Students who wish to validate credit should inquire at the Office of Admissions.)

The following restrictions apply:

- a. No one may take a credit examination for a course in which he or she has previously registered.
- b. All credits earned by examination are counted as extension credit and if earned at the UW, are included in the 90-extension-credit maximum that may be applied toward the baccalaureate degree. (Transfer extension credit is limited to 45 quarter credits.) No credit is allowed by examination if the grade earned is less than 2.0. Grades earned are not included in the GPA.
- c. No student shall receive credit by examination for a course for which the student would not be eligible to receive credit if the course were taken in residence, e.g., SPAN 202 if credit already awarded for SPAN 203.
- d. No student is permitted to repeat any examination for credit.
- e. No student shall receive credit by examination for lower-division courses in the student's native language. (Some language departments have more restrictive policies. Consult the individual language department for details.)
- f. Credit by examination is not acceptable for application toward an advanced degree in the Graduate School.

A student who wishes to qualify for credit by examination must apply to the Graduation and Academic Records Office for a certificate of eligibility no later than Friday of the second week of the quarter. The student presents the form to the instructor and chair and/or dean for signed approval. It is then returned to the Graduation and Academic Records Office. Signed forms and payment of \$25 for each course to be challenged must be submitted by Friday of the second week of the quarter.

Examinations are administered by the Office of Educational Assessment during the fifth week of the quarter.

No student is permitted to take more than two examinations in 3-, 4-, or 5-credit courses, or more than three examinations in 1- or 2-credit courses in one day. If the student plans to take more examinations in a given quarter, an additional day may be permitted and arrangements made with the Office of Educational Assessment.

Credit for Beginning College Study at an Advanced Level

A student who begins college study in the third quarter of the second-year University language sequence may receive 5 credits for the second quarter of the second-year course, provided the third-quarter course is successfully completed. Similarly, a student who begins college study with an upper-division course in a language (other than courses in English translation or in conversational practice) may be granted 10 credits for the second- and third-quarter courses of the second-year sequence, provided that course is successfully completed.

A student who is placed by examination at the level of MATH 125 or higher receives additional credits upon completion of the advanced course. If the student's first University mathematics course is MATH 125, credit for MATH 124 is given. A student whose first mathematics course is MATH 126 is given credit for both MATH 124 and 125.

A student who is placed by examination at the level of CSE 143, may upon successfully completing the course, receive credit for CSE 142.

A student must apply for advanced standing credits at the Graduation and Academic Records Office after having completed the advanced course.

Advanced Placement Program (College Board)



www.washington.edu/students/uga/ap.html

Students who complete college-level work in high school may receive credit or placement, or both, at the University on the basis of performance on an Advanced Placement examination.

Listed below are departmental policies on granting placement or credit for AP examinations. Scores range from a high of 5 to a low of 1; in most departments, credit and/or placement is awarded for scores of 3 or higher. In some cases, the student must consult the appropriate departmental adviser after arriving at the University.

UNDERGRADUATE STUDY

Art

Art History	AP-5	ART H 100 (10 credits). See departmental adviser for placement. Credits may apply to Visual, Literary, & Performing Arts requirement.
	AP-4	ART H 100 (5 credits). See departmental adviser for placement. Credits may apply to Visual, Literary, & Performing Arts requirement.
Studio Art		No credit. See departmental adviser for placement.

Biology

AP-5 AP-4	BIOL 101-102 (10 credits).
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Chemistry

	No credit is given. Engineering students who are exempt should consult engineering departmental advisers.
AP-5	Exemption from CHEM 142, 152, 162 granted upon successful completion of CHEM 237 or 335; consult chemistry adviser.
AP-4	Exemption from CHEM 142, 152 granted upon successful completion of CHEM 162 or 165; consult chemistry adviser.
AP-3	Exemption from CHEM 142 granted upon successful completion of CHEM 152; consult chemistry adviser.
	Any score of AP-5, 4, or 3 satisfies the Arts and Sciences Quantitative and Symbolic Reasoning (QSR) requirement.

Classics

Latin Lyric	AP-5 AP-4	LATIN 305, 306 (10 credits)
	AP-3	LATIN 103 (5 credits)
Vergil	AP-5 AP-4	LATIN 305, 307 (10 credits)
	AP-3	LATIN 103 (5 credits)
Latin Lyric and Vergil	AP-5 AP-4	LATIN 305, 306, 307 (15 credits)
	AP-3	LATIN 103 (5 credits) Any score of AP-5, 4, or 3 satisfies the Arts and Sciences foreign-language requirement.

Computer Science

A Examination	AP-5 or AP-4	CSE 142 (4 credits)
AB Examination	AP-5, AP-4, or AP-3	CSE 142 (4 credits) With permission of CSE 143 instructor, students scoring 5 or 4 may also receive credit for CSE 143.

Economics

English

AP-5 AP-4	ENGL 111 (5 credits) For students with AP-5, or 4 scores on either the language and composition examination or the composition and literature examination.
AP-5 AP-4	ENGL 111, 131 (10 credits). For students with AP-5 or 4 scores on both the language and composition examination and the composition and literature examination.
	Any score of AP-5 or 4 satisfies the English composition requirement for any school/college at the University. Students admitted to the UW before autumn 1999 may be eligible for credit with AP score of 3. See adviser for details.

German

Language	AP-5	GERMAN 201, 202, 203 (15 credits)
	AP-4	GERMAN 201, 202 (10 credits)
	AP-3	GERMAN 201 (5 credits)
Literature	AP-5	GERMAN 2XX (12 credits)
	AP-4	GERMAN 2XX (9 credits)
	AP-3	GERMAN 2XX (6 credits)
		See departmental adviser for exact courses and placement. Any score of AP 5, 4, or 3 satisfies the Arts and Sciences foreign-language requirements.

Government and Politics

American	AP-5 AP-4	POL S 202 (5 credits)
Comparative	AP-5 AP-4	POL S 204 (5 credits)

History

American	AP-5 AP-4	HSTAA 201 (5 credits)
European	AP-5 AP-4	HIST 113 (5 credits)

Mathematics

AB Examination	AP-5	MATH 124, 125 (10 credits)
	AP-4 AP-3	MATH 124 (5 credits)
	AP-5 AP-4	MATH 124, 125 (10 credits)
BC Examination	AP-3	MATH 124 (5 credits)
		A score of AP-2 on either exam places a student into calculus.

Music

Appreciation		No credit. See departmental adviser for placement.
Theory		No credit. See departmental adviser for placement.

Physics

AP-5 AP-4	No credit. Exemption from PHYS 121/131, 122/132 for Physics C examination, or from PHYS 114, 115, 116 for Physics B examination. For Engineering, students who are exempt must take additional courses to meet the minimum physics requirement.
	Any score of AP-5 or 4 satisfies the Arts and Sciences Quantitative and Symbolic Reasoning (QSR) requirement.

Psychology

AP-5 or AP-4	PSYCH 101 (5 credits)
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Romance Languages

Language	AP-5	FRENCH (SPAN) 201, 202, 203 (15 credits)
	AP-4	FRENCH (SPAN) 201, 202 (10 credits)
	AP-3	FRENCH (SPAN) 201 (5 credits)
Literature		Credit allowed at second-year level.
	AP-5	FRENCH (SPAN) 298 (15 credits)
	AP-4	FRENCH (SPAN) 298 (10 credits)
	AP-3	FRENCH (SPAN) 298 (5 credits)
		Any score of AP-5, 4, or 3 satisfies the Arts and Sciences foreign-language requirement.
Statistics	AP-5 AP-4 AP-3	STAT 311 (5 credits)

International Baccalaureate

 www.washington.edu/students/uga/ib.html

In general, 5 quarter credits are granted for each Higher Level subject in which a score of 5 or higher is earned. Subjects for which 5 credits are routinely allowed include the following:

Language:	Language A (A1) or B (A2).
Individuals & Societies:	History, Geography, Philosophy, Psychology, Social Anthropology, Business & Organization, History of the Islamic World, Information Technology in a Global Society.
Experimental Sciences:	Physical Science, Experimental Psychology, Environmental Systems.
Mathematics:	Mathematics, Mathematical Methods, Mathematical Studies, Mathematics with Further Mathematics.
The Arts and Electives:	Latin, Classical Greek, Computer Science.
For the following exams, different policies pertain:	
Art/Design	No credit; see art adviser for placement.
Biology	Credit varies; see biology adviser.
Chemistry, Applied Chemistry	No credit; see chemistry adviser for possible exemption from course work.
Economics	No credit; see economics adviser for placement.
Music	Credit varies; see music adviser.
Physics	No credit; consult physics adviser for possible exemption from course work.

For further information, contact the Office of Admissions.

University Placement Tests

Information concerning mathematics, chemistry, and foreign-language placement tests is included with the offer of admission or in the leaflet on registration instructions, which is mailed to applicants upon receipt of their enrollment confirmation. Additional information on recommended tests may be obtained from the appropriate college or departmental advising office. Testing information is also available at the Office of Educational Assessment, 453 Schmitz Hall.



Grading System

The UW uses a numerical grading system, with certain exceptions in the schools of Dentistry, Law, and Medicine. Instructors may report grades from 4.0 to 0.7 in 0.1 increments and the grade 0.0. The number 0.0 is assigned for failing work or unofficial withdrawal. Grades in the range 0.6 to 0.1 may not be assigned. Grades reported in this range are converted by the Office of the Registrar to 0.0. Numerical grades may be considered equivalent to letter grades as follows:

A	4.0-3.9	
A-	3.8-3.5	
B+	3.4-3.2	
B	3.1-2.9	
B-	2.8-2.5	
C+	2.4-2.2	
C	2.1-1.9	
C-	1.8-1.5	
D+	1.4-1.2	
D	1.1-0.9	
D-	0.8-0.7	Lowest passing grade.
E	0.0	Failure or Unofficial Withdrawal. No credit earned.

Additional information on grades and scholarship rules may be obtained from the Graduation and Academic Records Office, 264 Schmitz Hall.

The following letter grades also may be used:

N Indicates that the student is making satisfactory progress and a final grade will be given at the end of the quarter the work is completed. Used only for hyphenated courses (courses not completed in one quarter) and courses numbered 600, 601, 700, 750, and 800.

I Incomplete. An Incomplete is given only when the student has been in attendance and has done satisfactory work until within two weeks of the end of the quarter and has furnished proof satisfactory to the instructor that the work cannot be completed because of illness or other circumstances beyond the student's control. To obtain credit for the course, an undergraduate student must convert an Incomplete into a passing grade no later than the last day of the next quarter. *The student should never reregister for the course as a means of removing the Incomplete.* An Incomplete grade not made up by the end of the next quarter is converted to the grade of 0.0 by the Office of the Registrar unless the instructor has indicated, when assigning the Incomplete grade, that a grade other than 0.0 should be recorded if the incomplete work is not completed. The original Incomplete grade is not removed from the permanent record.

An instructor may approve an extension of the Incomplete removal deadline by writing to the Graduation and Academic Records Office no later than the last day of the quarter following the quarter in which the Incomplete grade was assigned. Extensions, which may be granted for up to three additional quarters, must be received before the Incomplete has been converted into a failing grade.

In no case can an Incomplete received by an undergraduate be converted to a passing grade after a lapse of one year.

S Satisfactory grade for courses taken on a satisfactory/not-satisfactory basis. An S grade is automatically converted from a numerical grade of 2.0 or above for undergraduates. The grade S may not be assigned directly by the instructor, but is a grade conversion by the Office of the Registrar. Courses so graded can only be used as free electives and cannot be used to satisfy a University, college, or department course requirement. S is not computed in GPA calculations.

NS Not-satisfactory grade for courses taken on a satisfactory/not-satisfactory basis. A grade less than 2.0 for undergraduates is converted to NS. NS is not included in GPA calculations. No credit is awarded for courses in which an NS grade is received.

CR Credit awarded in a course offered on a credit/no-credit basis only or in courses numbered 600, 601, 700, 750, and 800. The minimum performance level required for a CR grade is determined, and the grade is awarded directly, by the instructor. CR is not computed in GPA calculations.

NC Credit not awarded in a course offered on a credit/no-credit basis only or in courses numbered 600, 601, 700, 750, and 800. The grade is awarded directly by the instructor and is not included in GPA calculations.

W Official withdrawal or drop from a course from the third through the seventh week of the quarter for undergraduates. A number designating the week of the quarter is recorded with the *W* when a course is dropped. It is not computed in GPA calculations.

HW Grade assigned when an undergraduate is allowed a hardship withdrawal from a course after the fourteenth calendar day of the quarter. It is not computed in GPA calculations.

Nontraditional Grading Options

Credit/No Credit—Only as a Course Option

With appropriate departmental review and approval, a course may be offered on a credit/no credit-only basis. The standard for granting credit in credit/no credit-only courses under this option is the demonstration of competence in the material of the course to the instructor's satisfaction.

Satisfactory/Not-Satisfactory Grading Option

Students may select the S/NS grading option for courses through the end of the seventh week of the quarter. No more than 25 satisfactory/not-satisfactory credits may apply toward an undergraduate degree. Such courses may not be used to satisfy University, college, or departmental course requirements (i.e., may be applied only to the elective component of a degree).

Veterans receiving benefits should check with the Office of Special Services regarding nontraditional grading options.

It should be noted that the possibility of future objective evaluation of the student's total academic record is reduced by the extent to which the record includes course work that is evaluated by a grading system other than the numerical system. A student should be aware that he or she may jeopardize future educational opportunities, particularly for graduate or postbaccalaureate study, when other systems of performance evaluation are used.

Grade-Point Average (GPA)

The University's cumulative GPA is based solely on courses taken in residence at the UW; this includes some, but not all, courses taken through UW Extension. The UW transcript also reflects grades for UW Extension course work that is not residence credit, and the grades for credit by examination. These latter grades do not affect the University cumulative GPA.

Computation of GPA

The GPA for graduation is computed by dividing the total cumulative grade points by the total graded credits attempted for courses taken in residence at the University. Grade points are calculated by multiplying the number of credits by the numeric value of the grade for each course. The sum of the grade points is then divided by the total graded credits attempted. Courses elected on an S/NS basis are counted as follows: Satisfactory grades are printed on the permanent record as an *S* and do not count in the quarterly or cumulative GPA, but they do count as credits earned toward graduation. Not-satisfactory grades, *NS*, do not count in the quarterly and cumulative GPA and do not count as credits earned toward graduation.

EXAMPLE 1

Course	Credits	Grade	Grade points
CLAS 205	3	CR	
OCEAN 101	5	2.7	= 13.5
HIST 111	5	4.0	= 20.0
SCAND 100	2	3.3	= 6.6
Total credits earned toward graduation	15		
Total graded credits attempted	12		40.1
GPA = $40.1 \div 12 = 3.34$			

The total graded credits attempted, not the credits earned toward graduation, are used in computing the GPA.

EXAMPLE 2

Course	Credits	Grade	Grade points
ENGL 121	5	2.3	= 11.5
OCEAN 101	5	0.0	= 0.0
SPHSC 100	3	2.7	= 8.1
ART 121	5	I	= 0.0
Total credits earned toward graduation	8		
Total graded credits attempted	13		19.6
GPA = $19.6 \div 13 = 1.51$			

The student attempted 18 credits, but only 13 are graded, because the Incomplete (I) is not computed in the GPA. The 0.0 for OCEAN 101 is computed in the GPA, but no credit is awarded toward graduation.

If the work in ART 121 is not made up by the end of the next quarter, the I is converted to a numeric grade and the GPA is recomputed.

Repeating Courses

With the approval of the academic department offering the course, an undergraduate may repeat a course once. Both the original grade and the second grade are computed in the GPA but credit is allowed only once. Veterans receiving benefits must receive approval from the Office of Special Services before a course is repeated.

Grading Procedures

Change of Grade

Except in case of error, no instructor may change a grade that he or she has turned in to the Registrar. Grades cannot be changed after a degree has been granted.

Grade Appeal Procedure

A student who believes he or she has been improperly graded must first discuss the matter with the instructor. If the student is not satisfied with the instructor's explanation, the student may submit a written appeal to the chair of the department, or in a nondepartmental college, to the dean, with a copy of the appeal also sent to the instructor. The chair or dean consults with the instructor to ensure that the evaluation of the student's performance has not been arbitrary or capricious. Should the chair believe the instructor's conduct to be arbitrary or capricious and the instructor declines to revise the grade, the chair (or the dean in a nondepartmental school or college), with the approval of the voting members of his or her faculty, shall appoint an appropriate member, or members, of the faculty of that department to evaluate the performance of the student and assign a grade. The dean and Provost should be informed of this action.

Once a student submits a written appeal, this document and all subsequent actions on this appeal are recorded in written form for deposit in a department or college file.

Grade Reports

Grades are not routinely mailed. Students may request a grade report at the end of the quarter through STAR. Copies of grades may also be obtained through STAR Online from the UW homepage (www.washington.edu). To ensure the requested delivery of grades, changes in the mailing address should be made through STAR Online or by telephone on the Address Change Telephone Service, (206) 543-3868, by the last day of instruction.



Scholarship

Low Scholarship

Academic Warning

An undergraduate student whose GPA falls below 2.00 in his or her first quarter at the University receives an academic warning. If a cumulative GPA of at least 2.00 for courses earned in residence at the University is not achieved by the end of the next quarter, he or she is placed on academic probation.

Probation and Dismissal for Low Scholarship

An undergraduate student is placed on academic probation at the end of any quarter (except for the first quarter at the University, when an academic warning is issued) in which his or her cumulative GPA falls below 2.00. The student remains on probation until the cumulative GPA is raised to at least 2.00. If this requires more than one quarter's work, the student must maintain a quarterly GPA of at least 2.50 each succeeding quarter or the student is dropped for low scholarship.

Reinstatement

A student who has been dropped under low-scholarship rules is readmitted to the University only at the discretion of the dean of the school or college to which readmission is sought. A student readmitted after being dropped under these rules re-enters on academic probation. The student's GPA is the same as when dropped from the University, and the student may not use grades from other colleges or universities to raise his or her UW GPA. A readmitted student is dropped if he or she fails to attain either a 2.50 GPA for the following quarter's work or a cumulative UW GPA of 2.00 at the end of that quarter. The student is removed from probation at the end of the quarter in which a cumulative GPA of 2.00 or better is reached.

Senior in Final Quarter

A senior who has completed the required number of credits for graduation, but whose work in what would normally be his or her final quarter places him or her on probation, does not receive a degree until removed from probation. A senior who has completed the required number of credits for graduation, but whose work in his or her last quarter results in his or her being dropped for low scholarship, does not receive a degree until readmitted and removed from probation.

Dean's List

Quarterly Dean's List

The quarterly Dean's List includes the names of matriculated undergraduate students who have attained a quarterly GPA of 3.50 in the final grades for at least 12 graded credits. Appropriate entries regarding inclusion on the Dean's List are made on the student's permanent academic record.

Annual Dean's List

The Annual Dean's List high-scholarship award is recorded on the academic transcript of students who have achieved a quarterly GPA of 3.50 in 12 or more numerically graded credits each quarter for three quarters of the academic year (summer through spring).

Students enrolled for four quarters of the academic year (summer through spring) must satisfy the conditions outlined above and attain a quarterly GPA of 3.50 or better in the fourth quarter, if enrolled for 10 or more credits.

Students who are on the Annual Dean's List receive a certificate.

Baccalaureate Honors

Baccalaureate honors (*summa cum laude*, *magna cum laude*, *cum laude*) are awarded only to recipients of a first baccalaureate degree. These honors are earned by those students who have completed no fewer than 90 residence credits at this institution. At least 60 of the 90 credits must have been acquired on a graded basis.

The University's Honors Committee determines annually the grade-point requirement for each baccalaureate honor. In recent years, approximately ten percent of the students have been awarded baccalaureate honors. Credits earned by correspondence courses are not counted toward honors eligibility.

Freshman Medal, Sophomore Medal, Junior Medal, President's Medal

The Freshman Medal is awarded to the sophomore having the highest scholastic standing for the first year of his or her course. To be eligible, students must have completed at least 36 graded credits in residence at the University.

The Sophomore Medal is awarded to the junior having the highest scholastic standing for the first two years of his or her course. To be eligible, students must have completed at least 40 credits in residence at the University.

The Junior Medal is awarded to the senior having the highest scholastic standing for the first three years of his or her course. To be eligible, students must have completed at least 40 credits in residence at the University.

The President's Medal, which is conferred at commencement, recognizes the graduating senior who has the most distinguished academic record. Only students who have earned at least 90 credits in residence at the University may be considered.

Honorary Societies

In addition to the honors discussed above, students with distinguished academic records may participate in several University-wide honorary societies, described below, and specific college or school honorary societies. Information concerning specific college or school honorary societies appears in the respective sections of this catalog.

Golden Key National Honor Society. A national, nonprofit academic honors organization founded in 1977 for the purpose of recognizing and encouraging scholastic achievement among students from all academic fields. Membership is by invitation only.

Mortarboard. A national college senior honor society whose membership is based on scholarship, leadership, and service. The local Tolo chapter was founded in 1909 and became part of the national organization in 1925. Students of junior standing apply winter quarter for selection in spring quarter.

Phi Beta Kappa. A national collegiate honorary society, founded in 1776, with the Washington Alpha Chapter established in 1914. Phi Beta Kappa recognizes distinguished scholarship, especially in the acquisition of an education in the liberal arts and sciences. Students are elected to membership on the basis of GPA and breadth of education.

Additional information on honorary societies may be obtained from academic advisers and the respective campus representatives.

Graduation

Graduating Senior Priority

Graduating seniors or postbaccalaureate students with a degree application on file in the Graduation and Academic Records Office may register on the first day of Period I for their final two quarters. Students who postpone their graduation may save their priority quarters by not registering before their regular senior or postbaccalaureate priority day. When students have used their Graduating Senior Priority for two quarters, their registration priority reverts to the regular senior or postbaccalaureate schedule. See the quarterly *Time Schedule* for current information.

Filing an Application for Baccalaureate Degree

A student should file a written application for his or her degree with the Graduation and Academic Records Office, 264 Schmitz Hall, two to three quarters before the expected date of graduation. The absolute deadline for filing an application is Friday of the third week of the quarter in which the student intends to graduate.

It is the student's responsibility to apply for a degree or certificate, because degrees are not automatically awarded when requirements have been satisfied. Application forms and diploma cards are available in the major departments.

The signature of the department head or of an authorized adviser must appear on the application in the space provided for "Signature of major adviser." If the student's major is in a college other than Arts and Sciences, the signature of the dean or a designated representative is required. The student is also required to sign the application.

Departmental advisers should notify the Graduation and Academic Records Office of any changes made to the courses and credits listed on the application.

If an applicant is ineligible to graduate because of a deficiency, the Graduation and Academic Records Office will notify the student.

University Requirements for Baccalaureate Degree

To graduate, a student must meet University, college or school, and departmental requirements. Only University requirements are listed in this section. Requirements of colleges, schools, and departments appear in the section pertaining to the college, school, or department concerned.

Scholastic Standards Required

To be eligible for the baccalaureate degree, a student must earn a cumulative GPA of 2.00 for all work done in residence at the University.

The *graduation* GPA is computed when the student has completed all work for the degree and includes only credits earned while in residence at the University.

Credits Required

To be eligible for graduation from the University with the baccalaureate degree, a student must satisfy all other specific requirements and must offer a minimum of 180 academic credits.

University General Education and Proficiency Requirements

The University has adopted minimum general education and proficiency requirements. Individual schools and colleges may establish general education and proficiency requirements in excess of University requirements. Consult the undergraduate program section of each school or college for specific graduation requirements.

Limitation on ROTC Credits

Credits earned in first- and second-year military training courses cannot be counted in the basic 180 credits required for graduation. Some third- and fourth-year courses may count, depending on the student's college or school.

Limitation on Physical Education Activity Credits

No more than 3 physical education activity credits can apply toward a degree.

Final-Year Residence Requirement

To be recommended for a first or subsequent baccalaureate degree, a student must complete the final 45 credits as a matriculated student in residence at the University. The granting of exceptions to this rule is the responsibility of the dean of the college or school awarding the degree. If an exception is granted, the student still must present a minimum of 45 credits taken in residence as a matriculated student to be awarded a UW degree.

Effective Date for Graduation Requirements

If fewer than ten years have elapsed since a student's admission into her or his major program, she or he may choose to graduate under the major program requirements in effect at the time of admission, or under any subsequent requirements. The choice shall be subject to approval of the student's departmental chair and dean, according to the procedures established in Section 23-48 of the Faculty Code.

If the student wishes to obtain a degree after a lapse of more than ten years from the date of admission to the major program, she or he must meet the requirements in effect at the time of graduation unless permission to use earlier requirements is granted, either as a general policy or expressly for the individual student, by the department, school, or college whose requirements are in question.

These provisions do not apply to the requirements for teaching certificates, which are prescribed by the College of Education at the time the certificate is to be granted.

Waiver of Graduation Requirements

A request for waiver of college or University graduation requirements is petitioned to the college graduation committee, which refers the petition to the Committee on Admissions and Academic Standards if an all-University requirement is involved. These petition forms are available at the Graduation and Academic Records Office or the advisory office. A student should see his or her academic adviser to initiate a petition. Because the Committee on Admissions and Academic Standards meets only quarterly, petitions involving University requirements should be filed early in the quarter.

An exemption from an all-University graduation requirement that is granted by the Committee on Admissions and Academic Standards becomes void at the end of two calendar years from the date such exemption is granted if all degree requirements have not been completed within that period.

Graduation Requirements for ROTC Students

As a prerequisite for graduation from the University, students accepted for the third- and fourth-year advanced ROTC program must complete the advanced program unless excused or dismissed from this requirement by regulations prescribed by the Secretary of the Army, the Navy, or the Air Force, whoever has the authority in the individual case.

Two Majors or Two Degrees

Second Baccalaureate Degree

A second baccalaureate degree may be granted, but a student must earn a minimum of 45 credits beyond the number required for the first baccalaureate degree. These credits usually must be earned in residence, with the granting of exceptions to the residency rule being the responsibility of the college or school awarding the degree. Students working for a second baccalaureate degree are not registered in the Graduate School. The student must achieve at least a 2.00 cumulative GPA in the credits required for the second degree.

Degrees with Two Majors

Some colleges allow a baccalaureate degree with two majors. The student's application for such a degree must show both majors and be approved by the advisers of both departments. Both majors appear on the transcript and both must be either Bachelor of Arts or Bachelor of Science degrees.

Two Baccalaureate Degrees Concurrently

Two baccalaureate degrees, associated with different majors, may be granted at the same time, but the total number of academic credits earned must be at least 45 credits in excess of the number required for the first baccalaureate degree.

Academic Minors



www.washington.edu/students/ugrad/advising/minorreg.html

Degrees with Minor. Departments, schools, and colleges are authorized to provide a course of study leading to an undergraduate academic minor. Requirements are within the purview of the department, school, or college. The minor shall consist of no fewer than 25 credits. Interdisciplinary minors are acceptable. Completion of the minor will appear on the permanent record.

Requirements for Teaching Certification

The College of Education offers professional programs approved by the State Board of Education leading to teaching and other certificates. Additional information appears in the College of Education section of this catalog, or the student may write to the Office of Teacher Education, 211 Miller, Box 353600.

Commencement

Formal commencement exercises are conducted at the close of spring quarter. During April of each year, commencement information is sent to each student entitled to participate the following June (i.e., those who graduated the previous August, December, or March and those who anticipate graduating in the current June and August).

Diploma Distribution

Diplomas are available 12 weeks after the end of the quarter in which they are earned.



Procedures and Fees

The University and its colleges and schools reserve the right to change the fees, the rules, and the calendar regulating admission and registration; the instruction in and the graduation from the University and its various divisions; and any other regulations affecting the student. The University also reserves the right to withdraw courses and programs at any time.


It is the University's expectation that all students follow University regulations and procedures as they are stated in the *General Catalog*. Appeals may be filed with the student's dean or with the Vice President for Student Affairs in nonacademic matters. Students are expected to observe the standards of conduct contained in the Student Conduct Code (WAC 478-120).

Registration

 www.washington.edu/students/reg/regelig.html

Detailed information and procedures pertaining to registration and withdrawal are outlined in the quarterly *Time Schedule*.

Registration Period I

 www.washington.edu/students/reg/addpolicy.html

Designed to accommodate currently registered matriculated students and students eligible to register under the Quarter Off Eligibility Policy, Registration Period I occurs during the latter half of the quarter preceding the quarter for which the student is registering. However, currently enrolled students register for autumn quarter in spring quarter.

Registration Period II

Registration occurs after Registration Period I closes and is intended primarily to accommodate new and returning students. Continuing students who fail to register during Registration Period I may register during this period. Students who have not completed their initial registration by the end of this period (selection of student insurance, ASUW membership, optional charges, and mailing preference options) are charged a Late Registration Fee.

Registration Period III

All students may register or make course changes during this period. Dropped courses do not appear on the transcript. Students are charged a Change of Registration service fee for registration changes made after Period III. One fee is charged for all changes occurring during the same day. A tuition forfeiture is charged for total credit reductions after Period III if applicable. See Fee Forfeiture section.

Late Add Period

All students may register or make registration changes during this period. All added courses require an entry code or faculty number. A Change of Registration service fee is charged.

Unrestricted Drop Period

 www.washington.edu/students/reg/wdpolicy.html

Courses dropped during this period will not appear on the transcript. A Change of Registration fee is charged.

Late Course Drop Period (Annual Drop)

Students may drop one course each academic year (autumn through summer quarters) after the fourteenth calendar day of the quarter through the seventh week of the quarter. A course drop will be recorded on the transcript with a W followed by the number of the week of the drop (W3-W7). A Change of Registration service fee is charged.

Credits Required for Full- or Half-Time Status Requirements

 www.washington.edu/students/reg/regpol.html

Some agencies require that a student have full-time status to receive maximum benefits. To be classified as a full-time student by the University, an undergraduate student must register for and complete at least 12 credits per quarter. To be classified as a half-time student by the University, an undergraduate student must register for at least 6 credits per quarter.

Restrictions on Attending Classes

 www.washington.edu/students/reg/regpol.html

No person, other than a faculty member attending informally with the approval of the instructor, may attend a University course in which that person has not been registered.

An instructor may allow a student to attend his or her class only if the student's name is on the official class list from the Office of the Registrar. An unregistered student may attend through the fourteenth calendar day of the quarter if the student is on an official wait list for the course.

Adding Courses/Permission Guidelines

 www.washington.edu/students/reg/regopt.html

For reasons of public safety and instructional quality, it is important to limit course enrollment to the approved classroom capacity. The Office of the Registrar monitors course enrollment and accepts student registration in fully enrolled courses according to the following guidelines:


1. Through the second week of the quarter, departments may choose to overload courses up to 115% of the room capacity to offset anticipated student course drops and withdrawals as demonstrated by past registration activity.

Students must secure entry codes from instructors or departments to add closed courses. However, if enrollment is at 115% of room capacity, registration requests are denied. Students should be informed when receiving entry codes to overloaded courses that registration is not guaranteed if enrollment exceeds 115% of room capacity.

If centralized room-capacity records do not correctly reflect the actual seating capacity, notification should be made to the Room Assignments/Time Schedule Office in the Office of the Registrar.

2. Students may add courses during the Late Add Period or through the twenty-first calendar day of the quarter. Adds after the seventh calendar day of the quarter require an entry code or faculty number. Departments may also add students to departmental courses during this period through departmental registration screens. To add courses after this period, students must submit a faculty-approved Late Add Petition form to the Registration Office.
3. A course may not be changed to or from an audit registration after the first two weeks of the quarter. See below for transcript entry.

Dropping a Course

 www.washington.edu/students/reg/wdpolicy.html

Students dropping a course during the first two weeks of a quarter shall have no entry on their permanent academic transcript. If all courses are dropped, then a complete withdrawal date is recorded on the transcript.

A course drop made during the third through the seventh weeks of the quarter is recorded on a student's transcript with a W grade and a number designating the week of the quarter in which the course drop was transacted. Only one drop after the fourteenth day of a quarter is permitted each academic year (autumn through summer quarter).

A student who does not officially drop a course through the registration system or the offering department is given a grade of 0.0.

Students receiving or applying for financial aid should check with the Office of Student Financial Aid, 105 Schmitz Hall, (206) 543-6101, before dropping a class because it may affect their eligibility.

Students receiving veterans' benefits should contact the Office of Special Services, 460 Schmitz Hall, when dropping courses.

Complete Withdrawal from the University for a Registered Quarter

 www.washington.edu/students/reg/wdoffleave.html

Once registered, a student must officially withdraw if he or she later chooses not to attend the University for the registered quarter. Official withdrawal must be made by the fifth day of the quarter for the student to avoid further financial obligation (see Tuition, Fees, and Special Charges for refund information on withdrawals).

1. To withdraw from a quarter, students may complete a Withdrawal Card and submit it in person to the Registration Office, 225 Schmitz Hall, or write to the Registration Office, Box 355850, Seattle, WA 98195-5850. Withdrawal forms are available at advising offices and the Registration Office. An official withdrawal is effective the day it is received in the Registration Office, or if submitted by mail, the date of the postmark.

- Students who drop the last course on their schedules will be considered withdrawn for the quarter. Students who drop courses beginning the eighth calendar day of the quarter are charged a Change of Registration service fee per day for any course drops.
- Refer to the grading section in the Undergraduate Study section.
- Students receiving veterans' benefits should immediately notify the Office of Special Services of withdrawal.
- Students with a scholarship or loan awarded through the University should notify the Student Accounts and Scholarships Office or the Student Loan Office.
- Students who withdraw due to conscription into the armed forces or who are called to active duty military service may be entitled to either a full refund of tuition and fees or academic credit, depending on when in the quarter official withdrawal occurs. Students should contact the Registration Office for complete information.

Additional Information

Address Change



www.washington.edu/students/reg/address.html

Students are responsible for notifying the Office of the Registrar when their address changes. Individual addresses may be viewed and updated through MyUW, which can be accessed through the Student Guide on the UW homepage (www.washington.edu). Complete instructions for updating address records are listed. Students need to enter both their student number and private access code (PAC) to update their individual address record. A confirmation message will be sent to the student's email address. *The mailing of notices to the last address on record constitutes official notification.*

Residence Classification Requirements



www.washington.edu/students/reg/residency.html

Residence classification information is available from the Graduation and Academic Records Office, 264 Schmitz Hall.

Student Identification Cards



www.washington.edu/students/reg/id.html

All new students should go to the Student ID Card Center, 229 Schmitz Hall, to be issued a permanent student identification card. Photo identification (such as a driver's license, state ID card, or passport) is required to obtain a student ID card. Returning students who have not retained a previous ID card should obtain a new one. A quarterly validation sticker is mailed with the registration confirmation to each registered student. The student ID card with attached validation sticker is used for a variety of campus services. It is the student's means of identifying his or her status as a student at the University.

Registered students whose ID cards have been lost or stolen can have them replaced at the Student ID Card Center. Students who request such replacement are charged a nonrefundable fee. Replacement of cards made invalid by changes in a student's name or rendered unusable by normal wear and tear is provided without charge upon return of the original card to the Student ID Card Center. Two pieces of identification (one with a photo) are required to obtain a replacement card.

Cards that have been tampered with or misused may be confiscated by the University agency or department involved, and the incident may be referred to the Office of the Vice President for Student Affairs for appropriate University action.

Transcripts



www.washington.edu/students/reg/transcripts.html

Official copies of student academic records at the UW must bear the official seal of the University, the signature of the Associate Registrar, and the date of issue.

Transcript Fee

A charge of \$4, paid to the Transcript Office in advance, is required for each transcript.

Transcripts from Other Schools

A transcript covering a student's previous secondary and college education that has been submitted to the University as a requirement for admission becomes part of the official file and is not returned to the student. Any student who desires

transcripts of his or her course work undertaken elsewhere must order official transcripts from the institution. The University does not issue or certify copies of transcripts from other institutions.

Veterans and Children of Totally Disabled Veterans and Personnel in the Armed Forces

Information on educational benefits and tuition reduction programs for veterans and their dependents is available from the Office of Special Services, 460 Schmitz Hall.

Veterans and members of the armed forces who apply for admission to the University are subject to the same minimum requirements as regular students and are expected to enroll in accordance with University requirements.

The University's academic programs of study are approved by the Washington State Higher Education Coordinating Board's State Approving Agency (HECB/SAA) for enrollment of persons eligible to receive educational benefits under Title 38 and Title 10 USC.

Tuition, Fees, and Special Charges

Estimated Expenses

The cost of a student's education at the University varies, the amount depending on his or her classification, status as resident or nonresident, and field of study. In computing college costs, a student should consider such additional expenses as insurance coverage, books, and laboratory supplies. Personal expenses (e.g., clothing, laundry, recreation, and transportation), which vary with each individual, as well as between-quarter expenses, should not be overlooked.

The following figures are prepared and updated each year by the Office of Student Financial Aid and reflect modest, but adequate, probable costs for students attending the University during the nine-month academic year. They should be used only as a guide in determining the year's expenses.

	<i>Lives with Parents</i>	<i>Traditional</i>	<i>Nontraditional</i>
Books	\$ 777	\$ 777	\$ 777
Room and Board	2,382	5,844	8,319
Transportation	396	396	747
Miscellaneous personal expenses	2,043	2,043	2,043
Total	\$5,598	\$9,060	\$11,886

Traditional budget: All single undergraduates, without dependents (spouse or children), who are living away from parent's home; married undergraduates, without children, whose spouses are also students.

Nontraditional budget: All undergraduates who have children, married undergraduates whose spouses are not students.

	<i>Resident tuition and fees</i>	<i>Nonresident tuition and fees</i>
Undergraduates	\$3,638	\$12,029
Business (MBA) students	5,664	14,081
Graduate students	5,583	13,872
Law students	6,009	14,802
Medical and dental students	9,210	23,256

Tuition and fees are subject to change.

Enrollment Confirmation Deposit



depts.washington.edu/nsp/first2.html

A new or returning former student or a continuing student in a new classification (e.g., undergraduate, postbaccalaureate [fifth-year], graduate) is required to confirm his or her intention to enroll by paying a nonrefundable \$100 Enrollment Confirmation Deposit (not required of students admitted summer quarter). The \$100 is applied toward tuition and fees assessed for the quarter for which the student is determined to be admissible and subsequently enrolls. A student who pays the fee for a given quarter but does not register in that quarter is not entitled to a refund except by petition in the situations listed below:

1. A new or returning matriculated student who is unable to obtain courses required for the completion of the degree or certificate program, or courses which are determined by an appropriate academic adviser to be acceptable alternate courses. A written verification from the appropriate academic adviser must be attached to this petition. Such requests for refund must be submitted by Friday of the second week of the quarter.
2. A new or returning matriculated student who, after meeting with an appropriate academic adviser, determines that the program for which admission was granted differs substantially from what the student was led to expect based upon earlier available information. This petition for refund must be submitted before the student registers for courses and in no case later than the first day of the quarter for which admission has been granted. A written verification from the appropriate academic adviser must be included.
3. A new or returning student who applies by the prescribed deadline for financial aid administered by the University's Office of Student Financial Aid, and who cannot be awarded financial aid adequate to his or her needs as determined by that office, and who is therefore unable to attend the University. This petition and a copy of the Notice of Award and Acceptance must be submitted no later than two weeks after receipt of notice of the financial aid award.
4. A new or returning student who is unable to attend the University because of pregnancy, disability, or death, or because of being called involuntarily into the military service of the United States or into civil duty. Documentation is required.

Fee Payment

 www.washington.edu/students/sfs/sao/ttnrates.html

An obligation to pay tuition and fees in U.S. dollars is incurred when a student registers. A fee statement is mailed to the student's address on file with the Office of the Registrar.

Payment of this obligation is due by Friday of the third week of the quarter. Nonpayment of tuition and fees by the due date results in (1) a charge of \$10 to \$30 for late payment, if payment is received within the one-week late-payment period; (2) cancellation of registration, if payment is not made by the eighth Wednesday of the quarter. One-half of tuition is assessed when registration is canceled for nonpayment of tuition and fees. The *Summer Quarter Bulletin and Time Schedule* should be consulted for fees and fee payment schedule applicable to summer quarter only.

When the payment is not in conformance with the tuition and fee billing, specific instructions on how the payment is to be applied must accompany the payment. In the absence of instructions, the University makes a reasoned interpretation of the student's intent and accounts for the funds accordingly. The student number must be specified on all payments.

Estimated Quarterly Tuition Rates Effective Autumn Quarter 2000

 www.washington.edu/students/sfs/sao/ttnrates.html

Undergraduate

(including nonmatriculated and fifth-year)

	Technology Fee	Resident ¹	Nonresident ¹
2 credits (minimum)	\$8	\$249	829
3 credits	12	375	1,244
4 credits	16	500	1,659
5 credits	20	625	2,074
6 credits	24	751	2,489
7 credits	28	876	2,904
8 credits	32	1,001	3,319
9 credits	36	1,127	3,734
10-18 credits	40	1,252	4,149
Additional fee per credit for more than 18 credits	NA	112	402

¹ Includes technology fee.

Fees are subject to change without notice.

Tuition rates for resident and nonresident students apply to the academic year (autumn, winter, and spring quarters). Summer quarter tuition is listed in the *Summer Quarter Bulletin and Time Schedule*. Except for students in the Schools of Dentistry or Medicine, nonresident students are charged resident tuition during summer quarter.

Tuition charges are based on student classification, e.g., undergraduate, graduate, or professional, and not on course level.

Fees listed above do not apply to students registered through UW Extension. See the UW Extension Bulletin for their fee structure.

Special Course and Laboratory Fees

The amounts listed above cover normal University charges for course registration. Some courses, however, have extraordinary expenses associated with them, and in such cases the University may charge additional fees in amounts that approximate the added instructional or laboratory costs.

Other Fees

Auditors: There is no reduction in fees for auditors.

Admission Application Fees: Undergraduate, \$35; Former students returning in the same classification, \$35.

Late Registration/Reregistration Fees: A late registration service charge of \$25 is assessed when a student registers after the last scheduled day of Period II registration and through the tenth day of the quarter. Students registering after the tenth day pay a \$75 Late Registration Fee. A student who must reregister as a result of a cancellation for nonpayment of tuition must also pay a \$75 fee. Waiver or refund of the Late Registration Fee may be petitioned in the Registration Office. Waiver or refund of the \$75 reregistration fee may be petitioned in the Student Accounts and Cashiers Office.

Change of Registration Service Fee: A charge of \$20 is made for any number of add, drop, or change transactions processed during a given day beginning the eighth calendar day of the quarter.

Transcript Fees: A charge of \$4, paid to the Transcript Office in advance, is required for each transcript.

Replacement Fees: Duplicate diploma, \$10; student identification card, \$5 (nonphoto), \$10 (photo).

Credit by Examination Fee: In order to obtain credit for independent study, a regularly admitted and currently enrolled student may take an examination prepared by the department concerned. The fee is \$25 per examination. Appropriate forms must be obtained from the Graduation and Academic Records Office, 264 Schmitz Hall.

U-PASS Fee: A U-PASS validation sticker is mailed quarterly with a student's registration confirmation. The U-PASS is valid on all Metro and Community Transit routes at all times and provides parking privileges to carpoolers, riding privileges to vanpool and Night Ride passengers, and merchant discounts. The quarterly fee of \$31 (subject to change) is included on the tuition bill. Students who do not wish to participate in the U-PASS program must return the validation sticker to the University by the tuition payment deadline. The sticker can be returned by mail in the return envelope provided, mailed with the tuition payment, or returned in person to the Student Accounts and Cashiers Office. For further information consult the quarterly *Time Schedule*.

All fees are subject to change without notice.

Cancellation of Tuition

Registered students must pay full tuition and fees. Tuition may be canceled or reduced if a student makes an official withdrawal or drops a course during the period specified by state statute. Refunds are given when a cancellation or reduction results in an overpayment.

Continuing Students

1. A student who withdraws on or before the seventh calendar day of the quarter does not pay tuition.
2. A student who withdraws after the seventh calendar day through the thirtieth calendar day of the quarter must pay one-half tuition.
3. A student who withdraws after the thirtieth calendar day must pay full tuition.

New and Returning Students

1. A student who withdraws on or before the seventh calendar day forfeits the \$100 Enrollment Confirmation Deposit but does not pay the regular tuition.
2. A student who withdraws after the seventh calendar day through the thirtieth calendar day of the quarter must pay one-half tuition. The \$100 Enrollment Confirmation Deposit is applied toward payment of tuition.
3. A student who withdraws after the thirtieth calendar day of the quarter must pay full tuition. The \$100 Enrollment Confirmation Deposit is applied toward payment of tuition.

Fee Forfeiture

A student who does not completely withdraw but drops one or more courses may be eligible for lower tuition, depending on the total number of credits remaining after the course drop and on the time period when the drop was made. Tuition for students making a course drop on or before the seventh calendar day of the quarter is determined by the total credits remaining. Tuition for students making a course drop after the seventh calendar day through the thirtieth calendar day of the quarter is computed on the total credits remaining plus one-half the difference between the old tuition and the new tuition. There is no cancellation or reduction in tuition for courses dropped after the thirtieth calendar day of the quarter.

Fee Refund

When a fee payment is made by check, a waiting period is required before a refund can be authorized. An application for refund may be refused, unless it is made during the quarter in which the fees apply. A student who withdraws for disciplinary reasons forfeits all rights to refund or cancellation of any portion of his or her fees.

Financial Obligations

The Comptroller is authorized to place a hold (administrative) on the records of any student who fails to pay amounts due the University.

Until this hold is cleared, the University (1) does not release the student's record or any information based upon the record, (2) does not prepare transcripts or certified statements, and (3) denies registration.

In cases of serious financial delinquency, the Comptroller, with the consent of the Associate Registrar, may order that a student's registration be canceled and that privileges of attendance be withdrawn.

Tuition and fees not paid by the end of the academic quarter are subject to an interest charge of 1% per month, or a fraction thereof (12% APR), beginning the month following the end of the quarter.

An administrative hold or cancellation also may occur when a student has not complied with other University rules, procedures, or obligations. The hold may be placed on the student's record by the authorized University office responsible for enforcement of the rule, procedure, or obligation involved. The student is not permitted to register for any subsequent quarter or to obtain a transcript of his or her record or a certified statement except on the written release of the office that placed the hold.



Tuition Exemptions and Reductions



www.washington.edu/students/reg/tuition_exempt.html

Faculty/Staff, Washington State Employee, and Washington National Guard Member Tuition Exemption Programs

Eligible faculty, staff, state employees, and Washington National Guard members admitted to the University may enroll for up to 6 credits each quarter under these tuition exemption programs. Because such students are registered on a space-available basis, they must register after other students. The quarterly *Time Schedule* lists registration dates when students enrolling under these exemption programs may register. Eligibility information may be obtained from either the Staff Training and Development Office, or the Registration Office.

“Access” Program for Older Adults



www.washington.edu/students/reg/access.html

The UW allows Washington residents who are 60 years of age or older to audit certain courses on a space-available basis. Students who attend the University under the Access Program are limited to two courses per quarter. There is a nominal registration fee. As auditors, students do not receive credit, participate in discussions, complete laboratory work, or take examinations.

Tuition Reductions

The following categories of students may be eligible for reduced tuition and fees. Students in these categories may contact the offices shown for information or to obtain an application. The reductions are established by legislative mandate and may be revoked by the legislature at any time.

Category	Contact Office
Active duty military assigned to Washington and their children and spouses	Office of Residency Classification, 264 Schmitz Hall, (206) 543-5932
American Indian students who meet specific eligibility requirements	Office of Special Services, 460 Schmitz Hall
Children of POWs or MIAs	Office of Special Services, 460 Schmitz Hall
Children of Washington law enforcement officers or firefighters who died or became totally disabled in the line of duty	Office of Special Services, 460 Schmitz Hall
UW faculty members and their children and spouses who are not Washington state residents	Academic Personnel Office, 85 Gerberding Hall, (206) 543-5630
Immigrants holding a refugee classification who have been in the United States less than one year	Office of Special Services, 460 Schmitz Hall
Senior citizens under the Access Program	UW Extension, (206) 543-2320
UW staff members and their children and spouses who are not Washington state residents	Office of Special Services, 460 Schmitz Hall
TAs/RAs with half-time appointments	Graduate School, 201 Gerberding Hall
Veterans who served in the Persian Gulf combat zone in 1991	Office of Special Services, 460 Schmitz Hall
Veterans who served in Southeast Asia during the period of August 5, 1964-May 7, 1975	Office of Special Services, 460 Schmitz Hall
Medical students in the WWAMI Program	School of Medicine, Office of Academic Affairs, A300 Health Sciences
Award recipients under the Washington State Scholars and Washington Award for Vocational Excellence (WAVE) programs	Office of Student Financial Aid, Outreach Services, 172 Schmitz Hall
Students participating in the WICHE Program	Student Accounts and Cashiers Office, 129 Schmitz Hall

Academic Assessment

As part of an ongoing effort to ensure the quality of the education received by its students, the UW has instituted a comprehensive assessment program designed to measure student learning outcomes. This assessment program conforms with guidelines established by the state's Higher Education Coordinating Board. From time to time, students may be asked to participate in outcomes assessment by completing satisfaction surveys, sitting for achievement examinations, compiling portfolios of their academic work, or providing other academic performance indicators. The purpose of all such activities is to monitor the quality of the University's academic programs.

While it is a University requirement that students participate in these assessment activities when asked to do so, participants can be assured that assessment results will be treated in the strictest professional confidentiality. Whenever those results appear in University assessment reports or other public documents, they will be presented anonymously and in aggregate fashion.

Academic Sessions

University instruction is offered during autumn, winter, and spring quarters, each lasting approximately 11 weeks. The 9-week summer quarter is divided into two 4 1/2-week terms.

Accreditation

The University is accredited by the Northwest Association of Schools and Colleges and is a member of the Association of American Universities. Individual schools and colleges are members of the various accrediting associations in their respective fields. Currently enrolled or prospective students should contact the Office of the Registrar to review accreditation documents for the University and the respective department to review programmatic accreditation documents.

Academic Programs

The University offers a wide range of undergraduate, graduate, and professional degree programs. In addition to these programs, the following educational opportunities are available.

Certificate Programs



www.extension.washington.edu/extinfo/

UW Extension offers more than 80 specially designed credit and non-credit evening certificate programs of study in many areas, primarily to working adults. Some certificate programs address such personal-interest areas as film, writing, and sound production. Other programs focus on specific careers in business, industry, and technology, offering specialized training that supplements other education and work experience. Students are prepared to enter new fields or to grow professionally in areas ranging from accounting to computer programming to project management. All certificate programs and instructors have been approved by the appropriate academic units. Programs are designed by advisory boards consisting of leading professionals in the field and UW faculty. To accommodate working professionals, UW Extension schedules most classes to meet evenings or weekends. Several certificate programs are offered to students at a distance through various technologies. Course fees and admission requirements vary, and enrollment in all certificate programs is limited. More information may be obtained by consulting the quarterly UW Extension catalog, available by telephone, (206) 543-2320 or by visiting UW Extension's Web site.

Evening Classes

Opportunities for evening study at the University are varied to serve individual student interests and academic goals. For nonmatriculated (not formally admitted) students, UW Extension offers hundreds of evening credit courses and evening non-credit courses, which are described in the UW Extension section of this catalog.

Evening Degree Program



www.evedegree.washington.edu/evedeg/

Students can complete a bachelor's or graduate degree in the evening through the University of Washington Evening Degree Program. A wide variety of courses are scheduled for the convenience of evening-degree students. Some programs use technology for the delivery of courses to make the degrees more accessible.

Evening Degree Program students can earn baccalaureate degrees offered by the College of Arts and Sciences in anthropology, communications, English, general studies, history, humanities, political science, psychology, social science, and sociology. The School of Business Administration offers the Bachelor of Arts in Business Administration degree in the evening.

Summer Quarter



www.summer.washington.edu/uwsq/

During summer quarter, more than two thousand courses in most major fields are available to graduate and undergraduate students pursuing degree programs on a year-round basis as well as to summer-only students seeking to broaden, intensify, or refresh subject-matter competence. Summer-only students can apply for admission as nonmatriculated students and can earn credits which may apply toward a degree at another college. This status also accommodates teachers and school administrators who take special-interest courses to earn additional university credits and postbaccalaureate students who do not desire formal admission to a graduate or second undergraduate program. Freshman students entering from high school are encouraged to begin their college work in the summer in the Freshman Summer Start Program. Through the Office of Admissions, enrollment in summer courses may be arranged for specifically qualified students who have not yet completed high school.

Credits earned during summer quarter are evaluated as residence credits and, with the exception of separate fee schedules for medical and dental students, summer quarter fees closely parallel those of the other quarters. Nonresidents and residents pay the same fees during the summer. A complete listing of summer-quarter courses is published in the Summer Quarter bulletin, available on request from the University of Washington, Office of Summer Quarter, Box 354224, Seattle, Washington 98195, (206) 543-2320 or 1-800-543-2320, or visit the summer-quarter Web site.

UW Bothell and UW Tacoma



www.bothell.washington.edu

www.tacoma.washington.edu

At its Bothell and Tacoma campuses, the University offers bachelor's and master's degree programs designed to provide additional educational opportunities for residents of the Puget Sound region. The campuses are located in Bothell, 15 miles to the north of the Seattle campus, and in Tacoma, 35 miles to the south. Undergraduate programs at Bothell and Tacoma are offered at the upper-division level, for students who have already completed the first two years (80 to 90 credits) of undergraduate study. The following degree programs are currently available at both campuses: Bachelor of Arts in Liberal Studies, Bachelor of Arts in Business Administration, Bachelor of Science in Nursing (designed for registered nurses), Bachelor of Science in Computing and Software Systems, and Master of Education. In addition, a Teaching Certificate Program is available at both campuses for students preparing to teach at the K-8 grade levels. The Tacoma campus also offers Master of Nursing and Master of Social Work degree programs. The Bothell campus also offers a Master of Management degree focused on technology-oriented businesses. A Master of Arts in Public Policy and a Master of Science in Computing and Software Systems are planned to begin in autumn 2001. A Bachelor of Science in Environmental Sciences is currently being planned. Further information is provided in the University of Washington, Bothell and University of Washington, Tacoma sections of this catalog.

Resources and Facilities

Burke Museum



www.washington.edu/burkemuseum/

The Burke Museum of Natural History and Culture serves both the University and the public in its mission to encourage understanding of, and appreciation for, the natural and cultural heritage of Washington state, the Pacific Northwest, and the Pacific Rim. The Burke has three scientific divisions—anthropology, geology, and zoology—holding more than four million specimens. Collections of national and international ranking include Northwest Indian art, Northwest archaeology, vertebrate and invertebrate paleontology, mammals, and birds. Other noteworthy collections include Asian and Pacific ethnography, minerals and gems, paleobotany, arachnids, lepidoptera, and micropaleontology.

The collections are accessible for research by UW faculty, students, and visiting scientists. The museum's public galleries feature two long-term exhibits ("Life and Times of Washington State" and "Pacific Voices"), as well as a series of changing shows on Pacific-region cultures and natural history. Hours are 10 a.m. to 5 p.m. daily, except July 4th, Thanksgiving, December 25th, and January 1st. Admission is free to UW staff and students.

Computing Resources



www.washington.edu/computing/
www.washington.edu/uwired/

The diverse computing and networking needs of instructional and research groups on campus are served by central organizations as well as individual schools, colleges, and departments. Together these provide a variety of computers, facilities, and support services to the UW community. A wide array of computing options and services is offered by Computing and Communications (C&C), the central UW organization for computing and networking, and by UWired, a collaborative effort to integrate information technology into teaching and learning.

Students, faculty, and staff members can create accounts on computers provided by C&C, which give them access to tools for teaching, learning, and research. They can use Internet resources and the World Wide Web, including servers where they can create Web pages. They can browse the UW course catalog and Time Schedule; use electronic mail; get news and campus events; research term papers; search library catalogs; and use software for statistics, graphics, programming, and text formatting. In addition, UW Internet Connectivity Kit software allows them to connect their own computer to the Internet, either from home (via a modem and a phone line) or from a residence hall or office (usually via Ethernet). To obtain the personal network identification (UW NetID), that provides access to these resources, see www.washington.edu/computing/uwnetid/.

The University's largest drop-in labs are operated by UWired. These labs are more than just a place to check email and do word processing—they are information commons, co-located with other services to provide students with a rich set of resources required to enhance learning. The labs offer PC and Macintosh computers connected to the campus network, free workshops, student consultation, and computers with special adaptive equipment to assist people with motor, visual, hearing, or learning impairments. For hours, locations, and additional information please see www.washington.edu/uwired/.

UWired also operates the University's Center for Teaching, Learning and Technology, providing free assistance, workshops and one-on-one faculty consultation. The UWired Center is equipped with a variety of hardware and software to allow faculty to experiment with different technology options and receive assistance in using them effectively. In addition, resources are available for a small fee in the Locke Visualization Lab (located in the Health Sciences Center) to help faculty, staff, and students doing research to make visual representations of their work for scientific presentations, publications, teaching tools, or Web pages.

The UWired Center is also home to the development efforts behind Catalyst, a project to support innovation in teaching via the Web. Catalyst provides educators with the resources, ideas, tools, and information needed to make use of the Web in education and functions as a campus clearinghouse for new approaches to educational technology.

C&C provides other computing-associated services, such as telecommunications, UWTV cable channel 27, video production and videoconferencing, microcomputer and workstation support, training, administrative systems support, individual consulting, publications, and online documentation. For details about the computing resources available on campus through C&C (including how to get started and take advantage of low-cost training), see the Computing and Networking Web page. Other questions can be answered by sending email to help@cac.washington.edu or calling C&C Information, (206) 543-5970.

Early Entrance Program

This unique UW program provides early University entry to exceptionally bright, highly motivated adolescents who are ready for college-level work by age fourteen. A transition school provides an intensive, one-year bridge to regular, full-time University enrollment. Transition school also provides counseling support; close, one-on-one academic tutoring; and a "home base" for these full-time students. Information is available from the Halbert Robinson Center for Capable Youth, Guthrie Annex II, (206) 543-4160, depts.washington.edu/cscyl/.

Office of Educational Assessment



www.washington.edu/oea/

Testing and educational evaluative services for University departments and individual students are available at the Office of Educational Assessment. Of particular interest to prospective and entering students are the office's programs for admissions testing, including the Scholastic Assessment Test (SAT), and for placement testing in mathematics and foreign languages. Also, the Office administers a variety of tests for international students and others for whom English is not their native language. These tests are used for admission and English as a Second Language (ESL) placement or waiver. For the University student approaching graduation, the Office administers tests required for admission to graduate, law, medical, and other professional schools, as well as those tests often requested by prospective governmental or private employers. The Office is located at 453 Schmitz Hall.

English As A Second Language Department



www.edoutreach.washington.edu/esl/

The English As A Second Language Department offers a variety of courses to help students improve their English and learn more about American culture. Additional information appears in the University Extension section of this catalog.

Hall Health Primary Care Center



depts.washington.edu/hhpcweb

The University provides outpatient health and medical care for students, faculty, staff, and their families, and others through the Hall Health Primary Care Center. Located on campus, the Center is staffed by physicians and nurse practitioners affiliated with the UW Physicians group (UWP) and is accredited by the Accreditation Association for Ambulatory Health Care.

Services include immunizations, acute care, diagnosis and treatment of illness or injury, employee health, and health education.

The following specialties are represented: internal medicine, family practice, adolescent medicine, pediatrics and prenatal services, dermatology, allergy, minor out-patient surgery, family planning, gynecology, sports medicine, physical therapy, mental health, nutrition services, and travel medicine. Common conditions in other specialties also may be treated. The Health Education staff offer a variety of health-promotion services including providing learning resources, assistance with self-care, and educational programs.

All regularly enrolled UW students are eligible for health service *upon presentation of a current University student identification card*. There is no charge to UW students for primary care (general medical needs) clinic visits. These visits are subsidized through the student activities fee. There are charges for diagnostic procedures, including x-rays, laboratory tests, and electrocardiograms, as well as for comprehensive physical exams with forms, physical therapy, allergy injections, special immunizations, and consultations in dermatology, mental health, travel medicine, nutrition, pediatrics, and other specialty services. There are also charges for prescriptions filled at the pharmacy. Fees are comparable to community rates and insurance companies are billed whenever possible.

Dependents of students, faculty, and staff, and others are welcome at Hall Health Primary Care Center and are eligible for care on a fee-for-service basis.

Hall Health Primary Care Center physicians and other clinical providers participate in many managed-care plans and preferred provider organizations, including the Basic Health Plan, Healthy Options, and First Choice.

Student health insurance, available through the UW, *should not be confused* with services through Hall Health Center. A student may use Hall Health Center services without having student insurance. Occasionally, injuries and illnesses occur which may require extensive diagnostic lab tests, x-rays, medications, and treatment in an emergency room, off-campus clinic, or hospital, and which may involve surgery, rehabilitation, or prolonged therapy. The student should protect himself or herself against such major medical expenses by obtaining student health insurance (if not covered by family health insurance or other health plans). This low-cost medical-surgical-hospital policy, designed to meet those specific needs, may be purchased at the time of registration.

Hall Health Primary Care Center is open five days a week, Monday through Friday, 8 a.m. to 5 p.m., except Tuesdays, when the clinics open at 9 a.m. Selected clinics may offer appointments before or after the usual hours.

Additional information may be obtained from Hall Health Primary Care Center, Box 354410, University of Washington, Seattle, WA 98195, (206) 685-1011, or from the Hall Health Web page (depts.washington.edu/hhpcweb/).

Henry Art Gallery



www.henryart.org

The Henry Art Gallery, the art museum of the University, brings to the campus and the community nationally noted special exhibitions of contemporary and historical work in all media. Its offerings include exhibitions, lectures, symposia, and an active publishing program. The University's permanent collection includes a large research collection of ethnic textiles and Western dress as well as a small but distinguished collection of European and American paintings, prints, drawings, photographs, and contemporary American ceramics and Japanese folk pottery.

The Henry completed a major expansion project in April 1997 that quadrupled the size of the museum. Renovation and expansion design was by internationally acclaimed architect Charles Gwathmey and resulted in increased access to exhibitions and collections for students, classes, and researchers.

The Henry Gallery Association offers membership to students, faculty members, and the community for the purpose of supporting the museum's programs. UW students are admitted free at all times. For details, please call the Henry at (206) 543-2281.

Intercollegiate Athletics



www.gohuskies.com

The Department of Intercollegiate Athletics operates an integrated program for men and women. Intercollegiate competition is limited to full-time students.

There are twelve women's teams: cross-country, soccer, volleyball, gymnastics, basketball, swimming, indoor track, tennis, golf, softball, outdoor track and field, and crew. Women's competition is in the ten-team Pacific-10 Conference (Pac-10).

Eleven sports are offered for men's competition: baseball, basketball, crew, cross-country, football, golf, soccer, swimming, tennis, indoor track, and outdoor track and field. Men's teams compete on a full Pacific-10 Conference schedule, as well as with other institutions locally, regionally, and nationally. The University is a member of the National Collegiate Athletic Association.

Facilities available to intercollegiate athletic teams are Hec Edmundson Pavilion, Pavilion Addition, Husky Stadium, Husky Baseball Field, Husky Softball Field, Conibear Shellhouse and other crew facilities on Lake Washington at the eastern boundary of the campus, the Lloyd Nordstrom Tennis Center, Husky Soccer Field, and the Washington National golf course in Auburn.

Office of International Programs and Exchanges



depts.washington.edu/ipe/

The Office of International Programs and Exchanges (IP&E) administers and cooperates in more than 80 international-study programs in Latin America, Europe, the Middle East, Africa, and Asia. Qualified undergraduate and graduate students

are enrolled concurrently at the University and abroad, earning UW credit and maintaining residency and financial aid eligibility. Quarter, semester, and academic-year programs are offered. Opportunities for study include language and liberal arts courses, advanced language programs requiring two to three years of college-level language preparation, and specialized professional programs. The University also has more than 100 reciprocal exchange agreements with major research institutions abroad, including universities. These arrangements allow qualified UW students to enroll in regular courses at the foreign university while maintaining full UW standing.

Many overseas programs are supported by scholarships from private endowments. Additional scholarship support is available to undergraduate students and special consideration is given to underrepresented groups of students.

Program information and counseling are available from the Office of International Programs and Exchanges, 516 Schmitz Hall, Box 355815; (206) 543-9272; ipe@u.washington.edu.

Language Learning Center



www.llc.washington.edu

The Language Learning Center (LLC), located in the daylight basement of Denny Hall, provides support and services to the university community for the teaching, learning, and researching of languages and cultures. Available services include audio-cassette listening/recording facilities; duplication of audio cassettes onto user cassettes; sale of pre-recorded audio cassettes; facilities for viewing video tape, CD-ROM, laserdisc, DVD, and satellite materials; and access to foreign telecasts via satellite. The LLC has a recording studio, international analogue video conversion equipment, and analogue to digital audio/video conversion equip-



ment. The LLC also has several electronic classrooms equipped with audio, video, and cable television equipment. Instructors can reserve the electronic classrooms for speaking/listening practice, viewing of foreign video tapes and satellite programming, and informal conversation practice. Computer-Assisted Language Learning (CALL), digital multimedia, multi-lingual word processing, overhead computer projection, and Internet communications are available in the LLC computing lab. The LLC is expanding its service of providing online access to world language media.

National Student Exchange



depts.washington.edu/nse/

The UW participates in the National Student Exchange (NSE), which allows UW students to attend one of 160 affiliate state universities in the United States while paying resident tuition. The Office of Admissions, which coordinates NSE on campus, begins recruitment and selection of outgoing NSE students in the autumn before the year of exchange. For more information, contact the NSE coordinator, Office of Admissions, 320 Schmitz Hall; nse@u.washington.edu.

University Libraries



www.lib.washington.edu

The University Libraries, with nearly six million volumes, consists of the Suzzallo and Allen Libraries, Odegaard Undergraduate Library, the Health Sciences Library and Information Center, East Asia Library, 15 branch libraries, and the UW Bothell and UW Tacoma Libraries. The University Libraries maintains nationally ranked collections in fisheries, forestry, East Asian languages and literature, Scandinavian studies, and Slavic and South Asian area studies. In addition to books and periodicals, the Libraries' holdings include archival materials and manuscripts, maps, newspapers, microforms, research reports, media materials, CD-ROMs, government publications, photographs, and architectural drawings.

The Libraries Information Gateway provides access, through a single World Wide Web location, to all the Libraries resources, print and electronic, as well as tools, services, and the ability to search a wide range of Internet resources. The Information Gateway is available in all UW Libraries, as well as through the Web at www.lib.washington.edu.

The UW Libraries Catalog provides bibliographic information, location, and circulation status for cataloged holdings of the Libraries, including branch libraries. The Libraries provides electronic access to a large and growing number of bibliographic databases, full-text resources, electronic journals, current news and information sources, government information, digital image collections, and environmental and statistical data sets such as those used in Geographic Information Systems (GIS).

The Suzzallo and Allen Libraries, a combined facility, house the major social sciences and humanities collections. The Suzzallo Library serves as the central acquisitions and processing unit of the campus libraries system and contains the interlibrary borrowing service, fee-based document delivery service (Library Express), fee-based research service (Research Express), and the public-service divisions of Government Publications, Map Collections, Microform and Newspaper Collections, Reference and Research Services, Periodicals, and International Studies (Near East, Slavic and Eastern Europe, South Asia, and Southeast Asia). Reference and research assistance is available during most library hours. The Allen Library houses the Natural Sciences Library, and Manuscripts, Special Collections, University Archives, which includes the Pacific Northwest Collection. The University Libraries' administrative offices are located also in Allen.

The Odegaard Undergraduate Library (OUGL) supports undergraduate teaching and learning through an extensive collection of books, periodicals, and media; collaborative learning spaces; specialized reference services; and general-access computing. The collection is interdisciplinary, with an emphasis on materials in the social sciences and the humanities. OUGL is the primary reserve unit for non-health-sciences classes. Media services and materials for course-related usage are provided in the University Libraries Media Center in OUGL. The UWired Commons is a 356-seat general-access computing facility in OUGL. OUGL librarians also offer classes on how to use the library, including computerized indexes and search strategies for term papers.

The Health Sciences Libraries (HSL) house the largest and most comprehensive collection of health-sciences materials in the Pacific Northwest at three locations: Health Sciences Library and Information Center, located in the Health Sciences Center; the Social Work library, located in the School of Social Work; and the K.K. Sherwood Library at Harborview Medical Center. HSL supports education, research, and patient care in the fields of dentistry, medicine, nursing, pharmacy, public health, and social work, as well as in the related behavioral, biological, and quantitative sciences. In addition to a print collection of 350,000 volumes, the libraries offer access to a wide range of non-print resources and provide extensive user services, including curriculum-based instructional support; interlibrary loan services for health-sciences personnel, and document delivery services for affiliates and non-affiliates. HSL serves as headquarters for the National Network of Libraries of Medicine/Pacific Northwest Region (NN/LM PNR), with responsibility

for promoting access to biomedical information resources in Alaska, Idaho, Montana, Oregon, and Washington. In partnership with the Health Sciences Center, HSL houses the Integrated Advanced Information Management System Program, the Research Funding Service, the Primate Information Center, the Bioinformatics Consultation Service, and the Health Services Microlab.

The East Asia Library is one of the major resource centers of its kind in the United States and is an international leader in the provision and development of electronic services for its subject areas. The collections are especially strong in anthropology, archaeology, economics, history, art, languages, literature, law, music, political science, religion, and sociology with respect to the histories and cultures of China (including Taiwan and Hong Kong), Japan, Korea, Inner Asia, and Tibet.

University Research Facilities



www.washington.edu/research/

In addition to the campus facilities described in this section, the University has numerous educational and cultural resource centers. Academic or research activities and facilities that are of general significance in all or many fields of knowledge throughout the University are listed in the Research section of this catalog; others are described in individual school or college sections.

University Theatres



ascc.artsci.washington.edu/drama/season.html

The School of Drama operates three theatres: the Playhouse, with a thrust stage; the Penthouse Theatre, the first theatre-in-the-round built in America; and Meany Studio Theatre, which seats 225. Faculty- and student-directed plays drawn from the full range of world dramatic literature are presented throughout the year.

The School also gives technical and design support to opera and dance productions of the School of Music and the Department of Dance.

Women's Center



depts.washington.edu/womenctr/

The Women's Center, located in Imogen Cunningham Hall, promotes the advancement of women on the campus and in the community by offering a wide variety of non-credit workshops and classes including college success classes (GRE preparation courses, computer, and writing classes); career and financial classes; fitness, health, and creativity classes; the Noontime Lecture Series; and the Distinguished UW Women's Scholar Series. The Center provides services for women re-entering the University and houses a modest library with a job board and scholarship information.

Housing and Food Service



www.washington.edu/hfs/

University-Owned Housing

Residence Halls

The UW provides housing for about 4,500 students in seven residence halls. All are located within easy walking distance of classrooms and other campus facilities. Food service is available to residence hall students at locations throughout the campus through the use of the À La Carte Plus™ debit-card system. Students live in an environment of responsible freedom, and a residential-life staff enhances the University experience through a variety of educational, cultural, and social programs.

Single-Student Apartments

The University also has apartments available for single students, 20 years of age or older. Stevens Court provides four- and six-bedroom apartments that have private bedrooms, a common kitchen and living room, and bathrooms. The Commodore-Duchess Apartments have studio apartments for single students.

Family Housing

Convenient and economical apartment housing is available for about 450 student families.

For detailed information on housing or the Husky Card, visit the Housing and Food Services (HFS) Web site (above); email HFS at hfsinfo@u.washington.edu; write to the Student Services Office, Box 355842, Seattle, WA 98195-5842; or call (206) 543-4059.

Food Service

University Food Services operates dining facilities throughout the campus. The diverse schedules and dietary preferences of the campus community are accommodated by providing full meal service, à la carte menu items, and catering services, as well as convenient hours of operation.

Food may be purchased through the Husky Card program at all University Food Services facilities and two on-campus convenience stores. This program, available to the entire campus community, offers prepaid meal service through use of a debit card. The Husky Card (your UW ID card) provides the flexibility for purchase of food at many locations on campus. The card may also be used at the UW Bookstore and other UW facilities. For more information on opening an account, call (206) 543-7222, or visit the HFS Web site at www.washington.edu/hfs/.

Transportation and the U-PASS



www.washington.edu/upass/

Walking and biking are the best ways to get to campus, but when you need another transportation method, use the U-PASS. The U-PASS program provides students with many benefits at a highly discounted price. With a U-PASS sticker, you get free rides on all regular Metro, Community Transit, and Sound Transit routes throughout the region, free trips on the Night Ride shuttle, free parking when you drive with other U-PASS holders, discounted vanpool fares, and discounts at many local merchants. In addition, the U-PASS funds bicycle improvements, including more secure racks and lockers. The U-PASS sticker is sent with registration confirmation materials before each quarter.

Having a U-PASS provides many alternatives, but some parking is available for those students that must drive. Two U-PASS holders in a car get free parking in the E1 lot (near the stadium) when they arrive between 7:00 and 10:00 a.m., and three U-PASS holders get free parking on the main campus. Other student parking is available for a daily fee in the E1 lot, which fills up quickly. A few parking permits are available from Parking Services to commuter students on a first-come, first-served basis the first day of each quarter.

For more information, visit the U-PASS Web site at www.washington.edu/upass/ or contact the Transportation Office at upass@u.washington.edu or (206) 543-0450.

Student Services

Office of the Vice President for Student Affairs

The Division of Student Affairs assists the University in fulfilling its academic mission by providing a broad range of services and programs designed to further the educational and personal development of students. The Division consists of ten units: Admissions and Records, Center for Career Services, Student Counseling Center, Disabled Student Services, Housing and Food Services, Recreational Sports Programs, Student Financial Aid, Student Publications, and Student Activities and Union Facilities.

Students are encouraged to contact the Office of the Vice President for Student Affairs, (206) 543-4972, 476 Schmitz Hall, for information concerning various aspects of extra-class life at the University.

Center for Career Services



depts.washington.edu/careers/

The University's Center for Career Services, which includes a Minority Job Placement Program, offers career information and services to assist undergraduates, graduate students, and alumni (1) to make a viable connection between their academic backgrounds and their career or long-range employment objectives, (2) to develop effective job-seeking strategies, and (3) to find suitable employment upon leaving the University or to change employment thereafter.

A variety of programs are offered and include individual and group career counseling, career options and job-search seminars, online job listings, career-related internships, an career fairs, credential files, employer and alumni career panels, mock interviews, a résumé database, campus interviews, employer information, and student-employment listings. Students may also send questions to ccscnslr@u.washington.edu.

Students are encouraged to begin using the services of the Center early in their academic careers. This is best accomplished by visiting the Center at 134 Mary Gates Hall or calling (206) 543-0535 to make an appointment with a career counselor. The Center also maintains a Web site at depts.washington.edu/careers/.

Childcare Program



www.washington.edu/students/ovpsa/cc/

The Childcare Program provides eligible student-parents with direct financial assistance to purchase services at licensed childcare facilities in the Seattle-King County area. To apply, students must submit the Free Application for Federal Student Aid (FAFSA) to the designated processor by the end of February each year and a Childcare Request Application to the Childcare Office, 482 Schmitz Hall, before the end of May each year. Brochures describing the program are available at the Childcare Office, (206) 543-1041.

Student Counseling Center



depts.washington.edu/scc/

All matriculated students at the University may make use of the services of the Student Counseling Center and its staff of psychologists and counselors to discuss educational progress, personal concerns, or career goals. Individual, couples, and group counseling is provided for a variety of issues including academic, career, personal, and social issues. Psychological tests, when necessary, are provided as part of the Center's counseling service. Workshops on special topics such as test anxiety, time management, test taking, note taking, and stress management are available. There is a small fee for services.

There is a \$10.00 fee for the first assessment appointment, which is provided to determine if the Student Counseling Center's services are appropriate. Treatment for substance abuse and long-term therapy is not provided. Individual appointments after the first visit currently cost \$26 each. Fees for participation in the group program range from \$60 to \$80. For students financially unable to pay the fee, efforts are made to find other options. The Center is located on the fourth floor of Schmitz Hall, (206) 543-1240. Additional information may be found at the Center's Web site.

Disabled Student Services

The University is committed to ensuring facility and program access to students with either permanent or temporary disabilities through a variety of services and equipment. The Disabled Student Services (DSS) Office coordinates academic accommodations for enrolled students with documented disabilities. Accommodations are determined on a case-by-case basis and may include classroom relocation, sign language interpreters, recorded course materials, note taking, and priority registration. DSS also provides needs assessment, mediation, referrals, and advocacy as necessary and appropriate. Requests for accommodations or services must be arranged in advance and require documentation of the disability, verifying the need for such accommodation or service.

Technical and adaptive equipment is available through both DSS and Computing and Communications. Information about adaptive-technology computer software and equipment and their locations on campus may be obtained from DSS. Publications include *Access Guide for Persons with Disabilities*, (showing classroom access, elevator locations, ramps, parking, and restrooms), and the *Campus Mobility Route Map*, as well as other publications.

To the maximum extent possible, students with disabilities are integrated into the general student population and their problems are solved through the usual channels. Various other departments offer additional services: the Transportation Department provides free on-campus transportation with wheelchair lifts for students with mobility limitations through Dial-a-Ride, (206) 685-1511, and UW Night Ride, (206) 799-4151 after 6 p.m.

Additional information is available from Disabled Student Services, 448 Schmitz Hall, Box 355839, (206) 543-8924 (Voice), (206) 543-8925 (TTY), uwdss@u.washington.edu.

Freshman Convocation

Freshman Convocation is an academic ceremony involving the President of the University, other administrators, members of the Board of Regents and the faculty, and student leaders, to welcome and honor new freshmen and their families. It is held annually on the Sunday preceding the first day of autumn quarter. The President of the University presides over the ceremony, which features remarks by a distinguished member of the faculty. Neither tickets nor reservations are required for the Convocation. Formal invitations are mailed in mid-August. A brunch without host, which requires tickets purchased in advance, is held in the Student Union Building (HUB) and precedes the Convocation.

Student Health Insurance Program



www.washington.edu/students/ovpsa/insurance.html

An accident and sickness insurance plan is available to matriculated University students (Seattle campus) and dependents on a voluntary basis. A student may enroll in the plan at the time of registration through the seventh calendar day of each quarter. The appropriate premium is paid by the quarterly tuition due date. Brochures describing the insurance eligibility, coverage, and costs are available at the Student Insurance Office, 469 Schmitz Hall, (206) 543-6202; Hall Health Primary Care Center; and the HUB.

The University also sponsors a field-trip accident insurance plan. Application forms may be requested from the Risk Management Office, 22 Gerberding, Box 351276, (206) 543-3419.

Insurance for Foreign Students

All students from foreign countries are required to have a health-and-accident insurance policy in force while registered at the University. This may be achieved by purchasing either the student accident and sickness insurance offered through the University or other coverage, proof of which must be furnished to the International Services Office and for which an insurance waiver must be obtained. To avoid cancellation of registration, international students must pay tuition and either pay for the University-sponsored insurance or have a waiver on file by the tuition due date.

International Services Office



www.washington.edu/students/gencaf/front/International.html

The International Services Office provides assistance to international students, scholars, and faculty in meeting United States Immigration and Naturalization Service regulations dealing with such matters as maintaining lawful status, extensions of stay, transfers of schools/programs, and working authorizations. The Office also provides a formal orientation to the campus and community for new international students and visiting faculty; advice and counsel for educational, financial, and personal problems; and dissemination of important and timely information through newsletters and workshops. The Office is located in 459 Schmitz Hall, (206) 543-0841.

Office of Special Services

The Office of Special Services, 460 Schmitz Hall, assists students eligible for veterans' educational benefits, advises and monitors students who must meet English As A Second Language requirements, and administers certain tuition-reduction programs (see Procedures and Fees section).

Office of Student Financial Aid

The Office of Student Financial Aid, 105 Schmitz, administers federal, state, and private financial aid programs designed to help students pay for their education. Assistance is offered in the form of grant aid, scholarships, long-term loans that must be repaid after leaving school, and work opportunities. An information packet describing the different programs, eligibility criteria, and application procedures may be obtained by calling (206) 685-9535.

To be eligible for financial aid, an individual must be a citizen or permanent resident of the United States and be admitted to the University as a matriculated, degree-seeking student. Priority consideration is given to students who apply before the University's financial aid application deadline of February 28 (e.g., February 28, 2000, for the academic year beginning in September 2000).

The Office of Student Financial Aid also administers a short-term loan program for full-time students who find themselves in temporary financial difficulty. University students may take advantage of the short-term loan program without applying for financial aid.

Student Legal Services



www.washington.edu/students/handbook/legal.html

Student Legal Services provides legal advice, counseling, negotiating, and court representation in many legal matters. All currently enrolled undergraduate and graduate students are eligible for a free initial consultation. If additional services are needed, there is an hourly charge of \$10, plus a minimal supply fee and court costs, if any. The Office is staffed by third-year law students supervised by licensed attorneys. Students may call (206) 543-6486 or visit the Office, 31 Brooklyn Building, Box 354563, 4045 Brooklyn Avenue NE, to make an appointment or to learn more about the Office's services.

Student Publications



www.washington.edu/students/studentdir.html
www.thedaily.washington.edu

Student publications at the University include *The Daily* and the *Student Directory*. *The Daily* is published Monday-Friday throughout the academic year and is distributed in the mornings on campus without charge. During summer quarter, *The Daily* is published once a week. Any student with an interest in journalism may serve on *The Daily* staff.

Student Union Facilities



depts.washington.edu/sauf/

The Husky Union Building (Student Union Building) and the South Campus Center are the principal centers of student activities and programs on the campus.

Husky Union Building

The Husky Union Building (HUB), located in the center of campus, houses a variety of facilities and services for students, and faculty and staff members. These include lounges, a 478-seat auditorium, a multipurpose ballroom, a barber and hair-styling shop, a branch of the University Book Store, several retail food operations, a study/music lounge with email access, a lost-and-found office, a ticket sales office, a newsstand, a self-service post office, a limited-service bank, three cash machines, a number of student-organization offices, and a games area which includes a twelve-lane bowling center. Meeting rooms accommodating from 10 to 175 persons are available for registered student organizations.

South Campus Center

The South Campus Center, located on the shore of Portage Bay, serves as the central meeting place for students and faculty on the southern end of campus. Facilities and services similar to those in the HUB are available and include meeting and conference rooms, display cases, a hair-styling shop, amusement games, a cash machine, a branch of the University Book Store, a newsstand, and lounges with beautiful views of Portage Bay.

Student Activities and Organizations

Student Activities Office

The services provided by the Student Activities Office (SAO) include assisting student organizations in understanding University policies and procedures, providing technical help in the planning and conduct of student events, and furnishing information and assistance in order that they may represent themselves and their interests in an effective manner. Advisers are available to assist students involved in group activities with budget and program planning, advertising, orientation to campus resources, and leadership and organizational skill development. Underlying the SAO service functions is a desire to provide an environment in which students can learn from their experiences in extracurricular activities as a supplement to their classroom experiences. Additional information about the services is available from the Student Activities Office, 207 HUB, (206) 543-2380.

Student Organizations



depts.washington.edu/sao/

Students at the University are encouraged to become active in at least one of the campus's approximately 400 voluntary student organizations, which include honorary, professional, and social organizations; service clubs; activity groups; and religious and fraternal organizations. Voluntary student organizations that register with the University receive various benefits and services to assist their respective activities. Additional information is available from the Student Activities Office, 207 HUB, (206) 543-2380.

Associated Students of the University of Washington




depts.washington.edu/asuweb/

The Associated Students of the University of Washington (ASUW) is a voluntary, nonprofit association of students designated by the University Board of Regents to carry out a variety of student activities and to represent student interests. In order to vote in ASUW elections, hold ASUW office, or be employed by the ASUW, a student must be a member of the ASUW. Membership is open to all students by providing an affirmative answer on the University registration form each quarter.

The ASUW has an annual budget of approximately \$1 million, supported by the services and activities fee paid as part of tuition and from program revenue. The government of the ASUW is headed by an eleven-member board of control elected by the student body each year, and one representative from the Graduate and Professional Student Senate. The ASUW maintains agencies and service groups to provide students with a varied program of activities during the school year and

nominates students for service on a number of University committees. ASUW services include lecture notes, a poster printing service, the Experimental College, a bicycle repair shop, and an ongoing film and entertainment series. Questions regarding the ASUW and its services should be directed to either the ASUW Office, 204L HUB, (206) 543-1780, or the Student Activities Office, 207 HUB, (206) 543-2380.

Recreational Sports

 depts.washington.edu/ima/

The Department of Recreational Sports Programs provides a comprehensive program of over sports and fitness activities designed to meet the diverse needs and interests of students. To provide this service, the department manages recreation facilities that include the Intramural Activities Building (IMA), Golf Driving Range, Waterfront Activities Center (canoe rentals), outdoor facilities (Denny Field and tennis courts), Hutchinson Hall swimming pool and locker rooms, and the practice Climbing Rock. Programs and facilities are open to students with a valid student identification card (Husky card).

For additional information call the telephone numbers listed below, or visit the Recreational Sports Web site at depts.washington.edu/ima/.

Intramural Activities Building: The IMA is located north of Husky Stadium and south of parking lot E1. The IMA includes activity space for basketball, volleyball, badminton, swimming, squash, racquetball, handball, martial arts, aerobics, archery, and roller skating. The IMA has a fitness center with free weights, weight machines, and cardiovascular machines. Located near the IMA are 16 tennis courts (six are night lighted), and three multipurpose sports fields for flag football, softball, soccer, rugby, lacrosse, ultimate, and other outdoor activities. For more information, contact the IMA at (206) 543-4590 or ima@u.washington.edu.

The **fitness center** is equipped with 17 climbers, 24 treadmills, 12 recumbent cycles, 12 stationary cycles, 17 cross trainers, six ergometers, 62 single-station weight machines, 24 strength benches, and one step mill.

Sports Skills Instruction: Recreational Sports offers non-credit classes in aikido, aerobics, step aerobics, hydro-aerobics, deep-water fitness, body conditioning, fencing, first aid and CPR, golf, judo, karate, kung fu, racquetball, rock climbing, scuba diving, ski conditioning, snow skiing/snowboarding (indoor), squash, swimming, tae kwon do, tai chi, tennis, volleyball, and weight training. For more information, call Sports Skills Instruction at (206) 543-2571.

Club Sports: Recreational Sports offers club sports, including aikido, archery, climbing, cycling, fencing, ice hockey, judo, karate, kayaking, kendo, kung fu, lacrosse, rowing, rugby, sailing, scuba diving, snow skiing, soccer, tae kwon do, ultimate frisbee, volleyball, water polo, and water skiing. For more information, contact Club Sports at (206) 543-9499.


Intramural Sports are offered for men, women, and men and women combined in a variety of activities, including basketball, bowling, crew, flag football, inner-tube basketball, soccer, softball, swimming, tennis, track and field, ultimate frisbee, and volleyball, as well as special events. For more information, call Intramural Sports at (206) 543-8558.

The **Golf Driving Range** is located at the foot of the 45th Street viaduct and is the center for all golf activities on campus. The facilities include 43 hitting tees, and two putting and chipping greens, and are open seven days a week. Group lessons are available for beginning players. For more information, contact the Golf Driving Range at (206) 543-8759 or seagren@u.washington.edu.

Waterfront Activities Center (WAC): The campus center for water sports (e.g., canoe rentals, sailing, kayaking, rowing) is located at the WAC southeast of Husky Stadium. The WAC offers locker rooms with saunas, private boat storage for non-motorized craft, and group rental of the lounge and meeting rooms. The facility is open from 10 a.m. to dusk, seven days a week. For more information, contact the WAC at (206) 543-9433 or h2o@u.washington.edu.

Student Rights and Responsibilities

Student Conduct Code

 www.washington.edu/students/handbook/conduct.html

The University Board of Regents has adopted a *Student Conduct Code*, which applies to both academic and nonacademic conduct for students while in attendance at the University. The *Code* specifies standards of conduct, jurisdiction for hearing disciplinary matters, and due process. Interested students may obtain copies through either their advisers or the Office of the Vice President for Student Affairs, 476 Schmitz Hall.

Computer Use Policy

 www.washington.edu/computing/rules.html


All faculty, staff, and students who use any computer at the University are responsible for using computer resources in an ethical and legal manner. For example, it is not appropriate to share computer accounts or use them for commercial purposes, to send unwanted email, or to distribute copyrighted software, music, or images. Those who do not follow the rules could lose their UW computing privileges. For detailed information see the Web, or contact Computing and Communications Information at (206) 543-5970.

University Policy on Student Education Records

 www.washington.edu/students/reg/ferpa.html

A copy of the University's policy on a student's right to inspect his or her education records and the University's responsibility to maintain the confidentiality of such records is located at each departmental reference station. The policy is filed under the Washington Administrative Code 478-140-010. Copies of the policy are available at the Registration Office, 225 Schmitz Hall.

Sexual Harassment Complaint Procedure

 www.washington.edu/students/handbook/harrass.html

Students, staff, faculty, and other users of University services who have a concern or complaint regarding sexual harassment may contact either the Ombudsman for Sexual Harassment, (206) 543-0283, or the University Complaint Investigation and Resolution Office, (206) 616-2028. Personnel in these offices provide assistance in resolving concerns and complaints. Also, University staff may contact their human resources representative about sexual harassment concerns.

Office of Minority Affairs

 www.oma.washington.edu

Fostering diversity is the ongoing work of the entire University, but it is a special responsibility of the Office of Minority Affairs (OMA). To this end, OMA provides a variety of services to undergraduates from underrepresented and economically and educationally disadvantaged backgrounds. These services include a state-wide **Recruitment and Outreach Office** whose staff provides assistance with the admissions and financial aid process in high schools and community colleges throughout Washington state. Through its **Counseling Center**, OMA offers academic advising, financial aid advocacy, housing assistance, and other services related to life on campus. OMA's services are available mainly to students who, following admission, are invited to become members of the Educational Opportunity Program (EOP). Participation in EOP is limited to students who are U.S. citizens or permanent residents, with priority given to Washington state residents. OMA's other services, described below, are open to EOP participants and other students as resources permit.



THE UNIVERSITY

OMA's Instructional Center (IC) offers wide-ranging academic assistance to students in the Educational Opportunity Program and to others as staffing, time, and space permit. The IC maintains drop-in centers for mathematics, writing, reading and study skills, physics, engineering, chemistry, biology, the natural sciences, and foreign languages. Students are assisted in a variety of settings, such as group instructional workshops, review sessions, adjunct courses, credit and non-credit classes, and one-on-one tutorials.

Student Support Services (SSS) is a counseling and instructional-assistance program for selected UW undergraduates who meet the program's economic and educational eligibility requirements. SSS helps students adjust to campus, as well as encourages and assists them in discovering and taking advantage of the UW's many academic and personal opportunities. SSS also provides tutorial and academic-support workshops to help students move successfully to upper-division courses or into the Early Identification Program's graduate-school preparation services.

The Early Identification Program (EIP) is a graduate- and professional-school preparation program for qualified students interested in earning advanced degrees. Through its advisory and academic-enrichment services, EIP encourages students to aim for doctoral degrees and faculty careers. These services include an introduction to the research process, collaboration with faculty mentors, scholarships and internships, access to special seminars, and advise and assistance with the graduate school admissions and financial aid process.

The Ethnic Cultural Center (ECC) is a facility for student-organized events and activities. Twenty-two of the University's student organizations use the ECC as their center of activity. The staff of the Center offers students opportunities for the development of organization and leadership skills through the planning and

implementation of cultural, social, and student-government programs. The Ethnic Cultural Center complex also maintains an outstanding theatre which provides opportunities for students interested in participating in or creating on-stage productions and other events.

Outreach to Middle and High Schools. In partnership with K-12 schools, OMA also maintains several middle- and high-school outreach programs to help improve the academic performance and the college-going rates of underrepresented and economically/educationally disadvantaged students. These services offer UW students a variety of volunteer, UW-credit, or paid opportunities. **Upward Bound** offers strong academic support for selected Seattle high school students who are from educationally and economically disadvantaged families; the **Early Scholars Outreach Program** engages staff and UW students in work that encourages middle school students to begin preparation for college before they reach high school; **Educational Talent Search** offers encouragement and counseling to middle and high school students in targeted western and eastern Washington schools. It focuses particularly on the transition from high school to education beyond high school. OMA and the UW's Department of Biology, under the sponsorship of the Howard Hughes Medical Institute, offer academic skill development and SAT preparation assistance to inner-city high school students at the **Samuel E. Kelly Scholars Center**. OMA, in partnership with several Seattle schools, attempts to "saturate" targeted schools with UW volunteer tutors, mentors, and classroom assistants through its **High School Tutor/Mentor Program**. The Seattle School District and OMA offer a **Middle College High School Program** for at-risk high school students.

The office of the Vice President for Minority Affairs and many of OMA's services are located on the third floor of Schmitz Hall. For information about OMA's other program locations and services, call (206) 543-5715.



Vice Provost for Research

Alvin L. Kwiram

Assistant Vice Provost for Research

Malcolm R. Parks

Director, Grant and Contract Services

Carol A. Zuiches

Associate Vice Provost for Research and Director, Office of Technology Transfer

Robert C. Miller



www.washington.edu/research/

The Office of Research provides a range of services in support of scholarly and scientific inquiry at the University of Washington. The Vice Provost for Research works with faculty to establish appropriate research policies, develop research-related initiatives, increase resources available for research, and guarantee that the successes of faculty and the public benefits of research programs are widely known and understood. The Office of Research cooperates with the Graduate School and other units within the University that depend on or are affected by the research and graduate education activities of UW faculty. The Office of Research also serves as a point of contact with the public and private sectors on issues relating to research, including the solicitation of corporate research support, the transfer of research discoveries, and the promotion of economic development. The two main service organizations within the Office of Research are the Office of Grant and Contract Services and the Office of Technology Transfer.

The Office of Grant and Contract Services (GCS) reviews and approves all proposals to outside agencies for support of UW research. The director of GCS is responsible for negotiating the terms and conditions for grants and contracts in consultation with the principal investigator and appropriate UW administrators. All grant and contract awards received by the University are communicated to GCS, which maintains a historical record of grant activity. GCS is also responsible, through its Human Subjects Division, for managing the human subjects review process at the University in cooperation with University's Human Subjects Review Committees.

The Office of Technology Transfer (OTT) works with UW faculty, staff, and students to identify commercially viable research discoveries. OTT seeks legal protection for inventions through patenting and other means, and negotiates contracts with companies interested in developing UW intellectual property. The revenues derived from OTT's activities are channeled back to the inventors, the UW units where the discovery originated, the Graduate School Fund, and the centrally administered Royalty Research Fund which supports UW research on a campus-wide basis.

Funding for UW Research

External Support for Research and Training is fundamental to the UW's established role as one of the nation's leading research institutions. During fiscal year 1999, the University received roughly \$600 million in grant and contract support for a wide array of research and training programs. Since the late 1960s, the University has ranked among the top five institutions in the United States in the receipt of federal research awards. About 80 percent of the University's grant and contract funds comes from federal agencies, most of the remainder coming from foundations, industry, and other private sources. These funds are awarded in response to faculty-initiated, University-approved proposals for funds to support specific projects in accord with the University's research, education, and public-service goals. Grant and contract funding, which is received in addition to legislative appropriations for the basic operation of the University, funds about 5,900 full- and part-time employees and provides significant opportunities for students who work with faculty members in the conduct of research as a vital component of their education.

In addition to federal research funding, corporations provide an increasing amount of funding for research. Last year, the UW received more than \$57 million in corporate research awards. This activity is expected to grow as University-industry collaborations continue to expand. Private gifts to the University total more than \$103 million per year and also add significantly to the opportunities of students and faculty to pursue research interests.

Internal Support for Research at the UW is based in part on the principle of directing revenue that arises from UW research discoveries back into the University's research enterprises. The Office of Research administers the Royalty Research Fund (RRF), which is derived from the UW's central share of royalty and licensing income negotiated by OTT and the Washington Research Foundation with companies that commercialize University technologies. The goal of the RRF is



to stimulate additional scholarly initiatives, to encourage faculty to explore new directions in research and scholarship, and to improve the environment for intellectual endeavors at the University. Proposals must demonstrate a high probability of generating important new scholarly materials or resources, significant data or information, or essential instrumentation resources that are likely to lead to external funding or that might lead to a new technology.

Special Facilities

In support of scholarship, research activities, and regular academic offerings, the University maintains a wide range of special facilities that provide unique educational opportunities. The following list is illustrative of the range and diversity of special facilities at the UW.

Academic Computer Center

Provides instructional and research computing services for the University.

Applied Physics Laboratory

A research and development organization within the College of Ocean and Fishery Sciences, APL is one of four university research centers in the United States affiliated with the U.S. Navy. APL conducts a program of fundamental research, technology development, engineering, and education, emphasizing naval applications of ocean and polar science, acoustics, and engineering. APL has a \$30 million annual research and development budget and employs approximately 270 staff members, including 147 scientists and engineers (33 with faculty appointments) who conduct research for the Navy, NSF, NASA, NOAA, ARPA, and other federal agencies and who participate in partnerships with private companies.

Burke Memorial Washington State Museum

An educational and cultural center whose function is to collect, preserve, research, exhibit, and interpret the natural and cultural objects of the human environment, particularly the Pacific Ocean, its islands, and mainland shores.

Henry Art Gallery

The art museum of the University of Washington.

Friday Harbor Laboratories

The Friday Harbor Laboratories facility is the principal marine-science field station of the University of Washington. Its faculty is drawn from various academic units of the University, including botany, fisheries, oceanography, and zoology, as well as visiting faculty members from many other U.S. and foreign institutions.

The Laboratories, located approximately 80 miles north of Seattle near the town of Friday Harbor on San Juan Island, offer a biological preserve of nearly 500 acres of wooded land with about two miles of shoreline. The island is one of the largest of the 172 that make up the San Juan Archipelago, located in the northwest section of the state of Washington between Vancouver Island and the United States mainland. In addition to the Friday Harbor site, the Laboratories' administration has the responsibility for overseeing biological preserves leased or owned by the University on San Juan Island. Goose and Deadman islands, biological preserves owned by the Nature Conservancy, are also under the stewardship of the Laboratories.

The Laboratories are located close to seawaters that range from oceanic to those highly diluted by streams, some with depths to 1,000 feet, others with bottoms varying from mud to rock, and water movements ranging from those of quiet bays and lagoons to those of swift tideways. The waters about the San Juan Archipelago abound in varied marine flora and fauna.

The Laboratories offer opportunities for independent and supervised research, as well as a varied program of instruction for graduate and undergraduate students. Throughout the year, use of the Laboratories' facilities for research in various areas of marine science is encouraged.

Nuclear Physics Laboratory

The Nuclear Physics Laboratory is one of the nation's foremost university-based nuclear research facilities. It houses a Van de Graaff accelerator and a cyclotron for research in physics, chemistry, cancer therapy, nuclear medicine, radiation biology, and related fields.

Oceanographic Research Vessels

These are operated for field study and research in Puget Sound and the Pacific Ocean.

Speech and Hearing Clinic

Serves as a center for research in speech science, speech and language pathology, and audiology, and provides services to the public.

University of Washington Medical Center/ Harborview Medical Center

The University operates two major teaching hospitals: its own 450-bed University of Washington Medical Center and, under contract with King County, the 411-bed Harborview Medical Center.

University Libraries

With more than five million volumes, an equal number of microforms, several million items in other formats, and more than 50,000 serial titles, the University of Washington Libraries houses one of the top research collections in the country and forms a part of one of the most innovative electronic campus information networks in the world. The fully integrated, computerized UW Libraries Catalog provides bibliographic information and circulation status for the cataloged holdings of the Libraries. The UW Libraries Catalog and an increasing number of other databases (ERIC, MEDLINE, INSPEC, PsychINFO, MLA Bibliography, etc.) may be searched by author, title, subject, publisher, keyword, and various numbers, including call number, International Standard Book Number (ISBN), International Standard Serial Number (ISSN), and Superintendent of Documents Number. Publication date and date ranges are among the limit options available.

The UW Libraries Information Gateway provides access through a single World Wide Web location to all the Libraries' resources, print and electronic, as well as tools, services, and the ability to search a wide range of Internet resources. For more information, call Reference and Research Services, (206) 543-0242, or consult the Libraries' Web site (www.lib.washington.edu).

The Libraries also offer an extensive array of services at each of its 22 units. The Suzzallo and Allen Libraries, the Odegaard Undergraduate Library, the Health Sciences Library and Information Center, the East Asia Library, and 15 branch libraries each provide reference services and offer instruction in the use of library resources.

X-Ray Beamline Facility

Located at the Advanced Photon Source of the Argonne National Laboratory in Argonne, Illinois, this facility is operated by a Pacific Northwest consortium led by the UW. It supports the investigation of the properties of x-rays and their interaction with matter. The Advanced Photon Source uses synchrotron radiation to provide the most brilliant source of x-rays currently available.

Centers, Institutes, and Other Research Organizations

More than 170 centers, institutes and other organizations operate at the UW in support of faculty research activity. In many cases, centers and institutes are created to facilitate interdisciplinary research or to coordinate research involving many participants, some from outside the UW community.

Field Stations

Field work is an essential component of research and instructional programs in many academic disciplines, and access to appropriate field sites is vital and necessary for research universities. Detailed information about each of the



University's research sites is available in *University of Washington Field Stations*, an inventory available from the Office of Research. The following list of 28 sites represents a broad spectrum of types and locations.

Apache Point Observatory, Archaeology Field School, Big Beef Creek, Blue Glacier, Cheeka Peak Atmospheric Research Station, Chignik Lake, Clifford A. Barnes Research Vessel, Energy Test Homes, Friday Harbor Laboratories, Joe E. Monahan Findlay Lake Reserve, Lake Iliamna and Porcupine Island, Lee Forest, Manastash Ridge Observatory, Olympic Natural Resources Center, Organization for Tropical Studies, Pack Forest, Regional Primate Research Center, Rome Center, Seismic Network, Seward Park Hatchery, Thomas G. Thompson Research Vessel, Thompson Research Site, Union Bay Ecological Research Area, University of Washington Aircraft Hangar, Washington Park Arboretum, Westport House, Wind River Canopy Crane Research Facility, Wood River System.

The Impact of UW Research

Research programs at the UW benefit students, the state, and the nation. Over the last decade, these programs have produced life-saving advances in medical technology, support for key state and regional industries, research and analysis on critical public-policy issues, patented technologies, training for more than 8,000 graduate and professional students each year, as well as contributions to scholarly literature in virtually all major fields of the arts, sciences, and humanities. The following sections contain brief descriptions of a few of the many interesting research projects currently underway at the UW.

Earth, Ocean, and Atmospheric Sciences

UW earth scientists have a long tradition of concentrating on regional studies to learn more about the forces that continue to shape the Pacific Northwest. Recent evidence suggests that great earthquakes of magnitude 7 or 8 have occurred in the Pacific Northwest in the not-too-distant past, and are likely to recur at some time in the future. Data gathered from a network of seismic stations throughout the Pacific Northwest are permitting new faults in the region to be mapped and characterized. The first three-dimensional images of structures within the earth in this region are being generated. Lessons learned from seismic studies since the eruption of Mount St. Helens are being applied to eruptive activity around the globe. Additionally, extreme conditions deep inside the earth are simulated in the UW High Pressure Mineral Physics Lab in order to understand the geologic processes that shape our planet.

Underwater observing platforms have been installed to monitor volcanic activity on the sea floor more than a mile and a half below the surface of the Pacific Ocean off the coast of Washington state. These undersea volcanoes and hydrothermal vents spew out heated, mineral-laden waters that nourish exotic life forms and form rich metal deposits. The heat-loving organisms, capable of existing without light from the sun, are among the most ancient forms of life on earth.

An ice core containing an unprecedented record of climate conditions in a near-coastal area of Antarctica has been obtained by scientists in the UW Quaternary Research Center. The ice sample, which goes back 140,000 years through a complete ice-age cycle, was taken at Taylor Dome, the site of major changes in glacier cover that affected sea level at the end of the last ice age.

Work by UW atmospheric scientists has established the role of sulfate aerosol in global climate change. Other studies are shedding light on past and future El Niño weather events—intervals of especially warm ocean temperature that periodically appear around December in the equatorial Pacific and that disrupt weather

patterns around the globe. UW researchers have developed a theoretical understanding of the mechanisms that give rise to the El Niño phenomenon. Cores obtained from coral formations in the Pacific provide a record of past El Niño events and may lead to more accurate forecasts of these weather changes in the future.

The School of Fisheries, renowned for the development of the Donaldson salmon as well as for its contributions to the High Seas Salmon Program and Alaska Salmon Program, also has made many important contributions to the development of shellfish aquaculture in Puget Sound and around the world. The triploid oyster, prized for its superior characteristics, was developed by UW fisheries researchers.

Physical and Chemical Sciences

Extremely high precision measurements of atomic properties are the forte of a strong atomic physics group, which brought recognition in the form of a Nobel Prize awarded to Professor Hans Dehmelt in 1989.

One of four Department of Energy-supported nuclear physics laboratories located at American universities is found at the University. This laboratory is on a par with the best in the world in its energy range. The Particle Physics Group and the Visual Techniques Laboratory are engaged internationally in research at the frontiers of knowledge relating to high-energy particles created both in the laboratory and by nature.

Astronomers at the University conduct research in a wide variety of astronomical subjects, from the study of solar system bodies to the nature of the universe. The UW's Interplanetary Dust Laboratory has pioneered the discovery and study of cometary and asteroidal dust. The Stardust mission led by a UW astronomer will gather and return samples of interstellar dust from a comet called Wild-2 in January 2004. Stardust, which was selected by NASA as the fourth flight mission in its Discovery program, was launched on an expendable launch vehicle in February 1999. The return capsule carrying the comet dust samples will parachute to Earth in January 2006.

The University is part of a consortium that has constructed a 3.5-meter optical telescope located at Apache Point in the New Mexico mountains. One of the largest university-operated telescopes in the country, faculty and students can access it remotely from a laboratory in the new Astronomy-Physics Building on the UW campus.

UW astronomers have also used the Hubble Space Telescope to probe the secrets of stellar evolution, deriving a fresh understanding of the way that stars are born, change, and die. Scientists explore the nature of galaxies and their mysterious content of "dark matter." Other studies range from the nature of cosmic black holes to mergers and violent collisions of galaxies, and quasar phenomena.

The Center for Process Analytical Chemistry is a joint University/industry effort to develop novel sensors and instrumentation for continuous monitoring of chemical processes used in the manufacturing and environmental settings. Projects range from fiber-optic sensors and spectrometric methods to data analysis and process-control algorithms.

Engineering and Applied Sciences

A group of UW engineering researchers working in the field of biomimetics is taking its inspiration from nature in designing new materials. The group is probing the secrets of such natural substances as slug mucus, spider webs, and abalone shells in order to produce man-made materials that are stronger, lighter, less expensive, and more environmentally benign to manufacture than conventional materials.

The Center for Bioengineering is the home of pioneering work in diagnostic ultrasound, which enables physicians to image in detail the internal features of a patient without having to perform surgery. In addition, important strides continue to be made in understanding how to design man-made materials that are compatible with the human body. Working together in the University of Washington Engineering Biomaterials (UWEB) project, a group of UW researchers hopes to develop a new generation of medical implants that mimic the biology of the body parts they replace, thus fooling the body into accepting foreign materials.

The Department of Computer Science and Engineering is known for its catalytic role in bringing tools for designing microchips to engineers and industrial firms in the Pacific Northwest, and for its pioneering work to address critical safety issues in software systems. Recently, UW researchers have been recognized for work leading to a three-dimensional photography system as well as for the development of Internet and World Wide Web searching tools called software robots ("softbots").

The tremendous flexibility and power of Geographic Information Systems are being brought to bear on a wide range of research activities across the campus. In a fusion of GIS, computer-aided design, and virtual reality, efforts are underway to link GIS capabilities with visualization tools to allow users to display and move around in a virtual three-dimensional representation of a GIS database.

In a project at the Human Interface Technology (HIT) Lab, researchers have developed a process to display electronic images directly on the human retina. Researchers anticipate the retina display may replace computer screens and video monitors in the future.

The University is part of the Pacific Earthquake Engineering Research Center (PEER), a \$20-million effort funded by the National Science Foundation. Its goal is to identify and mitigate potential earthquake hazards along the Pacific Coast. The UW joins eight California universities in the project. Amid mounting historical evidence that the Pacific Northwest is at risk for devastating temblors, the center will study new ways to assess earthquake resistance, as well as seismic retrofitting options for major structures.

Biological Sciences

Research programs in the biological and zoological sciences take research teams to sites in the Pacific Northwest region and beyond, to remote corners of the world. Research in zoology has focused on the neurological basis of behavior and the origin of circadian rhythms, the physiology of insect development and the role of hormones in metamorphosis, and the ecology of intertidal communities. Pioneering field studies of the male red-winged blackbird conducted by UW zoologists have helped to explain the phenomenon of territorial dominance in animals.

In order to study the tops of trees and tips of branches where most budding, branching, and photosynthesis occur, and to understand what makes forests thrive, the UW has erected a construction crane in the Gifford Pinchot National Forest in southwest Washington. The crane's gondola can be moved in a 550-foot circle, giving researchers access to nearly six acres of old-growth canopy. The crane is the largest forest research crane in the world and the only one located in a temperate forest.

UW microbiologists have pioneered genetic engineering techniques for plants. A UW group applied the latest gene mapping techniques to the problem of how much genetic change is required in order for a new species to evolve, one of the central mysteries of evolutionary biology. Investigators from the College of Forest Resources and the Departments of Biochemistry and Botany have teamed up in this effort.

Researchers in the Department of Genetics in the College of Arts and Sciences conducted basic research in yeast genetics that led to a vaccine against Hepatitis B.

Health Sciences

Since its establishment many decades ago, the UW Health Sciences Center has become well known for its teaching, research, and patient care. University physicians and staff members pioneered the first successful long-term kidney dialysis techniques, which have led to lifesaving treatments for tens of thousands of people. Continuing research is leading to the production of simpler and more portable devices for patients suffering from kidney failure.

Medic One, a system of rapid response for victims of accidents and heart attacks, is based at Harborview Medical Center, one of the University's two teaching hospitals. It has provided a national model for emergency medical care.

University physicians have been leaders in the development of bone marrow transplantation, which offers the hope of curing several forms of leukemia. E. Donnall Thomas, former head of medical oncology at the University, now professor emeritus, received the Nobel Prize in 1990 for developing bone marrow grafting techniques.

Fundamental research in biochemistry is unlocking the secrets of life processes at the molecular and cellular level. The discovery of protein phosphorylation—the reactions that regulate energy use, growth, and transformation of cells—by UW scientists Edmond Fischer and Edwin Krebs was recognized with the Nobel Prize for Medicine in 1992.

The UW played an instrumental role in launching and promoting the Human Genome Project, the 15-year, \$3-billion effort to map the roughly 100,000 genes that provide the blueprint for the human body. The sequence analysis of the beta T Cell receptor family has yielded the longest stretch of human genetic sequence analyzed to date and is changing how scientists study human T Cell receptor genes.

A UW center in ecogenetics explores the genetic basis for cellular responses to environmental insults or other stresses. Research programs at the UW in the study of heart disease, diabetes, and sexually transmitted diseases have achieved international recognition.

The School of Pharmacy has a strong program in pharmacokinetics, the study of how drugs are metabolized and the rate at which they affect target organs and are eliminated by the body. Research is aimed at the analysis and prediction of dangerous drug interactions.

The UW School of Dentistry is renowned for its work in periodontology, the study of infectious diseases of the tissues surrounding the teeth. The School has the largest clinical service in the world dedicated to the challenges of treating patients with dental fears and phobias.

Social Sciences

Interactions among individuals and groups determine the texture of society. The study of these interactions is the province of social scientists, whose work ranges from basic research on perception to the effect of interest groups on public policy.

Nationwide attention has been given to the work of UW investigators studying couples and the common factors that underlie successful relationships. In related research, several investigators are examining the processes of interaction in small groups, from families to work teams.

The award-winning Social Development Research Group in the School of Social Work conducts innovative research on the causes and prevention of violence, crime, drug use, school dropout, and other problems that affect children and families.

Important research in leadership and motivation, in human memory, and in alcoholism and addictive behavior is being carried on in a number of academic disciplines. Alcoholism studies range from physiological experiments to model counseling programs for pregnant women to participant-observer studies of addictive behavior. The focus for this effort is the Alcohol and Drug Abuse Institute.

Anthropologists are studying the changes in fertility, medical history, and cultural adaptation of the Japanese-American community in the Pacific Northwest, and the challenges faced by immigrants from Vietnam and Laos. Other faculty members are pursuing problems in distant locales and times, such as the beginning of agriculture in the Nile Valley.

Geographers are studying regional issues, such as the economic linkages between the Pacific Northwest and other parts of the country, the design and financing of efficient and equitable transit systems, the recent surge in population of nonmetropolitan areas and its policy implications, and the geography of access to health care.

Social scientists at the University have a special interest in international relations. The University has been a pioneer in research concerning the Near and Far East; this important role was emphasized with the establishment of the School of International Studies in 1978 (now the Henry M. Jackson School of International Studies), the culmination of more than 60 years of scholarly activity in area studies and international relations. Scholars in political science, anthropology, sociology, and the humanities study the role of culture in international affairs. Economists and geographers study development, resource management, and international economics. Historians complement the work of social scientists in exploring the basis of current thought, and scholars in languages and literature provide essential knowledge of original texts and the relationship of language to culture.

Humanities and the Arts

Research in the humanities often fulfills a primary mission of humanistic study—the preservation of the literary and artistic achievements of mankind. One aspect of this research is textual scholarship, involving the identification and authentication of original texts and artifacts. New knowledge is also generated through reassessment of earlier texts and works of art.

Texts that form part of Egypt's Nag Hammadi Library, found more than a quarter of a century ago but only recently translated from Coptic, may lead to a reinterpretation of early Christianity. Located near the upper Nile, the library contains documents from little-known monastic groups, previously unknown Christian gospels, and both familiar and unfamiliar sayings of Jesus. A UW scholar studying these texts expects them to have as great an impact as the discovery of the Dead Sea Scrolls. The texts also will shed more light on the heretical Gnostic movement, which offers a radically different interpretation of Genesis.

Theoretical studies also form an important component of research in the arts. Some faculty in the School of Music conduct extensive research in the scientific analysis of sound, known as systematic musicology. Studies in this field include the influence of vibrato on judgments of vocal blend; context and time in musical perception; and rhythmic responses of preschool children. Other faculty members are exploring new ways of creating music, including the use of computers.

The concept of scholarly achievement in the arts often is synonymous with performance or exhibition. The UW School of Music has on its faculty a number of nationally recognized composers. The School of Music also is home to one of the finest opera programs in the country.

The School of Art faculty includes nationally and internationally known artists and scholars in nearly every one of its ten studio, art history, and design disciplines. Studio artists carry on the age-old quest for aesthetic quality but also pursue stylistic innovation, as well as developing new techniques in such diverse areas as non-toxic water-soluble printing and computer-generated imagery. Many of the School's art historians have helped reshape this young discipline through their studies of art as cultural expression.

The UW School of Drama houses the famous Professional Actors' Training Program, which, besides teaching basic acting skills, provides an intensive introduction to the practice of the theatre arts. The program attracts dedicated students who work for demanding, scrupulous visiting directors from the commercial stage as well as for permanent faculty members with extensive professional experience.

The University's program in creative writing is one of the oldest in the country. It achieved prominence in the 1950s and 1960s, when its faculty included Theodore Roethke, winner of the Pulitzer Prize in 1953. The tradition of excellence continues, with current University poets and authors receiving critical acclaim throughout the nation, including Professor Charles Johnson, who was awarded the 1990 National Book Award for Fiction. This concentration of talent has made the University a center for literary activity in the Pacific Northwest.

The Center for Advanced Research Technologies in the Arts and Humanities (CARTAH) supports and promotes computer-based research and creative work in the arts and humanities. The center helps foster liaisons between the research community and the University's arts and humanities departments, and provides state-of-the-art computing and media resources. CARTAH has become known internationally as an important center for producing new digital art and plays a key role in developing educational technology at the UW.



UW Extension

Office of Educational Outreach (UW Extension, Summer Quarter, Evening Degree Program, and Distance Learning)

Vice Provost

David P. Szatmary



www.outreach.washington.edu

Established in 1912, UW Extension brings the University's resources to the community by providing access to quality educational programs which meet ongoing professional and personal needs.

This section describes the various programs currently part of UW Extension. The quarterly UW Extension catalog contains details of the program offerings. It is mailed without charge to residents of western Washington, who may also receive it by calling (206) 543-2320 or by writing to UW Extension, Box 354224, Seattle, Washington 98105-4190. Catalogs can also be requested at UW Extension's Web site.

Evening Degree Program

Many credit courses are offered each quarter for students pursuing a degree, as well as those who are not formally admitted to the University. The classes are intended for non-traditional degree seekers as well as for postbaccalaureate individuals pursuing new skills and knowledge. All evening credit courses are taught by University faculty members and lecturers, approved by the appropriate academic units. UW credit is awarded and the grades earned are included in GPA calculations. Matriculated students enrolling in these courses pay course fees in addition to regular tuition.

Graduate Nonmatriculated Program

Individuals not admitted to a graduate program who wish to enroll in a graduate-level course may apply for graduate nonmatriculated student (GNM) status. Credits earned as a GNM may be applicable toward a degree upon subsequent admission to a graduate program. Application forms are available from participating departments. The Graduate School: Graduate Study section of this catalog offers more details.

UW Extension Distance Learning

Approximately 130 credit courses and five certificate programs are delivered through UW Extension Distance Learning. Courses are delivered by print, video, audio, and the World Wide Web, and typically consist of assigned texts, study guides, assignments, and examinations. Most courses use interactive Web sites, email and voice mail to enhance interactions with instructors as well as other students. Certain noncredit courses required for University entrance are available to those who wish to qualify for admission. Other courses provide subject matter for professional continuing education.

Courses are open to persons who prefer an alternative to on-campus classroom meetings. Matriculated University students often find distance learning a convenient way to earn credits during summers or during the evening, or a way of taking courses that would otherwise be unavailable due to schedule conflicts.

Formal admission to the University is not required for enrollment in distance learning certificate programs and UW Extension courses. Students may register at any time for most courses and have between three and six months to complete the work. As many as 90 credits earned through distance learning may be applied to a University baccalaureate degree. Upon successfully completing a course, the grade and number of credits earned are recorded on an official University transcript. Grades earned, however, are not computed in the University GPA, which is based solely on courses taken in residence. (This policy is currently under review.) UW Extension offers certificate programs to students at a distance through various technologies (see the Certificate Programs section of this catalog).

UW Distance Learning catalogs may be obtained by telephone, (206) 543-2320 or 1-800-543-2320; by writing to UW Distance Learning, UW Extension, Box 354223, Seattle, Washington 98105-4190; or by sending email to instudy@u.washington.edu. (Include name, address, and social security number). Additional information is available through the UW Extension Distance Learning Web site.

English As A Second Language Department

The English As A Second Language (ESL) Department provides non-native speakers of English who are interested in improving language skills with the following services and resources:

1. *Academic ESL courses for UW students.* English is the language of instruction at the University. Many students who are not U.S. citizens need additional English training to facilitate participation in regular University programs.

Students who are not U.S. citizens (and whose native language is not English) admitted with TOEFL scores of at least 500 but below 580 or Michigan Proficiency Test scores of at least 80 but below 90 are required to take the University's ESL diagnostic test before matriculating. Students whose test results show their English to be adequate for full-time University study are excused from ESL course work. Others must take those ESL courses designated as required each quarter until the language requirement is completed.

During the academic year, the courses offered are designed for students who are not U.S. citizens who are officially enrolled in a degree program at the University as either undergraduate or graduate students. These students take ESL courses along with their regular programs of study. English As A Second Language courses count as the equivalent of five credits each for the purposes of satisfying visa requirements but do not count toward graduation. Special fees are charged for these courses instead of tuition.

2. *UW Extension ESL courses for all non-native speakers.* The ESL Center offers a separate series of noncredit courses that are open year-round to any adult non-native speaker who would like to study English. These courses do not require formal admission to the University. Application may be made to the address below.

Additional information about ESL services, including complete listings and descriptions of current ESL course offerings at the University, is available from the ESL Department, Box 354232, Seattle, Washington 98195-4232, (206) 543-6242, or the ESL Web site (www.outreach.washington.edu/esl/).

Noncredit Classes

UW Extension offers a broad range of courses, certificate programs, institutes, conferences, and seminars for adults, students, and children. Noncredit classes offer opportunities for professional development and personal enrichment. Specific programs are announced quarterly in the UW Extension catalog. To receive a catalog, call (206) 543-2320.

Advising and Recruitment

UW Extension is committed to providing needed resources and skills to the Puget Sound community. Through its Advising and Recruitment department, companies are contacted and customized training programs are provided. Information meetings on various courses are held at companies, on campus, and in downtown Seattle. Advisers are available to answer questions on any of UW Extension's credit or noncredit courses or certificate programs. They may be reached at (206) 543-6160.



University of Washington, Bothell

The University of Washington, Bothell (UW Bothell) admitted its first students in autumn quarter 1990 and has grown rapidly since. UW Bothell is fully accredited as part of the University of Washington and awards a University of Washington degree. In addition, professional programs are accredited by their respective accrediting bodies.

All programs give particular attention to the development of skills appropriate to an advanced level of study, to writing and oral communication, to the analysis and assessment of information, and to collaborative work with other students. At present the following programs are offered: Bachelor of Arts in Liberal Studies, Bachelor of Arts in Business Administration, Bachelor of Science in Nursing, Bachelor of Science in Computing and Software Systems, Master of Education, Master of Management, and a postbaccalaureate Teacher Certification Program for elementary school teachers. Minors are currently offered in computing, business, and education. A Bachelor of Science in Environmental Sciences, a Master of Arts in Public Policy, and a Master of Science in Computing and Software Systems are being planned for the 2001-2002 academic year. As state funding permits, options will be added in existing programs and additional undergraduate and graduate degree programs will be considered.

UW Bothell is committed to increased access to higher education for residents of north, northwest, and northeast Puget Sound. To serve a diverse student population, most programs offer part- and full-time study options, with day, late afternoon, and evening classes. The teacher certification program requires full-time study. Financial aid and a tuition installment plan are available.

UW Bothell is temporarily located in the Canyon Park Business Center, near the intersection of Interstate 405 and State Route 527. An exciting new campus, which is home to UW Bothell and Cascadia Community College will open for the 2000-2001 academic year. It is located on the former Truly Farms site, at the intersection of Interstate 405 and State Route 522. The campus is also home to the largest wetlands restoration project in the United States.

Degree Programs

Detailed descriptions of the academic programs offered at UW Bothell may be obtained by calling the Office of Admissions at (425) 352-5000 or 1-800-736-6650. A brief overview of the programs is provided below. Undergraduate programs are offered at the upper-division level; students are expected to have completed their first two years (80 to 90 quarter credits) of college study prior to entry, and then to complete at least 90 additional credits at the upper-division level to earn the bachelor's degree. The teacher certification program is offered as a postbaccalaureate program. The Master of Education degree requires a minimum of 45 credits, and the Master of Management degree requires a minimum of 60 credits.

Interdisciplinary Arts and Sciences: The IAS program is an innovative and interdisciplinary program combining the methods, materials, and intellectual tools of the humanities, social sciences, and sciences. Because the ability to think, write, and speak effectively is a vital part of a liberal studies education, the program is designed to improve competence in these essential skills. The program leads to a Bachelor of Arts in Liberal Studies with degree options in American studies; society, ethics, and human behavior; culture, literature, and the arts; global studies; and science, technology, and the environment. Pending approval and funding, a Bachelor of Science in Environmental Science will begin in autumn 2001, as well as a Master of Arts in Public Policy.

Business Administration: The business administration program offers an integrated approach to the study of business. The program emphasizes effective oral and written communication, teamwork in a diverse workforce, entrepreneurial management, high technology, and the global business environment. With close ties to the greater Seattle business community, a "real world, hands on" approach is offered. In addition, business students complete courses in liberal studies to better understand the larger social and cultural context in which business functions. The undergraduate curriculum focuses on essential business core courses and currently offers options in marketing; management; innovation and technology management; finance; and international environment.

At the graduate level, the business program offers a Master of Management degree with a focus on technology-oriented businesses and is designed for working professionals. The program covers advanced topics in finance, accounting, marketing, project management, and organizational behavior, within the context of the unique opportunities and challenges facing high-tech companies today.



Both the Bachelor of Arts in Business Administration and the Master of Management degrees are credited by the American Assembly of Collegiate Schools of Business (AACSB).

Computing and Software Systems: The Bachelor of Science in Computing and Software Systems (CSS) program features an innovative and broad approach to the design of applications software. Within the major, there are three options: applications programming, systems analysis, and information engineering. Students gain essential knowledge and skill in state-of-the-art computing theory, application development, problem solving, communication, and management. Through industry partnerships, students have the opportunity for "real-world" experience. Designed in collaboration with representatives of high-tech industries, the CSS program prepares students for employment, graduate education, and life-long learning in this dynamic field. Pending approval and funding, a new Master of Science in Computing and Software Systems is planned for autumn 2001.

Nursing: The Bachelor of Science in Nursing program at UW Bothell is specifically designed for registered nurses who have at least 90 transferable college credits. Through a credit by examination mechanism, nursing students may earn their junior-year credits. The program prepares professionals for the broader scope of current nursing practices and evolving future opportunities. Critical thinking, decision making, and oral and written communication are emphasized. The Bachelor of Science in Nursing program at UW Bothell is accredited by the CCNE accrediting body of the American Association of Colleges of Nursing (AACN) and is affiliated with the UW School of Nursing. The program begins annually in summer quarter and may be completed in four quarters; electives may be taken prior to summer quarter.

Education: The UW Bothell teacher certification program leads to Washington state teacher certification for grades K-8. Two options are available. Option I is a full-time, 12 month postbaccalaureate program designed for those who already hold a bachelor's degree. This option begins summer quarter. Option II is an extended two-year program that begins autumn quarter with three quarters of part-time study followed by three quarters of full-time course work. Through collaborative partnerships with area schools, the teacher certification program integrates courses and structured field experiences in a variety of school settings. This unique program incorporates the most current and thoughtful perspectives on preparing dedicated professionals for classrooms and schools. UW Bothell also offers a Master of Education degree. This program encourages educators to think deeply about the complex work of teaching, to explore questions central to their professional growth, and to develop sustained, collegial relationships with peers from across the region. The program challenges students' thinking and celebrates their accomplishments. Critical reflectivity, leadership, and the generation and use of research to improve classrooms and schools are emphasized throughout the program.

justice, public policy, and health care leadership. The program aims to improve the health of populations, aggregates, communities, and delivery care systems. Students are provided with opportunities to explore individual interests within the



University of Washington, Tacoma

The University of Washington, Tacoma, whose campus has won national awards for urban design and historic preservation, is changing the face of its region—architecturally and economically, as well as intellectually and culturally. Located in Tacoma's historic warehouse district, across from the Washington State History Museum and Union Station, UWT was established in 1990 to offer innovative upper-division, postbaccalaureate, master's-level programs that serve people in the South Puget Sound region. The UW Tacoma now enrolls more than 1,500 students and is expected to see continued dramatic growth in academic offerings, enrollment, and facilities. (January 2000 saw the dedication of one new building and ground-breaking for several more occurred on the same day.) An impressive faculty of scholars and researchers devote themselves to UWT students through quality teaching and to the community through service and partnership.

UWT's undergraduate programs are designed to be the next academic step for community college and transfer students who wish to complete a baccalaureate degree—either immediately upon completion of the first 90 college credits, or after a hiatus. UWT has served college students from age 14 to age 70 and enjoys tremendous community support, which has generated more than \$1.5 million in endowment support for scholarships and programs. UWT's master's programs have been tailored to serve specific demand in the South Puget Sound area. The one-year, postbaccalaureate teacher certification program has recommended alumni for more than 180 K-8 teaching certificates since 1994. With day, evening, and Saturday classes, UWT serves the needs of students who work or who have families and cannot travel long distances to further their education.

Undergraduate and Postbaccalaureate Degree and Certificate Programs

Students seeking admission to baccalaureate programs must have completed the first two years (90 quarter credits) of college study before entry. They must complete an additional 90 upper-division credits to earn the bachelor's degree. All programs take an interdisciplinary approach and emphasize writing and oral communication, analysis and assessment of information, and collaboration with other students in project teams. Requirements for the master's degree vary with the program. Detailed information about the academic programs offered can be obtained by calling the UWT Office of Admissions at (253) 692-4400 or 1-800-736-7750; TDD (253) 692-4413; or visit UWT's Web site at www.tacoma.washington.edu.

Business Administration: The UWT Business Administration Program offers an undergraduate course of study that leads to a Bachelor of Arts in Business Administration. It offers concentrations in accounting, information systems, international business, general business, management, marketing, and organizational leadership. It is fully accredited by the International Association for Management Education (AACSB). An important element in the program is the integration of traditional business components with interdisciplinary learning. The integrated

curriculum emphasizes the critical competencies needed to succeed in the business environment of the 21st century: teamwork, communication, integrated business knowledge, strategic thinking, and professionalism. The goal is to prepare students to operate comfortably in a variety of environments and to take a proactive approach to the philosophy of lifelong learning.

For additional information, visit the program's Web site at www.tacoma.washington.edu/business.

Computing and Software Systems: The Bachelor of Science in Computing and Software Systems provides the theoretical foundation and practical experience necessary for a career in the challenging and rewarding professions of software specification, design, development, implementation, maintenance, and reengineering. It emphasizes the latest paradigms, languages, and techniques of today's practitioners, while building a strong base to support continued life-long learning in the field. It also prepares students for further graduate education. Industrial partnerships provide opportunities for a wide spectrum of experiences complementing on-campus research and practical experience. The program has a core requirement of 35 credits, including Mathematical Principles of Computing (covering discrete mathematics, data structures, principles of OOP, and design patterns), Software Engineering, Hardware Architecture and Operating Systems, Technical Writing, Management Principles, and Process Reengineering. The program includes a concentration of 25 credits taken in the student's chosen area of specialization with 30 credits of approved electives, including interdisciplinary and cooperative education opportunities. Visit www.tacoma.washington.edu/css/ for additional information on the program.

Education: Underlying the UWT Education Program is a vision of the teacher as one who is broadly educated, continuing to learn, skilled at and committed to the craft of teaching, and entrusted to nurture the fullest human potential in each individual.

UWT offers a field-based elementary education teacher-certification program. The program is a full-time fifth year designed for people who hold a bachelor's degree. Students are admitted to the program each summer and progress as a cohort community through four quarters of study and extensive field experience. This program is intended to prepare teachers for urban school teaching. Master teachers and University faculty work together to integrate course content with hands-on experience. Site placements in partnership schools begin in late summer and continue through the remainder of the program.

Environmental Science: Course offerings in marine science, geosciences, plant-insect interactions, ecology and evolution, environmental chemistry, hydrology, water resources, conservation biology, and ecological restoration will culminate in a bachelor of science degree. The degree is currently under review, and the start date may be as early as autumn quarter 2000. Until then, the environmental science curriculum is a concentration within the Bachelor of Arts degree offered by the Interdisciplinary Arts and Sciences program.

Interdisciplinary Arts and Sciences: The UWT Interdisciplinary Arts and Sciences (formerly Liberal Studies) Program is an undergraduate course of study leading to a Bachelor of Arts degree. The program offers concentrations in arts, media, and culture; Asia and the Pacific; international studies; American studies; environmental studies; environmental science; ethnic, gender, and labor studies; general studies; politics, values, and social change; self and society; and states, markets, and global systems. The Interdisciplinary Arts and Sciences Program is an innovative, interdisciplinary program combining the methods, materials, and intellectual tools of the humanities, social sciences, and natural sciences. Building on the success of the undergraduate program, graduate courses in the arts and sciences were offered for the first time in the 1999-2000 school year. For additional information, please visit the IAS Web site at www.tacoma.washington.edu/liberal.

Nonprofit Studies: UWT offers a certificate program of study in nonprofit studies designed to prepare students for careers and management in not-for-profit organizations. This nationally recognized certificate in nonprofit management is offered through UWT's affiliation with American Humanics. Students gain skills in community organizing and civic leadership. They are involved in the AH student association on campus, which works with a variety of community-building projects, including professional development workshops on nonprofit management at UWT.

Nursing: The Bachelor of Science in Nursing program at UWT is designed for experienced registered nurses. It is accredited by the National League for Nursing (NLN) and shares accreditation with the School of Nursing at the Seattle campus. Through credit by examination, nursing students validate learning attained during their professional experience to earn junior-year credits. Full-time students complete the program in four quarters; part-time options are available and are encouraged for students who work. Course work may begin during the summer quarter; electives may be taken prior to admission. Courses prepare students for professional practices and roles in the complex, changing arena of health care. Additional information is available at www.tacoma.washington.edu/nursing/bsn.htm.

KEY TO SYMBOLS AND ABBREVIATIONS



The symbols, abbreviations, and conventions below are used in the listings of program descriptions, faculty members, and course descriptions. Colleges and schools are presented in alphabetical order; departments and programs are listed alphabetically within the appropriate college or school. If you are unable to locate a department or program, consult the index.

Program Descriptions

Each program description includes contact information for the program, admission requirements, and suggested introductory work.

Suggested introductory work is not restrictive. It is a recommendation by the department or program of courses a prospective student might want to consider taking before seeking admission to the department or program. Some introductory work, especially in language programs, overlaps with the program requirements. It is recommended students take these courses to determine if they wish to seek admission to the program. In no instance is the suggested introductory work required for admission.

Faculty

Entries include appointment to the Graduate School faculty (indicated by *); year of appointment to the University; graduate or professional degree, date, and institution. Entries also may indicate Acting, Adjunct, Affiliate, Clinical, Emeritus, or Research faculty; and area(s) of interest.

Course Descriptions

Each course listing includes prefix, course number, title, and credits. Each listing also may include general-education designator(s), name(s) of instructor(s), description of the course, prerequisite(s), and quarter(s) offered.

Specific information on courses offered in a particular quarter, including descriptions of courses approved since the publication of this catalog, appears in the quarterly Time Schedule.

Course Numbers

100-299 Lower-division courses primarily for freshmen and sophomores.

300-499 Upper-division courses primarily for juniors, seniors, and post-baccalaureate (fifth-year) students. Graduate students may enroll in 300- and 400-level courses. When acceptable to the major department and the Graduate School, approved 400-level courses may be applied as graduate credit in the major field and approved 300-level courses may be applied in the supporting field(s).

Credit Designation

ART 100 (5) 5 credits are received for the quarter.

ART 101-102 (5-5) Hyphenated course. Credit is earned, but may not be applied toward graduation until the entire sequence is completed. (An *N* grade may be given the first quarter and the final grade the second quarter.)

ART 100- (5-) Course may take longer than one quarter to complete. Repeated registration may be necessary. An *N* grade is received until the final grade is submitted.

ART 100 (2, max. 8) 2 credits per quarter; course may be repeated up to four times to earn a maximum of 8 credits.

ART 100 (1-5, max. 15) Up to 5 credits may be taken in a given quarter. Course may be repeated to a maximum of 15 credits.

ART 100 (*, max. 10) Credit to be arranged per quarter; course may be repeated to a maximum of 10 credits.

ART 100 (3/5) 3 or 5 credits are earned in a given quarter. Specific amount is determined by school or college offering the course. The *Time Schedule* may indicate 3 credits, 5 credits, or 3 or 5 credits. Credits may vary by section.

ART 100 (3/5, max. 15) 3 or 5 credits are earned in a given quarter. Course may be repeated to earn a maximum of 15 credits.

ART 499 (*) Credit is to be arranged with school or college offering the course.

Undergraduate General Education Requirement Designators

VLPA Visual, Literary, & Performing Arts (Areas of Knowledge requirement).

I&S Individuals & Societies (Areas of Knowledge requirement).

NW The Natural World (Areas of Knowledge requirement).

QSR Quantitative, Symbolic, or Formal Reasoning.

C English Composition.

Courses marked C may be used for the English Composition requirement or the additional-writing (W-course) requirement, but not both; none may count for the Areas of Knowledge requirements. Courses marked QSR may be used for both the QSR requirement and an Areas of Knowledge requirement, if one is listed. Courses marked with more than one Areas of Knowledge designator (VLPA, I&S, NW) may be used for any one of the areas indicated, but not for more than one.

Background Required

Prerequisites Courses to be completed or conditions to be met before a student is eligible to enroll in a specific course.

Quarters Offered

A,W,Sp,S Indicates the quarter(s) the course is offered. A = Autumn, W = Winter, Sp = Spring, S = Summer.

Examples:

ART 100 AWSp ART 100 offered Autumn, Winter, and Spring quarters.

ART 100, 101 A,W ART 100 offered Autumn quarter. ART 101 offered Winter quarter.

ACADEMIC PROGRAMS, FACULTY, AND COURSES

College of Architecture and Urban Planning

224 Gould

Dean

Jerry Finrow

Associate Deans

Katrina Deines
Gail L. Dubrow



General Catalog Web page:
www.washington.edu/students/gencaf/academic/CAUP.html



College Web page:
www.caup.washington.edu

The College of Architecture and Urban Planning (CAUP) comprises four departments that are directly concerned with the design and development of the physical environment: Architecture, Construction Management, Landscape Architecture, and Urban Design and Planning.

The College offers a variety of programs and degrees focusing on the environmental design disciplines within a liberal arts education. The undergraduate programs of the departments of Construction Management and Landscape Architecture lead to the professional degrees that serve as the educational credentials for careers in their respective fields. The pre-professional undergraduate degree in architectural studies prepares students for professional programs as well as related roles in society. Master's degrees are also offered in the College: Master of Architecture, Master of Science in Construction Management (evening degree), Master of Urban Planning, and Master of Landscape Architecture. Master's students may elect to work toward the Certificate in Urban Design or the Certificate in Preservation Planning and Design. An interdisciplinary doctoral program in urban design and planning is available through the Graduate School. All curricula encompass an appropriate level of design and technical understanding and include broader social, economic, and cultural issues fundamental to understanding, preserving, and enriching our built and natural environments.

As part of a major university and metropolis in the Pacific Northwest, the College is able to reinforce its program by using its setting as a laboratory for study. It works closely with its various professional communities to build curricula and a faculty attuned to the understanding and creation of an appropriate physical environment.

Research centers include:

- Center for Real Estate and Community Development
- Center for Environment, Education, and Design Studies

- Institute for Hazard Mitigation Planning and Research
- Urban Ecology Laboratory

Educational programs include:

- Certificate programs
- Urban design
- Preservation planning and design
- Continuing education/extension programs
- Architecture
- Facilities management
- Real estate

Institute for Hazard Mitigation Planning and Research

Robert Freitag, Director

The Institute for Hazard Mitigation Planning and Research was established in 1999 as a vehicle for research, teaching, and public service that address the mitigation of natural and man-made hazards through planning and design, and through the integration of mitigation principles into a wide range of disaster and risk-management opportunities. The institute's approach is interdisciplinary, with close links to other academic research units in the University and to risk management organizations in government and industry.

The research agenda is aimed at developing practical mitigation solutions that can be incorporated into local government land-use planning, development regulation, infrastructure, and emergency management; state and federal response to disasters; planning for business continuity; and planning for post-disaster recovery and reconstruction.

The institute is also pursuing curriculum development to incorporate mitigation principles and methods into existing and new courses in the College's degree programs.

International Programs

224 Gould

The departments of the College offer many opportunities for foreign study in which participants earn academic credit while studying abroad. Programs in Rome, the Italian Hill Towns, and Mexico are sponsored on a regular basis. In addition, various study and exchange opportunities exist in such locations as Germany, the Scandinavian countries, Colombia, Mexico, India, and Japan. Faculty exchanges with foreign institutions occur regularly.

University of Washington Rome Center

95 Piazza del Biscione, Rome, Italy

Katrina Deines, Co-director
Dan Harmon, Co-director

The College maintains a permanent year-round facility in Rome. Studio and classroom spaces, a library, administrative offices, and housing accommodations for faculty are located in the Palazzo Pio on the Campo de Fiori. The Rome Center is used by UW programs in classics, Romance languages, art, art history, English, creative writing, and comparative history of ideas, as well as by the departments of the College of Architecture and Urban Planning. The Rome Center fosters interaction among students from the University and other institutions, together with practicing professionals residing in or visiting Rome. Several major universities regularly share studio critics and lecturers.

Remote Sensing Applications Laboratory

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Frank Westerlund, Director

The Remote Sensing Applications Laboratory (RSAL) is a facility for teaching, research, and public service applications of remote sensing and geographic information technologies in environmental planning and design. Remote sensing includes aerial photography and satellite systems that record earth-surface data in image or digital form for subsequent interpretation by visual or computer techniques and incorporation into geographic information systems. Research applications have included land-use mapping, urban form analyses, growth-management studies, development siting, natural-resource inventories, and environmental analysis. RSAL houses an extensive collection of air photo, satellite data, map, and documentary resources. In addition to optical photo interpretation equipment, the laboratory utilizes UNIX and NT workstation-based software systems such as ERDAS image processing and ArcInfo GIS.

Facilities

Computing

A wide variety of computers, software, networks, computing facilities, and support services are available to CAUP students through UWired and College-operated labs for studies and research in Computer-Aided Design (CAD) and Geographic Information Systems (GIS).

UW Computing & Communications (C&C) offers faculty, staff, and students accounts on C&C Uniform Access computers, which provide a variety of computing resources and information technologies such as email and UWIN. Establishing a UW NetID allows attachment to the campus network, and in turn, connection to a vast national and international collection of networks, computer users, computers, and bibliographic and other library resources.

CAUP facilities, composed of both Macintosh and PC computers, are connected in a College network which, in turn, is connected to the Internet. UW computing and data resources are available through these machines. The College employs one full-time Computer Resources Manager and several student consultants.

General-purpose labs are available to all CAUP students. They are networked to file servers, plotters, and laser printers. A wide variety of software is available including spreadsheets, word processors, CAD, GIS, 2D and 3D graphics, rendering, animation, scheduling, estimating, bid analysis, project management, modeling, and design programs. Furthermore, all labs support email. Hours of access to these labs generally parallel those of the College library except when classes are in progress.

For advanced course work, research, and certain independent studies, the College operates specialized labs such as the Multimedia Lab with its high-performance PowerMac workstations along with peripherals including CD-ROM drives, scanners, and a video-digitizing (capturing) system. Also, a SUN Workstation located in the Remote Sensing Applications Lab (see above) supports advanced research applications of GIS, remote sensing/image processing, and visual and other simulation modeling.

Lighting Applications Laboratory

The Lighting Applications Laboratory includes a variety of facilities for use by students and faculty members in conjunction with lighting classes, design-studio courses, and research work. Equipment in the lighting workshop includes lamps and lighting fixtures, sample models and model-building materials, a mirror-box artificial sky, a direct-beam sunlight simulator, assorted light meters and data loggers, cameras, and demonstration displays.

The Department of Architecture is a co-sponsor of the Lighting Design Lab. This lab, a 10,000-square-foot, half-million-dollar facility, was designed to demonstrate the energy conservation potential of state-of-the-art architectural lighting technology. It is operated by Seattle City Light in downtown Seattle. Students can take various positions in the lab as interns. It is also available to assist in their lighting design and testing, as it does with regional architectural offices.

Photography Laboratory

A large photography laboratory is provided with studio and darkroom facilities for use by photography classes, design-studio classes, special instruction, and independent activity.

Shop

A fully staffed and equipped wood-, plastic-, and metal-working shop provides students with an opportunity to design and build selected projects. The shop is used as an instructional facility in conjunction with studio, structures, and materials classes. Thesis and other individual activity also can be accommodated.

Library

The Architecture-Urban Planning Library, 334 Gould, is a branch of the UW Libraries. It is the primary location for materials on architecture, landscape architecture, construction management, and urban design and planning. The collection contains 42,500 volumes, 7,500 microforms, and 300 currently received serial subscriptions. Access to its collection is provided through the UW Libraries Information Gateway, a single World Wide Web location which encompasses all of the library's print and electronic resources as well as tools, services, and the ability to search the library's catalog and a wide range of Internet resources. The Gateway is available in all UW libraries and on the Web at www.lib.washington.edu.

Slide Collection

The slide collection consists of approximately 100,000 images covering architectural, landscape, design and planning, and construction subject matter, supporting the curricular and research needs of the College. New materials for lectures and projects are continually added.

Student Organizations

Chapters of American Institute of Architects Students, American Society of Landscape Architects, Associated General Contractors, Planning Students Association, and the Historic Preservation Association provide opportunities for undergraduate and graduate students to meet informally and to participate in a variety of projects and events.

College Bachelor of Arts Programs

Bachelor of Arts in Architectural Studies, see Architecture.

Bachelor of Arts in Community and Environmental Planning, see below.

Community and Environmental Planning

410 Gould

Undergraduate Program

Adviser
Dennis Ryan
410 Gould, Box 355740
(206) 543-4190

Bachelor of Arts

The Bachelor of Arts degree program with a major in community and environmental planning is offered through the College as one of the University's Interdisciplinary Undergraduate Programs (IUP). It is administered by the Community and Environmental Planning Advisory Committee.

The Community and Environmental Planning (CEP) program provides a multi-disciplinary study of several contemporary academic fields and areas of research. These include the study of communities, the analysis of natural and built environments, and the investigation of the theory and practice of planning. The CEP program is designed to foster both student- and community-based undergraduate learning experiences.

Students in the major form learning groups of seventeen individuals. Each group comprises a community of mutual learning that requires commitment, personal investment, and strong teamwork strategies from each individual for the duration of the major. Collaboratively, students engage the core content of the program—community, environment, and planning—through six interconnected seminars. The junior-year seminars emphasize the development of a broad knowledge base and a strong theoretical grounding in these areas. The senior-year sequence has an experiential, practice-based focus in which students pursue an independent internship in their communities. With guidance from peers and faculty, each student designs an individual learning plan of courses drawn from a rich array of undergraduate offerings at the UW. The Edward E. Carlson Leadership and Public Service Office provides guidance for the student's community involvement and field experience. Scholastic and logistic support from the Carlson office gives students the explicit and necessary connection between theoretical and experiential learning. Students explore how to work together constructively to anticipate and address critical issues facing the complex communities and world they inhabit.

The CEP major represents an intersection: it is a "crossroads" of theoretical, applied, and participatory learning. Specifically, students combine their breadth of knowledge with depth in methods from their cross-disciplinary course work and field experiences to explore their research interests and pursue their professional goals. It is a pathway to vocational accomplishment by which each student develops conceptual understandings and practices. The program supplies students with a toolbox of invaluable knowledge and skills that they will find crucial in the changing work place. CEP prepares students to become effective citizens, capable of acting with a conceptually broad and ethically responsible vision in a diverse and dynamic society. CEP education creates understanding, qualifications, and readiness for careers in interdisciplinary fields such as social education, planning, ecology, community and environmental activism, community organization and development, and government-community negotiation and interaction. CEP also promotes strong preparation for graduate and professional education in fields such as law, public policy, urban design and planning, social analysis,

media arts, environmental regulation, and advocacy. CEP prepares individuals to assume important roles in the difficult public issues that define the present era.

The major is open to students with varied interests and capacities who apply in the spring quarter of their sophomore year. Students admitted begin in autumn quarter.

Admission Requirements:

1. 90 credits to include the following:
 - English Composition (5 credits).
 - Areas of Knowledge: Visual, Literary, & Performing Arts (20 credits). Individuals & Societies (20 credits); environmental studies recommended. Natural World (20 credits); environmental studies, including GEOG 205, recommended. CEP 120 (5 credits) recommended. Quantitative and symbolic reasoning (5 credits).
 - Electives to total 90 credits.

For alternative recommended courses, visit the CEP Office in 410 Gould. Ten credits of writing-intensive courses are to be included in the 90 credits.

2. While the cumulative GPA is an important admissions evaluation factor, the committee will place emphasis on the student's statement of intent, an autobiographical statement, written responses to three selected questions, previous academic work, and the results of an informal interview with faculty and students in the program.
3. Applicants will be notified of the results by the end of spring quarter. Due to the nature of the major's learning-group structure, admission will be limited to space available in the core seminars.
4. Application deadline: May 1 for autumn quarter only. Applications are available in 410 Gould, (206) 543-4190.

Graduation Requirements: Satisfactory completion of 180 credits of course work, including 90 credits of liberal arts and 90 credits within the major (30 credits of core seminars, 5 credits of internship, 25 credits of selected methods courses, and 30 credits of electives). Methods courses may cover ways of knowing, of thinking, and of solving problems and issues. Courses which fulfill this requirement include qualitative and quantitative methods from the social, natural, and physical sciences; quantitative reasoning; interpretation; critical theory and analysis; computer applications; group dynamics and facilitation; ethics and philosophy; organizational theory; speech communication; writing; and research methods.

Advising: Advising for program premajors is available in the Undergraduate Advising Center, Mary Gates Hall, (206) 543-2551. Advising for CEP majors is available in 410 Gould, (206) 543-4190.

Faculty

Director

Dennis M. Ryan

Professors

Hancock, John L. * 1969, (Emeritus); PhD, 1964, University of Pennsylvania; urban and planning history, society, planning and environmental policy.

Miller, Donald H. * 1970; PhD, 1972, University of California (Berkeley); land use and urban spatial structure, data analysis and forecasting, planning theory.

Associate Professors

Kasprisin, Ronald J. * 1989; MUP, 1968, University of Washington; community design studios, town planning, planning/design communications, urban design principles.

Ryan, Dennis M. * 1974; PhD, 1976, University of Washington; community planning, design, and identity; public processes; urban design, change, and continuity.

Assistant Professor

Alberti, Marina * 1996; PhD, 1992, Massachusetts Institute of Technology; environmental planning, urban ecology, impact assessment, geographic information systems.

Course Descriptions

See page 48 for an explanation of course numbers, symbols, and abbreviations.

For current course descriptions, visit the online course catalog at www.washington.edu/students/crscat/.

CEP 120 Introduction to Community and Environmental Planning (5) I&S Introduction to central themes of major. Opportunities to engage in community action and planning process, while developing ecological literacy. Lectures, discussions, community service learning, and critical writing exercises combine to increase knowledge and interest in these fields. Emphasis on developing community of learners in and out of classroom setting. Offered: ASp.

CEP 301 The Idea of Community (5) I&S Theories of community and communal rights and responsibilities. Experience building a learning community within major. Explores struggles for community in every sector of life. Witness essentials of community through service and field experiences, students construct individual curriculum and learning plans for major, selecting cross-disciplinary work. Credit/no credit only. Offered: A.

CEP 302 Environmental Response (5) I&S/NW Explores issues of environmental crisis and societal responses. Readings and reflective analysis from broad selection of authoritative sources to develop grounded perspective in ecological literacy and consciousness. Concurrently, experiential education in challenges and practical responses to building sustainable society through participation in community-based environmental effort. Credit/no credit only. Offered: W.

CEP 303 Social Structures and Processes (5) I&S Investigates use of formal and informal social structures and processes within context of community and environment. Looks culturally at patterns and institutions of social organization and relationships among different sectors. Issues of interrelatedness, citizenship, knowledge, and communication. Participation in local community service organization. Credit/no credit only. Offered: Sp.

CEP 446 Internship (5, max. 10) Connects core and individual courses with field work. Group and individual readings develop understanding of how students' internships and field placements constitute particular element of community and environmental planning. Explores how what we do for a living is part of our lives as citizens and public service. Credit/no credit only. Offered: AWSp.

CEP 460 Planning in Context (5) I&S Examines theory against backdrop of practice for broad, historical understanding of social, political, environmental planning. Critique from viewpoints, e.g., planning history, ethics, ecofeminism, environmental justice, class and capitalism, planning and global economy. Develop personalized history reflecting individual ex-

perience, professional experience, and philosophical heritage of planning profession. Credit/no credit only. Offered: A.

CEP 461 Ethics and Identity (5) I&S Examination of personal, societal, vocational, environmental, planning ethics. Readings and discourse on ethical foundations for public life. Individual and group readings on values, human potential. Develops understanding of ecological context, moral responsibility, self-awareness. Constructs positive, diverse view of humanity, environment regardless of race, gender, ethnicity, beliefs. Credit/no credit only. Offered: W.

CEP 462 Community and Environment (5) I&S Capstone quarter merges core seminars, disciplinary courses in major, community field experiences for mastery of personal knowledge and skills. Reflection and synthesis of themes in major; engagement with contemporary issues. Compares theoretical definitions of community and environment with individual philosophies and knowledge within thoughtful, applied context. Credit/no credit only. Offered: Sp.

CEP 498 Special Topics (1-9, max. 15) I&S Systematic study of specialized subject matter.

CEP 499 Undergraduate Independent Study or Research (1-5, max. 10) Individual reading, research, fieldwork, other special project approved and supervised by faculty adviser most appropriate for the project proposed. Report on the purposes, procedures, and results of study is required. Credit/no credit only. Offered: AWSp.

Architecture

208 Gould



General Catalog Web page:
www.washington.edu/students/gencat/academic/Archit.html



Department Web page:
www.caup.washington.edu/html/arch/

The Department of Architecture offers two degrees: the Bachelor of Arts (B.A.) degree in architectural studies and the Master of Architecture (M.Arch.) degree, an accredited professional architectural degree. The B.A. in architectural studies is a pre-professional degree that prepares candidates for admission to professional architectural programs with advanced standing, as well as for other roles in society in related fields—in research, government, development, management, planning, etc. While many of these occupations do not require a professional license, they do require an understanding of and exposure to a professional education.

The curriculum embodies both broad and focused courses that cover the many and various aspects of architecture: design, graphics, computing, structural engineering, building sciences, history, theory, ecology, sociology, psychology, cultural studies, law, and professional practice. The faculty comprises a large and diverse group of teachers, practitioners, scholars, and researchers who represent a wide spectrum of backgrounds, experiences, and viewpoints. Approximately thirty permanent faculty members are supplemented by dozens of part-time professional practitioners from the region and around the country, as well as by exchange scholars from foreign institutions.

Priorities stressed by the faculty reflect changing ideas and concepts of architecture. Studios are sequenced, beginning with fundamentals and demanding an increasing independence at advanced levels. The defined studio sequence not only helps clarify the student's experience, but also insures that students get a broad and coherent cross section of design problems and instructors.

Most states require that an individual intending to become an architect hold an accredited degree. There are two types of degrees that are accredited by the National Architectural Accrediting Board (NAAB): (1) the Bachelor of Architecture, which requires a minimum of five years of architectural study (this degree is not offered at the University of Washington), and (2) the Master of Architecture, which requires a minimum of three years of study following an unrelated bachelor's degree or two years following a related pre-professional bachelor's degree. These professional degrees are structured to educate those who aspire to registration and licensure to practice as architects.

The four-year, pre-professional degree is not accredited by NAAB. The pre-professional degree is useful to those desiring a foundation in the field of architecture as preparation for either continued education in a professional degree program or for employment options in fields related to architecture.

Architectural education at the University of Washington requires a minimum of six years of higher education to attain the first professional degree, the Master of Architecture. The curriculum is divided into three two-year segments of course work with a pre-professional Bachelor of Arts degree (with a major in Architectural Studies) awarded at the completion of the second two-year segment. The professional degree, Master of Architecture, is awarded only upon completion of the third segment. (Students with bachelor's degrees in unrelated fields take an additional year of course work—see below.)

Students must also complete a master's thesis, extending over one or more additional quarters, on a research topic or design problem of their choice. Admission to the professional program requires admission to the Graduate School of the University of Washington.

Undergraduate Program

Adviser
Barry Onouye, Undergraduate Program Coordinator
208 Gould Hall, Box 355720
(206) 543-4217
bainfo@u.washington.edu

Bachelor of Arts

The Department of Architecture offers a Bachelor of Arts degree program with a major in Architectural Studies. Building on a firm liberal arts foundation, the undergraduate curriculum provides a broadly based general education with a focus on architecture and the built environment that prepares the student for professional-level graduate work in architecture or an allied discipline. In addition, it provides a general education to prepare students for a wide variety of study and career opportunities in business, government, and other professions.

The first segment, years 1 and 2, is taken prior to admission to the Department of Architecture program. This segment of the curriculum has three basic educational objectives: (1) to increase the student's ability to understand, evaluate, and communicate ideas; (2) to prepare the student to make informed decisions regarding academic and career choices; and (3) to provide a broad academic foundation of principles in subject areas considered essential to subsequent study in architecture. Years 1 and 2 include 17 credits of preparatory architectural course work in addition to a broad liberal arts foundation in humanities, social sciences, natural sciences (including mathematics), and electives to allow some free exploration. These liberal arts courses may be taken at the UW or at any other institution, as long as they meet the transfer equivalent standards of the UW.

Students enroll in the second two-year segment, years 3 and 4, after admission into the Department of Architecture program. The objectives of years 3 and 4 are (1) to provide a firm foundation in the vocabularies,

principles, and interrelationships of a broad range of influences essential to professional work in architecture, and (2) to provide opportunities for students to develop their basic skills, knowledge, perceptions, and insights in areas related to the built environment. Years 3 and 4 include basic pre-professional studies in architectural design, theory, and technology, with an appropriate balance of upper-division electives taken within the disciplines of the College and University. The Bachelor of Arts with a major in Architectural Studies is awarded upon completion of this second segment.

Students may also choose to major in both Architecture and Construction Management and can receive both the B.A. in Architectural Studies and the B.S. in Construction Management. Five years of study is usually the minimum necessary to complete the requirements for both degree programs.

Advising: Advising for program premajors is done through the Undergraduate Advising Center, Mary Gates Hall, (206) 543-2551. Advising for architectural studies majors is provided by the program faculty adviser in the Department of Architecture, 208 Gould, (206) 543-4217.

Admission Requirements

1. 90 credits to include the following:

Preparatory Architectural Course Work, 17 credits: ARCH 350, 351, 352 (9 credits); ARCH 210, 211 (8 credits). *Note:* These courses can be taken through UW Extension on a nonmatriculated basis, prior to admission to the UW, or they can be taken in the sophomore year on campus.

General Education Requirements (73 credits): English Composition (5 credits); Visual, Literary and Performing Arts (20 credits); Individuals and Societies (20 credits); Natural World (20 credits, including MATH 112, 124, 127, or 145); additional Areas of Knowledge (5 credits).

2. While the cumulative GPA is an important factor in the admissions evaluation, the committee places emphasis on the evaluation of performance in the preparatory architectural course work the student has completed. It is to the student's advantage to take as many of these courses as possible before applying to the program.
3. Application deadline: May 15 for autumn quarter only. Prerequisite courses must be completed by the time the student enters the program in autumn quarter.

Graduation Requirements: After acceptance to the Architectural Studies major, students must complete 90 additional credits before receiving the Bachelor of Arts degree. Satisfactory completion of 180 credits of course work in the following three categories: 73 credits of liberal arts course work, 17 credits of preparatory architectural course work, 66 credits of pre-professional course work, and 24 credits of approved upper-division electives. The final 45 credits must be completed as a matriculated student in residence at the UW. To be eligible for graduation, students must maintain a minimum 2.50 cumulative GPA for all work done in residence.

Minor

Minor Requirements: 25 credits to include a minimum of 20 credits in ARCH courses (at least 9 credits at the upper-division level) and 5 additional upper-division credits from courses in the College.

Graduate Program

For information on the Department of Architecture's graduate program, see the graduate and professional volume of the *General Catalog* or visit the *General Catalog* online at www.washington.edu/students/gencat/.

Faculty

Chair

Jeffrey K. Ochsner

Professors

Badanes, Steven P. * 1990; MArch, 1971, Princeton University; sustainable building technology, public art, community-based design/build, architecture.

Bonsteel, David * 1963, (Emeritus); MArch, 1964, University of Washington; design process, computer applications, research.

Bosworth, Thomas L. * 1968, (Emeritus); MA, 1954, Oberlin College; MArch, 1960, Yale University; design process, history, professional practice.

Ching, Francis D. K. * 1985; BArch, 1966, University of Notre Dame; design drawing, process, and principles.

Clausen, Meredith L. * 1979; PhD, 1975, University of California (Berkeley); twentieth-century and American architecture.

Dietz, Robert H. * 1947, (Emeritus); MArch, 1944, Massachusetts Institute of Technology; design, housing.

Emery, Ashley F. * 1961, (Adjunct); MS, 1958, PhD, 1961, University of California (Berkeley); energy and buildings, HVAC, thermal stresses, experimental design, stochastic finite elements.

Finrow, Jerry V. * 1995; MArch, 1968, University of California (Berkeley); housing architecture.

Grey, Arthur L. * 1963, (Emeritus); PhD, 1954, University of California (Berkeley).

Hildebrand, Grant * 1964; MArch, 1964, University of Michigan; history, preservation design.

Jacobson, Phillip L. * 1962, (Emeritus); MArch, 1969, Finnish Institute of Technology; design, professional practice.

Johnston, Norman J. * 1960, (Emeritus); PhD, 1964, University of Pennsylvania; urban design, history.

Kiyak, H. Asuman * 1972, (Adjunct); MA, 1974, PhD, 1977, Wayne State University; geriatric dentistry, behavioral aspects of health care.

Kolb, Keith R. * 1952, (Emeritus); MArch, 1950, Harvard University; design, professional practice.

Lovett, Wendell H. * 1948, (Emeritus); MArch, 1948, Massachusetts Institute of Technology; architecture.

Miller, David E. * 1989; MArch, 1972, University of Illinois; design development, design.

Millet, Marietta * 1976; MArch, 1972, Massachusetts Institute of Technology; illumination, environmental controls.

Nyberg, Folke E. * 1969, (Emeritus); MArch, 1960, Yale University; theory, urban design, professional practice.

Ochsner, Jeffrey K. * 1987; MArch, 1976, Rice University; history, preservation design, urban design.

Pundt, Hermann G. * 1968, (Emeritus); PhD, 1969, Harvard University; history, historical preservation.

Pyatok, Michael * 1990; MArch, 1967, Harvard University; design of affordable housing for lower income communities—urban and suburban regions.

Seligmann, Claus * 1964; Diprch, 1950, London Polytechnic (UK); design, design process, theory.

Small, Robert * 1965, (Emeritus); MArch, 1955, University of Oregon; design, community practice, barrier-free design, housing, site planning, design process.

Staub, Christian 1967, (Emeritus); Cert, 1944, Institute for Industrial Design, Arts and Crafts; photography.

Streatfield, David C. * 1974, (Adjunct); MLA, 1965, University of Pennsylvania; history, historic landscape preservation, landscape theory, urban landscape design.

Streissguth, Daniel M. * 1955, (Emeritus); MArch, 1949, Massachusetts Institute of Technology; design process.

Sutton, Sharon E. * 1998; MArch, 1973, Columbia University; PhD, 1982, City University of New York; effect of the environment on learning and community well-being.

Thiel, Philip * 1961, (Emeritus); MS, 1948, University of Michigan; visual design, design process, person-environment relations, experiential notation.

Vernez Moudon, Anne * 1980; DSc, 1987, Ecole Polytechnique Federale de Lausanne; urban design, city form and neighborhood studies, design research.

Zarina, Astra * 1970; MArch, 1955, Massachusetts Institute of Technology; design, foreign studies.

Associate Professors

Albrecht, Robert G. * 1960, (Emeritus); MSCE, 1960, University of Massachusetts; structures.

Curtis, J. William * 1962, (Emeritus); MA, 1969, University of Washington; design process, professional studies.

Deines, Katrina * 1985; MA, 1975, University of Minnesota; MArch, 1979, University of Washington; design theory and foreign studies, history.

Donnette, James J. * 1966, (Emeritus); MArch, 1969, University of Washington; graphics, design.

Dubrow, Gail Lee * 1989; MA, 1979, University of Oregon; PhD, 1991, University of California (Los Angeles); preservation, urban design, public art, public history, gender, multiculturalism.

Goldblatt, Steven M. 1982, (Adjunct); JD, 1977, Golden Gate University; construction law, labor relations, and accounting.

Gross, Mark D. * 1999; PhD, 1986, Massachusetts Institute of Technology; design and planning methods, computational models, human computer interaction.

Heerwagen, Dean Reese * 1975; MS, 1967, MArch, 1971, Massachusetts Institute of Technology; environmental controls (passive and active).

Hill, Warren * 1959, (Emeritus); MA, 1961, New York University; interior design, design, history.

Latourelle, Elaine Day * 1975; MArch, 1964, Yale University; design, professional practice.

Lebert, Edgar A. 1965; MS, 1967, University of Washington; structures.

Loveland, Joel E. * 1986; MArch, 1980, University of California (Los Angeles); energy conservation, design, research.

Minah, Galen F. * 1970; MArch, 1968, University of Pennsylvania; design process, design, professional practice.

Mohler, Richard Ernest J. * 1986; MArch, 1984, University of Pennsylvania; architecture and community, design of housing and urban public open space.

Norton, Thomas J. * 1968, (Emeritus); MUP, 1960, University of Washington; urban community facilities, planning administration.

Palleroni, Sergio A. * 1992; MS, 1987, Massachusetts Institute of Technology; the relationship between cultures, their histories, and the production of architecture.

Rohrer, John * 1948, (Emeritus); BArch, 1937, University of Washington; graphics, design.

Rolfe, George R. * 1984, (Adjunct); MArch, 1968, MCP, 1968, University of Pennsylvania; urban development process, finance, feasibility and market analysis, urban design processes.

Rosner, Arnold S. * 1966, (Emeritus); MSCE, 1949, California Institute of Technology; design process, building technology, computers.

Ryan, Dennis M. * 1974; PhD, 1976, University of Pennsylvania; community planning, design, and identity; public processes; urban design, change, and continuity.

Sasanoff, Robert * 1963, (Emeritus); MCP, 1968, University of California (Berkeley); design process, person-environment relations.

Winterbottom, Daniel M. * 1993, (Adjunct); MLA, 1988, Harvard University; culture and environment, place attachment, building as design expression, therapeutic gardens.

Assistant Professors

Anderson, Alex Thomas * 1998; PhD, 1997, University of Pennsylvania; history and theory of architecture and decorative arts.

Do, Yi-Luen Ellen * 1999; MDes, 1991, Harvard University; PhD, 1998, Georgia Institute of Technology; diagramming and freehand sketching, creativity, computer-aided design, cognitive studies.

Hill, Kristina * 1997, (Adjunct); MLA, 1990, PhD, 1997, Harvard University; spatial patterns of land use, GIS mapping, land classification techniques, landscape ecology.

Johnson, Brian Robert * 1978; MArch, 1981, University of Washington; computing in architectural design; 3D modeling and rendering; Web-based collaboration, communication.

Johnson, Julie M. * 1995, (Adjunct); MCP, 1988, Massachusetts Institute of Technology; design and use of public/civic space, neighborhood design, suburban redevelopment.

Jones, Susan H. * 1991; MArch, 1988, Harvard University; architectural design: the conceptual and tectonic ideas of making space.

Prakash, Vikramaditya * 1996; MA, 1989, PhD, 1994, Cornell University; non-Western, Asian, Indian architecture; cultural and postcolonial studies, Le Corbusier, modernism.

Senior Lecturers

Onouye, Barry S. * 1967; MSCE, 1969, University of Washington; integration of structural technology into architectural design education.

Vanags, Andris 1969; BFA, 1968, University of Washington; building science, design.

Zuberbuhler, Douglas * 1967; MArch, 1968, University of Washington; graphics, design, building technology.

Lecturers

Dee, Jennifer 1982; MArch, 1984, University of Washington; theory, design.

Nicholls, James Keith 1995; BArch, 1986, University of British Columbia (Canada); design, industrial design, construction technology.

Course Descriptions

See page 48 for an explanation of course numbers, symbols, and abbreviations.

For graduate-level course descriptions, see the graduate and professional study volume of the *General Catalog* or visit the online course catalog at www.washington.edu/students/crscaat/.

ARCH 100 Introduction to Architecture Study (8) VLPA Introduces design studio instruction to students contemplating architecture as a field of study of career. Studio projects, informed by workshops, lectures, readings, field trips, and in-studio critiques

introduce the history, theory and practice of architecture. Includes instruction in basic design drawing and model making. Offered: S.

ARCH 150 Appreciation of Architecture I (2/3) VLPA Historical survey of the architecture of Western civilization. For nonmajors.

ARCH 151 Appreciation of Architecture II (2/3) VLPA Historical survey of the architecture of Western civilization. For nonmajors.

ARCH 200 Introduction to Environmental Design and Planning (3) VLPA/I&S Lectures, demonstrations introducing basic curricular elements. Development of basic skills in methods and graphic expression of design and planning process-analysis, synthesis, evaluation in building technology; simulation, modeling; person-environment relations; history; theory; policy; professional roles.

ARCH 210 Design Drawing I (4) VLPA *Ching* Projects, lectures, demonstrations, and exercises to develop skill in freehand drawing and an understanding of drawing as a vital means to see, analyze, and represent essential aspects of the visual environment.

ARCH 211 Design Drawing II (4) VLPA *Ching* Projects, lectures, demonstrations, and exercises to introduce the language of architectural drawing, with emphasis on freehand drawing as the primary means to imagine, explore, and develop design ideas. Prerequisite: ARCH 210.

ARCH 220 Introduction to Architectural Structures (2) Onouye Introduces basic structural behavior and concepts of structural systems. Uses lectures, demonstrations, and testing of student-built projects to examine structural concepts of systems, subsystems, and components in a non-numerical manner.

ARCH 251 World Architecture: Non-Western Cultures (3) I&S/VLPA *Prakash* Introduction to historical and contemporary built environments of non-Judeo-Christian civilizations, primarily Hindu, Buddhist, Islamic, and Meso-American, as manifestations of cultural history and as responses to environmental determinants. Offered: Sp.

ARCH 300 Introduction to Architectural Design I (6) Studio problems to develop awareness, knowledge, and basic skills needed in the synthesis of building form.

ARCH 301 Introduction to Architectural Design II (6) Studio problems to develop awareness, knowledge, and basic skills needed in the synthesis of building form. Prerequisite: ARCH 300.

ARCH 302 Introduction to Architectural Design III (6) Studio problems to develop awareness, knowledge, and basic skills needed in the synthesis of building form. Prerequisite: ARCH 301.

ARCH 303 Introduction to Design Studio I (6) Studio problems to develop initial awareness, knowledge, and basic skills needed in synthesis of building form and integrative aspects of architectural design with emphasis on the dwelling place. Limited to students entering the graduate program in architecture with baccalaureate degrees in other fields.

ARCH 304 Introduction to Design Studio II (6) Studio problems to develop initial awareness, knowledge, and basic skills needed in synthesis of building form and integrative aspects of architectural design with emphasis on the dwelling place. Limited to students entering the graduate program in architecture with baccalaureate degrees in other fields.

ARCH 305 Introduction to Design Studio III (6) Studio problems to develop initial awareness, knowledge, and basic skills needed in synthesis of building form and integrative aspects of architectural design with emphasis on the dwelling place. Limited

to students entering the graduate program in architecture with baccalaureate degrees in other fields.

ARCH 310 Architectural Design Drawing I (3) Lectures, demonstrations, and exercises to develop skill in graphic visualization and representation as used in architecture. Concepts, conventions, and techniques of both freehand and technical drawing are used as a vital means to imagine, develop, and represent design ideas. Course material coordinated with 303 studio to integrate drawing in all phases of the design process.

ARCH 311 Architectural Design Drawing II (3) Lectures, demonstrations, and exercises to develop skill in graphic visualization and representation as used in architecture. Concepts, conventions, and techniques of both freehand and technical drawing are used as a vital means to imagine, develop, and represent design ideas. Course material coordinated with 304 studio to integrate drawing in all phases of the design process.

ARCH 312 Architectural Design Drawing III (3) Lectures, demonstrations, and exercises to develop skill in graphic visualization and representation as used in architecture. Concepts, conventions, and techniques of both freehand and technical drawing are used as a vital means to imagine, develop, and represent design ideas. Course material coordinated with 305 studio to integrate drawing in all phases of the design process.

ARCH 313 Introduction to Architectural Photography (3) VLPA Basic elements and processes of architectural photography to include camera controls, exposure technique, photo processing, and fundamental principles of photographing architecture. Student must provide own 35 mm (or larger) camera with manual operating controls.

ARCH 315 Design Drawing III (2) Projects, lectures, demonstrations, and exercises coordinated with studio projects to integrate drawing in all phases of the design process. Lessons in diagramming of design concepts and planning and presenting design solutions. Prerequisite: ARCH 211; corequisite: ARCH 300.

ARCH 316 Design Drawing IV (3) Zuberbuhler Lectures, demonstrations, and exercises to develop drawing skills and techniques applicable to architectural design problems. Topics include advanced perspective construction, shade and shadow calculations, descriptive geometry, topographical manipulation, and additional appropriate topics at the request of the class. Prerequisite: ARCH 315.

ARCH 320 Introduction to Structures I (3) Statics—Force analysis; the study of external forces and force systems and their analytical solutions as applied to bodies at rest (equilibrium). Topic areas include beams, trusses, determinate frames, and load tracing.

ARCH 321 Introduction to Structures II (3) Strength of Materials; the study of the properties of materials and cross-sectional shapes of structural elements with respect to their effectiveness in resisting stresses. Topic areas include stress and strain, section properties, analysis and design of beams and columns. Prerequisite: ARCH 320.

ARCH 322 Introduction to Structures III (3) Elementary Structural Design; synthesis of the previous structures coursework with applications to design of determinate timber and steel structures. Examination of forces on buildings; snow, live loads, wind, and earthquake. An introduction to concept of continuity. Prerequisite: ARCH 321.

ARCH 331 Environmental Control Systems (3) NW Heerwagen, Loveland Description of thermal comfort needs and the means by which buildings can be designed to satisfy those needs. Consideration of how climate determines building forms, site analysis

and planning *vis-a-vis* the local climate, basic heat transfer mechanisms, and design strategies for overcoming heat loss through the building envelope.

ARCH 332 Construction Materials and Assemblies I (3) Lectures and readings pertaining to a survey of residential and light-commercial construction materials, assemblies, and techniques of assembly.

ARCH 350 Architecture of the Ancient World (3) VLPA Architectural history in the Western world from beginnings to AD 550.

ARCH 351 Romanesque, Gothic, and Renaissance Architecture (3) VLPA *Hildebrand* Architectural history in the Western world from AD 550 to 1750. Recommended: ARCH 350.

ARCH 352 History of Modern Architecture (3) VLPA *Ochsner* Architectural history in the Western world from 1750 to the present. Recommended: ARCH 351.

ARCH 360 Introduction to Architectural Theory (3) VLPA/I&S Function of architectural theory in comprehending and ordering various human purposes in architecture, types of architectural purpose, and types of theories. Current concerns.

ARCH 370 Computers in Architecture (3) Laboratories, lecture, and demonstrations to introduce computing in environmental design and planning.

ARCH 400 Architectural Design IV (6) Offers studio problems in non-residential building design to advance student's understanding of the ideas and technologies of architecture. Prerequisite: ARCH 302.

ARCH 401 Architectural Design V (6) Offers studio problems in non-residential building design to advance student's understanding of the ideas and technologies of architecture. Prerequisite: ARCH 400.

ARCH 402 Architectural Design VI (6) Selection of studio sections that introduce advanced architectural design theories and methods. Focus and format vary. Prerequisite: ARCH 401.

ARCH 403 Architectural Problems (6)

ARCH 411 Computer Graphics Applications (3) *Johnson* Lectures and weekly exercises focus on understanding and applying the underlying principles of 3D computer graphics and rendering software. Topics include user-interface, data creation and modeling, lighting models, smoothing, texture mapping, ray tracing, radiosity, animation, and solid modeling. Prerequisite: ARCH 370.

ARCH 412 Architectural Illustration and Presentation (3) Issues, conventions, and techniques used in architectural renderings, including line drawings, shaded drawings, use of color, composition, organization, advanced perspective, scale figures, entourage, reflections, and media. Prerequisite: ARCH 315.

ARCH 413 Architectural Photography Projects (3) Students develop in-depth photo essays relating to architecture, the urban movement, or landscape design following the principles introduced in ARCH 313. Lectures, seminar, and discussion. Prerequisite: ARCH 313.

ARCH 415 Architectural Sketching (3) Exercises in freehand representational drawing using charcoal, graphite, and conte crayon with emphasis on line, proportion, values, and composition. Studies progress from geometric to nongeometric forms. Recommended: either ARCH 210 or ART 104.

ARCH 418 Watercolor Drawing (3) Introduction to the principles and practice of using transparent watercolor for the naturalistic representation of objects, people, and interior and exterior space. Recommended: either ARCH 210 or ART 104.

ARCH 420 Structural Design I (4) NW Reinforced concrete fundamentals; establishes basics of reinforced concrete behavior and introduces methods of design used in current engineering practice. Basic mechanics of structural concrete introduced in examining bending, shear, and axial forces. Topic areas include beams, slabs systems, columns, foundations, retaining walls, and an introduction to prestressed concrete. Prerequisite: ARCH 322.

ARCH 421 Structural Design II (4) Design of steel structures.

ARCH 426 Structural Unit Masonry (3) *Lebert* Structural behavior and design of reinforced brick, tile, and unit masonry structures. Prerequisite: CEE 381. Offered: jointly with CEE 455.

ARCH 430 Materials and Processes (3) *Vanags* Lectures, field trips, and laboratory sessions directed toward the nature, potentials, and limitations of a variety of materials (wood, metal, plastics, inorganic cementing materials, minerals, rocks, and clay) and the processes involved with their production, fabrication, and system compatibility.

ARCH 431 Environmental Control Principles (3) *Heerwagen* Daylighting of buildings, reducing noise and enhancing sound for communication, and regulating heat transfer for occupant thermal comfort; description of passive means for environmental control, including presentation of scientific explanations and design guidelines for utilizing these means; design guidelines are intended for use in the preliminary schematic design phase. Offered: AW.

ARCH 432 Construction Materials and Assemblies II (3) Lectures and readings pertaining to a survey of materials, assemblies, and techniques of assembly of concrete and steel frame, commercial exterior envelope, and interior partitioning building construction systems. Prerequisite: either ARCH 400 or CM 313.

ARCH 433 Active Control Systems for Building Operation (3) NW *Heerwagen* Electrical, mechanical (HVAC), plumbing, and fire safety systems for buildings. Descriptions of what these systems do, where they are used, how they are integrated into the overall building design; rules of thumb, design strategies, and short cuts for anticipating system design and use. Prerequisite: either ARCH 331 or ARCH 431.

ARCH 434 Color and Light (3) *Millet* Lectures, demonstrations, exercises, and projects focusing on the use of color applied to the three-dimensional architectural context. Color theory is explored with the multiple effects of changing light.

ARCH 435 Principles and Practices of Environmental Lighting (3) *Millet* Perception-based approach to principles of natural and artificial lighting. Practical considerations of lighting involving environmental evaluations, calculations and the use of lamps and fixtures. Sketch and model studies for applications. Impact of lighting design on energy conservation. Relation of lighting design process to architectural design concepts. Prerequisite: either ARCH 331 or ARCH 431.

ARCH 436 Building Acoustics (3) NW *Heerwagen* Description of principles and practices for manipulating and enhancing sound in buildings. Information about sound behavior and the organization of architectural elements (deployment of design features, including various geometries and materials) for the control of sound in enclosed spaces and between adjacent spaces.

ARCH 437 Passive Thermal Controls (3) NW *Heerwagen* Devices for achieving energy-efficient buildings, analytic methods for evaluating likely thermal performances of buildings and building envelopes, resistance and capacitance of building materials, air flow through and around buildings, energy codes and industry standards, and strategies for

integrating analytic techniques and guidelines into the architectural design process. Prerequisite: either ARCH 331 or ARCH 431.

ARCH 439 Light Frame Building Assemblies (3) *Vanags* Fundamentals of light-frame construction from soils examination, foundation systems to framing systems, and the integration of electrical, plumbing, and heating/cooling into the structure. Prerequisite: either ARCH 332 or CM 313.

ARCH 443 Iberoamerican Architecture I: Meso-America (3) VLPA *Palleroni* Advanced introduction to precolonial, colonial, and postcolonial architecture and urbanism of Mexico and Meso-America. Using methodologies drawn from culture studies, covers approximately four distinct periods spanning from Teotihuacan to the late twentieth century.

ARCH 444 Iberoamerican Architecture II (3) VLPA *Palleroni* Advanced introduction to postcolonial and modern architecture and urbanism of the Iberian peninsula and Latin America. Using methodologies drawn from culture studies, covers the cultures of Spain, Portugal, and Latin America after the period of colonialization and the nature of their continued relationship.

ARCH 445 South Asian Architecture I (3) VLPA *Prakash* Advanced introduction to precolonial architecture and urbanism of South Asia. Using methodologies of culture studies, examines select Hindu, Buddhist, and Islamic case studies on a comparative genealogy.

ARCH 446 South Asian Architecture II (3) VLPA *Prakash* Advanced introduction to colonial and postcolonial architecture and urbanism of South Asia. Using methodologies of culture studies, covers 1800 to present, emphasizing the past 50 years since India's independence in 1947.

ARCH 447 Universal Design (3) I&S *Kiyak* Addresses implications of recent social trends and legislation (e.g., American with Disabilities Act, extended lifespan, elimination of mandatory retirement, changing workforce) on design; emphasizes importance of integrating accessibility design concepts, including related laws and codes, into diverse design projects, in order to make environment usable by broad cross-section of people. Offered: A.

ARCH 452 Characteristics of Puget Sound Architecture and Towns (3) I&S *Hildebrand* Puget Sound architectural and town environment in terms of its historical development, but specifically including recent and pending changes affecting this environment in significant ways.

ARCH 454 Greek Architecture (3) VLPA *Langdon* Detailed study of Greek architecture from its beginnings, with special emphasis on the Periclean building program in fifth-century Athens. Offered: jointly with ART H and CL AR 446.

ARCH 455 Special Studies in Gothic Art and Architecture (3) VLPA *Hildebrand* Detailed study of Gothic architecture and its accompanying sculpture and stained glass, with special emphasis on the twelfth and thirteenth centuries in France and England. Offered: jointly with ART H 455.

ARCH 456 Nineteenth-Century Architecture (3) VLPA *Clausen* From late eighteenth-century French rationalists, Neoclassicists, to *fin de siècle* Vienna and Paris. Includes theorists such as Ruskin, Viollet-le-Duc, and Semper; major movements, such as the Arts and Crafts, and the French Ecole des Beaux-Arts method of design. Offered: jointly with ART H 490.

ARCH 460 Design Theory and Analysis (3) VLPA/I&S *Dee, Seligmann* Problematical nature of philosophies of architecture; interaction of philosophical concepts and architectural form and expression. Fundamentals of architectural criticism.

ARCH 461 Recent Developments in Architectural Theory (3) VLPA/I&S Concentrates particularly on developments that spring from recent work in the epistemology of science and in philosophy.

ARCH 462 Spatial Composition in Architecture (3) Palleroni Advanced introduction to compositional strategies in architecture. Drawing on a historical survey of the development of Western Architecture, the seminar investigates different compositional strategies and their relationship to cultural values and systems of meaning. Intended as complement to the design studio.

ARCH 463 Theories of Representation (3) Anderson Seminar focusing on the development of representational techniques in western architecture from antiquity to the present which seeks to discover how these techniques have affected the realization and interpretation of architecture. Prerequisite: ARCH 350, ARCH 351, ARCH 352.

ARCH 476 Design and the Uniform Building Code (3) Lectures, case studies, and exercises to provide a detailed review of non-structural sections of the Uniform Building Code (UBC) including designer responsibility, code background, purpose, and requirements based on occupancy, construction type, and building design features. Prerequisite: either ARCH 302 or CM 313.

ARCH 478 Architectural Computer Aided Design Systems (4) Johnson Lectures and exercises in use of two-dimensional CAD as a tool to create working drawings (WD). CAD topics include data, accuracy, layering, symbols, 3D, customization, data exchange. WD topics include set organization, plans, building sections, elevation, wall sections, schedule, detail. Prerequisite: ARCH 370; CM 313.

ARCH 488 American Architecture (3) VLPA Clausen American architecture from indigenous native American traditions to the present. Offered: jointly with ART H 488.

ARCH 493 Rome Preparation Seminar (2) Seminar dealing with history, culture, topography, and customs of Rome, Italy. Required for students enrolling in 495, 496, or 497.

ARCH 495 Architectural Studies Abroad (9) Urban history and development of the city of Rome through first-hand studies of its topography and morphology. City's more recent quarters become subject of group research relative to problems and potentials of growth and future development. Students may be registered concurrently in an appropriate studio section. Prerequisite: ARCH 493.

ARCH 498 Special Projects (1-12, max. 12) Instructor-initiated and department-approved systematic study and offering of specialized subject matter. Topics vary and are announced in preceding quarter.

ARCH 499 Undergraduate Research (1-6, max. 6)

tion and training to meet this demand. The interdisciplinary curricula contain a mix of technical, managerial, and business courses to provide graduates with the essential skills needed to be successful in the construction industry. Oral and written communication skills are strengthened through written requirements and student presentations. Graduates from the Construction Management program can expect exciting career opportunities with highly competitive salaries.

Construction Management is one of four departments within the College of Architecture and Urban Planning. The department was originally established as the Building Technology and Administration program in 1964; it began offering a Bachelor of Science in Building Construction degree in 1968 and a Master of Science in Construction Management degree in 1994. The mission of the Department of Construction Management is to offer a high-quality education in building construction and to conduct construction-related research.

The major objectives of the department's educational programs are:

1. To provide a valuable education that can prepare individuals capable of assuming technical- and management-level positions in the construction industry.
2. To provide a learning environment where students can acquire high-quality skills and knowledge necessary for identifying practical construction problems and managing construction processes.
3. To conduct research that benefits the construction industry and the community.
4. To ensure that the undergraduate program remains in full accreditation status by the American Council for Construction Education.
5. To maintain positive relationships with the construction and related industries.
6. To encourage service projects that benefit the community.

The department's faculty consists of a mix of permanent full-time professors and part-time lecturers. The full-time faculty members have construction experience. The part-time lecturers are mostly industry practitioners and include general contractors, specialty contractors, architects, engineers, and attorneys.

Undergraduate Program

Adviser
Clark Pace
116 Architecture Hall, Box 351610
(206) 543-6377
uwc@u.washington.edu

The department offers a program of study leading to a Bachelor of Science in Construction Management degree.

Bachelor of Science in Construction Management

Students complete a minimum of 90 credits of required course work at the University or at another institution during their first two years of study. Admission is competitive and occurs at the end of the student's second year of study. Applicants must contact the department to obtain its individual application form and prospectus, which contain details of requirements for admission.

Student Associations: The mission of the Associated Students In Construction (ASIC) is to encourage a professional standard of excellence among students in construction management. Activities include professional guest lectures, field trips, competitions, community service, and student affiliations with industry leadership groups. ASIC cooperates with the University of Washington in furthering the Department of Construction Management's objective of developing individuals for management, business, and technical positions within the construction industry. Members in ASIC participate in the following professional organizations: Associated General Contractors, National Association of Home Builders, American Society of Civil Engineers, and Specialty Construction Institute. ASIC works to inform the construction industry of the University of Washington Construction Management program, its merits, curriculum, and the tremendous value of its graduates to both the construction industry and community.

Internships: An internship is required for completion of the degree program. Every student is encouraged to seek summer employment in the construction industry. The main objective is to provide students with a taste of real-world experience by giving them the opportunity to work for a construction firm, and exposing them to as many facets of the construction process as possible. Monetary compensation, if any, is negotiated between the student and the employer. While the department makes every effort (through a selection and interview process) to place students in a number of unfilled positions usually offered by participating firms, most students seek internships on their own initiative during the winter and spring quarters of their junior year.

Admission Requirements:

1. Completion of a minimum of 90 credits of required course work in the following categories (courses must be completed by the beginning of the autumn quarter to be eligible for admission): *Construction Sciences*: ENGR 123. *Business and Management*: ACCTG 215, 230; O E 200. *Individuals and Societies (I & S)*: ECON 100, 200, or 201; 10 additional I & S credits (from UW Areas of Knowledge list). *Natural World (NW)*: PHYS 114, 115, 117, 118; MATH 112, 124, 127, or 145; GEOL 101; QMETH 201; 10 additional NW credits. *Language Skills*: 5 credits from ENGL comp list; 5 credits from "W" or ENGL comp. *Visual Literary & Performing Arts (VLPA)*: SP CMU 220; 5 additional VLPA credits (from UW Areas of Knowledge list).

Admission Requirements:

2. Preference is given to those applicants who have successfully completed the lower-division requirements (prerequisites) and who are, in the judgment of the department, best qualified and prepared to undertake its curriculum.
3. Departmental application deadline: April 1, for the following autumn quarter. For applicants transferring to the University of Washington, an admissions application form and its accompanying material must be filed separately at the Office of Admissions. Admission to the Department of Construction Management is dependent upon acceptance to the University of Washington.

Selection for acceptance into the program, which begins autumn quarter, is made each year by early May, and all applicants are notified of the admissions committee's decision shortly thereafter. Because each application is valid only once, a student whose application for admission is denied must reapply if consideration is desired in any subsequent year.

Admission decisions are based on an applicant's academic performance and potential, extent and quality of relevant experience, apparent aptitude, and personal motivation. Completion of the prerequisites does not guarantee admission.

Graduation Requirements: The Bachelor of Science in Construction Management degree program requires completion of (1) a minimum of 181 approved credits including 20 credits of upper-division course work and (2) a minimum 2.50 cumulative GPA in required upper-division College courses.

Dual-Degree Program: The Department of Construction Management, in conjunction with the Department of Architecture, offers a five-year dual-degree program

Construction Management

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General Catalog Web page:
www.washington.edu/students/gencat/academic/Construction_Management.html



Department Web page:
depts.washington.edu/cmweb/

The construction industry requires highly qualified professionals to manage its increasingly complex technical and management operations. The Department of Construction Management offers high-quality educa-

to provide students education in both the design and construction disciplines. Students must consult an adviser and apply to the Department of Architecture at the end of their Architectural program prerequisites. To be admitted into the Construction Management program, students apply at the beginning of the spring quarter of their first year in the architecture program. The five-year curriculum is a blending of the Architecture and Construction Management programs. Graduates of the dual-degree program receive both a Bachelor of Science in Construction Management degree and a Bachelor of Arts degree in Architectural Studies. Students interested in the dual-degree program are encouraged to consult undergraduate advisers in both departments.

Graduate Program

For information on the Department of Construction Management's graduate program, see the graduate and professional volume of the *General Catalog* or visit the *General Catalog* online at www.washington.edu/students/genocat/.

Faculty

Chair

Saeed Daniali

Professor

Daniali, Saeed 1997; PhD, 1975, University of Lille (France); structural design, failure analysis, value engineering, fiber reinforced plastics, marine structures.

Associate Professors

Donnette, James J. * 1966, (Emeritus); MArch, 1969, University of Washington; graphics, design.

Goldblatt, Steven M. 1982; JD, 1977, Golden Gate University; construction law, labor relations, and accounting.

Nemati, Kamran M. 1998; PhD, 1994, University of California (Berkeley); civil engineering materials, concrete technology, mechanical behavior of concrete, fracture mechanics.

Rolfe, George R. * 1984; MArch, 1968, MCP, 1968, University of Pennsylvania; urban development process, finance, feasibility and market analysis, urban design processes.

Schaufelberger, John E. 1994; MSCE, 1970, PhD, 1971, University of Illinois; construction practices, international project management, contract procurement and administration.

Torrence, Gerard R. 1954, (Emeritus); MS, 1950, Massachusetts Institute of Technology; structures.

Assistant Professors

Pace, Clark B. 1994; PhD, 1999, University of California (Berkeley); productivity improvement, innovative affordable housing, process of new technology development.

Riley, David R. * 1995; PhD, 1994, Pennsylvania State University; construction space planning, materials handling, sustainable building and educational technology.

Woolery, John C. 1999; PhD, 1979, University of California (Berkeley); cost estimating, wireless communications, operation research applications.

Course Descriptions

See page 48 for an explanation of course numbers, symbols, and abbreviations.

For graduate-level course descriptions, see the graduate and professional study volume of the *General Catalog* or visit the online course catalog at www.washington.edu/students/crscat/.

CM 310 Introduction to the Construction Industry

(3) *Schaufelberger* Introduction to the construction process, including general overview of organization, relationships, practices, terminology, project types, procurement methods, industry standards, contract documents, and career opportunities. Open to nonmajors. Offered: AS

CM 312 Construction Accounting (3) *Goldblatt*

Introduction to accounting for the contractor, placing emphasis on the analysis and use of financial statements and a job cost accounting system. Open to nonmajors on space-available basis. Offered: A.

CM 313 Construction Methods and Materials I (4)

Riley Introduction to basic building materials, with emphasis on techniques for assembly and utilization in residential and light construction, including materials such as concrete, brick, and wood. Offered: AS.

CM 320 Construction Contract Documents (3)

Introduction to working drawings, specifications, and other documents designed to enable the student to read and interpret complete set of contract documents for residential and light commercial projects. Emphasis on the organization and uses of architectural/engineering drawings and specifications in the construction process. Offered: WS.

CM 321 Building Technology I (3)

Introduction to building heating, cooling, plumbing, and fire protection systems including aspects of design, construction, estimating, and problem solving. Offered: W.

CM 322 Building Technology II (3)

Introduction to electrical construction including electrical distribution from generation to consumption, terminology, equipment and applications, electrical contract documents and estimating, and electrical project management theory and practice. Offered: W.

CM 323 Construction Methods and Materials II

(5) *Riley* Analysis of building methods for structural, non-structural, and design and use of temporary structures including method selection, sequencing, and coordination of specialty trades in commercial and industrial construction. Offered: W.

CM 331 Construction Estimating I (4)

Pace Introduction to the basic principles and techniques of quantity take-off and estimating with emphasis on residential construction. Offered: Sp.

CM 332 Construction Equipment Management (3)

Schaufelberger Study of the basic principles, practices, and techniques used in the construction industry for selecting and managing construction equipment. Focuses on understanding the time value of money, estimating equipment ownership and operating costs, selecting the proper equipment for specific construction tasks, and estimating equipment production. Offered: Sp.

CM 333 Construction Safety (3)

Explanation of requirements of the Occupational Safety and Health Act and other related federal and state legislation as applied to the building construction industry. Standards for accident prevention, hazard identification, and responsibility for compliance emphasized. Offered: Sp.

CM 350 History of Building (3) *Rolfe*

Historical survey of building techniques and materials as conditioned by environment, technical, economic, and social influences. Open to nonmajors. Offered: Sp.

CM 411 Project Planning and Control (3) *Pace*

Introduction to the basic principles, techniques, and practices used as tools by contractors to plan, schedule, and control costs on building construction projects. Offered: A.

CM 412 Construction Practice (3) *Woolery*

Integration of classroom theory with practical experience through a direct, on-the-job internship and industry guest speakers. For majors in construction management with 135 credits completed. Offered: Sp.

CM 413 Competitive Business Presentations (1)

Riley Study and development of skills needed to develop and deliver professional construction management presentations. Includes a series of workshops and practical exercises in construction presentation skills, teamwork, and leadership. Offered: A.

CM 421 Project Management I (3)

Introduction to the organization, management, and administrative functions on construction projects including a hands-on and extensive case study of a commercial construction project, cost control, and introduction to the concepts of Value Engineering, partnering, and Total Quality Management. Offered: W.

CM 422 Computer Applications in Construction (3)

Nemati Introduction to microcomputer applications in construction industry. Discussion of available hardware and software is combined with practical assignments using estimating and scheduling programs designed for contractors, architects, and developers. Offered: W.

CM 423 Construction Law (3) *Goldblatt*

Legal issues arising from design and construction services, focusing on risk management and liability awareness. Topical areas include basic legal doctrines, the design professional/client relationship, contractor selection, the construction process, and professional practice problems. Washington state law is emphasized. Entry code required. Open to nonmajors on space-available basis. Offered: W.

CM 431 Project Management II (4) *Riley*

Capstone project using case studies to apply skills, knowledge, techniques, and concepts developed in prior courses. Emphasis on the concept of integrated project management, including cost estimating and bidding, scheduling, cost control, safety, project organization, and documentation. Offered: Sp.

CM 432 Soils and Foundations (3) *Nemati*

Origin, classification, and physical properties of soil as used in engineering and construction applications, together with loads and stresses of soil on, and from, the more common types of engineering structures. Offered: Sp.

CM 433 Construction Labor Relations (4)

Goldblatt Introduction to construction labor topics, including labor-management organization, legislation, and regulation, collective bargaining, and job site administration. Offered: Sp.

CM 454 Introduction to Real Estate Finance (4)

Rolfe Introduction to the financing of real-estate development projects, including a survey of capital markets, banking regulations, interest/discounting theories, debt instruments, and project financing. Offered: jointly with URBPD 454.

CM 455 Introduction to Real Estate Development Processes (5) *Rolfe*

Introduction and survey of processes and people involved in developing real estate, including issues of site control, public/private approvals, feasibility analysis, project financing, design/construction, marketing, and asset management. Offered: jointly with URBPD 455.

CM 456 Real Estate Investment Seminar (4) Rolfe
Analysis of private and public real estate investment decisions using case studies of individual development projects. Focuses on application of principles introduced in 453, 454, and 455. Prerequisite: URBDP 455 or CM 455. Offered: jointly with URBDP 456; W.

CM 498 Special Topics (1-10, max. 20)

CM 499 Undergraduate Research (* max. 12) Individual or small-group studies in which students may select topics with approval of faculty sponsor and department.

Landscape Architecture

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General Catalog Web page:
www.washington.edu/students/gencat/academic/Landscape_Arch.html



Department Web page:
www.caup.washington.edu/html/larch/

Undergraduate Program

Advisers

Daniel Winterbottom
302 Gould, Box 355734
(206) 616-1876

Julie Johnson
348B Gould, Box 355734
(206) 685-4006

The Department of Landscape Architecture offers a program of study leading to a Bachelor of Landscape Architecture (B.L.A.). The program provides a professional, accredited degree which enables graduates to practice successfully in design firms, nonprofit organizations, and public agencies.

Bachelor of Landscape Architecture

Building from a liberal arts foundation, the B.L.A. program focuses on developing design knowledge, skills, and abilities through a series of nine environmental- and community-based design studios.

The goals of the program are to provide students with a broad academic and professional exposure to landscape architecture and design so that their creative potential and professional growth are realized, and so that they may become leaders in the field. The education includes learning to conceptualize and design through practice on studio projects, fostering creativity, developing graphic and verbal communication skills, facilitating cognitive abilities, and developing applicable computer skills in the design process. Studios use individual, team-oriented, and interdisciplinary projects to develop strong interactive and evaluative skills.

Studio education applies knowledge gained in lecture courses which include historic and contemporary concepts in landscape architecture, design theory, site planning, construction, and communications, and elective courses in allied disciplines. The studio sequence addresses projects from detailed to regional scales, rural and urban contexts, and diverse cultures.

The five-year, 225-credit degree is structured around nine studios augmented by lecture courses. The program includes some opportunities for independent studies and work in professional settings. Departmental courses are complemented by elective courses from

other departments, including architecture, urban horticulture, soils, geology, urban design and planning, botany, and ecology.

Landscape architecture studios are led by departmental faculty or members of the professional community. Several studios are taught jointly with faculty from other disciplines. Studios address specific areas of inquiry including basic design principles and processes, planting design, materials and craftsmanship, landscape planning for parks or natural areas, neighborhood and housing design, urban landscape design, ecological restoration, and design for ethnic cultures. A capstone pair of studios requires students to integrate their experience of design theory, practice, and construction in a resolved design and set of construction drawings.

Departmental lecture courses address the functioning of natural systems, site planning issues, computer applications, and cultural and sociological forces that influence the profession's work. Students are encouraged to gain real-world experience through professional experience "practicums" with professional firms, organizations, or agencies.

Students enter the three-year program in the department following completion of departmental prerequisites and two years of University requirements. In addition to required course work, the program encourages students to pursue personal interests through directed and independent study within and beyond the department.

Admission Requirements

1. Completion of 90 credits to include the following:

Departmental Pre-professional Requirements:

L ARCH 300* (usually offered autumn and summer quarters). One of the following courses (two recommended): L ARCH 352*, 353*, 450/451*. A drawing or painting course in art is also recommended.

* Transfer students: These courses are offered through UW Extension.

General Education Requirements:

Skills Requirements: English Composition, 5 credits. Areas of Knowledge: Visual, Literary, and Performing Arts (20 credits); Individuals and Society (20 credits); Natural World (20 credits to include GEOL 101 and BOT 113); W courses (10 credits, may also count toward any other requirement except the 5-credit English composition requirement).

Electives to bring the total to 90 credits.

Undergraduate students currently enrolled at the UW may apply for admission to the department after completion of a minimum of 60 general education credits. Major status is normally granted upon completion of 90 credits and requires formal application and admission to the department.

2. Admission to the BLA program is competitive. Completion of the above requirements does not guarantee admission. Admission is based on academic record, a portfolio of creative work, three letters of recommendation, and other application materials. Contact the department for application materials and detailed information on admission, prerequisites, and required course work.
3. Application Deadline: February 15 for the following autumn quarter. Students are not admitted to the program at other times. Applications must include the BLA application forms. Students should apply during their second year with the expectation that they will have completed six quarters of General Education requirements by autumn quarter.

Graduate Program

For information on the Department of Landscape Architecture's graduate program, see the graduate and professional volume of the *General Catalog* or visit the *General Catalog* online at www.washington.edu/students/gencat/.

Faculty

Chair

Iain M. Robertson

Professors

Bradley, Gordon A. * 1972, (Adjunct); PhD, 1986, University of Michigan; forest land use planning, conservation area planning, urban forestry.

Haag, Richard 1958, (Emeritus); MLA, 1952, Harvard University; theory and perception of landscapes, master planning, urban recreation, recycling landscapes.

Johnston, Norman J. * 1960, (Emeritus); PhD, 1964, University of Pennsylvania; urban design, history.

Ochsner, Jeffrey K. * 1987, (Adjunct); MArch, 1976, Rice University; history, preservation design, urban design.

Schauman, Sally * 1979; MS, 1971, University of Michigan; landscape ecology, stressed landscapes, countryside conservation.

Streatfield, David C. * 1974; MLA, 1965, University of Pennsylvania; history, historic landscape preservation, landscape theory, urban landscape design.

Sutton, Sharon E. * 1998, (Adjunct); MArch, 1973, Columbia University; PhD, 1982, City University of New York; effect of the environment on learning and community well-being.

Vernez Moudon, Anne * 1980; DSc, 1987, Ecole Polytechnique Federale de Lausanne; urban design, city form and neighborhood studies, design research.

Associate Professors

Booth, Derek B. * 1980, (Adjunct Research); PhD, 1984, University of Washington; geomorphology, environmental geology.

Dubrow, Gail Lee * 1989, (Adjunct); MA, 1979, University of Oregon; PhD, 1991, University of California (Los Angeles); preservation, urban design, public art, public history, gender, multiculturalism.

Ewing, Kern * 1990, (Adjunct); PhD, 1982, University of Washington; wetland plant ecology, urban ecology, ecosystem management.

Hamilton, Clement Wilson * 1985, (Adjunct); PhD, 1985, Washington University; landscape plant selection, taxonomy of horticultural and tropical plants.

Horner, Richard R. * 1981, (Research); PhD, 1978, University of Washington; wetland and stream conservation and storm water management.

Loveland, Joel E. * 1986, (Adjunct); MArch, 1980, University of California (Los Angeles); energy conservation, design, research.

Palleroni, Sergio A. * 1992, (Adjunct); MS, 1987, Massachusetts Institute of Technology; the relationship between cultures, their histories, and the production of architecture.

Robertson, Iain M. * 1982; MLA, 1975, University of Pennsylvania; planting design, planning and design of arboreta/botanical gardens, assessment of design education.

Winterbottom, Daniel M. * 1993; MLA, 1988, Harvard University; culture and environment, place attachment, building as design expression, therapeutic gardens.

Assistant Professors

Alberti, Marina * 1996, (Adjunct); PhD, 1992, Massachusetts Institute of Technology; environmental planning, urban ecology, impact assessment, geographic information systems.

Hill, Kristina * 1997; PhD, 1997, Harvard University; spatial patterns of land use, GIS mapping, land classification techniques, landscape ecology.

Johnson, Julie M. * 1995; MCP, 1988, Massachusetts Institute of Technology; design and use of public/civic space, neighborhood design, suburban redevelopment.

Wolf, Kathleen L. 1994, (Adjunct Research); MLA, 1987, PhD, 1993, University of Michigan; urban forest environment, behavior.

Lecturers

Deutsch, Barbara L. 1995; MLA, 1997, University of Washington; landscape planning, growth management issues, marketing the profession.

Hamilton, Roxanne 1994; MLA, 1992, University of Washington; cultural landscapes; native American community design; therapeutic, restorative landscapes.

MacElroy, William P. 1996; MLA, 1983, University of Michigan; nature and urban environments, storm water management, role of craft in landscape architecture.

Smith, Luanne 1997; MLA, 1984, University of Oregon; design, planting, learning environments, children, art.

Course Descriptions

See page 48 for an explanation of course numbers, symbols, and abbreviations.

For graduate-level course descriptions, see the graduate and professional study volume of the *General Catalog* or visit the online course catalog at www.washington.edu/students/crsat/.

L ARCH 300 Introductory Landscape Architecture Design Studio (6) VLPA Introduction to history and environmental influences in field while developing design and graphic skills. Site analyses and drawing to convey design concepts. Relationship of visual perception to drawing, role of values in design, verbal communication, and behavioral analysis of design process. Required for admission to Bachelor of Landscape Architecture program.

L ARCH 301 Site Planning Studio (5) Covers landscape design practice including: site and program analysis and synthesis skills; utilizing creative abilities; thinking and expressing spatial ideas graphically and verbally; understanding relationships between landscape design, human behavior, and site environmental issues. Methods include intensive group and individual exercises from abstract conceptual to functional designs.

L ARCH 302 Site Design in Urban Context (5) Design of public use areas in the urban area. Project types for this course are waterfront development, commercial areas, campus and cultural centers, plazas and historical sites; recommendation for policy to be established as part of the design solution.

L ARCH 303 Natural Processes Studio (5) Project design studies related to natural systems. Computer applications are introduced.

L ARCH 322 Introduction to Planting Design (3) VLPA Traditional ways plants are used in landscape design. Composition and design characteristics of plant materials. Technical considerations for selection, climate, cultural suitability, availability, costs, and maintenance. Open to nonmajors.

L ARCH 331 Landscape Construction (4) Basic course in site engineering, correlating the design and technical aspects of site development and suitability. Grading, drainage, circulation requirements and alignment, organization concepts relative to landscape resources, site evaluation, utilization and protection, and building and site program analysis and coordination.

L ARCH 332 Landscape Construction (4) Materials and structures in landscape construction. Design criteria and construction techniques for detail elements of landscape architecture. Working drawings, specifications, cost estimates, and procedures.

L ARCH 341 Site Planning (3) Introduction to site planning and landscape design, covering the factors of site analysis and planning; resource utilization; site suitability related to specific programs and activities; and planning, design, construction, and behavioral studies for selected case study projects. Open to nonmajors.

L ARCH 352 History of Landscape Architecture (3) VLPA/I&S Survey of the development of landscape architecture as an art form from Mesopotamia to the present. Relationships to physical landscape, climate, culture, religion, and other arts. Open to nonmajors.

L ARCH 353 History of Modern Landscape Architecture (3) VLPA/I&S Development of profession and art of landscape architecture in the United States, Europe, South America, and Japan in relation to prevailing social, economic, political, and cultural factors. Relationships with other professions, especially architecture and urban planning, and other arts, such as painting and sculpture. Open to nonmajors.

L ARCH 361 Theory and Perception of Landscape Architecture (3) VLPA/I&S Reciprocal relationships of man/nature are explored, with particular attention given to the cultural variations and interpretations of esthetics, landscape materials, and human behavior and their effects on site planning and project design. Landscape architecture philosophy related to the physical design problems and potentials of the Pacific Northwest. Open to nonmajors.

L ARCH 362 Landscape Design in Urban Contexts (3) VLPA Introductory lecture course relating methods, procedures, and rationale for use of natural processes information in planning and site design. Discussion covering environmental constraints and landscape sensitivity. Open to nonmajors.

L ARCH 363 Ecological Design and Planning (3) NW A discussion of how natural processes determine urban ecological design and planning. The course surveys concepts of urban ecology, design/planning options for urban steep slopes, rehabilitation of stressed landscapes including therapeutic designs such as a constructed wetlands, concepts of "nearby nature," the "greening" of college campuses, and eco-building and construction techniques. PNW professionals lecture on specific regional situations. Service learning is an option of this class.

L ARCH 401 Urban Recreation Design (1-6) VLPA/I&S Special studies in metropolitan, urban, and neighborhood recreation areas; the design, policies, and behavioral studies of existing parks, playgrounds, public places, and commercial areas. Design projects dealing with the play environment for all ages. Open to nonmajors.

L ARCH 402 Site Design/Cluster Housing (1-6, max. 6) Large-scale site planning and design. Generally related to housing, new communities, and institutional development. Identification of landscape character, resources, and problems of site, cost factors, design alternatives and implications for architectural direction, policy for land acquisition. Program development to maximize site utilization and preservation of natural attributes.

L ARCH 403 Cultural Landscape Studio (1-6, max. 6) Studies of the landscape at various scales and in diversified contexts. Offers better understanding of visual components of landscapes, designer's capacity to evaluate and change these components, and resultant interaction with, and effect on, landscape user.

L ARCH 406 Individual Design Studio (6) Senior projects in landscape architecture; projects vary according to the student's particular emphasis and needs.

L ARCH 411 Landscape Graphics (3) Delineation techniques for landscape perspectives, sections, rendering of plant materials. Historical and contemporary examples of landscape drawing.

L ARCH 412 Landscape Communications (2) Multimedia and video production techniques and presentation methods suitable for public hearings, citizen groups, design commissions, and private clients. Individual projects and case-study examples.

L ARCH 423 Planting Design Studio (3) Utilization of plants as design elements to manipulate space and modify the landscape for various activities and resolutions of site problems. Factors that determine the appropriate use and arrangement of plant materials in an urban context. Composition, plant selection, planting techniques, and maintenance requirements are major components of this class.

L ARCH 425 Advanced Planting Design Studio (1-6, max. 6) Advanced seminar/studio in planting design. Provides opportunity to explore ecological, technical, and esthetic principles for selecting plants to meet specific site conditions. Project types include historical sites, multifamily housing projects, plazas, landfills, and reclamation sites.

L ARCH 433 Large-Scale Site Construction (4) Includes studies of natural determinants and restraints on large-scale construction, development affected by service and utility systems, physiographic suitability of site, cost-benefit analysis, and critical path methodology for site construction projects.

L ARCH 440 Computers in Landscape Architecture (1-3, max. 3) Laboratory, lecture, and demonstration classes to introduce software applications specific to required landscape architecture courses. Credit/no credit only.

L ARCH 450 History of Environmental Design in the Pacific Northwest (3) VLPA Development of landscape architecture, architecture, and urban planning in the Pacific Northwest from nineteenth century to the present, with major emphasis on twentieth century. Open to nonmajors.

L ARCH 451 History of Environmental Design on the West Coast (3) VLPA Development of the environmental arts of landscape architecture, architecture, and urban planning from the eighteenth century to the present, with major emphasis on the twentieth century. Open to nonmajors.

L ARCH 470 Landscape Architecture Tutorial (2, max. 6) Various aspects of project organization, programming, scheduling of work loads, graphic and verbal communication problems, data collection methods and interpretation, methodologies for landscape planting and design.

L ARCH 473 Professional Practice (3) Professional practice in private office, academic institutions, and public agencies. Evolution of landscape architecture as a profession, possible scenarios for future, variety of practice types and their relationships, ethical and legal/contractual responsibilities of a professional.

L ARCH 474 Project Design (1-6, max. 6) Detailed design studies of small-to-medium-scale projects. General focus on public landscape areas and social/psychological uses of site. Specific focus on design development and professional office presentation.

L ARCH 475 Advanced Project Design Studio (1-6, max. 6)

L ARCH 476 Professional Operations (3-6, max. 6) Practicum course for landscape architecture majors for internship and exposure to the profession with working experiences at various levels of professional endeavor. Student apprenticeship in selected private offices and public agencies. Credit/no credit only.

L ARCH 495 Landscape Architectural Studies Abroad (1-10, max. 30) Studies conducted under faculty supervision in various locations outside the United States.

L ARCH 498 Special Projects (1-10, max. 30) Special projects as arranged. Open to nonmajors.

L ARCH 499 Undergraduate Research (1-9, max. 9) Individual or small-group studies pertaining to special problems, theories, or issues of landscape architecture and environmental issues.

Urban Design and Planning

410 Gould



General Catalog Web page:
www.washington.edu/students/gencat/academic/Urban_Des.html



Department Web page:
www.caup.washington.edu/html/urbdp/

Urban design and planning deals with critical issues of human settlement and urban development. It provides communities with an informed basis for coordinated public- and private-sector action. Urban design and planning constitutes a professional field of growing complexity, responding to the urban complexities of this century and the next. The Department of Urban Design and Planning fosters an integrative approach to education and research in planning the physical environment. The academic program includes the social, behavioral, and cultural relationships between people and the form and quality of their built and natural environment; the financial, administrative, political, and participatory dimensions of planning, design, and development; and the informational base for making deliberate decisions to shape urban areas and regions, bringing analysis together with vision.

Departmental faculty are active participants in interdisciplinary research units of the College of Architecture and Urban Planning, including the Center for Community Development and Real Estate and the Institute for Hazard Mitigation Planning and Research. Faculty also participate in the Puget Sound Regional Synthesis Model (PRISM) University Initiative Fund program. The department also administers the Remote Sensing Applications Laboratory, concerned with applications in urban planning of remote sensing and geographic information systems (GIS) technology and the Urban Ecology Research Laboratory. In addition, the College has a wide array of facilities for computer-based instruction related to design, including CAD, GIS, and visualization technology, and runs a joint program in advanced computer technology and virtual reality with the Human Interface Technology Laboratory of the Washington Technology Center.

Minor

Minor Requirements: 30 credits to include URBDP 300 (5 credits); 3 credits chosen from URBDP 460, 461, or 471; minimum 10 additional credits in URBDP-prefix courses; and 12 additional credits in planning-related courses. A 2.0 minimum grade is required for each course counted toward the minor. See departmental adviser for recommended courses.

Graduate Program

For information on the Department of Urban Design and Planning's graduate program, see the graduate and professional volume of the *General Catalog* or visit the *General Catalog* online at www.washington.edu/students/gencat/.

Faculty

Chair

Frank Westerlund

Professors

Amoss, Harold L. 1963, (Emeritus); MA, 1947, University of New Mexico; PhD, 1951, University of California (Berkeley); planned social change, community organization.

Bell, Earl J. * 1966, (Emeritus); PhD, 1965, University of California (Berkeley); operations research, statistics, quantitative methods and geographic information systems.

Beyers, William B. * 1962, (Adjunct); PhD, 1967, University of Washington; economic geography, regional analysis, regional development.

Bradley, Gordon A. * 1972, (Adjunct); PhD, 1986, University of Michigan; forest land use planning, conservation area planning, urban forestry.

Grey, Arthur L. * 1963, (Emeritus); PhD, 1954, University of California (Berkeley).

Hancock, John L. * 1969, (Emeritus); PhD, 1964, University of Pennsylvania; urban and planning history, society, planning and environmental policy.

Johnston, Norman J. * 1960, (Emeritus); PhD, 1964, University of Pennsylvania; urban design, history.

Ludwig, Richard L. * 1971; PhD, 1971, University of Pittsburgh; housing development planning, social factors in development planning.

Miller, Donald H. * 1970; PhD, 1972, University of California (Berkeley); land use and urban spatial structure, data analysis and forecasting, planning theory.

Ochsner, Jeffrey K. * 1987, (Adjunct); MArch, 1976, Rice University; history, preservation design, urban design.

Rutherford, G. Scott * 1981, (Adjunct); PhD, 1974, Northwestern University; transportation planning and engineering.

Streatfield, David C. * 1974; MLA, 1965, University of Pennsylvania; history, historic landscape preservation, landscape theory, urban landscape design.

Sutton, Sharon E. * 1998; MArch, 1973, Columbia University; PhD, 1982, City University of New York; effect of the environment on learning and community well-being.

Untermann, Richard K. * 1971, (Emeritus); MLA, 1967, Harvard University; urban design and site planning, housing, recreation, nonmotorized circulation.

Vernez Moudon, Anne * 1980; DSc, 1987, Ecole Polytechnique Federale de Lausanne; urban design, city form and neighborhood studies, design research.

Wong, Shawn H. * 1984, (Adjunct); MA, 1974, San Francisco State; creative writing, Chinese-American area studies.

Zarina, Astra * 1970; MArch, 1955, Massachusetts Institute of Technology; design, foreign studies.

Associate Professors

Blanco, Hilda J. * 1996; MRP, 1984, PhD, 1989, University of California (Berkeley); comprehensive and neighborhood planning, environmental planning, infrastructure, finance.

Dubrow, Gail Lee * 1989; MA, 1979, University of Oregon; PhD, 1991, University of California (Los Angeles); preservation, urban design, public art, public history, gender, multiculturalism.

Kasprisin, Ronald J. * 1989; MUP, 1968, University of Washington; community design studios, town planning, planning/design communications, urban design principles.

Norton, Thomas J. * 1968, (Emeritus); MUP, 1960, University of Washington; urban community facilities, planning administration.

Rolfe, George R. * 1984; MArch, 1968, MCP, 1968, University of Pennsylvania; urban development process, finance, feasibility and market analysis, urban design processes.

Ryan, Dennis M. * 1974; PhD, 1976, University of Pennsylvania; community planning, design, and identity; public processes; urban design, change, and continuity.

Waddell, Paul A. * 1997; PhD, 1989, University of Texas (Dallas); urban policy, land use and transportation, growth management, geographic information systems.

Westerlund, Frank * 1971; PhD, 1977, University of Washington; remote sensing applications, energy development and conservation, regional environmental planning.

Assistant Professors

Alberti, Marina * 1996; PhD, 1992, Massachusetts Institute of Technology; environmental planning, urban ecology, impact assessment, geographic information systems.

Bae, Christine * 1996; MRP, 1986, State University of New York (Albany); PhD, 1994, University of Southern California; transportation, environment, land use, growth management, quantitative methods.

Course Descriptions

See page 48 for an explanation of course numbers, symbols, and abbreviations.

For graduate-level course descriptions, see the graduate and professional study volume of the *General Catalog* or visit the online course catalog at www.washington.edu/students/crscat/.

URBDP 300 Introduction to Urban Planning (5) I&S Ludwig Principles and theories of urban structure and institutions. Concepts and logic of planning as a community process and a professional activity. Evolution of planning ideas in response to changing social, economic, and environmental conditions within the American political framework. Complementary nature of public and private responsibilities. Major procedures used by planners.

URBDP 370 Reading the City (5) VLPA/I&S Ryan Comprehending cities as reflection of individual reader and social/cultural context. Skills for analyzing everyday, visible evidence of the city. Topics include self-identity with place, city, image and perception, visual design analysis and place as representation of culture. Extensive writing, multiple texts, collaborative work in groups and field work.

URBDP 407 Urban Planning Studio (5) VLPA/I&S Synthesis of urban design and planning problems and methods in a laboratory section.

URBDP 420 Database Systems and Planning Analysis (3) Applications of relational database management systems in urban design and planning. Emphasis on practical aspects of database design and use. Design, create, and modify databases and database applications, including spatial databases. Introduction to GIS. Use of personal computers linked to desktop mapping packages and relational database management systems.

URBDP 422 Geographic Information Systems in Planning Analysis (5) *Alberti* Principles of GIS applied to problems in urban design and planning, landscape architecture, and environmental and resource studies. Practical problem-solving approaches using contemporary desktop mapping packages and vector and raster GIS systems. Siting, environmental evaluation and inventories, and modeling. Prerequisite: 3.0 in URBDP 420.

URBDP 429 Computer-Aided Planning of Urban Systems (3) Survey of on-line planning applications; use of various on-line systems to solve urban systems design problems; investigation of hardware/software trade-offs; human factors in man-computer systems design theory as it relates to problem-solving activity. Offered: jointly with CEE 418.

URBDP 446 Practical Experience (4, max. 8) *Rolfe* Off-campus internship under academic supervision in situations useful to the education of planners, such as public/private planning and design offices, projects related to the environment, cross-cultural matters, and decision making. Assistance in identifying appropriate projects.

URBDP 451 Housing (3) I&S *Ludwig* Survey of housing and redevelopment problems, theories, standards, and practice. Development of public policies, finance, technological considerations, social factors, and priorities. Prerequisite: 3.0 in URBDP 300.

URBDP 454 Introduction to Real Estate Finance (4) *Rolfe* Introduction to the financing of real estate development projects, including a survey of capital markets, banking regulations, interest/discounting theories, debt instruments, and project financing. Offered: jointly with CM 454.

URBDP 455 Introduction to Real Estate Development Processes (5) *Rolfe* Introduction and survey of processes and people involved in developing real estate, including issues of site control, public/private approvals, feasibility analysis, project financing, design/construction, marketing, and asset management. Offered: jointly with CM 455.

URBDP 456 Real Estate Investment Seminar (4) *Rolfe* Analysis of private and public real-estate investment decisions using case studies of individual development projects. Focuses on application of principles introduced in 453, 454, and 455. Prerequisite: URBDP 455 or CM 455. Offered: jointly with CM 456; W.

URBDP 457 Housing in Developing Countries (3) *Ludwig* Emphasis on role of the design and planning professional in housing delivery in developing countries. Exploration of issues of culture, political environment, social context, economic circumstances, and other factors which define and limit the manner in which the professional planner and designer can and should function.

URBDP 460 History of City Development (3) VLPA/I&S *Dubrow* Analysis of city forms and designs, emphasizing their relation to the culture of each period.

URBDP 461 History of Urban Planning in the United States (3) I&S *Hancock* Seminar in origins, development, and significance of the American planning movement and the profession that emerged from it, as defined by some of its seminal innovators, theories, practices, and achievements, and as evaluated by cultural realities thereby served.

URBDP 465 Land Use (3) I&S *Westerlund* Land use as a substantive focus for urban and regional planning and growth management. Consideration of data collection, analysis, plan development, and implementation methods. Seminar and group project sections.

URBDP 466 Infrastructure and Community Facilities (4) *Blanco* Issues and methods associated with planning for parks, schools, drainage, sewerage, utilities, libraries, solid waste and transportation. Covers their relationship to comprehensive plans, project permitting and impact assessment. Financing, regulating, and relationships to social, environmental, and economic goals are discussed.

URBDP 467 Urban Planning Uses of Remote Sensing (3) *Westerlund* Using aerial photographs and satellite image data in urban planning. Urban change analysis, land-use and land cover classification, and environmental planning applications. Scale and resolution considerations. Development of proficiency through laboratory exercises and use of image-processing software.

URBDP 470 Introduction to Urban Design (3) VLPA/I&S *Rolfe* Definitions and examples of urban design; heritage of urban design; theories of city building; the role of urban design in the fields of architecture, landscape architecture, and urban planning.

URBDP 471 History of Urban Design (3) VLPA/I&S *Streatfield* Aspects of form, pattern, and space that mark efforts of individuals and groups to express their values and goals in the design of their cities. Special attention given to both historical and modern examples.

URBDP 479 The Urban Form (3) VLPA *Moudon* Elements, patterns, and evolution of urban form. The forces that shaped cities in history. Contemporary trends. Methods of urban morphological analysis as related to urban design and planning practices. Required for MUP graduate students.

URBDP 481 Metropolitan Planning and Development in Developing Countries (3) I&S *Ludwig* Examination of the nature and causes of urban planning and management problems in developing countries and exploration of alternative approaches to solve some of these problems.

URBDP 494 Alaska Field Study (2) *Kasprisin, Westerlund* Travel to Alaskan communities for interpretation of natural systems, history, cultures, settlement patterns, and current issues of planning and economic development. Meetings with community leaders and planners. Students either select a topic for field and documentary research, or participate in intensive charrette-type projects or quarter-long projects in communities. Offered: Sp.

URBDP 498 Special Topics (1-9, max. 15) Systematic study of specialized subject matter. Topics for each quarter vary, depending upon current interest and needs, and are announced in the preceding quarter.

URBDP 499 Special Projects (1-12, max. 12) Independent/tutorial study for undergraduates. Individual reading, research, fieldwork, or other special project, outlined in advance, approved by, and under the direction of, the faculty adviser most appropriate for the project proposed. A report on the purposes, procedures, and results of the study is required.

College of Arts and Sciences

Dean

David C. Hodge
50 Communications

Divisional Deans

Gary D. Christian—Natural Sciences
Michael R. Halleran—Arts and Humanities
Susan Jeffords—Social Sciences
Julie K. Stein—Computing, Facilities, and Research



General Catalog Web page:
www.washington.edu/students/genocat/academic/arts_sci.html



College Web page:
ascc.artsci.washington.edu

The departments and schools of the College of Arts and Sciences offer nearly 100 curricula leading to the degrees of Bachelor of Arts, Bachelor of Fine Arts, Bachelor of Music, or Bachelor of Science, as well as graduate study leading to master's and doctoral degrees.

Undergraduate Study

Graduation Requirements

A liberal arts education entails mastery of certain basic skills, exposure to a broad range of academic disciplines, and concentration in a particular field of knowledge. To be awarded a baccalaureate degree a student in the College must fulfill requirements in the following areas: Language Skills, Reasoning and Writing in Context, Areas of Knowledge, and a Major (see table below). All required courses must be taken for a numerical grade. In addition, the student must present at least 90 credits outside the major department and must meet minimum GPA requirements as specified below. Detailed information on graduation requirements is provided in the *Bachelor's Degree Planbook*, available from the Undergraduate Advising Center, 171 Mary Gates Hall.

Requirement*	Credits	
Language Skills	5-20	English composition (5 credits) Foreign language (0-15 credits, depending on placement)
Reasoning and Writing in Context	15	Quantitative/symbolic reasoning (5 credits) Additional writing courses (10 credits)
Areas of Knowledge	75	General education courses to include at least 20 credits in each of the following three areas: <ul style="list-style-type: none"> • Visual, Literary, and Performing Arts (VLPA) • Individuals and Societies (I&S) • The Natural World (NW)
Major	50-90	An area of specialization, usually in a single department
Minor (optional)	25-35	An additional area of specialization
Electives	varies	Free choice; as many credits as necessary to bring the total to 180

*Requirements of colleges other than Arts and Sciences are based on these, but may differ. Students who have not chosen a major are advised to follow the College of Arts and Sciences requirements.

Language Skills

To receive a degree from the College of Arts and Sciences, students whose first enrollment in college (whether at the UW or elsewhere) was in autumn quarter 1985 or later are required to complete 5 credits of English composition with a minimum grade of 2.0. They must also complete course work through the end of the first-year college sequence in a foreign language, with at least a 2.0 in the third-quarter course, or demonstrate equivalent proficiency by passing an examination or by receiving a passing grade in a qualifying course beyond the first-year level. Credits used for these two requirements (including the entire first year of foreign language, if taken) cannot also be applied to the Areas of Knowledge requirements described below.

Reasoning and Writing in Context

Students who first entered college autumn quarter 1985 or later must complete a minimum of 5 credits in Quantitative or Symbolic Reasoning (Q/SR) and 10 credits of additional composition courses or courses that emphasize the development of writing skills in the context of an academic discipline (W courses). Q/SR and writing courses, if they apply, can also be counted toward Areas of Knowledge or major requirements. The writing requirement is in addition to the English composition requirement mentioned in the preceding paragraph.

Areas of Knowledge

The Areas of Knowledge requirement is the means by which the student develops a breadth of knowledge. Undergraduate courses are currently divided broadly into three categories: Visual, Literary, & Performing Arts; Individuals & Societies; and the Natural World. Each student must select at least 20 credits in courses from each of the three fields and an additional 15 credits from any courses in the three fields. Of the 75 total credits required, 15 may be from courses in the student's major department.

Course Designators

The following symbols, included in course descriptions in this catalog, indicate which, if any, of the above requirements are fulfilled by certain courses:

VLPA—Visual, Literary, and Performing Arts (Area of Knowledge requirement)
I&S—Individuals and Societies (Area of Knowledge requirement)
NW—The Natural World (Area of Knowledge requirement)
QSR—Quantitative and Symbolic Reasoning

Courses that meet the foreign-language requirement and the additional-writing requirement are not marked. The third-quarter (or second-semester) course in any language meets the language requirement, so long as the entire first-year sequence totals at least 12 credits (regardless of whether the student earned credit for the earlier parts of the sequence). Consult the quarterly *Time Schedule* for writing-intensive courses that meet the additional-writing requirement.

Major

In fulfilling the requirements for a major, the student engages in thorough study of a discipline or subject, aimed at developing knowledge in depth. This part of the student's program is determined by the department, school, or faculty committee with which the major study is pursued. Measured in academic credits, the "major" required of each student consists of 50 or more prescribed credits in a department of the College or a closely related group of departments. Descriptions of major programs are printed below.

Minor

Completion of a minor, available through many departments, is optional. Requirements are shown under individual department undergraduate programs, below, or in a minors handout available in the Undergraduate Advising Center, 171 Mary Gates Hall. Minors granted by the College of Arts and Sciences are not necessarily or even usually the same as the minors approved by the College of Education for teaching at the secondary level.

Credits Required Outside Major Department

So that the student will not overspecialize, the College limits to 90 the number of credits from a single department that the student may elect to count in the 180 credits required for the baccalaureate degree. A department itself can require no more than 70 credits from courses within the department, and no more than 90 credits from within the department and related fields combined, as constituting its major program for the baccalaureate degree. Exceptions to these restrictions may be granted by the Dean.

GPA Required for Graduation

To be eligible to receive the baccalaureate degree, the student must achieve at least a 2.00 cumulative GPA in the major (some departments prescribe a higher minimum GPA for the major), as well as a 2.00 cumulative GPA for all work done in residence at the University.

Applying for Graduation

Students should apply for the baccalaureate degree no later than the first quarter of their final year. Seniors who apply by announced quarterly deadlines will receive Graduating Senior Registration Priority (GSP), allowing them to register first for the following quarter. GSP status is limited to two quarters.

All students may graduate under the College requirements published in this catalog. Students may use the department requirements in effect at the time they are admitted to the major, if they graduate within 10 years of that time. Otherwise, the department may insist on more recent major requirements. Students wishing to fulfill a previous set of requirements should see an adviser for details and options. All responsibility for fulfilling graduation requirements rests with the student concerned.

Limits on Physical Education and ROTC Courses Allowed Toward Graduation

A student graduating from the College of Arts and Sciences may count a maximum of 3 credits of 100-level physical-education activity courses taken at the University of Washington, or their equivalents at other collegiate institutions, as elective credits toward graduation. At present, physical-education courses are not offered at the University. Up to 18 credits in upper-division ROTC courses also may be counted as elective credits toward graduation, but no lower-division ROTC credits may be counted.

Evening Degree Program

Students may earn a degree in anthropology, business administration, communications, English, history, humanities, political science, psychology, social sciences, or sociology through the Evening Degree Program. Admission to the program requires the following: 75 college credits, normally to include Arts and Sciences language-skills requirements (English composition and one year of a single foreign language), the reasoning-in-context requirement (quantitative/symbolic reasoning), and a substantial portion of the writing-in-context and general education requirements. Students who have only a few remaining prerequisite courses to complete may, under certain circumstances, be admitted as premajors. Admission requirements for departmental majors in the Evening Degree Program—anthropology, business administration, communications (only the general communications option is offered), English, history, political science, psychology, sociology—are identical to requirements for the day programs, shown under departmental listings.

Major Requirements

The Humanities major and the Social Sciences major require a minimum 2.00 GPA for all courses taken in residence at the UW and a minimum 2.25 GPA for courses taken to satisfy the major requirements.

Humanities—60 credits, including at least 30 credits from one of the following three options: communication and critical thinking; literature and culture; ideas and beliefs in social history. A 5-credit senior seminar. Remaining credits from courses outside the principal option.

Social Sciences—60 credits, including 15 credits of social science survey courses (e.g., ANTH 202, SOC 271, POL S 202); 25 credits from one of the following four options: social and ethical theory; law, politics, and the state; culture and ethnicity; economy and ecology. 15 credits of program electives (selected from courses outside the principal option). A 5-credit senior seminar. Major requirements are to include at least 40 credits in 300- and 400-level courses.

For course lists, consult the Evening Degree Program adviser (at Evening Degree Program, 5001 25th Avenue NE) or the Undergraduate Advising Center, 171 Mary Gates Hall.

Departmental Options—Requirements are the same as for day-school majors and are shown below in the undergraduate program section for each department.

Graduate Study

Students who intend to work toward advanced degrees must apply for admission to the Graduate School and must meet the general requirements outlined in the graduate and professional volume of the *General Catalog*, as well as the requirements established by the graduate faculty in the department or unit offering the degree program. Graduate students must satisfy the requirements for an advanced degree that are in force at the time the degree is to be awarded.

American Ethnic Studies

B504 Padelford



General Catalog Web page:
www.washington.edu/students/gencat/academic/amer_ethnic.html



Department Web page:
depts.washington.edu/aes/

American Ethnic Studies exposes students to key content, methodologies, and theories in the comparative and interdisciplinary study of African Americans, Asian Americans, and Chicanos in the United States.

Undergraduate Program

Adviser
Marguerite Cook
B509 Padelford, Box 354380
(206) 543-5403

The program in American Ethnic Studies offers a program of study leading to a Bachelor of Arts degree. The department also prepares students for entry into graduate and professional schools.

Bachelor of Arts

Admission Requirements: Students in good academic standing may declare this major at any time.

Suggested Introductory Course Work: Courses in American history, literature, drama, arts, sociology, political science, ethnic studies.

Major Requirements: 55 credits to include 30 credits of core courses and 25 credits in an option. **Core:** 15 credits of AES 150, 151, 212. 10 credits (two courses) from AFRAM 201, AIS 201 or 203, AAS 205, CHSTU 201, to include one in the option and one outside the option; for Comparative American Ethnic Studies option, choose any two. 5 credits of AES 495. **Options:** 25 credits in one of the following: Afro-American Studies, Asian American Studies, Chicano Studies, Comparative American Ethnic Studies. See department for list of options courses.

Faculty

Chair

Ana Mari Cauce

Professors

Bereano, Philip L. * 1975, (Adjunct); JD, 1965, Columbia University; MRP, 1971, Cornell University; technology assessment, biotech policies, policy and technology, social values, citizen participation.

Butler, Johnella E. * 1987; EdD, 1979, University of Massachusetts; Afro-American and multicultural studies, comparative American ethnic literature, African diaspora.

Cauce, Ana Mari * 1986; PhD, 1984, Yale University; community/developmental psychology, socialization of children/adolescents of color, ethnic identity.

Debro, Julius 1991; DCrim, 1975, University of California (Berkeley).

Pena, Devon G. * 1999, (Acting); PhD, 1983, University of Texas (Austin); agroecology, bioregionalism, social movements, labor process theory.

Scott, Joseph W. * 1985; PhD, 1963, Indiana University; political sociology, family sociology, race/ethnic relations.

Sumida, Stephen H. 1998; PhD, 1982, University of Washington; Asian American studies, Asian/Pacific American literature, multicultural studies.

Walter, John C. * 1989; PhD, 1971, University of Maine; Afro-American studies; Afro-American, American, Caribbean immigrant, sport, and women's history.

Associate Professors

Fearn-Banks, Kathleen A. 1990, (Adjunct); MS, 1965, University of California (Los Angeles); crisis communications, history.

Flores, Lauro H. * 1980, (Adjunct); PhD, 1980, University of California (San Diego); Chicano literature, contemporary Latin American literature (narrative).

Gamboa, Erasmo * 1976; MA, 1973, PhD, 1984, University of Washington; history, Pacific Northwest, Chicano and Latino, social, labor and immigration.

Ginorio, Angela B. * 1981, (Adjunct); PhD, 1979, Fordham University; women and/in science, violence and women, socially defined identities, psychology issues for Latinas.

Guerra, Juan C. * 1990, (Adjunct); MA, 1983, PhD, 1992, University of Illinois (Chicago); rhetoric, composition, literacy, ethnography.

Kashima, Tetsuden * 1976; PhD, 1975, University of California (San Diego); Japanese American incarceration and social organization, sociology of race and ethnic relations.

Salas, Elizabeth 1987; MA, 1977, California State University, Los Angeles; PhD, 1987, University of California (Los Angeles); New Mexican history and politics, Chicana, Mexicana and Chicano history, minorities in the military.

Twine, France Winddance 1994, (Adjunct); MA, 1990, PhD, 1994, University of California (Berkeley); critical race feminisms, racism/antiracism, whiteness studies, multiracial families, Brazil, Britain.

Yee, Shirley J. * 1988, (Adjunct); PhD, 1987, Ohio State University; U.S. women's history, African-American history, nineteenth-century U.S. social history.

Assistant Professors

Bonus, Enrique C. 1998; PhD, 1997, University of California (San Diego); Asian American and Filipino American studies, communication and cultural studies, race relations.

Habell-Pallan, Michelle 1998; PhD, 1997, University of California (Santa Cruz); Chicano studies and literature, performance and popular culture, women of color feminist theories.

Nomura, Gail M. 1999; MA, 1971, University of California (Berkeley); PhD, 1978, University of Hawaii; Asian American studies, Asian American history, Asian American women's history.

Rivers, Patrick L. 1999; PhD, 1998, University of North Carolina; political science, socio-legal studies and cultural studies.

Taylor, Paul C. 1998, (Adjunct); PhD, 1997, Rutgers University; social and political philosophy, American pragmatism, aesthetics, race theory.

Lecturers

Maulana, Seyed M. 1984; MUP, 1988, University of Washington; African and African American studies, Swahili.

So, Connie C. 1990; MPA, 1989, Princeton University; Asian Pacific Islander history and culture; American ethnicity, identity, and politics.

Course Descriptions

See page 48 for an explanation of course numbers, symbols, and abbreviations.

For current course descriptions, visit the online course catalog at www.washington.edu/students/crsctat/.

American Ethnic Studies

AES 150 Introductory History of American Ethnic Groups (5) I&S *Gamboa, Salas* Survey of the history of African Americans, Asian Americans, Chicanos, and American Indians in the United States.

AES 151 Introduction to the Cultures of American Ethnic Groups (5) I&S Survey of the cultures of Chicano, African-American, Asian-American, and American-Indian communities of the United States. Each group's culture is examined in its isolation and in its interaction with mainstream culture.

AES 212 Comparative American Ethnic Literature (5) VLPA/I&S *Butler* Selected texts from the African-American, American-Indian, Asian-American, Chicano/Latino, and Euro-American traditions of American literature. Examines the American Dream, identity, community, conformity, individualism, and family. Explores themes of assimilation, double consciousness, *mezitza* consciousness, and wholeness as an introduction to multiple American voices in literary expression.

AES 250 Race in the American University (5) I&S Racial integration in American institutions of higher education. Entry to, and impact on, American universities by people of color. History of ethnic studies and its relation to other disciplines. Recommended: AES 150; AES 151.

AES 251 Politics of Institutional Change (5) I&S Survey of ideologies, values, and structures of political and educational institutions. Emphasis on student experience in conceptualizing, designing, and implementing reforms in American political and educational institutions.

AES 275 Civil Rights (5) I&S *Rivers, Walter* Examines the history of civil rights in the United States, focusing on efforts of the dispossessed to gain those rights. What are civil rights? How is the content of civil rights determined? What actions are open to groups excluded from those rights?

AES 321 Comparative American Fiction: Race and Ethnicity (5) VLPA/I&S *Butler* Ethnic literature of the United States. Covers themes such as the immigrant experience, the migrant experience, becoming an *American*, and straddling several worlds, as we define self, wholeness, family, community, and nation. Explains how myths sustain us and images guide us as we encounter and express our American identity in literature.

AES 322 Race and Gender: Historical Perspectives (5) I&S The intersection of race and gender in the lives of women of color in the United States from historical and contemporary perspectives. Topics include racism, sexism, activism, sexuality, and interracial dynamics between women of color groups. Offered: jointly with WOMEN 322.

AES 333 Minorities in the Military (5) I&S *Salas* The experiences of racial minorities in the military. Topics include segregation of units, desegregation of military, career limitations and opportunities, minority women, military families, racism and role of veterans in civil rights struggles after service.

AES 360 Political Economy of Race in the United States (5) I&S Asks the question, "Why do people accept unequal status?" Introduces explanations of the political and economic inequality of third world

people in the United States, the accuracy of these explanations, and how they help or hinder efforts of these communities to improve their condition.

AES 361 Ethnicity, Business, Unions, and Society (5) I&S *Scott* Interrelationships of ethnicity, business, unions, and the larger society. Examines financial and sociological structure of business and manufacturing sector, how this sector performs, and consequences of performance for selected ethnic groups in United States. Offered: jointly with SOC 363.

AES 363 Intellectual Foundations of Ethnic Studies (5) I&S Seeks to define the essence of a "discipline" and to locate ethnic studies on the spectrum of disciplines.

AES 461 Comparative Ethnic Race Relations in the Americas (5) I&S Sketches the ethnoracial systems operating in American society. Studies these systems as systems and examines their institutional and interpersonal dynamics. Compares ethnoracial systems in order to arrive at empirical generalizations about race/ethnorelations in the Americas. Offered: jointly with SOC 461.

AES 462 Comparative Race and Ethnic Relations (5) I&S *Scott* Race and ethnicity are examined as factors of social differentiation in a number of Western and non-Western societies in Europe, Africa, Asia, and the Americas. Offered: jointly with SOC 462.

AES 489 Ethnicity, Gender, and Media (5) I&S Media portrayal of women and people of color; creation of alternative media systems by women and people of color in the United States. Offered: jointly with CMU 489/WOMEN 489.

AES 494 Community Practicum and Internship (3-5, max. 10) Faculty supervised practicum and internship experience in variety of settings and agencies, e.g., ethnic specific agencies, government and civic community-based offices. Students contribute skills and knowledge to respective communities and gain experience by working with professionals and community organizers. Credit/no credit only.

AES 495 Senior Seminar: Senior Thesis (5) I&S Focus on a central comparative theme for individual research topics.

AES 498 Special Topics in American Ethnic Studies (1-5, max. 15) I&S Designed to provide the student an opportunity to concentrate on one specific aspect of American Ethnic Studies through a comparative, interdisciplinary approach.

AES 499 Independent Study or Research (1-5, max. 10) Independent readings and/or research under the supervision of a faculty member.

Afro-American Studies

AFRAM 150 Afro-American History (5) I&S Introductory survey of topics and problems in Afro-American history with some attention to Africa as well as to America. Basic introductory course for sequence of lecture courses and seminars in Afro-American history. Offered: jointly with HSTAA 150.

AFRAM 201 Introduction to Black Studies (5) I&S History, culture, religion, institutions, politics, economics, arts, and psychology of peoples of African descent as developed from experience in both the old and new worlds. Multidisciplinary analysis of social life from a Black perspective as illustrated in selected historical and contemporary writings.

AFRAM 214 Survey of Afro-American Literature (5) VLPA *Butler* A chronological survey of Afro-American literature in all genres from its beginnings to the present day. Emphasizes Afro-American writing as a literary art; the cultural and historical context of Afro-American literary expression and the aesthetic criteria of Afro-American literature. Offered: jointly with ENGL 258.

AFRAM 220 Third World Images in Film (5) VLPA/I&S

AFRAM 260 African American Family (5) I&S This course explores the structures and functioning of various types of black families. Single-parent families, two-parent families, extended families, and consensual families are explored. Their consequences for male/female relationships are linked and critiqued. Offered: jointly with SOC 260.

AFRAM 261 The African-American Experience Through Literature (5) VLPA/I&S *Scott* Instructs students in hermeneutical and sociological methods of analyses. Analyzes selected novels, essays, poems, short stories, and plays with the purpose of understanding the structures and functions of both society and personality. Offered: jointly with SOC 261.

AFRAM 270 The Jazz Age (5) I&S *Walter* Interdisciplinary study of period after World War I to Great Crash. Afro-American and Anglo-American currents and impulses that flowed together in the Roaring Twenties. Covers politics of normalcy, economics of margin, literature of indulgence and confusion, transformation of race relations, and cultural influence of jazz. Offered: jointly with HSTAA 270.

AFRAM 272 History of the South Since the Civil War (5) I&S *Walter* Reconstruction and its aftermath, the Agrarian (Populist) revolt, disfranchisement and segregation, the effects of urbanization and subsequent depression, desegregation, and the struggle for civil rights. Examines the New South, the conflict of ideology with structural and material change, and the place of the South in contemporary America.

AFRAM 306 Basic Swahili (5) *Maulana* Structure of spoken and written Swahili. Concentration on the acquisition of elemental conversational skill and an introduction to written texts of graded difficulty.

AFRAM 307 Basic Swahili (5) *Maulana* Structure of spoken and written Swahili. Concentration on the acquisition of elemental conversational skill and an introduction to written texts of graded difficulty. Prerequisite: AFRAM 306.

AFRAM 308 Basic Swahili (5) *Maulana* Structure of spoken and written Swahili. Concentration on the acquisition of elemental conversational skill and an introduction to written texts of graded difficulty. Prerequisite: AFRAM 307.

AFRAM 309 Intensive Basic Swahili (15) *Maulana* First-year Kiswahili language. Introduces students to Kiswahili and allows them to explore and understand not only the language but also the diverse cultures and customs of the people of East Africa. Provides a basic foundation in speaking, reading, and writing. Primary emphasis on basic structure of Kiswahili and its operation. Offered: S.

AFRAM 321 History of Afro-American Women and the Feminist Movement (5) I&S "Feminist Movement" from early nineteenth century to present. Treats relationship between Black and White women in their struggle for independence, at times together and at times apart. Discusses the reasons, process, and results of collaboration as well as opposition. Examines recent and contemporary attempts at cooperation.

AFRAM 323 African-American Women's History (5) I&S *Yee* Survey of African-American women's experience in United States, 1600 to present. Includes: social, political, economic status of Black women in slavery, freedom, education, activism, Civil Rights, women's rights, other social movements. Explores individual and collective interactions with African-American men, white men and women, other people of color.

AFRAM 334 The Sixties in America: Conflict, Confrontation, and Concession (5) I&S *Walter* Politico-cultural movements that collided in the sixties. Includes politics of confrontation and civil disobedience, economics of "guns and butter," literature of conflict and angst, polarization of arts, transformation of race relations, role of Rock, and influence of domestic politics on foreign relations. Recommended: AFRAM 150; AFRAM 270. Offered: jointly with HSTAA 334.

AFRAM 340 The Harlem Renaissance: A Literary Study (5) VLPA Highlights Harlem Renaissance—1912 through mid-1930s—as establishing a role for twentieth-century African-American writer, encompassing literature, politics, and decolonization of the image of Africa, and solidifying integrationist and nationalist schools of thought. Examines images, themes, and characterizations in creating a literary aesthetic simultaneously American and African-American.

AFRAM 350 The Black Aesthetic (3) VLPA/I&S

AFRAM 358 Literature of Black Americans (5) VLPA *Butler, Moody* Selected writings—novels, short stories, plays, poems—by Afro-American writers. The historical and cultural context within which they evolved. Differences between Afro-American writers and writers of the European-American tradition. Emphasis varies. Offered: jointly with ENGL 358.

AFRAM 370 Afro-American Political Thought (5) I&S Political ideologies and philosophies of pivotal Afro-American historical figures and the conditions under which these ideologies are developed, rejected, and transformed. How ideologies relate to solution of Afro-American political problems.

AFRAM 401 Intermediate Swahili (5) VLPA Readings from prose to traditional poetry. Emphasis on acquiring an ability to manipulate ideas in Swahili. Review of structure. Prerequisite: either AFRAM 308 or AFRAM 309.

AFRAM 402 Intermediate Swahili (5) VLPA Readings from prose to traditional poetry. Emphasis on acquiring an ability to manipulate ideas in Swahili. Review of structure. Prerequisite: AFRAM 401.

AFRAM 403 Intermediate Swahili (5) VLPA Readings from prose to traditional poetry. Emphasis on acquiring an ability to manipulate ideas in Swahili. Review of structure. Prerequisite: AFRAM 402.

AFRAM 437 Blacks in American Law (5) I&S *Walter* Historical continuity for changing relationship between American jurisprudence and Black Americans, 1640-1986. Statutory and case law which determined role of Blacks in American society, and use of law by Blacks to gain civil and personal rights.

AFRAM 490 Research in the Black Community (1-5, max. 10) Identification and investigation of the problems and needs of the Black community. Methods and alternatives of approaching these problems and needs. Students designate their areas of interest and subsequently pursue research and problem solving.

AFRAM 492 Special Topics in Afro-American Studies (3-5, max. 15) I&S Topics in which students and faculty have developed an interest as a result of work done in other classes or as a result of the need to investigate in greater depth Afro-American Studies issues. Topics vary.

Asian-American Studies

AAS 205 Asian-American Cultures (5) I&S Asian-American subcultures; evolution of Asian-American cultures in the United States from 1850 to 1950—immigration patterns, evolution of subcultures, evacuation, interracial relations, assimilation, and signs of social disorganization.

AAS 206 Contemporary Problems of Asian Americans (5) I&S Recent Asian-American issues from 1950 to the present. Topics include ghetto communities, civil rights, identity problems and ethnicity, social organizations, political movements, and recent immigration.

AAS 210 Asian-American Identity (5) I&S Examines the nature of Asian-American identity from a multidisciplinary approach. Explores influences and manifestations of Asian-American identity, using literature, history, and other texts. Topics to include gender issues, interracial relationships, and Amerasians. Recommended: AAS 205; AAS 206.

AAS 220 Asian-American Stereotypes in the Media (5) I&S Asian stereotypes popularized by American literature, film, radio, and television and their effects on Asian American history, psychology, and community.

AAS 350 Chinese American History and Culture (5) I&S Experience of the Chinese in America from 1850 to the present. Transformation from an immigrant to Chinese American community: immigration patterns, anti-Chinese movements, ethnic sociopolitical and economic institutions, community issues, Chinese American culture. Recommended: AAS 205.

AAS 360 Filipino-American History and Culture (5) I&S *Revilla* History and culture of the Filipino in America and the influence of an admixture of Filipino, Spanish, and American traditions on the Filipino immigrant and his or her descendants. Recommended: AAS 205.

AAS 370 Japanese-American History and Culture (5) I&S Historical roots and subsequent changes in the Japanese-American group examined through an interdisciplinary approach. Topics include historical events, culture, values, social and community structures, institutions, occupations, and future orientations. Recommended: AAS 205.

AAS 372 Internment Camps in North America: United States and Canada (5) I&S Comparative study of United States and Canadian internment camps incarcerating Japanese Americans and Japanese Canadians during World War II. Focuses on early history, dislocation and internment, effects (disorganization and adjustments), effects on the internees and society, and present situation.

AAS 380 Asian-American Communities and Social Policies (5) I&S History, culture, social organization, leadership patterns and interethnic relations of Asian-American (Chinese, Filipino, Japanese, and Korean) communities. Origins and impact of social policies relevant to Asian-American communities. Recommended: AAS 205

AAS 385 Asian Americans: The Law and Immigration (5) I&S Traces the evolution of United States immigration law and policy from the nineteenth century to modern day, from free immigration to immigration restriction, through the elimination of race as a criterion, and culmination in the passage of the Simpson-Mezzoli bill. Recommended: AAS 205 or AAS 206.

AAS 390 Asian-American Family and Personality (5) I&S Examines the changes of Asian-American family patterns through successive generations from the late 1800s to the present. The influence of Asian culture, Asian-American experience, family patterns, and racial discrimination examined to understand their impact on the personality of Asian Americans.

AAS 392 Asian-American Women (5) I&S History of and contemporary issues related to Asian-American women in the United States. Recommended: AAS 205 or AAS 206. Offered: jointly with WOMEN 392.

AAS 395 Southeast-Asian Americans: History and Culture (5) I&S

AAS 401 Asian-American Literature to the 1940s (5) VLPA Asian-American literature from nineteenth-century immigrants to the 1940s. Emphasis on Chinese, Japanese, and Filipino writings detailing the experience and sensibility of first generation immigrants. Early twentieth-century writing focus on the development not only of Asian-American community, but also of second generation American-born Asian-American writers. Recommended: AAS 205 or AAS 206.

AAS 402 Contemporary Asian-American Literature (5) VLPA Asian-American literature from the 1940s to the present. Emphasis on the development of attitudes and identities in contemporary Asian-American literature, the role of the writer in a minority culture, and the relationship of literature to self and society.

AAS 403 Survey of Asian-American Poetry (5) VLPA Asian-American poetry, nineteenth century to present. Readings include poetry of the early immigrant to America, cultural imperatives transferred from old world to new world, and establishment of an Asian-American identity in poetry from 1870s through 1890s.

AAS 498 Special Topics (5, max. 10) I&S

AAS 499 Undergraduate Independent Study (1-5, max. 10)

Chicano Studies

CHSTU 180 History of the Chicano People to 1848 (5) I&S *Gil* Historical survey of the Chicano people from pre-Hispanic times to the war between the United States and Mexico. Offered: jointly with HSTAA 180.

CHSTU 200 Latinos in the United States (5) I&S *Gamboa, Salas* Historical, social, and economic experience of Latinos in the United States. Major themes include education, labor, class, and gender identity. Analyzes rapid growth of old and newly established Latino communities, based on emigration from Latin America.

CHSTU 201 Introduction to Chicano Studies (5) I&S *Gamboa, Salas* Selected themes in Chicano experience; studies in Chicano politics and Chicano socioeconomic concerns.

CHSTU 254 History of Chicanos in Washington State (5) I&S *Gamboa* History, extent, and results of the Chicano presence from earliest Spanish explorations to the present; contemporary problems of Chicanos in a broader national context.

CHSTU 255 Mexican Women: Past and Present (5) I&S *Salas* Survey of women in Mexican society from Meso-American times to the 1940s.

CHSTU 256 Chicanas: Gender and Race Issues (5) I&S *Salas* Contemporary issues in the Chicana movement since the 1940s. Issues range from feminism and Chicana political, educational, and social organizations, to work, family, health, and the arts.

CHSTU 260 Introduction to Chicano Politics (5) I&S Surveys the political position and activities of Mexican-American peoples in the United States from two perspectives: (1) Chicanos as objects of the political process of United States life, (2) contributions of the Chicano people to United States politics.

CHSTU 330 Chicanos Themselves (5) I&S Explores the issue of Chicano, or Mexican-American, identity. Examines statements of selfhood by Chicanos, studied in order to understand the relationship between individual and society in creating identity.

CHSTU 352 Mexican Immigration: A Comparative Analysis (5) I&S *Gamboa, Salas* Examines and compares constant Mexican immigration with that of other immigrants to the United States as one of the most important issues confronting Chicanos and other Americans in the United States.

CHSTU 354 Latinos in the United States Labor Market (5) I&S Role of Mexican American, Puerto Rican, Cuban American, Central and South American wage earners in United States labor market. Institutional approach to study of markets. Analyzes effects of educational system, market discrimination, labor unions on economic outcomes for Latino men and women.

CHSTU 356 The Chicano Family (5) I&S *Salas* The historical, psycho-social, and sociocultural role of the Chicano family from Meso-American times to the present.

CHSTU 391 Independent Study (1-6, max. 10) *Gamboa, Olguin, Salas* Students work individually or in teams.

CHSTU 405 Advanced Chicano Studies (5) I&S *Gamboa* Chicano culture as related to current values and health practices, Mexican labor and immigration in both historical and contemporary setting. Chicano politics 1848 to present. Recurrent problems of Chicanos in society; social movement for acceptance and for self-determination.

CHSTU 491 Special Topics in Chicano Studies (3-5, max. 10) I&S *Gamboa, Olguin, Salas* Interdisciplinary course concentrating on one or more aspects of the Chicano experience.

American Indian Studies

C514 Padelford



General Catalog Web page:
www.washington.edu/students/genocat/academic/amer_indian.html



Department Web page:
depts.washington.edu/native/

American Indian Studies surveys Indian cultural developments in art, music, history, medicine, media and film, language, and literature and offers performance and studio experience. Other courses explore the historical and contemporary interaction of Indians in American society and the application of social-science theories to Indian societies and institutions. Since American Indians have been an integral part of the historical, cultural, and legal development of this country, these courses provide students an opportunity to broaden their understanding of their ethnic origins.

Undergraduate Program

Adviser
Patricia Duke
C514 Padelford, Box 354305
(206) 543-9082

The American Indian Studies Center offers courses leading to a Bachelor of Arts through the General Studies program, as well as a minor. These courses focus on American Indian cultures, perspectives, and problems, with the goal of enriching the liberal education of the general student. The curriculum offers courses in the humanities and social sciences.

Student Associations:

American Indians in Science and Engineering Society (AISES), UW Chapter Office: Ethnic Cultural Center and 207 Lowe Hall (MSEP), (206) 543-5536 or 685-8688.

First Nations at the UW, Office: Ethnic Cultural Center, American Indian Room, (206) 543-4635, ext. 12.

Medicine Wheel Society, Office: Ethnic Cultural Center and School of Medicine

Native American Scholars in Advanced Academia

Native American Law Student Association

Major Requirements: A major emphasizing American Indian Studies is available through the General Studies program. All AIS courses may count toward that major. No more than 6 credits of any combination of AIS 253 and AIS 350 may be counted toward the major.

Minor

Minor Requirements: Minimum 25 credits to include 10 credits of introductory course work in American Indian studies; 9-15 credits of course work on Native American ethnology, archaeology, history, or governmental relations; and 6-10 credits of course work in art, art history, music, or literature. See adviser for approved course options.

Faculty

Chair

Tom G. Colonnese

Professors

Hart, Daniel 1999; MFA, 1985, Temple University; visual anthropology.

Witherspoon, Gary J. * 1987; PhD, 1970, University of Chicago; language, art, and history; Indians of the Southwest.

Associate Professors

Colonnese, Tom G. 1993; PhD, 1981, Arizona State University; American Indian novel, military history, and contemporary issues.

Oliver, Marvin E. 1974; MFA, 1973, University of Washington; Northwest coast Indian art, Native American art, wood design, glass, metals.

Assistant Professor

Harmon, Alexandra J. * 1991; PhD, 1995, University of Washington; history of U.S. race relations, American Indians, and legal culture.

Lecturer

Wright, Mary C. 1997; PhD, 1996, Rutgers University; history of the Pacific Northwest Indians.

Course Descriptions

See page 48 for an explanation of course numbers, symbols, and abbreviations.

For current course descriptions, visit the online course catalog at www.washington.edu/students/crsat/.

AIS 110 Musical Traditions of Native North America (3) VLPA Utilizes historical and contemporary sources to survey the music and music-related traditions of Native North America. Examines traditional music and context from the Northwest Coast, Arctic, Southwest, Great Basin, Plains, Plateau,

California, and Eastern Woodlands music-style areas, as well as contemporary neo-traditional and popular genres of American Indian music.

AIS 113 American Indian Language: Navajo (5) Witherspoon Conversation, reading, and writing in Navajo. Oral literature and other aspects of Navajo culture integrated into language study.

AIS 114 American Indian Language: Navajo (5) Witherspoon Conversation, reading, and writing in Navajo. Oral literature and other aspects of Navajo culture integrated into language study. Prerequisite: AIS 113.

AIS 115 American Indian Language: Navajo (5) Witherspoon Conversation, reading, and writing in Navajo. Oral literature and other aspects of Navajo culture integrated into language study. Prerequisite: AIS 114.

AIS 201 Introduction: Ethnohistory of Native North America (5) I&S *Harmon* Survey of histories of Indians in the U. S. from native perspectives. Presents traditional creation accounts and oral histories, archaeological, and historical evidence. Focus is cultural dynamics, considering change and continuity through prehistoric, protohistoric, colonial, and American periods.

AIS 202 Introduction to Contemporary Experience in Indian America (5) I&S Survey of contemporary Native-American people, cultures, and issues. Focus on modern experiences through readings from Native-American autobiographies, contemporary narratives and literature, and reports of important topical issues, e.g., water rights, Indian gaming, treaty law.

AIS 203 Introduction: Philosophical and Aesthetic Universes (5) I&S Social constructions of reality, aesthetic as well as philosophic, as conceptualized by approximately five traditional American Indian cultures from different regions of North America.

AIS 253 Wood Design (3, max. 9) VLPA *Oliver* Studio course in wood sculpture utilizing Pacific Northwest Indian hand tools. Properties of woods and their uses.

AIS 311 North American Indians: Pacific Northwest (5) I&S Traditional societies of the Pacific Northwest from southern Alaska to northern California; significant areal features, such as rank, totemic crests, guardian spirits, the potlatch, fishing, and foraging illustrated by comparisons and by selected ethnographic sketches. Continuity between past and present. Recommended: ANTH 100 or ANTH 202.

AIS 312 North American Indians: The Intermountain West (5) I&S Traditional cultures of Columbia and Fraser Plateau region and Great Basin: Interior Salish, Sahaptin and Nez Perce, Paiute, and their neighbors. Regional features of language, ecology, social life, myth, religion. Contemporary issues of reservation life, government, ethnic conflict in historical perspective. Recommended: ANTH 100 or ANTH 202.

AIS 316 North American Indians: The Southeast to 1850 (5) I&S Emphasis on prehistory, social organization, belief system, political alliances. European contact, effects of plantation slavery and slave trade on Indians, issues of ethnicity, and consequences of removal policies.

AIS 317 North American Indians: The Southwest (5) I&S *Witherspoon* Overview of history and ethnography of the Southwest with emphasis on Apaches, Pueblos, and Pimans/Yumans. Social organization, religion, worldview, and expressive culture of such specific groups as Navajo, Hopi, Zuni, Tewa, and Tohono O'odham.

AIS 330 United States-Indian Relations (5) I&S *Harmon* History of relations between American Indians and non-Indians in the U. S. with emphasis on

national laws and policies. Examines origins and impacts of Indians' and non-Indians' strategies for dealing with each other, historical reasons for Indians' contemporary conditions and status.

AIS 335 American Indians and the Law (5) I&S *Harmon* History of laws governing American Indians: aboriginal law systems, U. S. laws, and contemporary tribal laws. Effects of laws and legal institutions on contemporary Indian identity and tribal status, self-government, land ownership and use, natural resources, religion, family life, cultural and spiritual practices, crimes and punishment, and federal responsibilities for Indians.

AIS 340 Indian Children and Families (5) I&S Cross-cultural survey of Indian child rearing, family structure, and related social issues. Includes historical changes in family structure, value orientation and adaptation to a bicultural environment, education, child welfare, health problems, and aging.

AIS 342 Pueblo Indian Women of the American Southwest (5) I&S *Jacobs* Examination of historical, archaeological, and anthropological writings about Native women of Pueblo homelands in New Mexico and Arizona. Emphasis on contemporary lives in modern upper Rio Grande Tewa Pueblos. Recommended: WOMEN 200; either AIS 201, AIS 202, AIS 240, AIS 317, WOMEN 353, or ANTH 353. Offered: jointly with WOMEN 342; Sp.

AIS 350 Two-Dimensional Art of the Northwest Coast Indians (3, max. 9) VLPA *Oliver* Studio course emphasizes principles of structure and style of two-dimensional art which can be found on many old, traditional Northwest Coast pieces, such as painted storage boxes and chests, house panels, and ceremonial screens. Students apply these principles in creating a variety of graphic projects.

AIS 377 Contemporary American Indian Literature (5) VLPA *Colonnese* Creative writings—novels, short stories, poems—of contemporary Indian authors; the traditions out of which these works evolved. Differences between Indian writers and writers of the dominant European/American mainstream. Offered: jointly with ENGL 359.

AIS 425 Indians in Western Washington History (3) I&S *Harmon* Relations of Indians and non-Indians in the Puget Sound region, from the 1790s to the present, with emphasis on evolving ideas about Indian identity. Offered: jointly with HSTAA 417.

AIS 431 History of American Indian Education (5) I&S Traditional and European-introduced methods of schooling, the federal role in Indian education, and contemporary Indian education issues. Special attention to Indian concepts of learning; boarding school education; the role of the Bureau of Indian Affairs; current trends in bilingual and bicultural education for Indians.

AIS 440 Reading Native American Women's Lives (5, max. 10) I&S *Jacobs, Ross* Seminar based on social science writings, autobiographies, biographies, and fiction written by, with, or about indigenous women of the United States and Canada. Prerequisite: either WOMEN 342, WOMEN 423, AIS 201, AIS 330, or AIS 423. Offered: jointly with WOMEN 440.

AIS 442 Images of Natives in the Cinema and Popular Cultures (5) I&S/VLPA *Ross* Cultural examination of images of native people in cinema and popular culture based on social science writings and films by or about natives in the United States and Canada. Offered: jointly with WOMEN 442. Prerequisite: AIS 330 and WOMEN 200.

AIS 450 American Indian Song and Dance Tradition: Performance (3) VLPA Performance of various American Indian social dances, songs, and games. In-depth study of various American Indian vocal styles.

AIS 469 Special Studies in American Indians (3, max. 6) I&S Delineation and analysis of a specific problem or related problems in American Indian Studies. Offered occasionally by visitors or resident faculty.

AIS 475 Special Topics in Indian Studies (1-5, max. 15) I&S Current research and readings in American Indian Studies content areas.

AIS 499 Independent Study (1-5, max. 15) Readings and/or research under faculty supervision.

Anthropology

M32 Denny



General Catalog Web page:
www.washington.edu/students/gencat/academic/anthropology.html



Department Web page:
www.anthro.washington.edu

Anthropology is a discipline committed to describing, interpreting, and explaining the historical, biological, and cultural diversity of the human species. This covers our species' evolutionary origins as well as our continual evolution through many millennia of biocultural microevolution. It also covers more recent sociocultural changes up through the current global flux in population, genes, languages, practices, and identities. Anthropology's unique contribution to the human sciences and humanities is its expansive scope—temporally and spatially—in studying the human species.

Undergraduate Program

Director of Student Services
Diane J. Guerra
243 Denny, Box 353100
(206) 543-7772

The Department of Anthropology offers a program of study leading to a Bachelor of Arts, as well as a minor. In studying anthropology, students can learn about the range of human situations in the world today. They can better understand how to find ways to live together in today's world of some six billion people, respecting profound human differences of outlook while building upon common human values. A degree in anthropology can be of value in many ways. An undergraduate degree prepares students for many positions that involve working with people, as well as for academic studies in a variety of fields.

Bachelor of Arts

Admission: Students in good academic standing may declare this major at any time.

Suggested Introductory Course Work: Any two of the following: ANTH 202, 203, 204, 206, 207, 208, 209, or 210; ARCHY 205; BIO A 201; at least one from STAT 220, 311, or Q SCI 381.

Additional Information: ANTH 100, BIO A 100, and ARCHY 105 count as Areas of Knowledge and not as part of the anthropology major.

Major Requirements: 55 credits to include 25 credits of core courses (ARCHY 205, BIO A 201; any two ANTH courses numbered 200 through 210; and one of the following: STAT 220, STAT 311, Q SCI 381); and 30 additional credits in anthropology (ANTH, BIO A or ARCHY) of which 20 credits must be at the 300 or 400 level. Certain AIS courses may apply toward this requirement. See departmental adviser for list. At least 25 credits in the major must be with a minimum grade of 3.0. Courses at the 100 level and courses with a grade

of 1.9 or less do not count toward the major. Transfer students must complete a minimum of 15 upper-division credits in anthropology at the UW.

Minor

Minor Requirements: 30 credits (at least 15 credits at upper-division level) from courses with the following prefixes: ANTH, ARCHY, BIO A. (Certain AIS courses may apply toward this requirement. See departmental adviser for list.) Minimum grade of 2.0 required in each course.

Graduate Program

For information on the Department of Anthropology's graduate program, see the graduate and professional volume of the *General Catalog* or visit the *General Catalog* online at www.washington.edu/students/gencat/.

Faculty

Chair

Miriam Kahn

Professors

Chrisman, Noel J. * 1973, (Adjunct); PhD, 1966, University of California (Berkeley); community partnership research, clinical cultural competence, ethnic health beliefs and practices.

Dunnell, Robert C. * 1967, (Emeritus); PhD, 1967, Yale University; archeological theory, field method, eastern North America.

Grayson, Donald K. * 1975; PhD, 1973, University of Oregon; North American prehistory, paleoecology, European paleolithic, zooarchaeology.

Harrell, Stevan * 1974; PhD, 1974, Stanford University; family systems, demography, ethnicity, social evolution, religion, China, Taiwan.

Hunn, Eugene S. * 1972; PhD, 1973, University of California (Berkeley); cognitive anthropology, ethnobiology, cultural ecology and evolution, Mexico, North American Indians.

Hutterer, Karl L. * 1990; PhD, 1973, University of Hawaii; prehistory, ethnology of Southeast Asia, East Asia.

Jacobs, Sue-Ellen * 1974, (Adjunct); PhD, 1970, University of Colorado (Boulder); anthropological studies of women, applied anthropology, ethnohistory, Native North America.

Keyes, Charles F. * 1965; PhD, 1965, Cornell University; ethnic group relations, sociology of Theravada Buddhism, mainland Southeast Asia.

Lockard, Joan S. * 1962, (Adjunct); PhD, 1963, University of Wisconsin; primate social behavior, animal behavior, sociobiology, human ethology, neurobehavior.

Miller, Marc * 1979, (Adjunct); PhD, 1974, University of California (Irvine); maritime anthropology, cognitive anthropology, tourism, and social/cultural change.

Muecke, Marjorie A. * 1979, (Adjunct); PhD, 1976, University of Washington; medical anthropology, women's health, refugee health, Southeast Asia.

Nason, James * 1970; PhD, 1970, University of Washington; sociocultural anthropology, museology, material culture, cultural heritage, Micronesia, North America.

Newell, Laura L. * 1957; PhD, 1967, University of Washington; primatology growth and development, human biology, evolutionary aspects of dermatoglyphics.

Nute, Peter E. * 1970, (Emeritus); PhD, 1969, Duke University; genetics and evolution.

Pena, Devon G. * 1999, (Acting); PhD, 1983, University of Texas (Austin); agroecology, bioregionalism, social movements, labor process theory.

Smith, Eric A. * 1980; PhD, 1980, Cornell University; ecology, environmental studies, evolutionary theory, hunter-gatherers, demography, Native Americans.

Spain, David H. * 1968; PhD, 1969, Northwestern University; psychocultural anthropology, African studies, research methods.

Stein, Julie K. * 1980; MA, 1976, PhD, 1980, University of Minnesota; New World archaeology, Northwest coast archaeology, geoarchaeology, shell middens.

Wenke, Robert J. * 1975; PhD, 1975, University of Michigan; archaeology of Egypt, the Middle East, and quantitative methods.

Winans, Edgar V. * 1957, (Emeritus); PhD, 1959, University of California (Los Angeles); politics, economics and law, Africa, the developing world.

Witherspoon, Gary J. * 1987; PhD, 1970, University of Chicago; language, art, and history; Indians of the Southwest.

Associate Professors

Anagnost, Ann S. * 1990; PhD, 1985, University of Michigan; ethnography of the state, ideology and popular culture, peasant society; China.

Close, Angela E. * 1995; MA, 1974, PhD, 1976, Cambridge University (UK); prehistory of North Africa, lithics, paleolithic.

Eck, Gerald G. * 1974; PhD, 1977, University of California (Berkeley); primate paleontology, especially African Pliocene-Pleistocene monkeys and hominids.

Ellingson, Terry J. * 1983, (Adjunct); PhD, 1979, University of Wisconsin; MA, 1979, University of Chicago; ethnomusicology.

Feathers, James K. * 1983, (Research); PhD, 1990, University of Washington; luminescence dating of sediments and pottery from archaeological sites.

Horn, Beverly M. * 1976, (Adjunct); PhD, 1975, University of Washington; cross-cultural research in maternal-child nursing.

Kahn, Miriam * 1986; PhD, 1980, Bryn Mawr College; cultural representations, museums, concepts of place, Melanisia, Polynesia.

Leonetti, Donna * 1978; PhD, 1976, University of Washington; biological and sociocultural interactions in adaptation demography, epidemiology, Japanese Americans.

Posner, Karen L. 1986, (Adjunct Research); PhD, 1990, University of Washington.

Rhodes, Lorna A. * 1983; PhD, 1973, Cornell University; medical anthropology, anthropology of institutions, religion, psychiatry.

Sorensen, Clark W. * 1989, (Adjunct); PhD, 1981, University of Washington; Korea, social change in East Asia, development, ethnic identity.

Twine, France Winddance 1994, (Adjunct); MA, 1990, PhD, 1994, University of California (Berkeley); critical race feminisms, racism/antiracism, whiteness studies, multiracial families, Brazil, Britain.

Assistant Professors

Bilaniuk, Laada M. 1997; PhD, 1998, University of Michigan; linguistic anthropology.

Ferguson, G. (Jack) 1998; PhD, 1997, Stanford University; sociocultural anthropology.

Fitzhugh, J. Ben * 1997; PhD, 1996, University of Michigan; archaeology, evolutionary ecology, archaeological method and theory, arctic/subarctic, Alaska.

Holman, Darryl J. * 1999; MS, 1990, University of Wisconsin; PhD, 1996, Pennsylvania State University; human reproductive ecology, paleodemography.

Kyes, Randall C. * 1993, (Adjunct Research); PhD, 1989, University of Georgia; animal behavior, primate behavior and cognition, conservation biology.

Lowe, Celia 1999; PhD, 2000, Yale University; environment, identity, representation, science studies, insular southeast Asia.

McGrath, Barbara B. * 1987, (Research); PhD, 1993, University of Washington; medical anthropology, illness knowledge and practice, US Pacific Islander populations, HIV/AIDS.

O'Connor, Kathleen A. * 1999; MS, 1987, PhD, 1995, State University of New York (Albany); biodemography, human reproductive biology and ecology, mortality, fertility.

Shell-Duncan, Bettina * 1995; MS, 1988, University of Wisconsin; PhD, 1994, Pennsylvania State University; nutrition, maternal and child health, demography, Africa.

Sivaramakrishnan, K. 1999; MS, 1991, MPhil, 1993, PhD, 1996, Yale University; environmental anthropology, agrarian studies, technology studies, South Asia.

Taylor, Janelle S. * 1999; PhD, 1999, University of Chicago; anthropology of medicine, science, and technology; reproduction; gender; consumption.

Senior Lecturer

Green, James W. * 1975; PhD, 1972, University of Washington; mental health, death studies, comparative aging, religion, West Indies, Pakistan.

Course Descriptions

See page 48 for an explanation of course numbers, symbols, and abbreviations.

For graduate-level course descriptions, see the graduate and professional study volume of the *General Catalog* or visit the online course catalog at www.washington.edu/students/crscat/.

General

ANTH 100 Introduction to Anthropology (5) I&S Introduction to the subfields of archaeology, biocultural anthropology, and sociocultural anthropology through the examination of selected problems in human physical, cultural, and social evolution. Not recommended for students who have had other courses in anthropology, archaeology, or biocultural anthropology. May not be counted toward the 55 credits required for the major in anthropology. Offered: AWSp.

Sociocultural Anthropology

ANTH 202 Principles of Sociocultural Anthropology (5) I&S Comparison of lifeways of various non-Western and Western peoples. Introduction to basic theories and methods used in the field.

ANTH 203 Introduction to Anthropological Linguistics (5) VLPA/I&S Linguistic methods and theories used within anthropology. Basic structural features of language; human language and animal communication compared; evidence for the innate nature of language. Language and culture: linguistic relativism, ethnography of communication, sociolinguistics. Language and nationalism, language politics in the U.S. and elsewhere. Offered: jointly with LING 203.

ANTH 204 Reading Ethnography (5) I&S Introduction to the descriptive and analytic literature of cultural anthropology. Extended examination of representative accounts of the lifeway of peoples from selected areas of the world with an emphasis on methods of observation and analysis.

ANTH 206 The Cultural Animal (5) I&S/NW Examination of the interaction between biology and culture in shaping human social behavior. Basic principles of natural selection, gene-environment interaction, cultural transmission, learning, and cultural evolution; application of these to various topics, including gender, violence, politics, kinship, and religion.

ANTH 207 Class and Culture in America (5) I&S Anthropological view of the contemporary United States with emphasis on social class. Through ethnographic readings examines education, work, political economy, working class experience and the ideology of the middle class, and relations between class and race, gender, ethnicity, language, place, sexuality, and culture.

ANTH 208 The Culture Concept (5) I&S History of the culture concept and its use in the field of cultural anthropology. History of its emergence in European colonial expansion and contemporary debates about its place as the central concept defining the field of anthropology.

ANTH 209 Anthropology Through Visual Media (5) VLPA/I&S Theories of culture and cultural variation, as seen and understood through visual media such as films, video, and photography.

ANTH 210 Introduction to Environmental Anthropology (5) I&S Introduction to human/environment interactions from various anthropological perspectives. Intellectual history of anthropological approaches to environment, emphasizing the mutual interconnectedness of people and nature. Survey of evolutionary models; cultural ecology; systems approaches; indigenous knowledge; ethnoecology; nature and the state; political ecology; ecofeminism; and environmentalism.

ANTH 301 Human Nature and Culture (3) I&S Comparison of various anthropological perspectives on the sources of variation in customs, values, and beliefs of human groups, including non-Western peoples and contemporary Americans.

ANTH 305 Anthropology of the Body (5) I&S Biosociocultural approach to the human body as universal object-and-agency-for human minds. How cross-cultural contrasts in ways of construing the body affect self-regard and social interaction. Body shapes, sizes, colors, exudates, signals, symbolism, esthetics, metaphysics, rituals, lore, and politics.

ANTH 306 Representations of the Pacific Islands and Islanders (3) VLPA/I&S Kahn Explores written texts and visual images about the Pacific Islands and Islanders in an effort to understand the power of representation and its relationship to the construction of knowledge. Examples drawn from early explorers, artists, novelists, anthropologists, the tourist industry, and Pacific Islanders.

ANTH 310 Native North American Societies (5) I&S Smith Traditional cultures of America north of Mexico, emphasizing diversity of North American Indian and Eskimo societies. Origins of Native-American culture areas and language groupings; subsistence systems; levels of social organization; European conquest and colonialism; and description of representative cultures from the ten culture areas. Recommended: ANTH 100.

ANTH 313 Peoples of Africa (5) I&S Survey of the many cultures of pre- and post-colonial sub-Saharan Africa. Appreciation of the adaptability, strength, and creativity of African peoples. Recommended: ANTH 100.

ANTH 314 Culture, Environment, and Identity of Island Southeast Asia (5) I&S Lowe Anthropological study of colonial and post-colonial contexts of Island Southeast Asia. Emphasis on historical legacies, influence of world religions, formation of national and collective identities, revolution and national politics, and modernities. Prerequisite: either one 200-level ANTH course, LING 203, or one SIS course. Offered: jointly with SISSE 314.

ANTH 315 Southeast Asian Civilization: Buddhist and Vietnamese (5) I&S *Keyes* Civilizations of Theravada Buddhist societies in Burma, Thailand, Cambodia, and Laos and in Vietnamese societies of Southeast Asia. Culture of tribal peoples who live on peripheries of these societies. Cultural transformations consequent upon the war in Indochina and resettlement of Indochinese refugees in United States. Offered: jointly with SISSE 315.

ANTH 316 South Asia (3) I&S Major cultural features of the Indian and Pakistan subcontinent

ANTH 317 Anthropology of Tibetan Civilization (5) I&S Introduces the basic features of Tibetan society and culture, exploring how the global debate over Tibet's past, present, and future relates to contemporary concerns in anthropology, through the examination of Tibetan history, social and political organization, religion, and other cultural themes in both traditional and contemporary contexts.

ANTH 318 Peoples and Cultures of the Islamic Middle East (3) I&S Survey of cultures and peoples of Islamic Middle East and North Africa. First half of the course emphasizes the integration of peasant, urban, and nomadic societies in the traditional culture and economy; the second half concentrates on the transformation of the traditional life styles through the process of westernization and modernization.

ANTH 321 Introduction to the Anthropological Study of Religion (3) I&S Comparative study of religion as approached by anthropologists. Primarily for non-anthropology majors.

ANTH 322 Comparative Study of Death (5) I&S Death analyzed from a cross-cultural perspective. Topics include funerary practices, concepts of the soul and afterlife, cultural variations in grief, cemeteries as folk art, and medical and ethical issues in comparative context. American death practices compared to those of other cultures. Offered: jointly with RELIG 320.

ANTH 331 Northwest Coast Indian Art (5) VLP/ I&S Native-American art of the Pacific Northwest Coast from precontact to the present, from the Columbia River in the south to Southeast Alaska in the north. Differences in tribal styles and social function; changes occurring over time as the result of sharing between tribal groups and the impact of the arrival of Europeans. Offered: jointly with ART H 331.

ANTH 345 Women and International Economic Development (5) I&S *Ramamurthy* Questions how women are affected by economic development in Third World and celebrates redefinitions of what development means. Theoretical perspectives and methods to interrogate gender and development policies introduced. Current processes of globalization and potential for changing gender and economic inequalities assessed. Offered: jointly with SIS 345/ WOMEN 345.

ANTH 351 Women of the African Diaspora (5) I&S *Twine* Cross-cultural comparative analysis of African descent women in an international context. Topics include racism, post-colonialism, immigration, occupational segregation, transnational identities, and media representations. Prerequisite: WOMEN 200. Offered: jointly with WOMEN 351.

ANTH 352 Buddhism and Society: The Theravada Buddhist Tradition in South and Southeast Asia (5) I&S Introduction to the religious tradition of Theravada Buddhism (as practiced in Sri Lanka, Burma, Thailand, Laos, and Cambodia) and examination of the variations in ethical orientations developed through Theravada Buddhist ideas. Recommended: RELIG 202 or one eastern religions course. Offered: jointly with RELIG 350.

ANTH 353 Anthropological Studies of Women (5) I&S Critical examination of the intersections between anthropology, research on gender issues, and femi-

nism. Readings and class discussions examine the ways women have been represented in the field of anthropology and the repercussions of these anthropological images of women on contemporary understandings of gender. Offered: jointly with WOMEN 353.

ANTH 354 The Comparative Study of Societies (5) I&S Compares entire societies at various levels of technological complexity to explore problems of their development and structural organization. Examines both historical and contemporary, and Western and non-Western societies. Offered: jointly with SOC 354.

ANTH 355 Aging in Crosscultural Perspective (3) I&S Survey of strategies for dealing with the fact of aging in various sociocultural systems. Relates the varieties of cultural solutions to the theories on aging, drawn from psychology and medicine, with emphasis on non-Western societies. Prerequisite: one 200-level ANTH course or LING 203.

ANTH 356 Visual Anthropology (3) I&S The place of photography and films in ethnography; their use in the documentation and interpretation of cultural and social systems.

ANTH 358 Culture and Cognition (5) I&S/NW Surveys anthropological theories and research on the relationship between language, thought, and behavior. Examines the influence of cultural inheritance on perception, classification, inference, and choice. Describes relevant cross-cultural research methods and evaluates theoretical models used by cognitive anthropologists. Prerequisite: either ANTH 203, LING 203, or PSYCH 355.

ANTH 359 Linguistic Ethnography (5) I&S Language use in cultural contexts. How language reflects world view. Language use in culturally significant settings. Analyzes sets of culturally specific terms in semantic domains. Includes projects demonstrating application of theory and method to data addressing specific problems. Workshop format.

ANTH 362 Anthropology of Tourism (5) I&S *Kahn* Anthropological approaches to tourism. Debates about cultural encounters and cultural change, authenticity, economic development, social inequalities, identity, gender, ethnicity, nationality, and cultural representation. Prerequisite: one 200-level ANTH course.

ANTH 370 Han Chinese Society and Culture (5) I&S *Anagnost, Harrell* Themes in the society and culture of the Han Chinese people. Concepts of self; personal interaction; family, gender, and marriage; communities and the state; religion and ritual; class, social categories, and social mobility; culturalism, nationalism, and patriotism. Offered: jointly with SISEA 370.

ANTH 371 Anthropology of Development (5) I&S *Sivaramakrishnan* Development refers to social, economic, cultural, political transformations viewed as progress. Studied from anthropological perspectives. Historical, social context for emergence of ideas of development. Role of development in promoting national cultures. Impact of development on individual citizenship, families, rural-urban relations, workers, business, environment. Prerequisite: one 200-level ANTH course.

ANTH 375 Comparative Systems of Healing (3) I&S Introduction to the anthropological study of healing. Examines four healing traditions and addresses their similarities and differences. Includes anthropological theories of healing and religion.

ANTH 399 Junior Honors Seminar (5) I&S Teaches skills required to write senior honors thesis, including evaluation of academic and scientific writing, formulation of problem, collection of bibliographic and other resources, evaluation of research proposals, and research proposal preparation. Final product is a formal thesis prospectus.

ANTH 401 West African Societies (3) I&S Social and cultural features of coastal and interior West African societies, including the Western Sudan. Detailed study of selected societies. Prerequisite: one 200-level ANTH course or LING 203.

ANTH 402 Societies of Eastern and Southern Africa (5) I&S Historical background and contemporary life of cultural groups in eastern and southern Africa with special study of selected cases of political and economic organization and cultural change. Prerequisite: one 200-level ANTH course or LING 203.

ANTH 404 South America (5) I&S Survey of anthropological research among the traditional peoples of South America. Historical background and contemporary life of cultural groups of the Amazonian Basin. Transformation of traditional life-styles through the process of European conquest and the aftermath of colonialism. Detailed study of selected societies. Prerequisite: one 200-level ANTH course or LING 203.

ANTH 412 South Asian Social Structure (5) I&S Caste class, and community in modern India. Transitions from colonial typology to analysis of social change, diversity, stability, and caste hierarchy in rural society. Current debates on class and community in Indian society, rural and urban, explored through themes of identity, structure, and mobility. Prerequisite: one 200-level ANTH course.

ANTH 418 Indian Heritage of Mexico and Central America (5) I&S Indian civilization of Mexico and Guatemala, their origins and ecological foundations. Contemporary communities of Mexico and Guatemala, focusing on creative adaptation of pre-Columbian traditions to modern national realities. Prerequisite: one 200-level ANTH course or LING 203.

ANTH 420 Psychoanalysis and the Study of Culture (3) I&S *Spain* Anthropological use of theories developed by Freud to understand culture. Reviews psychoanalytic theory as a foundation for examining the work of Roheim, LaBarre, Devereaux, Kardiner, and Spiro, among others. Topics covered include the universality of oedipality and the utility of psychoanalysis in non-Western cultures.

ANTH 421 Belief, Ritual, and the Structure of Religion (5) I&S Systematic survey of concepts, models, and theories that characterize the anthropological study of religion. Consideration of the human universal basis of religion and of diverse ways in which religions are constructed and related to social experience. Prerequisite: either ANTH 321 or RELIG 201; RELIG 202.

ANTH 423 Traffic Across Cultural Boundaries (5) I&S Focuses on the movement of cultural patterns and processes across boundaries, examining the "contact zones" in colonial encounters, moving to borrowing and blendings along ethnic and national borders. Examines border crossing of immigration and diasporas. Ethnographic examples from the Americas and Africa. Prerequisite: one 200-level ANTH course.

ANTH 424 Hunter-Gatherer Societies (4) I&S Comparative examination of human foraging societies, emphasizing ethnographic cases and socioecological analysis. Foraging and human evolution; rationality of foraging societies; population and reproductive strategies; variability in social organization and land use; power relations between the sexes; ritual and belief; contemporary status of hunter-gatherer populations. Prerequisite: one 200-level ANTH course or LING 203.

ANTH 425 Anthropology of the Post-Soviet States (5) I&S Analysis of Soviet and post-Soviet culture and identity. Historical transformations in Soviet approaches to ethnicity and nationality; contemporary processes of nationbuilding and interethnic conflict. Examination of culture through the intersection of social ritual, government policies, language, economic practices, and daily life. Regional focus will vary. Offered: jointly with SISRE 425.

ANTH 427 Anthropology in Urban Settings (3) I&S

Cross-cultural examination of theoretical issues in anthropology as studied in urban places. Focuses on ethnic identity and the formation of urban ethnic groups; migration and its rural and urban consequences; family and kinship organization as an adaptation to urban complexity; the nature of urban voluntary associations; law and politics; and the developments in anthropological method. Prerequisite: one 200-level ANTH course or LING 203.

ANTH 428 Anthropological Perspectives on Ethnicity (5) I&S

Anthropological approaches to ethnicity and ethnic group relations with reference to other models including race, caste, class, regional groupings, nations, religion, and stratification. Data drawn from precolonial, colonial, and postcolonial periods. Prerequisite: one 200-level ANTH course or LING 203.

ANTH 429 Expressive Culture (5) VLPA Anthropological view of one expressive aspect of culture: plastic and graphic arts, myth and folktale, music, dance, humor and tragedy, or play and games. Prerequisite: one 200-level ANTH course or LING 203.

ANTH 430 The Anthropology of Music (3) VLPA/I&S Analysis of aspects of anthropological thought influential in ethnomusicology. Critical evaluation of dominant theoretical schools and modes of explanation, e.g., evolutionist, diffusionist, historical particularist, structuralist, functionalist, symbolist, and semiotic, through detailed examination of seminal texts. Offered: jointly with MUSIC 480; alternate years.

ANTH 431 Oral Traditions (5) VLPA Oral traditions and verbal expression, examined anthropologically and in relation to student interests. Critical examination of relevant theories and methods of analysis. Recommended: ANTH 100.

ANTH 432 Sociolinguistics I (5) VLPA/I&S Social variation in the phonology, morphology, syntax, lexicon of languages and dialects. Nonstandard language, diglossia, pidgins and creoles, gender differences, bi- and multilingualism, ethnography of speaking, pragmatics, and language attitudes. Prerequisite: LING 400; recommended: prior or concurrent registration in ANTH 451 or LING 451. Offered: jointly with LING 432.

ANTH 433 Sociolinguistics II (3) VLPA/I&S *Wassink* Examines field methods linguists use in socially oriented studies of language variation and change. Students learn to target and design interviews appropriate for eliciting specific kinds of linguistic data. Discussion of issues related to recording, ethics, and analysis of large bodies of data. Prerequisite: LING 432. Offered: jointly with LING 434.

ANTH 434 Comparative Morals and Value Systems (3) I&S Moral basis of human society and comparison of value systems based on anthropological studies. Prerequisite: one 200-level ANTH course or LING 203.

ANTH 435 Economic Anthropology (5) I&S Chief features of nonmonetary and simple monetary economics. Impact of central or metropolitan market economy and industrial technology as peripheral systems, especially of small-scale and limited monetary circulation. Development and application in anthropology of economic concepts, including Marxian. Prerequisite: one 200-level ANTH course or LING 203.

ANTH 436 Comparative Family Organization (5) I&S Function and structure of family developmental processes in band, tribal, peasant, and modern societies. Illustrates inter- and intrasocietal variation and provides data for construction of formal models of process and variation in family systems. Prerequisite: either one 200-level ANTH course, LING 203, or SOC 352.

ANTH 437 Political Anthropology and Social Change (5) I&S

Sivaramakrishnan Study of politics from different anthropological perspectives, especially processual approaches to political change. Focused examination of cultural aspects of modern state formation in local and regional contexts. Themes: colonialism and nationalism, regime and transitions, local politics and global processes, social construction of bureaucracy. Prerequisite: one 200-level ANTH course.

ANTH 438 The Analysis of Kinship Systems (5) I&S

Data, theories, and analytical technique used in the study of kinship systems, including our own, from around the world. Prerequisite: one 200-level ANTH course or LING 203.

ANTH 440 Child Rearing, Culture, and Health (3) I&S

Cross-cultural study of the child-rearing practices, cultural norms, and health behavior of children and adolescents in different societies. Comparative approaches, diverse theoretical postures, and empirical research findings are used. Offered: jointly with NURS 495.

ANTH 441 Psychological Anthropology (5) I&S

Assessment of mutual relevance of cultural and psychological variables in anthropology. Historical development of principal topics, e.g., cognition, national character, enculturation, personality and social change, cross-cultural psychiatry, sex and temperament, deviance, and psychoanalytic studies of culture. Prerequisite: either PSYCH 101 or PSYCH 205.

ANTH 443 Anthropology of Modern Japan (5) I&S

Examines the problem of modernity in Japan since the late nineteenth century, with emphasis on contemporary Japan. Critically addresses previous anthropological work concerning patterns of Japanese "culture." Particular focus on the influence of modern forms of power, media, and exchange in the construction of present-day Japan. Offered: jointly with SISEA 447.

ANTH 444 Politics of Representation in Modern China (5) I&S

Focuses on issues of representation and power in twentieth century China. Combines substantive information on modern Chinese society and culture with recent debates in social theory and the politics of representation. Major themes include Chinese nationalism, body politics, popular culture, and everyday practice. Offered: jointly with SISEA 444.

ANTH 445 Literature and Society in Southeast Asia (5, max. 10) VLPA/I&S

Focus on either Vietnam or Thailand. Provides students with opportunity to explore how those living in Southeast Asia have reflected on the radical social changes their societies have undergone through novels, short stories, and poetry. Prerequisite: one 200-level ANTH course or LING 203. Offered: jointly with SISEA 445.

ANTH 446 Class and Culture in East Asia (5) I&S

Examines the nexus between culture and systems of social stratification/class in East Asia, with an emphasis on Taiwan, Korea, Japan, and China. Topics include class formation, mechanisms of social mobility and reproduction, markers of status and hierarchy, resistance, and the formation of class identity. Offered: jointly with SISEA 443.

ANTH 447 Religion in China (5) I&S

Place of religion in Chinese society, examining the doctrines, practices, and social consequences of the eclectic folk religion, the elite Confucian, Taoist, and Buddhist traditions, syncretistic sects, and imported Christianity. Prerequisite: either one 200-level ANTH course, ANTH 370, ANTH 403, LING 203, HSTAS 211, HSTAS 454, RELIG 202, SISEA 370, or SISEA 443. Offered: jointly with SISEA 445.

ANTH 448 Modern Korean Society (5) I&S

Social organization and values of twentieth-century Korea. Changes in family and kinship, gender relations, rural society, urban life, education, and industrial organi-

zation since 1900. Differences between North and South Korea since 1945. Recommended: HSTAS/ SISEA 212. Offered: jointly with SISEA 448.

ANTH 449 Social Transformation of Modern East Asia (5) I&S

Comparative study of social change in China, Japan, Korea, and Vietnam since 1945. Concentration on small-scale social units in rural and urban areas under both communist and capitalist political systems. Recommended: two history or anthropology of East Asia courses. Offered: jointly with SIS 449.

ANTH 450 Language and Gender (5) I&S, VLPA

Bilaniuk Survey of the theoretical trends, methods, and research findings on the relationship between language and gender. Focus on power relations in gendered language use. Extensive study of research based on conversational analysis and other aspects of identity such as sexuality, class, and age. Prerequisite: LING 200; either LING 201, LING 203, or ANTH 203. Offered: jointly with WOMEN 450 and LING 458.

ANTH 451 Comparative Historical and Social Ecology of the Tropics (3) I&S

Sivaramakrishnan Historical and social aspects of tropical environmental change. Comparative analysis of resource management, conservation, and environmental regulation issues in Asia, Africa, and Latin America from cultural and political economic perspectives. Special focus on issues of state policy, expert knowledge, social conflict, and international politics. Offered: jointly with ENVIR 451. Prerequisite: ANTH 210.

ANTH 454 Women, Words, Music, and Change (5) VLPA/I&S

Comparative analysis of use of myths, tales, music, and other forms of expressive culture to account for, reinforce, and change women's status and roles. Recommended: WOMEN 353. Offered: jointly with WOMEN 454.

ANTH 455 Areal Linguistics (3, max. 6) VLPA/I&S

Issues involved in classification of languages. Systems of classification based on structure, word order, areal features. Ways in which languages may be classified for different purposes. Borrowing vocabulary specialization, lexical change, and language death and revival. Offered: jointly with LING 455.

ANTH 456 Contemporary Ethnography (5) I&S

Techniques and theories of ethnographic description for the anthropological analysis of contemporary life. Materials drawn from the contemporary United States, with a focus on issues and events in the Seattle area. Includes fieldwork projects. Prerequisite: one 200-level ANTH course or LING 203.

ANTH 457 Ecological Anthropology (5) I&S

Survey of anthropological research on interaction between human societies and their environments. Logic of different subsistence systems; intensification and transformation of subsistence strategies; population regulation; ecological aspects of human nutrition, disease, spatial organization, ethnicity, social stratification, conflict, and cooperation; historical roots of current ecological crisis.

ANTH 458 Ethnobiology: Plants, Animals, and People (5) I&S

Hunn Culturally mediated relationships between human and natural environment studied in a comparative and evolutionary framework. How do peoples in diverse cultures recognize and name plants and animals and understand their relationship with nature? How is this traditional ecological knowledge applied in people's daily lives? Prerequisite: either BIO A 201, ARCHY 205, or one 200-level ANTH course.

ANTH 459 Culture, Ecology and Politics (5) I&S

Pena Critical studies of class, gender and race differences in environmental politics. The political-economic dimensions of ecological change. Contemporary environmental movements including the varieties of bioregionalism, deep ecology, ecofeminism, ecosocialism, environmental justice, and social ecology. Offered: jointly with ENVIR 459.

ANTH 460 History of Anthropology (5) I&S Sources and development of leading concepts, issues, and approaches in anthropology. Findings of anthropology in relation to scientific and humanistic implications and to practical application. Main contributors to field; their work and influence. Past, present, and future perspectives, including anthropology of modern life.

ANTH 464 Language Politics and Cultural Identity (3) VLP/IL&S Bilaniuk Theories and case studies of the power of language and how it is manipulated. Multilingualism, diglossia. Role of language and linguistics in nationalism. Standardization, educational policy, language and ethnicity. World languages, language death and revival. Prerequisite: either LING 200, LING 201, ANTH/LING 203, or LING 400. Offered: jointly with LING 433.

ANTH 465 Critical Anthropology of Mass Culture (5) I&S Critical overview of theories of mass culture and their relationship to current anthropological practice. Analyses of the historical interconnections among capitalism and commodity fetishism, modernity and representation, and media and consumption.

ANTH 466- Anthropology Honors Thesis ([1]-9-, max. 18) I&S Individual research under the direction of a thesis advisor, culminating in a senior honors thesis. Open only to upper-class students in departmental honors program.

ANTH 467 Anthropology of Education (5) I&S Uses a wide range of social theory and philosophy to investigate mechanisms which reproduce inequality and asymmetry in American education.

ANTH 469 Special Studies in Anthropology (3-5, max. 15) I&S Delineation and analysis of a specific problem or related problems in anthropology. Offered occasionally by visitors or resident faculty. Prerequisite: one 200-level ANTH course or LING 203.

ANTH 470 Minority Peoples of China (5) I&S Interaction between China and the peoples of its periphery, including inner Asia, Tibet, northern mainland Southeast Asia, and aboriginal peoples of Taiwan. Emphasis on ethnicity, ethnic group consciousness, and role of the Chinese state. Prerequisite: either one 200-level ANTH course, LING 203, ANTH/SISEA 370, or HSTAS 454. Offered: jointly with SISEA 470.

ANTH 471 Colonialism and Culture (5) I&S Explores the cultural, political, and historical implications of the power to colonize. Readings include ethnographic, historical, and literary works on colonialism, nationalist responses, and postcolonial positions.

ANTH 475 Perspectives in Medical Anthropology (5) I&S Introduction to medical anthropology. Explores the relationships among culture, society, and medicine. Examples from Western medicine as well as from other medical systems, incorporating both interpretive and critical approaches. Offered: jointly with HSERV 475.

ANTH 476 Culture, Medicine, and the Body (5) I&S Explores the relationship between the body and society, with emphasis on the role of medicine as a mediator between them. Case study material, primarily from contemporary bio-medicine, as well as critical, postmodern, and feminist approaches to the body introduced within a general comparative and anthropological framework.

ANTH 477 Medicine in America: Conflicts and Contradictions (3) I&S Introduction to the pragmatic and theoretical dilemmas of current biomedical practice with emphasis on social and cultural context. Case studies in technological intervention, risk management, and other health-related issues used to explore connections among patients' experiences, medical practices, and the contemporary social context.

ANTH 480 Introduction to Museology (3) I&S Museum history, philosophy, and basic operations, including organization, income, collection management, conservation, exhibition, security, education, research, and ethics. Offered: jointly with MUSEUM 480.

ANTH 481 Museum Collection Management: Ethnology (3) I&S Lecture and work experience in museum collection management in the ethnology collections of the Burke Memorial Washington State Museum, including identification, cataloging, fumigation, storage, cleaning, inventory, and specimen preparation for exhibition of archival and nonarchival museum specimens from North America, the Pacific, and Pacific Rim areas. Offered: jointly with MUSEUM 481.

ANTH 482 Museum Conservation (3) I&S Lecture and demonstrations in the recognition and treatment of museum conservation problems for specimens of all types. Application of basic principles to specific preventive and active conservation and restoration problems encountered by curatorial personnel. Offered: jointly with MUSEUM 482.

ANTH 484 Motherhood: Ideologies and Technologies (5) I&S Twine Examines how motherhood is culturally constituted, regulated, and managed within various ideological and technological milieus. Uses ethnographies from anthropology and case studies from feminist legal theory. Topics include slave mothers, surrogate mothers, lesbian mothers, transracial mothers, co-mothers, teen mothers. Prerequisite: WOMEN 200. Offered: jointly with WOMEN 458.

ANTH 485 Cultural Property: Legal and Ethical Issues (3) I&S Examines the complex history of legal and ethical issues affecting the acquisition, ownership, and disposition of cultural property, with special attention to modern indigenous peoples' requests for repatriation of collections from museums, as well as concerns with intellectual property rights, national patrimony policies, and related trade issues.

ANTH 486 Human Family Systems: Biological and Social Aspects (5) I&S Biological bases for human mating and reproduction and an examination of the range of cross-cultural variability in human systems of kinship and marriage; comparisons among a wide range of human and nonhuman species and between Western and non-Western human societies; interplay of biological, ecological, and sociocultural factors in determining the structure and function of human family systems. Offered: jointly with SOC 486.

ANTH 488 Agroecology (5) I&S Pena Cross-cultural survey of agroecological research methods, theoretical problems, policy issues, and ethical debates. Local knowledge and ethnoscientific bases of alternative agriculture. Comparative political ecology of agroecosystems with a focus on indicators of social equity and ecological sustainability.

ANTH 489 Anthropology Practicum (3-9, max. 15) Faculty-supervised off-campus internships in organizations utilizing anthropological skills in nonacademic settings. Establishing educationally valuable individual projects for internships with faculty sponsor. Organizations include museums, social service and other governmental agencies, and private nonprofit service agencies.

ANTH 491 Honors Colloquium (2, max. 12) I&S Introduction to anthropological research. Students read original articles and papers and discuss them with authors. Research presenters include department faculty, visiting faculty, and advanced graduate students. Credit/no credit only.

ANTH 495 Advanced Problems in Ethnology (3-5, max. 10) I&S Current problems in ethnology. Seminar format.

ANTH 499 Undergraduate Research (* max. 12)

Archaeology

ARCHY 105 World Prehistory (5) I&S Prehistoric human ancestors from three million years ago: their spread from Africa and Asia into the Americas, survival during ice ages, development of civilizations. Well-known archaeological finds, e.g., Olduvai Gorge; Neanderthals; Jericho; Egyptian pyramids; Mexican temples; Mesa Verde; Ozette, Washington. May not be counted toward the 55 credits required for the major in anthropology.

ARCHY 205 Principles of Archaeology (5) I&S Techniques, methods, and goals of archaeological research. Excavation and dating of archaeological materials. General problems encountered in explaining archaeological phenomena. Offered: AWSpS.

ARCHY 270 Field Course in Archaeology (12) I&S Introduction to field acquisition of archaeological data through survey and excavation. On-going field projects; recovery and recording techniques. Offered: S.

ARCHY 299 Archaeological Laboratory Techniques (1-3, max. 12) I&S Laboratory procedures geared to one specific archaeological research project. Archaeological collection, its processing and curation, how archaeological materials are processed, and how significance is determined. No more than 5 credits may be used toward an anthropology major. Prerequisite: either ARCHY 105 or ARCHY 205.

ARCHY 303 Old World Prehistory (5) I&S Old World prehistory from beginnings of human culture to rise of civilizations. First tools made by humans, spread of humans out of Africa, origins of agriculture, rise of state society. Africa, Near East, Egypt, China, India, Europe.

ARCHY 304 New World Prehistory (5) I&S History of earliest Americans, beginning with crossing of land bridge between Asia and North America and eventual spread over the Americas. Highlights prehistory and best examples of western hemisphere's civilizations. Mexico, Yucatan, Peru, southwestern and eastern United States, Washington.

ARCHY 312 The Archaeology of Egypt (3) I&S Wenke A survey of ancient Egyptian culture history between about 6000 BC and AD 400, based on a synthesis of archaeological and textual evidence. Focuses on the origins and evolution of the Egyptian state and the elements of pharaonic religion, society, economy, art, architecture, and science.

ARCHY 320 Prehistory of the Northwest Coast (5) I&S Origins, development, and variation of Pacific Northwest cultures, focusing particularly on Washington. Adaptations to maritime and interior environments. Artifacts from a variety of archaeological sites. Technological, functional, and historical significance of Northwest artifacts. Prerequisite: either ARCHY 105 or ARCHY 205.

ARCHY 371 Analysis of Archaeological Data (5) I&S Analyzing archaeological data by measuring and describing such artifacts as stone tools and ceramics. Analysis of such environmental data as bones, plant remains, and sediments. Prerequisite: ARCHY 205.

ARCHY 401 Archaeology of Human Origins (5) I&S Close Early part of the prehistoric archaeological record in Africa and Eurasia, from >2,000,000 years ago until the spread of modern human beings; development of stone and bone technologies; ways of making a living; cultural adaptations; intellectual and social development. Prerequisite: ARCHY 205. Offered: Sp.

ARCHY 465 Issues in Cultural Resource Management (3) I&S Examines practical application of archaeology to cultural resource management. Top-

ics include role in environmental permitting, inventory and significance evaluation of resources, project impacts and design of mitigation measures, consultation with government agencies and Indian tribal organizations, and practical aspects of cultural resource management business operation.

ARCHY 466- Archaeology Honors Thesis ([1-9]-, max. 18) I&S Individual research under the direction of a thesis advisor, culminating in a senior honors thesis. Open only to upper-class students in departmental honors program.

ARCHY 469 Special Studies in Archaeology (3-6, max. 18) I&S Consideration in detail of specific archaeological topics, either methodological or substantive in content, of current interest. Offered occasionally by resident, new, or visiting faculty. For advanced undergraduates and graduate students. Prerequisite: ARCHY 205.

ARCHY 476 New World States and Empires (5) I&S Considers theoretical and methodological scholarship on complex societies in Meso-America and the Andes. Highlights current research on population dynamics, subsistence strategies, economic foundations, and political processes in the development of states and empires. Considers archaeological evidence and texts of native and European documents. Prerequisite: ARCHY 205; ARCHY 304.

ARCHY 477 Archaeology of the North (5) I&S Fitzhugh Archaeological history of the circumpolar arctic and subarctic from Neanderthals to the 19th century. Variability in human adaptation and social evolution in some of the world's most extreme environments such as Eurasian tundra, North Pacific rim, Beringia, and North American high arctic. Prerequisite: ARCHY 205. Offered: Sp.

ARCHY 478 Prehistory of the Arid West (5) I&S Archaeology of arid western North America, with particular emphasis on the earliest peoples of this region (and on the peopling of the New World in general), and on the prehistoric hunter-gathers of the Great Basin and Southwest. Prerequisite: ARCHY 304.

ARCHY 479 Prehistoric Cultures of North America: Eastern North America (5) I&S Ecological and evolutionary account of prehistoric cultural developments in North America east of the Rocky Mountains. Cultural and environmental change from appearance of people in New World to collapse of indigenous cultural systems. Prerequisite: ARCHY 304.

ARCHY 480 Advanced Archaeological Analysis: Ceramics (6) I&S Human technology in traditional societies. Ceramic tools as evidence for technological innovation, continuity, and change; and as evidence for ancient economic systems involving production, consumption, and distribution. Examines variety of approaches to the study of material culture—especially ceramics—including archaeological, ethnographic, experimental, and technical. Prerequisite: ARCHY 371.

ARCHY 481 Advanced Archaeological Analysis: Faunal Remains (6) I&S Seminar on techniques and methods employed in analysis of faunal remains from a wide range of Pleistocene and Holocene settings, including archaeological sites, coupled with a laboratory focusing on identification of faunal remains from these settings. Prerequisite: ARCHY 371.

ARCHY 482 Advanced Archaeological Analysis: Geoarchaeology (6) I&S Identification, analysis, and interpretation of sediments and soils associated with archaeological remains. Laboratories deal with sediment description and chemical analysis; field trips and student projects focus on archaeological applications of these subjects. Prerequisite: ARCHY 371.

ARCHY 483 Analyses of Stone Artifacts (6) I&S Close Current approaches to lithic analysis, including types of information obtainable (technological, functional, social, ideological) and constraints affect-

ing the formation and analysis of lithic assemblages. Lectures interspersed with application of methods under discussion to individual artifacts and to assemblages. Prerequisite: ARCHY 371.

ARCHY 490 Museum Curation Practicum (1-5, max. 15) Application of museological training in curation of ethnographic, archeological, geological, or zoological collection materials in the Burke Museum. Supervised work ranges from fundamental collection documentation and research to preventive conservation, storage, and other special curation projects. Offered: jointly with MUSEUM 490.

ARCHY 495 Quantitative Archaeological Analytic Techniques (5) I&S Introduction to quantitative approaches to archaeological problems; data screening, numeric methods of classification and identification, graphical and computer-based seriation techniques, and the analysis of spatial patterning in artifact distributions.

ARCHY 497 Archaeological Method and Theory I: Formal Theory (5) I&S Examination of theoretical constructs in the analysis of archaeological data. Terminology, typologies, and interregional comparisons. Prerequisite: ARCHY 205.

ARCHY 498 Archaeological Method and Theory II: Explanatory Theory (5) I&S Conceptual frameworks employed by archaeologists in obtaining explanation in the three major areas of culture history, cultural reconstruction, and explanatory prehistory, considering the nature of explanation as conceived in these areas, the basic assumptions employed in achieving these aims, and an introduction to the methods employed. Prerequisite: ARCHY 205; ARCHY 497.

ARCHY 499 Undergraduate Research (* max. 12)

Biocultural Anthropology

BIO A 100 Evolution and Human Behavior (3) NW Introduction to evolution by natural selection, examining the light it can throw on human biology and behavior in such areas as the nature of sex differences, sexual conflict, and conflict between parents and children. Does not fulfill major requirements. Offered: jointly with ZOOL 100.

BIO A 201 Principles of Biological Anthropology (5) NW Evolution and adaptation of the human species. Evidence from fossil record and living populations of monkeys, apes, and humans. Interrelationships between human physical and cultural variation and environment; role of natural selection in shaping our evolutionary past, present, and future. Offered: AWSpS.

BIO A 370 Introduction to Primates (5) NW Newell Origins, major evolutionary trends, and modern taxonomic relationships of the nonhuman primates. Their distribution and habitat in relation to behavioral and morphological adaptations and their status as endangered species. Prerequisite: BIO A 201. Offered: A.

BIO A 372 Uses and Abuses of Evolutionary Views of Human Behavior (5) I&S/NW Newell Interaction of human behavior and biology as it has been interpreted within an evolutionary framework. Discusses various challenges to Darwinian theory, particularly Lamarckism and creationism. Topics include biological determinism as exemplified by racism, myths of human origins, the clash between biological and cultural determinism, and modern genetics and behavior.

BIO A 382 Human Population Biology (3) NW Human population biology with reference to capacity for growth in population size. Interaction of human biology, population structure, and culture in promoting such growth. Effects of economic, demographic, medical, and ecological factors. Prerequisite: either BIO A 201, BIOL 101, or BIOL 201.

BIO A 387 Ecological Perspectives on Environmental Stress, Adaptation, and Health (5) NW Leonetti How human populations respond to environmental stressors in biological-behavioral terms and the relationship of this adaptational process to health. Nutritional, climatic, and sociocultural stress and associated patterns of birth, disease, and death throughout human history in hunting, gathering, farming, pre-industrial, and industrial societies. Prerequisite: BIO A 201.

BIO A 388- Human Fossils and Evolution (5-) NW Eck Evolution of human anatomy and behavior as adaptations to changing environments. Human fossils: their geological context, age, ecological setting used to reconstruct the evolution of our species during the last six million years of earth history. Prerequisite: either BIO A 201, or BIOL 201 and BIOL 202 and BIOL 203, or BIOL 101 and 102. Offered: W.

BIO A -389 Human Fossils and Evolution (-5) NW Eck Evolution of human anatomy and behavior as adaptations to changing environments. Human fossils: their geological context, age, ecological setting used to reconstruct the evolution of our species during the last six million years of earth history. Prerequisite: BIO A 388. Offered: S.

BIO A 465 Nutritional Anthropology (3) I&S/NW Concerns interrelationships between biomedical, sociocultural, and ecological factors, and their influence on the ability of humans to respond to variability in nutritional resources. Topics covered include diet and human evolution, nutrition-related biobehavioral influences on human growth, development, and disease resistance. Prerequisite: BIO A 201. Offered: jointly with NUTR 465.

BIO A 466- Biocultural Anthropology Honors Thesis ([1-9]-, max. 18) NW Individual research under the direction of a thesis advisor, culminating in a senior honors thesis. Open only to upper-class students in departmental honors program.

BIO A 469 Special Topics in Biocultural Anthropology (3-5, max. 15) NW Delineation and analysis of a specific problem or a more general area in biocultural anthropology. Offered occasionally by visiting or resident faculty.

BIO A 473 Biological Adaptability of Human Populations (5) NW Shell-Duncan Mechanisms enabling humans to maintain homeostasis in extreme environments: high altitude, heat, cold, nutritional deficiency, radiation. Adaptive process operating at levels of physiology, metabolism, and population, including the strategies of fertility and birth spacing. Prerequisite: BIO A 201.

BIO A 476 Sociocultural Ecology and Health (3) NW Leonetti Sociocultural ecology of health/disease, focusing on humans as bioculturally integrated beings and on populations as biocultural units of adaptation. Examples of research on disease, both infectious and chronic, and patterns of morbidity and mortality, infant, maternal, old age, with particular attention to situations of sociocultural changes. Prerequisite: BIO A 201.

BIO A 477 Evolutionary Perspectives on Sex and Gender Roles (3) I&S/NW Critical examination of theories explaining the evolution of gamete specialization and sexual reproduction. Consideration of the extent to which gametic asymmetries lead to gender-based differences in mating patterns, conceptions of attractiveness, parental investment, subsistence patterns, aggressiveness, and coercion. Interactions of biology and culture. Prerequisite: BIO A 201.

BIO A 482 Human Population Genetics (5) NW, QSR Holman Micro-evolutionary changes in human populations. Effects of mutation, selection, inbreeding, gene flow, and genetic drift as causes of evolutionary change. Mathematics beyond high school not required. Prerequisite: BIO A 201.

BIO A 483 Human Genetics, Disease, and Culture

(5) NW Considers relationships among genetic aspects of human disease, cultural behavior, and natural habitat for a wide variety of conditions. Also considers issues of biological versus environmental determinism, adaptive aspects of genetic disease, and the role of cultural selection. Prerequisite: BIO A 201.

BIO A 484 Human Life Cycle (5) NW

Newell Human growth and physical/social development: fetal life to old age. Cultural, ecological, and evolutionary aspects of the life cycle. Population differences in age and sex related to morbidity and mortality. Prerequisite: BIO A 201.

BIO A 485 Research in Growth and Development

(2, max. 8) NW Focus on topics relating to primate growth and development. Prerequisite: either BIO A 484, BIO A 495, or BIO A 496, any of which may be taken concurrently.

BIO A 486 Primate Socioecology (3) NW

Focus on the variety of social systems exhibited by nonhuman primates and adaptive significance of these societies; social systems in terms of the present ecology and evolutionary past of the species; the function of communicatory gestures and vocalizations, tradition, kinship, and social roles in maintaining and structuring groups over generations; the relationship among mating systems, foraging strategies, ranging patterns, and ecological separation/resource partitioning and their contribution to species-typical social organization. Prerequisite: either BIO A 370 or PSYCH 418.

BIO A 487 Human and Comparative Osteology (3) NW

Introduction to the vertebrate skeleton. The skeleton is described in detail and various methods of determining age and sex, as well as osteometry and modern statistical methods for handling such data, are presented.

BIO A 488 Primate Evolution (5) NW

Eck Major trends in nonhominid primate evolution through the Cenozoic. Discussion of the specimens, geological context, and age of the fossil taxa and their relationship to modern taxa. Practical experience in analyzing fossil material. Prerequisite: BIO A 201.

BIO A 491 Issues in Human Paleontology (5) NW

Eck Addresses five major unanswered questions concerning human evolution as represented by the fossil record. Prerequisite: BIO A 389.

BIO A 495 Growth and Development: Infancy (5) NW

Newell Genetic and environmental influences on growth and development from prenatal life through infancy. Includes exploration of methods for assessing development and comparisons of development in non-human primates with human development. Prerequisite: BIO A 370.

BIO A 496 Growth and Development: Adolescence and Reproductive Maturity (5) NW

Newell Genetic and environmental influences on growth and development during adolescence. Emphasis on the interaction of biological and social factors in attainment of reproductive maturity. Compares conditions of non-human primates with human conditions. Prerequisite: BIO A 370.

BIO A 499 Undergraduate Research (* max. 12)

Applied and Computational Mathematical Sciences

C36 Padelford



General Catalog Web page:
www.washington.edu/students/gencat/academic/ACMS.html



Department Web page:
www.ms.washington.edu/acms/

This multidisciplinary program is jointly administered by the departments of Applied Mathematics, Computer Science and Engineering, Mathematics, and Statistics.

Most fields of science and engineering use mathematics in a fundamental way. Recent increases in computing power have made mathematical modeling, computer simulation, and statistical analysis more important than ever. Many employers and graduate programs recognize that a sound training in the tools of mathematics and rigorous thought, with emphasis on applied and computational techniques, is excellent preparation for work in any technical direction.

Undergraduate Program

Advisers

Julie Martinson
Brooke Miller
C36 Padelford, Box 354350
(206) 543-6830

The interdepartmental ACMS program offers a Bachelor of Science degree which builds on the strengths of four mathematical science departments to provide a firm foundation in all aspects of applied and computational mathematics. A core set of courses in the basic tools common to many disciplines is followed by a broad set of options which encourage an in-depth study in some particular direction. Students with specific interests in another area may pursue a double major.

Bachelor of Science

See Web site or current program brochure for more details on requirements and options.

Admission Requirements: Admission is competitive. A GPA of at least 2.50 in the following courses, with a minimum grade of 2.0 in each course: CSE 142, 143; MATH 124, 125, 126; MATH 307 or AMATH 351; MATH 308; PHYS 121/131, 122/132, 123/133. MATH 127, 128, 129 may be substituted for MATH 124, 125, 126. MATH 134, 135, 136 may be substituted for MATH 124, 125, 126, 307, and 308. Certain options allow the substitution of other courses in place of the PHYS requirements. See adviser for details.

Major Requirements

1. A minimum GPA of 2.50 for all courses counted toward the major; minimum grade of 2.0 in each course taken toward the major.
2. **Core:** 58 credits to include MATH 124, 125, 126 or MATH 127, 128, 129; MATH 308; MATH 307 or MATH 351; MATH/STAT 390; CSE 142, 143; AMATH 352; AMATH/MATH 381, 383; PHYS 121/131, 122/132, 123/133. Certain options allow the substitution of other courses in place of the PHYS requirements. See an adviser for details.
3. Completion of one of the following options:

Biological and Life Sciences Option. 32 credits to include option core (12 credits): MATH 324, AMATH

353, 422, 423; and option electives (20 credits): outside area (12 credits or double major/double degree; see adviser for options) and 8 credits of approved courses at the 300 level or above, chosen from the four participating departments.

Discrete Mathematics and Algorithms Option. 32 credits to include option core and electives. Option core: 15 credits for non-Computer Science and Engineering majors-MATH/STAT 394, CSE 373, 410, 417 and one of CSE 413, 415; 9 credits for Computer Science/Computer Science and Engineering double major/double degree-MATH/STAT 394, CSE 421, 431. Option electives: 17 credits for non-Computer Science and Engineering majors, 23 credits for Computer Science and Engineering double majors, to include 9 credits from MATH 407, 408, 409, 461, 462, and remaining credits from approved courses at the 300 level or above from the four participating departments.

Engineering and Physical Sciences Option. 32 credits to include option core (15 credits): MATH 324, AMATH 401, 402, 403; and option electives (17 credits): outside area (11 credits or double major/double degree; see adviser for options) and 6 credits of approved courses at the 300 level or above, chosen from the four participating departments.

Mathematical Economics Option. 32 credits to include option core and electives. Option core (9 credits): MATH 327, MATH 407; and at least one of the following: MATH 408, STAT 423. Option electives: Either (1) or (2), below. (1) 23 credits including at least 15 credits from ECON 301, 400, 401, 404, 421, 422, 454, 472, 482, 483, 485; at least 8 additional credits at the 300 level or above from the four participating departments or from the department of Economics (taken from ECON courses listed above). (2) Complete a double major with a Bachelor of Science in Economics.

Operations Research Option. 32 credits to include option core and electives. Option core (15 credits): MATH 327, MATH/STAT 394, 395; and at least two of the following: MATH 407, 408, 409. Option electives: Either (1) or (2), below. (1) 17 credits, including at least 6 credits from MATH/STAT 491, 492, STAT 421, 423; at least 8 credits from OPMGT 301, 402, 443, 450, 490, QMETH 450, 490, IND E 237, 324, 325, 326, 421, 424, 426, 430, 433, (with at least one course at the 400 level); at least 3 additional credits at the 300 level or above from the four participating departments or from the departments of Management Science and Industrial Engineering (taken from IND E courses listed above). (2) Complete a double degree in Management Science in the School of Business Administration or in Industrial Engineering in the College of Engineering.

Scientific Computing and Numerical Algorithms Option. 32 credits to include option core (15 credits): MATH 327, 464, 465, 466; and option electives (17 credits), to include 11 credits from the following: AMATH 301; AMATH 353 or MATH 309; CSE 373 or CSE 326; CSE 410; AMATH 401, 402, 403; MATH 407, 408, 409; MATH 427, 428, 429; MATH 438, 439; MATH 435, 436; remaining credits from approved courses at the 300 level or above from the four participating departments.

Social and Behavioral Sciences Option. 32 credits to include option core (10 credits): MATH/STAT 394, 395, STAT 423; and option electives (22 credits): outside area (12 credits or double major/double degree; see adviser for options) and 10 credits of approved courses at the 300 level or above, chosen from the four participating departments.

Statistics Option. 32 credits to include program core (22 credits): MATH/STAT 394, 395, STAT 341, 342, 421, 423; option electives (10 credits): approved courses at the 300 level or above, chosen from the four participating departments.

See adviser for additional information on program options, for possible substitutions, and for approval of elective choices noted above.

Applied Mathematics

408 Guggenheim



General Catalog Web page:
www.washington.edu/students/gencat/academic/applied_math.html



Department Web page:
www.amath.washington.edu/

The Department of Applied Mathematics is concerned with mathematical modeling and analysis of problems from the physical, biological, and social sciences, and from engineering. The department offers undergraduate and graduate courses for all interested students at the University, as well as degree programs for graduate students in applied mathematics.

Undergraduate Program

The Department of Applied Mathematics cooperates with the departments of Computer Science and Engineering, Mathematics, and Statistics in an interdepartmental Bachelor of Science degree program in Applied and Computational Mathematical Sciences. The program builds a broad foundation in the mathematical sciences. See Applied and Computational Mathematical Sciences for degree information. The department also offers a minor.

Minor

Minor Requirements: 27-28 credits to include the following: MATH 124, 125, 126 (5, 5, 5) or equivalent; AMATH 351, 352, 353 (3, 3, 3); and one of the following courses: AMATH 301 (4), 383 (3), 401 (4), 402 (4), 403 (4), 422 (3), 423 (3), or 441 (3). Minimum grade of 2.0 required in each course.

Graduate Program

For information on the Department of Applied Mathematics's graduate program, see the graduate and professional volume of the *General Catalog* or visit the *General Catalog* online at www.washington.edu/students/gencat/.

Faculty

Chair

Ka Kit Tung

Professors

Baker, Marcia * 1980, (Adjunct); MS, 1960, Stanford University; PhD, 1971, University of Washington; cloud physics, atmospheric geophysics.

Bretherton, Christopher S. * 1984; PhD, 1984, Massachusetts Institute of Technology; convective cloud systems, boundary layer meteorology, numerical modeling, tropical meteorology.

Bube, Kenneth P. * 1986, (Adjunct); PhD, 1978, Stanford University; numerical analysis, partial differential equations.

Burke, James V. * 1985, (Adjunct); PhD, 1983, University of Illinois; optimization, nonsmooth analysis.

Criminale, William O. * 1968; PhD, 1960, Johns Hopkins University; fluid dynamics, mathematical physics, nonlinear mechanics, stability theory.

Durran, Dale R. * 1987, (Adjunct); MS, 1975, University of California (Berkeley); PhD, 1981, Massachusetts Institute of Technology; atmospheric dynamics, mesoscale meteorology, numerical simulation, mountain meteorology.

Greenbaum, Anne * 1997, (Adjunct); PhD, 1981, University of California (Berkeley); numerical analysis.

Kevorkian, Jirair * 1964; PhD, 1961, California Institute of Technology; partial differential equations, perturbation theory.

Kosaly, George * 1980, (Adjunct); PhD, 1974, Eotvos Lorand University (Hungary); DSc, 1979, Hungarian Academy of Sciences; applications of stochastic processes in engineering, reacting turbulent flows.

Leveque, Randall J. * 1985; PhD, 1982, Stanford University; numerical analysis, hyperbolic conservation laws, computational fluid dynamics.

Miura, Robert M. 1988, (Affiliate); PhD, 1966, Princeton University.

Murray, James D. * 1988; PhD, 1956, DSc, 1968, Oxford University (UK); mathematical biology, biological pattern formation, wound healing, spread of epidemics.

Nazareth, John L. 1991, (Affiliate); PhD, 1973, University of California (Berkeley); numerical optimization.

O'Malley, Robert E. Jr. * 1990; PhD, 1966, Stanford University; singular perturbations and asymptotic methods.

Pearson, Carl E. * 1967, (Emeritus); PhD, 1949, Brown University; wave propagation, fluid dynamics, numerical analysis, optimization.

Riley, James J. * 1983, (Adjunct); PhD, 1971, Johns Hopkins University; fluid mechanics, especially turbulent flows.

Rockafellar, R. T. * 1966; PhD, 1963, Harvard University; variational analysis and optimization.

Sarachik, Edward S. * 1984, (Adjunct); PhD, 1966, Brandeis University; atmospheric dynamics, large scale atmosphere/ocean interactions, equatorial dynamics, climate change.

Sylvester, John * 1987, (Adjunct); PhD, 1980, New York University; partial differential equations.

Tung, Ka Kit * 1988; PhD, 1977, Harvard University; atmospheric and geophysical fluid dynamics.

Vagners, Juris * 1967, (Adjunct); PhD, 1967, Stanford University; dynamics, controls and optimization.

Wan, Frederic Y. * 1983, (Affiliate); PhD, 1965, Massachusetts Institute of Technology; solid mechanics and mathematical modeling.

Watkins, David S. 1989, (Affiliate); PhD, 1974, University of Calgary (Canada); linear algebra, numerical computation.

Yeh, Harry H. * 1983, (Adjunct); PhD, 1983, University of California (Berkeley); fluid mechanics, water wave motions, coastal and hydraulic engineering.

Associate Professors

Adams, Loyce M. * 1985; PhD, 1983, University of Virginia; numerical algorithms for parallel computers.

Kot, Mark * 1989, (Affiliate); PhD, 1987, University of Arizona; mathematical ecology, nonlinear dynamics, and population biology.

Schmid, Peter J. * 1993; PhD, 1993, Massachusetts Institute of Technology; computational fluid dynamics, hydrodynamic stability theory, transition to turbulence.

Storti, Duane W. * 1983, (Adjunct); PhD, 1983, Cornell University; nonlinear dynamics and vibrations, dynamical systems, perturbations and bifurcations.

Assistant Professors

Kutz, Jose Nathan 1997; PhD, 1994, Northwestern University; linear/nonlinear wave propagation, nonlinear analysis, dynamical systems.

Lewis, Mark A. 1991, (Affiliate); PhD, 1990, Oxford University (UK).

Pearson, Erik W. 1986, (Affiliate); PhD, 1983, Harvard University.

Qian, Hong 1997; PhD, 1989, Washington University; physical biochemistry of biological macromolecule, mathematical and computational biology.

Winters, Kraig B. * 1984, (Affiliate); PhD, 1989, University of Washington.

Course Descriptions

See page 48 for an explanation of course numbers, symbols, and abbreviations.

For graduate-level course descriptions, see the graduate and professional study volume of the *General Catalog* or visit the online course catalog at www.washington.edu/students/crscat/.

AMATH 301 Beginning Scientific Computing (4)

NW Introduction to the use of computers to solve problems arising in the physical, biological and engineering sciences. Application of mathematical judgment in selecting tools to solve problems and to communicate results. Introduction to basic MATLAB routines for numerical computation. Prerequisite: either MATH 126, Q SCI 293, MATH 129, or MATH 136; recommended: either CSE 142 or ENGR 142. Offered: AWSpS.

AMATH 351 Introduction to Differential Equations and Applications (3) NW

Introductory survey of ordinary differential equations. Linear and nonlinear equations. Taylor series. Laplace transforms. Emphasis on formulation, solution, and interpretation of results. Examples from physical and biological sciences and engineering. Introduction to MATLAB as a tool for solving differential equations. Prerequisite: either MATH 126 or Q SCI 292. Offered: AWSpS.

AMATH 352 Applied Linear Algebra and Numerical Analysis (3) NW

Development and application of numerical methods and algorithms to problems in the applied sciences and engineering. Applied linear algebra and introduction to numerical methods. Emphasis on use of conceptual methods in engineering, mathematics, and science. Extensive use of MATLAB package for programming and solution techniques. Prerequisite: either MATH 126 or Q SCI 293.

AMATH 353 Fourier Analysis and Partial Differential Equations (3) NW

Heat equation, wave equation, and Laplace's equation. Separation of variables. Fourier series in context of solving heat equation. Fourier sine and cosine series; complete Fourier series. Fourier and Laplace transforms. Solution of partial differential equations on infinite domains. D'Alembert's solution for wave equation. Prerequisite: either AMATH 351 or MATH 307. Offered: AWSpS.

AMATH 383 Introduction to Continuous Mathematical Modeling (3) NW

Introductory survey of applied mathematics with emphasis on modeling of physical and biological problems in terms of differential equations. Formulation, solution, and interpretation of the results. Prerequisite: either AMATH 351 or MATH 307. Offered: AWSpS.

AMATH 401 Introduction to Methods in Applied Mathematics I (4) NW

Emphasis on acquisition of solution techniques; ideas illustrated with specific example problems arising in science and engineering. Applications of vector differential calculus, complex variables. Line-surface integrals; integral theorems; Taylor and Laurent series, contour integration. Prerequisite: MATH 324; recommended: AMATH 351, MATH 307, or MATH 351. Offered: A.

AMATH 402 Introduction to Methods in Applied Mathematics II (4) NW

See 401. Applications of ordinary differential equations; review of elementary concepts for first and second order equations; power

series and Frobenius solutions. Laplace transforms; systems of differential equations, eigenvalues. Prerequisite: either AMATH 351 or MATH 307. Offered: W.

AMATH 403 Introduction to Methods in Applied Mathematics III (4) NW See 401. Applications of partial differential equations; linear and quasilinear first order equations, characteristics, shocks; classification of linear second order equations; basic solution techniques for parabolic, elliptic, and hyperbolic equations; Green's functions and integral transform methods. Prerequisite: AMATH 402.

AMATH 422 Introduction to Mathematical Biology (3) NW Mathematical modeling in biology and medicine. Introduction to chaos and nonlinear dynamics, population models (predator-prey and competition systems), epidemic models with applications to sexually transmitted diseases and dynamic diseases, enzyme kinetics, biological oscillators and switches. Prerequisite: either AMATH 351, MATH 136, or MATH 307. Offered: W.

AMATH 423 Mathematical Biology: Stochastic Models (3) NW Introduction to the basics of stochastic models. Applications are taken from the biomedical sciences such as random movement of cells and molecules, activation of neurons, cancer growth and spread, population dynamics, kinetics of unimolecular reactions. Prerequisite: either AMATH 351 or MATH 307, MATH/STAT 390. Offered: Sp.

AMATH 441 Introduction to Fluid Dynamics (3) NW Eulerian equations of mass and motion. Surface forces. Vorticity and vortex dynamics. Water waves and interfacial waves; concept of phase and group velocities. Linear instability theory. Simple viscous flows; boundary layer theory, potential theory. Low Reynolds-number flows, application to biological fluid flows. Prerequisite: AMATH 353.

AMATH 490 Special Topics (1-5, max. 15) Topics of current interest in applied mathematics not covered by other undergraduate courses.

AMATH 498 Senior Project or Thesis (1-6, max. 6) Intended for Honors students and other advanced undergraduates completing a special project or senior thesis in applied mathematics. Offered: AWSpS.

AMATH 499 Undergraduate Reading and Research (1-6, max. 6) Credit/no credit. Offered: AWSpS.

Art

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General Catalog Web page:
www.washington.edu/students/gencat/academic/art.html



Department Web page:
net.art.washington.edu

The School of Art serves a dual role within the educational structure of the University of Washington. It is both a professional school and an academic department. As a professional school it trains students for active careers in the graphic and plastic arts; as a school of the College of Arts and Sciences it offers studio and lecture courses. All of its course offerings and its curriculum requirements are based on the underlying philosophy that an awareness and understanding of the visual arts are necessary to a liberal education, and that a liberal education is necessary to the training of a professional artist.

Undergraduate Program

Advisers
Joseph Brown
Judith Clark
104 Art, Box 353440
(206) 543-0646
uaskart@u.washington.edu

The School of Arts offers programs of study leading to either the Bachelor of Arts or Bachelor of Fine Arts degrees. Students may pursue a B.F.A. in ceramics, fibers, industrial design, metals, painting, photography, printmaking, sculpture, or visual communication design.

Students receiving an undergraduate degree in art can expect to develop strong writing, analytical, critical thinking, and problem-solving skills. Students learn to recognize the power of the visual image and understand its importance in a world increasingly dependent on the aesthetic and technical skill of trained artists and designers to create images that communicate information and ideas across cultures and generations.

In addition to becoming practicing artists, art graduates find careers in fields such as gallery and museum management, arts education, arts administration, photojournalism, film making, graphic and product design, interior design, teaching, advertising, art therapy, and visual and digital technology.

Student Associations: Students majoring in the studio arts have the opportunity to participate in several student associations: Hephestium (metals), Zeeware (ceramics), Broadclothes (fiber), Printmakers Association (printmaking), and a photo guild. These organizations raise funds through the sale of members' work to support visiting artists and lectures and to sponsor student involvement in regional arts events.

Internship or Cooperative Exchange Program Opportunities: The School of Art has several programs that help students develop professional practices and expand their knowledge outside the UW: internships for credit, Artist in Residence programs, K-12 Educational Partnerships, Art on Loan, and the Studio Art Rome program.

Admission Requirements: Entering freshmen and transfer students may declare an Art major by scheduling an appointment with an Art adviser on or after their orientation/registration date. Currently enrolled University students who wish to declare an art major must have a minimum 2.50 GPA and meet with an Art adviser any time during the quarter except the first week. It is essential that students read the School of Art, Art History, and Design's "Information for Prospective Undergraduate Students" (available in the Art office or online at net.art.washington.edu) prior to the first meeting with an Art adviser.

Portfolios: Students who begin college at the UW and transfer students who have not yet completed any art credits do not need to submit a portfolio. Students who have completed art credits at another college or university should refer to the transfer student information in the publication listed above.

Admission Policy for Postbaccalaureate Applicants: Postbaccalaureate study in studio art is limited; admission requirements vary within the ten Art majors. See information concerning specific postbaccalaureate admission in the publication listed above.

Bachelor of Arts

Major Requirements

Interdisciplinary Visual Art: ART 120, 121, 123, 124; ART H 203, plus 10 credits from ART H 201, 202, 204, 205, 206, 330, 331 with a minimum 5 credits in non-Western art; 53 credits chosen from the following optional fields so that one option includes no more than 20

credits and the others no more than 15 credits each. These credits to be drawn from undergraduate courses in art history, ceramics, drawing, fibers, metals, painting, photography, printmaking, or sculpture, but not to duplicate the above foundation courses.

Bachelor of Fine Arts

The minimum credits required for graduation with a Bachelor of Fine Arts degree vary from 180 to 198, depending on the program.

Major Requirements

Ceramics: ART 120, 121, 123, 124, 201, 202, 353 (15), 485 (20), 487 (5), 488 (5); 36 studio-art or related elective credits; ART H 203; 10 credits from ART H 201, 202, 204, 205, 206, 330, 331 with a minimum 5 credits of non-Western art; 3 elective art history credits.

Fibers: ART 120, 121, 123, 124, 224, 226, 227; 20 credits of 328, 329, 330; 10 credits of 428; 15 studio-art or related elective credits; ART H 203; 10 credits of any Art History classes including one class in the study of Asian, African, or Native American art.

Industrial Design: ART 120, 121, 123, 124, 261, 262, 263, 316, 317, 318, 321, 322, 422, 445, 446, 447; 27 studio-art or related elective credits to include one drawing class and SP CMU 220; ARCH 210; ART H 203; 10 credits from ART H 201, 202, 204, 205, 206, 330, 331 with a minimum 5 credits in non-Western art; 3 elective art history credits.

Metals: ART 120, 121, 123, 124, 258; 25 credits from 354, 357, 358; 460 (15 credits); 15 studio art or related elective credits; ART H 203; 10 credits of any Art History classes including one class in the study of Asian, African, or Native American art.

Painting: ART 120, 121, 123, 124, 132, 256, 257, 265 (10 credits), 307 (10 credits), 325, 360 (10 credits), 463 (15 credits); 26 studio-art or related elective credits; ART H 203; 10 credits from ART H 201, 202, 204, 205, 206, 330, 331 with a minimum 5 credits in non-Western art; any twentieth-century art history course.

Photography: ART 120, 121, 123, 124, 240, 241, 242, 243, 340, 342, 343 (10 credits), 440 (15 credits); 36 credits of studio art or related electives; ART H 203; 10 credits from ART H 201, 202, 204, 205, 206, 330, 331 with a minimum 5 credits in non-Western art; ART H 232.

Printmaking: ART 120, 121, 123, 124, 245, 247; 25 credits from 345 and 350; 10 credits from 450; 20 studio art or related elective credits; ART H 203; 10 credits of any Art History classes including one course in the study of African, Asian, or Native American art.

Sculpture: ART 120, 121, 123, 124, 272, 273; 25 credits from 332, 333, 334, 335; 436 (10 credits); 15 credits of studio art or related electives; ART H 203; 10 credits of any Art History classes including one class in the study of Asian, African, or Native American art.

Visual Communication Design: ART 120, 121, 123, 124, 205, 206, 207, 208, 366, 367, 368, 376, 377, 378, 466, 467, 468, 478, 479, 480; 18 studio-art or related elective credits; ART H 203; 10 credits from ART H 201, 202, 204, 205, 206, 330, 331 with a minimum 5 credits in non-Western art; 3 elective art history credits.

Graduate Program

For information on the School of Art's graduate program, see the graduate and professional volume of the *General Catalog* or visit the *General Catalog* online at www.washington.edu/students/gencat/.

Faculty

Chair

Christopher Ozubko

Professors

Anderson, Judy M. * 1988; MA, 1977, University of California (Berkeley); graphic and informational design for business and institutions, book artist.

Berger, Paul E. * 1978; MFA, 1973, State University of New York (Buffalo); photography.

Bliquez, Lawrence J. * 1969; PhD, 1968, Stanford University; Greek oratory, Greek historiography and historians, Greek and Roman medicine.

Bravmann, Rene A. * 1972; PhD, 1971, Indiana University; African art.

Carraher, Ronald G. * 1967; MA, 1961, San Jose State College; photography.

Casteras, Susan P. * 1996; PhD, 1977, Yale University; nineteenth-twentieth century painting and sculpture, English art.

Celentano, Francis * 1966, (Emeritus); MA, 1957, New York University; painting, drawing.

Christofides, Constantine * 1966, (Emeritus); PhD, 1956, University of Michigan; medieval, seventeenth-century, Romanesque art and literature.

Clausen, Meredith L. * 1979; PhD, 1975, University of California (Berkeley); twentieth-century and American architecture.

Dahn, Richard F. * 1965, (Emeritus); MFA, 1959, Yale University; graphic design.

Dailey, Michael D. * 1963, (Emeritus); MFA, 1963, University of Iowa; painting, drawing.

Du Pen, Everett 1945, (Emeritus); MFA, 1937, Yale University; sculpture.

Goldsmith, Layne * 1983; MA, 1975, San Jose State College; MFA, 1979, Cranbrook Academy of Art; fiber arts and related historic and contemporary textile structures and processes.

Hildebrand, Grant * 1964; MArch, 1964, University of Michigan; history, preservation design.

Hixson, William J. * 1950, (Emeritus); MFA, 1950, University of Oregon; painting.

Holm, Bill * 1968, (Emeritus); MFA, 1951, University of Washington; Northwest coast Indians.

Hu, Mary L. * 1980; MFA, 1967, Southern Illinois University; metal design.

Hurley, Denzil 1994; MFA, 1979, Yale University; painting, drawing, theory.

Jones, Robert C. * 1960, (Emeritus); MS, 1959, Rhode Island School of Design; painting, drawing.

Kartsonis, Anna D. * 1983; PhD, 1982, New York University; Byzantine and medieval art.

Kehl, Richard L. * 1962; MA, 1961, MFA, 1961, Kansas City Art Institute; painting.

Kingsbury, Martha * 1968; PhD, 1969, Harvard University; nineteenth- and twentieth-century European and American art.

Lawrence, Jacob A. * 1971, (Emeritus); DFA (Hon.), 1981, Carnegie-Mellon University; painting, drawing.

Lundin, Norman K. * 1964; MFA, 1963, University of Cincinnati; painting, drawing.

Marshall, John C. * 1970; MFA, 1968, Syracuse University; metal design.

Mason, Alden 1946, (Emeritus); MFA, 1947, University of Washington; painting.

Opperman, Hal N. * 1967, (Emeritus); PhD, 1972, University of Chicago; seventeenth- and eighteenth-century European art.

Ozubko, Christopher * 1981; MFA, 1981, Cranbrook Academy of Art; graphic design.

Pizzuto, Eugene * 1957, (Emeritus); MFA, 1951, Cranbrook Academy of Art; painting, drawing.

Pundt, Hermann G. * 1968, (Emeritus); PhD, 1969, Harvard University; history, historical preservation.

Silbergeld, Jerome * 1975; PhD, 1974, Stanford University; Chinese art.

Smith, Charles W. * 1948, (Emeritus); MFA, 1956, Cranbrook Academy of Art; sculpture.

Snow-Smith, Joanne * 1981; PhD, 1976, University of California (Los Angeles); Italian Renaissance art.

Solberg, Ramona L. * 1967, (Emeritus); MFA, 1957, University of Washington; art education, metal design.

Spafford, Michael C. * 1969, (Emeritus); MA, 1960, Harvard University; painting, drawing.

Taylor, Norman J. * 1968; MFA, 1967, MA, 1967, University of Iowa; sculpture.

Wadden, Douglas J. * 1970; MFA, 1970, Yale University; graphic design, photography.

Walker, Jamie * 1989; MFA, 1983, Rhode Island School of Design; ceramic arts.

Warashina, M. Patricia * 1970, (Emeritus); MFA, 1964, University of Washington; ceramics.

Whitehill-Ward, John * 1975; MS, 1974, Illinois Institute of Technology; graphic design.

Young, John T. * 1984; MFA, 1978, Rhode Island School of Design; sculpture, conceptual art.

Associate Professors

Andrews, Richard 1987, (Affiliate); MA, 1975, University of Washington.

Cabeen, Louise * 1993; MFA, 1989, The School of Art Institute of Chicago; socially critical art with research specialties in textile history and techniques.

Failing, Patricia A. * 1982; MA, 1974, University of California (Berkeley); contemporary art and criticism.

Garvens, Ellen J. 1994; MA, 1983, MFA, 1987, University of New Mexico; mixed-media photography.

Govedare, Philip B. * 1991; MFA, 1984, Tyler School of Art; painting and drawing.

Koenig, Hazel L. * 1967, (Emeritus); MFA, 1950, University of Washington; fiber arts.

Labitzke, Curt W. * 1984; MFA, 1984, University of Notre Dame; printmaking; intaglio and lithography emphasizing hand drawn techniques.

Langdon, Merle K. * 1976; PhD, 1972, University of Pennsylvania; Greek archaeology, epigraphy, topography, and history.

Oliver, Marvin E. 1974, (Adjunct); MFA, 1973, University of Washington; Northwest coast Indian art, Native American art, wood design, glass, metals.

Pawula, Kenneth J. * 1965; MA, 1962, University of California (Berkeley); painting, drawing.

Praczkowski, Edward * 1965, (Emeritus); MFA, 1965, Cranbrook Academy of Art; painting, drawing.

Proctor, Richard M. * 1957, (Emeritus); MA, 1962, Michigan State University; fiber arts.

Scheier, Shirley E. * 1986; MFA, 1985, University of Wisconsin; printmaking.

Takamori, Akio * 1988; MFA, 1978, New York State College of Ceramics; ceramic sculpture.

Welman, Valentine S. * 1954, (Emeritus); MFA, 1954, University of Colorado (Boulder); painting, drawing.

Wright, Robin K. * 1990; PhD, 1985, University of Washington; Native American art, particularly Northwest coast Indian art.

Assistant Professors

Bogel, Cynthia J. * 1999; PhD, 1995, Harvard University; Buddhist arts, Japanese art and architecture, ritual aesthetic meaning, changing values.

Brody, David * 1996; MFA, 1983, Yale University; painting, drawing.

Celentano, Denyce M. 1995; MFA, 1990, East Carolina University; painting and drawing.

Cheng, Karen * 1997; MDes, 1996, University of Cincinnati; graphic design.

Collins, Jeffrey L. * 1994; MA, 1990, Yale University; MA, 1994, Cambridge University (UK); PhD, 1994, Yale University; European Baroque art and architecture with an emphasis on Italy; American material culture.

Gale, Ann E. 1995; MFA, 1991, Yale University; figure painting.

Goettler, Christine E. * 1998; PhD, 1991, University of Zurich (Switzerland); northern European art (late medieval to Baroque), religious/devotional art, iconoclasm.

Hallett, Christopher * 1993; PhD, 1993, University of California (Berkeley); Egyptian, Greek, Roman art and archaeology.

Jeck, Douglas A. * 1996; MFA, 1989, The School of Art Institute of Chicago; sculpture and ceramics.

Loewenstein, Daniel F. 1999; MFA, 1980, University of California (San Diego); studio foundations, sculpture, performance art.

Lyall, Marta 1999; MFA, 1987, The School of Art Institute of Chicago; new media.

Lynn, Billie G. 1998; MFA, 1989, University of San Francisco; sculpture.

O'Toole, Helen J. * 1996; MFA, 1989, The School of Art Institute of Chicago; studio drawing, painting, art history.

Reed, T. Gervais 1950, (Emeritus); BA, 1949, Yale University; American, film.

Scott, George W. * 1995; MFA, 1993, Cranbrook Academy of Art; industrial design, product design and development.

St. Pierre, Louise M. * 1995; BFA, 1983, University of Alberta (Canada); design of products/exhibits which educate and enable children.

Wieczorek, Marek K. * 1997; PhD, 1997, Columbia University; modern European art, Mondrian and de Stijl, critical theory.

Lecturer

Nicholls, James Keith 1995; BArch, 1986, University of British Columbia (Canada); design, industrial design, construction technology.

Course Descriptions

See page 48 for an explanation of course numbers, symbols, and abbreviations.

For graduate-level course descriptions, see the graduate and professional study volume of the *General Catalog* or visit the online course catalog at www.washington.edu/students/crscat/.

ART 120 Issues and Influences (2) VLPA Introduction to the contemporary concerns of the various disciplines and fields of thought represented by the School of Art. Lectures regarding historical, contemporary, and future issues and directions from each of the School's ten programs. Credit/no credit only.

ART 121 Drawing (5) VLPA Drawing studied as the means of creating a coherent visual and expressive statement. Development of ability in the fundamentals of drawing: line, tone, and gesture, theory and practice of linear and aerial perspective, and basic concepts of composition. Offered: AWSp.

ART 123 Two-Dimensional Design: Structure and Color (5) VLPA Exploration of fundamental visual phenomena as defined by relationship and context. Compositional studies that allow for analysis of line, form, mass, tonality, and color. Exercises begin with subject interpretation and translation, progress to abstraction, and conclude with a series of variations on a visual theme. Offered: AWSp.

ART 124 Three-Dimensional Design Fundamentals (5) VLPA Through use of a variety of materials, three-dimensional fundamentals are investigated for formal and conceptual concerns as they apply to the visual arts. Offered: AWSp.

ART 131 Alternative Approaches to Art and Design (5) VLPA Presentation of process through which artists discover and translate ideas, feelings, and concerns into images or objects. Use of a wide variety of methods and approaches, from traditional to technological, to promote visual expression. Discussion and critiques leading toward better understanding the creative process. Prerequisite: ART 121; ART 123; ART 124.

ART 132 Introduction to Figure Drawing (5) VLPA Introduction to the human figure as historically traditional subject matter as well as an important component in self expression. Covers proportion, foreshortening, and composition. Prerequisite: ART 121; ART 123; ART 124.

ART 133 Color Theory and Practice (5) VLPA Examination of color as distinct visual phenomenon with investigations of its practical, theoretical, and illusionary aspects. Various media and materials employed in exercises and compositions that demonstrate properties of color structure, symbolism, and perception and their potential applications to art and design. Prerequisite: ART 121; ART 123; ART 124.

ART 150 Three-Dimensional Design Fundamentals (5) VLPA Introduction to fundamentals of three-dimensional design process. Both practical and conceptual skills explored and demonstrated through assigned project or projects.

ART 201 Ceramic Art: Handbuilding (5) VLPA Introduction to handbuilding; kiln firing and glazing processes. Examination of contemporary sculpture in clay. Prerequisite: ART 121; ART 123; ART 124.

ART 202 Ceramic Art: Wheel Throwing (5) VLPA Introduction to wheel throwing, glazing, and kiln firing processes. Examination of contemporary vessel form in clay. Prerequisite: ART 121; ART 123; ART 124.

ART 205 Visual Communication Design I (5) VLPA Presents communication and design issues to incoming students. Problems stress visual creativity, formal compositional issues, typography, and reasoning. Prerequisite: ART 121; ART 123; ART 124.

ART 206 Visual Communication Design II (5) VLPA Addresses the symbolic, organizational, conceptual, and typographic issues that further define the study and practice of design in both print and dimensional exercises. Prerequisite: ART 205.

ART 207 Introduction to Electronic Design (5) VLPA Investigates the principles of visual communication and typographic design, using digital hardware and software tools. Investigation into the medium's potential, limitations, and relationship to drawing and photography. Issues concerning sequence, transformation, and compositional are emphasized. Prerequisite: ART 206.

ART 208 Survey of Design History (5) VLPA Investigation of key ideas, technologies, and social/political/cultural contexts in western Europe that shaped the design of information and objects from the late nineteenth century to today. Emphasis on the connection between past ideologies to contemporary issues and practice in design.

ART 224 Concepts in Fibers (5) VLPA Introduces the core philosophical, aesthetic, and technical issues relevant to the field. Hands-on experience with basic aspects of weaving, surface design, and dye principles, in addition to discussions and readings concerning material culture and the multimedia nature of the field. Prerequisite: ART 121; ART 123; ART 124.

ART 226 Introduction to Structure (5) VLPA Explores the structure of two- and three-dimensional textile forms. Students work with floor looms, computer-aided looms, as well as working directly with materials. Prerequisite: ART 121; ART 123; ART 124.

ART 227 Introduction to Surface (5) VLPA Basic techniques of dying, printing, and embellishing, with emphasis on their conceptual uses in art making. Prerequisite: ART 121; ART 123; ART 124.

ART 240 Introductory Photography (5) VLPA Introduction to theory, techniques, and processes of still photography. Emphasis on darkroom procedures and camera use. Projects stress the visual and creative potential of the medium. Students must provide a camera with lens, shutter, and aperture controls. Prerequisite: ART 121; ART 123; ART 124. Offered: AWSpS.

ART 241 Intermediate Photography I (5) VLPA Studio projects examining the expressive and conceptual uses of alternative photographic materials and techniques. Prerequisite: ART 240. Offered: W.

ART 242 Intermediate Photography II (5) VLPA Extended studio projects examining the conceptual use of alternative photographic materials and techniques. Prerequisite: ART 241. Offered: Sp.

ART 243 Intermediate Photography: Color (5) VLPA Introduction to photographic color theory and processes with emphasis on color printing on type-C darkroom printing. Additional traditional and experimental color materials explored. Prerequisite: ART 241. Offered: Sp.

ART 245 Concepts in Printmaking (5) VLPA Introduction to contemporary printing methods such as monotype, monoprint, stencil, and photocopy. Survey of historical and current approaches to the art of printmaking. Prerequisite: ART 121; ART 123; ART 124.

ART 247 Intaglio (5) VLPA Monotype, collage, dry point, etching, engraving, and aquatint. Photographic and hand-drawn methods. Black and white and color work. Historical overview with emphasis on contemporary developments. Prerequisite: ART 121; ART 123; ART 124.

ART 256 Painting I (5) VLPA Beginning oil painting. Prerequisite: ART 121; ART 123; ART 124.

ART 257 Painting II (5) VLPA Oil painting. Prerequisite: ART 132; ART 256.

ART 258 Introduction to Metals (5) VLPA Introduction to concepts and techniques of metal design with an emphasis on jewelry. Skill acquisition includes sawing, filing, soldering, forging, and casting. Prerequisite: ART 121; ART 123; ART 124. Offered: AWSpS.

ART 259 Water-Soluble Media (5, max. 15) VLPA Prerequisite: ART 121; ART 123; ART 124.

ART 260 Art Works on Paper (5, max. 15) VLPA Experiments and projects in various techniques of drawing, assemblage, and painting on paper. Prerequisite: ART 257.

ART 261 Introduction to Industrial Design (5) VLPA Fundamentals of three-dimensional design. Form studies in relation to geometry, structure, value, production, meaning, and context. Prerequisite: ART 121; ART 123; ART 124.

ART 262 Introduction to Industrial Design (5) VLPA Fundamentals of three-dimensional design. Form studies in relation to geometry, structure, value, production, meaning, and context. Prerequisite: ART 121.

ART 263 Introduction to Industrial Design (5) VLPA Fundamentals of three-dimensional design. Form studies in relation to geometry, structure, value, production, meaning, and context. Prerequisite: ART 262.

ART 265 Intermediate Drawing (5, max. 15) VLPA Prerequisite: ART 132.

ART 272 Beginning Sculpture—Casting (5) VLPA *Taylor* Fundamentals of composition in the round and relief with an emphasis on non-metal casting. Prerequisite: ART 121; ART 123; ART 124.

ART 273 Beginning Sculpture—Wood and Metal (5) VLPA *Lynn* Introduction to sculpture, focusing on the use of wood and metal. Investigations center on a wide variety of methods and approaches, from traditional to technical, to promote visual expression. Class discussions and critiques focus on better understanding of the creative process. Prerequisite: ART 121; ART 123; ART 124.

ART 280 Media, Time, and Technology Arts (5) VLPA Develops a "new genre" attitude towards exploration and research in contemporary visual arts, based on computer/human interface and electronic technology. Includes performance art, environmental art, sound art, light art, video art, interactive installation, kinetic art, conceptual art. Prerequisite: ART 121; ART 123; ART 124.

ART 307 Intermediate Painting (5, max. 10) VLPA Prerequisite: ART 257.

ART 309 Portrait Painting (5, max. 10) VLPA Prerequisite: ART 257; ART 265.

ART 316 Design for Industry (5) VLPA Product design, working drawings, models, presentation drawings, product analysis, display, marketing. Prerequisite: ART 263.

ART 317 Design for Industry (5) VLPA Product design, working drawings, models, presentation drawings, product analysis, display, marketing. Prerequisite: ART 316.

ART 318 Design for Industry (5) VLPA Product design, working drawings, models, presentation drawings, product analysis, display, marketing. Prerequisite: ART 317.

ART 320 Industrial Design Special Projects (5, max. 15) VLPA Progressive industrial design methodology and criticism introduced through projects corresponding to major international design competitions, visiting critics and lecturers, corporate sponsored projects, or faculty design research. Independent or group work on projects to expand students' visual research, drawing, modelmaking, presentation, and literacy skills. Includes contemporary manufacturing and information technologies. Prerequisite: ART 261.

ART 321 Furniture Design (5) VLPA Design of a furniture piece. Methodologies and construction, types of hardware, special shop techniques, scale modeling and full-scale functional designs. Prerequisite: ART 261.

ART 322 Presentation for Industrial Design I (5) VLPA Introduction to presentation skills, from quick sketching of design concepts to refined representation of the finished design in a two-dimensional format. Emphasis on accuracy and development of an individual style. Prerequisite: ART 261.

ART 325 Advanced Drawing (5, max. 15) VLPA Study at an advanced level involving history, practice, and theory of drawing as an art form. Prerequisite: ART 132; ART 265.

ART 328 Intermediate Fiber Studio (5, max. 15) VLPA Explores more advanced techniques used in the basic fiber media, weaving and surface design. Technical focus of each class varies. Covers pattern development, expanded scale, visual clarity, and conceptual depth.

ART 329 Topics in Fiber Art (5, max. 15) VLPA Explores a range of special topics in fibers, including non-traditional materials and processes and interdisciplinary areas of interest within the field, while offering specific technical, hands-on training when appropriate. Emphasizes the development of the thematic content of the individual's work.

ART 330 History of Textiles (5) VLPA Overview of Western textiles from Coptic tapestry through industrialization. Discussion of textiles not only in aesthetic terms but also as cultural documents arising from, and reflecting, a broad range of societal pressures and concerns. Special topics in contemporary issues and non-Western textiles with emphasis on holdings in the University collection.

ART 332 Intermediate Sculpture Composition - Public Art (5, max. 15) VLPA Intermediate work in various media and techniques with an emphasis on the creation of public art. Prerequisite: ART 121, ART 123, ART 124; either ART 272 or ART 273.

ART 333 New Materials and Processes (5, max. 15) VLPA *Lynn* Exploration of the process through which artists discover and translate ideas, feelings, and concerns into images or objects. Introduction of new ways of thinking, new materials and processes in the investigation of a variety of sculpture methods and approaches. Prerequisite: ART 121; ART 123; ART 124; either ART 272 or ART 273.

ART 334 Public/Professional Art Issues (5, max. 15) VLPA *Young* Topics vary, centering on issues of public art and professional practices.

ART 335 Metal Casting (5, max. 15) VLPA Introduction to foundry techniques as applied to fine arts casting of ferrous and nonferrous material. Prerequisite: ART 272.

ART 340 Digital Imaging I (5) VLPA Introduction to the creative use of 2-D image manipulation and transformation of photographic and non-photographic imagery on the computer. Variety of programs, procedures, hardware (Macintosh platform), input, and output considered and employed. Previous computer experience not required. Prerequisite: ART 242; ART 243. Offered: A.

ART 341 Digital Imaging II (5) VLPA *Berger* Advanced topics in 2-D imaging, with emphasis on creative exploration of both software tools and possible integration with traditional art media. Prerequisite: ART 340.

ART 342 Contemporary Issues in Photography (5) VLPA An in-depth survey of contemporary artists and issues in photography. Prerequisite: ART 242; ART 243. Offered: W.

ART 343 Advanced Photography (5, max. 15) VLPA Topics in advanced photography, including: color printing, large-format photography, artificial lighting, and photography image transformation. Prerequisite: ART 340. Offered: WSp.

ART 345 Intermediate Printmaking (5, max. 15) VLPA Development of mature and personal statement within context of the print form through studio practice and group discussion and critique. Processes and media emphasis varies on a revolving basis. Prerequisite: either ART 245 or ART 247.

ART 350 Printmaking Special Projects (5, max. 15) VLPA Revolving topics of special interest to printmaking students beyond basic technical instruction found in beginning level courses. Prerequisite: ART 121; ART 123; ART 124.

ART 353 Intermediate Ceramic Art (5, max. 15) VLPA Advanced work in forming, decorating, and glazing. Prerequisite: ART 201; ART 202.

ART 354 History of Body Adornment (5) VLPA Covers jewelry and other body adornment from Neolithic times to the present, worldwide. Discusses social and cultural relevance of forms, uses, and materials. Emphasis on today's studio craftspeople who make jewelry as a form of aesthetic expression outside the fashion mainstream.

ART 357 Interdisciplinary Concepts in Metal (5, max. 25) VLPA *Hu* Variable topics, introducing concepts that cross traditional studio definitions and address interdisciplinary approaches to artistic investigation. Topics include textile/metal processes, printmaking/metal processes, color and metal, chemical, electrical, and mechanical processes in sculpture. Prerequisite: ART 121; ART 123; ART 124.

ART 358 Topics in Metal (5, max. 25) VLPA *Hu* Variable topics introducing issues and practices in metal smithing and jewelry, and their application to contemporary artmaking. Topics include casting and stone setting, ancient techniques, forming metal, production and business practices. Prerequisite: ART 258.

ART 360 Life (5, max. 10) VLPA Drawing and painting from the model. Prerequisite: ART 265; ART 307.

ART 361 Art Techniques (5, max. 15) VLPA Study of materials and techniques of the artist and their application to painting and drawing. Prerequisite: ART 257.

ART 366 Visualizations (5) VLPA Employs a variety of image-generating techniques to produce visual representations based upon specific assigned subjects. Imaging methods include digital and conventional photography, illustration, type (as image), and collage. Prerequisite: ART 207.

ART 367 Basic 3-D (5) VLPA Explores fundamental form in the context of visual communication of information. Students generate forms which represent, express, and effectively communicate assigned subjects, ideas, and concepts in three dimensions. The expressive potential of shape volume, surface, scale, color, etc., is addressed. Prerequisite: ART 366.

ART 368 Communications Programs (5) VLPA Explores the conceptual development and application of design to a related series of elements such as posters, brochures, stationery, identity, and directional devices supporting a campaign, conference or event. Graphic, thematic, and organizational strategies that educate and promote participation are often the objectives of this course. Prerequisite: ART 367.

ART 376 Typography (5) VLPA Introduces letter forms in visual communication. Studies in typography include type as form, typography contrast principles, text organization and hierarchy, the typographic grid, and legibility. History and research are investigated.. Prerequisite: ART 207.

ART 377 Symbols, Marks, Meaning (5) VLPA Research of symbolic graphic images, identities and relationships. Students design a complete series of symbols, logotype, and pictograms for usage with specific situations and audiences. Prerequisite: ART 376.

ART 378 Electronic Interactive Design (5) VLPA Introduces time-based electronic visual communication. Content sequencing, transitions, animation, and navigation addressed through an introduction to media authoring. Prerequisite: ART 377.

ART 380 Video Art and Video Installation (5) VLPA Exposes students to broad range of high-end video industry equipment, terminology and production/post skills while viewing art works and creating alternative activities and ideas. Work in electronic image gathering, digital A/B roll editing, motion control, video as related to performance and environmental art. Prerequisite: ART 121; ART 123; ART 124.

ART 421 Video Art (5, max. 15) VLPA Prerequisite: ART 380.

ART 428 Senior Thesis in Fiber Arts (5, max. 20) VLPA Specialized investigation involving surface design and/or fabric structures. Prerequisite: ART 324; ART 326; ART 327.

ART 436 Sculpture Composition (5, max. 15) VLPA Individual compositions in various media in large scale.

ART 440 Senior Thesis in Photography (5, max. 15) VLPA Development of a coherent photographic theme or topic evolved over two consecutive quarters resulting in a finished thesis portfolio. Prerequisite: ART 343. Offered: AWSp.

ART 445 Advanced Industrial Design (5) VLPA Market analysis and selected professional problems in industrial design. Consultation techniques; psychological, sociological, and economic factors involved in designing for consumer acceptance. Prerequisite: ART 318.

ART 446 Advanced Industrial Design (5) VLPA Market analysis and selected professional problems in industrial design. Consultation techniques; psychological, sociological, and economic factors involved in designing for consumer acceptance. Prerequisite: ART 445.

ART 447 Advanced Industrial Design (5) VLPA Market analysis and selected professional problems in industrial design. Consultation techniques; psychological, sociological, and economic factors involved in designing for consumer acceptance. Prerequisite: ART 446.

ART 450 Individual Projects in Printmaking (5, max. 15) VLPA Individual media study within the context of group discussion and critique. Prerequisite: ART 345; ART 350.

ART 460 Advanced Metal Design (5, max. 25) VLPA Advanced individual projects in metal design.

ART 463 Advanced Painting (5, max. 15) VLPA Development of individuality in painting through creative exercises. Prerequisite: ART 360.

ART 464 Advanced Painting/Drawing (5, max. 15) VLPA Advanced problems in composition. Prerequisite: ART 463.

ART 466 Publications Design (5) VLPA Research, development, organization, design, and presentation of a complex communications document, such as a journal, annual report, or a large publication. All aspects of design, content, image creation and production are addressed in a quarter-long project. Prerequisite: ART 368; ART 378.

ART 467 Exhibition Design (5) VLPA Working with 3-dimensional space, students explore the integration and presentation of graphic images and typographic messages sequenced in a given space. Explores the possibilities and multi-disciplinary character of exhibition planning and design. Prerequisite: ART 466.

ART 468 Portfolio/Exhibition Presentation (5) VLPA Examines the relationship between problem solving in the educational and professional environments. Emphasis on effective evaluative skills in the development, presentation, discussion, revision, and resolution of individual work. Students present their work at the BFA Exhibition. Prerequisite: ART 467.

ART 478 Information Design (5) VLPA Explores the strategies for enhancing and visually presenting complex statistics and data. Identifies the principles underlying the successful presentation of information. Prerequisite: ART 368; ART 378.

ART 479 Media Information Design (5) VLPA Explores program authoring, communication, and complex information design. Assigned information-design problems are addressed using multimedia authoring tools. Design of effective user interface, navigation techniques, and enhanced content communication. Prerequisite: ART 478.

ART 480 Senior Project/Presentation (3) VLPA Increased opportunity for self-directed design research and study in the context of an advanced studio seminar. Investigation and integration of visual communication skills. Student present their work at the BFA Exhibition. Prerequisite: ART 479.

ART 485 Advanced Ceramic Art (5, max. 20) VLPA Pottery design and construction, stoneware, clay bodies, glazes. Prerequisite: ART 353.

ART 487 Senior Research Project, Ceramics (5) VLPA Independent research on a topic in ceramics.

ART 488 Senior Source Presentation, Ceramics (5) VLPA Designed to allow ceramics majors to explore and define the primary sources of inspiration for their interest in art and why they make it.

ART 496 Undergraduate Internship (2-5, max. 10) Faculty supervised fieldwork in art related activities. Credit/no credit only.

ART 497 Study Abroad-Studio Individual Projects (3-10, max. 20) VLPA

ART 498 Individual Projects-Painting/Sculpture (3/5, max. 15)

ART 499 Individual Projects-Design (3/5, max. 15)

Art History

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General Catalog Web page:
www.washington.edu/students/genocat/academic/art_history.html



Department Web page:
net.art.washington.edu/SOASite/programs/AH/ahhome.html

Art history is the study of the creation, style, and meaning of works of art in relation to the artists and societies that created them. The history of art involves the interaction of styles, techniques, concepts, individual personalities, and social values from many places over long periods of time. This discipline is comparative in nature and requires many different skills, derived from the study of history and culture, foreign languages and literature, iconography, stylistic analysis, and connoisseurship.

Undergraduate Program

Adviser
Judith Clark
104 Art, Box 353440
(206) 543-0646
uaskart@u.washington.edu

The Division of Art History offers a program of study leading to a Bachelor of Arts, as well as a minor. Students studying in the field of Art History can expect to develop strong writing, research, analytical, critical thinking, and problem-solving skills. Course work is

designed to allow students to comprehend the social, historical, ethical, and aesthetic significance of the visual realm that is our present environment and the heritage of many cultures.

Art History graduates pursue careers in fields such as gallery and museum management, visual technology, teaching, arts administration, arts education, research, curating and restoration, interior design, and art and antique connoisseurship.

Student Associations and Internship Opportunities: Students majoring in art history have the opportunity to participate in several School-sponsored programs designed to help them develop professional practices and expand their knowledge outside the UW: K-12 Educational Partnerships, internships for credit, annual Art History Research Colloquium, Art History Honors Program, and the Art History Seminar in Rome.

Bachelor of Arts

Admission Requirements: Entering freshmen and transfer students may declare an Art History major by scheduling an appointment with the Art History adviser on or after their orientation/registration date. Currently enrolled University students who wish to declare an Art History major must have a minimum 2.50 GPA and meet with the adviser any time during the quarter except the first week.

Admission Policy for Postbaccalaureate Applicants: Postbaccalaureate study in Art History is limited. Acceptance is competitive and based upon transcripts of prior college work and a School of Art Supplemental Information Form.

Additional Information: Art history majors anticipating graduate study should acquire a reading knowledge of French, German, Chinese, or Japanese.

Suggested Introductory Course Work: ART H 201, 202, 203. Courses to enhance writing skills, and courses in history, literature, anthropology, classics, and foreign languages.

Major Requirements: 55 credits in art history, including one course from each of the following four groups plus three 400-level art history courses: (1) ART H 201, 202, 290, 340, 341, 342, 343, 351, 352, 361, or 373; (2) ART H 204, 306, 311, 315, 316, or 321; (3) ART H 205, 206, 230, 330, 331, or 337; (4) 203, 232, 380, 381, 382, or 384.

Minor

Minor Requirements: 30 credits of art history courses, of which 15 must be upper-division courses. Minimum grade of 2.0 required in each course applied to the minor. At least 15 credits must be completed at the UW.

Graduate Program

For information on the Department of Art History's graduate program, see the graduate and professional volume of the *General Catalog* or visit the *General Catalog* online at www.washington.edu/students/genocat/.

Faculty

Chair

Patricia Failing

Professors

Bliquez, Lawrence J. * 1969; PhD, 1968, Stanford University; Greek oratory, Greek historiography and historians, Greek and Roman medicine.

Bravmann, Rene A. * 1972; PhD, 1971, Indiana University; African art.

Casteras, Susan P. * 1996; PhD, 1977, Yale University; nineteenth-twentieth century painting and sculpture, English art.

Clausen, Meredith L. * 1979; PhD, 1975, University of California (Berkeley); twentieth-century and American architecture.

Hildebrand, Grant * 1964; MArch, 1964, University of Michigan; history, preservation design.

Kartsonis, Anna D. * 1983; PhD, 1982, New York University; Byzantine and medieval art.

Kingsbury, Martha * 1968; PhD, 1969, Harvard University; nineteenth- and twentieth-century European and American art.

Opperman, Hal N. * 1967, (Emeritus); PhD, 1972, University of Chicago; seventeenth- and eighteenth-century European art.

Pundt, Hermann G. * 1968, (Emeritus); PhD, 1969, Harvard University; history, historical preservation.

Silbergeld, Jerome * 1975; PhD, 1974, Stanford University; Chinese art.

Snow-Smith, Joanne * 1981; PhD, 1976, University of California (Los Angeles); Italian Renaissance art.

Associate Professors

Failing, Patricia A. * 1982; MA, 1974, University of California (Berkeley); contemporary art and criticism.

Langdon, Merle K. * 1976; PhD, 1972, University of Pennsylvania; Greek archaeology, epigraphy, topography, and history.

Oliver, Marvin E. 1974, (Adjunct); MFA, 1973, University of Washington; Northwest coast Indian art, Native American art, wood design, glass, metals.

Assistant Professors

Bogel, Cynthia J. * 1999; PhD, 1995, Harvard University; Buddhist arts, Japanese art and architecture, ritual aesthetic meaning, changing values.

Collins, Jeffrey L. * 1994; MA, 1990, Yale University; MA, 1994, Cambridge University (UK); PhD, 1994, Yale University; European Baroque art and architecture with an emphasis on Italy; American material culture.

Goettler, Christine E. * 1998; PhD, 1991, University of Zurich (Switzerland); northern European art (late medieval to Baroque), religious/devotional art, iconoclasm.

Hallett, Christopher * 1993; PhD, 1993, University of California (Berkeley); Egyptian, Greek, Roman art and archaeology.

Wieczorek, Marek K. * 1997; PhD, 1997, Columbia University; modern European art, Mondrian and de Stijl, critical theory.

Course Descriptions

See page 48 for an explanation of course numbers, symbols, and abbreviations.

For graduate-level course descriptions, see the graduate and professional study volume of the *General Catalog* or visit the online course catalog at www.washington.edu/students/crscat/.

200-level courses in the history of art are intended for nonmajors, although they are also open to majors. They are designed to give an introduction to the subject matter of broad areas and to the history of art as a humanistic study. There are no prerequisites; each course is completely independent.

ART H 201 Survey of Western Art-Ancient (5) VLPA Major achievements in painting, sculpture, architecture, and the decorative arts in Europe, the Near East, and North Africa, from prehistoric times to the beginnings of Christianity.

ART H 202 Survey of Western Art-Medieval and Renaissance (5) VLPA The arts of the Byzantine Empire, Islam, and Western Christendom through 1520 AD.

ART H 203 Survey of Western Art-Modern (5) VLPA Western art from 1520 to the present.

ART H 204 Survey of Asian Art (5) VLPA/I&S Origins and interplay of major movements of South and East Asian art.

ART H 205 Survey of Tribal Art (5) VLPA/I&S Arts of Sub-Saharan Africa and Oceania from prehistoric times to the present and to the pre-Columbian arts of the Americas.

ART H 206 Survey of Native-American Art (5) VLPA/I&S Introduction to Native-American art north of Mexico, prehistory through the twentieth century. Regional examination of types and styles, with emphasis on aesthetics, cultural function, and factors of change.

ART H 230 The African-American Tradition: A Transatlantic View of Art and Culture (5) VLPA/I&S Assesses the diversity of art by individuals of African descent in Brazil, the Caribbean, and the United States. Examines questions of form meaning, and symbolic and ritual behavior. Considers formal and conceptual relationships between art forms and their African sources; assesses their role in the construction of new African-American identities.

ART H 232 Photography: Theory and Criticism (3) VLPA/I&S Art traditions of photography from its origins in the nineteenth century to the present. Emphasis on photographic traditions and photographers of the twentieth century.

ART H 290 History of Architecture (5) VLPA/I&S Introduction to the history of architecture across a broad range of cultural contexts.

ART H 250 Rome (5) VLPA/I&S Focuses on Rome as an historical, intellectual, and artistic world center. Literary and historic documents, visual arts, architecture, film, and opera used to explore the changing paradigms of the Eternal City. In English. Offered: jointly with ITAL 250 and HSTEU 250.

ART H 300 Ideas in Art (5) VLPA Selected monuments of art and architecture in the Western tradition, from the Greeks to the twentieth century, studied in relation to the intellectual background of the ages and civilizations that produced them. Slide lectures accompanied by discussion of assigned readings in philosophical, religious, scientific, political, literary, and artistic texts. Offered: jointly with CHID 300.

ART H 306 Indian Art of South Asia (5) VLPA Development of Indian art from its origins to the medieval period. Spread of Indian religions and related art forms in Tibet and Southeast Asia are briefly introduced.

ART H 309 Topics in ART History (5, max. 15) VLPA Topics vary.

ART H 311 Chinese Painting (5) VLPA/I&S An introduction to the role of painting in Chinese cultural history, with attention to regional geography, social structure, gender, traditional philosophies, twentieth-century socialism, and the patterns of Chinese history.

ART H 315 The Buddhist Art of East Asia (5) VLPA Buddhist painting and sculpture of China, Korea, and Japan. Its religious meaning, artistic development, and historical significance. Examples from the sixth to the seventeenth centuries, along with paintings and contemporary carvings.

ART H 316 Japanese Painting (5) VLPA Japanese painting traditions from earliest times to the present. Examples illustrated and discussed in the context of Japanese cultural history. Analysis of painting styles as well as of the roles artists have played and the meaning their works have had in Japanese society.

ART H 317 Chado-Japanese Esthetics (4) VLPA History, theory, and practice of chado, or *Way of Tea*, a Zen-inspired art that has had notable effects on Japanese society. Lectures on esthetics and cultural history supplemented by participation in chado, with the goal of developing sufficient understanding and skill to continue chado as a discipline.

ART H 321 Arts of Japan (5) VLPA/I&S The spectrum of Japanese art from prehistory to modern times. Examines the interrelationship of the major media for each historical period. Central theme: the appreciation of the varied aesthetics active in the development of Japanese painting, architecture, sculpture, and ceramics.

ART H 330 Tribal Art and Philosophy (5) VLPA/I&S Philosophical inquiry and thought in African, Amerindian, and Pacific island societies as expressed through the visual, musical, choreographic, and oral arts. Natural, moral, and ethical ideas as expressed in the arts.

ART H 331 Northwest Coast Indian Art (5) VLPA/I&S Native-American art of the Pacific Northwest Coast from precontact to the present, from the Columbia River in the south to Southeast Alaska in the north. Differences in tribal styles and social function; changes occurring over time as the result of sharing between tribal groups and the impact of the arrival of Europeans. Offered: jointly with ANTH 331.

ART H 337 African Art and Society (5) VLPA/I&S Explores the ideas and notions expressed visually in sculpture, painting, ceramics, textiles, and architecture and describes their relationships to man and culture in Africa.

ART H 340 Pre-Classical Art and Archaeology (3) VLPA Art and the other material remains of the civilizations in the Aegean from the Neolithic period to the end of the Bronze Age, with special emphasis on Minoan Crete and the Mycenaean kingdoms of mainland Greece; illustrated by slides. The history, techniques, and results of significant excavations. Offered: jointly with CL AR 340.

ART H 341 Greek Art and Archaeology (3) VLPA Material remains and the developing styles in sculpture, vase painting, architecture, and the minor arts from the Geometric to the Hellenistic periods; illustrated by slides. Principal sites and monuments, as well as techniques and methods of excavation, are examined in an attempt to reconstruct the material culture of antiquity. Offered: jointly with CL AR 341.

ART H 342 Roman Art and Archaeology (3) VLPA Roman architecture and art, with emphasis on the innovations of the Romans; illustrated by slides. Offered: jointly with CL AR 342.

ART H 343 Hellenistic Art and Archaeology (3) VLPA Art of Greece and the eastern Mediterranean from the time of Alexander the Great to the Roman conquest. Principal sites with their sculpture, painting, mosaics, and minor arts examined in lectures with slides. Offered: jointly with CL AR 343.

ART H 350 The City of Cairo (3) VLPA/I&S Development of Fustat and Cairo, 600-1800, with special emphasis on art and architecture. Economic, social, and geographic influences on the creation of the distinctive Egyptian styles of Islamic art. Offered: jointly with NEAR E 350.

ART H 351 Early Medieval and Byzantine Art (5) VLPA/I&S Christian art and architecture of the Roman and Byzantine empires and of western Europe through the eighth century.

ART H 352 High and Late Medieval Art (5) VLPA/I&S Art and architecture of western Christendom from the time of Charlemagne to the Renaissance.

ART H 361 Italian Renaissance Art (5) VLPA Sculpture, painting, and architecture from 1300 to 1600.

ART H 366 Northern Renaissance Art (5) VLPA An overview of Dutch, Flemish, and German art in the context of religious, historical, and stylistic developments during the Renaissance in Northern Europe (c. 1400-1570).

ART H 372 Rococo to Romanticism (5) VLPA Mainstream of European art and architecture from about 1710 to about 1830. Attention is also given to central and eastern Europe, Scandinavia, and the colonial Americas.

ART H 373 Southern Baroque Art (3) VLPA Art of Italy and Spain, circa 1590 to circa 1710.

ART H 380 Nineteenth-and Twentieth-Century Art (5) VLPA Arts and architecture of Europe and America from Romanticism to the present.

ART H 381 Art Since World War II (5) VLPA/I&S Art of Europe and the United States in the decades since World War II: painting, sculpture, and architecture, multiplication of new forms (video, performance pieces, land and installation pieces), changing context of patronage, publicity, and marketing.

ART H 382 Theory and Practice of Art Criticism (3) VLPA Major issues in art and architectural criticism: nature of art criticism, aims of the critic, differences between art and architectural criticism. Works by major critics and artists, mostly twentieth century.

ART H 384 American Art (5) VLPA/I&S Achievements and issues in painting, architecture, sculpture, and other arts in the United States from the colonial era to the present.

ART H 397 Art in Rome: Augustus to Mussolini (10) VLPA Survey of art in Rome; studies from original monuments. Offered in Italy as part of the Art History Seminar in Rome. Focuses on representative works from the most important periods of Italian art: Ancient, Medieval, Renaissance, Baroque, Modern. Site visits, field trips, individual research projects.

ART H 399 Study Abroad: Art History Individual Projects (3-10, max. 20) VLPA For participants in Study Abroad programs.

400-level courses are intensive, quite narrow in scope, and addressed to current scholarly problems. A relatively high level of sophistication is needed. In general, sound prior humanistic training and knowledge of at least one of the following are required: art of the period or region at a general level (such as that provided by the relevant 200- or 300-level course), social or cultural history of the subject area, literature and thought of the area, or an appropriate foreign language. 400-level courses are available for both undergraduate and graduate credit. Each 400-level course is accompanied by two units of ART H 599, required of graduate majors.

ART H 400 ART History and Criticism (2-5, max. 15) VLPA Courses on special topics, frequently by visiting faculty, which cannot be offered on a continuing basis. Consult art history office for subjects offered.

ART H 411 Traditional Chinese Architecture and Gardens (3) VLPA/I&S Introduction to Chinese architecture (palaces, homes, temples, tombs), urban planning, and gardens: each area examined in terms of techniques of production, visual styles, historical development, and relationship to traditional Chinese cultural values. Recommended: some background in Chinese art, history, language, or literature. Offered: jointly with ARCH 451.

ART H 412 Chinese Painting in the Twentieth Century (3) VLPA Modern Chinese painting and art theories, seen in relation to China's twentieth-century struggles over nationalism and Westernization, traditionalism and modernization, individualism and the Maoist "mass line." Recommended: some background in Chinese art, history, language, or literature.

ART H 415 Chinese Painting: The Sung Period (5) VLPA/I&S Golden age of Chinese painting, emphasizing the monumental, romantic, and Zen Buddhist landscape painting traditions of the tenth through thirteenth centuries. Recommended: some background in Chinese art, history, language, or literature.

ART H 416 Chinese Painting: The Yuan Period (5) VLPA/I&S Chinese painting under Mongol rule, in the fourteenth century: a period of political and social crisis that gave rise to a revolution in painting styles. Recommended: some background in Chinese art, history, language, or literature.

ART H 417 Later Chinese Painting: Ming, Ch'ing, and Modern Periods (5) VLPA/I&S Major masters and traditions, esthetic attitudes, and social role of Chinese painting from the fifteenth century to the present day. Recommended: some background in Chinese art, history, language, or literature.

ART H 420 Art of the Japanese Print (3) VLPA Foundations of Ukiyo-e in Japanese genre from the twelfth through mid-seventeenth centuries; woodblock technique from the Heian period through the early Edo period. Emphasis on the changing styles and subject matter in Ukiyo-e Hanga from Moronobu through Kuniyoshi. Recommended: some background in Japanese art, history, language, or literature.

ART H 429 Japanese Cinema (3) VLPA Eleven masterpieces of Japanese cinema, studied in the context of what they reveal about Japanese culture and the art of the film. Recommended: some background in Japanese art, history, language, or literature.

ART H 430 Chinese Cinema (5) VLPA/I&S *Silbergeld* Chinese film, 1930s to the present, studied as a visual art form, set in relation to traditional and modern Chinese arts and literature, modern history, gender, and other social issues. Recommended: some background in Chinese art, history, language, or literature.

ART H 432 Oceanic Art (3) VLPA/I&S Arts of Oceania, studied through cultures of Polynesia, Micronesia, Melanesia, and Australia.

ART H 434 Native-American Art and Ceremony of the Southern and Central Northwest Coast (3) VLPA/I&S Examination of the role of the visual arts in the ceremonial life of the Native-American people of the central and southern Northwest Coast. Emphasis on the traditional social and religious aspects of ceremonialism, contrasts between tribal traditions, and continuing twentieth-century traditions. Recommended: some background in Native American art, history, languages, or literature.

ART H 435 Thematic Studies in Native-American Art (3, max. 9) VLPA/I&S *Wright* Approach to Native-American art through themes and issues. Focus varies from year to year (e.g. Shamanism in Native-American art, gender identity in Native-American art, social and political aspects of Native-American art, issues in contemporary Native-American art). Recommended: some background in Native American art, history, languages, or literature.

ART H 436 Arts of Sub-Saharan Africa I (3) VLPA/I&S Traditional arts of the Western Sudan and the Western Guinea coast with their archaeological antecedents. Recommended: some background in African art, history, languages, or literature.

ART H 437 Arts of Sub-Saharan Africa II (3) VLPA/I&S Traditional arts of the Central Guinea coast, Nigeria, Cameroon, and Gabon, from precontact times to the present. Recommended: some background in African art, history, languages, or literature.

ART H 438 Arts of Sub-Saharan Africa III (3) VLPA/I&S Arts of Zaire, Angola, the Swahili coast, and southern Africa. Recommended: some background in African art, history, languages, or literature.

ART H 442 Greek Painting (3) VLPA *Langdon* Study of painted decoration on Greek vases, with emphasis on stylistic developments and cultural and historical influences. Painting on other media also examined as evidence allows. Offered: jointly with CL AR 442.

ART H 446 Greek Architecture (3) VLPA Detailed study of Greek architecture from its beginnings, with special emphasis on the Periclean building program in fifth-century Athens. Offered: jointly with CL AR 446/ARCH 454.

ART H 448 The Archaeology of Italy (3) VLPA *Harmon* Study of the principal archaeological sites in Italy with special emphasis on ancient Rome. Sites include the Alban hills, Ostia, Pompeii, Herculaneum, Tarquinia, Paestum, Tivoli, and Praeneste. Attention given to the relationship between material remains and their purpose in ancient life. Illustrated by slides. Offered: jointly with CL AR 448.

ART H 451 Topics in Early Christian and Byzantine Art and Architecture (3, max. 9) VLPA Specific theme or area of early Christian and Byzantine art and architecture, such as early Christian and Byzantine mosaics or the art of Constantinople.

ART H 452 Art, Religion, and Politics in the Early Christian Period, 300-700 AD (3) VLPA/I&S *Kartsonis* Evolution of the art of the early Christian period (300-700 AD) in the context of contemporary religious, political, and cultural developments. Recommended: some background in Byzantine art or history. Offered: jointly with RELIG 442.

ART H 453 Art, Religion, and Politics in Byzantium, 700-1453 AD (3) VLPA/I&S *Kartsonis* Evolution of the art of Byzantium (700-1453 AD) in the context of contemporary religious, political, and cultural developments. Recommended: some background in Byzantine art or history. Offered: jointly with RELIG 443.

ART H 455 Special Studies in Gothic Art and Architecture (3) VLPA Detailed study of Gothic architecture and its accompanying sculpture and stained glass, with special emphasis on the twelfth and thirteenth centuries in France and England. Offered: jointly with ARCH 455.

ART H 462 High Renaissance Painting in Italy (3) VLPA Painting in central and northern Italy, from about 1480 to about 1530: Leonardo, Raphael, the early Michelangelo, Sarto, Correggio, Bellini, Giorgione, and the early Titian. Recommended: some background in Italian Renaissance art or history.

ART H 463 Italian Renaissance Sculpture (3) VLPA From Nicola Pisano to Giambologna. Recommended: some background in Italian Renaissance art or history.

ART H 466 High Renaissance Painting in Venice (3) VLPA Painting in Venice, circa 1480 to circa 1580: Bellini, Carpaccio, Giorgione, Titian, Lotto, del Piombo, Tintoretto, and Veronese. Recommended: some background in Italian Renaissance art or history.

ART H 470 English Art: 1500-1800 (3) VLPA English art, principally painting, and, to a lesser extent, architecture. Emphasis on patronage, on the conditions that produced the decided peculiarities of English art, and on the final triumph of the native tradition. Recommended: some background in English history.

ART H 482 Realism and Impressionism (3) VLPA Art and the world, 1830-80: high Romanticism through Realism and Impressionism, with emphasis on painting in France. Recommended: some background in the art or history of the period.

ART H 483 Post-Impressionism to 1918 (3) VLPA Post-Impressionism and the great revolution of early twentieth-century art, with emphasis on painting. From the first revisions of Impressionism around 1880 to Fauvism, Cubism, Futurism, the Blaue Reiter, and Dadaism. Recommended: some background in the art or history of the period.

ART H 484 Topics in Modern Art (3, max. 9) VLPA Approach to art of the nineteenth and twentieth centuries through particular themes, genres, contexts, or other issues. Focus varies from year to year. Recommended: some background in the art or history of the period.

ART H 485 Italian Futurism, Dada, Surrealism (5) VLPA *Failing* Survey of three European early modern art movements whose ultimate objective was the collapse of bourgeois culture. Central issues: the role of art and artists in catalyzing social change, strategies for destroying public faith in logic, integration of verbal and visual signs and nonaesthetic conceptions of art. Recommended: some background in the art or history of the period.

ART H 486 Abstract Expressionism: History and Myth (5) VLPA Thematic and chronological survey of abstract expressionism, including major genres of critical interpretation, revisionist scholarship, and the relationship of artistic production to a larger context of visual production. Recommended: some background in the art or history of the period.

ART H 488 American Architecture (3) VLPA American architecture from indigenous native American traditions to the present. Recommended: some background in the art, architecture, or history of the period. Offered: jointly with ARCH 488.

ART H 490 Nineteenth-Century Architecture (3) VLPA From late eighteenth-century French rationalists, Neoclassicists, to *fin de siècle* Vienna and Paris. Includes theorists such as Ruskin, Viollet-le-Duc, and Semper; major movements, such as the Arts and Crafts, and the French Ecole des Beaux-Arts method of design. Recommended: some background in the art, architecture, or history of the period. Offered: jointly with ARCH 456.

ART H 492 Alternative Art Forms Since 1960 (5) VLPA Survey of "post-studio" art forms developed in the 1960s by artists who did not equate artmaking with painting, sculpture, or other traditional forms. Topics include: happenings, Fluxus, land projects, artists' video, artists, books, performance, site works, and art made for distribution on CD-ROM and on the World Wide Web.

ART H 493 Architecture Since 1945 (3) VLPA Theories and forms in architecture from the end of World War II to present. Includes new wave Japanese architects, recent Native-American developments, and non-Western as well as Western trends. Recommended: some background in the art, architecture, or history of the period. Offered: jointly with ARCH 459.

ART H 495 Italian Fascism: Architecture and Power (5) VLPA/I&S *Clausen, Sbragia* Fascism in Italy as studied within the broader European context of nationalism, imperialism, and modernization, with particular emphasis on the arts—literature, film, architecture, and urbanism. Offered: jointly with ITAL 475; A.

ART H 497 Special Topics in Art in Rome (5, max. 10) VLPA Topics in art and architecture in Rome and environs, studied from original works. Offered in Italy as part of the art history Seminar in Rome. Topics vary. Site visits, field trips, and individual research projects.

ART H 498 Individual Projects, Undergraduate Practicum (2-5, max. 10) Fieldwork or internships in art-related areas in the community. Practical experience in areas such as arts administration, gallery and museum operations, collection cataloguing, curatorial responsibilities, and art education. Credit/no credit only.

ART H 499 Individual Projects (2-5, max. 10)

Asian Languages and Literature

223 Gowen



General Catalog Web page:
www.washington.edu/students/gencat/academic/asian_lang_lit.html



Department Web page:
depts.washington.edu/asianll/

The Department of Asian Languages and Literature offers instruction in the principal languages and literatures of Asia, including East, Southeast, Central, and South Asia. Emphasis is placed on the roles of these languages within the cultures they serve as well as on linguistic, textual, and literary analysis. Courses on Asian literature in English are offered for majors and nonmajors alike.

Undergraduate Program

Adviser

Lauren Hussey

223A Gowen, Box 353521
(206) 543-4996

The Department of Asian Languages and Literature offers a program of study leading to a Bachelor of Arts degree with options in Chinese, Japanese (with either a linguistic or literature concentration), Korean, and South Asian languages. It also offers minors in Chinese, Hindi, Japanese, and Sanskrit.

Bachelor of Arts

Admission Requirements:

1. Completion of at least 20 credits of college course work (or department-approved equivalent) in the intended primary language of concentration. The most recent course completed in the intended primary language of concentration must be a course offered by the UW, and the final grade in the most recent course in that language must be 2.5 or higher.
2. Completion of one writing course (W-prefix) taught in English with a minimum grade of 2.0.
3. The department prefers that prospective majors present a cumulative GPA of 2.50 or higher. Applicants may submit materials in addition to transcripts clarifying any aspect of past course work. Denied applicants may appeal.
4. Transfer students must be enrolled at the UW before applying to the major.

Suggested Introductory Course Work: First and second years of the target foreign language(s): Chinese, Japanese, Korean, or South Asian (Hindi or Sanskrit). Any courses relating to the area or discipline of major study.

Additional Information: A student entering the junior year without two years of the appropriate foreign language will not be able to complete the degree requirements in two years unless he or she takes accelerated courses at the UW during summer quarter, such as Chinese or Japanese.

Major Requirements

Chinese

75 credits total, as follows: 50 credits in the language, 20 beyond the third-year level (which must include CHIN 451 and other courses drawn from 411, 412, 413, 421, 422, 423, 452, 453, 470, and 482). 23 credits of area-related humanities and social sciences with no more than 5 credits at the 200 level (to include 15 credits of Chinese literature from ASIAN 201, 204, 211, 263, CHIN 373, 380, 381, 385, 443, 461, 462, 463, 470, 482, and relevant courses from the Department of Comparative Literature, 3 credits for CHIN 342, and 5 credits from HSTAS 211, 451, 452, 453, 454).

Japanese

75 credits as follows: 45 credits in language beyond the first-year level, selected according to the student's choice of major option; 20 credits of a literature or linguistics sequence; and 10 credits of area-related humanities and social sciences, as follows:

Literature Option:

Language: 45 credits, with a minimum of 30 credits beyond the second year. (Second year: JAPAN 211, 212, 213; third year: JAPAN 311, 312, 313; fourth year: 15 credits from JAPAN 431, 432, 433, 445, 471, 472, and 473.)

Students who, upon the determination of the faculty in Japanese, are permitted to begin their study of Japanese at the University at a level higher than JAPAN 211, substitute, in consultation with the undergraduate adviser, an equivalent number of credits in additional courses drawn from JAPAN 431, 432, 433, 445, 471, 472, 473, and with prior approval, other Japan-related humanities or social science courses.

Literature sequence: 20 credits, including JAPAN 321, 322, 323, and 5 credits from JAPAN 395, 431, 432, 433, 460, 471, 472, and 473, if not used to satisfy the language requirement.

Area-related humanities or social science courses: 10 credits at the 300 level or above, at least 5 of which must be from outside the Department of Asian Languages and Literature; may be taken from JAPAN 342, 343, 395, 440, 442, 443, and 460; other Japanese literature courses not used to meet the literature requirement; and related courses from other departments.

Linguistics Option:

Language: 45 credits, with a minimum of 30 credits beyond the second year. (Second year: JAPAN 211, 212, 213; third year: JAPAN 311, 312, 313; fourth year: 15 credits from JAPAN 431, 432, 433, 445, 471, 472, and 473.)

Students who, upon the determination of the faculty in Japanese, are permitted to begin their study of Japanese at the University at a level higher than JAPAN 211, substitute, in consultation with the undergraduate adviser, an equivalent number of credits in additional courses drawn from JAPAN 431, 432, 433, 445, 471, 472, 473, and with prior approval, other Japan-related humanities or social science courses.

Linguistics sequence: 20 credits, including at least 15 credits from JAPAN 342, 343, 395, 440, 442, 443; 5 of the 20 credits may come from JAPAN 321, 322, 323, 460, 471, 472, 473, LING 400, or related courses from other departments.

Area-related humanities or social science courses: 10 credits at the 300 level or above, at least 5 of which must be from outside the Department of Asian Languages and Literature; may be taken from LING 400, JAPAN 321, 322, 323, 395, 460, 471, 472, and 473; and related courses from other departments.

Korean

45 credits in the language, 15 beyond second-year level; 30 credits in literature and area-related humanities or social science courses.

South Asian Languages

60 credits in languages, of which 45 are in the major language, 15 in the minor language; 15 credits in area-related humanities or social science courses to be chosen in consultation with adviser and to include HSTAS 201 and ASIAN 401.

Minors

Minor Requirements:

Chinese: 30 credits to include minimum 15 language credits from the following: CHIN 311, 312, 313; 411, 412, 413; 451, 452, 453; 470, 482. 15 credits in area-related humanities courses from the following: ASIAN 201, 204, 211, 263 (when topic is China), CHIN 293, 342, 373, 374, 380, 385, 381, 461, 462, 463, 470, 482. (CHIN 482 may count as language or area-related humanities credit, but not both.)

Hindi: 30 credits to include 15 language credits at the second-year level (HINDI 321, 322, 323) or above. 15 credits in area-related humanities courses to include either ASIAN 203 or 206 and any of the following: ART H 306; HSTAS 201, 202, 401, 402, 403, 404; PHIL 386, 412; RELIG 352, 354.

Japanese: 30 credits to include 15 language credits at the third-year level (JAPAN 311, 312, 313) or above. 15 credits in additional language or literature/culture courses. Acceptable courses include, but are not limited to: JAPAN 321, 322, 323, 342, 343, 431, 432, 433, 440, 442, 445, 460, 471, 472, 473; ART H 316, 317; ART 321; ECON 494; GEOG 313; HSTAS 422, 423; MUSIC 495; POL S 435. Acceptable language courses include those offered by the Technical Japanese program, the Jackson School of International Studies, the School of Law, and the School of Business Administration. At least half of the credits for the minor must be taken at the UW.

Sanskrit: 30 credits to include 15 language credits at the second-year level (SNKRT 401, 402, 403) or above. 15 credits in area-related humanities courses to include either ASIAN 203 or 206 and any of the following: ART H 306; HSTAS 201, 202, 401, 402, 403, 404; PHIL 386, 412; RELIG 352, 354.

Graduate Program

For information on the Department of Asian Language and Literature's graduate program, see the graduate and professional volume of the *General Catalog* or visit the *General Catalog* online at www.washington.edu/students/gencat/.

Faculty

Acting Chair

Michael C. Shapiro

Professors

Boltz, William * 1981; PhD, 1974, University of California (Berkeley); classical Chinese.

Gething, Thomas W. 1995, (Affiliate); PhD, 1966, University of Michigan; Thai and Lao language and linguistics.

Knechtges, David R. * 1972; PhD, 1968, University of Washington; Han and Six Dynasties literature.

Norman, Jerry * 1971, (Emeritus); PhD, 1969, University of California (Berkeley); Chinese language and linguistics, Altaic linguistics.

Salomon, Richard G. * 1981; PhD, 1975, University of Pennsylvania; Sanskrit language and literature.

Shapiro, Michael C. * 1970; PhD, 1973, University of Chicago; Indo-Aryan languages and linguistics.

Shih, Vincent Y. 1945, (Emeritus); PhD, 1939, University of Southern California; Chinese.

Treat, John W. * 1983, (Affiliate); PhD, 1982, Yale University; Japanese language and literature.

Yue-Hashimoto, Anne O. * 1980; PhD, 1966, Ohio State University; Chinese language, linguistics and dialectology.

Associate Professors

Brandauer, Frederick P. * 1973, (Emeritus); PhD, 1973, Stanford University; traditional Chinese vernacular fiction and modern Chinese literature.

Cooke, Joseph R. * 1967, (Emeritus); PhD, 1965, University of California (Berkeley); Thai language and literature.

Cox, Collett D. * 1985; PhD, 1983, Columbia University; Buddhist studies (East and South Asian), Indian philosophy and religion, comparative religion.

Kano, Tamako-Niwa * 1962, (Emeritus); PhD, 1956, Radcliffe; Japanese language.

Lukoff, Fred 1964, (Emeritus); PhD, 1954, University of Pennsylvania; Korean language and linguistics.

Tsutsui, Michio * 1990, (Adjunct); PhD, 1984, University of Illinois; computer-aided instruction, international communication, Japanese linguistics, technical Japanese.

Assistant Professors

Boltz, Judith M. 1999, (Affiliate); PhD, 1985, University of California (Berkeley); Chinese narrative.

Fulton, Bruce E. 1998, (Affiliate); .PhD, 1999, Seoul National University (Korea); modern Korean literature.

Handel, Zev * 1998; MA, 1992, PhD, 1998, University of California (Berkeley); Chinese historical phonology, Sino-Tibetan linguistics.

Kern, Adam L. * 1998; PhD, 1997, Harvard University; early modern Japanese literature, drama, and culture (popular and visual).

Kobayashi, Motoo * 1994; PhD, 1994, University of Washington; modern and contemporary Japanese literature, comparative literature.

Lee, Ann Sung-Hi * 1996; PhD, 1991, Columbia University; Korean literature.

Ohta, Amy S. * 1995; PhD, 1993, University of California (Los Angeles); applied linguistics, acquisition of Japanese as a second language, sociolinguistics.

Ohta, Kaoru * 1995; PhD, 1994, University of California (Los Angeles); Japanese linguistics, syntax, morphology.

Pauwels, Heidi R. * 1997; PhD, 1994, University of Washington; medieval and modern Hindi language and literature, Hinduism, Sanskrit language and literature.

Senior Lecturer

Nguyen, Kim O. 1984; PhD, 1973, University of California (Los Angeles); Vietnamese language and literature.

Lecturers

Bi, Nyan-Ping 2000; MA, 1988, Indiana University; Chinese language.

Dreyfuss, Jeffrey 1998; PhD, 1981, University of Michigan; Indonesian language.

Kesavatana-Dohrs, Wiworn 1989; PhD, 1989, University of Michigan; Thai language and literature.

Kim, Soohye J. 1999; PhD, 1999, University of Washington; Korean language, morphology, phonology-phonetics interface, and historical linguistics.

Matsuda, Yuki 1997; PhD, 1997, University of Southern California; Japanese language and linguistics, formal syntax and semantics, foreign language teaching.

Matsuda-Kiami, Izumi 1996; MA, 1992, University of Wisconsin; Japanese language and pedagogy.

Course Descriptions

See page 48 for an explanation of course numbers, symbols, and abbreviations.

For graduate-level course descriptions, see the graduate and professional study volume of the *General Catalog* or visit the online course catalog at www.washington.edu/students/crsctat/.

Asian Languages and Literature

ASIAN 201 Literature and Culture of China: Ancient and Classical (5) VLPA/I&S Introduction to ancient and classical Chinese literature in its cultural context. Texts in English translation. Offered: alternate years; A.

ASIAN 202 Literature and Culture of Japan: Traditional Japan (5) VLPA/I&S Introduction to traditional Japanese literature in its cultural context. Texts in English translation. Offered: alternate years; W.

ASIAN 203 Literature and Culture of Ancient and Classical India (5) VLPA/I&S Introduction to ancient and classical Indian literature in its cultural context. Texts in English translation. Offered: alternate years; Sp.

ASIAN 204 Literature and Culture of China from Tradition to Modernity (5) VLPA/I&S Introduction to modern Chinese literature in its cultural context. Texts in English translation. Offered: alternate years; A.

ASIAN 205 Literature and Culture of Japan from Tradition to Modernity (5) VLPA/I&S Introduction to Japanese literature of the nineteenth and twentieth centuries in its cultural context. May also include some Korean literature. Texts in English translation.

ASIAN 206 Literature and Culture of South Asia from Tradition to Modernity (5) VLPA/I&S Pauwels, Shapiro Introduction to medieval and modern South Asian literature in its cultural context. Texts in English translation. Offered: alternate years; Sp.

ASIAN 207 Special Topics in Literature and Culture of Asia (5) VLPA/I&S Introduction to the literature of one or more Asian traditions considered in its cultural context. Content varies depending on the specialization and interest of instructor. Texts in English translation. Offered: W.

ASIAN 208 Introduction to the Civilization and Culture of Tibet (5) VLPA/I&S Comprehensive introduction to the society, history, and religion of Tibet. Discusses the most salient features of Tibetan civilization and examines their position in the larger context of Asian cultures. Traces the evolution of religio-historical developments from seventh century to 16th century. Other subjects include art, architecture, literature, and political structures. Offered: A.

ASIAN 211 Languages and Cultures of China (5) VLPA/I&S Provides a general survey of the languages and language-families in China, emphasizing the rich linguistic diversity found there today. Languages compared with English, from linguistic and cultural perspectives, to demonstrate not only characteristics but also mutual dependence throughout their development.

ASIAN 263 Great Works of Asian Literature (5) VLPA Selected major works of Asian literature. Taught on a rotational basis with the literary traditions of China, Japan, India covered in successive years. Content varies depending on specialization and in-

terest of instructor. Primary emphasis on literary values of works and their tradition; attention also given to historical and social contexts and the thought and value systems of the culture involved.

ASIAN 401 Introduction to Asian Linguistics (5) VLPA Handel, K Ohta, Shapiro Linguistic analysis, with emphasis on languages of east, southeast, south, and central Asia. Includes phonetics, phonemics, morphology, syntax, historical reconstruction, linguistic typology, comparative grammar. Survey of major languages and language families of Asia. Diverse Asian languages as subjects of linguistic analysis. Prior knowledge of linguistics not required. Recommended: two years of any Asian language.

ASIAN 404 Writing Systems (3) VLPA Boltz, Salomon Origin, nature, and development of writing systems. Alphabets, syllabaries, and logographic systems; relation of writing systems to spoken languages; decipherment of previously undeciphered scripts. Prerequisite: ASIAN 401. Offered: alternate years.

ASIAN 411 Buddhist Literature (5) VLPA, I&S Overview of major Buddhist literary traditions of India, China, and Tibet from antiquity to the end of the first millennium CE. Special focus on Indian Mahayana literature and the historical factors that accompanied its introduction and preservation in China and Tibet. Prerequisite: either RELIG 202, or RELIG 354. Offered: W.

ASIAN 498 Special Topics (1-5, max. 15) VLPA Offered occasionally by permanent or visiting faculty members. Topics vary. Offered: AWSp.

Chinese

CHIN 111 First-Year Chinese (5) Introduction to the standard language. Emphasis on learning correct pronunciation and basic structure. Drill in oral use of the language. Cannot be taken for credit in combination with 134. Offered: A.

CHIN 112 First-Year Chinese (5) Introduction to the standard language. Emphasis on learning correct pronunciation and basic structure. Drill in oral use of the language. Cannot be taken for credit in combination with 134. Offered: W.

CHIN 113 First-Year Chinese (5) Introduction to the standard language. Emphasis on learning correct pronunciation and basic structure. Drill in oral use of the language. Cannot be taken for credit in combination with 134. Offered: Sp.

CHIN 121 Accelerated Chinese (10) Covers same material as 111 and 112. In conjunction with 222 and 223, allows completion of two years' language study in one academic year. Cannot be taken for credit in combination with 111 or 112. Offered: A.

CHIN 134 First-Year Intensive Chinese (15) Equivalent of 111, 112, 113. Introduction to the standard language; correct pronunciation and basic structure; drill in oral use of the language. Especially recommended for students (particularly graduate students) who plan to devote more time to other subjects during the regular academic year. Cannot be taken for credit in combination with 111, 112, or 113. Offered: S.

CHIN 211 Second-Year Chinese (5) VLPA Handel Continuation of 111, 112, 113. Advanced grammar and vocabulary expansion stressed. Oral practice and structural drills continued. Cannot be taken for credit in combination with 234. Prerequisite: either CHIN 113 or CHIN 134. Offered: A.

CHIN 212 Second-Year Chinese (5) VLPA Handel Continuation of 111, 112, 113. Advanced grammar and vocabulary expansion stressed. Oral practice and structural drills continued. Cannot be taken for credit in combination with 234. Offered: W.

CHIN 213 Second-Year Chinese (5) VLPA *Handel* Continuation of 111, 112, 113. Advanced grammar and vocabulary expansion stressed. Oral practice and structural drills continued. Cannot be taken for credit in combination with 234. Offered: Sp.

CHIN 222 Accelerated Chinese (10) VLPA Covers same material as 113 and 211. In conjunction with 121 and 223, allows completion of two years' language study in one academic year. Cannot be taken for credit in combination with 113 or 211. Prerequisite: CHIN 121. Offered: W.

CHIN 223 Accelerated Chinese (10) VLPA Covers same material as 212 and 213. In conjunction with 121 and 222, allows completion of two years' language study in one academic year. Cannot be taken for credit in combination with 212 or 213. Prerequisite: CHIN 222. Offered: Sp.

CHIN 234 Second-Year Intensive Chinese (15) VLPA Equivalent of 211, 212, 213. Cannot be taken for credit in combination with 211, 212, or 213 taken. Prerequisite: either CHIN 113 or CHIN 134. Offered: S.

CHIN 311 Third-Year Chinese (5) VLPA Concentrated practice in the use of Chinese as spoken in everyday life. Listening comprehension and speaking skills emphasized. Readings selected to broaden the student's understanding of modern Chinese culture and to spark discussion of contemporary issues. Cannot be taken for credit in combination with 334. Prerequisite: either CHIN 213 or CHIN 234. Offered: A.

CHIN 312 Third-Year Chinese (5) VLPA Concentrated practice in the use of Chinese as spoken in everyday life. Listening comprehension and speaking skills emphasized. Readings selected to broaden the student's understanding of modern Chinese culture and to spark discussion of contemporary issues. Cannot be taken for credit in combination with 334. Offered: W.

CHIN 313 Third-Year Chinese (5) VLPA Concentrated practice in the use of Chinese as spoken in everyday life. Listening comprehension and speaking skills emphasized. Readings selected to broaden the student's understanding of modern Chinese culture and to spark discussion of contemporary issues. Cannot be taken for credit in combination with 334. Offered: Sp.

CHIN 342 The Chinese Language (5) VLPA *Handel* Nature and structure of the Chinese language, covering structural characteristics, genetic and typological affiliation, standard Mandarin and Chinese dialects, Chinese writing system, history of the Chinese language, and cultural aspects. Prerequisite: CHIN 113; recommended: CHIN 213 or CHIN 234, or concurrent enrollment in CHIN 211, CHIN 212, or CHIN 213. Offered: A.

CHIN 345 Spoken Chinese in Beijing (6, max. 18) VLPA *Beijing University Teaching Staff* Designed to increase active vocabulary, to enhance the student's understanding of Chinese grammar, to further the student's control of idiomatic Chinese, and, in general, to develop oral skills. Prerequisite: either CHIN 313 or CHIN 344.

CHIN 373 Chinese Poetry (5) VLPA Introduction to Chinese poetry. A study of its origins, forms, major themes, and relevant conventions. All readings in English. No knowledge of Chinese required. Offered: W.

CHIN 380 Premodern Chinese Narrative in Translation (5) VLPA Premodern Chinese fiction in English translation. Historical and cultural contexts of narrative traditions. Emphasis on the Ming and Ch'ing periods; works and topics vary from year to year. Offered: Sp.

CHIN 381 Literature in Modern China (5) VLPA Twentieth-century Chinese literature in English translation. Introduces the historical and cultural context of modern Chinese writing, as well as various critical approaches to its study.

CHIN 385 Popular Culture in Twentieth-Century China (5) VLPA/I&S Introduction to Chinese popular culture from the turn-of-the-century to the present. Topics include cinema, popular music, and popular fiction; emphasis varies from year to year.

CHIN 411 Fourth-Year Chinese (5) VLPA *Yue-Hashimoto* Reading of unedited texts including newspaper articles, literary selections, and academic essays. Oral discussion, listening comprehension, and composition. Prerequisite: CHIN 313. Offered: A.

CHIN 412 Fourth-Year Chinese (5) VLPA *Yue-Hashimoto* Reading of unedited texts including newspaper articles, literary selections, and academic essays. Oral discussion, listening comprehension, and composition. Prerequisite: CHIN 411. Offered: W.

CHIN 413 Fourth-Year Chinese (5) VLPA *Yue-Hashimoto* Reading of unedited texts including newspaper articles, literary selections, and academic essays. Oral discussion, listening comprehension, and composition. Prerequisite: CHIN 412. Offered: Sp.

CHIN 421 Business Chinese I (5) VLPA *Chang* Focus on international trade issues of Greater China in the contemporary world. Subjects include international business activities such as trade, banking, marketing, finance, and investment. Prerequisite: CHIN 313. Offered: A.

CHIN 422 Business Chinese II (5) VLPA *Chang* Focus on international trade issues of Greater China in the contemporary world. Subjects include international business activities such as trade, banking, marketing, finance, and investment. Prerequisite: CHIN 421. Offered: W.

CHIN 423 Business Chinese III (5) VLPA *Chang* Focus on international trade issues of Greater China in the contemporary world. Subjects include international business activities such as trade, banking, marketing, finance, and investment. Prerequisite: CHIN 422. Offered: Sp.

CHIN 443 Structure of Chinese (5) VLPA *Yue-Hashimoto* Outline of the major grammatical structures of Chinese. Focus on learning and teaching problems. Prerequisite: either CHIN 313 or CHIN 334. Offered: W.

CHIN 451 First-Year Classical Chinese (5) VLPA *Boltz* Exercises and selected readings in pre-Han texts. Focus on grammar, systematic sentence analysis, and distinctive functions of grammatical particles. To be taken in sequence. Prerequisite: CHIN 213. Offered: A.

CHIN 452 First-Year Classical Chinese (5) VLPA *Boltz* Exercises and selected readings in pre-Han texts. Focus on grammar, systematic sentence analysis, and distinctive functions of grammatical particles. To be taken in sequence. Prerequisite: CHIN 451. Offered: W.

CHIN 453 First-Year Classical Chinese (5) VLPA *Boltz* Exercises and selected readings in pre-Han texts. Focus on grammar, systematic sentence analysis, and distinctive functions of grammatical particles. To be taken in sequence. Prerequisite: CHIN 452. Offered: Sp.

CHIN 461 History of Chinese Literature (5) VLPA *Knechtges* Chinese literature from earliest times to the end of the Six Dynasties. Offered: A.

CHIN 462 History of Chinese Literature (5) VLPA *Knechtges* Chinese literature from the T'ang to the end of the Song. Offered: W.

CHIN 463 History of Chinese Literature (5) VLPA *Knechtges* Chinese literature from the Yuan to recent times. Offered: Sp.

CHIN 470 Advanced Readings in Modern Chinese (5) VLPA Reading and translation of scholarly articles and selections in the humanities and social sciences. Prerequisite: CHIN 413. Offered: A.

CHIN 482 Advanced Readings in Modern Chinese (5) VLPA Modern texts in the original, mainly works published since the beginning of the twentieth century. Focus on literature, primarily short story and essay. Offered: W.

CHIN 496 Special Studies in Chinese (5, max. 15) VLPA Topics vary.

CHIN 499 Undergraduate Research (3-5, max. 15) For Chinese language and literature majors. Offered: AWSpS.

Hindi

HINDI 311 Elementary Hindi (5) Modern literary Hindi. Reading, writing, and conversation. Introduction to Devanagari script. Offered: A.

HINDI 312 Elementary Hindi (5) Modern literary Hindi. Reading, writing, and conversation. Introduction to Devanagari script. Prerequisite: HINDI 311. Offered: W.

HINDI 313 Elementary Hindi (5) Modern literary Hindi. Reading, writing, and conversation. Introduction to Devanagari script. Prerequisite: HINDI 312. Offered: Sp.

HINDI 321 Intermediate Hindi (5) VLPA Systematic expansion of vocabulary and grammar. Intermediate-level prose and poetry readings. Oral drills. Prerequisite: HINDI 313. Offered: AS.

HINDI 322 Intermediate Hindi (5) VLPA Systematic expansion of vocabulary and grammar. Intermediate-level prose and poetry readings. Oral drills. Prerequisite: HINDI 321. Offered: WS.

HINDI 323 Intermediate Hindi (5) VLPA Systematic expansion of vocabulary and grammar. Intermediate-level prose and poetry readings. Oral drills. Prerequisite: HINDI 322. Offered: SpS.

HINDI 401 Advanced Hindi (5) VLPA Rapid reading of contemporary Hindi prose, poetry, and drama. Advanced conversation and composition. Offered: A.

HINDI 402 Advanced Hindi (5) VLPA Rapid reading of contemporary Hindi prose, poetry, and drama. Advanced conversation and composition. Offered: W.

HINDI 403 Advanced Hindi (5) VLPA Rapid reading of contemporary Hindi prose, poetry, and drama. Advanced conversation and composition. Offered: Sp.

HINDI 404 Derivational Morphology of Hindi/Urdu (3) VLPA *Shapiro* A systematic introduction to the derivational morphology of Hindi/Urdu. Sanskrit, Persian, Arabic, and English elements in Hindi/Urdu. Treatment of derivational prefixes and suffixes, stem alternations, and methods of compound formation. Prerequisite: HINDI 323. Offered: alternate years; W.

HINDI 421 Survey of Modern Hindi Literature (3) VLPA *Pauwels, Shapiro* Survey of Hindi literature from the late nineteenth century to the present. Readings from representative short stories. Prerequisite: HINDI 403.

HINDI 422 Survey of Modern Hindi Literature (3) VLPA *Pauwels, Shapiro* Survey of Hindi literature from the late nineteenth century to the present. Readings from representative poems. Prerequisite: HINDI 403.

HINDI 423 Survey of Modern Hindi Literature (3) VLPA *Pauwels, Shapiro* Survey of Hindi literature from the late nineteenth century to the present. Readings from representative novels. Prerequisite: HINDI 403.

HINDI 431 Advanced Conversational Hindi (2, max. 8) VLPA Conversational practice in contemporary Hindi. Prerequisite: HINDI 323. Offered: Sp.

HINDI 451 Advanced Hindi Readings (3, max. 9) VLPA Readings in Modern Standard Hindi prose texts drawn from diverse disciplines. Prerequisite: HINDI 403. Offered: W.

HINDI 499 Undergraduate Research (3-5, max. 15) Primarily for Hindi language and literature majors. Offered: A/WSpS.

Indian

INDN 401 Pali (3) VLPA *Cox, Salomon* Introduction to Pali language and literature. Prerequisite: SNKRT 303.

INDN 402 Pali (3) VLPA *Cox, Salomon* Introduction to Pali language and literature.

INDN 403 Introduction to Written Urdu (3) VLPA Modern written Urdu for students with at least elementary knowledge of Hindi. Prerequisite: HINDI 313.

INDN 404 Readings in Urdu Literature (3, max. 18) VLPA Readings in Urdu prose and poetry. Urdu prose composition. Prerequisite: INDN 403.

INDN 410 Prakrit (3, max. 6) VLPA *Salomon* Introduction to the various Prakrit or Middle Indo-Aryan dialects (Gandhari, Magadhi, Maharashtri, Sauraseni) from literary, canonical, and inscriptional sources. Prerequisite: SNKRT 303.

INDN 411 First-Year Intensive Bengali (15) *Salomon* Study of modern Standard Bengali, including reading, writing, and conversation. Introduction to Bengali script. Offered: S.

INDN 499 Undergraduate Research (3-5, max. 15) Primarily for South Asian language and literature majors. Offered: A/WSpS.

Indonesian

INDON 111 Elementary Indonesian (5) Introduction to modern standard Indonesian-Malay. Emphasis on grammar and conversational drills. Practice with basic phonological, morphological, and syntactic structures. Offered: A.

INDON 112 Elementary Indonesian (5) Introduction to modern standard Indonesian-Malay. Emphasis on grammar and conversational drills. Practice with basic phonological, morphological, and syntactic structures. Prerequisite: INDON 111. Offered: W.

INDON 113 Elementary Indonesian (5) Introduction to modern standard Indonesian-Malay. Emphasis on grammar and conversational drills. Practice with basic phonological, morphological, and syntactic structures. Prerequisite: INDON 112. Offered: Sp.

INDON 211 Intermediate Indonesian (5) VLPA Continuation of 111, 112, 113. Review/expansion of fundamental grammatical patterns: morphological and syntactic structures, development of conversational skills, reading some literary and cultural materials, writing compositions. Prerequisite: INDON 113. Offered: A.

INDON 212 Intermediate Indonesian (5) VLPA Continuation of 111, 112, 113. Review/expansion of fundamental grammatical patterns: morphological and syntactic structures, development of conversational skills, reading some literary and cultural ma-

terials, writing compositions. Prerequisite: INDON 211. Offered: W.

INDON 213 Intermediate Indonesian (5) VLPA Continuation of 111, 112, 113. Review/expansion of fundamental grammatical patterns: morphological and syntactic structures, development of conversational skills, reading some literary and cultural materials, writing compositions. Prerequisite: INDON 212. Offered: Sp.

INDON 311 Advanced Indonesian (5) VLPA Continuation of 211, 212, 213. Expanding vocabulary; preparing for research work using original sources; improving reading fluency in modern standard written Indonesian using novels, short stories, newspapers, and other authentic materials. Conversation practice centers on discussion of readings. Writing compositions. Prerequisite: INDON 211. Offered: A.

INDON 312 Advanced Indonesian (5) VLPA Continuation of 211, 212, 213. Expanding vocabulary; preparing for research work using original sources; improving reading fluency in modern standard written Indonesian using novels, short stories, newspapers, and other authentic materials. Conversation practice centers on discussion of readings. Writing compositions. Prerequisite: INDON 311. Offered: W.

INDON 313 Advanced Indonesian (5) VLPA Continuation of 211, 212, 213. Expanding vocabulary; preparing for research work using original sources; improving reading fluency in modern standard written Indonesian using novels, short stories, newspapers, and other authentic materials. Conversation practice centers on discussion of readings. Writing compositions. Prerequisite: INDON 312. Offered: Sp.

INDON 499 Undergraduate Research (3-5, max. 15) Primarily for Southeast Asian studies majors.

Japanese

JAPAN 111 First-Year Japanese (5) Elementary speaking, listening, reading, and writing skills in modern Japanese. Offered: A.

JAPAN 112 First-Year Japanese (5) Elementary speaking, listening, reading, and writing skills in modern Japanese. Prerequisite: either JAPAN 111 or score of 15-34 on JP100A placement test. Offered: A/W.

JAPAN 113 First-Year Japanese (5) Elementary speaking, listening, reading, and writing skills in modern Japanese. Prerequisite: either JAPAN 112 or score of 35-54 on JP100A placement test. Offered: A/WSp.

JAPAN 134 First-Year Intensive Japanese (15) Fundamentals of the modern Japanese language. Oral communication skills, basic grammar, and reading/writing of hiragana, katakana, and basic kanji. No initial knowledge of Japanese is presumed. Equivalent of 111, 112, 113. Satisfies requirement for entry to 211. Students with prior background must take placement test. Offered: S.

JAPAN 145 Foreign Study: Elementary Japanese (1-15, max. 20) For participants in study abroad programs in Japan who complete 100-level language courses in approved programs in Japan. Evaluation by department/faculty required.

JAPAN 211 Second-Year Japanese (5) VLPA Development of further skills in the spoken and written languages. Prerequisite: either JAPAN 113, JAPAN 134, or placement test. Offered: A.

JAPAN 212 Second-Year Japanese (5) VLPA Development of further skills in the spoken and written languages. Offered: W.

JAPAN 213 Second-Year Japanese (5) VLPA Development of further skills in the spoken and written languages. Offered: Sp.

JAPAN 234 Second-Year Intensive Japanese (15) VLPA Equivalent of 211, 212, 213. Satisfies requirements for entry to 311, but recommended primarily for those going to Japan shortly upon completion. Prerequisite: either JAPAN 113, JAPAN 134, or score of 11-30 on JP200A placement test. Offered: S.

JAPAN 245 Foreign Study: Intermediate Japanese (1-15, max. 20) VLPA For participants in study abroad programs in Japan who complete 200-level language courses in approved programs in Japan. Evaluation by department/faculty required.

JAPAN 311 Third-Year Japanese (5) VLPA Intermediate-level skills in both spoken and written languages. Some introduction to unedited materials. Prerequisite: either JAPAN 213, JAPAN 234, or placement test. Offered: AS.

JAPAN 312 Third-Year Japanese (5) VLPA Intermediate-level skills in both spoken and written languages. Some introduction to unedited materials. Offered: WS.

JAPAN 313 Third-Year Japanese (5) VLPA Intermediate-level skills in both spoken and written languages. Some introduction to unedited materials. Offered: SpS.

JAPAN 321 Japanese Literature I (5) VLPA Introduction to some of the major works up to 1800 in English translation. Readings include love poetry, personal memoirs, military epics, kabuki drama, works of popular culture, and romantic fiction, such as the classic *Tale of Genji*. In English.

JAPAN 322 Japanese Literature II (5) VLPA Introduction to the major works of 19th-early 20th century Japan in English translation, with readings of representative fiction, poetry, and criticism, plus films of selected works. In English. Offered: W.

JAPAN 323 Japanese Literature III (5) VLPA Introduction to the major works of contemporary Japan in English translation, with readings that focus on the clash of cultures, generational struggles, and war, plus films that portray these themes and reflect modern Japanese life. In English. Offered: Sp.

JAPAN 342 The Japanese Language (5) VLPA *K Ohta* Survey of the nature and structure of the Japanese language, covering genetic and typological affiliations, writing systems, lexicon, and features of Japanese sentence structures.

JAPAN 343 Japanese Language in Society (5) VLPA/I&S *AS Ohta* Survey of issues in Japanese language use. Areas covered include dialectal variation, language attitudes, gender differences, and pragmatics.

JAPAN 345 Foreign Study: Advanced Japanese (1-15, max. 20) VLPA For participants in study abroad programs in Japan who complete 300-level language courses in approved programs in Japan. Evaluation by department/faculty required.

JAPAN 395 Foreign Study: Japanese Linguistics or Literature (1-20, max. 20) VLPA For participants in study abroad programs in Japan who complete coursework in Japanese literature or linguistics.

JAPAN 421 Fourth-year Japanese for Professional and Academic Purposes I (5) VLPA/I&S Class discussion, oral presentations, reading, and composition on topics related to the Japanese language and present-day Japan. Includes readings from Japanese newspapers and magazines. Conducted in Japanese. Prerequisite: JAPAN 313.

JAPAN 422 Fourth-year Japanese for Professional and Academic Purposes II (5) VLPA/I&S Class discussion, oral presentations, reading, and compo-

sition on topics related to the Japanese language and present-day Japan. Includes readings from Japanese newspapers and magazines. Conducted in Japanese. Prerequisite: JAPAN 421.

JAPAN 423 Fourth-year Japanese for Professional and Academic Purposes III (5) VLPA/I&S Class discussion, oral presentations, reading, and composition on topics related to the Japanese language and present-day Japan. Includes readings from Japanese newspapers and magazines. Conducted in Japanese. Prerequisite: JAPAN 422.

JAPAN 431 Readings in Modern Japanese Literature (5) VLPA Reading and discussion of selected modern literary texts in the original language, concentrating on the short story. Close attention to grammar and syntax. Prerequisite: JAPAN 313.

JAPAN 432 Readings in Modern Japanese Literature (5) VLPA Reading and discussion of selected modern literary texts in the original language, concentrating on the short story. Close attention to grammar and syntax.

JAPAN 433 Readings in Modern Japanese Literature (5) VLPA Reading and discussion of selected modern literary texts in the original language, concentrating on the short story. Close attention to grammar and syntax.

JAPAN 440 Introduction to Japanese Linguistics (5) VLPA *AS Ohta, K Ohta* Overview of major topics in the linguistic description of Japanese: phonology, morphology, syntax, history, dialects, sociolinguistics, and the writing system. Elementary training in phonological, morphological, and syntactic analysis of Japanese. Prerequisite: JAPAN 313; recommended: introductory linguistics course.

JAPAN 442 Morphology and Syntax of Japanese (5) VLPA *K Ohta* Morphological and syntactic analysis of the Japanese language. Reading of research literature, training in analysis of Japanese language data, and contrastive analysis of Japanese with other languages. Prerequisite: JAPAN 313; JAPAN 440; LING 400.

JAPAN 443 Topics in Japanese Sociolinguistics (5) VLPA/I&S *AS Ohta* Methodology and theory of sociolinguistic analysis. Reading of research literature and training in analysis of Japanese language data. Prerequisite: JAPAN 313 which may be taken concurrently; recommended: JAPAN 343.

JAPAN 445 Foreign Study: Fourth-Year Japanese (1-15, max. 20) VLPA For participants in study abroad programs in Japan who complete 400-level language courses in approved programs in Japan. Evaluation by department/faculty required.

JAPAN 460 Topics in Japanese Popular Culture and Literature (5) VLPA Critical reading and analysis of multi-media texts related to various genres and aspects of popular culture and literature in Japan. Covers film and manga in particular. Primary texts in Japanese original. Prerequisite: JAPAN 313.

JAPAN 471 Classical Japanese Grammar (5) VLPA Introduction to classical grammatical forms and translation of classical literary texts. Prerequisite: JAPAN 313. Offered: A.

JAPAN 472 Classical Japanese Grammar (5) VLPA Introduction to classical grammatical forms and translation of classical literary texts. Prerequisite: JAPAN 471. Offered: W.

JAPAN 473 Readings in Classical Japanese Literature (5) VLPA Readings in prose, poetry, and drama, antiquity to nineteenth century. Prerequisite: JAPAN 472. Offered: Sp.

JAPAN 499 Undergraduate Research (3-5, max. 15) For Japanese language and literature majors. Offered: AWSpS.

Korean

KOREAN 301 Introduction to Korean (5) Fundamentals of the Korean language. Emphasis on Korean alphabet and spelling, pronunciation, and basic grammar. Offered: A.

KOREAN 302 Introduction to Korean (5) Fundamentals of the Korean language. Emphasis on Korean alphabet and spelling, pronunciation, and basic grammar. Prerequisite: KOREAN 301. Offered: W.

KOREAN 303 Introduction to Korean (5) Fundamentals of the Korean language. Emphasis on Korean alphabet and spelling, pronunciation, and basic grammar. Prerequisite: KOREAN 302. Offered: Sp.

KOREAN 311 Introduction to Korean Writing in Mixed Script (5) VLPA Chinese characters as used in Korean mixed script. Systematic expansion of vocabulary and grammatical forms of standard Korean. Prerequisite: KOREAN 303. Offered: A.

KOREAN 312 Introduction to Korean Writing in Mixed Script (5) VLPA Chinese characters as used in Korean mixed script. Systematic expansion of vocabulary and grammatical forms of standard Korean. Prerequisite: KOREAN 311. Offered: W.

KOREAN 313 Introduction to Korean Writing in Mixed Script (5) VLPA Chinese characters as used in Korean mixed script. Systematic expansion of vocabulary and grammatical forms of standard Korean. Prerequisite: KOREAN 312. Offered: Sp.

KOREAN 411 Readings in Contemporary Korean (5) VLPA Completes the introduction to Korean writing in mixed script of 311, 312, 313. Prerequisite: KOREAN 313. Offered: A.

KOREAN 412 Readings in Contemporary Korean (5) VLPA Provide experience in reading a variety of contemporary styles. Materials from published works include informal essays, short stories, one-act plays, academic essays, and newspaper editorials. Offered: W.

KOREAN 413 Readings in Contemporary Korean (5) VLPA Provide experience in reading a variety of contemporary styles. Materials from published works include informal essays, short stories, one-act plays, academic essays, and newspaper editorials. Offered: Sp.

KOREAN 415 Social Science Literature in Korean (3) VLPA Readings in selections from contemporary Korean publications in social science topics. Prerequisite: KOREAN 413. Offered: A.

KOREAN 416 Readings in Korean Literature (3) VLPA Reading of various literature texts which may include pre-modern Korean narrative and poetry as well as modern literature and drama. Prerequisite: KOREAN 413. Offered: W.

KOREAN 417 Readings in Korean Journals (3) VLPA Selections from Korean newspapers, news magazines, and other journals. Prerequisite: KOREAN 413. Offered: Sp.

KOREAN 499 Undergraduate Independent Study (3-5, max. 15) For students who have completed 417 or equivalent. Offered: AWSpS.

Sanskrit

SNKRT 301 Introduction to Sanskrit (5) *Cox, Salomon* Basic grammar and vocabulary of the classical language. Reading of elementary texts from the epic or Puranic literature. Offered: A.

SNKRT 302 Introduction to Sanskrit (5) *Cox, Salomon* Basic grammar and vocabulary of the classical language. Reading of elementary texts from the epic or Puranic literature. Prerequisite: SNKRT 301. Offered: W.

SNKRT 303 Introduction to Sanskrit (5) *Cox, Salomon* Basic grammar and vocabulary of the classical language. Reading of elementary texts from the epic or Puranic literature. Prerequisite: SNKRT 302. Offered: Sp.

SNKRT 401 Intermediate Sanskrit (5) VLPA *Cox, Salomon* Further study of classical grammar; introduction to classical literature and Vedic language and texts. Prerequisite: SNKRT 303. Offered: A.

SNKRT 402 Intermediate Sanskrit (5) VLPA *Cox, Salomon* Further study of classical grammar; introduction to classical literature and Vedic language and texts. Offered: W.

SNKRT 403 Intermediate Sanskrit (5) VLPA *Cox, Salomon* Further study of classical grammar; introduction to classical literature and Vedic language and texts. Offered: Sp.

SNKRT 411 Advanced Sanskrit (3, max. 9) VLPA *Cox, Salomon* Reading and analysis of classical texts, chosen according to students' interests. Prerequisite: SNKRT 403. Offered: A.

SNKRT 412 Advanced Sanskrit (3, max. 9) VLPA *Cox, Salomon* Reading and analysis of classical texts, chosen according to students' interests. Offered: W.

SNKRT 413 Advanced Sanskrit (3, max. 9) VLPA *Cox, Salomon* Reading and analysis of classical texts, chosen according to students' interests. Offered: Sp.

SNKRT 491 Vedic Studies (3) VLPA *Salomon* Readings of selected Vedic texts, with linguistic, religious, and historical analyses. Includes background material on Vedic religion, literature, and culture. Prerequisite: SNKRT 303.

SNKRT 492 Vedic Studies (3) VLPA *Salomon* Readings of selected Vedic texts, with linguistic, religious, and historical analyses. Includes background material on Vedic religion, literature, and culture.

SNKRT 499 Undergraduate Research (3-5, max. 15) Primarily for Sanskrit language and literature majors. Offered: AWSp.

Thai

THAI 301 Beginning Thai (5) *Kesavatana-Dohrs* Introduction to modern spoken and written Thai. Emphasis on spoken language competence with additional skills in elementary reading and writing. Designed for students with no prior knowledge of Thai. Offered: A.

THAI 302 Beginning Thai (5) *Kesavatana-Dohrs* Introduction to modern spoken and written Thai. Emphasis on spoken language competence with additional skills in elementary reading and writing. Designed for students with no prior knowledge of Thai. Prerequisite: THAI 301. Offered: W.

THAI 303 Beginning Thai (5) *Kesavatana-Dohrs* Introduction to modern spoken and written Thai. Emphasis on spoken language competence with additional skills in elementary reading and writing. Designed for students with no prior knowledge of Thai. Prerequisite: THAI 302. Offered: Sp.

THAI 401 Intermediate Thai (5) VLPA *Kesavatana-Dohrs* Continuation of 303. Expands students' abilities in the four language skills of listening, speaking, reading, and writing. Prerequisite: THAI 303. Offered: A.

THAI 402 Intermediate Thai (5) VLPA *Kesavatana-Dohrs* Expands students' abilities in the four language skills of listening, speaking, reading, and writing. Prerequisite: THAI 401. Offered: W.

THAI 403 Intermediate Thai (5) VLPA *Kesavatana-Dohrs* Expands students' abilities in the four language skills of listening, speaking, reading, and writing. Prerequisite: THAI 402. Offered: Sp.

THAI 410 Accelerated Reading and Writing (5) VLPA *Kesavatana-Dohrs* Accelerated Thai for fluent speakers who do not read or write Thai. Emphasis on reading and writing through Intermediate Thai. Credit/no credit only.

THAI 499 Undergraduate Research (3-5, max. 25) For Thai language and literature majors. Offered: AWSp.

Tibetan

TIB 311 Literary Tibetan (3) Introduction to the phonology, grammar, and syntax of written Tibetan. Materials selected for rapid development of reading knowledge.

TIB 312 Literary Tibetan (3) Introduction to the phonology, grammar, and syntax of written Tibetan. Materials selected for rapid development of reading knowledge.

TIB 313 Literary Tibetan (3) Introduction to the phonology, grammar, and syntax of written Tibetan. Materials selected for rapid development of reading knowledge.

TIB 411 Readings in Tibetan (3) VLPA Selections from various Tibetan materials. Prerequisite: TIB 313.

TIB 412 Readings in Tibetan (3) VLPA Selections from various Tibetan materials.

TIB 413 Readings in Tibetan (3) VLPA Selections from various Tibetan materials. Prerequisite: TIB 313.

TIB 415 Readings in Tibetan Literature (3) VLPA Reading of selections from Tibetan religious literature. May be taken in any sequence. Prerequisite: TIB 413.

TIB 416 Readings in Tibetan Literature (3) VLPA Reading of selections from Tibetan religious literature. May be taken in any sequence.

TIB 417 Readings in Tibetan Literature (3) VLPA Reading of selections from Tibetan religious literature. May be taken in any sequence.

TIB 499 Undergraduate Research (3-5, max. 15) For Asian languages and literature majors.

Vietnamese

VIET 111 First-Year Vietnamese (5) Nguyen Introduction to modern Vietnamese conversation. Emphasis on correct pronunciation, spelling, and sentence structure. Designed for students with no previous exposure to Vietnamese. Offered: A.

VIET 112 First-Year Vietnamese (5) Nguyen Introduction to modern Vietnamese conversation. Emphasis on correct pronunciation, spelling, and sentence structure. Designed for students with no previous exposure to Vietnamese. Prerequisite: VIET 111. Offered: W.

VIET 113 First-Year Vietnamese (5) Nguyen Introduction to modern Vietnamese conversation. Emphasis on correct pronunciation, spelling, and sentence structure. Designed for students with no previous exposure to Vietnamese. Prerequisite: VIET 112. Offered: Sp.

VIET 211 Second-Year Vietnamese (5) VLPA *Nguyen* Continuation of 113. Development of conversation skills, reading for comprehension, and writing short compositions. Prerequisite: VIET 113. Offered: A.

VIET 212 Second-Year Vietnamese (5) VLPA *Nguyen* Development of conversation skills, reading for comprehension, and writing short compositions. Prerequisite: VIET 211. Offered: W.

VIET 213 Second-Year Vietnamese (5) VLPA *Nguyen* Development of conversation skills, reading for comprehension, and writing short compositions. Prerequisite: VIET 212. Offered: Sp.

VIET 214 Accelerated Vietnamese Reading and Writing (5) VLPA *Nguyen* Accelerated course for fluent speakers who do not read or write Vietnamese. Emphasis on reading and writing through second-year level. Cannot be taken for credit in combination with any formal Vietnamese course. Credit/no credit only. Offered: AWSp.


VIET 496 Special Studies in Vietnamese (3-5, max. 15) Nguyen Topics vary. Emphasizes improving language skills for research. Primarily for Southeast Asian Studies majors. Offered: AWSp.

Asian Studies

See International Studies.

Astronomy

C319 Physics-Astronomy Building

 *General Catalog Web page:*
www.washington.edu/students/gencat/academic/astronomy.html

 *Department Web page:*
www.astro.washington.edu

Modern research in astronomy and astrophysics encompasses a large number of disciplines and specialties, and the faculty members of the Department of Astronomy are active in many of these areas. Research areas of the department include planetary astronomy, stellar structure and evolution, interstellar matter, x-ray sources, galactic structure, extragalactic astronomy, galactic dynamics, quasars and galactic nuclei, and theoretical and observational cosmology. The department operates a well-instrumented 30-inch telescope with modern instrumentation at the Manastash Ridge Observatory near Ellensburg primarily for students. The department is also part of a consortium of universities which operates a 3.5-meter optical/infrared telescope located on Sacramento Peak, New Mexico, and is a partner in the innovative Sloan Digital Sky Survey. Students also have access to a variety of national facilities, such as the Kitt Peak and Cerro Tololo observatories and the Very Large Array. A variety of research is conducted with satellite instruments such as the Hubble Space Telescope. Data analysis and theoretical research are conducted on the department's cluster of SUN, PC, and SGI computers, and on a variety of UW and national supercomputer facilities. Undergraduate majors often assist faculty members in acquisition, reduction, and interpretation of data.

Undergraduate Program

Adviser
Paula Szkody
C311 Physics-Astronomy, Box 351580
(206) 543-1988
office@astro.washington.edu

The Department of Astronomy offers a program of study leading to a Bachelor of Science degree. With this degree, students obtain a knowledge of the components of the universe, an understanding of the physics of its structure, and the technical skills to obtain and

analyze data from telescopes. Graduates go on to graduate school or work in industrial applications (lasers, x-ray, optical imaging) or in teaching applications.

Student Associations: The Society of Physics Students

Internship or Cooperative Exchange Program Opportunities: Space Grant.

Bachelor of Science

Admission: Students in good academic standing may declare this major at any time.

Suggested Introductory Course Work: MATH 124, 125, 126 or MATH 127, 128, 129; MATH 307, 324; PHYS 121/131, 122/132, 123/133.

Additional Information: The first required astronomy course, ASTR 321, must be preceded by at least one year of college physics and mathematics. Any lower-division astronomy courses count as electives and not as part of the major. At community colleges it is better to take courses in physics, chemistry, mathematics, and computer science than the usual introductory astronomy courses. To finish in four years, the student must have completed PHYS 123/133 before autumn quarter of the junior year.

Major Requirements: ASTR 321, 322, 323; 9 credits of astronomy 400-level courses; PHYS 121/131, 122/132, 123/133; 224, 225, 227, 228; 321, 322, 334, 335; MATH 124, 125, 126 (or 127, 128, 129); 307, 324; 9 additional credits in courses at the 300 level or above in physics (chosen from PHYS 323, 324, 327, 328, 331, 421, 422, 423, 424, 425, 426, 431, 432, 433, 434) or engineering as approved by adviser. Junior-year (survey) and senior-year research (ASTR 499), recommended especially for students planning graduate work. No grade lower than 2.0 is acceptable in courses fulfilling the above requirements. Undergraduates interested in advanced work in astronomy are advised to take a double major in astronomy and physics. Undergraduates interested in immediate employment at an observatory or other scientific institution should include computing and electronics courses as part of their program.

Graduate Program

For information on the Department of Astronomy's graduate program, see the graduate and professional volume of the *General Catalog* or visit the *General Catalog* online at www.washington.edu/students/gencat/.

Faculty

Chair

Craig J. Hogan

Professors

Adelberger, Eric G. * 1972, (Adjunct); PhD, 1967, California Institute of Technology; experimental nuclear physics.

Anderson, Scott F. * 1988, (Research); PhD, 1985, University of Washington; quasars and active galaxies, x-ray astronomy.

Balick, Bruce * 1975; PhD, 1971, Cornell University; radio astronomy, ionized nebulae, peculiar galaxies.

Bardeen, James M. * 1976, (Adjunct); PhD, 1965, California Institute of Technology; general relativity, theoretical astrophysics.

Bohm, Karl-Heinz * 1967, (Emeritus); PhD, 1954, University of Kiel (Germany); stellar atmospheres, star formation.

Bohm-Vitense, Erika H. * 1968, (Emeritus); PhD, 1951, University of Kiel (Germany); stellar atmospheres, pulsating stars.

Boynton, Paul E. * 1970; PhD, 1967, Princeton University; high-energy astrophysics, astronomy.

Brownlee, Donald E. * 1965; PhD, 1971, University of Washington; origin of the solar system, comets, interplanetary dust.

Haxton, Wick C. * 1984, (Adjunct); PhD, 1976, Stanford University; theoretical physics, nuclear physics.

Hodge, Paul W. * 1965; PhD, 1960, Harvard University; extragalactic astronomy, interplanetary dust.

Hogan, Craig J. * 1990; PhD, 1980, Cambridge University (UK); astrophysical cosmology, especially the origin of astronomical structures in the expanding universe.

Jacobsen, Theodor S. 1979, (Emeritus); PhD, 1926, University of California (Berkeley); astronomy.

Lake, George Russell * 1985; PhD, 1980, Princeton University; stellar dynamics, galaxy structure and formation, cosmology, computational astrophysics.

Margon, Bruce H. * 1980; PhD, 1973, University of California (Berkeley); galactic and extragalactic x-ray astronomy, optical counterparts of x-ray sources.

Stubbs, Christopher * 1981; PhD, 1988, MSc, 1988, University of Washington; observational cosmology and gravitation.

Sullivan, Woodruff T. III * 1973; PhD, 1971, University of Maryland; radio astronomy, galactic and extragalactic structure, history of astronomy.

Szkody, Paula * 1982; PhD, 1975, University of Washington; cataclysmic variables, photometry, spectroscopy.

Wallerstein, George * 1965, (Emeritus); PhD, 1958, California Institute of Technology; chemical composition of stars, peculiar stars, interstellar matter.

Associate Professors

Hawley, Suzanne * 1999, (Research); PhD, 1989, University of Texas (Austin); stellar astronomy.

Quinn, Thomas R. * 1993, (Research); PhD, 1986, Princeton University; solar system dynamics and galaxy formation.

Assistant Professors

Dalcanton, Julianne * 1998; PhD, 1995, Princeton University; evolution and formation of galaxies.

Gonzalez, Guillermo * 1987, (Research); PhD, 1993, University of Washington; stellar evolution, star formation, planetary systems.

Richardson, Derek C. * 1996, (Research); PhD, 1993, Cambridge University (UK); solar system dynamics.

Course Descriptions

See page 48 for an explanation of course numbers, symbols, and abbreviations.

For graduate-level course descriptions, see the graduate and professional study volume of the *General Catalog* or visit the online course catalog at www.washington.edu/students/crscat/.

ASTR 101 Astronomy (5) NW, QSR Introduction to the universe, with emphasis on conceptual, as contrasted with mathematical, comprehension. Modern theories, observations; ideas concerning nature, evolution of galaxies; quasars, stars, black holes, planets, solar system. Not open for credit to students who have taken 102 or 201; not open to upper-division students majoring in physical sciences or engineering.

ASTR 102 Introduction to Astronomy (5) NW, QSR Subject matter similar to 101 but designed for students who have had high school physics or the equivalent introduction to physics at the college level. Cannot be taken for credit in combination with 101, 201, or 301. Prerequisite: either PHYS 111 or PHYS 115.

ASTR 150 The Planets (5) NW, QSR For liberal arts and beginning science students. Survey of the planets of the solar system, with emphases on recent space exploration of the planets and on the comparative evolution of the Earth and the other planets.

ASTR 190 Modern Topics in Astronomy for Non-Science Majors (3/5, max. 10) NW Topics of current interest, such as origin of chemical elements, novae and supernovae, white dwarfs, neutron stars, black holes, active galaxies, quasars, or interstellar medium and astrochemistry. Choice of topics depends on instructor and class interest. Prerequisite: either one 100- or one 200-level ASTR course.

ASTR 201 The Universe and the Origin of Life (5) NW, QSR Sequel to 101 or 102, emphasizing modern views of the atomic and molecular evolution of the universe from the initial "big bang" through the formation of the solar system and the emergence of biological forms on the earth. The latter part of the course considers questions about the existence of, and communication with, extraterrestrial intelligent life, and finally the ultimate fate of the cosmos.

ASTR 301 Astronomy for Scientists and Engineers (3) NW Introduction to astronomy for students in the physical sciences or engineering. Topics similar to 101, but the approach uses more mathematics and physics. Prerequisite: PHYS 123.

ASTR 313 Science in Civilization: Physics and Astrophysics Since 1850 (5) I&S/NW Organization and pursuit of the physical and astrophysical sciences, focusing on the major unifying principles of physics and astronomy and the social and cultural settings in which they were created. Offered: jointly with HIST 313.

ASTR 321 The Solar System (3) NW Solar system; planetary atmospheres, surfaces and interiors, the moon, comets. The solar wind and interplanetary medium. Formation of the solar system. Prerequisite: PHYS 224 which may be taken concurrently.

ASTR 322 The Contents of Our Galaxy (3) NW Introduction to astronomy. Basic properties of stars, stellar systems, interstellar dust and gas, and the structure of our galaxy. Prerequisite: PHYS 224 which may be taken concurrently; PHYS 225 which may be taken concurrently.

ASTR 323 Extragalactic Astronomy and Cosmology (3) NW Galaxies, optical and radio morphology and properties. Clusters of galaxies, radio sources, and quasars. Observational cosmology. Prerequisite: ASTR 322 which may be taken concurrently.

ASTR 421 Stellar Observations and Theory (3) NW Observations and theory of the atmospheres, chemical composition, internal structure, energy sources, and evolutionary history of stars. Prerequisite: PHYS 224; PHYS 225; PHYS 228.

ASTR 422 Interstellar Material (3) NW Description and physics of the matter between the stars. Physical conditions, distribution, evolution, and motions of interstellar atoms, molecules, and dust grains. Exchange of energy and matter between stars and interstellar material. Prerequisite: either ASTR 322 or ASTR 421; PHYS 321; PHYS 324.

ASTR 423 High-Energy Astrophysics (3) NW High-energy phenomena in the universe. Includes supernova, pulsars, neutron stars, x-ray and gamma-ray sources, black holes, cosmic rays, quasi stellar objects, active galactic nuclei, diffuse background

radiations. Radiative emission, absorption processes, and models derived from observational data. Prerequisite: PHYS 224; PHYS 225.

ASTR 480 Introduction to Astronomical Data Analysis (5) NW Hands-on experience with electronic imaging devices (CCDs) and software for image reduction and analysis. Introduction to operating systems, reduction software, and statistical analysis with applications to CCD photometry. Prerequisite: ASTR 323.

ASTR 481 Introduction to Astronomical Observation (5) NW Theory and practice of obtaining optical data at a telescope. Preparation, obtaining data with a CCD on a telescope, and subsequent data analysis for completion of a research project. Prerequisite: ASTR 480.

ASTR 497 Topics in Current Astronomy (1-3, max. 9) NW Recent developments in one field of astronomy or astrophysics.

ASTR 499 Undergraduate Research (* max. 15) Special astronomical problems and observational projects, by arrangement with instructor.

Atmospheric Sciences

408 Atmospheric Sciences-Geophysics Building



General Catalog Web page:
www.washington.edu/students/gencat/academic/atmos_sci.html



Department Web page:
www.atmos.washington.edu

At the undergraduate level, the department provides a curriculum that covers both theoretical and applied aspects of the field. Courses offered include dynamical meteorology, cloud physics, radiative transfer, turbulence, atmospheric chemistry, and weather analysis and prediction.

Undergraduate Program

Adviser
408B Atmospheric Sciences-Geophysics Building,
Box 351640
(206) 543-6471
advise@atmos.washington.edu

The Department of Atmospheric Sciences offers a program of study leading to a Bachelor of Science degree which qualifies students for professional employment in weather forecasting, air-quality control and monitoring, and other areas of atmospheric sciences and related fields. The baccalaureate degree also is appropriate preparation for graduate study in atmospheric sciences. Students majoring in physical science, mathematics, or engineering who plan to pursue graduate study in atmospheric sciences may take a subset of the undergraduate courses (listed below) to aid in their preparation. Special arrangements are made for students opting for an honors curriculum.

Students majoring in atmospheric sciences may take advantage of a variety of opportunities to enhance their education. Undergraduate students are welcome at the department's many seminars and colloquia and are encouraged to join in the annual forecast contest. They may work on independent research projects under the guidance of a faculty member, or be an active participant in a field program.

Internship or Cooperative Exchange Program Opportunities: Internships are available either within the department or with outside organizations, providing a valuable opportunity to test a student's interests in various meteorological career paths and to extend the student's knowledge. There are a limited number of departmental scholarships available each year based on academic excellence or financial need. Employment opportunities are often available in one of the many departmental research groups, and some internships are paid.

Bachelor of Science

Admission Requirements: Students in good academic standing may declare this major at any time.

Suggested Introductory Course Work: CHEM 142; CSE/ENGR 142.

Additional Information: The first required atmospheric sciences course is ATM S 301, which is offered autumn quarter only. Any lower-division atmospheric sciences courses will count as electives and not as part of the major.

Major Requirements: Core requirements—MATH 124, 125, 126 (or MATH 127, 128, 129); MATH 324; PHYS 121/131, 122/132, 123/133; AMATH 301, 351, 353; CSE 142; ATM S 301, 321, 340, 358, 270, 431, 441. Area of specialization—19 credits of additional upper-division course work, selected in consultation with the faculty adviser. Suggested options include meteorology, atmospheric and the environment, atmosphere and ocean, and teacher education. A grade of 2.0 or better in each of the required courses and an overall GPA in these courses of 2.50.

Pregraduate Program for Physical Science, Mathematics, and Engineering Majors

The following elective course sequence is suitable preparation for students interested in pursuing graduate study in atmospheric sciences: ATM S 301, 340, 441.

Minor

Minor Requirements: ATM S 301 plus other approved courses to total not less than 25 credits. The minor may include a maximum of 6 independent study credits. Prerequisites include MATH 126 or 136, and PHYS 123/133. Some courses may require further math or chemistry experience.

Graduate Program

For information on the Department of Atmospheric Science's graduate program, see the graduate and professional volume of the *General Catalog* or visit the *General Catalog* online at www.washington.edu/students/gencat/.

Faculty

Chair

James R. Holton

Professors

Badgley, Franklin * 1953, (Emeritus); MS, 1948, PhD, 1951, New York University; atmospheric turbulence and diffusion.

Baker, Marcia * 1980; MS, 1960, Stanford University; PhD, 1971, University of Washington; cloud physics, atmospheric geophysics.

Breidenthal, Robert E. * 1980, (Adjunct); PhD, 1979, California Institute of Technology; turbulence, mixing, combustion, vorticity, bluff body flows.

Bretherton, Christopher S. * 1984; PhD, 1984, Massachusetts Institute of Technology; convective cloud systems, boundary layer meteorology, numerical modeling, tropical meteorology.

Brown, Robert A. * 1971, (Research); MS, 1962, University of California (Berkeley); PhD, 1969, University of Washington; geophysical fluid dynamics, planetary boundary layers, air-sea interaction, remote sensing.

Businger, Joost A. * 1958, (Emeritus); PhD, 1954, University of Utrecht (Netherlands); boundary layer meteorology, air-sea interaction, atmospheric turbulence.

Charlson, Robert J. * 1962, (Emeritus); MS, 1959, Stanford University; PhD, 1964, University of Washington; atmospheric chemistry, aerosol physics, aerosol/cloud/climate interaction and instrumentation.

Covert, David S. * 1975, (Research); MS, 1971, PhD, 1974, University of Washington; atmospheric chemistry, aerosol instrumentation, aerosol physics, chemistry, optics.

Durrán, Dale R. * 1987; MS, 1975, University of California (Berkeley); PhD, 1981, Massachusetts Institute of Technology; atmospheric dynamics, mesoscale meteorology, numerical simulation, mountain meteorology.

Fleagle, Robert G. * 1948, (Emeritus); MS, 1944, PhD, 1949, New York University; air-sea interaction, science policy.

Gammon, Richard H. * 1985, (Adjunct); PhD, 1970, Harvard University; atmospheric, marine, and environmental chemistry; biogeochemical cycles, global climate change.

Grenfell, Thomas C. * 1968, (Research); MS, 1968, University of Chicago; PhD, 1972, University of Washington; atmospheric radiation, radiative transfer, remote sensing, sea-ice-snow optics, microwave theory.

Harrison, Don Edmunds * 1985, (Affiliate); MS, 1973, PhD, 1977, Harvard University; ocean circulation modeling, large-scale atmosphere-ocean interaction, climate diagnostics/dynamics.

Hartmann, Dennis L. * 1977; PhD, 1975, Princeton University; climate change, dynamic meteorology, radiation and remote sensing.

Hegg, Dean A. * 1975, (Research); MS, 1976, PhD, 1979, University of Washington; atmospheric chemistry, cloud physics.

Hobbs, Peter V. * 1963; PhD, 1963, University of London: Imperial College; aerosol/cloud/precipitation physics, atmospheric chemistry, air pollution, mesoscale meteorology.

Holton, James R. * 1965; PhD, 1964, Massachusetts Institute of Technology; dynamic meteorology, middle atmosphere meteorology.

Houze, Robert A. * 1972; MS, 1969, PhD, 1972, Massachusetts Institute of Technology; mesoscale meteorology, cloud physics and dynamics, radar meteorology, tropical meteorology.

Jaffe, Daniel A. * 1997, (Adjunct); MS, 1983, PhD, 1987, University of Washington; atmospheric chemistry, urban and global air pollution, environmental education.

Katsaros, Kristina B. * 1959, (Affiliate); PhD, 1969, University of Washington; air-sea interaction, radiative surface fluxes, remote sensing.

LaChapelle, Edward R. * 1955, (Emeritus); ScD, 1967, University of Puget Sound; snow-ice physics.

Leovy, Conway B. * 1967, (Emeritus); PhD, 1964, Massachusetts Institute of Technology; climatic role of clouds, planetary atmospheres and astrobology, upper-atmosphere circulation.

Mass, Clifford F. * 1981; PhD, 1978, University of Washington; synoptic and mesoscale meteorology.

Maykut, Gary * 1969, (Research); PhD, 1969, University of Washington; polar air-sea-ice interaction, radiative transfer in ice and snow.

Overland, James E. * 1983, (Affiliate); MS, 1971, University of Washington; PhD, 1973, New York University; arctic and North Pacific climate variability, sea ice.

Plant, William J. 1991, (Affiliate); PhD, 1972, Purdue University; remote sensing, atmosphere-ocean interaction.

Radke, Lawrence F. * 1964, (Affiliate); MS, 1966, PhD, 1968, University of Washington; cloud/aerosol physics, optical and microwave remote sensing, airborne instrumentation/applications.

Reed, Richard J. * 1954, (Emeritus); DSc, 1949, Massachusetts Institute of Technology; weather analysis and prediction, numerical modeling.

Rhines, Peter B. * 1984; PhD, 1967, Cambridge University (UK); the circulation of the oceans and evolution of climate.

Sarachik, Edward S. * 1984; PhD, 1966, Brandeis University; atmospheric dynamics, large scale atmosphere/ocean interactions, equatorial dynamics, climate change.

Tillman, James E. 1971, (Research); MS, 1961, Massachusetts Institute of Technology; Mars meteorology, humidity and temperature instrumentation, planetary boundary layers.

Tung, Ka Kit * 1988, (Adjunct); PhD, 1977, Harvard University; atmospheric and geophysical fluid dynamics.

Untersteiner, Norbert * 1957, (Emeritus); PhD, 1950, University of Innsbruck (Austria); air-sea-ice interaction, polar climatology, sea ice physics.

Wallace, John M. * 1966; PhD, 1966, Massachusetts Institute of Technology; atmospheric general circulation, climate variability, climate change.

Warren, Stephen G. * 1981; MA, 1969, PhD, 1973, Harvard University; atmospheric radiation, radiative properties of clouds, snow, and sea ice, Antarctic climate.

Associate Professors

Bates, Timothy S. * 1990, (Affiliate); MS, 1978, PhD, 1988, University of Washington; oceanic and atmospheric chemistry, air-sea exchange of gases and particles, aerosols and climate.

Battisti, David S. * 1983; MS, 1981, PhD, 1988, University of Washington; large-scale atmosphere-ocean dynamics, climate dynamics, tropical circulation, arctic climate.

Bond, Nicholas A. 1997, (Affiliate); PhD, 1986, University of Washington; air-sea interaction, boundary layers, coastal and marine meteorology.

Chen, Shuyi S. * 1991, (Affiliate); MS, 1985, University of Oklahoma; PhD, 1990, Pennsylvania State University; mesoscale dynamics and numerical modeling, atmospheric deep convection, tropical meteorology.

Colman, Bradley R. 1999, (Affiliate); ScD, 1984, Massachusetts Institute of Technology; operational weather analysis and forecasting, coastal meteorology and oceanography.

Ferek, Ronald J. * 1985, (Research); MS, 1978, PhD, 1982, Florida State University; atmospheric chemistry, aerosol-cloud interactions, marine aerosols, biomass burning emissions.

Ghan, Steven J. 1993, (Affiliate); MS, 1981, PhD, 1988, Massachusetts Institute of Technology; clouds/aerosol/tropospheric chemistry, climate modeling.

Harrison, Halstead * 1971, (Emeritus); PhD, 1960, Stanford University; atmospheric chemistry, dispersion modeling, radiative transfer.

Locatelli, John D. 1969, (Research); BS, 1967, University of Washington; cloud and precipitation physics, synoptic and mesoscale meteorology.

Rothrock, David A. * 1970, (Adjunct); PhD, 1969, Cambridge University (UK); physical oceanography, polar oceanography, polar ice remote sensing and modeling.

Smull, Bradley F. 1996, (Research); PhD, 1986, University of Washington; mesoscale and radar meteorology, tropical meteorology, large-scale atmosphere-ocean interaction.

Assistant Professors

Alexander, M. Joan * 1992, (Affiliate); MS, 1989, PhD, 1992, University of Colorado (Boulder); atmospheric gravity waves, middle atmosphere dynamics, planetary atmospheres.

Hakim, Gregory J. * 1999; MS, 1993, PhD, 1997, State University of New York (Albany); synoptic and mesoscale meteorology; atmospheric dynamics; rotating, stratified turbulence.

Kamenkovich, Igor V. 1998, (Research); PhD, 1996, Massachusetts Institute of Technology; atmosphere-ocean coupled modeling, thermohaline circulation.

Mantua, Nathan J. 1998, (Affiliate); PhD, 1994, University of Washington; large-scale climate variability and predictability, the El Niño/Southern Oscillation.

Yuter, Sandra Ellyn * 1990, (Research); PhD, 1996, University of Washington; physical meteorology, mesoscale meteorology, radar and remote sensing.

Course Descriptions

See page 48 for an explanation of course numbers, symbols, and abbreviations.

For graduate-level course descriptions, see the graduate and professional study volume of the *General Catalog* or visit the online course catalog at www.washington.edu/students/crsca/.

ATM S 101 Weather (5) NW The earth's atmosphere, with emphasis on weather observations and forecasting. Daily weather map discussions. Highs, lows, fronts, clouds, storms, jet streams, air pollution, and other features of the atmosphere. Physical processes involved in weather phenomena. Intended for nonmajors. Offered: AWSpS.

ATM S 211 Climate and Climate Change (5) NW The nature of the global climate system. Factors influencing climate including interactions among the atmosphere, oceans, solid earth, and biosphere. Stability and sensitivity of climate system. Global warming, ozone depletion, and other human influences. Intended for nonmajors. Offered: AWSpS.

ATM S 301 Introduction to Atmospheric Sciences (5) NW Composition and structure of the atmosphere. Clouds and weather phenomena. Thermodynamic processes. Solar and terrestrial radiation. Air motions. Daily weather discussions and forecasts. For majors and nonmajors. Prerequisite: either MATH 126, MATH 129, or MATH 136; PHYS 123. Offered: A.

ATM S 321 Physical Climatology (3) NW Evolution and present state of earth's climate. Emphasis on physical processes determining the climate of the earth's atmosphere and surface: radiative transfer, energy balance, hydrologic cycle, atmospheric and oceanic energy transport. Factors controlling climate change. Prerequisite: ATM S 301. Offered: Sp.

ATM S 340 Introduction to Thermodynamics and Cloud Processes (5) NW Thermodynamics and hydrostatics. Cloud and precipitation processes with emphasis on the microphysics. Prerequisite: either MATH 126, MATH 129, or MATH 136. Offered: W.

ATM S 358 Fundamentals of Atmospheric Chemistry (3) NW Review of basic principles of physical chemistry; evolution and chemical composition of

earth's atmosphere; half-life, residence and renewal time; sources, transformation, transport and sinks of gases in the troposphere; atmospheric aerosols; chemical cycles; air pollution; stratospheric chemistry. Recommended: CHEM 142. Offered: Sp.

ATM S 370 Atmospheric Structure and Analysis (5) NW Structure and evolution of extratropical cyclones, fronts and convective systems. Surface and upper air analysis techniques. Radar and satellite data. Real-world applications of basic dynamical principles. Introduction to operational products and forecasting. Prerequisite: ATM S 301. Offered: W.

ATM S 390 Honors Tutorial in Atmospheric Sciences (* max. 6) Review and discussion of selected problems in atmospheric sciences. Introduction to research methods. Presentation of a research paper. Offered: AWSpS.

ATM S 431 Atmospheric Physics (5) NW Energy transfer processes: solar and atmospheric radiation, turbulence, and boundary layer structure. Applications. Prerequisite: either ATM S 340 or PHYS 224. Offered: A.

ATM S 441 Atmospheric Motions I (3) NW Basic equations governing atmospheric motions and their elementary applications; circulation and vorticity; dynamics of midlatitude disturbances. Prerequisite: either AMATH 353 or MATH 309; MATH 324. Offered: A.

ATM S 442 Atmospheric Motions II (5) NW Wave dynamics, numerical prediction, development of midlatitude synoptic systems, and general circulation. Includes laboratory exercises. Prerequisite: ATM S 441. Offered: W.

ATM S 451 Instruments and Observations (5) NW Principles of operating instruments for measuring important atmospheric parameters (e.g., temperature, humidity, aerosol concentration). Concepts of sensitivity, accuracy, representativeness, time response. Manipulation of output data including signal processing and statistical analysis. Experimental design and implementation of the design in actual field experiments is included. Prerequisite: ATM S 350. Offered: Sp.

ATM S 452 Weather Forecasting and Advanced Synoptic Meteorology (5) NW Basic forecasting techniques. Application of numerical modeling and statistical approaches. Structure, evolution, and forecasting of convective systems. Radar applications. Diurnal and topographically-forced circulations. Aviation meteorology. Laboratories include extensive practice in forecasting and surface map analysis. Prerequisite: ATM S 370; ATM S 442. Offered: Sp.

ATM S 458 Global Atmospheric Chemistry (4) NW Global atmosphere as chemical system. Physical factors and chemical processes. Natural variabilities and anthropogenic change. Cycling of trace substances. Global issues such as climate change, acidic deposition, influences on biosphere. Prerequisite: either ATM S 358 or CHEM 456. Offered: jointly with CHEM 458; A.

ATM S 460 Water in the Environment (3) NW Baker, Raymond, Waddington, Warren Discusses the unique physical and chemical properties of the water molecule in relation to the atmospheric greenhouse effect, precipitation formation, oceanic circulations, infiltration of water through soils, geyser eruptions, and glacier and sea ice thickness. Prerequisite: either MATH 124, MATH 126, MATH 129, or MATH 136 and PHYS 123; PHYS 133. Offered: jointly with GPHYS 460 and PHYS 460. Offered: A.

ATM S 480 Air-Quality Modeling (3) NW Evaluation of air-quality models relating air pollution emissions to environmental concentrations. Topics include meteorological dispersion models and various "receptor" models based on chemical "fingerprinting" of

sources. Emphasizes current problems. Prerequisite: either CEE 381, ATM S 458, or CHEM 458. Offered: jointly with CEE 480; W.

ATM S 492 Readings in Meteorology or Climatology (*) Credit/no credit only. Offered: AWSpS.

Biochemistry

109 Bagley



General Catalog Web page:
www.washington.edu/students/gencat/academic/biochem.html



Department Web page:
depts.washington.edu/chemugs/

Biochemistry is the study of the living organism at the molecular level. It draws on the techniques of analytical, organic, inorganic, and physical chemistry in determining the molecular basis of vital processes.

Undergraduate Program

Advisers

Lani Stone
Bridget Warbington
109 Bagley, Box 351700
(206) 543-9343, (206) 616-9597
advisers@chem.washington.edu

Since the study of any chemistry-based field requires an understanding of mathematics and physics, the Bachelor of Science degree in biochemistry requires introductory courses in mathematics, physics, chemistry, and biology as well as intermediate-level courses in chemistry. These courses prepare the student for junior and senior studies in biochemistry, molecular genetics, and molecular biology. Since the subject requires a very broad scientific foundation, the program requires a minimum of 196 credits. At the advanced level, the student has a choice of a wide range of courses in a variety of science departments.

Students planning work in the biotechnology field, or those planning on a health professional career, find the biochemistry degree an excellent choice. Combining introductory core courses from several different departments, this degree is also good preparation for graduate school in classical and emerging fields of biomedical research.

Student Associations: The Free Radicals, a general undergraduate club for chemistry and biochemistry majors. Phi Lambda Upsilon, the UW affiliate of the national chemistry honorary society.

Bachelor of Science

Admission: Students in good academic standing may declare this major at any time.

Suggested Introductory Course Work: BIOL 201, 202; CHEM 142, 152, 162, 237, 238, 239, 241, 242; MATH 124, 125, 126 (or MATH 127, 128, 129); PHYS 121/131, 122/132, 123/133, or 114, 115, 116, plus one physics lab course (strongly recommended).

Major Requirements: MATH 124, 125, 126 (or 127, 128, 129, or 134, 135, 136); PHYS 121/131, 122/132, 123/133 (or 114, 115, 116), with the 121/131 series recommended; CHEM 142, 152, 162 (or 145, 155, 165); 237, 238, 239, 241, 242 (or 335, 336, 337, 346, 347); 452, 453 (or 455, 456, 457); BIOL 201, 202; GENET 371 or 372; BIOC 426, 440, 441, 442; 11 credits chosen from a current department list (available in 109 Bagley) of upper-division science classes including math, biology, microbiology, chemistry, genetics, zoology, and up to 9 credits of advanced-level undergraduate research. For all chemistry, biology, and biochemistry

courses required by the major program, a minimum grade of 1.7 and a GPA of 2.80 is required. For the BIOC 440, 441, and 442 sequence, a minimum GPA of 2.20 is required. Overall University GPA of 2.80 is also required. This degree requires a minimum of 196 credits.

Graduate Program

For information on the Biochemistry graduate program, see the graduate and professional volume of the *General Catalog* or visit the *General Catalog* online at www.washington.edu/students/gencat/.

Biology

318 Hitchcock



General Catalog Web page:
www.washington.edu/students/gencat/academic/biology.html



Department Web page:
www.biology.washington.edu/biology/

Biology is the broadly based study of living organisms and may be approached by focus on cell and molecular processes, development, organismal physiology and morphology, natural history, evolution, conservation, or ecology. The aim is to elucidate general principles applicable to many different sorts of organisms rather than to concentrate on any particular taxonomic group. Biology is often interdisciplinary in nature and may involve aspects of biochemistry, botany, genetics, microbiology, zoology, and many other natural sciences.

Undergraduate Program

Advisers

Leal Dickson
Thomas Freng
Kimberly Swayze
318 Hitchcock, Box 355320
(206) 543-9120
bioladv@u.washington.edu

Biology Teaching Program Adviser
Helen Buttemer
(206) 543-1689

A liberal arts degree in biology is applicable to many different fields, depending upon student interests. Students in the program gain analytical and laboratory skills that prepare them for entry-level positions in a variety of biologically related areas, including, but not limited to, biotechnology, laboratory and/or field research support, health science support, wildlife biology, and ecology and conservation work. Students may also continue their education in professional schools (for instance, in medicine, veterinary science, dentistry, or medical technology), or in graduate programs that focus on some aspect of biological science (such as genetics, microbiology, immunology, ecology, environmental health, or cell and molecular biology).

The undergraduate program in biology offers two alternative interdisciplinary options leading to a baccalaureate degree. The emphasis of Option 1 is cell and molecular biology, whereas the emphasis of Option 2 is ecology, evolution, and conservation biology.

Option 1 is particularly well suited for students who wish to pursue immediate entry-level employment or graduate studies in genetics, biochemistry, microbiology, cell biology, or developmental biology, as well as for candidates for professional schools such as medicine.

Option 2 is designed for students who wish to pursue graduate studies or immediate employment in ecology, evolution, conservation biology, or mathematical biology, as well as for students preparing for related areas of law or public policy.

A number of other degree programs in biological fields or with strong biological orientations exist. These include, but are not limited to, Biochemistry, Botany, Microbiology, Psychology, and Zoology. The University of Washington's Colleges of Forest Resources and Ocean and Fishery Sciences also offer biologically oriented degree programs for undergraduates.

Each of the above bachelor's degrees in the biological sciences can be combined with Washington State requirements to prepare students to teach biology in public schools at the secondary level. See the Biology Teaching Program Adviser for specific requirements.

Student Associations: Beta Beta Beta Biology Honor Society (Tri Beta), tribeta@u.washington.edu; Pre Med Society (Alpha Epsilon Delta), aed@u.washington.edu.

Bachelor of Science

Admission Requirements: For Option 1 (Cell and Molecular Biology), BIOL 201 with a minimum grade of 2.5; or BIOL 201, 202, 203 with a cumulative GPA of 2.00 for the three courses. For Option 2 (Ecology, Evolution, and Conservation Biology), same as Option 1 above, or BIOL 101 and 102 with a minimum grade of 2.5 in each course. For both Option 1 and Option 2, a minimum cumulative GPA of 2.00 is required for all courses which would apply toward major requirements (this includes all applicable chemistry, physics, mathematics, and introductory biological science courses).

Suggested Introductory Course Work:

Option 1: CHEM 142, 152, 162; CHEM 223, 224; MATH 124, 125 (or Q SCI 291, 292); MATH 126 (or Q SCI 381); BIOL 201, 202, 203; PHYS 114, 115 (or PHYS 121/122).

Option 2: CHEM 142, 152, 162, and CHEM 223, 224 or CHEM 237, 238, 239 (students may substitute for all of the above, the short sequence CHEM 120, 220, 221); MATH 124, 125 (or Q SCI 291, 292); BIOL 201, 202, 203 (or BIOL 101, 102, and GENET 371); PHYS 114, 115 (or PHYS 121/122).

Additional Information: Concentrate on mathematics and general chemistry in the first year. *Transfer students:* If possible, complete entire sequences at one school. It is *not* necessary, or even desirable, to complete the Areas of Knowledge requirement during the first two years.

Major Requirements: For both options the following basic course work is required: one year of mathematics (calculus and/or statistics); four to six quarters of chemistry covering general and organic chemistry; two quarters of physics; and one year of introductory biology. See Suggested Introductory Course Work above. Option 1 requires one to two quarters of physical chemistry.

The two options diverge substantially in their requirements for advanced course work. Option 1 Core requires GENET 371 or 372; and either (1) BIOC 440, 441, 442 or (2) BIOC 405, 406 and BIOL 401. Option 2 Core requires BIOL 454, 472, and 476. Additional upper-division work in both options is selected from course lists designed to ensure both breadth and depth of coverage. A minimum GPA of 2.00 is required for all UW courses applied toward major requirements, including upper-division biological science courses and the introductory biology and required supporting science and mathematics courses. Transfer students must take a minimum of 15 credits in upper-division courses at the UW. Students pursuing a double major or degree should be aware that some restrictions on overlapping courses apply. See an adviser for details.

Because of the differing specific requirements and choices for each option, it is extremely important for students to work closely with the Biology Program advisers.

Faculty

Director

Barbara T. Wakomoto

Professor

Wakimoto, Barbara T. * 1984; PhD, 1981, Indiana University; developmental genetics, gene expression and chromosome organization in eukaryotes.

Senior Lecturer

Nicotri, Mary E. 1977; PhD, 1974, University of Washington; marine ecology, evolution and introductory biology.

Lecturers

Buttemer, Helen A. 1985; MAT, 1987, University of Washington; biology teacher preparation

Martin-Morris, Linda E. 1994; PhD, 1991, Brandeis University; genetics, nonmajors biology.

Mehary, Tekie 1984; MSc, 1976, Washington State University; PhD, 1981, University of Washington; applied entomology and environmental health.

O'Connor, Eileen 1975; MS, 1976, University of Washington; ecology and evolution.

Paul, Anne S. 1980; BS, 1980, MA, 1993, University of Washington; molecular biology.

Russell, Millie L. 1974; MS, 1979, EdD, 1988, University of Washington; biology for health professionals.

Waaland, Susan D. 1990; PhD, 1969, University of California (Berkeley); phycology and plant physiology.

Zeman, Leslie B. 1998; DVM, 1975, Michigan State University; animal physiology.

Course Descriptions

See page 48 for an explanation of course numbers, symbols, and abbreviations.

For graduate-level course descriptions, see the graduate and professional study volume of the *General Catalog* or visit the online course catalog at www.washington.edu/students/crscat/.

The courses in biology listed below are administered by several departments. Other courses in biology are listed under such headings as Biochemistry, Biological Structure, Botany, Microbiology, and Zoology.

BIOL 100 Introductory Biology (5) NW Develops an awareness of science by studying basic biological principles and their application to problems of humans and society in the contexts of special topics or themes, which vary quarter to quarter. For non-science majors only. Offered: AWSpS.

BIOL 101- General Biology (5-) NW Living systems viewed from the subcellular to the community level, emphasizing the diversity, functioning, and interaction of whole organisms. Topics covered include cell structure and function, energy, genetics, animal physiology and development. Emphasizes the position of humans in the biological world. For nonmajors and majors in biology-related fields who need a thorough two-quarter introduction to biology. Recommended: high school chemistry; high school biology. Offered: A.

BIOL -102 General Biology (-5) NW Living systems viewed from the subcellular to the community level, emphasizing the diversity, functioning, and interaction of whole organisms. Topics covered include plant and animal diversity, plant structure and func-

tion, general ecology and evolution. Emphasizes the position of humans in the biological world. For nonmajors and majors in biology-related fields who need a thorough two-quarter introduction to biology. Prerequisite: BIOL 101. Offered: W.

BIOL 104 Biology for Elementary School Teachers (5) NW *Buttner* Basic concepts of biology, with emphasis on background needed for confident use of the new science curriculum materials in the elementary school. Offered: AW.

BIOL 110 Elementary Biology for Health Professions I (2) NW *Russell* Elementary biomedical concepts. For Equal Opportunity Program students only. Credit/no credit only. Offered: A.

BIOL 111 Elementary Biology for Health Professions II (2) NW *Russell* Elementary human anatomy and physiology, including selected areas in laboratory medicine. For Equal Opportunity Program students only. Credit/no credit only. Prerequisite: BIOL 110. Offered: W.

BIOL 112 Elementary Biology for Health Professions III (1-4, max. 4) NW *Russell* Field experience in a health profession. For Equal Opportunity Program students only. Credit/no credit only. Prerequisite: BIOL 111. Offered: Sp.

BIOL 123 Introduction to Biology (5) NW *Mehary* Basic biological concepts within the context of human biology. For students in the Educational Opportunity Program. Cannot be taken for credit if 100 previously taken. Credit/no credit only. Offered: ASp.

BIOL 201 Introductory Biology (5) NW For students intending to take advanced courses and preprofessional programs. Cell and molecular phenomena, metabolism, energetics, genetics. Prerequisite: CHEM 155, CHEM 160, CHEM 162, CHEM 221, CHEM 223, CHEM 237, or CHEM 250. Offered: AWP.

BIOL 202 Introductory Biology (5) NW For students intending to take advanced courses and preprofessional programs. Animal structure, function, and development. Prerequisite: 1.5 in BIOL 201; CHEM 155, CHEM 160, CHEM 162, CHEM 221, CHEM 223, CHEM 237, or CHEM 250. Offered: AWP.

BIOL 203 Introductory Biology (5) NW For students intending to take advanced courses and preprofessional programs. Plant structure and function, general ecology, and evolution. Prerequisite: 1.5 in BIOL 201; CHEM 155, CHEM 160, CHEM 162, CHEM 221, CHEM 223, CHEM 237, or CHEM 250. Offered: AWP.

BIOL 206 Laboratory in Environmental Problems (5) NW *Leopold* Processes and structure of ecosystems and conflicting uses made of these environments. For non-science majors. Role and application of science. Field trips to natural and human-modified ecosystems; weekend field trips required. Offered: jointly with BOTANY 206; A.

BIOL 293 Study Abroad - Biology (1-10, max. 10) NW For participants in UW study abroad program. Specific content varies and must be individually evaluated. Credit does not apply to major requirements without approval.

BIOL 333 Plant Communities: Resilience and Restoration (5) NW *Leopold* Ecological impacts by humans on native plant communities. Effects of grazing, timber removal, habitat draining and filling, fire control, application of chemicals. Potential for ecological restoration of plant communities. Three required weekend field trips. Prerequisite: either BIOL 102 or BIOL 203; BOTANY 113. Offered: jointly with BOTANY/ESC 333.

BIOL 355 Introduction to Molecular Cell Biology (5) NW *Bosma, Wright* Introduction to contemporary cellular biology and physiology, focusing on the molecular biology of cells as a unifying theme. Emphasis on the flow of genetic information, cell structure and function, and cell regulation. Prerequisite: either CHEM 150, CHEM 152, CHEM 155, or CHEM 220; either both BIOL 101 and ZOOL 118, BIOL 102, or BIOL 202.

BIOL 401 Cell Biology (5) NW *Bakken, Hille, Wakimoto, Wright* Selected topics in molecular cell biology. Strong emphasis on understanding original experiments that describe the functions of the cell. Prerequisite: either BIOL 202, BIOL 355, or GENET 371; either CHEM 221, CHEM 224, CHEM 239, or CHEM 337; either BIOL 355, GENET 372, ZOOL 301, ZOOL 485, BIOC 405, or BIOC 440.

BIOL 402 Cell Biology Laboratory (3) NW *Shellenbarger* Practice in modern methods (restriction enzyme digestion, blotting, hybridization, immunochemistry, density gradient centrifugation, electrophoresis) and other methods currently used to study plant and animal cells, nucleic acids, and proteins. Includes practice in scientific style writing. Prerequisite: BIOL 401, which may be taken concurrently.

BIOL 405 Cellular and Molecular Biology of Human Disease (3) NW *Wakimoto* Concepts of cellular and molecular biology as applied to human disease. Emphasis on current experimental approaches to investigate disease mechanisms and the contributions of model systems. Selected topics in cancer biology, viral induced disease, gene therapy. Prerequisite: BIOL 202; either BIOC 405, BIOC 440, BIOL 355, BIOL 401, GENET 371, GENET 372, ZOOL 301, ZOOL 455, or ZOOL 485.

BIOL 438 Biological Monitoring and Assessment (5) NW *Karr* Explores the technical questions (conceptual, sampling, and analytical), the rationale, policy relevance, and legal basis for tools—existing and needed—to assess ecological health. Prepares students to see the biological components of ecological systems in diverse ways. Offered: jointly with FISH 438.

BIOL 454 Evolutionary Mechanisms (4) NW *Kingsolver, Schenks* Evolutionary change as determined by mutation, selection, drift and other mechanisms. Effects of the genetic system, isolating mechanisms, and population structure on speciation. Examples of microevolutionary and macroevolutionary changes from the diversity of life. For advanced undergraduate and graduate students in biological sciences. Prerequisite: either BIOL 102 or BIOL 203.

BIOL 470 Biogeography (4) NW Analysis of historical and ecological determinants of current and past distributions of organisms. Integrates techniques developed by taxonomists, paleontologists, geologists, evolutionists, ecologists, and biogeographers to elucidate relationships between geographical distributions and continental drift, ecological interactions, climate, and dispersal abilities of organisms. Recommended: one year college biology; background in ecology and evolution.

BIOL 472 Principles of Ecology (5) NW Population biology, interactions between species in biological communities, relationship of community to environment, physiological ecology, principles of natural selection. Prerequisite: either BIOL 102 or BIOL 203.

BIOL 473 Limnology (3) NW *Schindler* Biological, physical, and chemical features of lakes and other inland waters. Prerequisite: either BIOL 102 or BIOL 203.

BIOL 475 Limnology Laboratory (2) NW *Schindler* Examination of biota of fresh waters, survey of limnological methods, and analysis of data. Prerequisite: BIOL 473, which may be taken concurrently.

BIOL 476 Conservation Biology (5) NW *Boersma* Explores biological, managerial, economic, and ethical concepts affecting survival of species. Applications of ecology, biogeography, population genetics, and social sciences for the preservation of species in the face of widespread global habitat modification, destruction, and other human activities. Prerequisite: either BIOL 102 or BIOL 203.

BIOL 477 Marine Conservation (3) NW Terrestrial based concepts of conservation biology applied to marine systems. Human activities affecting the marine environment including fishing and pollution; influence of legal and cultural frameworks; and ecosystem management. Prerequisite: BIOL 476.

BIOL 490 Undergraduate Seminar (1-3, max. 6) NW Supervised readings and group discussion of selected topics of broad biological significance. Prerequisite: BIOL 102, BIOL 202, or BIOL 203.

BIOL 491 Special Topics in Biological Science for Teachers (3-9, max. 9) NW Study of selected areas of biology. Designed to enhance the skills and background of K-12 teachers. Credit/no credit only. Recommended: teaching experience.

BIOL 492 The Teaching of Biology (2) Basic course in the teaching of biology in the secondary school. Designed to help preservice teachers identify useful laboratory techniques, materials, and content for the teaching of pre-college biology. Special attention to current issues in biology education. Required for biology student in Teacher Certification Program.

BIOL 493 Study Abroad - Advanced Biology (1-15, max. 15) NW For participants in UW study abroad program. Specific content varies and must be individually evaluated. Credit does not apply to major requirements without approval.

BIOL 496 Peer Teaching Assistants in Biology (1-5, max. 10) Direct experience in the classroom, typically teaching a lab section of BIOL 100. Peer Teaching Assistants attend lectures and weekly preparation meetings and gain in-depth background on the subject material as well as training in teaching techniques and approaches. Credit/no credit only. Prerequisite: either BIOL 102 or both BIOL 202 and BIOL 203. Offered: AWP.

BIOL 497 Special Topics in Biology (1-5, max. 10) NW

BIOL 498 Library Research (1-5, max. 10)

BIOL 499 Undergraduate Research (1-5, max. 15)

Botany

426 Hitchcock



General Catalog Web page:
www.washington.edu/students/gencat/academic/botany.html



Department Web page:
depts.washington.edu/botweb/

Botany is concerned with the function and structure of plants, algae and fungi, their ecology and evolution, classification, physiology, development and genetics. Emphasis is placed both on organismal and on cellular and molecular biology. Special courses and programs in botany of the Pacific Northwest are shared with related departments.

Undergraduate Program

Advisers
Leal Dickson
Thomas Freng
Kimberly Swayze
318 Hitchcock, Box 355320
(206) 543-9120
bioladv@u.washington.edu

The Department of Botany offers two undergraduate degrees. The Bachelor of Arts degree is designed for students who wish to obtain a broad training in the biology of plants and plant-like organisms, but who do not plan to continue with further graduate training in the biological sciences. The Bachelor of Science degree includes a more extensive training in mathematics and chemistry and is designed for students who are planning to continue with graduate training in botany or other areas of biology. The department also offers a minor.

Student Associations:

The Botany Undergraduate Club: The Botany Undergraduate Club's goal is to enhance the scholastic experience of Botany students through social interactions with fellow botanists, utilizing field trips, seminars, and increased intra-departmental communication. Contact botweb@u.washington.edu for more information.

Beta Beta Beta Biological Honor Society: Tribeta is an undergraduate honor society open to students of any major with an interest in the biological sciences, including but not limited to biology, zoology, botany, microbiology, biochemistry, and genetics. Meetings and activities provide a comfortable arena where career, research, and postgraduate study information is provided. In addition, lecturers from the UW and beyond are invited to present information about their background and research interests in order for students to gain insight into different areas of professional interest. For more information about membership requirements, current activities, etc., contact Tribeta at tribeta@u.washington.edu or on the Web at staff.washington.edu/tribeta/.

Bachelor of Arts

Admission: Students in good academic standing may declare this major at any time.

Suggested Introductory Course Work: BOTANY 113; BIOL 101-102, or 201, 202, 203; CHEM 120, 220, or 142, 152.

Major Requirements: Minimum of 65 credits as follows: BIOL 101-102 and GENET 371 (or BIOL 201, 202, 203); CHEM 120 and 220, or CHEM 142, 152, 162; BOTANY 113, 354, 371, 372, 441, and one of the following: BOTANY 446 or 461. Minimum of 15 credits of upper-division courses (excluding courses without prerequisites) in botany, zoology, microbiology, genetics, biology, and certain courses in forest resources, oceanography, and fisheries.

Bachelor of Science

Admission: Students in good academic standing may declare this major at any time.

Suggested Introductory Course Work: BOTANY 113; BIOL 101-102, or 201, 202, 203; CHEM 120, 220, 221, or 142, 152, 162, 223, 224; and one of the following six options: MATH 124, 125; MATH 127, 128; MATH 144, 145; Q SCI 291, 292; Q SCI 381, 482; or one quarter of calculus and one quarter of statistics.

Additional Information: Students are encouraged to complete full-year sequences of calculus, general chemistry, organic chemistry, introductory biology, and physics. Students should concentrate on mathematics and general chemistry in the first year. It is not necessary, or even desirable, to complete the Areas of Knowledge requirement in the first two years.

Major Requirements: Minimum of 87 credits as follows: BIOL 201, 202, 203 and GENET 371 or 372 (or BIOL 101, 102 and GENET 371). CHEM 120, 220, 221 (or CHEM 142, 152, 162, and either CHEM 223, 224 or 237, 238, 239). One of the following sequences: MATH 124, 125; MATH 127, 128; MATH 144, 145; Q SCI 291, 292; or Q SCI 381, 482; or one quarter of calculus and one quarter of statistics. BOTANY 113, 354, 371, 372, 428, 441; BIOL 454, and one of the following: BOTANY 446 or 461. Minimum of 15 credits of upper-division courses (excluding courses without prerequisites) in botany, zoology, microbiology, genetics, biology, and certain courses in forest resources, oceanography, and fisheries.

Minor

Minor Requirements: 25 credits to include 10 credits of lower-division courses in biology, botany, or zoology; and 15 credits of upper-division courses in botany.

Graduate Program

For information on the Department of Botany's graduate program, see the graduate and professional volume of the *General Catalog* or visit the *General Catalog* online at www.washington.edu/students/genocat/.

Faculty

Chair

Joseph F. Ammirati

Professors

Ammirati, Joseph F. * 1979; MA, 1967, San Francisco State; PhD, 1972, University of Michigan; mycology, taxonomy and ecology of fungi.

Bendich, Arnold J. * 1970; PhD, 1969, University of Washington; chromosome structure in mitochondria, chloroplasts, and bacteria.

Bliss, Lawrence C. * 1978, (Emeritus); PhD, 1956, Duke University; physiological plant ecology and ecosystem development and function, arctic, alpine environments.

Cattolico, Rose A. * 1975; PhD, 1973, State University of New York (Stony Brook); plastid replication, nucleic acid biochemistry in synchronized unicellular algae.

Cleland, Robert E. * 1964; PhD, 1957, California Institute of Technology; plant physiology, plant hormones.

Del Moral, Roger * 1968; PhD, 1968, University of California (Santa Barbara); plant ecology, community structure, succession.

Dunwiddie, Peter W. 1998, (Affiliate); PhD, 1983, University of Washington.

Ebrey, Thomas 2000, (Research); PhD, 1968, University of Chicago; phototransaction in biology, halo bacteria.

Hall, Benjamin D. * 1963; MA, 1956, PhD, 1959, Harvard University; yeast molecular genetics and molecular evolution of gene expression in eukaryotes.

Halperin, Walter * 1968, (Emeritus); PhD, 1965, University of Connecticut; plant physiology, developmental anatomy, embryogenesis.

Haskins, Edward F. * 1966, (Emeritus); PhD, 1965, University of Minnesota; cytology, ultrastructure of microorganisms, especially slime molds.

Hinckley, Thomas M. * 1980, (Adjunct); PhD, 1971, University of Washington; forest tree physiology and autecology, subalpine ecosystems, water stress problems.

Kruckeberg, Arthur R. * 1950, (Emeritus); PhD, 1950, University of California (Berkeley); evolution, flora of PNW, edaphic ecology, conservation.

Leopold, Estella B. * 1976; PhD, 1955, Yale University; paleoecology, pollen and seed analysis, late Cenozoic environment.

Nester, Eugene W. * 1962, (Adjunct); PhD, 1959, Case Western Reserve University; genetics and biochemistry of bacterial-plant cell interactions, tumorigenesis.

Schemske, Douglas W. * 1989; PhD, 1977, University of Illinois; evolutionary biology, plant population biology and coevolution.

Tsukada, Matsuo * 1969; PhD, 1961, Osaka City University (Japan); interpretation of Quaternary events from palynological and kindred data.

Van Volkenburgh, Elizabeth * 1982; PhD, 1980, University of Washington; leaf growth and development, photobiology and electrophysiology.

Waaland, J. Robert * 1969; PhD, 1969, University of California (Berkeley); biology of marine algae.

Walker, Richard B. * 1948, (Emeritus); PhD, 1948, University of California (Berkeley); plant physiology, mineral nutrition, water relations.

Whisler, Howard C. * 1963, (Emeritus); PhD, 1961, University of California (Berkeley); mycology, aquatic fungi, slime-molds and phycomycetes, development.

Associate Professors

Bradshaw, Harvey D. * 1984, (Adjunct Research); PhD, 1984, Louisiana State University; plant molecular biology and genetic modification of poplars.

Comai, Luca * 1989; PhD, 1980, University of California (Davis); chromatin, functional genomics, polyploidy.

Hamilton, Clement Wilson * 1985, (Adjunct); PhD, 1985, Washington University; landscape plant selection, taxonomy of horticultural and tropical plants.

Mandoli, Dina F. * 1987, (Research); PhD, 1983, Stanford University; development and photomorphogenesis in giant unicell using genetics, physiology and molecular biology.

Olmstead, Richard G. * 1996; PhD, 1988, University of Washington; plant molecular systematics, plant phylogeny and macroevolution.

Rodriguez, Russell 1995, (Affiliate); PhD, 1983, Oregon State University.

Assistant Professors

Maron, John L. * 1998; PhD, 1996, University of California (Davis); plant population biology, plant-consumer interactions, conservation biology.

Torii, Keiko * 1999; PhD, 1993, University of Tsukuba (Japan); arabidopsis developmental genetics, receptor-mediated signal transduction.

Course Descriptions

See page 48 for an explanation of course numbers, symbols, and abbreviations.

For graduate-level course descriptions, see the graduate and professional study volume of the *General Catalog* or visit the online course catalog at www.washington.edu/students/crscat/.

BOTANY 110 Introductory Plant Biology (5) NW
Ammirati, del Moral Basic concepts in plant biology for nonmajors, with emphasis on plant diversity and how plants grow and reproduce. Modern ideas concerning biotechnology, ecology, agriculture, and conservation and environmental issues discussed. Laboratories include greenhouse studies. Offered: AWSp.

BOTANY 113 Plant Identification and Classification (5) NW
Olmstead Plant classification and diversity of seed plants; field study and laboratory identification of the common plant families and the

conspicuous flora of western and central Washington. Two full-day field trips. Offered: SpS.

BOTANY 206 Laboratory in Environmental Problems (5) NW *Leopold* Processes and structure of ecosystems and conflicting uses made of these environments. For non-science majors. Role and application of science. Field trips to natural and human-modified ecosystems; weekend field trips required. Offered: jointly with BIOL 206; A.

BOTANY 222 Natural History of Puget Sound Country (3) NW Explores the greater Puget Sound Basin's diverse physical and biological features. Emphasis on the ecology of the region and its relation to the First Peoples and European late arrivals. Emphasis on the issues of environmental preservation and custodianship of the natural amenities. Optional field trips. For non-majors.

BOTANY 331 Landscape Plant Recognition (3) NW *Tsukada* Field recognition of important groups of woody landscape plants, emphasizing diversity at the genus and family levels. Cultivated plant nomenclature. Plant descriptive characters evident in the field with eye and hand lens. Hardiness and landscape applications. Recommended: BOTANY 113. Offered: jointly with EHUF 331; SpS.

BOTANY 333 Plant Communities: Resilience and Restoration (5) NW *Leopold* Ecological impacts by humans on native plant communities. Effects of grazing, timber removal, habitat draining and filling, fire control, application of chemicals. Potential for ecological restoration of plant communities. Three required weekend field trips. Prerequisite: either BIOL 102 or BIOL 203; BOTANY 113. Offered: jointly with BIOL/ESC 333; Sp.

BOTANY 354 Introduction to Plant Ecology (5) NW *Maron* Basic concepts of plant ecology, including studies of the environment, plant-environment interactions, populations, communities, and ecosystems. Laboratory includes one weekend field trip, laboratory and greenhouse experiments, and an introduction to ecological problem solving. Prerequisite: BIOL 203. Offered: Sp.

BOTANY 371 Elementary Plant Physiology (3) NW *Cleland, Torii, Van Volkenburgh* Nutrition, assimilation, transport, growth, photosynthesis, and cellular respiration in plants. Prerequisite: either BIOL 102 or BIOL 203. Offered: Sp.

BOTANY 372 Plant Physiology Laboratory (2) NW *Cleland, Torii, Van Volkenburgh* Laboratory experiments on the growth, nutrition, and metabolism of plants. Prerequisite: BOTANY 371, which may be taken concurrently. Offered: Sp.

BOTANY 428 Molecular and Cellular Biology of Plants (3) NW *Bendich, Cattolico, Comai* Structure and function of the nucleus, the organelles, and their genomes. Review of the techniques used in cellular and molecular biology such as tissue culture, cell fractionation, nucleic acid characterization, genetic engineering, and genome mapping. Prerequisite: either BIOL 101 or BIOL 203. Offered: W.

BOTANY 429 Plant Nuclear and Cytoplasmic Genetics (3) NW *Bendich, Comai* Covers genetic aspects specific to plants and algae, including chromosome structure, genome mapping, transposon biology, genes for floral and vegetative development, genetic engineering, ploidy levels, and cytoplasmic genetics. Prerequisite: either BIOL 101 or BIOL 203; either GENET 371 or GENET 372. Offered: Sp.

BOTANY 441 Morphology and Anatomy of Land Plants (5) NW *Halperin* Comparative morphology and anatomy of land plants. Derivation of morphological structures and basis for current classification schemes examined using living and fossil organisms. Laboratories emphasize live plants native to the Pacific Northwest. Prerequisite: either BIOL 102 or BIOL 203. Offered: A.

BOTANY 443 Origins of Our Modern Floras (5) NW *Leopold* Evolution and biogeographic development of modern forest taxa and associations. Late Cenozoic forests (last 60 million years) of western North American environments, emphasizing geologic and climatic shifts that have shaped temperate and tropical vegetation. Three required weekend field trips. Prerequisite: BOTANY 113; either BIOL 102 or BIOL 203. Offered: A.

BOTANY 445 Marine Botany (8) NW Survey of plants represented in marine environments; natural history; ecology, distribution, habitat, adaptation, and trophic interrelationships. Prerequisite: either BIOL 102 or BIOL 203; ZOOL 430, which may be taken concurrently. Offered: at Friday Harbor Laboratories; Sp.

BOTANY 446 Phycology (5) NW *Cattolico, Waaland* Study of major algal groups emphasizing form, function, reproduction, and distribution. Topics include evolution, phylogeny, and classification. Economically useful and ecologically important algae emphasized. Prerequisite: either BIOL 102 or BIOL 203. Offered: Sp.

BOTANY 455 Vegetation of Western Washington (5) NW *del Moral* Vegetation of western Washington, including mature, seral, and weedy vegetation. Recognition of landscape patterns, sight identification of common and indicator species, classification of major community types, and uses of native species in landscape design. Four weekend field trips required. Recommended: either BOTANY 113 or BOTANY 354. Offered: even years; Sp.

BOTANY 456 Plant Community Ecology (5) NW *del Moral* Development of plant community theory; theory of vegetation structure and typal identification; numerical methods for vegetation description and pattern analysis; gradient analysis; competition in complex systems; vegetation dynamics; niche theory. Laboratory emphasizes field and computer methods. Three weekend field trips required. Prerequisite: either BOTANY 354 or BOTANY 455. Offered: odd years; Sp.

BOTANY 458 Alpine Plant Ecology (5) NW Structure of plant communities in alpine regions of the Pacific Northwest. Characteristics of physical environment which influence species adaptation and distribution. Influence, impact of humans and criteria for preservation and/or management of alpine areas. Three weekend field trips required. Prerequisite: either BIOL 102 or BIOL 203. Offered: S.

BOTANY 461 General Mycology (5) NW *Ammirati, Whisler* General survey of the fungi with emphasis on life cycles, structure, physiology, economic importance. Prerequisite: either BIOL 102 or BIOL 203. Offered: A.

BOTANY 462 Mushrooms and Related Fungi (5) NW *Ammirati* General biology, ecology, and classification of mushrooms, polypores, puffballs, and other related basidiomycetes. Emphasis on Pacific Northwest species. Prerequisite: either BIOL 102 or BIOL 203.

BOTANY 490 Undergraduate Seminar (1-3, max. 6) NW Presentation and discussion of undergraduate research, including honors projects, and selected topics in botany and related biological sciences. Offered: AWSp.

BOTANY 496 Peer Teaching Assistantships in Botany (1-5, max. 5) Direct experience in the classroom, typically teaching a lab section of an undergraduate course. Peer TA's attend lectures and weekly preparation meetings and gain in-depth background in the subject material as well as training in teaching techniques and approaches. Offered: AWSpS.

BOTANY 498 Special Problems in Botany (1-15, max. 15) Students with suitable background in botany may enroll for special study in phycology, anatomy, ecology, mycology, morphology, paleobotany, physiology, or taxonomy. Offered: AWSpS.

Canadian Studies

See International Studies.

Chemistry

109 Bagley



General Catalog Web page:
www.washington.edu/students/gencat/academic/chemistry.html



Department Web page:
www.chem.washington.edu

Chemistry is a branch of natural science that deals principally with the properties of substances, the changes they undergo, and the natural laws that describe these changes. Chemistry is a central science, connecting on one side with physics and mathematics, on another with earth and environmental science, and on yet another with biology and medicine.

Undergraduate Program

Advisers
Lani Stone
Bridget Warbington
109 Bagley, Box 351700
(206) 543-9343 or (206) 616-9597
advisers@chem.washington.edu

At the end of their studies, graduating chemistry majors should have a general knowledge of the basic areas of chemistry with a working knowledge of at least one area; be proficient in basic laboratory skills; have the ability to carry out strategies for solving scientific problems; have an understanding of the principles and applications of modern instrumentation, computation, experimental design, and data analysis; have had the opportunity to gain experience with a research project; have the ability to communicate scientific information clearly and precisely; have the ability to read, understand, and use scientific literature; have an awareness of the broader implications of chemical processes; have had the opportunity to work as part of a team to solve scientific problems; and have had an introduction to opportunities in, and requirements for, the careers available to chemistry majors.

The Department of Chemistry offers both a Bachelor of Science and a Bachelor of Arts in chemistry. The Bachelor of Science degree is designed to encourage early research experience for graduate-school hopefuls. The B.S. in chemistry is divided into two options. Option A provides more choices in classes than Option B, including biochemistry courses. Depending on the choices made, it can also be good for students wishing to work in industry after graduation. Option B is the only UW chemistry degree certified by the American Chemical Society and follows its strict guidelines. It provides a broad chemistry education, with all fields represented and more advanced labs required.

The Bachelor of Arts in chemistry fills the needs of students whose chosen career requires a strong theoretical understanding of chemistry, but where the laboratory experience is less intense. High school teaching, environmental or patent law practice, or working in industry in positions in sales or management (where a chemistry background is essential, but advanced lab techniques are not) would be appropriate career choices with the B.A.

Student Associations: The Free Radicals, a general undergraduate club for chemistry and biochemistry majors. Phi Lambda Upsilon, the UW affiliate of the national chemistry honorary society.

Bachelor of Science

Admission: Students in good academic standing may declare this major at any time.

Suggested Introductory Course Work: CHEM 142, 152, 162, 237, 238, 239, 241, 242, 321; MATH 124, 125, 126 (or MATH 127, 128, 129); PHYS 121/131, 122/132, 123/133, or 114, 115, 116 plus one physics lab course (former sequence recommended); courses in linear algebra and differential equations.

Bachelor of Science

Option A

Major Requirements: MATH 124, 125, 126 (or MATH 127, 128, 129), and one course above 300 (recommended: MATH 308 or AMATH 352); alternative MATH requirement: 134, 135, and 136; one year of physics including at least 1 credit of laboratory (PHYS 114, 115, and 116, and at least one of 117, 118, or 119; or 121/131, 122/132, and 123/133, with the 121/131 sequence recommended); CHEM 142, 152, 162, and 312 (or 145, 155, 165, and 416); CHEM 237, 238, 239, and 241 (with a minimum GPA of 3.00 or higher in 237, 238, and 239, or a passing grade on the standard American Chemical Society organic examination), or 335, 336, 337, and 346; CHEM 455, 456, and 457; two of the following three: CHEM 317, 321, or 461 (461 for 3 credits only); 5 additional lab credits chosen from the following: CHEM 242, 317, 321, 347, 426, 461, 462, 463, 464, 465, and BIOC 426; 11 credits chosen from CHEM 242, 317, 321, 347, any 400-level chemistry or biochemistry courses, or MATH 307 (or AMATH 351). Students with a chemistry GPA of 3.30 or higher may apply up to 6 credits of CHEM 399, 496, or 499 of approved research to the 11-credit requirement. Minimum grade of 2.0 is required in each chemistry course; minimum GPA of 2.80 is required for courses used to satisfy major requirements. For graduation, a minimum of 181-185 credits are required with a GPA of 2.80.

Bachelor of Science

Option B—ACS-Certified Degree

Major Requirements: MATH 124, 125, 126 (or MATH 127, 128, 129), and two additional courses above 300 (recommended MATH 307 and 308, or AMATH 351 and 352; MATH 205 can substitute for MATH 308 or AMATH 352); (alternative math requirement: MATH 134, 135, 136); one year of physics including 1 credit of laboratory (PHYS 114, 115, and 116, and at least one of 117, 118, or 119; or 121/131, 122/132, and 123/133, with the 121/131 sequence recommended); CHEM 142, 152, 162, 312 (or 145, 155, 165); CHEM 317 and 321; CHEM 237, 238, 239, 241, and 242 (with a minimum GPA of 3.00 or higher in 237, 238, and 239, or a passing grade on the standard American Chemical Society organic examination), or 335, 336, 337, 346, and 347; CHEM 416, 455, 456, and 457; 14 credits of numerically graded CHEM 400 courses (not previously listed) which must include CHEM 461, 426 and one more course with laboratory (currently 462, 463, 464, and 465); strongly recommended, research credits in CHEM 399 and 499. Minimum grade of 2.0 is required in each chemistry course; a minimum GPA of 2.80 is required for courses used to satisfy the major degree requirements. For graduation, a minimum of 184 credits are required with a minimum GPA of 2.80.

Bachelor of Arts

Admission Requirements: Students in good academic standing may declare this major at any time.

Suggested Introductory Course Work: CHEM 142, 152, 162, 237, 238, 239, 241, 242, 321; MATH 124, 125, 126; PHYS 121/131, 122/132, 123/133, or 114, 115, 116 plus one physics lab (former sequence recommended).

Major Requirements: MATH 124, 125, 126 (or MATH 134, 135, 136); one year of physics, including 1 credit of laboratory; CHEM 142, 152, 162, 312 (or 145, 155, and 165); CHEM 321; CHEM 237, 238, 239, 241, 242 (or 335, 336, 337, 346, 347) either CHEM 455, 456, 457, or 452 and 453; 5 credits of numerically graded CHEM 400 courses (not previously listed), which must include CHEM 461; minimum GPA of 2.00 in chemistry courses, and a minimum grade of 1.7 in all required chemistry courses.

The maximum number of credits which may be earned combining CHEM 399 and 499 is 24. Individual degree programs may impose separate credit limits.

Minor

Minor Requirements: 35-44 credits including MATH 124 (or MATH 127, or Q SCI 291 and 292); PHYS 114 or 121/131; one of the following three sequences: (1) CHEM 120, 220, and 162 (220 and the physics and math requirements must be completed before 162); (2) CHEM 142, 152, 162, and one of 223, 237, or 335; (3) 145, 155, 165, and one of 223, 237, or 335; and three of the following four groups: (1) CHEM 312 (or 165); (2) CHEM 321; (3) one of CHEM 355, 452, 455, 456; (4) one of CHEM 221, 224, 238, 336. Minimum GPA of 2.00 and a minimum grade of 1.7 in each course presented for the minor.

Graduate Program

For information on the Department of Chemistry's graduate program, see the graduate and professional volume of the *General Catalog* or visit the *General Catalog* online at www.washington.edu/students/genocat/.

Faculty

Chair

Paul B. Hopkins

Professors

Andersen, Niels H. * 1968; PhD, 1967, Northwestern University; peptide secondary structure and protein folding, fold design and stability, biophysical NMR.

Anderson, Arthur G. * 1946; (Emeritus); MS, 1942, PhD, 1944, University of Michigan; chemistry of nonclassical aromatic compounds and novel heterocycles.

Borden, Weston T. * 1972; PhD, 1968, Harvard University; molecular orbital theory of organic molecules and reactions, synthesis of unnatural products.

Callis, James B. * 1973; PhD, 1970, University of Washington; instrumentation development, process analytical chemistry, non-invasive clinical chemistry.

Campbell, Charles T. * 1989; PhD, 1979, University of Texas (Austin); physical chemistry, analytical chemistry, surfaces, chemisorption, catalysis, biosensors.

Charlson, Robert J. * 1962, (Emeritus); MS, 1959, Stanford University; PhD, 1964, University of Washington; atmospheric chemistry, aerosol physics, aerosol/cloud/climate interaction and instrumentation.

Christian, Gary D. * 1972; PhD, 1964, University of Maryland; electroanalysis, flow injection analysis, process control.

Dalton, Larry R. * 1998; PhD, 1971, Harvard University; materials chemistry focused on producing next-generation opto-electronic materials.

Drobny, Gary P. * 1981; PhD, 1981, University of California (Berkeley); solid state nuclear magnetic resonance, biophysics, biomaterials.

Engel, Thomas * 1980; PhD, 1969, University of Chicago; surface chemistry and catalysis.

Epiotis, Nicholas * 1972; PhD, 1972, Princeton University; applied quantum chemistry.

Floss, Heinz G. * 1987; PhD, 1961, Technical University of Munich (Germany); bioorganic and natural products chemistry.

Gammon, Richard H. * 1985; PhD, 1970, Harvard University; atmospheric, marine, and environmental chemistry; biogeochemical cycles, global climate change.

Gelb, Michael H. * 1985; PhD, 1982, Yale University; mechanistic enzymology, bioorganic and medicinal chemistry, molecular and cellular biology.

Gouterman, Martin * 1966, (Emeritus); PhD, 1958, University of Chicago; electronic spectra and luminescence of porphyrins, oxygen pressure sensing by luminescence quenching.

Gregory, Norman W. * 1946, (Emeritus); PhD, 1943, Ohio State University; structure and thermodynamic properties of inorganic substances, vaporization reactions.

Hakomori, Sen-itiroh * 1967, (Adjunct); MD, 1951, DMedSc, 1956, Tohoku University (Japan); role of glycosphingolipids in defining antigenicity, cellular interaction, and signal transduction.

Halsey, George D. * 1951, (Emeritus); PhD, 1948, Princeton University; surface absorption/interaction of rare gases, solid solutions of rare gases, catalysis, colloids.

Heinekey, Dennis M. * 1991; PhD, 1982, University of Alberta (Canada); organometallic chemistry of the transition metals.

Hopkins, Paul B. * 1982; PhD, 1982, Harvard University; organic synthesis, bioorganic and nucleic acid chemistry.

Jonsson, Hannes * 1988; PhD, 1985, University of California (San Diego); theory and simulations of atomic scale structure and dynamics in liquids, glasses, and crystals.

Klevit, Rachel E. * 1983, (Adjunct); DPhil, 1981, Oxford University (UK); structure/function of breast cancer proteins; protein NMR, mass spectrometry, other spectroscopies.

Kowalski, Bruce * 1973, (Emeritus); PhD, 1969, University of Washington; analytical chemometrics, computerized instrumentation for process monitoring and control.

Krohn, Kenneth A. * 1981, (Adjunct); PhD, 1971, University of California (Davis); chemistry, radiation oncology.

Kwiram, Alvin L. * 1970; PhD, 1963, California Institute of Technology; molecular structure/dynamics in the solid state with emphasis on excited states, magnetic resonance.

Lingafelter, Edward C. * 1939, (Emeritus); PhD, 1939, University of California (Berkeley); crystal and molecular structure of coordination compounds.

Mayer, James M. * 1984; PhD, 1982, California Institute of Technology; inorganic, bioinorganic, organometallic transition metal chemistry; synthesis and reaction mechanisms.

Murray, James W. * 1973, (Adjunct); PhD, 1973, Massachusetts Institute of Technology; marine geochemistry, aquatic chemistry.

Norman, Joe G. Jr. * 1972; PhD, 1972, Massachusetts Institute of Technology; chemical education, interdisciplinary education.

Olmstead, Marjorie A. * 1991, (Adjunct); PhD, 1985, University of California (Berkeley); experimental condensed-matter physics, surface and interface physics.

Palczewski, Krzysztof * 1992; MS, 1980, PhD, 1986, Technical University of Wroclaw (Poland); visual transduction.

Parson, William W. * 1971, (Adjunct); PhD, 1965, Case Western Reserve University; spectroscopic and computational studies of energy capture and electron transfer in photosynthesis.

Pocker, Yeshayau * 1961, (Emeritus); PhD, 1953, University College, London (UK); DSc, 1960, University of London (UK); organic reaction mechanisms, chemical and enzymatic catalysis, metalloenzymes, Alzheimer proteins.

Rabinovitch, B. Seymour * 1948, (Emeritus); PhD, 1942, McGill University (Canada); chemical dynamics, energy relaxation, properties of silver surfaces.

Raucher, Stanley * 1975; PhD, 1973, University of Minnesota; new methods in synthetic organic chemistry, total synthesis of natural products.

Reid, Brian R. * 1980; PhD, 1965, University of California (Berkeley); biophysical chemistry.

Reinhardt, William P. * 1991; PhD, 1968, Harvard University; theoretical chemistry, atomic physics, applications to computational thermodynamics, quantum fluids

Robinson, Bruce H. * 1980; PhD, 1975, Vanderbilt University; magnetic resonance, molecular dynamics, polymer dynamics, nonlinear response theory.

Ruzicka, Jaromir * 1984; PhD, 1963, Technical University of Prague (Czech); analysis via flow injection for research in biotechnologyn and industrial applications.

Schubert, Wolfgang M. * 1947, (Emeritus); PhD, 1947, University of Minnesota; mechanism/steric course of organic reactions, substituent and solvent effects, acid-base catalysis.

Schurr, J. Michael * 1966; PhD, 1965, University of California (Berkeley); dynamics, structures, and energetics of linear and supercoiled DNAs; laser optical and NMR methods.

Slutsky, Leon J. * 1961; PhD, 1957, Massachusetts Institute of Technology; lattice dynamics, kinetics of conformational change, physical absorption.

Stuve, Eric M. * 1985, (Adjunct); MS, 1979, PhD, 1983, Stanford University; electrochemical surface science, fuel cell engineering.

Trager, William F. * 1972, (Adjunct); PhD, 1965, University of Washington; medicinal chemistry, bioanalytical chemistry drug metabolism.

Turecek, Frantisek * 1990; PhD, 1977, Charles University (Czechoslovakia); mass spectrometry of transient intermediates, organometallics and enzyme reactions.

Vandenbosch, Robert * 1963, (Emeritus); PhD, 1957, University of California (Berkeley); nuclear fission and nuclear reaction mechanisms, atomic and molecular clusters, C60.

Yager, Paul * 1987, (Adjunct); PhD, 1980, University of Oregon; physical chemistry and applications of biomembranes.

Zoller, William H. * 1984; PhD, 1969, Massachusetts Institute of Technology; analytical, environmental, and nuclear chemistry.

Associate Professors

Crittenden, Alden L. * 1947, (Emeritus); PhD, 1947, University of Illinois; mass spectra, solid electrode polarography.

Goldberg, Karen 1995; PhD, 1988, University of California (Berkeley); synthetic and mechanistic organometallic chemistry.

Kahr, Bart E. * 1997; PhD, 1988, Princeton University; mechanisms of crystal growth, structures of disordered and mixed crystals, crystal optics.

Kovacs, Julia A. * 1988; PhD, 1986, Harvard University; synthesis, structure, and reactivity of biologically relevant transition-metal complexes.

Lybrand, Terry Paul * 1990, (Adjunct); PhD, 1984, University of California (San Francisco); molecular modeling, computer simulation of biomacromolecules, development of simulation analysis.

Macklin, John W. * 1968; PhD, 1969, Cornell University; spectrometric studies of electrode surface adsorbates, condensed phase materials and solutions.

Reid, Philip J. 1995; PhD, 1992, University of California (Berkeley); chemical reaction dynamics in solution.

Sasaki, Tomikazu * 1989; PhD, 1985, Kyoto University (Japan); design and synthesis of functional proteins and protein mimetics.

Stenkamp, Ronald E. * 1978, (Adjunct); PhD, 1975, University of Washington; crystallography, metalloproteins, protein engineering, blood clotting proteins, streptavidin.

Synovec, Robert E. * 1986; PhD, 1986, Iowa State University; chemical analysis by high speed gas chromatography, liquid chromatography, surface tension.

Woodman, Darrell J. * 1965; PhD, 1965, Harvard University; peptide synthesis, heterocyclic compounds, chemistry of ketoketenimines, computers in education.

Assistant Professors

Beeson, Craig C. * 1996; PhD, 1993, University of California (Irvine); chemistry and biochemistry of the immune system.

Prezhdo, Oleg * 1998; PhD, 1997, University of Texas (Austin); excitation dynamics of condensed-phase chemical systems.

Sigurdsson, Snorri Th. * 1996, (Research); , PhD, 1993, University of Washington; nucleic acids chemistry, RNA catalysts (ribozymes), RNA structure and function.

Simon, Julian A. * 1996, (Affiliate); PhD, 1991, Columbia University; identification and characterization of new anticancer agents.

Xia, Younan * 1997; PhD, 1996, Harvard University; materials chemistry and nanotechnology.

Senior Lecturers

Nyasulu, Frazier W. 1991; PhD, 1985, University of Salford (UK); chemical education, electroanalytical chemistry, electro depositions.

Selfe, Sara 1983; PhD, 1983, University of Washington; chemical education, retention of underrepresented minorities and women in science and mathematics.

Wiegand, Deborah H. 1990; PhD, 1990, Northern Illinois University; chemical education, electrochemistry on liquid/liquid interfaces.

Course Descriptions

See page 48 for an explanation of course numbers, symbols, and abbreviations.

For graduate-level course descriptions, see the graduate and professional study volume of the *General Catalog* or visit the online course catalog at www.washington.edu/students/crscat/.

No more than the number of credits indicated can be counted toward graduation from the following course groups: 140, 142, 145 (5 credits); 150, 152, 155 (5 credits); 145, 155, 160, 162 (11 credits); 160, 162, 164, 165 (6 credits); 164, 165, 312 (5 credits); 220, 223, 237, 335 (5 credits); 238, 336 (4 credits); 221, 224, 239, 337 (5 credits); 241, 346 (3 credits); 242, 347 (3 credits); 355, 452 (3 credits); 452, 456 (3 credits). If a course is completed before a prerequisite is taken, credit will not later be allowed for the prerequisite course.

CHEM 110 Introduction to General Chemistry (3) NW Introduction to general chemistry with an emphasis on developing problem solving skills. Covers basic concepts of chemistry along with the mathematics required for quantitative problem solving. For students without high school chemistry or with limited mathematics background. Successful completion of 110 prepares students to enroll in CHEM 142. Credit/no credit only.

CHEM 115 Chemistry for Life (5) NW Introduction to chemistry covering selected principles and their effect on ourselves and our environment. Includes scientific investigations conducted outside the laboratory with full class participation. Intended for non-science majors wishing to improve their science literacy and develop a long-term interest in science. Offered: Sp.

CHEM 120 Principles of Chemistry (5) NW, QSR One-quarter introduction to chemistry for students with limited chemistry background. Atoms and molecules, including structure of atoms, chemical bonding, chemical reactions, phases of matter, solutions, equilibrium, and reaction rates. Includes laboratory. Can stand alone or be followed by 220. Recommended: placement into MATH 120 or higher. Offered: A, W, S, P.

CHEM 142 General Chemistry (5) NW/QSR For science and engineering majors. Atomic nature of matter, stoichiometry, periodic table, quantum concepts, and gas laws. Includes laboratory. Recommended: high school chemistry and placement into MATH 120 or higher. Offered: A, W, S, P.

CHEM 145 Honors General Chemistry (5) NW, QSR 145 and 155 cover material in 142, 152, and 162. Integrated computer and chemistry laboratory experiments. Prerequisite: either MATH 124, MATH 127, or MATH 134, any of which may be taken concurrently; score of 43% on CHEMGN placement test. Offered: A.

CHEM 152 General Chemistry (5) NW Chemical bonding and structure, elementary organic and polymer chemistry, inorganic Lewis acids and bases. Includes laboratory. Prerequisite: either 1.7 in CHEM 140 and CR in CHEM 141, 1.7 in CHEM 142, or 1.7 in CHEM 145. Offered: A, W, S, P.

CHEM 155 Honors General Chemistry (5) NW Continuation of 145. Includes integrated computer and chemistry laboratory experience. Together 145 and 155 cover material in 142, 152, and 162. Prerequisite: 2.2 in CHEM 145. Offered: W.

CHEM 162 General Chemistry (6) NW Introduction to chemical thermodynamics (first and second laws), equilibrium, electrochemistry, and kinetics. Includes laboratory. Prerequisite: either 1.7 in CHEM 150 and CR in CHEM 151 or 1.7 in CHEM 152. Offered: A, W, S, P.

CHEM 165 Honors General Chemistry (5) NW Introduction to systematic inorganic chemistry: representative elements, metals, and nonmetals. Includes coordination complexes, geochemistry, and metallurgy. Additional material on environmental applications of basic chemistry presented. Laboratory included. Prerequisite: 2.2 in CHEM 155. Offered: Sp.

CHEM 197 Science Outreach Training (1-2, max. 2) Training for participation in science-related outreach activities to the community. Emphasis on support for K-12 education and environmental community efforts. Not applicable toward chemistry degree requirements. Credit/no credit only. Offered: A, W, S, P.

CHEM 199 Special Problems (1-6, max. 6) Research in chemistry. Credit/no credit only. Offered: A, W, S, P.

CHEM 220 Introduction to Organic and Biochemistry (5) NW Structure and properties of organic compounds: hydrocarbons, alcohols, aldehydes, ketones, carboxylic acids, carbohydrates, lipids, and proteins. Includes laboratory. Prerequisite: either 1.7 in CHEM 120, 1.7 in CHEM 140 and CR in CHEM 141, 1.7 in CHEM 142, or 1.7 in CHEM 145. Offered: AWSpS.

CHEM 221 Introduction to Biochemical Processes (5) NW Enzymes, nucleic acids and protein synthesis, natural products, drugs and drug metabolism, nutrition and bioenergetics, vitamins and cofactors, hormones, body fluids, and biosynthetic pathways. Includes laboratory. Prerequisite: 1.7 in CHEM 220. Offered: Sp.

CHEM 223 Organic Chemistry-Short Program (4) NW First of a two-quarter lecture series in organic chemistry, for majors in biology and related fields who elect not to complete full year sequence. Introduction to structure, nomenclature, reactions, and synthesis of the main functional group families of organic compounds. No organic laboratory accompanies this course. Prerequisite: either 1.7 in CHEM 155, 1.7 in CHEM 160, or 1.7 in CHEM 162.

CHEM 224 Organic Chemistry-Short Program (4) NW Continuation of the abbreviated coverage of the main functional group classes of organic compounds. Short introduction to biomolecules: lipids, carbohydrates, amino acids, proteins, and nucleic acids. Prerequisite: 1.7 in CHEM 223.

CHEM 237 Organic Chemistry (4) NW First course for students planning to take three quarters of organic chemistry. Structure, nomenclature, reactions, and synthesis of the main types of organic compounds. No organic laboratory accompanies this course. Prerequisite: either 1.7 in CHEM 155, 1.7 in CHEM 160, or 1.7 in CHEM 162. Offered: AWSpS.

CHEM 238 Organic Chemistry (4) NW Second course for students planning to take three quarters of organic chemistry. Further discussion of physical properties and transformations of organic molecules, especially aromatic and carbonyl compounds. Prerequisite: either 1.7 in CHEM 237 or 1.7 in CHEM 335. Offered: AWSpS.

CHEM 239 Organic Chemistry (3) NW Third course for students planning to take three quarters of organic chemistry. Polyfunctional compounds and natural products, lipids, carbohydrates, amino acids, proteins, and nucleic acids. Prerequisite: either 1.7 in CHEM 238 or 1.7 in CHEM 336. Offered: AWSpS.

CHEM 241 Organic Chemistry Laboratory (3) NW Introduction to organic laboratory techniques. Preparation of representative compounds. Designed to be taken with 224 or 238. Prerequisite: either 1.7 in CHEM 155, 1.7 in both CHEM 160 and CHEM 161, or 1.7 in CHEM 162; either CHEM 224, CHEM 238, or CHEM 336, any of which may be taken concurrently. Offered: AWSpS.

CHEM 242 Organic Chemistry Laboratory (3) NW Preparations and qualitative organic analysis. Designed to be taken with 239. Prerequisite: either 1.7 in CHEM 224 or CHEM 239 which may be taken concurrently or CHEM 337 which may be taken concurrently; either 1.7 in CHEM 241 or 1.7 in CHEM 346. Offered: ASpS.

CHEM 296 Research in Chemistry, An Introduction (1) NW Ten presentations describing the research programs of researchers in the chemical sciences. Credit/no credit only. Does not count towards any chemistry major requirement. Prerequisite: CHEM 165. Offered: W.

CHEM 297 Science Outreach Participation (1-2, max. 6) Continuation of 197. Work with K-12 schools or community organizations. May include scientific presentations, K-12 curriculum support, or involve-

ment in a community project. Not applicable toward chemistry degree requirements. Credit/no credit only. Prerequisite: CHEM 197. Offered: AWSp.

CHEM 299 Special Problems and Report Writing (1-6, max. 6) Research in chemistry and/or study in the chemical literature. Requires writing a scientific report. Credit/no credit only. Offered: AWSpS.

CHEM 312 Inorganic Chemistry (3) NW The periodic table: chemistry of representative and transition elements. Aqueous chemistry, solid state chemistry, and everyday aspects of inorganic chemistry emphasized. Not intended for students who have completed 165. Prerequisite: either CHEM 155, CHEM 160, or CHEM 162; either CHEM 221, CHEM 223, CHEM 237, or CHEM 335. Offered: A.

CHEM 317 Inorganic Chemistry Laboratory (3) NW Experimental exploration of the periodic table. Techniques of preparation and characterization of inorganic compounds. Handling of air-sensitive materials and gases. Prerequisite: either CHEM 165 or CHEM 312; either CHEM 242 or CHEM 347. Offered: W.

CHEM 321 Quantitative Analysis (5) NW Introduction to chemical analysis, including gravimetric, volumetric, spectrophotometric, and potentiometric analyses. Laboratory computer use included. Prerequisite: either CHEM 155, both CHEM 160 and CHEM 161, or CHEM 162. Offered: AWS.

CHEM 335 Honors Organic Chemistry (4) NW For chemistry majors and otherwise qualified students planning three or more quarters of organic chemistry. Structure, nomenclature, reactions, and synthesis of organic compounds. Theory and mechanism of organic reactions. Studies of biomolecules. No organic laboratory accompanies this course. Prerequisite: either 2.2 in CHEM 155, 3.0 in CHEM 160, or 3.0 in CHEM 162. Offered: A.

CHEM 336 Honors Organic Chemistry (4) NW For chemistry majors and otherwise qualified students planning three or more quarters of organic chemistry. Structure, nomenclature, reactions, and synthesis of organic compounds. Theory and mechanism of organic reactions. Studies of biomolecules. Prerequisite: 2.2 in CHEM 335. Offered: W.

CHEM 337 Honors Organic Chemistry (4) NW For chemistry majors and otherwise qualified students planning three or more quarters of organic chemistry. Structure, nomenclature, reactions, and synthesis of organic compounds. Theory and mechanism of organic reactions. Studies of biomolecules. Prerequisite: 2.2 in CHEM 336. Offered: Sp.

CHEM 346 Organic Chemistry Honors Laboratory (3) NW To accompany 336. Prerequisite: either 2.2 in CHEM 155, 3.0 in both CHEM 160 and 161, or 3.0 in CHEM 162; CHEM 336 which may be taken concurrently. Offered: W.

CHEM 347 Organic and Qualitative Organic Honors Laboratory (3) NW Continuation of 346. To accompany 337. Prerequisite: CHEM 337 which may be taken concurrently; 2.2 in CHEM 346. Offered: Sp.

CHEM 355 Introductory Physical Chemistry for Biologists (4) NW The following topics are discussed from a physical chemical point of view: structural study of biopolymers, enzyme kinetics, bioenergetics, and transport. Prerequisite: either CHEM 224, CHEM 239, or CHEM 337; either MATH 124, MATH 127, MATH 134, MATH 145, or Q SCI 291; either PHYS 114 or PHYS 121. Offered: Sp.

CHEM 396 Research in Chemistry and the Chemical Sciences (1) NW Presentations by researchers in academia and industry describing the opportunities for research chemistry and biochemistry. Credit does not count toward chemistry major requirements. Credit/no credit only. Prerequisite: CHEM 337. Offered: jointly with BIOC 396; A.

CHEM 397 Science Outreach Mentors (1-2, max. 6) Mentoring of beginning outreach participants. Includes presentations for 197, training of outreach students, and evaluation of outreach activities. Not applicable toward chemistry degree requirements. Credit/no credit only. Prerequisite: CHEM 197. Offered: AWSp.

CHEM 399 Undergraduate Research (* max. 12) Research in chemistry. Credit/no credit only. Offered: AWSpS.

CHEM 410 Radiochemistry Laboratory (2) NW Introductory general service course for students planning further work in nuclear or tracer applications. Safety procedures, detection and measurement of nuclear radiation, radiochemical and tracer techniques. Prerequisite: either 1.7 in CHEM 155, 1.7 in both CHEM 160 and CHEM 161, or 1.7 in CHEM 162; recommended: CHEM 418. Offered: alternate years.

CHEM 414 Chemistry of the Main Group Elements (3) NW The elements and their compounds in relation to the periodic system. Prerequisite: either CHEM 165 or CHEM 312; either CHEM 452 or CHEM 457, either CHEM 453 or CHEM 455. Offered: alternate years.

CHEM 415 The Chemical Bond (3) NW Nature of the chemical bond. Simple bonding theories, molecular orbital methods, symmetry, and group theory. Includes computer exercises in which students perform ab initio calculations. Prerequisite: either CHEM 453 or CHEM 455. Offered: W.

CHEM 416 Transition Metals (3) NW Survey of selected key topics in the chemistry of the transition metals, including emphasis on the structure, bonding, and reactivity of major classes of compounds. Prerequisite: either CHEM 165 or CHEM 312; either CHEM 453 or CHEM 455 which may be taken concurrently. Offered: A.

CHEM 417 Organometallic Chemistry (3) NW Chemistry of the metal-carbon bond for both main group and transition metals. Structure and reactivity with applications to organic synthesis and catalysis. Prerequisite: either CHEM 224, CHEM 239, or CHEM 337; CHEM 416. Offered: W.

CHEM 418 Nuclear Chemistry (3) NW Natural radioactivity, nuclear systematics and reactions, radioactive decay processes, stellar nucleosynthesis, applications of radioactivity. Prerequisite: either CHEM 452 or CHEM 455. Offered: alternate years.

CHEM 419 Bioinorganic Chemistry (3) NW Description of transition metal-containing systems found in biology. Structural and electronic properties and reactivity of metalloproteins, metalloenzymes, and metal cofactors. Methods used to probe and model metal sites by spectroscopic and synthetic techniques. Prerequisite: either CHEM 224, CHEM 239, or CHEM 337; CHEM 416. Offered: Sp.

CHEM 426 Instrumental Analysis (3) NW Introduction to modern instrumental methods of chemical analysis, including chromatography, optical and mass spectroscopy, electrochemistry and flow injection analysis. Basic concepts of transducers, spectrometers, mass analysis, separation sciences, and computerized data acquisition and reduction. Includes laboratory. Prerequisite: CHEM 321. Offered: Sp.

CHEM 427 Principles of Modern Wet Analysis (3) NW Sampling and sample dissolution, multiple chemical equilibria, pH and electrochemical measurement, reagent-based kinetic enzyme assays and immunoassays. Principles of process, environmental, clinical, and biotechnological assays. Separations and flow injection. Prerequisite: either CHEM 223, CHEM 237, or CHEM 335; CHEM 321.

CHEM 429 Chemical Separation Techniques (3) NW Introduction to modern separation techniques such as gas chromatography, high-performance liquid chromatography, electrophoresis, and field flow fractionation. Prerequisite: either CHEM 224, CHEM 239, or CHEM 337; either CHEM 241, CHEM 321, or CHEM 346. Offered: W.

CHEM 433 Theoretical Organic Chemistry—Predictions and Experimental Tests (3) NW Molecular orbital theory in organic chemistry. Woodward-Hoffmann rules, aromaticity, concerted reactions, photochemical transformations, and reactions of electron-deficient species. Prerequisite: either CHEM 239 or CHEM 337. Offered: alternate years.

CHEM 435 Introductory Biophysical Chemistry (3) NW Survey of the statics and dynamics of biophysical and biochemical processes. Prerequisite: either CHEM 224, CHEM 239, or CHEM 337; CHEM 452 or CHEM 455, either of which may be taken concurrently; recommended: either BIOC 405 or BIOC 440. Offered: alternate years; W.

CHEM 436 Bioorganic Chemistry—Enzymes and Natural Products (3) NW Enzyme chemistry and inhibition, including modes of biological catalysis, stereochemistry, enzyme characterization and kinetics, and design and principles of enzyme inhibitors. Also major classes of natural products, their chemistry, biological activity, biosynthesis, physiological role, and ecological significance. Prerequisite: either CHEM 224, CHEM 239, or CHEM 337; recommended: either BIOC 405 or BIOC 440. Offered: alternate years; Sp.

CHEM 437 Organic and Bioorganic Chemistry of Nucleic Acids in Proteins (3) NW Chemistry of DNA, RNA, peptides, and proteins. Solid phase chemical synthesis. Manual and automated sequencing. Conformational analysis. Peptide mimetics and protein design. Interaction of DNA with drugs and toxins. Triple helices and antisense oligonucleotides. Prerequisite: either CHEM 239 or CHEM 337.

CHEM 452 Physical Chemistry for Biochemists I (3) NW General equilibrium thermodynamics emphasizing biochemical applications: ligand binding, biological oxidation-reduction reactions, membranes, active transport, colligative properties, and surface tension. Prerequisite: either CHEM 155, CHEM 160, or CHEM 162; either MATH 125, MATH 128, or MATH 134; either PHYS 115 or PHYS 122. Offered: AW.

CHEM 453 Physical Chemistry for Biochemists II (3) NW Continuation of 452. Includes transport properties, enzyme kinetics, introduction to quantum mechanics, spectroscopy, and classical statistical mechanics. Prerequisite: either CHEM 452 or CHEM 456; either MATH 126, MATH 129, or MATH 135; either PHYS 116 or PHYS 123. Recommended: MATH 307; MATH 308. Offered: WSp.

CHEM 455 Physical Chemistry (3) NW Introduction to quantum chemistry and spectroscopy. Theory of quantum mechanics presented at an elementary level and applied to the electronic structure of atoms and molecules and to molecular spectra. Prerequisite: either CHEM 155, CHEM 160, or CHEM 162; either MATH 126, MATH 129, or MATH 136; either PHYS 116 or PHYS 123; recommended: MATH 307; MATH 308. Offered: ASpS.

CHEM 456 Physical Chemistry (3) NW Chemical thermodynamics. Laws of thermodynamics presented with applications to phase equilibria, chemical equilibria, and solutions. Prerequisite: either CHEM 155, CHEM 160, or CHEM 162; either MATH 126, MATH 129, or MATH 136; either PHYS 116 or PHYS 123; recommended: MATH 307. Offered: WS.

CHEM 457 Physical Chemistry (3) NW Introduction to statistical mechanics, kinetic theory, and chemical kinetics. Prerequisite: CHEM 455; either CHEM E 326 which may be taken concurrently or CHEM 456. Offered: WSp.

CHEM 458 Global Atmospheric Chemistry (4) NW Global atmosphere as chemical system. Physical factors and chemical processes. Natural variabilities and anthropogenic change. Cycling of trace substances. Global issues such as climate change, acidic deposition, influences on biosphere. Prerequisite: either ATM S 358 or CHEM 456. Offered: jointly with ATM S 458; A.

CHEM 460 Spectroscopic Molecular Identification (3) NW Basic theory of spectral techniques-infrared and ultraviolet/visible spectroscopy, NMR, and mass spectrometry-with emphasis on spectral interpretation skills needed for the elucidation of structure, conformation, and dynamics in organic and biological chemistry. Prerequisite: either CHEM 224, CHEM 239, or CHEM 337; recommended: CHEM 455. Offered: A.

CHEM 461 Physical Chemistry Laboratory (2-3) NW Physical measurements in chemistry. Vacuum techniques, calorimetry, spectroscopic methods, electrical measurements. Prerequisite: either CHEM 155, CHEM 161, CHEM 162, or CHEM E 436; either CHEM 453, CHEM 457, or both CHEM 452 and CHEM 455; either PHYS 117 or PHYS 131; recommended: PHYS 132; PHYS 133. Offered: AWSpS.

CHEM 462 Techniques of Synthetic Organic Chemistry (2-3) NW Laboratory techniques of synthetic organic chemistry. Vacuum distillation, multi-step synthesis, air sensitive reagents, photochemistry, chromatography, and separation techniques. Prerequisite: either CHEM 242 or CHEM 347; CHEM 460 which may be taken concurrently. Offered: A.

CHEM 463 Spectroscopic Techniques for Structural Identification (2) NW Laboratory techniques of spectroscopic analysis for structural determination using UV, IR, NMR, mass spectroscopy. Prerequisite: CHEM 460. Offered: W.

CHEM 464 Computers in Data Acquisition and Analysis (3) NW Introduction to use of the computer in the chemistry laboratory. Principles of microcomputers and their use for such problems as data acquisition, noise reduction, and instrument control. Prerequisite: either CHEM 453 or CHEM 455; MATH 136, or both MATH 307 and MATH 308. Offered: Sp.

CHEM 465 Computations in Chemistry (3) NW Computer calculations on color graphics workstations applied to problems in chemistry. Numerical methods and algorithms for calculating classical dynamics, quantum wavefunctions, wavepacket propagation, chemical kinetics. Use of computer programs for calculating electronic wavefunctions, molecular conformations, simulations of liquids and solids. Prerequisite: either 453 or CHEM 457 which may be taken concurrently. Offered: W.

CHEM 471 Physical Chemistry of Macromolecules (3) NW Classical hydrodynamic methods, and modern optical correlation and pulse techniques for studying dynamical motions and conformations of macromolecules, especially biopolymers, in solution. Cooperative thermal transitions, optical properties, and polyelectrolyte effects. Prerequisite: either CHEM 452 or CHEM 456; either CHEM 453 or CHEM 457. Offered: alternate years; W.

CHEM 473 Workshop in the Teaching of Chemistry (* max. 15) NW Individual or group study project on the improvement of instruction in chemistry for K-6 teachers. Credit/no credit only. Prerequisite: either CHEM 120, CHEM 140, CHEM 142, or CHEM 145. Offered: S.

CHEM 475 Honors Physical Chemistry (3) NW Introduction to quantum chemistry, spectroscopy. Theory of quantum mechanics applied more rigorously than in CHEM 455. Application of quantum mechanics to electronic structure of atoms and molecules. Computer software used to solve problems. Prerequisite: either CHEM 155, CHEM 160, or

CHEM 162; either MATH 126, MATH 129, or MATH 136; either PHYS 116 or PHYS 123; recommended: MATH 307; MATH 308. Offered: A.

CHEM 476 Honors Physical Chemistry (3) NW For chemistry and biochemistry majors and otherwise qualified students. Chemical Thermodynamics. Similar in scope to CHEM 456 with the study of more complicated systems. Emphasis on using computer software to solve problems. Prerequisite: CHEM 475. Offered: W.

CHEM 477 Honors Physical Chemistry (3) NW For chemistry and biochemistry majors or otherwise qualified students. Statistical mechanics, kinetic theory, and chemical kinetics including statistical interpretations of kinetics and transport phenomena. Prerequisite: CHEM 475; either CHEM E 426, which may be taken concurrently or CHEM 476. Offered: Sp.

CHEM 496 Research Seminar for Undergraduates (1, max. 2) NW Formal presentations of student research. One credit applies to research component of a relevant major. Credit/no credit only. Prerequisite: BIOC 396 or CHEM 396. Offered: jointly with BIOC 496Sp.

CHEM 498 Teaching Chemistry (3) NW Training in teaching chemistry laboratory and quiz sections. For chemistry and biochemistry majors, especially those planning graduate work or secondary education. Covers teaching strategies, student diversity, learning styles, grading, and interaction with students and faculty. Credit/no credit only. Offered: A.

CHEM 499 Undergraduate Research and Report Writing (* max. 12) Research in chemistry and/or study in the chemical literature. Credit/no credit only. Offered: AWSpS.

Chicano Studies

See American Ethnic Studies.

China Studies

See International Studies.

Classics

218 Denny



General Catalog Web page:
www.washington.edu/students/gencat/academic/Classics.html



Department Web page:
depts.washington.edu/clasdept/

Classics embraces the ancient Greek and Roman civilizations from prehistoric times to the Middle Ages. The department is concerned with the Greek and Latin languages and their literatures, including poetry, drama, history, philosophy, rhetoric, and political theory, as well as with classical art and archaeology.

Undergraduate Program

Adviser
Doug Machle
218 Denny, Box 353110
(206) 543-2266
clasdept@u.washington.edu

The department offers four undergraduate majors. Of these, the majors in classics, Greek, and Latin are the most traditional: they emphasize the development of expertise in the classical languages and literatures. Many who take the bachelor degrees in classics go on to pursue graduate work in the subject. Because of its long tradition, the B.A. in Classics is a most respected terminal degree in itself. Like other degree programs in the humanities, it emphasizes the acquisition of those analytic and communications skills which are indispensable for careers in government, industry, law, medicine, and business. The classics major is often a mark of distinction when a graduate applies for admission to professional school.

A fourth major, the Bachelor of Arts in Classical Studies, is especially suited to students wishing to explore the literature, history, art, archaeology, and philosophy of classical antiquity primarily through English translations. The classical studies major demands less study of the classical languages of Greece and Rome than is required for the other majors. Students with no previous exposure to Greek or Latin can complete the classical studies major in two years. Students have often combined this major with another major, such as English, history, or art history, and even with a non-humanities major such as computer science, biochemistry, or economics.

The department also offers minors in Classical Studies, Greek, Latin, and Classics and Ancient History.

Classical Seminar in Rome: During spring quarter, the department offers instruction in classics for advanced undergraduate majors and graduate students at the University of Washington Rome Center, located in the Palazzo Pio on the Campo de' Fiori.

Bachelor of Arts

Admission: Students in good academic standing may declare this major at any time.

Suggested Introductory Course Work: First- and second-year Latin and/or classical Greek, classics in translation, ancient history, classical art and archaeology, ancient philosophy.

Major Requirements

Classical Studies: Greek or Latin through 307 or the equivalent; 36 additional credits chosen with department approval from the following courses: Greek and Latin at 400 level (including 1 to 3 credits of CLAS 495), classics in English, classical art and archaeology, ancient history, the history of ancient philosophy, and the history of ancient science. Classical studies is especially suited to students not preparing for graduate study in classics but wishing to explore the literature, history, art, archaeology, and philosophy of classical antiquity primarily through English translations.

Classics: 18 approved credits in Greek at the 400 level and 18 approved credits in Latin at the 400 level; 1 to 3 credits of CLAS 495, which may substitute for either Greek or Latin 400-level credit.

Greek: 27 approved credits in Greek at the 400 level plus 9 credits chosen with department approval from courses in Latin, Greek at the 400 level, classics in English, classical art and archaeology, ancient history, the history of ancient philosophy, and the history of ancient science. The major must include 1 to 3 credits of CLAS 495.

Latin: 27 approved credits in Latin at the 400 level plus 9 credits chosen with department approval from courses in Greek, Latin at the 400 level, classics in English, classical art and archaeology, ancient history, the history of ancient philosophy, and the history of ancient science. The major must include 1 to 3 credits of CLAS 495.

CLAS 101, 102, 205, and HIST 111 may not be offered in fulfillment of major requirements for baccalaureate degrees in the Department of Classics.

Minors

Minor Requirements

Classical Studies: 25 approved credits from classics in English, classical art and archaeology, ancient history, the history of ancient philosophy, and the history of ancient science.

Greek: Minimum 25 credits in Greek, including at least 6 credits at the 400 level (excluding 490).

Latin: Minimum 25 credits in Latin, including at least 6 credits at the 400 level (excluding 490).

Classics and Ancient History: 30 credits from the following list, including at least 20 upper-division credits (15 of which must be taken at the UW). 100-level credit is not accepted. Minimum 10 credits from each department (Classics and History). A minimum grade of 2.0 is required in each course. Not available to students pursuing majors or other minors in classics.

Courses: CLAS 210, 320, 322, 324, 326, 328, 330, 424, 427, 428, 430, 432, 435, 445, 496 (except when topic is medieval); CL AR 340, 341, 342, 343, 442, 446, 448; GREEK (all upper-division courses except 300 and 301); LATIN (all upper-division courses except 300, 301, 401, and 402); HSTAM 201, 202, 205, 301, 330, 336, 401, 402, 403, 405, 411, 412, 413, 414; HIST 498 (when topic is ancient).

Graduate Program

For information on the Department of Classics's graduate program, see the graduate and professional volume of the *General Catalog* or visit the *General Catalog* online at www.washington.edu/students/gencat/.

Faculty

Chair

Stephen E. Hinds

Professors

Bliquez, Lawrence J. * 1969; PhD, 1968, Stanford University; Greek oratory, Greek historiography and historians, Greek and Roman medicine.

Clauss, James J. * 1984; PhD, 1983, University of California (Berkeley); Latin poetry and prose, Hellenistic literature, Latin literature of the Empire.

Halleran, Michael R. * 1983; PhD, 1981, Harvard University; Greek literature, especially tragedy; Greek intellectual history.

Harmon, Daniel P. * 1973; PhD, 1968, Northwestern University; Greek and Roman religion, Latin poetry, archaic Rome, classical linguistics.

Hinds, Stephen E. * 1992; PhD, 1985, St Johns College (UK); Latin poetry, literary criticism and theory.

MacKay, Pierre A. * 1966, (Emeritus); PhD, 1964, University of California (Berkeley); Greek literature, post-classical and Byzantine Greek literature, numismatics.

McDiarmid, John B. * 1949, (Emeritus); PhD, 1940, Johns Hopkins University; Greek literature and philosophy.

Pascal, Paul * 1953, (Emeritus); PhD, 1953, University of North Carolina; Latin literature and paleography, medieval Latin.

Associate Professors

Blondell, Ruby * 1985; PhD, 1984, University of California (Berkeley); Greek and Roman philosophy and literature.

Connors, Catherine M. * 1990; PhD, 1989, University of Michigan; Roman epic, ancient novel, women in Greek and Roman antiquity.

Gowing, Alain M. * 1988; PhD, 1988, Bryn Mawr College; Latin and Greek historiography, Latin literature of the Empire.

Langdon, Merle K. * 1976; PhD, 1972, University of Pennsylvania; Greek archaeology, epigraphy, topography, and history.

Assistant Professors

Connolly, Joy P. * 1997; PhD, 1997, University of Pennsylvania; ancient rhetoric, feminist theory, imperial literature.

Lape, Susan * 1998; PhD, 1998, Princeton University; political theory, Hellenistic history, drama, cultural studies.

Course Descriptions

See page 48 for an explanation of course numbers, symbols, and abbreviations.

For graduate-level course descriptions, see the graduate and professional study volume of the *General Catalog* or visit the online course catalog at www.washington.edu/students/crscat/.

Classical Archaeology

CL AR 340 Pre-Classical Art and Archaeology (3)

VLPA Langdon Survey of the art and the other material remains of the civilizations in the Aegean from the Neolithic Age to the end of the Bronze Age, with special emphasis on Minoan Crete and the Mycenaean kingdoms of mainland Greece, illustrated by slides. The history, techniques, and results of significant excavations are examined. Offered: jointly with ART H 340.

CL AR 341 Greek Art and Archaeology (3) VLPA

Bliquez, Langdon Survey of the material remains and the developing styles in sculpture, vase painting, architecture, and the minor arts from the geometric to the Hellenistic periods, illustrated by slides. Principal sites and monuments, as well as techniques and methods of excavation, are examined in an attempt to reconstruct the material culture of antiquity. Offered: jointly with ART H 341.

CL AR 342 Roman Art and Archaeology (3) VLPA

Harmon Roman architecture and art, with emphasis on the innovations of the Romans; illustrated by slides. Offered: jointly with ART H 342.

CL AR 343 Hellenistic Art and Archaeology (3)

VLPA Langdon Survey of the art of Greece and the eastern Mediterranean from the time of Alexander the Great to the Roman conquest. Principal sites with their sculpture, painting, mosaics, and minor arts examined in lectures illustrated with slides. Offered: jointly with ART H 343.

CL AR 442 Greek Painting (3) VLPA

Langdon Study of painted decoration on Greek vases, with emphasis on stylistic developments and cultural and historical influences. Painting on other media also examined as evidence allows. Offered: jointly with ART H 442.

CL AR 446 Greek Architecture (3) VLPA

Langdon Detailed study of Greek architecture from its beginnings, with special emphasis on the Periclean building program in fifth-century Athens. Offered: jointly with ARCH 454/ART H 446.

CL AR 448 The Archaeology of Italy (3) VLPA

Harmon Study of the principal archaeological sites in Italy with special emphasis on ancient Rome. Sites include the Alban hills, Ostia, Pompeii, Herculaneum, Tarquinia, Paestum, Tivoli, and Praeneste. Attention given to the relationship between material remains and their purpose in ancient life. Illustrated by slides. Offered: jointly with ART H 448.

Classics

Upper-division classics courses in English (300 and 400 level) in the Department of Classics do not generally have prerequisites. Most 400-level courses deal with a single genre of literature or with a limited area of classical studies. The 300-level courses deal with broader subjects at a relatively advanced level. Both are primarily for juniors and seniors, but they are open to freshmen and sophomores with an interest or background in the subject of the course.

CLAS 101 Latin and Greek in Current Use (2) VLPA Designed to improve and increase English vocabulary through a study of the Latin and Greek elements in English, with emphasis on words in current literary and scientific use. No auditors. Knowledge of Latin or Greek is not required. Credit/no credit only. Offered: AWSpS.

CLAS 102 Grammar and Syntax through Latin (3) VLPA Improve familiarity with basic grammar, syntax, logic through study of mechanics of the Latin language. For Educational Opportunity Program students only. No auditors. Knowledge of Latin or Greek not required.

CLAS 205 Bioscientific Vocabulary Building From Latin and Greek (3) VLPA Designed to help the student master the scientific vocabulary of his or her particular field by a study of the Latin and Greek roots that are used to create the majority of scientific terms. No auditors. Knowledge of Latin or Greek is not required. Credit/no credit only. Offered: AWSpS.

CLAS 210 Greek and Roman Classics in English (5) VLPA Bliquez, Blondell, Clauss, Connolly, Connors, Gowing, Halleran, Harmon, Hinds, Langdon, Lape, MacKay Introduction to classical literature through a study of the major Greek and Latin authors in modern translation. Offered: AWSp.

CLAS 320 Greek and Roman Private and Public Life (5) VLPA/I&S Bliquez Study of the civic and social practices and institutions of everyday Greek and Roman private and public life, including the family, social classes, the courts and legal systems, military service and war, technology and the trades, money and banking, agriculture and rural life. Many lectures illustrated by slides. Offered: A.

CLAS 322 Intellectual History of Classical Greece (5) VLPA/I&S Blondell Uses Plato's *Republic* as a core text to explore a range of issues of ancient and contemporary interest, such as justice, political theory, male attitudes toward women, and the nature of the soul. Besides the *Republic* and other works of Plato, readings are taken from Homer, tragedy, comedy, Aristotle, and others. Offered: Sp.

CLAS 324 Greek and Roman Athletics (3) I&S Langdon Greek and Roman athletic festivals and events, and the place of athletes and sport in ancient society.

CLAS 326 Women in Antiquity (3) VLPA/I&S Connors A broad survey of primary sources in medicine, law, philosophy, religious ritual, myth, history, and ethnography, informed by perspectives from literature, art, and archaeology. Provides students the tools to analyze the social roles of women in ancient Greece and Rome.

CLAS 328 Sex, Gender, and Representation in Greek and Roman Literature (3) VLPA/I&S Hinds Affirmation and inversion of gender roles in Greek and Roman literature, myths of male and female heroism; marginalization of female consciousness; interaction of gender, status, and sexual preference in love poetry. Readings from epic, drama, historiography, romance, and lyric.

CLAS 330 The Age of Augustus (5) VLPA/I&S Gowing Detailed study of the history and culture of the reign of Augustus, the first Roman emperor (31 BC-AD 14). Includes readings in Augustan authors

such as Vergil, Ovid, and Horace as well as the study of Augustan art and architecture. Offered: jointly with HSTAM 330.

CLAS 399 Study Abroad: Classics (3-15, max. 20) VLPA For participants in Classics overseas study programs. Specific course content determined by assigned faculty member. Credit not applicable to majors in the Classics Department without approval.

CLAS 424 The Epic Tradition (5) VLPA Clauss, Halleran, MacKay Ancient and medieval epic and heroic poetry of Europe in English: the *Iliad*, *Odyssey*, and *Aeneid*; the *Roland* or a comparable work from the medieval oral tradition; pre-Greek forerunners, other Greco-Roman literary epics, and later medieval and Renaissance developments and adaptations of the genre. Choice of reading material varies according to instructor's preference. Offered: jointly with C LIT 424.

CLAS 427 Greek and Roman Tragedy in English (5) VLPA Halleran, Lape Study of the development of Greek and Roman tragedy, with extensive readings in representative plays of Aeschylus, Sophocles, Euripides, and Seneca.

CLAS 428 Greek and Roman Comedy in English (3) VLPA Lape Readings from the comedies of Aristophanes, Plautus, and Terence.

CLAS 430 Greek and Roman Mythology (3/5) VLPA Clauss, Connors, Gowing, Halleran, Hinds Principal myths found in classical and later literature. Offered: AWSp.

CLAS 432 Classical Mythology in Film (3/5) VLPA Clauss Comparison and discussion of classical myths and modern films inspired by them. Promotes access to the reading of classical mythology. Analyzes significant differences between ancient literary and modern cinematographic representations of the myth.

CLAS 435 The Ancient Novel (3) VLPA Connolly, Connors, Lape Reading and discussion of the principal Greek and Roman novels, the earliest European prose fiction, with attention to earlier literature and to imperial culture.

CLAS 445 Greek and Roman Religion (3) VLPA/I&S Harmon, Langdon Religion in the social life of the Greeks and Romans, with emphasis placed on their public rituals and festivals. Attention is given to the priesthoods, personal piety, rituals of purification and healing, and the conflict of religions in the early Roman Empire. Many lectures illustrated by slides. Recommended: RELIG 201. Offered: jointly with RELIG 445.

CLAS 495 Senior Essay (1-3, max. 3) VLPA Usually written in conjunction with another course in the final year of study in the major.

CLAS 496 Special Topics (2-5, max. 15) VLPA Offered occasionally by visitors or resident faculty.

Greek

GREEK 101 Elementary Greek (5) An intensive study of grammar, with reading and writing of simple Attic prose. Offered: A.

GREEK 102 Elementary Greek (5) An intensive study of grammar, with reading and writing of simple Attic prose. Prerequisite: GREEK 101. Offered: W.

GREEK 103 Elementary Greek (5) Reading of selections from classical Greek literature. Prerequisite: GREEK 102. Offered: Sp.

GREEK 300 Greek Language, Accelerated (5) Intensive introduction to Attic Greek. Not accepted as upper-division credit toward a major in Greek or classics. Does not satisfy foreign language proficiency requirement. Offered: W.

GREEK 301 Greek Language, Accelerated (5) Intensive introduction to Attic Greek. Not accepted as upper-division credit toward a major in Greek or classics. Does not satisfy foreign language proficiency requirement. Prerequisite: GREEK 300. Offered: Sp.

GREEK 305 Attic Prose (5) VLPA Translation of selections from Attic prose; elementary exercises in Attic prose composition. Recommended: GREEK 103.

GREEK 306 Attic Prose (5) VLPA Translation of selections from Attic prose; elementary exercises in Attic prose composition. Prerequisite: GREEK 305.

GREEK 307 Homer (5) VLPA Translation of selections from the *Iliad* or the *Odyssey*; Attic prose composition, metrics. Prerequisite: GREEK 306. Offered: Sp.

GREEK 413 The Pre-Socratic Philosophers (3) VLPA Blondell

GREEK 414 Plato (3) VLPA Blondell, Lape, MacKay

GREEK 415 Aristotle (3) VLPA Blondell, Lape, MacKay

GREEK 422 Herodotus and the Persian Wars (3) VLPA Bliquez, Langdon, MacKay

GREEK 424 Thucydides and the Peloponnesian War (3) VLPA Bliquez, Langdon, Lape

GREEK 426 Attic Orators (3) VLPA Bliquez, Langdon, Lape, MacKay

GREEK 442 Greek Drama (3) VLPA Halleran

GREEK 443 Greek Drama (3) VLPA Halleran
Offered: alternate years.

GREEK 444 Greek Drama (3) VLPA Halleran

GREEK 449 Greek Epic (3) VLPA Halleran, MacKay

GREEK 451 Lyric Poetry (3) VLPA Blondell, Halleran

GREEK 453 Pindar: The Epinician Odes (3) VLPA Halleran

GREEK 461 Early Greek Literature (3-5, max. 15) VLPA Readings and discussion of selected authors of the early Greek period.

GREEK 463 Hellenistic Greek Literature (3-5, max. 15) VLPA Clauss Readings and discussion of selected authors of the Hellenistic Age.

GREEK 490 Supervised Study (* max. 18) Special work in literary and philosophical texts for graduates and undergraduates.

Latin

LATIN 101 Elementary Latin (5) An intensive study of grammar, with reading and writing of simple Latin prose. Offered: A.

LATIN 102 Elementary Latin (5) An intensive study of grammar, with reading and writing of simple Latin prose. Prerequisite: LATIN 101. Offered: W.

LATIN 103 Elementary Latin (5) Reading of selections from classical Latin literature. Prerequisite: LATIN 102. Offered: Sp.

LATIN 300 Latin Language, Accelerated (5) Intensive introduction to classical Latin. Not accepted as upper-division credit toward a major in Latin or classics. Does not satisfy foreign language proficiency requirement. Offered: W.

LATIN 301 Latin Language, Accelerated (5) Intensive introduction to classical Latin. Not accepted as upper-division credit toward a major in Latin or classics. Does not satisfy foreign language proficiency requirement. Prerequisite: LATIN 300. Offered: Sp.

LATIN 305 Introduction to Latin Literature (5) VLPA Readings in prose and poetry from various Latin authors; elementary exercises in Latin prose composition. Recommended: LATIN 103. Offered: A.

LATIN 306 Cicero and Ovid (5) VLPA Readings from the orations of Cicero and the poetry of Ovid; elementary exercises in Latin prose composition. Prerequisite: LATIN 305. Offered: W.

LATIN 307 Vergil (5) VLPA Selections from the first six books of the *Aeneid*; elementary exercises in Latin prose composition or metrics. Prerequisite: LATIN 306. Offered: Sp.

LATIN 401 Medieval Latin Literature to 1200 (3) VLPA *Hinds* Texts read in Latin; cultural and historical contexts discussed. Presupposes year and a half of Latin or equivalent. Informal individual guidance available to members of class handling medieval or renaissance Latin texts in their research. Recommended: LATIN 306.

LATIN 402 Later Medieval and Renaissance Latin Literature (3) VLPA *Hinds* Texts read in Latin; cultural and historical contexts discussed. Presupposes year and a half of Latin or equivalent. Informal individual guidance available to members of class handling medieval or renaissance Latin texts in their research. Recommended: LATIN 306.

LATIN 412 Lucretius (3) VLPA *Blondell, Clauss*

LATIN 414 Seneca (3) VLPA *Blondell, Connolly*

LATIN 422 Livy (3) VLPA *Clauss, Gowing*

LATIN 423 Cicero and Sallust (3) VLPA *Clauss, Connolly, Gowing*

LATIN 424 Tacitus (3) VLPA *Clauss, Gowing*

LATIN 447 Roman Lyric (3) VLPA *Clauss, Harmon*

LATIN 449 Roman Elegy (3) VLPA *Connolly, Harmon, Hinds*

LATIN 451 Roman Satire (3) VLPA *Connors*

LATIN 457 Roman Drama (3) VLPA *Connors*

LATIN 458 Roman Epic (3) VLPA *Clauss, Connors, Harmon, Hinds*

LATIN 461 Latin Literature of the Republic (3-5, max. 15) VLPA Readings and discussion of selected authors from the era of the Roman Republic.

LATIN 462 Latin Literature of the Augustan Age (3-5, max. 15) VLPA Readings and discussion of selected authors from the Augustan era.

LATIN 463 Latin Literature of the Empire (3-5, max. 15) VLPA Readings and discussion of selected authors from the Roman Empire.

LATIN 465 Roman Topography and Monuments (5, max. 10) VLPA *Clauss, Gowing, Harmon* Study of the material remains of ancient Rome from the archaic period through the imperial age. Reading of source materials and inscriptions in Latin. Conducted in Rome. Offered: Sp.

LATIN 490 Supervised Study (* max. 18) Special work in literary and philosophical texts for graduates and undergraduates.

Communications

102 Communications



General Catalog Web page:
www.washington.edu/students/gencat/academic/communications.html



Department Web page:
carmen.artsci.washington.edu/cmu/

The School of Communication focuses on the cultural, symbolic, social, and political aspects and implications of mediated communications. Of particular interest are the ways that form and content of mediated communications interact with the individual, national, and international norms and values to shape human identities in a rapidly changing global landscape.

Undergraduate Program

Adviser
David Sherman
118 Communications, Box 353740
(206) 543-8860

The School of Communications offers undergraduate instruction in journalism and media studies, both of which focus on the role and function of mass media at the national and international level. Students in the program develop the skills necessary for research and critical analysis. Combined with internships, the communications curriculum prepares students for a variety of careers in the communications industry, as well as for graduate study. The journalism option is designed to train students for careers in print media.

The department also offers a minor in communications.

Student Associations: Society of Professional Journalists, Women in Communications

Internship or Cooperative Exchange Program Opportunities: The School has a strong internship program. Contact the advising office for more information.

Bachelor of Arts

Admission Requirements

1. Sophomore standing (completion of a minimum of 45 college credits). Transfer students must complete a minimum of 12 graded credits at the UW.

2. Admission is competitive, based on GPA, completion of CMU 200, and application. A minimum GPA of 2.50 ensures consideration, but not acceptance.

3. Students are admitted quarterly; applications are available and accepted the first two weeks of autumn, winter, and spring quarters. Applications and additional information are available in 118 Communications.

Major Requirements

Media Studies

50 credits in communications, including CMU 200. Minimum 20 credits in 400-level courses, excluding CMU 498. Students are encouraged to complete at least one 300-level course before taking 400-level courses. Journalism has separate program requirements as shown below.

Journalism

60 credits, including 45 credits in communications as follows: CMU 200, 360, 361, 362, 440, and 468; one course from the following: CMU 441, 452, 460, 461, 462, 463, 465, 467, 469, 470, and 489. 15 credits to include one course each, in economics, American government, and U.S. history. See adviser for list of acceptable courses.

Minor

Minor Requirements: A minimum of 25 credits, including CMU 200, one 300-level course, and two 400-level courses.

Graduate Program

For information on the School of Communication's graduate program, see the graduate and professional volume of the *General Catalog* or visit the *General Catalog* online at www.washington.edu/students/gencat/.

Faculty

Chair

Charles A. Giffard

Professors

Baldasty, Gerald J. * 1974; MA, 1974, University of Wisconsin; PhD, 1978, University of Washington; communications history, media and gender, race, government-press relations.

Bassett, Edward P. * 1989, (Emeritus); PhD, 1967, University of Iowa; telecommunication technologies and information dissemination, public opinion, environment.

Bennett, W. Lance * 1974; MPhil, 1973, PhD, 1974, Yale University; American politics, comparative politics, political communication, mass media, political culture.

Edelstein, Alex S. * 1955, (Emeritus); PhD, 1958, University of Minnesota; comparative communication research, public opinion, propaganda, international communication.

Giffard, Charles A. * 1978; PhD, 1968, University of Washington; international communication systems, news flow, editing and reporting.

Lang, Gladys Engel * 1984, (Emeritus); PhD, 1954, University of Chicago; political effects of mass media, sociology of art, political movements and crowd behavior.

Lang, Kurt * 1984, (Emeritus); PhD, 1953, University of Chicago; political and social effects of the media on mass communication.

Pember, Don R. * 1969; PhD, 1969, University of Wisconsin; mass media law, First Amendment history.

Shadel, Willard F. 1963, (Emeritus); MA, 1953, University of Michigan; broadcasting.

Stamm, Keith R. * 1973; PhD, 1968, University of Wisconsin; communities and newspapers, political communication, communication and environmental problems.

Stewart, John R. * 1969, (Adjunct); PhD, 1970, University of Southern California; philosophy of qualitative research and interpersonal communication.

Whitehill-Ward, John * 1975, (Adjunct); MS, 1974, Illinois Institute of Technology; graphic design.

Yerxa, Fendall Winston * 1965, (Emeritus); BA, 1936, Hamilton College; editorial journalism.

Associate Professors

Bowen, Lawrence * 1973; PhD, 1974, University of Wisconsin; commercial communications, media research, consumer information-seeking and -processing behaviors.

Bowes, John E. * 1974; PhD, 1971, Michigan State University; man-machine communication, public opinion, international communication.

Chan, Anthony B. * 1990; PhD, 1980, York University (Canada); Pacific rim communication systems, Canadian studies, China studies, Asian cinema.

Cranston, Patricia * 1954, (Emeritus); MA, 1954, University of Texas (Austin); broadcast journalism, history, writing and production of docudramas.

Fearn-Banks, Kathleen A. 1990; MS, 1965, University of California (Los Angeles); crisis communications, history.

Jackson, Kenneth M. * 1974, (Emeritus); PhD, 1970, University of Washington; institutional communications, media research, mass media and public policy, cultural communications.

Kielbowicz, Richard B. * 1984; PhD, 1984, University of Minnesota; communication history/law, impact of technology on press and society, Canadian media.

Manusov, Valerie L. * 1993, (Adjunct); PhD, 1989, University of Southern California; the interplay between communication behaviors and cognitions in interpersonal interactions.

Parks, Malcolm R. * 1978, (Adjunct); PhD, 1976, Michigan State University; communication theory, interpersonal communication, research methods.

Rivenburgh, Nancy * 1989; MS, 1982, Boston University; PhD, 1991, University of Washington; international communications, the media, intercultural relations and identity, international news.

Samuelson, Merrill * 1962, (Emeritus); PhD, 1960, Stanford University; research methods, processes of reading, patterns in reader selection of new stories.

Simpson, Roger A. * 1968; PhD, 1973, University of Washington; communication history, law of communication, media economics, editorial journalism.

Underwood, Douglas M. * 1987; MA, 1974, Ohio State University; newspaper economics and management, press and politics, literature and journalism.

Assistant Professors

Domke, David S. * 1998; PhD, 1996, University of Minnesota; political cognition and elites' interaction with news media in social change.

Gastil, John W. * 1997, (Adjunct); PhD, 1994, University of Wisconsin; political participation and deliberative forms of democratic decision making.

Kawamoto, Kevin Y. * 1992; PhD, 1997, University of Washington; new media technologies, computer-mediated communication, computer crime.

Course Descriptions

See page 48 for an explanation of course numbers, symbols, and abbreviations.

For graduate-level course descriptions, see the graduate and professional study volume of the *General Catalog* or visit the online course catalog at www.washington.edu/students/crsca/.

CMU 200 Introduction to Mass Communication (5) I&S Examines the role mass communication systems play in our society, including their history, structure, processes, and effects. Strong emphasis on major issues in the media today such as violence, stereotyping of images, political campaigns, and other ethical issues.

CMU 300 Basic Concepts of New Media (5) VLPA/I&S Provides a comprehensive examination of the effects of new, digital media on interpersonal communication, media industries, and media culture. Emphasis on economic, social, political, and aesthetic implications. Provides limited experience with computer-based media. No prior technical computer experience assumed.

CMU 301 Navigating Information Networks for Mass Media (5) I&S Builds familiarity with computer-mediated information networks. Introduces and compares network search engines, agents, browsing/viewing tools and retrieval/transfer software for use by reporters and other media workers. Instruction and practice with searching/acquiring information, its analysis and interpretation, illustration, and write-up. No prior computer or network experience assumed.

CMU 302 The Cultural Impact of Information Technology (5) I&S, VLPA Utilizing approaches from the history of technology, cultural studies, and literary theory, seeks to analyze the cultural and social impact of information technology. Considers how information technologies impact our relationships with others, our concept(s) of self, and the structure of the communities to which we belong. Offered: jointly with CHID 370.

CMU 305 The Politics of Mass Communication in America (5) I&S Role of mass audiences in politics from the standpoint of the communication strategies used to shape their political involvement. Topics include: social structure and political participation, political propaganda and persuasion, the political uses of public opinion, and the mass media and politics. Offered: jointly with POL S 305.

CMU 306 Media, Society and Political Identity (5) I&S Explores how society and culture are both represented in and shaped by communication technologies and media content. Media include film, advertising, news, entertainment television, talk shows, and the Internet. Explores how media represent and affect individual identity, values, and political engagement. Offered: jointly with POL S 306.

CMU 320 Global Communication (5) I&S Introduction to the history, purpose, channels, content, technologies, policy, and regulation of international communications systems. Issues covered include disparities in media development between post-industrial and developing nations, imbalances in international news and information flow, and the emergence of global communications. Offered: jointly with POL S 329.

CMU 321 Communications in International Relations (5) I&S Looks at communications in relations between international groups and states. Examines the range of functions and roles communication media play in international affairs, global issues, and intergroup relations. Also examines the strategic use of communications by various groups. Offered: jointly with POL S 330.

CMU 340 History of Mass Communication (5) I&S History and development of communication from prehistoric times; rise of mass media; political and economic context of newspapers, radio, film, and television.

CMU 341 The Press and Politics in the United States (5) I&S Journalist's role in elections and public policy. Relationship between news coverage and political campaigns. Study and analysis of local political news writing, reporting, and response by local and state political figures. Offered: jointly with POL S 304.

CMU 342 Media Structure (5) I&S Industrial organization and culture; consumer and producer decisions; public policy toward media; workforce and unions. Media role in culture and political economy.

CMU 343 Effects of Mass Communication (5) I&S Effects of mass communication on individuals and society. Relevant theories applied to research evidence, addressing such topics as effects of stereotypes, violent and sexual imagery, and persuasive messages on our knowledge, attitudes, and behaviors.

CMU 359 Writing for Mass Media (5) I&S Training in gathering information through interviews and observation and from written record and other public

sources. Practice in organizing and writing this information for presentation in a mass medium such as a newspaper, newsletter, or magazine. Offered: AWSpS.

CMU 360 Beginning News Writing and Reporting (4) I&S Introduction to news writing and reporting for print media. Focus on defining news, general writing skills, constructing leads, preparing a variety of basic journalism news stories, interviewing techniques, covering beats, and journalistic style.

CMU 361 Advanced Reporting and News Writing (5) I&S In-depth training in the development of advanced-level reporting and news writing skills. Practice in information gathering, interviewing, use of sources, database analysis, and investigative reporting techniques. Recommended: CMU 360.

CMU 362 News Laboratory (8) I&S News writing-skills course. Students gain real-world experience by producing news and feature stories for client papers in the Puget Sound Region. Involves considerable one-on-one work with the lecturer/editor. Requires writing and reporting skills. Recommended: CMU 361.

CMU 363 Communications Internship (2-6, max. 6) Supervised academic work done in connection with editorial internship. Designed to extend the student's knowledge of professional perspectives. Does not apply to required 50 credits in communications. Open only to majors. Credit/no credit only.

CMU 382 Introduction to Communication Research (5) I&S Comprehensive introduction to research methods employed in basic and applied communication research, including sample surveys, content analysis, experimentation, and elementary statistics. Offered: jointly with SP CMU 382.

CMU 400 History of Media Technology and Regulation (5) I&S Impact of pre-1980s media technologies—printing, telecommunications, broadcasting, photography, and more—on individuals and institutions, especially government, business, and the mass media. How laws and policies have changed to govern new media forms.

CMU 401 Telecommunication Policy and Convergent Media (5) I&S Examines contemporary media and telecommunications industries since 1980 and their accelerating convergence. Attention given to economic, policy, and mass use issues. Review of major industry leaders, promising technologies, and new services. Social issues, government initiatives, and new legislation covered for both North American and international markets. Recommended: CMU 301.

CMU 402 New Media as Virtual Communities (5) I&S Technologically-mediated virtual communities considered through analysis of historical precedents and influences and through an exploration of the concept of community. Issues include a focus on social interactions; the social, political, economic, and technological contexts of virtual communities and the limits for their sustenance.

CMU 403 Visual Literacy for Mass Communication (5) VLPA/I&S Overview of how we apprehend, interpret, and understand visual content of traditional and evolving media forms. Emphasis on analytic methods, the aesthetic characteristics of media forms and how visuals are utilized and understood. Several perspectives considered, including historical, cultural, and critical. Recommended: CMU 300.

CMU 404 New Media Criticism (5) VLPA/I&S Examines critically the content of new media forms, contrasting them with traditional media. Stresses influences of social, economic, political, and technological forces on content and developing strategies for critical analysis.

CMU 418 Issues in Mass Communication (5, max. 10) I&S Topics vary.

CMU 420 Comparative Media Systems (5) I&S Provides students an understanding of policies that shape national communication processes and systems. Uses comparative analysis to identify both similarities and differences among media structures of nations at different levels of development. Primary emphasis on broadcast media. Offered: jointly with SIS 419/POL S 468.

CMU 421 Intercultural Communication (5) I&S Investigates intercultural communication theory and its application for varying levels of human interaction: interpersonal, intergroup, and international. Recommended: SP CMU 384. Offered: jointly with SP CMU 478.

CMU 422 Culture in International Communications Research (5) I&S Examines research that deals with or compares data from different countries, cultures, or sub-cultures. For methodological issues and potential pitfalls due to variability in language, culture, geo-political orientation.

CMU 423 Communications and Development (5) I&S Examines both theory and application involved in using communications media as a tool for addressing political, social, and economic development issues. Utilizes a case study approach to look at localized applications of traditional and new communications tools in the pursuit of sustainable development.

CMU 424 Canadian Media Systems (5) I&S Structure and operation of Canadian mass media and telecommunications industries. Impact of United States media on Canadian culture. Role of domestic media in lives of minorities. Laws and policies governing communications. Offered: jointly with SISCA 424.

CMU 425 European Media Systems (5) I&S Examines media systems in selected countries in Europe and policy issues that link (or divide) members of the European Union and other major media producers. Media studied in context of the contemporary economic, social, political, and cultural milieu in which they operate. Offered: jointly with EURO 425.

CMU 426 International Media Images (5) I&S Ways in which media construct images of international peoples and events. Develops a set of critical tools for assessing media portrayals of international affairs and cultures.

CMU 427 International Communications Law and Policy (5) I&S Examines the international and comparative aspects of traditional press law, broadcast regulation, and telecommunications policy. Also examines freedom of the press in international reporting and the efforts of countries to limit foreign media influences within their borders.

CMU 428 Asian Media Systems (5) I&S Examines the media systems and communication policies in selected Asian countries. Identifies and analyzes the cultural, economic, historical, and political parameters that influence these media.

CMU 429 Chinese Communications Systems (5) I&S Analyzes the economic, historical, intellectual, social, and political foundations of communications systems in the region of Chinese Asia: China, Hong Kong, Singapore, and Taiwan. Focus primarily on print and broadcast journalism.

CMU 430 Canadian Documentary Film Traditions (5) VLPA/I&S History and development of non-fiction film documentary traditions, especially in Canada, the first institutionally defined area in which documentaries became prominent through the National Film Board and the Canadian Broadcasting Corporation. Discussion of Flaherty, Greirson, and independent network producers who developed present-day style of documentaries. Offered: jointly with SISCA 430.

CMU 440 Mass Media Law (5) I&S Survey of laws and regulations that affect the print and broadcast media. Includes material on First Amendment, libel, invasion of privacy, freedom of information, copyright, obscenity, advertising and broadcast regulation, and matters relating to press coverage of the judicial system. Offered: jointly with POL S 461.

CMU 441 United States Media History (5) I&S Development of mass communication in the United States with emphasis on role of mass media in politics, economics, gender, and race.

CMU 442 Public Opinion and the Mass Media: Processes and Methods (5) I&S Considers public opinion in the United States as formed and affected by the mass media. Two themes stressed are historical and institutional use of public opinion and the political influence of the media. Attention given to public opinion measurement by the mass media, political candidates, and governmental institutions.

CMU 444 Public Relations and Society (5) I&S Overview of issues, strategies, and role of public relations professionals in various areas of American society, including media relations, government relations, community affairs, and consumer relations.

CMU 445 Communication Theory (5) I&S Centrality of communication and mass communication in behavior and society. Problems of, and questions about, communicative effectiveness. Theoretical principles applicable to communicative effectiveness. Communication's six contributions to effective behavior.

CMU 451 Mass Media and Culture (5) VLPA/I&S Empirical and theoretical framework for analyzing role of mass media in cultural change. Historical and contemporary cases consider ethnic, gender, class, and urban-rural conflicts and cultural roles of sports, elections, and national rituals. Focus on visual electronic media.

CMU 452 Crisis Communications (5) I&S Study of the functions of communications professionals during crises. Covers public relations professionals as advocates for organizations and companies in crisis and the news media as advocates of the mass public. Discussion of cases.

CMU 460 Special Reporting Topics (4) I&S Topics vary.

CMU 461 Computer-Assisted Journalism (5) I&S Introduction to computer-assisted journalism and other advanced reporting techniques. Includes hands-on electronic data analysis, exploration of on-line investigative tools, and the fashioning of electronically-retrieved information into news stories. Students examine ethical and technical challenges these tools present to media and society. Offered: AWSps.

CMU 462 Magazine Writing (5) I&S Techniques of writing and marketing the full-length magazine article.

CMU 463 Copy Editing and Design (5) I&S Focus on editing copy for publications, covering grammar and style, production methods, news criteria, use of wire services, headlines, make-up and design, pagination, and online publication.

CMU 465 Legislative Reporting (12) I&S Coverage of Washington legislature for a daily newspaper. Selected students live in Olympia, interview legislative delegations, report on committee and floor sessions, and attend and report on gubernatorial and other press conferences.

CMU 467 Journalism and Literature (5) VLPA/I&S Explores the relationship between journalism and fiction writing in the United States. Examines writers who began their careers as journalists and forged a fiction-writing philosophy related to what they learned in journalism. Readings in fiction and journalism.

CMU 468 Journalism Ethics (5) I&S *Simpson* Provides a method and substantive context based on ethical theory, media history, and value systems analysis for analyzing and resolving dilemmas raised by journalistic practices.

CMU 469 Intellectual Foundations of American Journalism (5) I&S Examines the thinkers and philosophers who have influenced modern journalism. Studies the main ideas in the development of world thought and their impact on today's journalists. Explores the role communications systems have played in the creation of the world's cultures.

CMU 470 Communications and the Environment (5) I&S Examines the role of mass media in the resolution of environmental problems. Topics include strengths and weaknesses of media coverage, use of media by environmental groups and government agencies, media effects on public opinion, and mass communication and social movements. Offered: jointly with ENVIR 470.

CMU 476 Models and Theories in Speech Communication (5) I&S Examination of selected theories and models of speech communication from the behavioral sciences, as well as of criteria applicable to them. Emphasis on the nature and function of theories and models, especially as these relate to basic principles underlying the scientific, interpretive, and critical study of speech communication phenomena. Offered: jointly with SP CMU 476.

CMU 489 Ethnicity, Gender, and Media (5) I&S Media portrayal of women and people of color; creation of alternative media systems by women and people of color in the United States. Offered: jointly with AES 489/WOMEN 489.

CMU 498 Undergraduate Research in Communications (1-5, max. 10) Research and individual study. Prerequisite: permission of instructor.

Comparative History of Ideas

B102D Padelford



General Catalog Web page:
www.washington.edu/students/gencat/academic/comp_history.html



Department Web page:
depts.washington.edu/chid/

Comparative History of Ideas is an interdisciplinary program that draws on a wide variety of disciplines within the College of Arts and Sciences to examine the interplay of ideas and their cultural, historical, and political contexts.

Undergraduate Program

Adviser
Matt Scheiblehner
B103 Padelford, Box 354300
(206) 543-7333

The program in Comparative History of Ideas offers a program of study leading to a Bachelor of Arts degree. Courses within the program have been chosen and designed to explore the history of specific ideas or themes, to examine the history of particular cultures, or

to study comparatively the underlying assumptions of different social and cultural perspectives. The program encourages students to adopt nuanced perspectives on their position relative to texts, cultures, societies, and historical periods. Program graduates have gone on to postgraduate studies in the humanities and social sciences, as well as professional training and careers in a wide variety of fields including law, administration and public policy, medicine, education, journalism, new media, and film.

The program also offers a minor in Comparative History of Ideas.

Bachelor of Arts

Admission: Students in good academic standing may declare this major after meeting with an adviser.

Suggested Introductory Course Work: Because a strong background in history provides the essential framework for the comparative study of the history of ideas, students are encouraged to pursue course work in the history of relevant periods, areas, and themes. Introductory courses in philosophy, English, comparative literature, ethnic and gender studies, and other areas of the humanities and social sciences are also of great value, as is CHID 110.

Major Requirements: 55 credits with a 2.50 GPA to include colloquium in the history of ideas, six core courses distributed in three areas, a 5-credit senior project, and the remaining credits chosen among approved electives. At least half the credits presented for the major must be at the upper-division level. Students may expand the senior project to 10 or 15 credits if they choose. The 5 to 10 optional senior-project credits are in addition to the 55 credits required for the major.

Minor

Minor Requirements: 30 credits to include 5 credits in Group A (or CHID 110); 5 credits in Group B, subgroup 1; 5 credits in Group B, subgroup 2; 5 credits in Group C; CHID 390 (5 credits); CHID 498 (5). See department for current lists of Group A, B, and C courses.

Faculty

Chair

John E. Toews

Professors

Benson, Keith R. * 1981; MA, 1973, PhD, 1979, Oregon State University; history of modern American biology, marine biology, and evolutionary biology.

Giffard, Charles A. * 1978; PhD, 1968, University of Washington; international communication systems, news flow, editing and reporting.

Kasaba, Resat * 1985; PhD, 1985, State University of New York (Binghamton); historical sociology, world systems, social change in the Middle East.

Mish'alani, James K. * 1963, (Emeritus); PhD, 1961, Brown University; contemporary continental philosophy.

Posnock, Ross * 1983; PhD, 1980, Johns Hopkins University; American literature.

Searle, Leroy F. * 1977; MA, 1968, PhD, 1970, University of Iowa; twentieth-century literature, critical theory, American studies.

Toews, John E. * 1979; PhD, 1973, Harvard University; European intellectual and cultural.

Treat, John W. * 1983, (Affiliate); PhD, 1982, Yale University; Japanese language and literature.

Webb, Eugene * 1966; MA, 1962, PhD, 1965, Columbia University; modern English, French, and German literature, comparative religion.

Associate Professors

Blondell, Ruby * 1985; PhD, 1984, University of California (Berkeley); Greek and Roman philosophy and literature.

Collins, Douglas P. * 1980; PhD, 1978, University of Missouri; twentieth-century French literature.

Hevly, Bruce W. * 1989; PhD, 1987, Johns Hopkins University; history of technology and science.

Senior Lecturers

Clowes, James D. 1988; MA, 1988, University of Montana; modern European intellectual history, early German romanticism, pedagogy.

Shabetai, Karen J. * 1984; MA, 1982, PhD, 1984, University of California (San Diego); English Romantic poetry and prose and 18th-century novels; philosophy of sensibility.

Lecturer

Tupper, Kari Lynn 1988; PhD, 1997, University of Washington; literature and law, American studies, women writers.

Course Descriptions

See page 48 for an explanation of course numbers, symbols, and abbreviations.

For current course descriptions, visit the online course catalog at www.washington.edu/students/crscat/.

CHID 110 The Question of Human Nature (5) VLPA/ I&S *Clowes, Merrell* Considers the relationship between the individual and his/her culture. Traces the evolution of the notion of human nature in Europe and the United States and compares this tradition with representations of the human being from other cultural traditions.

CHID 205 Method, Imagination, and Inquiry (5) VLPA *Searle* Examines ideas of method and imagination in a variety of texts, in literature, philosophy, and science. Particularly concerned with intellectual backgrounds and methods of inquiry that have shaped modern Western literature. Offered: jointly with ENGL 205.

CHID 207 Introduction to Intellectual History (5) I&S *Clowes, Toews* Ideas in historical context. Comparative and developmental analysis of Western conceptions of "community," from Plato to Freud. Offered: jointly with HIST 207.

CHID 270 Special Topics (5, max. 15) I&S Each special topics course examines a different subject or problem from a comparative framework.

CHID 300 Ideas in Art (5) VLPA *Opperman* Selected monuments of art and architecture in the Western tradition, from the Greeks to the twentieth century, studied in relation to the intellectual background of the ages and civilizations that produced them. Slide lectures accompanied by discussion of assigned readings in philosophical, religious, scientific, political, literary, and artistic texts. Offered: jointly with ART H 300.

CHID 350 Women in Law and Literature (5) VLPA, I&S *Tupper* Representations of women in American law and literature. Considers how women's political status and social roles have influenced legal and literary accounts of their behavior. Examines how legal cases and issues involving women are represented in literary texts and also how law can influence literary expression. Offered: jointly with WOMEN 350.

CHID 370 The Cultural Impact of Information Technology (5) I&S, VLPA Utilizing approaches from the history of technology, cultural studies, and literary theory, seeks to analyze the cultural and social impact of information technology. Considers how information technologies impact our relationships with others, our concept(s) of self, and the structure of the communities to which we belong. Offered: jointly with CMU 302.

CHID 380 The Nature of Religion and its Study (5) I&S *Jaffee, Webb* Study of religion as a general human phenomenon. Manner in which different methods of inquiry (phenomenology, anthropology, sociology, psychology, literary criticism, archaeology, philosophy, theology) illuminate different aspects of religion and shape our conceptions of its nature. Recommended: RELIG 201 or RELIG 202. Offered: jointly with RELIG 380.

CHID 390 Colloquium in the History of Ideas (5) I&S *Clowes, Toews, Tupper* Basic theoretical issues in the comparative history of ideas as a disciplined mode of inquiry; examination of representative historical figures and problems. Primarily for majors.

CHID 491- Senior Thesis (5-) I&S Critical and methodological issues. Required of candidates for an honors degree.

CHID -492- Senior Thesis (5-) I&S Critical and methodological issues. Required of candidates for an honors degree.

CHID -493 Senior Thesis (5-) I&S Research and writing of thesis under supervision of a faculty member. Required of candidates for an honors degree.

CHID 496 Focus Groups (1-2, max. 4) Credit/no credit only.

CHID 497 Peer Facilitators (5)

CHID 498 Special Colloquia (1-5, max. 20) I&S Each colloquium examines a different subject or problem from a comparative framework. A list of topics is available from the CHID office.

CHID 499 Undergraduate Independent Study or Research (1-5, max. 10) Supervised independent study for students who wish to pursue topics not available in regular course offerings.

Comparative Literature

B531 Padelford



General Catalog Web page:
www.washington.edu/students/genocat/academic/comp_lit.html



Department Web page:
depts.washington.edu/complit/

The comparative literature program works across national and regional boundaries to explore the relationships among multiple literary traditions. Comparative literature also focuses on the relationship of literature to the other arts and to fields of knowledge such as philosophy, anthropology, history, or cultural studies. Departmental courses deal with a range of topics in literary and cultural studies, from specific investigations of the patterns of influence and reception across national traditions to the general study of literary theory and criticism.

Undergraduate Program

Adviser
Willis Konick
B524 Padelford, Box 354338
(206) 543-9006

The program in comparative literature offers a program of study leading to a Bachelor of Arts degree. Students earning this degree may pursue advanced work at the M.A. and Ph.D. level in language and literature programs, or allied curriculums in philosophy, intellectual history, information science, and cultural studies. They may aim for degrees in education, specializing in language arts, foreign language teaching, or both. Comparative Literature majors may also find jobs in fields where liberal arts majors are prized, being able to demonstrate strong writing ability and fluency in at least one foreign language.

Student Associations: Film Appreciation Club (film@u.washington.edu), UW Film Colloquium (filmcol@u.washington.edu).

Internship or Cooperative Exchange Program Opportunities: The program in comparative literature coordinates internships. See the adviser for more details.

Bachelor of Arts

Admission: Students in good academic standing may declare the Comparative Literature major at any time.

Suggested Introductory Course Work: Courses in foreign languages, classics, history, philosophy, English or American literature, and writing. Sufficient preparation in a foreign language to enable the student to take a 300- or 400-level literature course in that language by the junior year.

Major Requirements: 50 credits, to include C LIT 300, 400, and one course from among C LIT 320, 321, 322, and 323, and three additional courses in comparative literature at the 300 or 400 level; and at least one course in a literature, studied in the original tongue, other than the student's native literature. Remaining credits are to be earned, with few exceptions, in 300- and 400-level courses from among the offerings of Comparative Literature and the following participating departments: Asian Languages and Literature, Classics, English, French and Italian Studies, Germanics, Near Eastern Languages and Civilization, Scandinavian Studies, Slavic Languages and Literatures, and Spanish and Portuguese Studies. Departmental courses in foreign literature in translation are listed under the respective departments.

Minor

Minor Requirements: 30 credits to include C LIT 300, 400, and one course from among C LIT 320, 321, 322, and 323; an upper-division literature course in a language other than the student's native language; and the remaining credits in upper-division literature courses offered through Comparative Literature and the participating departments above.

Cinema Studies Option

Cinema Studies allows students to develop their understanding of how films function as a distinctive mode of transmitting and critiquing cultural values and practices. The program is structured around two series of required core courses devoted to film theory and film history. Students are required to take at least 15 credits from among these six courses. The core is complemented by upper-division film elective classes taken from Comparative Literature and any University department in consultation with the departmental adviser.

Admission Requirements: Minimum 2.00 overall GPA; completion of one course fulfilling either the College of Arts and Sciences composition requirement or the W (writing) requirement (5 credits); completion of C LIT 270 or the equivalent.

Major Requirements: 50 credits to include completion of 15 credits from Cinema Studies core courses, with at least one course in theory and one course in history (C LIT 301, 302, 303, 310, 311, 312); 10 credits from C LIT core requirements (choice of either C LIT 300 or 400, and one course from C LIT 320, 321, 322, 323); one foreign-literature course in which literature is in original language, or one foreign-film course in which films are shown in original language (with or without subtitles) and in which some reading is in original language; remaining credits to be earned in recommended 300- or 400-level elective courses in Comparative Literature or other participating departments.

Graduate Program

For information on the Comparative Literature program's graduate program, see the graduate and professional volume of the *General Catalog* or visit the *General Catalog* online at www.washington.edu/students/gencat/.

Faculty

Chair

Gary J. Handwerk

Professors

Adams, Hazard S. * 1977, (Emeritus); MA, 1949, PhD, 1953, University of Washington; romanticism, history of literary theory, Anglo-Irish literature.

Ammerlahn, Hellmut H. * 1968; PhD, 1965, University of Texas (Austin); Goethe, eighteenth to early twentieth century, comparative literature.

Behler, Diana I. * 1971; PhD, 1970, University of Washington; romanticism, nineteenth century, comparative literature.

Borch-Jacobsen, Mikkel * 1986; Doct, 1981, University of Strasbourg (France); French twentieth-century literature, theory and criticism, psychoanalysis.

Brown, Jane K. * 1988; PhD, 1971, Yale University; seventeenth, eighteenth and nineteenth century, comparative literature.

Brown, Marshall J. * 1988; PhD, 1972, Yale University; eighteenth- and nineteenth-century literature, literary theory, music and literature.

Handwerk, Gary J. * 1984; PhD, 1984, Brown University; literary theory, English and Irish nineteenth- and twentieth-century narrative.

Hruby, Antonin F. * 1961, (Emeritus); PhD, 1946, Charles University (Czechoslovakia); medieval literature, comparative literature.

Jaeger, C. Stephen * 1985; PhD, 1970, University of California (Berkeley); medieval German and Latin literature, medieval intellectual history, comparative literature.

Jones, Frank W. 1955, (Emeritus); PhD, 1941, University of Wisconsin; MA, 1955, Oxford University (UK); translation, twentieth-century theatre, poetry.

Leiner, Jacqueline * 1963, (Emeritus); DresLe, 1969, University of Strasbourg (France); modern French literature.

Leiner, Wolfgang * 1963, (Emeritus); PhD, 1955, University of Saarlandes (Germany); seventeenth- and twentieth-century French and Italian literature.

Modiano, Raimonda * 1978; PhD, 1973, University of California (San Diego); romanticism.

Reinert, Otto * 1956, (Emeritus); PhD, 1952, Yale University; comparative literature, eighteenth-century literature.

Rossel, Sven H. * 1974, (Affiliate); PhD, 1968, University of Copenhagen (Denmark); Danish language and literature, medieval literature; European pre-romanticism, romanticism, symbolism.

Shapiro, Steven * 1984; PhD, 1981, Yale University; literary theory, romantic poetry, post-modernism.

Staten, Henry J. * 1998; PhD, 1978, University of Texas (Austin); 19th- and 20th-century British literature, history of criticism.

Steele, Cynthia 1986; PhD, 1980, University of California (San Diego); Latin American literature and cultural studies; Mexican literature, film, and photography.

Steene, Birgitta * 1973, (Emeritus); PhD, 1960, University of Washington; Scandinavian drama and film, children's literature, comparative literature.

Vance, Eugene * 1990; PhD, 1964, Cornell University; French, English, and Italian medieval literature; history of rhetoric; sacred art; age of Augustine.

Wang, Ching-Hsien * 1971; PhD, 1971, University of California (Berkeley); Chinese poetry and comparative literature.

Webb, Eugene * 1966; PhD, 1965, Columbia University; modern English, French, and German literature, comparative religion.

Ziadeh, Farhat J. * 1966, (Emeritus); LLB, 1940, University of London (UK); Arabic language and literature, Islamic law, Islamic institutions.

Associate Professors

Collins, Douglas P. * 1980; PhD, 1978, University of Missouri; twentieth-century French literature.

Dubois, Thomas A. * 1990; PhD, 1990, University of Pennsylvania; Nordic folklore and mythology, Finnish, Sami.

Ellrich, Robert J. * 1964, (Emeritus); PhD, 1960, Harvard University; eighteenth-century French literature.

Fisher, Alan S. * 1968; PhD, 1969, University of California (Berkeley); Renaissance, seventeenth- and eighteenth-century literature, history of literary criticism.

Geist, Anthony L. * 1987; PhD, 1978, University of California (Berkeley); twentieth-century Spanish literature: ideology and literary form, cultural studies, film.

Kapetanac, Breda * 1975, (Emeritus); LittD, 1966, University of Zagreb (Yugoslavia); theory of comparative literature, 19th and 20th century European literature.

Konick, Willis * 1950; PhD, 1964, University of Washington; Russian literature, nineteenth-century European literature, cinema studies.

McLean, Sammy K. * 1967, (Emeritus); PhD, 1963, University of Michigan; Western drama, twentieth-century poetry, psychoanalysis and literature, literary translation, comparative literature.

Searle, Leroy F. * 1977; MA, 1968, PhD, 1970, University of Iowa; twentieth-century literature, critical theory, American studies.

Sehmsdorf, Henning K. * 1967, (Emeritus); PhD, 1968, University of Chicago; folklore and mythology, Norwegian language and literature, comparative literature.

Vaughan, Miceal F. * 1973; PhD, 1973, MA, 1973, Cornell University; medieval language and literature.

Warme, Lars G. * 1975, (Emeritus); PhD, 1974, University of California (Berkeley); Swedish language and literature, Scandinavian novel, comparative literature.

Assistant Professors

Bean, Jennifer M. 1998; PhD, 1998, University of Texas (Austin); film studies, American literature and culture, studies in gender and sexuality.

Crnkovic, Gordana * 1993, (Adjunct); MA, 1991, PhD, 1993, Stanford University; East European literature, film, former Yugoslavia, theory, American literature, comparative literature.

Senior Lecturer

Dornbush, Jean M. * 1980; PhD, 1976, Princeton University; medieval period, women and literature, writing in comparative literature.

Lecturer

Popov, Nikolai B. * 1985; PhD, 1994, University of Washington; modern Irish, Slavic, and German writers; literary theory and criticism; translation.

Course Descriptions

See page 48 for an explanation of course numbers, symbols, and abbreviations.

For graduate-level course descriptions, see the graduate and professional study volume of the *General Catalog* or visit the online course catalog at www.washington.edu/students/crsclat/.

C LIT 200 Introduction to Literature (3/5) VLPA Reading, understanding, and enjoying literature from various countries, in different forms of expression (e.g., dramatic, lyric, narrative, rhetorical) and of representative periods. Emphasis on the comparative study of themes and motifs common to many literatures of the world.

C LIT 210 Literature and Science (5, max. 15) VLPA Introduces the rich and complex relationship between science and literature from the seventeenth century to the present day. Students examine selected literary, scientific, and philosophical texts, considering ways in which literature and science can be viewed as forms of imaginative activity.

C LIT 211 Literature and Culture (5, max. 15) I&S/ VLPA Study of literature in its relation to culture. Focuses on literature as a cultural institution, directly related to the construction of individual identity and the dissemination and critique of values.

C LIT 230 Introduction to Folklore Studies (5) VLPA/I&S Comprehensive overview of the field of folkloristics, focusing on verbal genres, customs, belief, and material culture. Particular attention to the issues of community, identity, and ethnicity. Offered: jointly with SCAND 230.

C LIT 240 Writing in Comparative Literature (5, max. 15) C Comparative approach to literature and a workshop in writing comparative papers in English. Emphasis on cross-cultural comparison of literary works. Readings in English with an option to read selected texts in the original languages Offered: AWPSP.

C LIT 270 Perspectives on Film: Introduction (5) VLPA Introduction to film form, style, and techniques. Examples from silent film and from contemporary film. 270, 271, 272 are designed to be taken as a sequence, but may be taken individually.

C LIT 271 Perspectives on Film: Great Directors (5) VLPA Introduction to authorship in the cinema. The work of a major director or directors. 270, 271, 272 are designed to be taken as a sequence, but may be taken individually.

C LIT 272 Perspectives on Film: Genre (5) VLPA Introduction to study of film genre. Literary, mythic, and historic aspects of film genre. 270, 271, 272 are designed to be taken as a sequence, but may be taken individually.

C LIT 280 The Medieval World: Social, Religious, Intellectual Life in the Middle Ages (5) VLPA/I&S A broadly comparative introduction to medieval culture drawing on literature, philosophy, history, art, and music. Varying topics and faculty.

C LIT 281 The Medieval World: Social, Religious, Intellectual Life in the Middle Ages (5) VLPA/I&S A broadly comparative introduction to medieval culture drawing on literature, philosophy, history, art, and music. Varying topics and faculty.

C LIT 300 The Scope of Literary History (5) VLPA Raises the issue of literary history by discussing, through historical examples and theoretical issues, such questions as: What is the scope of written literary history? How do we set up the canon of literary history? How do we account for periodization and epochal change?

C LIT 301 Theory of Film: Analysis (5) VLPA Introduction to the analysis of film. Covers major aspects of cinematic form: mise en scene, framing and camera movement, editing, and sound and color. Considers how these elements are organized in traditional cinematic narrative and in alternative approaches.

C LIT 302 Theory of Film: Critical Concepts (5) VLPA Overview of the main conceptual problems in film criticism such as: "what is a film?", "what is the relationship between film and reality?", "does a film have a language?", "what is the connection between image and sound?". Follows a historical timeline within five individual sections.

C LIT 303 Theory of Film: Genre (5) VLPA Introduction to the history and significance of film genres from the early days of film to the present. Examines a selection of several genres, drawn from a list including western, melodrama, musical, thriller, road odyssey, film noir, and documentary. Topics include form, ideology, authority, history, innovation, and parody.

C LIT 310 History of Film: 1895-1929 (5) VLPA Film history from its beginnings in the 1890s through the golden era of silent film in the 1920s. Topics include the invention of major film techniques, the creation of Hollywood and the studios, and movements such as expressionism, constructivism, and surrealism.

C LIT 311 History of Film: 1930-1959 (5) VLPA Film history from the introduction of sound through the late 1950s. Focuses mostly on the golden age of the Hollywood studios and on alternative developments after World War II in Italy (Neo-Realism), France (the New Wave), and Japan.

C LIT 312 History of Film: 1960—Present (5) VLPA Covers the vast changes in filmmaking since 1960. Topics include the continuing influence of the French New Wave, the New German Cinema of the 70s and the "New Hollywood" of the 70s, American independent film of the 80s and 90s, and the resurgence of Chinese filmmaking since 1980.

C LIT 320 Studies in European Literature (5, max. 15) VLPA Examination of the development of European literature in a variety of genres and periods. Possible areas of study include literature from romantic fiction of early nineteenth century through great realist classics of second half of the century or from symbolism to expressionism and existentialism.

C LIT 321 Studies in Literature of the Americas (5, max. 15) VLPA Emphasizes connections between twentieth century literature of the United States and Canada and current literature of Latin America. Emphasizes that, despite obvious differences, much is shared in terms of culture and national sensibility across the two continents.

C LIT 322 Studies in Asian and Western Literatures (5) VLPA Topics designated by individual instructors.

C LIT 323 Studies in the Literature of Emerging Nations (5, max. 15) VLPA Novels and short stories, from Africa, the Middle East, and South Asia. Discusses relationship of Western literary genres to an

oral literary tradition, as well as issues like colonialism, gender relations, narrative technique, native and non-native languages.

C LIT 330 The European Fairy Tale (5) VLPA An introduction to folktales and literary tales from various traditions and periods. A discussion of their origin, special characteristics, dissemination, and relevance to the contemporary reader.

C LIT 331 Folk Narrative (5) VLPA Survey of various genres of folk narratives studied in performance contexts to reveal their socio-cultural functions in a variety of milieu. Theory and history of folk narrative study, taxonomy, genre classification, and interpretative approaches. Recommended: SCAND 230 or C LIT 230. Offered: jointly with SCAND 331.

C LIT 332 Folk Belief and World View (5) VLPA Study of folk belief and world view expressed in memorats, legends, magic formulas, and other examples of oral tradition. Analysis of forms and origins of belief genres, their esthetic and social functions, and the role of oral tradition as a tool of social control and change. Offered: jointly with SCAND 332.

C LIT 333 Folklife and Material Culture (5) VLPA Material culture in traditional and contemporary Scandinavia. Comprehensive examination of nonverbal genres (including vernacular architecture, settlement, textile foodways) with an emphasis on broad theoretical issues such as community, identity, ethnicity. Recommended: SCAND 230 or C LIT 230. Offered: jointly with SCAND 333.

C LIT 334 Immigrant and Ethnic Folklore (5) VLPA/I&S Survey of verbal, customary, and material folk traditions in ethnic context. Theories of ethnic folklore research applied to the traditions of American communities of Scandinavian, Baltic, or other European ancestry. Recommended: SCAND 230 or C LIT 230. Offered: jointly with SCAND 334.

C LIT 350 Themes in World Literature: Parents and Children (5) VLPA World literature, from the Renaissance to modern times, based upon the theme of "parents and children." Selections drawn from European, English, and American literature, not limited to period and genre. Focus upon the motive of generational conflict.

C LIT 351 Themes in World Literature: Love, Sex, and Murder (5) VLPA World literature, from the Renaissance to modern times, based upon the theme of "love, sex, and murder." Selections drawn from European, English, and American literature, not limited to period and genre. Focus upon the human potential for both great violence and extraordinary compassion.

C LIT 352 Themes in World Literature: Death and Transfiguration (5) VLPA Theme of death, transfiguration, and new life in world literature. Selections from Tolstoy, D. H. Lawrence, Celine, E. M. Forster, and other major writers.

C LIT 357 Literature and Film (3-5, max. 10) VLPA The film as an art form, with particular reference to the literary dimension of film and to the interaction of literature with the other artistic media employed in the form. Films are shown as an integral part of the course. Content varies.

C LIT 371 Literature and the Visual Arts (5) VLPA Focuses on specific theoretical problems. Examines the relationship between text and image in a variety of art forms including poetry, novels, paintings, photography, essays, comic strips, film, and advertisement. Readings, in English, from a wide variety of national literatures.

C LIT 375 Images of Women in Literature (5, max. 15) VLPA Comparative study of the ways women's image, social role, and psychology have been por-

trayed by writers of various nationalities and literary periods. Selection of theme varies from quarter to quarter. Works are read in English translation.

C LIT 396 Special Studies in Comparative Literature (3-5, max. 10) VLPA Offered by visitors or resident faculty. Content varies.

C LIT 397 Special Topics in Cinema Studies (3-5, max. 10) I&S/VLPA Varying topics relating to film in social contexts. Offered by resident or visiting faculty.

C LIT 400 Introduction to the Theory of Literature (5) VLPA A selection of major theoretical statements in the history of literary theory, with emphasis on fundamental issues of lasting concern and with attention to some recent emphases.

C LIT 410 Studies in Literary History (5, max. 15) VLPA Introduction to a major figure or movement associated with the development of literary history. Through the study of one aspect of literary history students gain a thorough understanding of a particular point of view, while exploring the breadth of contemporary approaches to literature.

C LIT 421 Studies in Connections: Literature and Other Disciplines (5, max. 15) VLPA Examines the links between literature and other disciplines or art forms. Literature and history, literature and philosophy, literature and music, literature and the visual arts are all appropriate topics. Selection of focus depends on instructor.

C LIT 422 Studies in Genre (5, max. 15) VLPA Major genres of world literature: poetry, fiction, drama. Readings, in English from a wide selection of national literatures.

C LIT 424 The Epic Tradition (5) VLPA Ancient and medieval epic and heroic poetry of Europe in English: the Iliad, Odyssey, and Aeneid; the Roland or a comparable work from the medieval oral tradition; pre-Greek forerunners, other Greco-Roman literary epics, and later medieval and Renaissance developments and adaptations of the genre. Choice of reading material varies. Literary background recommended. Offered: jointly with CLAS 424.

C LIT 430 Readings in Folklore (5) VLPA Exploration of theoretical and methodological issues in folklore studies through independent reading of journal articles published during the last five years. Recommended: SCAND 230 or C LIT 230. Offered: jointly with SCAND 430.

C LIT 431 The Northern European Ballad (5) VLPA Integrative study of the Northern European Ballad, with an emphasis on texts, performance, context, history, theory, genre classification, and interpretive approaches. Offered: jointly with SCAND 431.

C LIT 460 Cinematic Production (5) VLPA Examines fictional or documentary filmmaking/video production from concept, focus, treatment, research, data gathering, story development, scripting, narrating, performing and postproduction. Students will be exposed to a wide variety of filmmaking styles and will engage in a group creative project.

C LIT 470 Senior Seminar in Folklore (5) VLPA Investigates ethnic and several American folk traditions in the Pacific Northwest through extensive fieldwork. Recommended: SCAND 230 or C LIT 230. Offered: jointly with SCAND 470.

C LIT 490 Directed Study or Research (1-5, max. 10) Individual study of topics in comparative literature by arrangement with the instructor and the Comparative Literature office.

C LIT 491 Internship (1-5, max. 5) Supervised experience in local businesses and other agencies. Open to upper-division Comparative Literature and Cinema Studies majors. Recommended: 25 credits of C LIT courses.

C LIT 493 Comparative Literature Honors Seminar (5, max. 15) VLPA Special topics in comparative literature. Required of honors students in comparative literature.

C LIT 495 Honors Thesis (5) VLPA Preparation of an honors thesis under the direction and supervision of a faculty member.

C LIT 496 Special Studies in Comparative Literature (3-5, max. 15) VLPA Offered occasionally by visitors or resident faculty. Content varies.

C LIT 497 Special Topics in Cinema Studies (3-5, max. 10) VLPA Varying topics in Cinema Studies. Offered by resident or visiting faculty.

Computer Science

See also Computer Science and Engineering in the College of Engineering section.

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General Catalog Web page:
www.washington.edu/students/genccat/academic/comp_sci.html



Department Web page:
www.cs.washington.edu

Computer science and computer engineering are fields of unparalleled excitement and opportunity, now and for the future—fields where the smartest young men and women are choosing to study and to work. Whether your goal is graduate study and research, employment in the Northwest's vibrant information technology industry, business leadership, or public service, the UW Department of Computer Science and Engineering should be on your "short list." Ranked among the top ten research programs in the nation (along with MIT, Stanford, Berkeley and Princeton), UW CSE's focus on educational excellence was recognized in 1999 by the Brotman Award for Instructional Excellence.

Computer science is the study of information and algorithms within the context of real and abstract computing devices. Computer scientists are interested in such topics as the representation and storage of information; algorithms to access, display, edit, and transform information; programming languages to express algorithms; and hardware and software processors to execute algorithms. These concerns lead to practical developments in computer systems software, such as operating systems and compilers, and in application areas, such as artificial intelligence, computer graphics, and computational biology, and to theoretical investigations of computers, algorithms, and data. The objective of undergraduate education in computer science is to develop broadly educated and competent graduates for professional careers or graduate studies. Especially important is a foundation that will endure as technology advances and changes.

Instructional and Special Research Facilities

The Computer Science Laboratory provides extensive, efficient, and powerful state-of-the-art facilities for undergraduate, graduate, and faculty instruction and research. The equipment base is upgraded frequently. (For an up-to-date description please see the descriptions in the online undergraduate (www.cs.washington.edu/education/ugrad-brochure/handbook.html) and graduate (www.cs.washington.edu/education/grad-brochure/) brochures, available via the department's homepage.) The same is true for the department's software base where there are several modern operating systems including Windows-NT, Unix, Solaris, and Linux, as well as extensive collections of software applications and development tools for each. The department's students have

access to these resources in several laboratories in Sieg Hall and through direct modem access administered by the department. All the department's workstations provide users with full Internet access and nearly all the department's courses make extensive use of the World Wide Web. In addition to general computing laboratories, the department also supports specialized laboratories for computer graphics, hardware, and embedded system design that also support more-advanced computing platforms and software.

Undergraduate Programs

A Bachelor of Science degree in computer science is offered by the Department of Computer Science and Engineering and is administered through the College of Arts and Sciences. The department also offers a Bachelor of Science in Computer Engineering degree, administered through the College of Engineering, and graduate degrees in computer science and engineering. Information concerning the B.S. degree in computer engineering can be found under Computer Science and Engineering in the College of Engineering section of this catalog. The department's Web page should be consulted for the most current information.

The computer science field has a broad base of private- and public-sector jobs suitable for the Bachelor of Science graduate: systems analyst, systems programmer, applications programmer, technical sales and marketing, and hardware or software engineering specialist. In addition, there are jobs for which graduate education may be appropriate: producers and developers of computer systems, and teachers and researchers. The field is also highly valued for practicing entrepreneurship and is considered one of the most vibrant in the sciences. Computers and computing are touching more and more lives more and more often and there is much room for growth in what is still a very young area.

The departmental core requirements of the two undergraduate majors are identical. The computer science major may be more appropriate for students who want to have a double major with another College of Arts and Sciences program (for example, mathematics or economics), who want the additional flexibility of the computer science requirements (the computer engineering major has more required courses and fewer electives), or who may be more interested in the theory, design, and implementation of software systems and applications (for example, the techniques of modern compilers, or the algorithms behind computer graphics and animation).

The computer engineering major may be more appropriate for students who are interested in creating and building systems that include both hardware and software components and must be engineered to meet a variety of cost and performance constraints. The program includes a general foundation in engineering fundamentals to enable interdisciplinary work with other departments in the College of Engineering and the University as a whole.

The core and many senior-level courses are shared between the two programs. Some students may specifically want an engineering degree. Others may want the flexibility of a double major in Arts and Sciences. The department has options for a wide variety of interests and offers a wide range of senior electives that allow students to tailor their program to their interests.

The Department of Computer Science and Engineering cooperates with the departments of Applied Mathematics, Mathematics, and Statistics in an interdepartmental Bachelor of Science degree program in Applied and Computational Mathematical Sciences. The program builds a broad foundation in the mathematical sciences and offers the option of specializing in computer sciences through choice of the Discrete Mathematics and Algorithms Option. Degree requirements can be found in the Applied and Computational Mathematical Sciences section.

Bachelor of Science in Computer Engineering

See Computer Science and Engineering in the College of Engineering section of this catalog.

Bachelor of Science in Computer Science

Adviser

114 Sieg, Box 352350
(206) 543-1695

ugrad-cs-advisor@cs.washington.edu

Admission Requirements: Because resources are limited, students must apply for admission to the computer science program. The application is available online at rdbsrv1.cs.washington.edu/uapp. The *Computer Science & Engineering Handbook for Undergraduates* may be obtained from the main office, 114 Sieg Hall. The Handbook is also available via the department's Web page. The department classifies applicants by admission group. The requirements for each group are described below:

1. **Early Decision Group:** The Department of Computer Science and Engineering enrolls up to 10 percent of its incoming class directly out of high school, prior to the completion of university-level prerequisites. Freshman applicants to the University listing Computer Science or Computer Engineering as their intended major, and who are Washington state residents, are automatically considered. Competitive applicants will have taken calculus and at least one year of laboratory science (preferably physics) upon entering the University. Admission is for autumn quarter only.
2. **Upper-Division Admission Group (UAG):** Students must have completed 45 credits applicable to the degree, including MATH 124, 125, 126 (or MATH 127, 128, 129), PHYS 121/131, CSE/ENGR 142, and CSE 143. Admission is for autumn or spring quarter. Application deadlines are given in the departmental handbook.

Major Requirements:

1. **Mathematics and Science Component** (39 credits): MATH 124, 125, 126 (or 127, 128, 129), 308; MATH/STAT 390; any 300-level MATH course (except MATH 354 and 355), or 2 credits of computer science senior electives (STAT/MATH 394 and 395 together may be substituted for the last two requirements); PHYS 121/131, 122/132, 123/133.
2. **Inner Core Component** (32 credits): CSE/ENGR 142; CSE 143, 321, 322, 326, 341, 370, 378.
3. **Outer Core Component** (minimum of four courses): CSE 401, 403, 421, 431, 444, 451, 457, 471, and 473.
4. **Elective Component** (minimum of 7 credits): 400-level CSE courses (not including those used to satisfy the Outer Core), up to 6 credits of CSE 498, and courses chosen from the approved senior-elective course list.

Graduate Program

For information on the Computer Science and Engineering graduate program, see the graduate and professional volume of the *General Catalog* or visit the *General Catalog* online at www.washington.edu/students/gencat/.

Dance

258 Meany



General Catalog Web page:
www.washington.edu/students/gencat/academic/dance.html



Department Web page:
depts.washington.edu/uwdance/

The dance program is designed as part of a liberal arts curriculum and provides students with a foundation for future advanced work in performance or movement-related work. It is recommended that majors supplement their dance studies with work that will provide a foundation for later specialization in dance ethnology, dance history and criticism, performance art, education, movement therapy, or movement science.

Undergraduate Program

Adviser

Susanne Recordon
255 Meany, Box 351150
(206) 543-0550

uwdance@u.washington.edu

The program in dance offers a program of study that leads to a Bachelor of Arts degree. It is recommended, however, that majors supplement their dance studies with work that will provide a foundation for later specialization in dance ethnology, dance history and criticism, performance art, education, movement therapy, or movement science. The dance program also offers a minor.

Student Associations: Dance Student Association.

Bachelor of Arts

Admission Requirement: Admission to the dance major is twice yearly: autumn for winter quarter admission, and spring for autumn quarter admission. Applicants should have completed or be currently enrolled in a dance-technique course. Applications must be made by the fifth week of the quarter. Transfer students and out-of-area freshmen should consult the department for possible audition arrangements.

Major Requirements: Minimum 70 credits in dance to include DANCE 166, 234, 266, 270 (2 credits, 1 crew minimum), 344, 345, 366, 390, 420, 480, 493; 28 credits from the following (12 credits minimum at the 200-level or above; 6 credits minimum in both ballet and modern dance): DANCE 104, 105, 106; 107, 108, 109; 110, 111, 112; 201, 202, 203; 204, 205, 206; 210, 211, 212; 230; 301, 302, 303; 304, 305, 306; 310, 311, 312; 401, 402, 403; 404, 405, 406.

Minor

Minor Requirements: Minimum 25 credits to include 10 credits from DANCE 166, 234, 344, 345, 493; and 15 credits from DANCE 104, 105, 106, 107, 108, 109, 110, 111, 112, 201, 202, 203, 204, 205, 206, 210, 211, 212, 301, 302, 303, 304, 305, 306.

Graduate Program

For information on the Dance program's graduate program, see the graduate and professional volume of the *General Catalog* or visit the *General Catalog* online at www.washington.edu/students/gencat/.

Faculty

Acting Chair

Sarah N. Gates

Professors

Boris, Ruthanna 1965, (Emeritus); DTR, 1946, American Dance Therapy Association; ballet technique and dance therapy.

Knapp, Joan S. * 1981, (Emeritus); MA, 1964, University of Illinois; dance composition, improvisation, kines-thetic training.

Wiley, Hannah * 1984; MA, 1981, New York University; ballet, scientific aspects of dance, choreography, dance in higher education.

Assistant Professors

Novak, Marsha 1990, (Affiliate); MS, 1982, University of Washington.

Parker, Rip * 1989; MFA, 1992, University of Washington; artists and their work in relation to history, choreography.

Simpson, Maria Quinlan * 1994; MFA, 1996, University of Washington; physical challenges of dance techniques, ballet, modern dance.

Lecturer

Kitsos, Robert R. 1995; MFA, 1997, University of Washington; dance aesthetics, choreography, contemporary popular styles.

Course Descriptions

See page 48 for an explanation of course numbers, symbols, and abbreviations.

For graduate-level course descriptions, see the graduate and professional study volume of the *General Catalog* or visit the online course catalog at www.washington.edu/students/crscat/.

DANCE 101 Introduction to Dance (5) VLPA Introduction to dance as an art form. Lectures in dance appreciation. Studio experience in ballet and modern dance techniques. Attendance required at outside events.

DANCE 102 Introduction to Dance (5) VLPA Introduction to dance as an art form. Lectures in dance appreciation. Studio experience in ballet and modern dance techniques. Attendance required at outside events. Prerequisite: DANCE 101.

DANCE 103 Introduction to Dance (5) VLPA Introduction to dance as an art form. Lectures in dance appreciation. Studio experience in ballet and modern dance techniques. Attendance required at outside events. Prerequisite: DANCE 102.

DANCE 104 Modern Technique (* max. 8) VLPA Advanced beginning. Continued development of all beginning areas and expansion of movement vocabulary.

DANCE 105 Modern Technique (* max. 8) VLPA Advanced beginning. Continued development of all beginning areas and expansion of movement vocabulary.

DANCE 106 Modern Technique (* max. 8) VLPA Advanced beginning. Continued development of all beginning areas and expansion of movement vocabulary.

DANCE 107 Ballet Technique I (* max. 8) VLPA Advanced beginning. Continued development of all beginning areas. Expansion of ballet vocabulary.

DANCE 108 Ballet Technique I (* max. 8) VLPA Advanced beginning. Continued development of all beginning areas. Expansion of ballet vocabulary.

DANCE 109 Ballet Technique I (* max. 8) VLPA Advanced beginning. Continued development of all beginning areas. Expansion of ballet vocabulary.

DANCE 110 Jazz Technique I (2, max. 4) VLPA Introduction to jazz technique. Dance performance attendance required.

DANCE 111 Jazz Technique I (2, max. 4) VLPA Introduction to jazz technique. Dance performance attendance required.

DANCE 112 Jazz Technique II (2, max. 4) VLPA Introduction to jazz technique. Dance performance attendance required.

DANCE 166 Dance Composition I (5) VLPA Introduction to the principles of dance composition through improvisation.

DANCE 201 Ballet Technique II (* max. 8) VLPA Intermediate. Expansion of ballet vocabulary.

DANCE 202 Ballet Technique II (* max. 8) VLPA Intermediate. Expansion of ballet vocabulary.

DANCE 203 Ballet Technique II (* max. 8) VLPA Intermediate. Expansion of ballet vocabulary.

DANCE 204 Modern Dance Technique II (* max. 8) VLPA Intermediate. Expansion of movement vocabulary.

DANCE 205 Modern Dance Technique II (* max. 8) VLPA Intermediate. Expansion of movement vocabulary.

DANCE 206 Modern Dance Technique II (* max. 8) VLPA Intermediate. Expansion of movement vocabulary.

DANCE 210 Jazz Technique II (2, max. 4) VLPA Intermediate-level jazz technique. Continued development of beginning areas. Expansion of movement vocabulary. Dance performance attendance required.

DANCE 211 Jazz Technique II (2, max. 4) VLPA Intermediate-level jazz technique. Continued development of beginning areas. Expansion of movement vocabulary. Dance performance attendance required.

DANCE 212 Jazz Technique II (2, max. 4) VLPA Intermediate-level jazz technique. Continued development of beginning areas. Expansion of movement vocabulary. Dance performance attendance required.

DANCE 230 Alternative Movement Studies (3, max. 9) VLPA Introduction to an alternative approach to movement study. Topics vary. Offered: W.

DANCE 234 World Dance and Culture (3) VLPA/I&S Survey course presenting selected dance idioms as they relate to ethnicity in their performance, aesthetics, and history. May have studio component. Offered: alternate years; A.

DANCE 266 Dance Composition II (5) VLPA Dance composition in relation to music. Emphasis on solos and small groups. Prerequisite: DANCE 166. Offered: alternate years.

DANCE 270 Dance Performance Activities (1-3, max. 9) VLPA Performance in a dance or work on a crew for a dance production, either a studio showing or public performance, conducted under faculty supervision. Credit/no credit only.

DANCE 301 Ballet Technique III (* max. 8) VLPA Advanced-intermediate level: continued development and expansion in all areas of technique.

DANCE 302 Ballet Technique III (* max. 8) VLPA Advanced-intermediate level: continued development and expansion in all areas of technique.

DANCE 303 Ballet Technique III (* max. 8) VLPA Advanced-intermediate level: continued development and expansion in all areas of technique.

DANCE 304 Modern Dance Technique III (1-8, max. 8) VLPA Intermediate-advanced. Dance sequences of greater complexity.

DANCE 305 Modern Dance Technique III (1-8, max. 8) VLPA Intermediate-advanced. Dance sequences of greater complexity.

DANCE 306 Modern Dance Technique III (1-8, max. 8) VLPA Intermediate-advanced. Dance sequences of greater complexity.

DANCE 344 Ballet History (5) VLPA/I&S Parker Survey of ballet history. Offered: A.

DANCE 345 Modern Dance History (5) VLPA/I&S Parker Survey of modern dance history. Offered: Sp.

DANCE 366 Dance Composition III (5) VLPA Dance composition in relation to production. Emphasis on larger group works. Prerequisite: DANCE 266. Offered: alternate years; Sp.

DANCE 390 Dance Teaching Methodologies (3) VLPA Wiley Introduction to dance pedagogy, including educational theory, motor learning, and biomechanical principles and music as it relates to the teaching of dance. Offered: alternate years; W.

DANCE 420 Dance Aesthetics (3) VLPA/I&S Philosophical investigation of the expressive elements of dance. Reading and discussion of the concepts of beauty, style, and aesthetic theory.

DANCE 480 Senior Seminar (3) VLPA Culminating project emphasizing a synthesis of experiences in the Dance Program with a focus on individual interests. Offered: A.

DANCE 490 Special Studies in Dance (1-3, max. 10) VLPA Special studies designed to address contemporary and historical concerns in the field of dance.

DANCE 493 Anatomy for Dance (3) VLPA/NW Simpson Anatomy of the musculoskeletal system and its applications in dance movement. Offered: alternate years; W.

DANCE 499 Undergraduate Independent Study (* max. 6)

Drama

101 Hutchinson



General Catalog Web page:
www.washington.edu/students/gencat/academic/drama.html



Department Web page:
ascc.artsci.washington.edu/drama/

The School of Drama offers undergraduate instruction in acting, directing, design, theatre history, and dramatic theory within the context of a liberal arts degree. The School uses four theatres including the Penthouse (the first theatre-in-the-round built in the United States), the thrust-stage Playhouse, the end-stage Studio Theatre, and the proscenium opera house in Meany Hall. Faculty- and student-directed plays drawn from the full range of world dramatic literature are produced throughout the year. The School also produces operas in association with the School of Music and utilizes two performance spaces in Hutchinson Hall for student work. All of these provide a rich opportunity for student participation in all aspects of dramatic art.

Undergraduate Program

Adviser
129 Hutchinson, Box 353950
(206) 543-4204
uwdrama@u.washington.edu

The School of Drama provides to Bachelor of Arts students a well-rounded major as a means to an enriched artistic expression, as a foundation to further study, and for the cultivation of essential life skills: teamwork, communication, critical thinking, and imagination. The School of Drama also offers a minor.

Bachelor of Arts

Admission Requirements: Two of the following: DRAMA 210, 211, 212; one of the following: 290, 291, 292; 251 and 302; and a minimum GPA of 2.50 for the five courses.

Continuation Policy: Drama majors who fall below a 2.00 GPA in drama courses will be placed on probation for one quarter. Students who fail to raise their GPA to 2.00 in that time are dropped from the major and returned to premajor status. Students may petition the School of Drama for readmission.

Major Requirements: A minimum of 62 credits in drama courses. Three quarters of acting: DRAMA 251, 252, 253, or equivalent. Six quarters of technical theatre: DRAMA 210, 211, 212, 290, 291, 292. 25 credits in theatre history, dramatic literature, and criticism: DRAMA 302; one of 374, 377, 471, 472; one of 473, 475, 476; one of 371, 373, 416, 494, plus one additional course from the three preceding groups; 10 credits of electives at the 300 and 400 levels to complete the balance. Majors are required to register for DRAMA 401 each quarter they are in residence.

Minor

Minor Requirements: 34 credits consisting of DRAMA 101, 210, 211, 212, 251, 252, 253, 371. (DRAMA 290, 291, and 292 recommended.)

Graduate Program

For information on the School of Drama's graduate program, see the graduate and professional volume of the *General Catalog* or visit the *General Catalog* online at www.washington.edu/students/gencat/.

Faculty

Chair

Sarah N. Gates

Professors

Clay, Jack D. * 1986, (Emeritus); MA, 1956, Northwestern University; acting.

Comtois, Mary Elizabeth * 1985, (Emeritus); PhD, 1970, University of Colorado (Boulder); playwrighting.

Crider, James R. * 1952, (Emeritus); MA, 1950, University of Washington; costume design.

Dahlstrom, Robert A. * 1971; MA, 1967, University of Illinois; scene design.

Gates, Sarah N. * 1983; MA, 1974, University of California (Santa Barbara); MFA, 1983, Boston University; costume design.

Haaga, Agnes M. 1947, (Emeritus); MA, 1952, Northwestern University; child drama.

Hostetler, Paul S. * 1974, (Emeritus); PhD, 1965, Louisiana State University; theatre history, directing.

Jones, Frank W. 1955, (Emeritus); PhD, 1941, University of Wisconsin; MA, 1955, Oxford University (UK); translation, twentieth-century theatre, poetry.

Jory, Jon 2000; directing, acting.

Loper, Robert B. * 1967, (Emeritus); PhD, 1957, University of Birmingham (UK); acting, directing.

Pearson, Steven * 1989; MFA, 1978, Carnegie Mellon University; professional actor training and modern Japanese theatrical techniques.

Siks, Geraldine B. 1949, (Emeritus); MA, 1940, Northwestern University; child drama.

Sydow, John D. 1970, (Emeritus); MFA, 1950, Yale University; directing.

Witham, Barry B. * 1979; PhD, 1968, Ohio State University; modern theatre history.

Associate Professors

Forrester, William D. * 1972; MFA, 1969, Yale University; scene design.

Geiger, Mary L. * 1993; MFA, 1985, Yale University; lighting design.

Hunt, Robyn * 1988; MFA, 1978, University of California (San Diego); actor training, cross cultural performances, techniques, and script writing.

Jenkins, Mark F. * 1989; the Stanislavsky approach to acting; acting, directing.

Valentinetti, Aurora 1943, (Emeritus); MA, 1949, University of Washington; puppetry.

Assistant Professors

Curtis-Newton, Valerie * 1993; MA, 1996, University of Washington; directing, acting, African-American theatre history.

Johnson, David Odai * 1998; PhD, 1994, University of Texas (Austin); theatre history, especially English Restoration and 18th century.

Parker, Shanga Kyle Gerard * 1994; MFA, 1991, University of California (San Diego); acting, directing, acting in verse.

Redd, Tina * 1993; PhD, 1996, University of Washington; dramatic theory and criticism, emphasis on representations of race and gender.

Wolcott, John R. * 1967, (Emeritus); PhD, 1967, Ohio State University; theatre history, computing in theatre research.

Senior Lecturers

Harrison, Mark Jeffrey * 1997; PhD, 1989, New York University; theatre and opera, directing.

Shahn, Judith * 1990; BFA, 1977, Carnegie Mellon University; voice production for the theatre, dialects, Shakespeare and modern text.

Lecturers

Burke, Thomas D. * 1994; MFA, 1988, University of Washington; CAD, technical theatre.

Trout, Deborah L. * 1994; MFA, 1994, Yale University; costume design.

Artist in Residence

Madden, Catherine M. 1987; MA, 1977, Washington University; Alexander technique, acting.

Course Descriptions

See page 48 for an explanation of course numbers, symbols, and abbreviations.

For graduate-level course descriptions, see the graduate and professional study volume of the *General Catalog* or visit the online course catalog at www.washington.edu/students/crscat/.

DRAMA 101 Introduction to the Theatre (5) VLPA *Redd* The theatre as an art form with emphasis on the play in production. The role of the various theatre artists: actors, directors, designers, and playwrights. Required attendance at one or more performances. Lecture and discussion groups. For nonmajors. Offered: AWP.

DRAMA 201 Play Analysis (5) VLPA Play structure through analysis of one-act plays in all genres, with special attention to plotting and the various means used to achieve a unity of action as the basis of all drama.

DRAMA 210 Theatre Technical Practice (4) VLPA *Burke* Intensive lecture-laboratory in basic theories, techniques, and equipment of the stage. Technical procedures.

DRAMA 211 Theatre Technical Practice (4) VLPA *Trout* Intensive lecture-laboratory in basic theories, techniques, and equipment of the stage. Costumes.

DRAMA 212 Theatre Technical Practice (4) VLPA *Geiger* Intensive lecture-laboratory in basic theories, techniques, and equipment of the stage. Stage lighting.

DRAMA 251 Acting (4) VLPA Theory and practice of fundamentals of American "method," based on principles of Stanislavsky and their American evolution. Development of basic acting skills through monologue work. Offered: A.

DRAMA 252 Acting (4) VLPA Theory and practice of fundamentals of American "method," based on principles of Stanislavsky and their American evolution. Direct application of methodology through scene work. Recommended: DRAMA 251. Offered: W.

DRAMA 253 Acting (4) VLPA Theory and practice of fundamentals of American "method," based on principles of Stanislavsky and their American evolution. Preparation of audition material and scene work within the context of entire play. Recommended: DRAMA 251; DRAMA 252. Offered: Sp.

DRAMA 259 Performance Practicum (2-6, max. 12) VLPA Special work in various aspects of performance technique.

DRAMA 290 Theatre Technical Practices Laboratory (1-3, max. 3) VLPA Laboratory course involving specific production assignment, either in-shop or in-theatre or both. Offered: AWP.

DRAMA 291 Theatre Technical Practices Laboratory (1-3, max. 3) VLPA Laboratory course involving specific production assignment, either in-shop or in-theatre or both. Offered: AWP.

DRAMA 292 Theatre Technical Practices Laboratory (1-3, max. 3) VLPA Laboratory course involving specific production assignment, either in-shop or in-theatre or both. Offered: AWP.

DRAMA 298 Theatre Production (1-2, max. 9) VLPA Laboratory course for students participating in School of Drama minor productions and projects. Credit/no credit only. Offered: AWP.

DRAMA 302 Critical Analysis of Theatre (5) VLPA Analyses of plays, based on leading critical traditions. Illustrates variety of approaches to a play, criteria for choosing best approach for a given play, and ways in which criticism aids in understanding dramatic effect, for both reader and practitioner. Offered: AWP.

DRAMA 305 Computers in the Theatre (5) VLPA *Burke* Computing and information systems as problem solving tools for the theatre. Analysis of problems in theatre production and scholarship, with approaches to solutions through computing. Database, spreadsheet, and CAD system applications in the practice and study of lighting and scenic design, theatre management, and research in theatre history and criticism.

DRAMA 313 Scenery Construction (3) VLPA *Burke* Survey of materials, processes, and equipment in the fabrication, assembly, painting, rigging, and installation of stage scenery and properties. Recommended: DRAMA 210.

DRAMA 314 Introduction to Design for the Performing Arts (3) VLPA *Forrester* Survey of the role of design (scenery, costume, lighting, and sound) in the contemporary performing arts. Consideration of communicative mission and limitations of each of the design areas. Recommended: DRAMA 210; DRAMA 211; DRAMA 212.

DRAMA 316 Theatrical Makeup (2) VLPA Basic principles, with intensive practice in application of makeup for use on proscenium and arena stages. Open to nonmajors.

DRAMA 350 Introduction to Acting Methods (4) VLPA Advanced scene study from three actor-training viewpoints. Approach based in the American Method through such proponents as Adler, Strasberg, Hagen, Meisner. Exposure to more physically-based systems such as Alexander and Suzuki included. Recommended: DRAMA 252 or equivalent.

DRAMA 351 Intermediate Acting-Scene Study (4) VLPA *Parker* Actor-training methodologies of Stanislavsky, Meyerhold, Michael Chekov, and other physically-based approaches. Increases understanding of psychological motivation, concentration, focus of attention, clarity of physical expressiveness. Perform three scenes. Recommended: one of DRAMA 210, DRAMA 211, DRAMA 212; and two of DRAMA 290, DRAMA 291, DRAMA 292; DRAMA 253; audition; and two credits of DRAMA 466 within two quarters. Offered: A.

DRAMA 352 Intermediate Acting-Verse (4) VLPA *Parker* Addresses character motivation within classical verse of Shakespeare, Moliere, Racine, etc. Sonnets, monologues, scenes in iambic pentameter and rhyming couplet, exploring rhythm, music, and how these relate to character psychology, motivation. Recommended: one of DRAMA 210, DRAMA 211, DRAMA 212; and two of DRAMA 290, DRAMA 291, DRAMA 292; DRAMA 253; audition; and two credits of 466 within two quarters. Offered: A.

DRAMA 353 Intermediate Acting - Production (4) VLPA *Curtis-Newton* Explores Ten-Minute Play. Focus shifts to full-length play script, developing ensemble playing, sustained concentration, focus of attention, character motivation, and extended through-line. Culminates in public performance. Recommended: one of DRAMA 210, DRAMA 211, DRAMA 212; two of DRAMA 290, DRAMA 291, DRAMA 292; audition; and 2 credits of 466 within two quarters. Offered: Sp.

DRAMA 365 Ethnic Studies in Drama (3-5, max. 15) VLPA/I&S *Curtis-Newton* Theatre and plays, post World War II to the present. Style, content, and context explored. Emphasis on social, political, and economic milieu from which theatre arose. Playwrights studied may include Alice Childress, August Wilson, Lynn Nottage, Percy Mtwa, Luis Valdez, and Maria Fomes.

DRAMA 371 Theatre and Society (5) VLPA/I&S Introduction to the history of the theatre from the Greeks to the present day. Development of the theatre as a social institution. Reading of major texts from each period. Prerequisite: DRAMA 302.

DRAMA 373 Women in Theatre (5) VLPA *Redd* Examines both the inclusion and exclusion of women by the cultural practice of theatre. Has two primary aims: to provide an historical overview of women in playwriting, acting, directing and criticism, and to apply contemporary social issues to the practice, texts, and criticism of the stage. Prerequisite: DRAMA 302.

DRAMA 374 History of Greek and Roman Theatre (5) VLPA *Johnson* Survey of Classical and Hellenistic Greek and Roman theatre culture, including texts, architecture, iconography, scenic practices, and conventions of performance from the Festival of

Dionysus to the bloodsports of the Roman arenas. Prerequisite: DRAMA 302.

DRAMA 377 History of Medieval and Renaissance Theatre (5) VLPA *Johnson* Survey of the rise of theatre from the early liturgical drama through the High Middle Ages to the Reformation and the great flowering of secular drama in Elizabethan England and the Golden Age of Spain. Prerequisite: DRAMA 302.

DRAMA 378 History of European Theatre, Renaissance to Revolution (5) VLPA Survey of the drama, theatre, and theatre culture from the Italian Renaissance through the French Revolution. Examines the rise of court culture, opera, French neo-classicism, as well as the popular commedia dell'Arte. Prerequisite: DRAMA 302.

DRAMA 391 Beginning Technical Practices (1-3, max. 9) VLPA Laboratory course involving specific production assignments, either in-shop or in-theatre, or both. Recommended: DRAMA 290; DRAMA 291; DRAMA 292.

DRAMA 401- Drama Colloquium ([0-1]-, max. 4) VLPA *Gates* A professional seminar featuring guest artists and career development specialists. Recommended for prospective Drama majors and required for admitted majors. Offered: AWP.

DRAMA 405 Computer Graphics Systems (3) VLPA *Burke* Introduction to CAD applications in theatre design and technology. Focus on learning to use general purpose graphics software for CAD. Discussion of available hardware and software. Recommended: DRAMA 420. Offered: A.

DRAMA 410 Advanced Theatre Technical Practices (2-4, max. 20) VLPA Production-related apprenticeship, in the areas of scene construction, scene painting, costume, or lighting. Recommended: DRAMA 210; DRAMA 211; DRAMA 212; DRAMA 418. Offered: AWP.

DRAMA 413 Advanced Scene Construction (3) VLPA *Burke* Special problems in scene construction materials and rigging. Recommended: DRAMA 210; DRAMA 212; DRAMA 290; DRAMA 292; DRAMA 410; DRAMA 420.

DRAMA 414 Scene Design (3, max. 6) VLPA *Dahlstrom, Forrester* Theory, practice, and rendering of scene designs. Repeat of course involves intermediate designs and models. Recommended: ART H 203; DRAMA 210.

DRAMA 415 Stage Costume Design (3, max. 6) VLPA Theory, practice, and rendering of costume designs for the theatre. Repeat of course involves intermediate designs. Recommended: ART H 203; DRAMA 211; 416 if repeating.

DRAMA 416 History of Western Dress (5) VLPA *Gates* Survey history of Western dress. Emphasis on use of this information by theatrical costume designers. Includes development of costume for drama, ballet, and opera. Prerequisite: DRAMA 302.

DRAMA 417 Stage Costume Patterning and Construction (3, max. 6) VLPA Techniques of costume construction, including study of fabrics; emphasis on creating patterns by draping. Recommended: DRAMA 211; DRAMA 416.

DRAMA 418 Scene Painting (3, max. 6) VLPA *Forrester* Lecture-laboratory with focus on techniques and principles of scene painting. Uses of various media and types of equipment as applicable to varied scenic pieces. Recommended: DRAMA 210.

DRAMA 419 Advanced Stage Lighting Design (3, max. 9) VLPA *Geiger* Development of a working process consistent with current professional practice. Includes drafting, worksheets, study of color.

Students read plays and develop analytical skills. Recommended: DRAMA 212.

DRAMA 420 Design and Technical Drafting (2, max. 4) VLPA Laboratory and project critique covering stage design graphics and technical drawing; specifically: designer's elevations, ground plans, sections, detail drawing, transposition of design drawing information to technical drawings. Recommended: DRAMA 210.

DRAMA 421 Drawing and Rendering Techniques for the Theatre (2, max. 10) VLPA *Forrester* Weekly figure-drawing laboratories with live model and weekly field trips for laboratories in drawing natural phenomena and architectural detail. Studies in historical drawing styles. Practice in use of several media and techniques of expression. Recommended: DRAMA 210; DRAMA 211.

DRAMA 441 Beginning Playwriting (1-6, max. 12) VLPA Writing exercises and drafts of a one-act play provide first experience in writing for performance. Readings of representative one-act plays introduce genres and writing styles. Recommended: DRAMA 253 or DRAMA 353; DRAMA 210; DRAMA 211; DRAMA 212.

DRAMA 450 Rehearsal Laboratory (2, max. 6) VLPA Acting in projects directed by graduate directing students. Recommended: DRAMA 253.

DRAMA 454 Projects in Acting (3, max. 9) VLPA Rehearsal and classroom performance of dramatic literature of various periods and styles.

DRAMA 455 Alexander Technique (3) VLPA *Madden* A practical and theoretical introduction to the Alexander Technique, a psychophysical re-education process developed by F. M. Alexander (1869-1955). Studio application of this work improves physical/vocal coordination, enhances creativity, and clarifies thinking.

DRAMA 460 Introduction to Directing (3) VLPA *Harrison* Student is introduced to the art of the stage director. Recommended: DRAMA 210; DRAMA 211; DRAMA 212; DRAMA 253 or DRAMA 353; DRAMA 302. Offered: A.

DRAMA 461 Elementary Directing (3) VLPA *Harrison* Elementary study of the art of the stage director. Recommended: DRAMA 460.

DRAMA 462 Elementary Directing (3) VLPA *Harrison* Elementary study of the art of the stage director. Recommended: DRAMA 461.

DRAMA 466 Stage Management (2-5, max. 15) VLPA *Stewart* Study and practice of stage management. Recommended: DRAMA 210; DRAMA 211; DRAMA 212; DRAMA 290; DRAMA 291; DRAMA 292.

DRAMA 471 History of the English Restoration and 18th Century Theatre (5) VLPA Examination of the relationship of the physical theatre and the productions that took place within that theatre. Particular emphasis on the text performed, styles of acting, scenic elements, and the critical theories that influenced the theatre of the period. Prerequisite: DRAMA 302.

DRAMA 472 European and American Theatre, Revolution to Modernism (1780-1920) (5) VLPA Survey of the drama, theatre, and theatre culture from the French Revolution into the beginnings of Modernism; social and political aspects of theatre, rise of Romanticism, melodrama, and variety entertainment through the 19th century to the artistic revolution that paved the way for modern theatre. Prerequisite: DRAMA 302.

DRAMA 473 Modern European Theatre and Drama (5) VLPA *Witham* Major movements and figures in contemporary European theatre from French absurdism to the present. Prerequisite: DRAMA 302.

DRAMA 475 Modern English Theatre and Drama (5) VLPA *Witham* Major trends in contemporary English theatre, post-World War II to the present. Performers, dramatists, and designers who shaped the course of the theatre following the "angry young rebellion" of the 1950s. Prerequisite: DRAMA 302.

DRAMA 476 Modern American Theatre and Drama (5) VLPA *Witham* Major forces shaping modern American theatre, Eugene O'Neill to the present. Leading dramatists, directors, and designers of the post-World War II era. Experiments such as the Federal Theatre Project, Group Theatre, and Living Theatre. Prerequisite: DRAMA 302.

DRAMA 490 Special Studies in Acting-Directing (1-6, max. 12) VLPA

DRAMA 491 Special Studies in Design-Technical (1-6, max. 6) VLPA

DRAMA 494 Special Studies in Theatre and Drama (5, max. 20) VLPA *Johnson, Redd, Witham* Topics in drama, history, and criticism. See Time Schedule for specific topic. Prerequisite: DRAMA 302.

DRAMA 495 Practicum in Design and Technical Theatre (2-6, max. 15) VLPA Emphasis on developing design and technology problem-solving skills through laboratory and project evaluation. Recommended: DRAMA 211, DRAMA 212, DRAMA 313.

DRAMA 496 Stage Costume Problems (2, max. 8) VLPA Specific research problems of stage costume design and execution: accessories, masks, wigs, fabric modification, millinery or construction analysis for specialized costumes. Topics vary. Recommended: DRAMA 211; DRAMA 416.

DRAMA 498 Theatre Production (1-2, max. 9) VLPA Laboratory course for students participating in School of Drama major productions. Credit/no credit only. Offered: AWP.

DRAMA 499 Undergraduate Research (1-5, max. 15)

Economics

302 Savery



General Catalog Web page:
www.washington.edu/students/gencat/academic/economics.html



Department Web page:
www.econ.washington.edu

The Department of Economics is concerned with the analysis of the ways in which societies organize the production of goods and services and the distribution of these among groups and individuals.

Undergraduate Program

Advisers
304 Savery, Box 353330
(206) 543-5794
econadv@u.washington.edu

The Department of Economics offers two undergraduate degrees that differ in both admission and graduation requirements.

The Bachelor of Arts degree is designed to provide a general background in economics for the vast majority of students seeking employment in a variety of areas after graduation. It also provides the flexibility and social science training to prepare some students for many masters-level graduate programs in other disciplines as well as professional schools such as law and medicine.

The Bachelor of Science degree requires more mathematics (one year of calculus) for admission and its graduation requirements have a more pronounced quantitative emphasis. It is designed to provide undergraduates a rigorous background in mathematics, statistics, and economic theory for graduate study in economics leading to an M.A. or a Ph.D. for academic, government, and other professional careers. It also prepares students for more scientifically and technically oriented employment positions, such as actuaries, demographers, financial analysts, and environmental consultants.

Applied fields of study available to the student include money and banking, industrial organization, natural resource economics, labor economics, public finance, economic history, comparative systems and development, international trade, and econometrics.

Bachelor of Arts

Admission Requirements:

1. A minimum cumulative GPA for all prior college work of 2.80.
2. Completion of at least 45 transferable credits.
3. Completion of the following courses with a cumulative GPA of 2.80 and a minimum grade of 2.0 in each course: ECON 200, 201; ECON 311/STAT 311; MATH 112, 124, 127, 134, or 145; 5-credit English composition course.
4. Transfer students must be enrolled at the UW before applying to the major.

Additional Information: Courses accepted in transfer as ECON 1XX or 2XX cannot be applied to the major requirements unless courses equivalent to ECON 200 and 201 were required as prerequisites. ECON X courses not having these prerequisites may be applied to the elective component of the degree requirements.

Major Requirements: (1) Admission to the major; (2) a minimum of 50 credits in economics, including ECON 200, 201, 300, 301, 311 (or STAT 311), and at least five other upper-division courses in economics at the 400 level, excluding ECON 496, 497, and 499; (3) grades of 2.0 or better in ECON 300 and 301; (4) one calculus course (MATH 112, 124, 127, 134, 145, or equivalent); (5) transfer students are required to complete a minimum of 25 upper-division economics credits in residence at the UW.

Bachelor of Science

Admission Requirements: (1) A minimum of 45 transferable credits, including ECON 200, 201, 311 (or STAT 311, 341, or 390), MATH 124, 125, 126 (or MATH 127, 128, 129, or MATH 134, 135, 136), and one 5-credit course in English composition (ENGL 104-105, 111, 121, 131, 197, 198, 199, 281, C LIT 240); (2) a minimum cumulative GPA for all prior college work of 2.80; (3) GPA for five of the seven courses required for entrance must be at least 2.80 with a minimum grade of 2.0 for each course; (4) transfer students must be enrolled at the UW before they may apply.

Major Requirements: (1) Admission to the major; (2) a minimum of 50 credits in economics, including ECON 200, 201; 300H, 301H (or 300, 301); 400 (or equivalent) or 401; at least 10 additional credits chosen from the following courses: ECON 400 (or equivalent) or 401, 454, 473, 481 (or equivalent), 482, 483, 485; at least 15 additional credits at the 400 level, excluding ECON 496, 497, and 499; (3) grades of 2.0 or better in ECON 200, 201, 300H (or 300), and 301H (or 301); (4) transfer students are required to complete a minimum of 25 upper-division economics credits in residence at the UW.

Graduate Program

For information on the Department of Economics graduate program, see the graduate and professional volume of the *General Catalog* or visit the *General Catalog* online at www.washington.edu/students/genocat/.

Faculty

Chair

Richard Startz

Professors

Barzel, Yoram * 1961; MA, 1956, Hebrew University (Israel); PhD, 1961, University of Chicago; price theory, political economy, property rights.

Brown, Gardner * 1965; PhD, 1964, University of California (Berkeley); resource and environmental economics.

Bruce, Neil * 1990; PhD, 1975, University of Chicago; public finance (economics of the public sector), especially taxation.

Crutchfield, James A. * 1960, (Emeritus); PhD, 1954, University of California (Berkeley); natural resources economics, policy and management, especially marine and environmental resources.

Deolalikar, Anil B. * 1989; PhD, 1981, Stanford University; economic development, economics of human capital, economics of population, technology transfer.

Engel, Charles M. * 1991; PhD, 1983, University of California (Berkeley); international monetary economics.

Halvorsen, Robert * 1972; PhD, 1973, Harvard University; environmental and natural resource economics.

Hartman, Richard C. * 1971; PhD, 1971, University of California (Berkeley); economic theory.

Lundberg, Shelly J. * 1984; PhD, 1981, Northwestern University; labor economics.

Madden, Carolyn Watts * 1984, (Adjunct); MA, 1974, PhD, 1976, Johns Hopkins University; health economics and policy.

Mah, Feng-Hwa * 1961, (Emeritus); PhD, 1959, University of Michigan; Chinese economy and foreign trade.

McCaffree, Kenneth M. * 1949, (Emeritus); PhD, 1950, University of Chicago; labor economics and the economics of medicine.

McGee, John S. * 1966, (Emeritus); PhD, 1952, Vanderbilt University; industrial organization.

Morris, Morris D. 1949, (Emeritus); PhD, 1954, University of California (Berkeley); economic history and the economy of India.

Nelson, Charles R. * 1975; PhD, 1969, University of Wisconsin; econometric analysis of time series data, financial markets, monetary economics.

North, Douglas C. 1950, (Emeritus); PhD, 1952, University of California (Berkeley); economic history.

Parks, Richard * 1970; PhD, 1966, University of California (Berkeley); microeconomics, econometrics, finance.

Plotnick, Robert D. * 1984, (Adjunct); MA, 1973, PhD, 1976, University of California (Berkeley); poverty, labor and social welfare policy, economic policy analysis.

Silberberg, Eugene * 1967; PhD, 1964, Purdue University; microeconomics.

Startz, Richard * 1984; PhD, 1978, Massachusetts Institute of Technology; macroeconomics, econometrics, economics of race, finance.

Thornton, Judith Ann * 1961; PhD, 1960, Harvard University; transition economics, natural resources.

Turnovsky, Stephen J. * 1987; PhD, 1968, Harvard University; macroeconomics and growth, international economics, theory of economic stabilization.

Wong, Kar-Yiu * 1983; PhD, 1983, Columbia University; international trade and commercial policy.

Associate Professors

Brock, Philip L. * 1991; PhD, 1982, Stanford University; economic liberalization with emphasis on financial markets and capital accumulation.

Hadjimichalakis, Michael * 1969; PhD, 1970, University of Rochester; monetary theory and policy, macroeconomics, growth, Federal Reserve.

Huppert, Daniel D. * 1987, (Adjunct); PhD, 1975, University of Washington; economics and management of natural resources, especially marine fisheries.

Khalil, Fahad A. * 1991; PhD, 1991, Virginia Polytechnic Institute and State University; industrial organization, theory of contracts.

Kochin, Levis A. * 1972; PhD, 1975, University of Chicago; macroeconomics, industrial organization, financial economics.

Lawarree, Jacques P. * 1990; PhD, 1990, University of California (Berkeley); industrial organization, contract theory, game theory.

Leffler, Keith B. * 1978; PhD, 1977, University of California (Los Angeles); antitrust economics, industrial organization, contracts.

Thomas, Robert P. * 1968; PhD, 1964, Northwestern University; economic history.

Assistant Professors

Eicher, Theo S. * 1994; MA, 1991, MPhil, 1993, PhD, 1994, Columbia University; international, development, and macroeconomics, with emphasis on economic growth.

Liu, Wen-Fang 1998; PhD, 1998, University of Chicago; macroeconomics theory.

Martin, Laurent 1998; PhD, 1999, University of Maryland; public economics, microeconomics.

Rose, Elaina 1993; PhD, 1993, University of Pennsylvania; labor, development, applied microeconomics.

Zivot, Eric W. * 1993; PhD, 1992, Yale University; time series, econometrics, applied macroeconomics, empirical finance.

Senior Lecturers

Heyne, Paul * 1976; PhD, 1963, University of Chicago; evolution of economic theory and commercial society.

Salehi-Esfahani, Haideh 1990; PhD, 1985, University of Pennsylvania; international economics, economic development.

Turnovsky, Michelle H. L. 1987; MBA, 1965, Harvard University; PhD, 1978, Australian National University; international economics, economics of the European Union.

Course Descriptions

See page 48 for an explanation of course numbers, symbols, and abbreviations.

For graduate-level course descriptions, see the graduate and professional study volume of the *General Catalog* or visit the online course catalog at www.washington.edu/students/crsccat/.

ECON 100 Principles of Economics (5) I&S, QSR Fundamental concepts of economic analysis with application to contemporary problems. Cannot be taken for credit if 200 or 201 previously taken.

ECON 150 Quantitative Preparation for Economics and Business (5) NW, QSR Introduces students to the kinds of quantitative analysis used in economics and business courses. Uses practical examples to build skills in graphical analysis, use of algebra, basic probability, introductory computer use, and quantitative reasoning.

ECON 200 Introduction to Microeconomics (5) I&S, QSR Analysis of markets: consumer demand, production, exchange, the price system, resource allocation, government intervention. Recommended: MATH 111. Offered: AWSpS.

ECON 201 Introduction to Macroeconomics (5) I&S, QSR Analysis of the aggregate economy: national income, inflation, business fluctuations, unemployment, monetary system, federal budget, international trade and finance. Prerequisite: ECON 200; recommended: MATH 111. Offered: AWSpS.

ECON 299 Study Abroad: Economics (5, max. 10) I&S For participants in the Study Abroad program. Specific course content determined by assigned faculty member and announced in Study Abroad bulletins.

ECON 300 Intermediate Microeconomics (5) I&S Analysis of decisions by individuals and by firms and of outcomes in factor and product markets. Policy issues and applications. Prerequisite: ECON 200; either MATH 112, MATH 124, MATH 127, MATH 134, or MATH 145. Offered: AWSpS.

ECON 301 Intermediate Macroeconomics (5) I&S Analysis of the determinants of the aggregate level of employment, output, prices, and income of an economy. Policy issues and applications with special reference to current monetary and fiscal policy. Prerequisite: ECON 201; ECON 300. Offered: AWSpS.

ECON 306 Topics in Economics (1-5, max. 10) I&S Provides undergraduates the opportunity to apply tools learned in introductory economics courses to topics of interest outside the standard curriculum. Topics vary. Prerequisite: ECON 201.

ECON 310 Microeconomics for Scientists and Engineers (5) I&S Analysis of consumers, firms, and industries using calculus of several variables. Examination of logical and mathematical basis of modern economic analysis. Prerequisite: ECON 200; MATH 126 or MATH 136, either of which may be taken concurrently.

ECON 311 Introduction to Economic Statistics (5) NW, QSR Statistical concepts and their application in economics. Students may receive credit for only one of 311 and STAT 220, 301, 311. Prerequisite: either MATH 111, MATH 120, MATH 124, MATH 127, or MATH 144.

ECON 370 Introduction to International Economics (5) I&S International trade theory and commercial policy. Balance of payments and foreign exchange markets. World monetary arrangements and policy issues. Applications. Cannot be taken for credit if 471 or 472 previously taken. Prerequisite: ECON 201.

ECON 391 Economic Development (5) I&S Study of major factors contributing to the economic problems of developing countries and discussion of possible solutions. Includes applications of theories in economic development and international trade. Cannot be taken for credit if 491 previously taken. Prerequisite: ECON 201.

ECON 400 Advanced Topics in Microeconomics (5) NW Application of calculus to microeconomics. Development of comparative statics used in production and consumption theory, including derivation of

the Slutsky equation and duality results. Prerequisite: ECON 300; either MATH 124, MATH 127, MATH 134, or MATH 145; recommended: MATH 126.

ECON 401 Advanced Topics in Macroeconomics (5) NW Application of mathematics to macroeconomics. Possible topics include economic dynamics and growth, rational expectations, real business cycle models, and New Keynesian approach. Prerequisite: ECON 301; either MATH 126, MATH 129, or MATH 136.

ECON 403 The Economics of Property Rights (5) I&S Property rights as an economic concept. Delineation of rights as a subject of optimization. Formation of contracts to maximize the value of personal property. Formation of organizations to induce efficient use of resources and minimize losses to public domain. Prerequisite: ECON 300; recommended: two 400-level microeconomics classes.

ECON 404 Industrial Organization and Price Analysis (5) I&S Analysis of firm behavior in imperfectly competitive markets. Topics include monopoly, oligopoly, product differentiation, entry deterrence, and the role of asymmetric information. Game theoretic tools and empirical evidence used to analyze topics. Prerequisite: ECON 300.

ECON 406 Undergraduate Seminar in Economics (5, max. 10) I&S Provides undergraduate student an opportunity to apply the tools of economic analysis in a critical examination of theoretical and empirical work. A list of topics is available in the departmental office. Prerequisite: ECON 200.

ECON 407 Development of Economic Thought (5) I&S From the early modern period to the present. The main subjects treated are Adam Smith and the classical school, Karl Marx, the neoclassical reformulation and its critics, the impact of J. M. Keynes, and the evolution of economics in the twentieth century. Prerequisite: ECON 300.

ECON 409 Undergraduate Seminar in Political Economy (5, max. 10) I&S Marxian and public choice approaches to political economy. Explores the questions raised by each approach, the assumption(s) and testability of hypotheses, and applies these approaches to a number of problems in political economy. Recommended: ECON 300; POL S 270. Offered: jointly with POL S 409.

ECON 421 Money, Credit, and the Economy (5) I&S Role of money and the banking system in the United States economy. Relation of money to inflation, interest rates, and business fluctuations. Monetary policy and Federal Reserve System. Prerequisite: ECON 301.

ECON 422 Investment, Capital, and Finance (5) I&S Intertemporal optimization: consumption and portfolio allocation decisions of households, investment and financing decisions of firms. Introduction to financial decisions under uncertainty. Portfolio theory, asset pricing, options, and futures. Financial market institutions and efficiency. Prerequisite: ECON 300; either ECON 311 or STAT 311.

ECON 431 Government and Business (5) I&S Economic effects of various governmental regulatory agencies and policies. Antitrust legislation as a means of promoting desired market performance. Observed economic effects of policies intended to regulate business practices, control prices, conserve resources, or promote competition. Prerequisite: ECON 300.

ECON 435 Natural Resource Economics (5) I&S Survey of the economics of renewable and nonrenewable resources including fisheries, forest, minerals, and fuels. Optimal trade-offs between benefits and costs of resource use, including trade-offs between current and future use. Effects of property rights on resource use. Prerequisite: ECON 300.

ECON 436 Economics of the Environment (5) I&S Microeconomic analysis of environmental regulation. The problem of social cost, policy instrument choice, enforcement of regulations, methods for damage assessment, and estimating benefits of environmental improvement. Prerequisite: ECON 300.

ECON 437 Economics of Biological Resources (5) I&S Application of economic concepts to biology and biological concepts to economics. Examination of theory of species maximization, parallels in behavior between humans and other biota, animal choices among alternative food sources, games animals play, evidence of risk aversion in animals. Prerequisite: ECON 300.

ECON 443 Labor Market Analysis (5) I&S Determinants of employment and incomes in the United States: analysis of individual and firm decisions and of equilibrium in the labor market. Topics include decisions to work and retire, education and occupation choices, compensation, discrimination, poverty, unemployment and unions. Examination of policy issues affecting the labor market. Prerequisite: ECON 300.

ECON 444 Topics in Labor Market Analysis (5) I&S In-depth analysis of special topics in the operation of labor markets and public policies affecting incomes and employment. Course content varies by instructor. Prerequisite: ECON 300.

ECON 447 Economics of Gender (5) I&S Microeconomic analysis of the sources of gender differences in earnings, labor force participation, occupational choice, education, and consumption. Economic theories of discrimination, human capital, fertility and intrahousehold resource allocation. Economics of the family in developed and developing countries. Prerequisite: ECON 300. Offered: jointly with WOMEN 447.

ECON 448 Population and Development (5) I&S Survey of topics in population economics, including history of thought, demographic experience of currently developing countries, household production models, fertility demand, quantity-quality models of fertility, mortality, health and nutrition, migration, macroeconomic-demographic linkages. Prerequisite: ECON 300.

ECON 450 Public Finance: Expenditure Policy (5) I&S Application of normative microeconomic theory to analysis of government expenditures. Rationale for government economic activity, collective choice, public goods, and externalities, income redistribution, public sector pricing, and specific expenditure programs. Prerequisite: ECON 300.

ECON 451 Public Finance: Tax Policy (5) I&S Microeconomics of taxation: efficiency, incidence, effect on distribution of income, personal and corporate income taxes, sales and consumption taxes, taxation of property and estates. Prerequisite: ECON 300.

ECON 454 Cost-Benefit Analysis (5) I&S Theory and practice of cost-benefit analysis of public sector projects and policies. Welfare criteria, investment criteria, shadow prices, social discount rate, marginal-willingness-to-pay for non-market goods, social risk, and special topics. Prerequisite: ECON 300.

ECON 460 Economic History of Europe (5) I&S Origins of the modern European economy; historical analysis of economic change and growth from medieval times that stresses the preconditions and consequences of industrialization. Recommended: ECON 201. Offered: jointly with HIST 481.

ECON 462 Economic History of the United States to the Civil War (5) I&S Systematic study of the changing pre-Civil War economic conditions and the consequences of these changes for the American society. Prerequisite: ECON 201.

ECON 463 Economic History of the United States From the Civil War to the Present (5) I&S Systematic study of the changing economic conditions since the Civil War and the consequences of these changes for the American society. Prerequisite: ECON 201.

ECON 466 Economic History of China: 1840-1949 (5) I&S Study of the post-1840 Chinese economy, with a brief introduction to the socioeconomic background of the earlier period. Explanations of China's long economic stagnation, and analyses of the impact of external factors and the role of the government in China's economic development before 1949. Recommended: ECON 201.

ECON 468 China's Economic Reforms-Integration Into World Economy (5) I&S Systematic survey of China's economic reforms since 1978, including China's increasing integration into the world economy. Prerequisite: ECON 201. Offered: jointly with SISEA 468.

ECON 471 International Trade (5) I&S Theory of comparative advantage and different models of international trade. Trade and welfare. Factor mobility and trade flows. Economic integration. Theory and practice of commercial policy. Prerequisite: ECON 301.

ECON 472 International Macroeconomics (5) I&S International monetary theory and open economy macroeconomics. Balance of payments and foreign exchange markets. Different exchange rate arrangements and their adjustment mechanisms. Money and international capital movements. Policy issues. The international monetary system. Prerequisite: ECON 301.

ECON 473 Topics in International Trade (5) I&S Advanced theory of trade and analysis of government trade policies. International trade and factor mobility. Theory of commercial policy. Prerequisite: ECON 301; ECON 471.

ECON 475 Economics of the European Union (5) I&S Analysis of economic issues relating to the European union. Explores the institutional aspects, the attempt to coordinate social and economic policies-welfare, employment, commercial, fiscal, and monetary-and the economic linkages between the European Union and the rest of the world. Prerequisite: ECON 301.

ECON 481 Introduction to Mathematical Statistics (5) NW Probability, generating functions; the d-method, Jacobians, Bayes theorem; maximum likelihoods, Neyman-Pearson, efficiency, decision theory, regression, correlation, bivariate normal. (Credit allowed for only one of 390, 481, and ECON 580.) Prerequisite: STAT/ECON 311; either MATH 129, MATH 136, or MATH 126 with either MATH 308 or MATH 309. Offered: jointly with STAT 481; A.

ECON 482 Econometric Methods (5) NW Application of statistical modeling to empirical work in economics. A mixture of theory and applied computer work. Primary focus is regression analysis. Prerequisite: ECON 300; ECON/STAT 311.

ECON 483 Applied Econometric Modeling (5) NW Provides undergraduates the opportunity to learn econometric model building for a particular problem while applying the theory learned in various courses to specific economic cases. Students estimate, test, and forecast economic models. Extensive use of the computer and econometric programs. Prerequisite: ECON 301; ECON/STAT 311.

ECON 485 Game Theory with Applications to Economics (5) NW Introduction to the main concepts of game theory: strategy, solution concepts for games, strategic behavior, commitment, cooperation, and incentives. Application to economics oligopoly theory, bargaining theory, and contract theory. Prerequisite: either MATH 112, MATH 124,

MATH 127, MATH 134, or MATH 145; recommended: ECON 300; ECON 404.

ECON 490 Comparative Economic Systems (5) I&S Study of resource allocation, growth, and income distribution in capitalist, market socialist, and centrally planned economies. Prerequisite: ECON 301.

ECON 491 Issues in Economic Development (5) I&S Examines factors contributing to the economic problems of developing countries and possible solutions. Theory and applications in economic development and international trade. Prerequisite: ECON 301.

ECON 494 Economy of Japan (5) I&S Analysis of the economic growth of Japan since about 1850 to the present. The reasons for rapid industrialization, various effects of sustained economic growth, and significant contemporary issues are investigated. Prerequisite: ECON 201. Offered: jointly with SISEA 494.

ECON 495 Economic Transformation of Russia and Eastern Europe (5) I&S Analytical survey of the economic institutions and economic structures of the transforming socialist economies. Socialist resource allocation. Market institutions. Structural change and the sequencing of economic reform. Primary focus on Russia and Eastern Europe. Prerequisite: ECON 301.

ECON 496 Honors Seminar (5) I&S Honors and other students in high standing have the opportunity to develop research techniques, to pursue topics in breadth and depth, and to apply tools of economic analysis to selected topics in economic theory and current issues of national and international economic policy. For seniors only.

ECON 497 Honors Directed Study (5) Students write their honors thesis on the topic chosen in the Honors Seminar working under the previously arranged supervision of an economics faculty adviser. Prerequisite: ECON 496

ECON 499 Undergraduate Research (1-5, max. 10) May not be applied toward an advanced degree.

English

A101 Padelford



General Catalog Web page:
www.washington.edu/students/gencat/academic/english.html



Department Web page:
depts.washington.edu/engl/

The Department of English offers courses in English, American, and related literatures. Courses in literature emphasize techniques of literary analysis; theoretical problems in the interpretation of texts; the social, historical, and political context of literary production and reception; and the pleasures of reading. Most require significant written work and stress critical thinking skills. Courses in language study examine the structural, historical, social, and aesthetic dimensions of English. The Creative Writing Program offers workshops in verse, short story, novel, and expository writing. English majors are exposed to many critical perspectives, and pursue interests in literary history, critical theory, language study, cultural studies, and creative writing.

Undergraduate Program

Adviser
Melissa Wensel
A2B Padelford, Box 354330
(206) 543-2634
engladv@u.washington.edu

The Department of English offers a program of study leading to a Bachelor of Arts degree, with emphases in either language and literature or creative writing. Good writing, analytical ability, research skills, and broadened perspectives are among the practical accomplishments majors acquire, all of which can be applied to a range of careers, including but not limited to, advertising, business and marketing, law, library science, the media, public administration, the social services, and teaching.

Student Associations: The Department of English sponsors two undergraduate student organizations: the English Undergraduate Association (EUA) and *Bricolage*. The EUA works to foster a sense of community among students majoring in English and provides opportunities for students to participate in activities that reinforce and supplement literary studies. *Bricolage* is a literary and arts annual published entirely by undergraduates and features the works of University students, faculty, staff, and alumni.

Internship and Co-operative Exchange Program Opportunities: English department programs include study-abroad programs in London, Rome, and Paris; an honors program; and an internship program. Internships in the department are offered with the cooperation of diverse organizations to provide a supplementary educational experience for undergraduate students. Credit is available through ENGL 491.

Bachelor of Arts

Admission Requirements:

1. Completion of at least 45 transferable credits with a minimum cumulative GPA of 2.00.
2. Completion of the following: either 10 credits from ENGL 210, 211, 212, 213; or 10 credits from ENGL 228, 229, 230, 250.
3. Cumulative English GPA of 2.50.
4. Admission is competitive. Completion of the above requirements does not guarantee admission.
5. Students apply to the English Advising Office, A2B Padelford, during the first two weeks of autumn, winter, and spring quarters. Transfer students must be enrolled at the UW before applying.

Suggested Course Work to Supplement the Major: Foreign languages, classics, English history, American history, and philosophy.

Additional Information:

Students considering teaching English at the secondary level should consult an English adviser regarding coursework for entry into the Secondary Teacher Education Program (TEP).

Major Requirements

No credits in 100-level courses and only 20 credits in 200-level courses may be counted toward the major. Lists of approved courses referred to in the following descriptions are available from the English Advising Office, A2B Padelford.

Language and Literature: A minimum of 63 credits: 30 credits in approved literary-period courses [including at least 5 credits in each of the following five periods and an additional 5 credits in period (1) or (2)]: (1) early period, (2) seventeenth- and eighteenth-century English literature, (3) nineteenth-century English litera-

ture, (4) American literature to 1917, (5) twentieth-century British and American literature; 3-5 credit field requirement course focusing on literature underrepresented in the Anglo-American canon or literature taught in a department other than English, either in English translation or in the original language; 25 elective credits in English courses; 5 credits for senior seminar (ENGL 498). No more than 5 credits in expository or creative writing courses may be counted toward the major.

Creative Writing: A minimum of 63 credits: 25 credits in creative or expository writing courses, at least 15 of which must be at the 300 or 400 levels and must include course work in at least two forms (i.e., poetry, drama, short story, novel, expository writing); 30 credits distributed in approved literary-period courses (see above under Language and Literature); 3-5 credit field requirement course focusing on literature underrepresented in the Anglo-American canon or literature taught in a department other than English, either in English translation or in the original language; 5 credits for senior seminar (ENGL 498).

Graduate Program

For information on the Department of English graduate program, see the graduate and professional volume of the *General Catalog* or visit the *General Catalog* online at www.washington.edu/students/gencat/.

Faculty

Chair

Shawn H. Wong

Professors

Alexander, Edward * 1962; MA, 1959, PhD, 1963, University of Minnesota; romantic and Victorian literature.

Allen, Carolyn * 1972; MA, 1966, Claremont Graduate School; PhD, 1972, University of Minnesota; twentieth-century literature, women writers, contemporary critical theory.

Bierds, Linda L. * 1981; MA, 1971, University of Washington; poetry writing; contemporary American poetry.

Blake, Kathleen * 1971; PhD, 1971, University of California (San Diego); Victorian literature, children's literature, women's studies.

Brown, Marshall J. * 1988; PhD, 1972, Yale University; eighteenth- and nineteenth-century literature, literary theory, music and literature.

Burns, Wayne 1948, (Emeritus); MA, 1940, Harvard University; PhD, 1946, Cornell University; Victorian literature.

Butler, Johnella E. * 1987, (Adjunct); EdD, 1979, University of Massachusetts; Afro-American and multicultural studies, comparative American ethnic literature, African diaspora.

Coldewey, John C. * 1972; PhD, 1972, University of Colorado (Boulder); Renaissance literature, medieval drama.

Dillon, George L. * 1986; PhD, 1969, University of California (Berkeley); rhetoric, composition.

Dunn, Richard J. * 1967; PhD, 1964, Case Western Reserve University; Victorian literature, English novel.

Fowler, David C. * 1952, (Emeritus); PhD, 1949, University of Chicago; medieval literature, comparative religion.

Frey, Charles Hubbard * 1970; PhD, 1971, Yale University; Renaissance literature, Shakespeare.

Gerstenberger, Donna * 1960, (Emeritus); PhD, 1958, University of Oklahoma; twentieth-century literature, Anglo-Irish literature, feminist criticism.

Handwerk, Gary J. * 1984; PhD, 1984, Brown University; literary theory, English and Irish nineteenth- and twentieth-century narrative.

Harris, Markham 1946, (Emeritus); MA, 1931, Williams College; fiction writing.

Heilman, Robert B. 1948, (Emeritus); MA, 1930, Ohio State University; MA, 1931, PhD, 1935, Harvard University; drama.

Irmischer, William F. * 1960, (Emeritus); PhD, 1950, Indiana University; rhetoric and theory of composition.

Jeffords, Susan E. * 1985; MA, 1977, PhD, 1981, University of Pennsylvania; feminist theory, American popular culture, and the representation of Vietnam.

Johnson, Charles R. * 1983; MA, 1973, Southern Illinois University; PhD, 1988, State University of New York (Stony Brook); fiction writing.

Jones, Frank W. 1955, (Emeritus); PhD, 1941, University of Wisconsin; MA, 1955, Oxford University (UK); translation, twentieth-century theatre, poetry.

Kaplan, Sydney J. * 1971; PhD, 1971, University of California (Los Angeles); twentieth-century literature, women writers, feminist criticism.

Kenney, Richard L. * 1987; BA, 1970, Dartmouth College; poetry writing.

Korg, Jacob * 1955, (Emeritus); PhD, 1952, Columbia University; Victorian, twentieth-century literature.

Lockwood, Thomas * 1967; PhD, 1967, Rice University; Restoration and eighteenth-century literature.

Matchett, William H. * 1954, (Emeritus); PhD, 1957, Harvard University; Renaissance literature, Shakespeare.

McCracken, J. David * 1966; PhD, 1966, University of Chicago; eighteenth-century, Romantic, and biblical literature.

McElroy, Colleen J. * 1972; PhD, 1973, University of Washington; Black literature, women writers, poetry writing.

McHugh, Heather * 1982; MA, 1973, University of Denver; writing and close reading of poetry, form in nature and art.

Modiano, Raimonda * 1978; PhD, 1973, University of California (San Diego); romanticism.

Posnock, Ross * 1983; PhD, 1980, Johns Hopkins University; American literature.

Reinert, Otto * 1956, (Emeritus); PhD, 1952, Yale University; comparative literature, eighteenth-century literature.

Russ, Joanna * 1977, (Emeritus); MFA, 1960, Yale University; fiction writing.

Sale, Roger H. * 1962, (Emeritus); PhD, 1957, Cornell University; Renaissance literature.

Shapiro, Steven * 1984; PhD, 1981, Yale University; literary theory, romantic poetry, post-modernism.

Shields, David * 1988; MFA, 1980, University of Iowa; fiction writing, screen writing, twentieth-century literature, autobiography, mass media, film.

Shulman, Robert * 1961; PhD, 1959, Ohio State University; American literature.

Silberstein, Sandra V. * 1982; PhD, 1982, University of Michigan; TESL, critical theory, discourse analysis, sociolinguistics, language and culture.

Simonson, Harold P. * 1967, (Emeritus); PhD, 1958, Northwestern University; American literature.

Staten, Henry J. * 1998; PhD, 1978, University of Texas (Austin); 19th- and 20th-century British literature, history of criticism.

Stevick, Robert D. * 1962, (Emeritus); PhD, 1956, University of Wisconsin; medieval language and literature.

Streitberger, William R. * 1973; PhD, 1973, University of Illinois; Renaissance literature, textual criticism, paleography.

Tollefson, James W. * 1984; PhD, 1980, Stanford University; English as a second language, language planning.

Wagoner, David R. * 1957; MA, 1949, Indiana University; twentieth-century literature, fiction and poetry writing.

Wong, Shawn H. * 1984; MA, 1974, San Francisco State; creative writing, Chinese-American area studies.

Associate Professors

Abrams, Robert * 1979; PhD, 1973, Indiana University; American literature.

Altieri, Joanne S. * 1977, (Emeritus); PhD, 1969, University of North Carolina; Shakespeare studies, including early seventeenth-century theatre more generally.

Aravamudan, Srinivas * 1996; MA, 1986, Purdue University; PhD, 1991, MA, 1991, Cornell University; eighteenth-century literature, contemporary postcolonial literature.

Bosworth, David L. * 1984; BA, 1969, Brown University; fiction writing, modern fiction and poetry, American Puritans.

Brenner, Gerald J. * 1966; PhD, 1969, University of New Mexico; American literature, fiction writing.

Butwin, Joseph M. * 1978; PhD, 1971, Harvard University; Victorian literature.

Cummings, Katherine * 1985; PhD, 1985, University of Wisconsin; feminist, psychoanalytical, and literary theory, modern and contemporary literature.

Dunlop, William M. * 1962; MA, 1965, Cambridge University (UK); Shakespeare, nineteenth-century literature, poetry writing.

Fisher, Alan S. * 1968; PhD, 1969, University of California (Berkeley); Renaissance, seventeenth- and eighteenth-century literature, history of literary criticism.

Griffith, John W. * 1968; PhD, 1969, University of Oregon; American literature.

Guerra, Juan C. * 1990; MA, 1983, PhD, 1992, University of Illinois (Chicago); rhetoric, composition, literacy, ethnography.

Hudson, Lois Phillips * 1969, (Emeritus); LittD, 1965, North Dakota State University; fiction writing.

Laguardia, Eric * 1961; PhD, 1961, University of Iowa; Renaissance literature.

Longyear, Christopher R. * 1972, (Emeritus); PhD, 1961, University of Michigan; linguistics.

Moody, Joycelyn K. * 1991; MA, 1980, University of Wisconsin; PhD, 1993, University of Kansas; nineteenth-century American, African-American, and women's literature, autobiography.

Mussetter, Sally Ann * 1978; PhD, 1975, Cornell University; medieval language and literature.

Palomo, Dolores J. * 1971, (Emeritus); PhD, 1972, State University of New York (Buffalo); Renaissance literature, women writers.

Patterson, Mark R. * 1981; PhD, 1981, Princeton University; American literature.

Remley, Paul G. * 1988; PhD, 1990, Columbia University; Old and Middle English, medieval languages and literatures, critical theory.

Riggenbach, Heidi R. * 1989; PhD, 1989, University of California (Los Angeles); teaching English as a second language, discourse analysis, sociolinguistics.

Searle, Leroy F. * 1977; MA, 1968, PhD, 1970, University of Iowa; twentieth-century literature, critical theory, American studies.

Simpson, Caroline Chung * 1994; MA, 1989, University of Houston; PhD, 1994, University of Texas (Austin); Asian American literature and culture, postwar fiction and film.

Smith, Eugene H. * 1958, (Emeritus); PhD, 1963, University of Washington; rhetoric and theory of composition.

Sonenberg, Maya * 1993; MA, 1984, Brown University; fiction writing, twentieth-century fiction, postmodern fiction, women writers.

Stanton, Robert B. * 1956, (Emeritus); PhD, 1953, Indiana University; American literature.

Stygall, Gail * 1990; PhD, 1989, Indiana University; rhetoric and composition, English language linguistics, law and literature.

van den Berg, Sara J. * 1980; PhD, 1969, Yale University; early modern and seventeenth-century literature, psychoanalytic theory, medicine and literature.

Vaughan, Miceal F. * 1973; PhD, 1973, MA, 1973, Cornell University; medieval language and literature.

Webster, John M. * 1972; PhD, 1974, University of California (Berkeley); Renaissance literature.

Assistant Professors

Bawarshi, Anis 1999; PhD, 1999, University of Kansas; rhetoric and composition.

Burstein, Jessica L. * 1998; PhD, 1998, University of Chicago; modernism.

Crane, Gregg David * 1995; MA, 1981, University of California (Los Angeles); JD, 1986, University of California (San Francisco); PhD, 1995, University of California (Berkeley); American literature.

Curzan, Anne L. * 1998; PhD, 1998, University of Michigan; Old English languages.

Eversley, Shelly J. * 1997; PhD, 1997, Johns Hopkins University; twentieth-century American, African American literature and culture.

Fuchs, Barbara * 1997; PhD, 1997, Stanford University; early modern English and Spanish literature, literature and imperialism.

Goldberg, Brian B. * 1999; PhD, 1995, Indiana University; romanticism.

Goodlad, Lauren M. E. * 1994; MA, 1986, New York University; MPhil, 1989, PhD, 1994, Columbia University; Victorian literature and culture, contemporary culture, cross-disciplinary literary/cultural theory.

Griffith, Malcolm A. * 1966; PhD, 1966, Ohio State University; twentieth-century literature, modern criticism, American literature.

Khanna, Ranjana * 1996; PhD, 1993, York University (Canada); postcolonial theory, transnational feminism, twentieth-century writing.

Sanok, Catherine 1999, (Acting); PhD, 1999, University of California (Los Angeles); medieval literature.

Weinbaum, Alys E. * 1998; PhD, 1998, Columbia University; 19th and 20th century American and European literature.

Senior Lecturers

George, E. Laurie * 1991; PhD, 1984, University of Oregon; expository/computer-aided writing, American literature, feminist linguistics, pedagogy.

Graham, Joan Adelle 1974; MA, 1972, University of Washington; expository and interdisciplinary writing.

McNamara, Robert J. 1985; PhD, 1985, University of Washington; expository and interdisciplinary writing.

Shabetai, Karen J. * 1984; MA, 1982, PhD, 1984, University of California (San Diego); English Romantic poetry and prose and 18th-century novels; philosophy of sensibility.

Simmons-O'Neill, Elizabeth 1985; PhD, 1988, University of Washington; expository and interdisciplinary writing, service learning, education and tutoring.

Lecturers

Gillis-Bridges, Kimberlee 1989; PhD, 1999, Claremont Graduate School; interdisciplinary writing.

O'Neill, John 1985; MA, 1986, University of Washington; interdisciplinary writing.

Popov, Nikolai B. * 1985; PhD, 1994, University of Washington; modern Irish, Slavic, and German writers; literary theory and criticism; translation.

Wacker, Norman J. 1989; MA, 1976, PhD, 1986, University of Washington; expository and interdisciplinary writing.

Course Descriptions

See page 48 for an explanation of course numbers, symbols, and abbreviations.

For graduate-level course descriptions, see the graduate and professional study volume of the *General Catalog* or visit the online course catalog at www.washington.edu/students/crscat/.

ENGL 100 Intermediate ESL for Non-Native Speakers (5) Offered as three separate sections. Each language structure course focuses on the grammar and vocabulary necessary for academic reading and writing. Sections must be taken consecutively. Special fee required. Credits averaged in GPA but do not count toward graduation.

ENGL 101 Advanced ESL for Non-Native Speakers (5) Offered as two separate sections: one for writing about readings, particularly answering short answer and short essay questions; the other for listening skills related to academic lectures. Sections may be taken concurrently. Special fee required. Credits averaged in GPA but do not count toward graduation.

ENGL 102 Advanced ESL for International Teaching Assistants (5) Speaking skills for international teaching assistants: language behaviors related to lecturing, classroom management, and teacher-student interaction. Credits averaged in GPA but do not count toward graduation.

ENGL 103 Introduction to Writing for EOP/SSS Students (5) Development of writing skills necessary to produce college-level short and medium-length essays. Sequence of five essays designed to develop personal voice and competence in writing for academic disciplines.

ENGL 104- Introductory Composition (5-) C Development of writing skills: sentence strategies and paragraph structures. Expository, critical, and persuasive essay techniques based on analysis of selected readings. For Educational Opportunity Program students only, upon recommendation by the Office of Minority Affairs.

ENGL -105 Introductory Composition (-5) C Development of writing skills: sentence strategies and paragraph structures. Expository, critical, and persuasive essay techniques based on analysis of selected readings. For Educational Opportunity Program students only, upon recommendation by the Office of Minority Affairs.

ENGL 111 Composition: Literature (5) C Study and practice of good writing; topics derived from reading and discussing stories, poems, essays, and plays.

ENGL 121 Composition: Social Issues (5) C Study and practice of good writing; topics derived from reading and discussing essays and fiction about current social and moral issues.

ENGL 131 Composition: Exposition (5) C Study and practice of good writing; topics derived from a variety of personal, academic, and public subjects.

ENGL 182 The Research Paper (5) C Includes study of library resources, the analysis of reading materials, and writing preparatory papers as basic to writing a

reference or research paper. Open to all undergraduates. Prerequisite: either ENGL 111, ENGL 121, or ENGL 131.

ENGL 197 Interdisciplinary Writing/Humanities (5, max. 15) C Expository writing based on material presented in a specified humanities lecture course. Assignments include drafts of papers to be submitted in the specified course, and other pieces of analytical prose. Concurrent registration in the specified course required.

ENGL 198 Interdisciplinary Writing/Social Science (5, max. 15) C Expository writing based on material presented in a specified social science lecture course. Assignments include drafts of papers to be submitted in the specified course, and other pieces of analytic prose. Concurrent registration in specified course required.

ENGL 200 Reading Literature (5) VLPA Techniques and practice in reading and enjoying literature. Examines some of the best works in English and American literature and considers such features of literary meaning as imagery, characterization, narration, and patterning in sound and sense. Emphasis on literature as a source of pleasure and knowledge about human experience.

ENGL 205 Method, Imagination, and Inquiry (5) VLPA Examines ideas of method and imagination in a variety of texts, in literature, philosophy, and science. Particularly concerned with intellectual backgrounds and methods of inquiry that have shaped modern Western literature. Offered: jointly with CHID 205.

ENGL 207 Introduction to Cultural Studies (5) VLPA Asks three questions. What is Cultural Studies? How does one read from a Cultural Studies perspective? What is the value of reading this way? Provides historical understanding of Cultural Studies, its terms and its specific way of interpreting a variety of texts, i.e. literature, visual images, music, video, and performance.

ENGL 210 Literature and the Ancient World (5) VLPA Introduction to literature from a broadly cultural point of view, focusing on major works that have shaped the development of literary and intellectual traditions to the Middle Ages.

ENGL 211 Medieval and Renaissance Literature (5) VLPA Introduction to literature from a broadly cultural point of view, focusing on major works that have shaped the development of literary and intellectual traditions from the Middle Ages to the eighteenth century.

ENGL 212 Literature of Enlightenment and Revolution (5) VLPA Introduction to eighteenth- and nineteenth-century literature from a broadly cultural point of view, focusing on representative works that illustrate literary and intellectual developments of the period.

ENGL 213 Modern and Postmodern Literature (5) VLPA Introduction to twentieth-century literature from a broadly cultural point of view, focusing on representative works that illustrate literary and intellectual developments since 1900.

ENGL 225 Shakespeare (5) VLPA Survey of Shakespeare's career as dramatist. Study of representative comedies, tragedies, romances, and history plays.

ENGL 228 English Literary Culture: To 1600 (5) VLPA British literature from Middle Ages to end of sixteenth century. Study of literature in its cultural context, with attention to changes in language, form, content, and style.

ENGL 229 English Literary Culture: 1600-1800 (5) VLPA British literature in seventeenth and eighteenth centuries. Study of literature in its cultural context, with attention to changes in form, content, and style.

ENGL 230 English Literary Culture: After 1800 (5) VLPA British literature in the nineteenth and twentieth centuries. Study of literature in its cultural context, with attention to changes in form, content, and style.

ENGL 242 Reading Fiction (5) VLPA Critical interpretation and meaning in fiction. Different examples of fiction representing a variety of types from the medieval to modern periods.

ENGL 243 Reading Poetry (5) VLPA Critical interpretation and meaning in poems. Different examples of poetry representing a variety of types from the medieval to modern periods.

ENGL 250 Introduction to American Literature (5) VLPA Survey of the major writers, modes, and themes in American literature, from the beginnings to the present. Specific readings vary, but often included are: Taylor, Edwards, Franklin, Poe, Hawthorne, Melville, Emerson, Thoreau, Whitman, Dickinson, Twain, James, Eliot, Stevens, O'Neill, Faulkner, Hemingway, Ellison, and Bellow.

ENGL 257 Introduction to Asian-American Literature (5) VLPA Introductory survey of Asian-American literature provides introduction to Chinese, Japanese, Filipino, Korean, Hawaiian, South-Asian, and Southeast-Asian American literatures and a comparative study of the basic cultural histories of those Asian-American communities from the 1800s to the present.

ENGL 258 African-American Literature: 1745 to Present (5) VLPA A chronological survey of Afro-American literature in all genres from its beginnings to the present day. Emphasizes Afro-American writing as a literary art; the cultural and historical context of Afro-American literary expression and the aesthetic criteria of Afro-American literature. Offered: jointly with AFRAM 214.

ENGL 270 Cultural Issues in English (5) VLPA Survey of the assumptions, methodologies, and major issues of English in its cultural settings. Designed to connect English Language study with the study of literature, orality and literacy, education, ethnicity, gender, and public policy.

ENGL 281 Intermediate Expository Writing (5) C Writing papers communicating information and opinion to develop accurate, competent, and effective expression.

ENGL 283 Beginning Verse Writing (5) VLPA Intensive study of the ways and means of making a poem.

ENGL 284 Beginning Short Story Writing (5) VLPA Introduction to the theory and practice of writing the short story.

ENGL 300 Reading Major Texts (5) VLPA Intensive examination of one or a few major works of literature. Classroom work to develop skills of careful and critical reading. Book selection varies, but reading consists of major works by important authors and of selected supplementary materials.

ENGL 302 Critical Practice (5) VLPA Exercise in interpretive practices; a consideration of their powers and limits. Survey of the varieties of critical and interpretive practice from the earliest interpreters of scripture and myth to present-day critics.

ENGL 303 History of Literary Criticism and Theory I (5) VLPA Literary criticism and theory from its beginnings in Plato through the early twentieth century. Philosophical and theoretical grounds for critical practice put forward by philosophers and critics.

ENGL 304 History of Literary Criticism and Theory II (5) VLPA Contemporary criticism and theory and its background in the New Criticism, structuralism, and phenomenology.

ENGL 305 Theories of Imagination (5) VLPA/I&S Survey of theories of imagination since the seventeenth century. Focuses on the uses of the concept in literature, criticism, science, and society.

ENGL 307 Cultural Studies: Literature and the Age (5) VLPA Problems of literary periodization. Works by major and minor authors in the context of cultural history; critical and theoretical approaches that have led to the idea of periodization. Emphasis varies. Recommended: one 300-level ENGL course in the literary period being studied.

ENGL 310 The Bible as Literature (5) VLPA Introduction to the development of the religious ideas and institutions of ancient Israel, with selected readings from the Old Testament and New Testament. Emphasis on reading *The Bible* with literary and historical understanding.

ENGL 311 Modern Jewish Literature in Translation (5) VLPA Survey of Jewish experience and its literary expression since 1880. Includes such Yiddish writers as Sholom Aleichem, Peretz, and I. B. Singer; such Israeli writers as Agnon, Hazaz, and Appelfeld; and such writers in non-Jewish languages as Primo Levi and Kafka.

ENGL 313 Modern European Literature in Translation (5) VLPA Fiction, poetry, and drama from the development of modernism to the present. Works by such writers as Mann, Proust, Kafka, Gide, Hesse, Rilke, Brecht, Sartre, and Camus.

ENGL 315 Literary Modernism (5) VLPA Various modern authors, from Wordsworth to the present, in relation to such major thinkers as Kant, Hegel, Darwin, Marx, Nietzsche, Bergson, and Wittgenstein, who have helped create the context and the content of modern literature. Recommended: ENGL 230 or one 300-level course in 19th or 20th century literature.

ENGL 316 Literature of Developing Countries (5) VLPA Readings of major writers from selected areas of the developing world.

ENGL 317 Literature of the Americas (5) VLPA Examines writings by and about people of the Americas, with a focus on intersections of gender, colonialism, race, sexuality, and ethnicity.

ENGL 320 English Literature: The Middle Ages (5) VLPA Literary culture of Middle Ages in England, as seen in selected works from earlier and later periods, ages of Beowulf and of Geoffrey Chaucer. Read in translation, except for a few later works, which are read in Middle English.

ENGL 321 Chaucer (5) VLPA Chaucer's *Canterbury Tales* and other poetry, with attention to Chaucer's social, historical, and intellectual milieu.

ENGL 322 English Literature: The Age of Queen Elizabeth (5) VLPA The golden age of English poetry, with poems by Shakespeare, Spenser, Sidney, and others; drama by Marlowe and other early rivals to Shakespeare; prose by Sir Thomas More and the great Elizabethan translators.

ENGL 323 Shakespeare to 1603 (5) VLPA Shakespeare's career as dramatist before 1603 (including *Hamlet*). Study of history plays, comedies, and tragedies.

ENGL 324 Shakespeare After 1603 (5) VLPA Shakespeare's career as dramatist after 1603. Study of comedies, tragedies, and romances.

ENGL 325 English Literature: The Late Renaissance (5) VLPA A period of skepticism for some, faith for others, but intellectual upheaval generally. Poems by John Donne and the "metaphysical" school; poems and plays by Ben Jonson and other late rivals to Shakespeare; prose by Sir Francis Bacon and other writers.

ENGL 326 Milton (5) VLPA Milton's early poems and the prose; *Paradise Lost*, *Paradise Regained*, and *Samson Agonistes*, with attention to the religious, intellectual, and literary contexts.

ENGL 327 English Literature: Restoration and Early Eighteenth Century (5) VLPA Selections from wits and satirists; poems by John Dryden and Alexander Pope; plays by Dryden, William Congreve, and other wits; the great satires of Jonathan Swift, and the first stirring of the novel.

ENGL 328 English Literature: Later Eighteenth Century (5) VLPA Classic age of English prose. Essays, biography, and criticism by Samuel Johnson, Oliver Goldsmith, and others; comedies by Goldsmith and Richard Brinsley Sheridan; fiction by Henry Fielding and others; poetry by a variety of writers.

ENGL 329 Rise of the English Novel (5) VLPA Study of the development of this major and popular modern literary form in the eighteenth century. Readings of the best of the novelists who founded the form, and some minor ones, from Defoe to Fielding, Richardson, and Sterne, early Austen, and the gothic and other writers.

ENGL 330 English Literature: The Romantic Age (5) VLPA Literary, intellectual, and historical ferment of the period from the French Revolution to the 1830s. Readings from major authors in different literary forms; discussions of critical and philosophical issues in a time of change.

ENGL 331 Romantic Poetry I (5) VLPA Blake, Wordsworth, Coleridge, and their contemporaries.

ENGL 332 Romantic Poetry II (5) VLPA Byron, Shelley, Keats, and their contemporaries.

ENGL 333 English Novel: Early and Middle Nineteenth Century (5) VLPA Studies in the novel in one of its classic phases. Authors include Austen, the Brontës, Dickens, Thackeray.

ENGL 334 English Novel: Later Nineteenth Century (5) VLPA Studies in the novel as it passes from a classic format to formats more experimental. Authors include George Eliot, Thomas Hardy, Joseph Conrad, and others.

ENGL 335 English Literature: The Age of Victoria (5) VLPA Literature in an era of revolution that also sought continuity, when culture faced redefinition as mass culture and found in the process new demands and creative energies, new material and forms, and transformations of old ones. Readings range from works of Tennyson, Browning, Arnold, Shaw, to Dickens, Eliot, Hardy.

ENGL 336 English Literature: The Early Modern Period (5) VLPA Experiments in fiction and poetry. Novels by Joyce, Woolf, Lawrence, and others; poetry by Eliot and Yeats and others.

ENGL 337 The Modern Novel (5) VLPA The novel on both sides of the Atlantic in the first half of the twentieth century. Includes such writers as Joyce, Woolf, Lawrence, Stein, Hemingway, Faulkner, and others.

ENGL 338 Modern Poetry (5) VLPA Poetry in the modernist mode, including such poets as Yeats, Eliot, Pound, Auden, and Moore.

ENGL 339 English Literature: Contemporary England (5) VLPA Return to more traditional forms in such writers as Bowen, Orwell, Waugh, Cary, Lessing, Drabble.

ENGL 340 Modern Anglo-Irish Literature (5) VLPA Principal writers in English of the modern Irish literary movement—Yeats, Joyce, Synge, Gregory, and O'Casey among them—with attention to traditions of Irish culture and history.

ENGL 342 Contemporary Novel (5) VLPA Recent efforts to change the shape and direction of the novel by such writers as Murdoch, Barth, Hawkes, Fowles, and Atwood.

ENGL 343 Contemporary Poetry (5) VLPA Recent developments by such poets as Hughes, Heaney, Rich, Kinnell, and Hugo.

ENGL 344 Twentieth-Century Dramatic Literature (5) VLPA Modern and contemporary plays by such writers as Shaw, Synge, O'Casey, O'Neill, Yeats, Eliot, Beckett, Pinter, and Albee.

ENGL 345 Studies in Film (5) VLPA Types, techniques, and issues explored by filmmakers. Emphasis on narrative, image, and point of view.

ENGL 348 Studies in Drama (5) VLPA Investigation of one of the major types of drama: tragedy or comedy. Emphasis on drama prior to the twentieth century.

ENGL 350 Traditions in American Fiction (5) VLPA A literary form in which America has found its distinctively American expression. Selected readings among important novelists from the beginnings until 1900, including Cooper, Hawthorne, Melville, Twain, Chopin, James, and Wharton.

ENGL 351 American Literature: The Colonial Period (5) VLPA Responses to the New World and literary strategies in the literature of the colonies and the early republic. Works by Taylor, Edwards, Franklin, and others.

ENGL 352 American Literature: The Early Nation (5) VLPA Conflicting visions of the national destiny and the individual identity in the early years of America's nationhood. Works by Emerson, Thoreau, Hawthorne, Melville, and such other writers as Poe, Cooper, Irving, Whitman, Dickinson, and Douglass.

ENGL 353 American Literature: Later Nineteenth Century (5) VLPA Literary responses to an America propelled forward by accelerating and complex forces. Works by Twain, James, and such other writers as Whitman, Dickinson, Adams, Wharton, Howells, Crane, Dreiser, DuBois, and Chopin.

ENGL 354 American Literature: The Early Modern Period (5) VLPA Literary responses to the disillusionment after World War I, experiments in form and in new ideas of a new period. Works by such writers as Anderson, Toomer, Cather, O'Neill, Frost, Pound, Eliot, Cummings, Hemingway, Fitzgerald, Faulkner, Stein, Hart Crane, Stevens, and Porter.

ENGL 355 American Literature: Contemporary America (5) VLPA Works by such writers as Ellison, Williams, O'Connor, Lowell, Barth, Rich, and Hawkes.

ENGL 356 Classic American Poetry (5) VLPA Poetry by Taylor, Whitman, Dickinson, and such others as Poe, Bradstreet, Crane, Robinson. The lineage and characteristics of lyric and epic in America.

ENGL 358 Literature of Black Americans (5) VLPA Selected writings, novels, short stories, plays, poems by Afro-American writers. Study of the historical and cultural context within which they evolved. Differences between Afro-American writers and writers of the European-American tradition. Emphasis varies. Offered: jointly with AFRAM 358.

ENGL 359 Contemporary American Indian Literature (5) VLPA Creative writings—novels, short stories, poems—of contemporary Indian authors; traditions out of which they evolved. Differences between Indian writers and writers of the dominant European/American mainstream. Offered: jointly with AIS 377.

ENGL 360 American Political Culture: To 1865 (5) VLPA/I&S American literature in its political and cultural context from the Puritan origins to the Civil War. Emphasizes an interdisciplinary approach to

American literature, including history, politics, anthropology, and mass media.

ENGL 361 American Political Culture: After 1865 (5) VLPA/I&S American literature in its political and cultural context from the Civil War to the present. Emphasizes an interdisciplinary approach to American literature, including history, politics, anthropology, and mass media.

ENGL 363 Literature and the Other Arts and Disciplines (5, max. 10) VLPA Relationships between literature and other arts, such as painting, photography, architecture, and music, or between literature and other disciplines, such as science. Content varies.

ENGL 364 Literature and Medicine (5) VLPA/I&S How changing concepts of doctor-patient relationship and of body depicted in literary texts affect decisions throughout the human life cycle. Medicine and disease as metaphors for personal experience and social analysis.

ENGL 367 Women and the Literary Imagination (5, max. 15) VLPA Study of women writers or ways various writers have portrayed woman's image, social role, and psychology.

ENGL 368 Women Writers (5, max. 15) VLPA Study of the work of women writers in English and American literature.

ENGL 370 English Language Study (5) VLPA Wide-range introduction to the study of written and spoken English. The nature of language; ways of describing language; the use of language study as an approach to English literature and the teaching of English.

ENGL 371 English Syntax (5) VLPA Description of sentence, phrase, and word structures in present-day English. Prerequisite: either ENGL 370 or LING 200.

ENGL 372 Language Variation in Current English (5) VLPA Examination of geographical, social, and occupational varieties of American English. Relationship between societal attitudes and language use.

ENGL 373 History of the English Language (5) VLPA Evolution of English sounds, forms, structures, and word meanings from Anglo-Saxon times to the present. Prerequisite: either ENGL 370 or LING 200.

ENGL 374 The Language of Literature (5) VLPA Roles of explicitly describable language features in the understanding and appreciation of various verbal forms. Emphasis on literature, but attention also may be given to nonliterary prose and oral forms.

ENGL 381 Advanced Expository Writing (5) VLPA Concentration on the development of prose style for experienced writers.

ENGL 383 Intermediate Verse Writing (5, max. 10) VLPA Intensive study of the ways and means of making a poem. Further development of fundamental skills. Emphasis on revision. Prerequisite: ENGL 283.

ENGL 384 Intermediate Short Story Writing (5, max. 10) VLPA Exploring and developing continuity in the elements of fiction writing. Methods of extending and sustaining plot, setting, character, point of view, and tone. Prerequisite: ENGL 284.

ENGL 407 Special Topics in Cultural Studies (5) VLPA Advanced work in Cultural Studies.

ENGL 422 Arthurian Legends (5) VLPA Medieval romance in its cultural and historical setting, with concentration on the evolution of Arthurian romance.

ENGL 430 British Writers: Studies in Major Authors (5, max. 15) VLPA Concentration on one writer or a special group of British writers.

ENGL 431 Topics in British Literature (5, max. 15) VLPA Themes and topics of special meaning to British literature.

ENGL 440 Special Studies in Literature (3/5, max. 10) VLPA Themes and topics offering special approaches to literature.

ENGL 442 The Novel: Special Studies (5, max. 10) VLPA Readings may be English or American and drawn from different periods, or they may concentrate on different types—gothic, experimental, novel of consciousness, realistic novel. Special attention to the novel as a distinct literary form. Specific topic varies from quarter to quarter.

ENGL 443 Poetry: Special Studies (5, max. 10) VLPA A poetic tradition or group of poems connected by subject matter or poetic technique. Specific topics vary, but might include poetry as a geography of mind, the development of the love lyric, the comic poem.

ENGL 451 American Writers: Studies in Major Authors (5, max. 15) VLPA Concentration on one writer or a special group of American writers.

ENGL 452 Topics in American Literature (5, max. 15) VLPA Exploration of a theme or special topic in American literary expression.

ENGL 453 Introduction to American Folklore (5) VLPA Study of different kinds of folklore inherited from America's past and to be found in America today.

ENGL 466 Gay and Lesbian Studies (5) VLPA/I&S Examination of ways gays and lesbians are represented in literature, film, performance, and popular culture and how these representations are interpreted in mainstream, gay/lesbian, and academic writing.

ENGL 471 The Composition Process (5) VLPA Consideration of psychological and formal elements basic to writing and related forms of nonverbal expression and the critical principles that apply to evaluation.

ENGL 473 Current Developments in English Studies: Conference (5) VLPA

ENGL 474 Special Topics in English for Teachers (1-10, max. 10) VLPA

ENGL 475 Colloquium in English for Teachers (1-5, max. 10) VLPA

ENGL 476 Puget Sound Writing Program Institute (1-9, max. 9) VLPA Focus on the writing process and the teaching of writing, accomplished through research, writing, reflection, and demonstration of writing instruction. Affiliated with the National Writing Project.

ENGL 477 Children's Literature (5) VLPA An examination of books that form a part of the imaginative experience of children, as well as a part of a larger literary heritage, viewed in the light of their social, psychological, political, and moral implications.

ENGL 478 Language and Social Policy (5) VLPA/I&S Examines the relationship between language policy and social organization; the impact of language policy on immigration, education, and access to resources and political institutions; language policy and revolutionary change; language rights.

ENGL 479 Language Variation and Language Policy in North America (5) VLPA/I&S Surveys basic issues of language variation: phonological, syntactic, semantic, and narrative/discourse differences among speech communities of North American English; examines how language policy can affect access to education, the labor force, and political institutions.

ENGL 481 Special Studies in Expository Writing

(5) VLPA Individual projects in various types of nonfictional prose, such as biographical sketches, informational reports, literary reviews, and essays.

ENGL 483 Advanced Verse Writing (5, max. 15)

VLPA Intensive study of ways and means of making a poem. Prerequisite: ENGL 383.

ENGL 484 Advanced Short Story Writing (5, max. 10)

VLPA Experience with the theory and practice of writing the short story. Prerequisite: ENGL 384.

ENGL 485 Novel Writing (5, max. 15) VLPA

Experience in planning, writing, and revising a work of long fiction, whether from the outset, in progress, or in already completed draft. Prerequisite: ENGL 384.

ENGL 490 Study Abroad Program (5, max. 15)

VLPA This course, for students in the Study Abroad program, relates major works of literature to the landscape and activities of their settings.

ENGL 491 Internship (1-6, max. 12)

Supervised experience in local businesses and other agencies. Open only to upper-division English majors. Credit/no credit only.

ENGL 492 Advanced Expository Writing Conference (1-5, max. 10)

Tutorial arranged by prior mutual agreement between individual student and instructor. Revision of manuscripts is emphasized, but new work may also be undertaken.

ENGL 493 Advanced Creative Writing Conference (1-5, max. 10)

Tutorial arranged by prior mutual agreement between individual student and instructor. Revision of manuscripts is emphasized, but new work may also be undertaken.

ENGL 494 Honors Seminar (5) VLPA

Survey of current issues confronting literary critics today. Readings begin with work in the New Criticism that followed World War II and move forward to consider issues such as changing student population and role of the critic, revisions of the past, emergent technologies, and rise of interdisciplinary teaching and research.

ENGL 495 Major Conference for Honors in Creative Writing (5)

Special projects available to honors students in creative writing. Required of, and limited to, honors students in creative writing.

ENGL 496 Major Conference for Honors (5)

Individual study (reading, papers) by arrangement with the instructor. Required of, and limited to, honors seniors in English.

ENGL 497 Honors Senior Seminar (5) VLPA

Seminar study of special topics in language and literary study. Limited to honors students majoring in English.

ENGL 498 Senior Seminar (5) VLPA

Seminar study of special topics in language and literary study. Limited to seniors majoring in English.

ENGL 499 Independent Study (1-5, max. 10)

Individual study by arrangement with instructor.

General Studies

171 Mary Gates Hall



General Catalog Web page:
www.washington.edu/students/gencat/academic/gen_studies.html



Department Web page:
www.washington.edu/students/ugrad/advising/genst/gstmenu.html

General Studies is an interdisciplinary, individually designed major option for students who wish to create a program of study by combining selected courses from two or more departments. Students are required to identify a central organizing theme for their major and design it under the guidance and supervision of at least two faculty members and a General Studies adviser.

Undergraduate Program

Adviser

171 Mary Gates Hall, Box 352805

(206) 543-2551

advice@u.washington.edu

The General Studies program offers both Bachelor of Arts and Bachelor of Science degrees, depending on the theme and curriculum of the approved major. Ethnomusicology and technical writing are two faculty-designed major options also available through General Studies. Ethnomusicology (B.A.) focuses on the study of world cultures through their musical expression. Technical writing (B.A. or B.S.) offers the study of writing and other modes of communication in a variety of technical environments.

Bachelor of Arts, Bachelor of Science

Before designing a General Studies major, students should read *Designing a General Studies Major* at the department Web page (above), or obtain a copy from the Undergraduate Advising Center, 171 Mary Gates Hall. Particular attention should be paid to the sections on restrictions on themes and restricted access to courses. General Studies majors are not possible in a number of subjects because the UW does not offer sufficient course work. Also, courses available to students in competitive majors cannot be included in General Studies proposals.

Once the guidelines have been read, the student must go through the following steps to design their major:

1. Identify the unifying interdisciplinary theme of your program.
2. Make a list of courses you have taken or plan to take toward this goal. This list should comprise between 50 and 70 quarter credits, all of which are related to your area of concentration. These courses come from at least two departments, but may come from any number of areas, so long as interrelationships are discernible. Most of the courses must be 300- and 400-level courses. At least half of the 50-70 credits selected for the major must come from courses taught within the College of Arts and Sciences.
3. Draft a statement that describes your proposed major and discusses the interrelationships among the courses you have chosen. Propose a brief, descriptive title for your major.
4. Submit your proposal to the General Studies Committee for initial approval. Prospective majors should submit proposals to the General Studies Committee for review at least three quarters prior to graduation.

5. Identify at least two faculty sponsors for the major. The faculty sponsors attest to the intellectual soundness of your proposal and agree to provide whatever guidance you may jointly decide you need. They may also suggest changes in your previously approved written proposal or list of courses.
6. Obtain final approval from a General Studies adviser.
7. Transfer students must be enrolled at the UW before applying to the major.

Major Requirements: 55 to 70 credits, including completion of the approved curriculum and a 5-credit required senior study (minimum grade of 2.7 required for senior study). Awarding of the Bachelor of Arts or Bachelor of Science degree depends on the content of each student's program.

Course Descriptions

See page 48 for an explanation of course numbers, symbols, and abbreviations.

For current course descriptions, visit the online course catalog at www.washington.edu/students/crscat/.

GEN ST 101 University Learning Skills (1-3) Introduction to university culture. Practice in skills necessary for academic success, including note-taking, test-taking, writing, active learning, and time and stress management. Academic planning. Introduction to university resources.

GEN ST 197 Freshman Seminar (1-3, max. 3)

Small-group discussion with faculty representing a wide spectrum of academic disciplines. Topics and approaches vary. Instructor may introduce research techniques or findings, concentrate on readings in his/her area of interest, or illustrate problems and alternatives related to the study of a particular academic discipline. Credit/no credit only. Offered: AWSp.

GEN ST 199 University Resources, Information, and Technology (1-2, max. 2)

Introduces Freshman Interest Group participants to University resources, information retrieval and dissemination, and academically related technology. Credit/no credit only. Offered: A.

GEN ST 350 Independent Fieldwork (1-6, max. 18)

Independent fieldwork in community agencies, apprenticeships, internships, as approved for College of Arts and Sciences credit. Faculty supervisor is required. Credit/no credit only. Offered: AWSpS.

GEN ST 391 Supervised Study in Selected Fields (* max. 15)

Special supervised study in a field represented in the College of Arts and Sciences. Faculty supervisor required. Credit/no credit only. Offered: AWSpS.

GEN ST 470 Undergraduate Peer Instructor Practicum (1-3, max. 12)

Provides instruction in group leadership and promotion of values and methods of learning within a liberal arts setting. For Peer Instructors in the FIG and TRIG programs. Credit/no credit only. Offered: AWSpS.

GEN ST 493 Senior Study (5)

For General Studies majors only. Faculty supervisor required. Offered: AWSpS.

European Studies

See International Studies.

Genetics

J205 Health Sciences



General Catalog Web page:
www.washington.edu/students/genecat/academic/genetics.html



Department Web page:
depts.washington.edu/genetics/

An undergraduate degree is not offered. Students who desire an undergraduate curriculum emphasizing subject matter in genetics are advised to refer to the cell and molecular biology listing under Biology.

Graduate Program

For information on the Department of Genetics graduate program, see the graduate and professional volume of the *General Catalog* or visit the *General Catalog* online at www.washington.edu/students/genecat/.

Faculty

Chair

Breck E. Byers

Professors

Bendich, Arnold J. * 1970, (Adjunct); PhD, 1969, University of Washington; chromosome structure in mitochondria, chloroplasts, and bacteria.

Brewer, Bonita J. * 1982; PhD, 1979, University of Washington; replication of chromosomes, plasmids, and mitochondrial DNA in yeast.

Byers, Breck E. * 1970; PhD, 1967, Harvard University; cell biology: mitosis and meiosis, mechanisms of nuclear division and crossing-over in yeast.

Deeb, Samir S. * 1983, (Adjunct Research); PhD, 1964, University of Illinois; genetic factors predisposing to hyperlipidemia and coronary artery disease.

Eisen, Harvey * 1986, (Affiliate); PhD, 1967, University of Toronto (Canada); host-parasite interactions, generation of genetic diversity.

Fangman, Walton L. * 1967; PhD, 1965, Purdue University; molecular genetics: control of replication of yeast chromosomes, plasmid and mitochondrial DNA.

Felsenstein, Joseph * 1968; PhD, 1968, University of Chicago; evolution and population genetics.

Fields, Stanley * 1995; MA, 1978, PhD, 1981, Cambridge University (UK); molecular genetics.

Furlong, Clement E. * 1977, (Research); PhD, 1968, University of California (Davis); human biochemical genetics in biochemistry of membrane transport systems.

Gallant, Jonathan A. * 1961; PhD, 1961, Johns Hopkins University; molecular genetics, control mechanisms in bacteria, accuracy of translation.

Gartler, Stanley M. * 1957, (Emeritus); PhD, 1952, University of California (Berkeley); mammalian somatic cell genetics with emphasis on the mechanism of x-chromosome inactivation.

Gottschling, Daniel E. 1996, (Affiliate); PhD, 1984, University of Colorado; chromosome biology.

Hall, Benjamin D. * 1963; MA, 1956, PhD, 1959, Harvard University; yeast molecular genetics and molecular evolution of gene expression in eukaryotes.

Hartwell, Leland H. * 1968; PhD, 1964, Massachusetts Institute of Technology; genetic analysis of chromosome transmission and of the control of division by hormones in yeast.

Hawthorne, Donald C. * 1980, (Emeritus); PhD, 1955, University of Washington; yeast genetics, chromosome mapping, suppressors.

King, Mary-Claire * 1995; PhD, 1973, University of California (Berkeley); genetic analysis of complex human phenotypes, human diversity and evolution.

Laird, Charles D. * 1971, (Adjunct); PhD, 1966, Stanford University; cell and developmental biology, human genetics.

Manoil, Colin C. * 1986; PhD, 1979, Stanford University; molecular genetics, protein localization in bacteria.

Martin, George * 1957, (Adjunct); MD, 1953, University of Washington; somatic cell genetics, pathobiology of aging, Alzheimer's disease, Werner's syndrome.

Motulsky, Arno G. * 1953, (Emeritus); MD, 1947, University of Illinois; medical genetics.

Olson, Maynard V. 1992; PhD, 1970, Stanford University; large-scale genome mapping and sequencing.

Reid, Brian J. * 1983, (Adjunct); PhD, 1975, MD, 1980, University of Washington; genetic and cell-cycle abnormalities in neoplastic progression in Barrett's esophagus.

Schubiger, Gerold A. * 1972, (Adjunct); PhD, 1968, University of Zurich (Switzerland); developmental genetic control of *Drosophila* embryos, pattern formation in imaginal disks.

Sibley, Carol Hopkins * 1976; PhD, 1974, University of California (San Francisco); mammalian cell genetics and molecular parasitology.

Smith, Gerald R. * 1983, (Affiliate); PhD, 1970, Massachusetts Institute of Technology; molecular biology of genetic recombination and regulation of gene expression.

Stadler, David R. * 1956, (Emeritus); PhD, 1952, Princeton University; mutation and genetic repair in *Neurospora*.

Stamatoyannopoulos, George 1964; MD, 1958, DMedSc, 1960, University of Athens (Greece); medical genetics.

Trask, Barbara J. * 1992, (Adjunct); PhD, 1985, University of Leiden (Netherlands); molecular cytogenetics, large-scale genome organization and polymorphism, genomics of olfaction.

Wakimoto, Barbara T. * 1984, (Adjunct); PhD, 1981, Indiana University; developmental genetics, gene expression and chromosome organization in eukaryotes.

Young, Elton * 1969, (Adjunct); PhD, 1967, California Institute of Technology; regulation of gene activity in the yeast *Saccharomyces cerevisiae*.

Associate Professors

Berg, Celeste A. * 1990; PhD, 1986, Yale University; *Drosophila* developmental genetics: cell communication and cell migration during oogenesis.

Braun, Robert Elmer * 1986; PhD, 1985, Tufts University; mouse molecular genetics and male germ cell development.

Breedon, Linda 1994, (Affiliate); PhD, 1981, University of Colorado (Boulder); cell cycle regulation in budding yeast.

Henikoff, Steven 1982, (Affiliate); PhD, 1977, Harvard University; chromosome organization, epigenetic effects, analysis of protein sequence information.

Kruglyak, Leonid * 1998, (Affiliate); PhD, 1990, University of California (Berkeley); genetic linkage analysis, population genetics, analysis of gene expression arrays.

Monnat, Raymond J. Jr. * 1982, (Adjunct); MD, 1976, University of Chicago; somatic mutation, somatic cell molecular genetics, human genetic disease.

Soriano, Philippe 1994, (Affiliate); PhD, 1978, University of Paris (France); vertebrate developmental genetics.

Thomas, James H. * 1988; PhD, 1985, Massachusetts Institute of Technology; genetics of development and the nervous system in nematodes.

Wright, Robin L. * 1990, (Adjunct); PhD, 1985, Carnegie Mellon University; biogenesis of membranes, yeast cell biology.

Assistant Professors

Edgar, Bruce A. 1994, (Affiliate); PhD, 1987, University of Washington; cell cycle control in *Drosophila*.

Pallanck, Leo J. * 1997; PhD, 1992, Albert Einstein College of Medicine; neurogenetics.

Ruohola-Baker, Hannele * 1993, (Adjunct); PhD, 1989, Helsinki University (Finland); signaling, pattern formation, establishment of polarity in development.

Course Descriptions

See page 48 for an explanation of course numbers, symbols, and abbreviations.

For graduate-level course descriptions, see the graduate and professional study volume of the *General Catalog* or visit the online course catalog at www.washington.edu/students/crscat/.

GENET 351 Human Genetics: The Individual and Society (4) NW Principles of Mendelian inheritance as illustrated by human traits and diseases; chromosomes and sex determination; distribution of genes in populations; natural selection and evolution; counseling and genetic engineering; ethical issues. Appropriate for non-science majors. Offered: ASP.

GENET 371 Introductory Genetics (5) NW Explores gene transmission, chromosome mapping, quantitative traits, population genetics, genetic analysis of biological processes. Emphasizes formal genetic mechanisms but includes some molecular techniques, such as restriction mapping, cloning, RFLP analysis. For biological sciences majors. Prerequisite: either CHEM 150, CHEM 152, CHEM 155, or CHEM 221; recommended: BIOL 201. Offered: AWSps.

GENET 372 Gene Structure and Function (5) NW Explores the structure of genes and chromosomes, the mechanisms and control of transcription and translation, and the molecular mechanisms of mutation, recombination, transposition, and development. Intended for majors in biological sciences. Prerequisite: either BIOL 201 or GENET 371. Offered: WSp.

GENET 411 Gene Action (5) NW Molecular genetics: description of fundamental genetics processes such as mutation, repair, genetic exchange, recombination, and gene expression. Use of genetic strategies to analyze complex biological processes. Focus is on prokaryotic organisms. Prerequisite: BIOL 201; either CHEM 223, CHEM 237, or CHEM 335. Offered: jointly with MICROM 411; W.

GENET 453 Genetics of the Evolutionary Process (3) NW Felsenstein Contributions of genetics to the understanding of evolution. Processes of mutation, selection, and random genetic events as they affect the genetic architecture of natural populations and the process of speciation. Emphasis on experimental data and observation, rather than mathematical theory. Prerequisite: either GENET 371 or GENET 372.

GENET 454 The Origins of Genetics (4) NW Discovery and eventual triumph of Mendelism in the early twentieth century. Concepts of heredity from ancient times to the nineteenth century. Mendel's work and its rediscovery. Evidence contributing to cornerstone of classical genetics—the chromosome theory of heredity. Prerequisite: either GENET 351, GENET 371, or GENET 372. Offered: A.

GENET 465 Advanced Human Genetics (4) NW *King, Olson* Explores genetic analysis of naturally occurring variation in humans; origins and consequences of mutation, as mediated by selection, migration, population structure and drift; approaches to finding human disease genes and characterizing them at the molecular level; relevance of to other species to analysis of human genes. Offered: W.

GENET 466 Cancer Genetics (3) NW Focuses on three types of cancer-related genetics. DNA repair, mitotic recombination, chromosome loss and imbalance, and other aspects of genomic instability. Metastatic cancer as an example of natural selection and evolution. Yeast and nematodes as models for the study of cancer genetics. Prerequisite: either GENET 371 or GENET 372. Offered: Sp.

GENET 490 Undergraduate Seminar (2, max. 6) NW Seminar for advanced undergraduate students engaged in individual research projects or those who wish to gain an understanding of genetic research by analysis of the primary literature. Assignments emphasize the rationale for research projects and the presentation and interpretation of research findings. Offered: AWSpS.

GENET 499 Undergraduate Research (* max. 30) Credit/no credit only. Offered: AWSpS.

Geography

408A Smith



General Catalog Web page:
www.washington.edu/students/gencat/academic/geography.html



Department Web page:
depts.washington.edu/geog/

Geography is a far-reaching discipline providing a distinctive spatial approach to many of today's societal problems and issues: regional inequality; growth of service activities; residential and educational segregation; health-care delivery, urban growth management; transportation efficiency; environmental and pollution problems; economic impacts of major investments or technological changes; spatial efficiency of industrial production; spatial inequality in the distribution of goods, services, and resources; and the activities of international corporations and political states. Geography is the study of how individuals, groups, and societies interact with their environments. The discipline offers sufficient skills training to enable both graduates and undergraduates to be competitive in many job markets.

The study of geography emphasizes both technical and critical thinking skills. Geographers' skill sets include the ability to use Geographic Information Systems (GIS) software to produce maps; advanced technical skills in statistical analysis; the ability to use census and other demographic data; sophistication in locating data and interpreting it to help make an argument; sophistication in visual techniques for displaying data, including maps, charts, and graphs; advanced use of such software as spreadsheets, relational data bases, and Web page design; and the ability to present multiple models of land-use patterns for analysis in environmental and economic decision making. Graduates have pursued careers as urban planners, environmental planners and land-use analysts, GIS analysts, economic analysts (marketing, location analysis, geodemographics), public health researchers, NGO specialists in developing nations, airline route analysts, import-export/international-trade specialists, real estate valuation specialists, economic development specialists, social studies teachers, and college professors.

Geography seeks to understand the complex processes that result in observed patterns of settlement, location of economic activities, patterns of development, political organization, and the linkages and direction of trade and communication. Geographers also construct analytical tools, models of information representation, and graphic portrayals (notably maps) to aid the cognitive process of understanding.

Special Research and Teaching Facilities

A map center in Suzzallo Library houses atlases, sheet maps, and aerial photographs. Departmental facilities include the Edward L. Ullman Geography Collaboratory and the John C. Sherman Laboratory, which houses a variety of computer workstations connected to the campus computer network. The Ullman Collaboratory in 415 Smith provides a unique collaborative classroom with networked computer work stations. The Geography Commons Computer Room also provides computer work stations for students. The Department of Geography is a member of the Center for Social Science Computation and Research, which maintains an extensive data archive and offers many statistical and software consulting services.

Undergraduate Program

Adviser
Richard Roth
415B Smith, Box 353550
(206) 543-3246
geogd@u.washington.edu

The Department of Geography offers a program of study leading to a Bachelor of Arts degree, as well as a minor. Individual undergraduate programs are built around five program options. Students are encouraged to develop a specific, individualized focus of study within their chosen option.

1. *Urban, Social, and Political Processes and Patterns.* Human population distribution, migration, settlement systems, and organization. Geographic facets of ethnicity, race, sexuality, and gender; wealth and poverty; and health and disease. Cultural landscapes; politics, nationalism, and identity formation; geopolitics. Location of urban services, including health-care systems, urban transportation, land use and housing, and neighborhoods. Urban spatial policies. Courses include: GEOG 230, 277, 280, 308, 330, 342, 350, 371, 375, 380, 401, 430, 431, 432, 440, 442, 443, 445, 461, 478.
2. *Economic Geography.* Key questions in this option include the following: Why do some cities and regions grow while others decline? What local characteristics attract businesses and employment? What determines the flows of goods, services, ideas, people, and capital that bind together the world economy and the regions within it? How are all these relationships being affected by, and in turn influencing, technological change? What can governments and non-governmental organizations do to affect these characteristics and flows? What personal, organizational, and institutional attributes tend to influence spatial behaviors? What are the relevant economic analysis tools to apply to questions of environmental regulation and land use? What effects do global corporations have on the economies of regions and nation-states? To what extent is international development driven by questions of political economy. Courses include: GEOG 207, 230, 302, 330, 336, 349, 350, 366, 367, 370, 371, 430, 433, 435, 440, 443, 447, 448, 449, 450, 478, and 498.
3. *Regional Geography and International Development Studies.* Continental and global patterns of international relations and development. Political economy of development; development theory and practice; globalization. Analysis of geographic concepts in the regional context, especially on such topics as population growth and migration;

development history, theory, and practice; hunger, resources, and poverty; and interconnections in the global economy. Special emphasis on East Asia, Russia and the former Soviet republics, Africa, Latin America, Canada, and the United States. Courses include: GEOG 230, 302, 304, 308, 313, 330, 333, 335, 336, 349, 371, 375, 404, 430, 431, 432, 433, 434, 435, 437, 466.

4. *Geographic Information Systems (GIS).* Role, design, and use of geographic information systems for research, planning, management, and decision making. Use of computers in the collection, manipulation, analysis, and presentation of geographical data. Courses include: GEOG 360, 370, 443, 458, 460, 461, 463, 465, 471.
5. *Society and Environment.* Examines the key debates on the causes and outcomes of environmental change and degradation and the paths to sustainable development; the use of data in the formulation of human-environment interaction models; perceptions of nature; nature-culture relationships; and historical and contemporary societal responses to environmental degradation, health problems, and resource consumption. Courses include: GEOG 270, 360, 370, 371, 372, 432, 460, 461, 463, 471, 472, 480, 490.

Student Associations: The Undergraduate Geography Association (UGA) organizes field trips, alumni career panels, public-service projects, and social gatherings.

Internship or Cooperative Exchange Program Opportunities: More than 75 geography students participate each year in internships. For lists of these opportunities, see the department's career site at depts.washington.edu/geogjobs/.

Bachelor of Arts

Admission Requirements: Students in good academic standing may declare this major at any time.

Suggested Introductory Course Work: GEOG 100, 205, 207, 230, 277. Courses that develop strong writing, analytical, and quantitative-reasoning skills are recommended. Geography is inherently interdisciplinary, so exposure to many social-science fields of study in the first two years is ideal.

Additional Information: Students planning to study economic, transportation, or urban geography are advised to take ECON 200, 201 as early as possible. For those interested in international or area studies, foreign-language competence (i.e., at a level sufficient to be useful for elective, course-related reading and research) is highly desirable (Russian, Chinese, or Spanish). A working knowledge of a region's or nation's history, landscapes (including physical, urban, and cultural), and current role in world economics and politics will also be of great benefit. Students interested in GIS are encouraged to learn a high-level programming language such as C, C++, or Visual Basic.

Major Requirements (59–61 credits):

Foundation Courses (36 credits, to be taken in the first year of the major): (1) Societies, Cities, and Economies—10 credits from GEOG 200, 207, 230, 277, or 280. (2) Environment and Society—GEOG 205, plus one of the following: GEOG 270, 370, 371, 372, or 380. (3) Geographic Methods—15 credits to include GEOG 326 and 360, both of which must be taken within two quarters of entrance to the major, and one of the following: GEOG 367, 425, 426, 445, 460, 461, or 471. (4) Tutorial for Majors—GEOG 397 (1 credit) to be taken within two quarters of entrance to the major

Option (15 credits): Three upper-division GEOG courses, including two 400-level courses. Options are the areas of primary expertise that majors develop in the course of their studies. Students' options are a collection of courses that together provide specialization in a subfield of geography, combining systematic and analytical knowledge and skills (see advising for a list of these options).

Electives (5 credits): 5 credits of GEOG courses at the 200-level or above. Upper-division electives are preferred.

Capstone Experience (3-5 credits): One of the following: Senior essay, senior seminars, honors seminars, workshop courses, or other approved arrangements.

Additional Degree Requirements:

(1) Transfer students must complete a minimum of 25 upper-division credits in Geography in residence at the University of Washington. (2) Students must attain a minimum grade of 2.0 for all GEOG courses to be applied toward the degree. Students must attain a minimum GPA in Geography courses of 2.50. (3) Students are encouraged to take appropriate elective courses outside the Geography department in fields which support their selected option. Courses are available on lists supplied by the Geography advisers or may be recommended by the Faculty Adviser. (4) The department offers an honors program for students who are either participating in the college honors program or who are invited to participate in the departmental honors program.

Minor

Minor Requirements: 30 credits in geography, including 15 upper-division credits with at least 5 credits at the 400 level. A minimum grade of 2.0 for each course counted toward the minor. At least 15 credits of upper-division geography courses must be taken at the UW.

Graduate Program

For information on the Department of Geography graduate program, see the graduate and professional volume of the *General Catalog* or visit the *General Catalog* online at www.washington.edu/students/genecat/.

Faculty

Chair

Victoria A. Lawson

Professors

Beyers, William B. * 1962; PhD, 1967, University of Washington; economic geography, regional analysis, regional development.

Chrisman, Nicholas R. * 1987; PhD, 1982, University of Bristol (UK); geographic information systems, spatial error analysis, science and technology studies.

Fleming, Douglas K. * 1963, (Emeritus); PhD, 1965, University of Washington; transportation geography (especially ocean and air), regional organization of western Europe.

Guest, Avery * 1972, (Adjunct); MS, 1964, Columbia University; MA, 1967, PhD, 1970, University of Wisconsin; demography, ecology, stratification.

Harrington, James W. * 1997; PhD, 1983, University of Washington; economic change and labor processes in sub-national, regional economic development.

Hart, Lawrence G. 1982, (Adjunct); PhD, 1985, University of Washington; rural health policy, medical geography.

Hayuth, Yehuda 1990, (Affiliate); PhD, 1978, University of Washington.

Hodge, David C. * 1975; MS, 1973, PhD, 1975, Pennsylvania State University; urban geography, urban transportation geography, equity, gender.

Jackson, W. A. Douglas * 1955, (Emeritus); PhD, 1953, University of Maryland; Canada, political systems, nature and culture.

Krumme, Gunter * 1970; PhD, 1966, University of Washington; economic, organizational and marketing geography, location theory, regional development.

Lawson, Victoria A. * 1986; PhD, 1986, Ohio State University; Latin America, critical development studies, feminist geography.

Mayer, Jonathan D. * 1977; PhD, 1977, University of Michigan; medical geography, clinical applications, philosophy, human-environment relations.

Morrill, Richard L. * 1955, (Emeritus); PhD, 1959, University of Washington; spatial organization, migration, population, diffusion, regional planning/development, inequality.

Nyerges, Timothy L. * 1985; PhD, 1980, Ohio State University; GIS, collaborative decision support, growth management, transportation, environment, land use.

Thomas, Morgan D. * 1959, (Emeritus); PhD, 1954, Queen's University (UK); regional economics, regional planning and development, technical innovation.

Vellikonja, Joseph * 1964, (Emeritus); PhD, 1948, State University (Italy); social and political geography, international migration, immigrants in America, eastern Europe.

Zumbrunnen, Craig * 1977; PhD, 1973, University of California (Berkeley); resource analysis, Russia and NIS, quantitative methods, physical geography, urban ecology.

Associate Professors

Braden, Kathleen 1989, (Affiliate); PhD, 1981, University of Washington

Chan, Kam Wing * 1991; PhD, 1988, University of Toronto (Canada); economic development, urbanization, migration, China, Hong Kong.

Chang, Kuei-Sheng * 1966, (Emeritus); PhD, 1955, University of Michigan; economic geography of China, historical geography of exploration, Third World development.

Ellis, John Mark 1999; PhD, 1988, Indiana University; labor markets, immigration, "race," ethnicity.

England, Kim V. L. 1999; MA, 1984, PhD, 1988, Ohio State University; feminist geographies, labor markets, service-sector employment, families, child care.

Jarosz, Lucy A. * 1990; PhD, 1990, University of California (Berkeley); critical development studies; food and agriculture, feminist geography, political ecology.

Kakiuchi, George H. * 1957, (Emeritus); PhD, 1957, University of Michigan; Japan, agriculture, internal migration, regional geography.

Mitchell, Katharyne 1993; PhD, 1993, University of California (Berkeley); urban, cultural and economic geography, Pacific Rim, migration, transnational studies.

Waddell, Paul A. * 1997, (Adjunct); PhD, 1989, University of Texas (Dallas); urban policy, land use and transportation, growth management, geographic information systems.

Assistant Professors

Brown, Michael P. * 1997; PhD, 1994, University of British Columbia (Canada); local, political, cultural, health geography; gender and sexuality; history of geographic thought.

Chang, Stephanie E. * 1997, (Research); PhD, 1994, Cornell University; natural hazards, economic geography, transportation and urban infrastructure, Japan.

Hayes, Michael V. 1990, (Affiliate); PhD, 1989, McMaster University (Canada)

Jhaveri, Nayna J. 1997, (Acting); MSc, 1984, PhD, 1999, University of Edinburgh (UK); political and cultural ecology, consumption and environment, common property systems, Asia.

Sparke, Matthew * 1995; MA, 1991, PhD, 1996, University of British Columbia (Canada); geopolitics, Cascadia, borderlands studies, globalization.

Withers, Suzanne D. * 1997; PhD, 1992, University of California (Los Angeles); population, spatial demography, urban housing, quantitative and longitudinal methods, poverty.

Course Descriptions

See page 48 for an explanation of course numbers, symbols, and abbreviations.

For graduate-level course descriptions, see the graduate and professional study volume of the *General Catalog* or visit the online course catalog at www.washington.edu/students/crscat/.

GEOG 100 Introduction to Geography (5) I&S *Brown, Frenkel* Introduction to the study of human geography and the major themes of the discipline. Topics include: human-environment interactions, migration and human mobility, patterns of health and nutrition, industrialization and urbanization, and the geography of culture and politics. Offered: AWSps.

GEOG 102 World Regions (5) I&S Spatial study of world regions, based on historical, cultural, political, economic, and other factors. An attempt to understand the underlying forces that have led to the formation of regions and regional patterns.

GEOG 200 Introduction to Human Geography (5) I&S Patterns and systems of human occupancy of the world. Emphasis on cultural processes, dynamic change, functional relations, networks, and diffusion models.

GEOG 205 Introduction to Physical Sciences and the Environment (5) NW *Zumbrunnen* Major atmospheric, hydrologic, and geomorphic processes used to interpret the character, distribution, and human significance of different natural and human-altered environments. Includes laboratory exercises for science and non-science majors, geography majors and nonmajors.

GEOG 207 Economic Geography (5) I&S *Beyers, Harrington, Krumme* The changing locations and spatial patterns of economic activity, including: production in agriculture, manufacturing, and services; spatial economic principles of trade, transportation, communications, and corporate organization; regional economic development, and the diffusion of technological innovation. Offered: AWS.

GEOG 227 Geographic Perspectives on Minorities in the United States (5) I&S

GEOG 230 Urbanization in Developing Nations (5) I&S *Lawson* Cities in their cultural and economic contexts, geographical patterns of cities, and impacts of political-economic processes on daily life inside cities. Social, political, and economic challenges facing these rapidly growing cities.

GEOG 258 Maps and GIS (5) I&S *Chrisman* Explores how people represent the world with maps and geographic information systems (GIS). Trains students in map use for basic navigation, urban management, and environmental analysis. Considers role of spatial databases in commerce, decision-making, and analysis. Helps map readers better determine quality, usefulness, and representation of information. Offered: W.

GEOG 270 Human Dimensions of Environmental Change (5) I&S *Jhaveri* Considers the problems of pollution, ecosystem destruction, and natural resource depletion in our increasingly interconnected global environment. Examines how and why societies are transforming the earth from scales local to global,

as well as the range of approaches to environmental protection. Focuses on the types, spatial scale, magnitude, and pace of environmental deterioration and responses to it.

GEOG 277 Geography of Cities (5) I&S *Brown, England, Withers* Study of 1) systems of cities—their location, distribution, functions, and competition; and 2) their internal structure—the location of activities within urban areas. Particular emphasis on current urban problems—sprawl, housing, segregation, economic growth, and metropolitan transportation.

GEOG 280 Introduction to the Geography of Health and Health Care (5) I&S *Mayer* Concepts of health from a geographical viewpoint, including human-environment relations, development, geographical patterns of disease, and health systems in developed and developing countries. Offered: Sp.

GEOG 301 Cultural Geography (5) I&S *Jackson* Analysis of the role of culture in the formation of landscape patterns; components of culture that contribute not only to a "sense of place," but also to the mosaic of settlement patterns and occupancy that can be traced to culture.

GEOG 302 The Pacific Northwest (3) I&S *Beysers* Settlement pattern in the Pacific Northwest, emphasizing economic and historical factors, including the location of resource-oriented industries, policies regarding the use of public lands, and bases of the development of major urban areas in the region. Offered: W.

GEOG 308 Canada: A Geographic Interpretation (5) I&S *Sparke* Examines the overlapping economic, cultural, and political geographies shaping life in contemporary Canada. Topics include: free trade, constitutional crisis, feminism in Canada, aboriginal politics, and border region phenomena. Attention paid to how specific geographic interpretations of Canada by Canadians actually play a part in national life. Offered: jointly with SISC 308; Sp.

GEOG 326 Introduction to Geographic Research (5) I&S, QSR *Chan* Introduction to the tools of geographic research. Topics include defining problems, designing research, and methods for gathering and operationalizing statistics. Provides experience defining a geographic research problem, collecting and analyzing data, and drawing conclusions from that endeavor. Offered: WS.

GEOG 330 Latin America: Landscapes of Change (5) I&S *Lawson* Examines operation of economic, social, and political processes across countries of Latin America—on international, national, and local scales—to understand common issues facing the region and different impacts in particular countries. Topics include internationalization of Latin American economies; agrarian and urban change; popular movements. Offered: W.

GEOG 333 Russia's Changing Landscape (5) I&S *ZumBrunnen* The Russian landscape as it has been affected by Soviet planning, migration and settlement, urbanization, industrialization, the results of collectivization in agriculture, and the growth of a transport network.

GEOG 335 Geography of the Developing World (5) I&S Characteristics and causes, external and internal, of Third World development and obstacles to that development. Special attention to demographic and agricultural patterns, resource development, industrialization and urbanization, drawing on specific case studies from Asia, Africa, and Latin America. Recommended: GEOG 100 or GEOG 230. Offered: jointly with SIS 335.

GEOG 336 China (5) I&S *Chan* China's environmental and historical settings. Human response to varied geographical conditions. Pattern and process of development in agriculture, industry, and urbanization. Offered: W.

GEOG 342 Geography and Inequality in the United States (5) I&S *England* Geography of social and economic inequality. Spatial distribution of wealth and poverty and the possible causes. Geographic and other aspects of the alleviation of poverty. The geography of racial and ethnic discrimination, from Indian reservations to ghettos, as well as religious, gender, and age discrimination.

GEOG 344 Migration in the Global Economy (5) I&S *Mitchell* Analyzes the relationship between human mobility in the late 20th century and changes in the global economy. Allows the students to gain familiarity with scholarly research on international migration from a diversity of approaches and methods. Offered: jointly with SIS 344; W.

GEOG 349 Geography of International Trade (5) I&S *Harrington* Introduces the theories and practice of international trade and foreign direct investment. Topics include: trade theory and policy; economic integration; currency markets and foreign exchange; trade operations and logistics; the international regulatory environment; and marketing, location and entry, and finance, accounting, and taxation. Offered: W.

GEOG 350 Local Economies and Market Areas (5) I&S *Krumme* Intermediate economic geography. Methods and concepts for analysis of economic and business patterns, processes, and problems at regional and local levels. Tools for collecting, organizing, and analyzing data for investigating local economic issues. Recommended: GEOG 207. Offered: Sp.

GEOG 360 Principles of Cartography (5) I&S, QSR *Chrisman, Nyerges* Origins, development, and methods of cartography. Principles of data representation and map design for thematic and topographic mapping. Introduction to the use of computers as geographic information systems (GIS). Offered: ASpS.

GEOG 366 Introduction to Regional Economic Development (3/5) I&S *Harrington* The process of regional economic development. Theories and conceptualizations of economic growth and structural change, technological change and industrial development, spatial variation in economic activities and government policies. Recommended: GEOG 207; ECON 201.

GEOG 367 Economic Uses of Geographic Information (5) I&S *Harrington* Uses of area data and the geographic information systems (GISs) that handle them in routing, marketing, service-area assessment, and site location. Considers key economic-geography concepts, marketing approaches, questions of data availability and suitability, and GIS. Prerequisite: GEOG 360.

GEOG 370 Problems in Resource Management (5) I&S *ZumBrunnen* Principles and practices of effective conservation and utilization of natural resources. Role of technology in resource use. Physical, political, and economic aspects of resource management for food, population, land, water, air, energy, and timber resources. Recommended: GEOG 100. Offered: Sp.

GEOG 371 World Hunger and Resource Development (5) I&S *Jaros* Addresses issues of hunger and poverty in their relationship to resource development at the local, national, and global levels. Examines various approaches to the problem of world hunger rooted in critical development studies. Recommended: GEOG 230, GEOG 330, or GEOG 335. Offered: A.

GEOG 372 Asian Sustainable Development (5) I&S *Jhaveri* Examines the contemporary relationship between environmental protection and development paths in Asia. Inquires into the forces driving both environmental change and societal responses (state

and local regulations, social movements, etc.) to that change, at many geographical scales. Asian concepts of nature-society relations also explored. Offered: jointly with SISA 372; W.

GEOG 375 Geopolitics (5) I&S *Sparke* An introduction to both political geography and geopolitics, addressing the fundamental links between power and space. Topics covered include: theories of power, space, and modernity; the formation of modern states; international geopolitics in the aftermath of the Cold War; the post-colonial nation-state; and the geopolitics of resistance. Offered: jointly with SIS 375.

GEOG 380 Geographical Patterns of Health and Disease (4) I&S *Mayer* Geography of infectious and chronic diseases at local, national, and international scales; environmental, cultural, and social explanations of those variations; comparative aspects of health systems. Offered: A.

GEOG 397 Tutorial for Majors (1) Overview of the discipline of geography including faculty research interests, teaching philosophies, and course offerings as well as essential study and research skills and career development strategies. Students meet concurrently with faculty adviser to identify academic interests and devise plan of studies. Credit/no credit only. Offered: ASp.

GEOG 401 Culture, Capital, and the City (5) I&S *Brown* Examines current themes in social theory as they apply to the urban landscape. Includes the interconnections of cultural and economic processes and the spatial patternings of race, class, and gender in the modern urban context. Offered: A.

GEOG 425 Qualitative Methodology in Geography (5) I&S *Jaros* Historical and philosophical overview of qualitative methodology in design of geography research strategies. Techniques of interviewing, participant observation, and archival research. Forms of analyses such as textual interpretation, discourse analysis and computer-aided analyses of interview transcriptions and ethnography. Questions of ethics, field notes and write-up. Offered: W.

GEOG 426 Quantitative Methods in Geography (5) I&S *Withers* Quantitative methods for empirical research in geography. Emphasis on statistical analysis; use of geographic data bases like the United States Census; understanding special issues and problems associated with geographically ordered data; verbal and graphic presentation in a computer environment. Recommended: GEOG 326. Offered: Sp.

GEOG 430 Contemporary Development Issues in Latin America (5) I&S *Lawson* Contemporary development issues in Latin America, seen from a spatial perspective. Concept of development; competing theories as related to various Latin American states. Economic structural transformation, migration, urbanization, regional inequality, and related policies. Offered: A.

GEOG 431 Geography and Gender (5) I&S *Jaros* Examines theories and case studies across international, national, and regional scales in order to illustrate the impacts of social and economic processes upon the construction of gender in particular places. Offered: Sp.

GEOG 432 Population and Urbanization Problems of Russia and the Newly Independent States (5) I&S *ZumBrunnen* Historical background and evolution of Soviet/Russian population and urbanization processes and problems. Distinguishing demographic characteristics and recent trends in the growth and migration of rural and urban populations. Analysis of problems associated with ethnicity and nationality, regional-temporal labor demand and supply issues, and spatial-temporal well-being. Offered: odd years; Sp.

GEOG 433 Resource Use and Management in Russia and the Newly Independent States (5) I&S *ZumBrunnen* Geographic and historical background of the natural resource base of Russia and the Newly Independent States. Geographic and historical perspectives on Soviet natural resource use and management in theory and practice. Implications of the breakup of the USSR for natural resource use and management. Offered: odd years; W.

GEOG 434 Southeast Asia: Conflict and Development (5) I&S *Mitchell* Study of complexity of ethnic, cultural, and socioeconomic background in relation to division and rivalry in past; conflict and development in contemporary southeast Asia.

GEOG 435 Industrialization and Urbanization in China (5) I&S *Chan* Examines the impacts of industrialization strategies adopted by the Peoples Republic of China on urbanization and rural-urban relations. Topics include: economic development strategies, industrial geography, rural industrialization, urban development patterns, migration, and urbanization policies. Recommended: GEOG 336. Offered: Sp.

GEOG 440 Regional Analysis (5) I&S *Beyers* Regional industrial structures and economic change. Application of shift-share, cohort, multiplier, input/output, and programming models to the analysis and projection of regional population and employment patterns, regional growth differentials, and regional impact analysis. Recommended: GEOG 207. Offered: Sp.

GEOG 442 Social Geography (5) I&S Review of concepts and methods of postwar social geography: historical roots and present orientations. Study of social spatial systems, their structures and functioning.

GEOG 443 Location and Movement Models (5) I&S *Morrill* Application of models of optimum location and allocation; assignment, transportation, and spatial equilibrium; spatial interaction; geographic simulation; and spatial diffusion.

GEOG 445 Population Distribution and Migration (5) I&S *Withers* Relation of population distribution to environment, economic development, and culture. Frontier and rural settlement, urbanization, and suburbanization. Regional variation in age, ethnicity, fertility, and mortality. Causes and effects of migration from the world to the local scale. Offered: A.

GEOG 447 The Geography of Air Transportation (5) I&S Geographic analysis of world air routes, passenger and cargo flows, and airport activities; consideration of physical, economic, political, and institutional determinants of routes and flows.

GEOG 448 Geography of Transportation (5) I&S Circulation geography, principles of spatial interaction emphasizing commodity flow, the nature and distribution of rail and water transport, the role of transport in area development.

GEOG 449 Geography of Ocean Transportation (5) I&S Geographic analysis of ocean trade routes, cargo and passenger flows, and port activities. Evaluation of the role of the transportation carrier in international trade.

GEOG 450 Theories of Location (5) I&S *Krumme* Derives basic micro-economic, decision-theoretical, managerial, and organizational-theoretical principles underlying consumer, commercial, industrial, and government behavior in physical, economic, transportation, and communication (including cyber-) space. Recommended: GEOG 207. Offered: A.

GEOG 451 Cultural Geography of Latin America (5) I&S Interdisciplinary senior seminar examining how physical and social geographies are culturally constructed and interconnected with subjectivities and power in Latin America. Topics include identity

formation grounded in particular territories and the social constitution of space via an interplay of material and cultural forces. Offered: jointly with SISLA 451.

GEOG 458 Map Sources and Errors (5) I&S *Chrisman* Analysis and appraisal of source materials for maps, production constraints of mapping agencies, coverage and quality. Focus on errors inherent in maps and geographic information; metadata resources; judgment of fitness for specific applications. Prerequisite: 2.0 in GEOG 360.

GEOG 460 Geographic Information Systems Analysis (5) I&S *Chrisman* Methods of Analysis provided by geographic information systems (GIS). Operations on map information including map overlay, aggregation/disaggregation, and other spatial and attribute procedures. Exposure to raster and vector software. Review of capabilities of current available GIS software. Prerequisite: 2.0 in GEOG 360. Offered: A.

GEOG 461 Urban Geographic Information Systems (5) I&S *Nyerges* Use of geographic information systems to investigate urban/regional issues; focus on transportation, land-use and environmental issues; all urban change problems considered. GIS data processing strategies. Problem definition for GIS processing. Data collection, geocoding issues. Data structuring strategies. Prerequisite: 2.0 in GEOG 360; recommended: GEOG 277. Offered: W.

GEOG 463 Geographic Information Systems Workshop (5) I&S *Chrisman, Nyerges* Practical experience applying geographic information system (GIS) tools to analyze spatial data. Workshop format requires student-motivated projects; diverse backgrounds encouraged. Prerequisite: either 2.0 in GEOG 460 or 2.0 in GEOG 461. Offered: Sp.

GEOG 465 Analytical Cartography (5) I&S *Chrisman* Algorithms and data structures for selected topics in computer-assisted cartography. Emphasis on point, line, area, and surface data representation, map design, generalization, and data transformations. Prerequisite: either 2.0 in GEOG 460 or 2.0 in GEOG 461. Offered: odd years; W.

GEOG 466 Regional Economic Development (5) I&S *Harrington* Provides a theoretical overview of sub-national, regional economic growth and structural change, including the roles of interregional interaction and international trade, technological change, social, and legal institutions. Emphasizes inter-regional disparities in the context of relatively wealthy countries. Explores the constraints and effectiveness of government (and other organizations') policy. Offered: W.

GEOG 471 Methods of Resource Analysis (5) I&S *ZumBrunnen* Economic and noneconomic criteria for resource analysis. Theory and methods of linear models of natural resource analysis. Includes materials-balance modeling, residuals management, constrained system optimization approaches to water quality analysis, land-use patterns and interregional energy use, and multiple objective planning techniques applied to natural resource problems. Recommended: GEOG 370.

GEOG 472 Ecoscapes: Nature, Culture, and Place (5) I&S *Jhaveri* Relationship between nature, culture, and place as the heart of geographic inquiry. Examines how perceptions of nature are influenced by changing political-economic, cultural, and scientific practices. Uses cultural studies of ecological science as a primary method of analysis. Offered: Sp.

GEOG 478 Intraurban Spatial Patterns (5) I&S *Brown* Geographic patterns and processes within metropolitan areas. Economic land-use patterns (commercial and industrial location), social land-use patterns (segregation, housing, and neighborhood change), urban political geography, analysis of ur-

ban infrastructure, and assessment of contemporary and future trends in urban development. Recommended: GEOG 277. Offered: A.

GEOG 480 Environmental Geography, Climate, and Health (5) I&S *Mayer* Demonstrates and investigates how human-environment relations are expressed in the context of health and disease. Local and global examples emphasize the ways medical geography is situated at the intersection of the social, physical, and biological sciences. Examines interactions between individual health, public health, and social, biological, and physical phenomena. Offered: W.

GEOG 490 Field Research: The Seattle Region (6) I&S *Morrill* Field methods for contemporary urban research. Survey designs used in the analysis of transportation, land use, location of employment, shopping and housing, political fragmentation, and environmental degradation. Field report required, based on field work in the Seattle region.

GEOG 492 Library Research in Geography (3) I&S Introduction to library research methods in geography. Review and assessment of geographical bibliographies and abstract services for monographs, periodicals, gazetteers, dictionaries, encyclopedias, government publications, and statistical sources. Credit/no credit only.

GEOG 494 Senior Essay (3) I&S Supervised individual research and writing of major paper during senior year. Offered: AWSp.

GEOG 495 Special Topics (*, max. 15) I&S Topics vary and are announced in the preceding quarter. Offered: AWSpS.

GEOG 496 Internship in Geography (3/5, max. 12) Internship in the public or private sector, supervised by a faculty member. Credit/no credit only. Offered: AWSpS.


GEOG 497 Tutorial in Geography (1-3, max. 6) I&S *ZumBrunnen* Intensive directed study and tutoring. Literature reviews, formulations of project outlines and research designs, orientation in contemporary geographic thought and trends. Directed writing. Required for honors students. Offered: AWSp.

GEOG 498 Undergraduate Seminar in Economic Geography and Regional Science (3) I&S *Krumme* Selected advanced topics and current problems in economic geography. Emphasis on formulating research questions, developing an appropriate research process, selecting methods, searching for resources, writing up and documenting research results, and using the Internet for research purposes. Offered: A.

GEOG 499 Special Studies (* max. 15) Supervised reading programs, undergraduate and graduate library and field research; special projects for undergraduate honors students. Offered: AWSpS.

Geological Sciences

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 General Catalog Web page:
www.washington.edu/students/gencat/academic/geo_sci.html

 Department Web page:
www.geology.washington.edu

The geological sciences include the collection and interpretation of field and laboratory data as well as the application of principles of physics, chemistry, biology, and mathematics to the study of the earth, its environment, its origin, and the processes by which it has been transformed through time. The curriculum of the de-

partment provides a base of required courses for the undergraduate and contains a wide variety of more specialized upper-division courses that reflect the diversity of the geological sciences.

The department is well equipped with modern analytical, computational, and experimental facilities and has sizable research/teaching collections of rocks, minerals, and fossils.

Undergraduate Program

Adviser
George Bergantz
302A Johnson, Box 351310
(206) 543-5405
advising@geology.washington.edu

The Department of Geological Sciences offers two undergraduate degrees. The Bachelor of Arts degree is designed for students who wish to obtain a broad understanding of the history, composition, and dynamics of the earth, either for personal enrichment or as training for careers such as science journalism, environmental law, or K-12 teaching. The Bachelor of Science degree, which requires GEOL 401 and more credits in mathematics and physical sciences, is designed for students who intend eventually to enter a graduate program in earth science and pursue a professional career. Both degrees require 55 credits in Geological Sciences and 35 credits in related sciences. All required courses must be completed with a minimum grade of 2.0. The Biology Option allows B.S. students interested in paleontology and paleobiology to substitute certain biology courses for mathematics and physical sciences. Courses and a minor are also offered for nonmajors interested in understanding the processes responsible for the distribution of continents, landscapes, the availability of natural resources, and the occurrence of such natural hazards as earthquakes and volcanoes.

The department also offers a minor.

Student Associations: GeoClub (a registered student organization for undergraduates).

Bachelor of Science

Admission: Students in good academic standing may declare this major at any time.

Suggested Introductory Course Work: MATH 124 or 127; PHYS 121/131; CHEM 142.

Major Requirements:

1. *Basic Supporting Sciences:* The following courses should be taken before starting the GEOL 201, 202, 203 sequence: MATH 124 (or 127), PHYS 121/131, CHEM 142.
2. *Standard Option:* MATH 125, 126, PHYS 122/132, and any one of the following: PHYS 123/133, CHEM 237 or CHEM 350, MATH 307 or 308, STAT 311, CHEM 162.

Biology Option: MATH 125, 126, plus two from BIOL 201, 202, 203. CHEM 152 is recommended, but not required.

3. *Geological Sciences Courses:* GEOL 201, 202, 203 (GEOL 101, 205, or other 300-level courses cannot be substituted for this sequence); two of GEOL 391, 392, 393 (all three recommended); GEOL 401.
4. *Electives:* 20 credits of 400-level GEOL courses (not including 401, 490, 492, 498, 499). If GEOL 391, 392, 393 are all taken, only 15 elective credits at the 400-level are required.

Bachelor of Arts

Admission: Students in good academic standing may declare this major at any time.

Suggested Introductory Course Work: MATH 124 (or 127), PHYS 121/131, CHEM 142.

Major Requirements:

1. *Basic Supporting Sciences:* The following courses should be taken before starting the GEOL 201, 202, 203 sequence: MATH 124 (or 127), PHYS 121/131, CHEM 142. Additionally, MATH 125 plus 15 credits from the following: MATH 126; PHYS 122/132, 123/133; CHEM 152, 162; BIOL 101, 102, 201, 202, 203; CSE/ENGR 142; STAT 311; GEOG 360, 460.
2. *Geological Sciences Courses:* GEOL 201, 202, 203; two from GEOL 391, 392, 393 (GEOL 401 not required).
3. *Electives:* 30 credits of 300- or 400-level GEOL courses (not including 490, 492, 498, 499), at least 15 of which must be at the 400 level.

Minor

Minor Requirements: GEOL 201, 202, 203 (GEOL 101, 205, and 300-level courses cannot be substituted); 10 credits at the GEOL 300- or 400-level (not including 490, 492, 498, 499). All courses must be completed with a minimum grade of 2.0.

Graduate Program

For information on the Department of Geological Sciences graduate program, see the graduate and professional volume of the *General Catalog* or visit the *General Catalog* online at www.washington.edu/students/gencat/.

Faculty

Acting Chair

Darrel S. Cowan

Professors

Adams, John B. * 1975, (Emeritus); MS, 1958, PhD, 1961, University of Washington; planetology, remote sensing.

Atwater, Brian F. * 1986, (Affiliate); MS, 1974, Stanford University; PhD, 1980, University of Delaware; paleoseismology, neotectonics, regional geology, seismic hazards.

Bostrom, Robert C. * 1964, (Emeritus); MA, 1952, PhD, 1961, Oxford University (UK); geotectonics, geophysics.

Brown, J. Michael * 1984, (Adjunct); PhD, 1980, University of Minnesota; experimental and theoretical mineral physics at high pressure and temperature.

Cowan, Darrel S. * 1974; PhD, 1972, Stanford University; structural geology and regional tectonics.

Creager, Joe S. * 1958, (Emeritus); PhD, 1958, Texas A&M University; geological oceanography, sedimentology.

Crosson, Robert S. * 1966, (Adjunct); PhD, 1966, Stanford University; seismology, structure and tectonics, earthquake hazards.

Delaney, John R. * 1977, (Adjunct); PhD, 1977, University of Arizona; geological oceanography, origin of oceanic crust, igneous petrology.

Dunne, Thomas * 1973, (Affiliate); PhD, 1969, Johns Hopkins University; geomorphology and hydrology.

Evans, Bernard W. * 1969; PhD, 1959, Oxford University (UK); petrology and mineralogy.

Ghiorsio, Mark S. * 1980; MA, 1978, PhD, 1980, University of California (Berkeley); geochemistry.

Ghose, Subrata * 1972; PhD, 1959, University of Chicago; mineralogy.

Gillespie, Alan R. * 1985; PhD, 1982, California Institute of Technology; landscape evolution, paleoclimate, geochronology, and applications of remote sensing.

Hallet, Bernard * 1980; PhD, 1975, University of California (Los Angeles); glaciology, permafrost studies, geomorphology.

Johnson, Harlan Paul * 1976, (Adjunct); PhD, 1972, University of Washington; paleomagnetism and marine geophysics.

Leopold, Estella B. * 1976, (Adjunct); PhD, 1955, Yale University; paleoecology, pollen and seed analysis, late Cenozoic environment.

Mallory, V. Standish * 1952, (Emeritus); PhD, 1952, University of California (Berkeley); biostratigraphy, micropaleontology, paleoecology.

McCallum, Ian S. * 1970; PhD, 1968, University of Chicago; petrology.

Merrill, Ronald T. * 1967; PhD, 1967, University of California (Berkeley); geomagnetism, geophysics of solids, rock magnetism.

Nelson, Bruce K. * 1986; PhD, 1985, University of California (Los Angeles); isotopic and geochemical investigations.

Newhall, Christopher * 1994, (Affiliate); PhD, 1980, Dartmouth College; volcanology.

Nittroer, Charles * 1998; PhD, 1978, University of Washington; geological oceanography, continental-margin sedimentation.

Porter, Stephen C. * 1962; PhD, 1962, Yale University; Quaternary geology and geomorphology.

Raymond, Charles F. * 1969, (Adjunct); PhD, 1969, California Institute of Technology; glaciology, glacier and ice sheet dynamics.

Rensberger, John M. * 1966; PhD, 1967, University of California (Berkeley); Cenozoic mammalian evolution, taxonomy, and biostratigraphy.

Sack, Richard O. * 1993, (Affiliate); PhD, 1979, Harvard University; petrology, thermochemistry of rock-forming minerals.

Stuiver, Minze * 1969, (Emeritus); PhD, 1958, University of Groningen (Netherlands); geochronology, isotope geology.

Swanson, Donald A. * 1992, (Affiliate); PhD, 1964, Johns Hopkins University; volcanology.

Tsukada, Matsuo * 1969, (Adjunct); PhD, 1961, Osaka City University (Japan); interpretation of Quaternary events from palynological and kindred data.

Ward, Peter D. * 1984; PhD, 1976, McMaster University (Canada); invertebrate paleontology, paleobiology.

Washburn, A. Lincoln * 1974, (Emeritus); PhD, 1942, Yale University; geomorphology, periglacial processes and environments.

Associate Professors

Anderson, Patricia M. * 1982, (Research); MA, 1976, PhD, 1982, Brown University; paleoecology, paleoclimatology, Quaternary studies, biogeography, North American archaeology.

Bergantz, George W. * 1988; PhD, 1988, Johns Hopkins University; physical petrology, heat and mass transfer, geophysics.

Booth, Derek B. * 1980, (Adjunct Research); PhD, 1984, University of Washington; geomorphology, environmental geology.

Bourgeois, Joanne * 1980; PhD, 1980, University of Wisconsin; sedimentology, sedimentary geology.

Cheney, Eric S. * 1964; PhD, 1964, Yale University; economic geology, sequence stratigraphy.

Irving, Anthony J. * 1979, (Affiliate); PhD, 1972, Australian National University; igneous petrology and geochemistry.

Iverson, Richard M. * 1990, (Affiliate); PhD, 1984, Stanford University; landslides, debris flows, granular materials, geomechanics, hydrology, geomorphology.

Montgomery, David R. * 1991; PhD, 1991, University of California (Berkeley); earth surface processes, especially those occurring in mountain drainage basins.

Stewart, Richard J. * 1969; PhD, 1970, Stanford University; sedimentary petrology, diagenesis of sediment.

Vance, Joseph A. * 1957, (Emeritus); PhD, 1957, University of Washington; igneous and metamorphic petrology, general geology.

Assistant Professors

Cladouhos, Trenton T. 1995, (Affiliate); PhD, 1993, Cornell University; structural geology, hydrogeology of fractured rocks.

Kress, Victor C. 1990, (Research); PhD, 1990, University of California (Berkeley); igneous petrology, volcanology, experimental petrology.

Nesbitt, Elizabeth A. * 1993, (Affiliate); PhD, 1982, University of California (Berkeley); paleontology, K-12 education.

Sletten, Ronald S. 1983, (Research); MS, 1987, PhD, 1995, University of Washington; aquatic geochemistry, polar soils.

Stone, John O. H. * 1998; PhD, 1986, Cambridge University (UK); Quaternary dating and geomorphical studies with cosmic-ray-produced isotopes.

Weeks, Robin J. 1992, (Research); PhD, 1988, University of California (Santa Barbara); remote sensing and global/regional change.

Willett, Sean D. * 1998; PhD, 1988, University of Utah; numerical modeling of lithospheric processes.

Senior Lecturer

Chernicoff, Stanley E. 1981; PhD, 1980, University of Minnesota; geomorphology.

Lecturer

Swanson, Terry W. 1988; MA, 1989, University of California (Davis); PhD, 1994, University of Washington; cosmogenic isotopes, Quaternary studies.

Course Descriptions

See page 48 for an explanation of course numbers, symbols, and abbreviations.

For graduate-level course descriptions, see the graduate and professional study volume of the *General Catalog* or visit the online course catalog at www.washington.edu/students/crscat/.

GEOL 100 Dinosaurs (2) NW *Rensberger* Biology, behavior, ecology, evolution, and extinction of dinosaurs, and a history of their exploration. With dinosaurs as focal point, course also introduces the student to how hypotheses in geological and paleobiological science are formulated and tested. Offered: A.

GEOL 101 Introduction to Geological Sciences (5) NW *Chernicoff, Swanson* Survey of the physical systems that give the earth its form. Emphasizes the dynamic nature of interior and surface processes and their relevance to mankind and stresses the value of rocks and earth forms in the understanding of past events. A course with laboratory for non-science majors. Not open for credit to students who have taken 205. Field trips. Offered: AWP.

GEOL 201 Physical Processes of the Earth (5) NW Overview of Earth. Deformation of soil, sediment, and rock. Erosional and depositional processes and landforms. Seismicity and plate-tectonics. Structural, geo-

morphic, and climatic interactions in major tectonic regimes. Use of stereonet, air photos, geologic maps, and cross sections. Two one-day field excursions. Prerequisite: PHYS 121; PHYS 131. Offered: ASP.

GEOL 202 Earth Materials and Processes (5) NW Crystallography, crystal chemistry, and characteristics of rock-forming and ore minerals. Description, phase equilibria, origin, and associations of igneous, sedimentary, and metamorphic rocks. Laboratory study of hand specimens. Two one-day field excursions. Prerequisite: GEOL 201; CHEM 142. Offered: W.

GEOL 203 Evolution of the Earth (5) NW Introduction to paleontology, types of stratigraphy, and radiometric dating. The physical, chemical, biological, and plate tectonic evolution of the earth's crust, seawater, and atmosphere. Comparison with other planets. Climate changes and man as a geologic agent. Two one-day field excursions. Prerequisite: GEOL 202. Offered: Sp.

GEOL 205 Physical Geology (5) NW Introduction to the physical and chemical processes of the earth's surface and interior. Plate tectonics, earthquakes, volcanism, glaciation. Optional field trips to Cascades and Olympics. Background in geology not required but science background desirable. Not open for credit to students who have taken 101. Offered: A.

GEOL 300 Geology of the National Parks (5) NW Review of fundamental geological processes, using North American parks and monuments as examples of natural laboratories. Includes volcanism, glaciation, water and wind erosion, plate-tectonic forces as preserved in geologic exposures of National Parks. Specific topics explored in laboratory sessions and field trips. Prerequisite: either GEOL 101, GEOL 201, or GEOL 205.

GEOL 302 Great Ice Age (5) NW *Swanson* Growth of mile-thick ice sheets, worldwide lowering of sea level, and other geological and paleoclimatological changes that accompany the harsh environments of a global glaciation. Geology of the last three million years, focusing on the causes and effects of global glaciation and future climate change. Prerequisite: either GEOL 101, GEOL 201, or GEOL 205.

GEOL 303 Geologic Hazards (5) NW Geological forces dramatically alter the earth's surface, devastating communities, taking human lives. Uses lectures and field work to examine geological hazards affecting civilizations around the world. Northwest examples illustrate causes and effects of many catastrophic geological processes, including: earthquakes, volcanoes, floods, glaciers, landslides. Prerequisite: either GEOL 101, GEOL 201, or GEOL 205.

GEOL 304 Earthscapes (5) NW *Swanson* Introduction to study of landforms and geomorphic processes. Topics include tectonics, volcanoes, weathering, soils, erosion, mass wasting, rivers, glaciers, coastal landscapes, and arid landscapes. Laboratory analysis of landforms, with the writing of scientific abstracts, is included. Optional weekend field trips introduce students to geomorphic landscapes found in western Washington. Prerequisite: either GEOL 101, GEOL 201, or GEOL 205.

GEOL 308 Geology of the Northwest (5) NW *Chernicoff, Swanson* Geologic history of Washington, Oregon, and Idaho. Emphasis on use of geologic principles in interpreting evidence found in landscapes and rocks. Weekend field trips optional. Prerequisite: either GEOL 101, GEOL 201, or GEOL 205.

GEOL 310 Planetary Geology (5) NW *Irving* Up-to-date survey of geological features and processes on and within planets and their moons deduced from sampling, remote sensing, spacecraft imagery, and theory. Comparative discussion of volcanism, tectonics, surface processes, and thermal evolution. Exami-

nation of moon rocks and meteorites. Prerequisite: either GEOL 101, GEOL 201, or GEOL 205.

GEOL 312 Volcanoes and Glaciers of the Pacific Northwest (5) NW *Irving* Introduction to volcanic and glacial processes, emphasizing examples in the Pacific Northwest. Volcanic products, landforms, hazards, prediction, and history. Relationship to tectonics. Nature and distribution of present and former glaciers in Washington. Two all-day Saturday field trips to Cascade volcanoes required.

GEOL 313 Environmental Geology (4) NW *Swanson* Analysis of geologic constraints upon human activity and the environmental consequences of such activity. Topics include hillslope processes, fluvial and groundwater processes, earthquake and volcanic hazards, and environmental aspects of deforestation and atmospheric pollution. Prerequisite: either GEOL 101, GEOL 201, or GEOL 205. Offered: jointly with ENVIR 313; A.

GEOL 391 Geochemistry (5) NW *Ghiorso, Nelson* Geochemical concepts essential to earth science studies. Crystal chemistry and elemental affinities, thermodynamics of geologic processes, trace element and isotopic fractionation, organic geochemistry, and exploration of basic global geochemical cycles. Laboratory exercises explore the dynamics of geochemical processes. Prerequisite: either CHEM 140, CHEM 142, or CHEM 145; PHYS 121; PHYS 131. Offered: A.

GEOL 392 Geomechanics (5) NW *Bergantz, Willett* Introduction to continuum mechanics: elasticity, fluid dynamics, diffusion, porous flow, multiphase flow, dimensional analysis, and natural convection. Example applications: earthquakes and rock mechanics, flow of glaciers, slope stability, debris flows, groundwater flow, contaminant transport, flow in rivers and channels, mantle and magma convection. Prerequisite: either MATH 125, MATH 128, or MATH 134; PHYS 121; PHYS 131. Offered: W.

GEOL 393 Geobiology (5) NW *Ward* Introduction to the early record of life on earth. Environmental factors leading to life's diversification. The role of life in biomineralization. The history of biodiversity. The role of life in landform and soil formation. Laboratory exercises demonstrate specimens and techniques. Prerequisite: either CHEM 140, CHEM 142, or CHEM 145; PHYS 121; PHYS 131. Offered: Sp.

GEOL 401 Field Geology (12) NW Six weeks of geologic mapping in a variety of rock types in the western United States. Enhances students' knowledge of geologic phenomena and processes. Development of skills in mapping, field interpretation, and report writing. Students responsible for own living expenses while in the field. Prerequisite: GEOL 203; two courses selected from GEOL 391, GEOL 392, and GEOL 393. Offered: S.

GEOL 402 International Field Geology (12) NW Supervised geological field work in classic, instructive international sites. Venue varies from year to year. Work may include geologic mapping, construction of cross sections, measurement and analysis of stratigraphic sections, field excursion, and supervised individual research projects. Prerequisite: GEOL 401. Offered: S.

GEOL 403 Principles of Paleobiology (4) NW *Ward* Fossil record and methods of analysis. Biologic systems in geologic time, including preservation, variation, population structure, adaptation, functional morphology, biostratigraphy, paleoecology, evolution, and biogeography.

GEOL 405 Global Geophysics and Plate Tectonics (5) NW *Willett* Introduction to geophysical features of the earth including gravity, magnetic, and temperature fields. Use of geophysical methods including seismology, heat flow, and paleomagnetism to study geophysical and geological processes in the context of plate tectonic theory. Prerequisite: PHYS 121. Offered: A.

GEOL 408 Regional Geology of the Pacific Northwest (5) NW *Cheney* Explores the geological diversity of the Pacific Northwest temporally (Archean to Pleistocene), tectonically (craton, terranes, and cover sequences), and lithologically (ophiolites to coal). Three weekend field trips required. Offered: A.

GEOL 409 Great Geological Issues (3) NW *Bourgeois* History and development of geological and paleontological theories and controversies; philosophy and methodology that have driven scientific inquiry in the earth sciences. Recommended: HIST 311; HIST 312. Offered: alternate years.

GEOL 410 Introduction to Geological Remote Sensing (4) NW *Gillespie* Principles of image interpretation for geologists. Study of land forms, structure, lithology, surface processes using aircraft and satellite data. Use of digital multispectral images and radar images for geological mapping. Offered: A.

GEOL 411 Geomorphology (5) NW Introduction to landforms and surficial deposits. Emphasis on landscape-forming processes. Intended for students who wish to take additional courses in geomorphology. Prerequisite: PHYS 121; PHYS 131. Offered: A.

GEOL 412 Fluvial Geomorphology (5) NW *Montgomery* Hydraulic and morphological characteristics of streams and valley floors. Landscape evolution by stream erosion and deposition. Field exercises emphasize quantitative analysis of fluvial processes, channel forms, acquisition of various skills, such as mapping, topographic surveying, report writing. Prerequisite: either GEOL 392 or GEOL 411.

GEOL 413 Hillslope Geomorphology (5) NW *Montgomery* Theoretical, laboratory, and field study of hillslope evolution by mass wasting and water erosion. Prerequisite: either GEOL 392 or GEOL 411. Offered: alternate years; W.

GEOL 414 Intermediate Spectral Remote Sensing (4) NW *Gillespie, Weeks* Explores spectral image processing with ENVI software, used in individualized projects involving satellite or aircraft images. Emphasis on integration of remote sensing and field measurement using process models and Geographic Information Systems (GIS). Recommended: introductory courses in physics, chemistry, calculus, geology, and field geology. Prerequisite: GEOL 410. Offered: W.

GEOL 415 Principles of Glaciology (3) NW *Hallet, Porter, Raymond, Waddington, Warren* Snow deposition and metamorphism, avalanches, heat and mass balance at snow and ice surfaces, glacier flow, ice sheets, sea ice, permafrost, methods of paleoclimate reconstruction, Ice Age theories. Offered: jointly with GPHYS 415; A.

GEOL 416 Glacial Geology (3) NW *Porter* Interpretation of glacial environments and history through study of sediments and landforms; stratigraphic approaches, chronology, reconstructions, applications. Recommended: GEOL 415.

GEOL 417 Environmental Change in the Glacial Ages (3) NW *Porter* Physical, biological evidence of climatic change during Quaternary Period; emphasizing stratigraphy, chronology. Impact of alternating glacial/interglacial cycles on earth's terrestrial, marine environments. Theories on causes of climatic variation. Offered: jointly with QUAT 417.

GEOL 418 Alpine and Polar Landscape (3) NW *Hallet* Processes responsible for landforms and deposits in alpine and polar regions. Focuses on the underlying processes many of which are ice related. Includes discussions of linkages between glacial erosion and tectonics in active high mountain ranges, and between permafrost/glaciers and global climate. Prerequisite: GEOL 201.

GEOL 419 Landscape Evolution (5) NW *Hallet* Advanced examination of landscape evolution. Emphasis on interactions among tectonics, climate, and hillslope, fluvial, and glacial processes. Intended for seniors and graduate students in geomorphology and related disciplines. Prerequisite: either GEOL 412, GEOL 413, or GEOL 418. Offered: alternate years; W.

GEOL 420 Mineralogy (5) NW *Ghose* Symmetry of crystals and crystal structures. Rules of crystal chemistry. Microscopic, diffraction, and spectroscopic techniques of mineral characterization. Transformation processes in minerals: order-disorder, phase transition, and exsolution. Crystal chemistry and phase relations. Reactions on mineral surfaces. Physical properties, deformation, and creep. Prerequisite: CHEM 142; PHYS 123; GEOL 202; GEOL 391. Offered: W.

GEOL 423 Optical Mineralogy (2) NW *Evans* Petrographic microscopy and recognition of common minerals in thin section. Prerequisite: GEOL 202. Offered: A.

GEOL 424 Petrology of Igneous Rocks (5) NW *McCallum* Systematic study of the major families of volcanic and plutonic igneous rocks with emphasis on tectonic setting, phase relations, geochemistry, and models of their origin and evolution throughout geologic time. Laboratory emphasizes thin-section study of rocks using transmitted and reflected light. Prerequisite: GEOL 391; GEOL 423. Offered: W.

GEOL 425 Petrography and Petrology of Metamorphic Rocks (5) NW *Evans* Mineralogy, textures, and origins of metamorphic rocks; metamorphic facies and metamorphic phase equilibria; controls of metamorphism. Prerequisite: GEOL 391; GEOL 423. Offered: Sp.

GEOL 426 Petrology and Petrography of Sedimentary Rocks (5) NW *Stewart* Mineralogy, textures, and origin of sedimentary rocks, using petrographic microscope. Prerequisite: GEOL 391.

GEOL 430 Invertebrate Paleontology (5) NW *Ward* Important larger invertebrate groups; morphology, classification, stratigraphic distribution, evolution, paleoecology.

GEOL 435 Seismic Exploration (5) NW *Brown* Introduction to theory and practice of seismic exploration. Application of refraction and reflection techniques to problems in engineering geology and mineral exploration. Constraints in the interpretation of subsurface structure. Prerequisite: GEOL 392; either MATH 126, MATH 129, or MATH 136; PHYS 123. Offered: jointly with GPHYS 435.

GEOL 437 Fossil Vertebrates (5) NW *Rensberger* Highlights in evolutionary history of the fossil vertebrates, from early Paleozoic fishes through late Cenozoic mammals. Morphology, adaptations, relationships of the major groups. Bone structures and systematic relationships. Field trip. Prerequisite: either GEOL 100 or BIOL 101.

GEOL 438 Fossil Mammals (5) NW *Rensberger* Evolutionary relationships of fossil mammals, from mammal-like reptiles of late Paleozoic to diverse Cenozoic groups. Morphology, adaptations, extinctions, evolutionary patterns. Structures and relationships of most major groups. Field trip. Prerequisite: either GEOL 100, BIOL 101, or GEOL 437.

GEOL 440 Structure and Tectonics (5) NW *Cowan* Geometry, kinematics, and tectonic setting of major types of structures, including those in contractional fold-and-thrust belts; extended crust; strike-slip-dominated regimes; and shear zones. Laboratory exercises develop basic tools of structural geology. Prerequisite: GEOL 203; GEOL 392. Offered: Sp.

GEOL 452 Principles of Sediment Transport by Turbulent Flow (3) NW Theoretical and experimental techniques used in studying erosion, transporta-

tion, and deposition of sediment. Initial motion of sediments, bed-load motion, suspension of sediment by turbulent flows, erosion and deposition of sediments, and applications of sediment transport theory to problems of geological interest. Prerequisite: GEOL 455. Offered: jointly with OCEAN 452.

GEOL 455 Geodynamics (4) NW Principles of continuum mechanics, their application to flow of water, mud, magma; deformation of soil, rock, ice. Emphasis on sound physical understanding of these principles and use of elementary mathematics in their application to earth sciences problems. Prerequisite: GEOL 392; either MATH 126, MATH 129, or MATH 136; PHYS 121.

GEOL 461 Stratigraphy (4) NW *Bourgeois* Systematic study of stratified rocks and space-time implications. Principles of stratigraphy, including biostratigraphy, magnetostratigraphy, seismic stratigraphy, subsurface analysis. Basin analysis, evolution of sedimentary basins and continental margins. Prerequisite: GEOL 203. Offered: A.

GEOL 462 Depositional Environments (4) NW *Bourgeois* Principles of sedimentary facies analysis, including survey of modern processes that produce sedimentary sequences. Recognition of various depositional environments represented in the geologic record, including terrestrial, marine terrigenous, and carbonate environments. Two field trips required. Prerequisite: GEOL 203. Offered: Sp.

GEOL 474 Introduction to X-Ray Crystallography (3) NW *Ghose* Point groups and space groups. Reciprocal lattice. Theory of x-ray diffraction from single crystals. Powder diffraction; identification of unknowns and determination of precise cell dimensions. Single crystal camera (precession and Weissenberg) techniques; determination of cell dimensions and space groups; study of exsolution and phase transformation in rock-forming silicates. Structure factor formula and the use of three-dimensional Fourier and Patterson series in the determination of crystal structures. Prerequisite: GEOL 391; PHYS 123.

GEOL 476 Isotope Geology (3) NW The geochemistry of stable isotopes. Topics covered include the chemical properties of isotopes, a survey of isotopic variations in nature, application of isotopes as natural tracers in surficial processes, and the use of isotopic proxy indicators for interpreting paleoclimate. Prerequisite: GEOL 391.

GEOL 477 Isotope and Trace Element Geology: Lithosphere (3) NW *Nelson* Radiogenic isotopes and trace element as petrogenetic indicators; evolution of earth's major geochemical reservoirs; application to problems in igneous, metamorphic, sedimentary petrology; stable isotope geothermometry; nucleosynthesis, origin, and chronology of solar system formation; U-Th disequilibrium series. Prerequisite: either CHEM 150, CHEM 152, or CHEM 155; GEOL 391.

GEOL 478 Age Determinations in the Earth Sciences and Archaeology (3) NW *Stone* Principles and methods of age dating with a strong focus on radiocarbon dating. Other techniques include dendrochronology, amino acid, potassium argon, uranium series, and thermoluminescence dating. History of past climatic change and cultural-global change applications.

GEOL 480 Volcanic Processes (3) NW *Bergantz, Nelson, Newhall* Pre-eruption, eruption, and post-eruption processes. Examines triggers of magma ascent, controls on volatile build-up and loss, magma fragmentation, magma-groundwater interaction, eruption column dynamics, gravity-controlled eruptive phenomena, syn- and post-eruption lahars and other re-working of deposits. Prerequisite: GEOL 391 or GEOL 392. Offered: Sp.

GEOL 485 Geology of Ore Deposits (5) NW *Cheney*
The geologic principles, environmental aspects, and exploration strategies of selected types of metallic and nonmetallic ore deposits and coal. Prerequisite: GEOL 391.

GEOL 488 Economic Field Geology (5) NW *Cheney*
Identification of hydrothermally altered rocks, oxidation, and supergene enrichment; principles of exploration, geochemistry and remote sensing. Four- to eight-day field trip to mining districts for field inspection of ore deposits. Two weekends (three days each) mapping mineral deposits. Prerequisite: GEOL 485. Offered: Sp.

GEOL 490 Special Topics (2-10, max. 20) NW

GEOL 492 Undergraduate Teaching Experience and Outreach (1-2, max. 2) NW Designed to help undergraduate majors acquire effective teaching skills at the college and public school level. Teaching experience gained through assisting graduate student teaching assistant or K-12 public school outreach. Involves classroom teaching experience and improving communications and presentation skills. Offered: AWWSpS.

GEOL 498 Undergraduate Thesis (5) NW The thesis must be submitted at least one month before graduation.

GEOL 499 Undergraduate Research (* max. 15)

Geophysics

202 Atmospheric Sciences Building



General Catalog Web page:
www.washington.edu/students/gencat/academic/geophysics.html



Department Web page:
www.geophys.washington.edu

Geophysics is the study of the earth's constitution and behavior from its core to the near-space environment. Because solid, liquid, and gaseous elements of our dynamic planet interact in complex ways, geophysics is an interdisciplinary science that draws on fundamentals of mathematics, physics, and chemistry which are applied to the earth systems. Although an undergraduate degree is not offered, a minor is available.

Undergraduate Program

Undergraduate Program Coordinator
218 Atmospheric Sciences-Geophysics, Box 351650
(206) 685-8992
undergrad@geophys.washington.edu

Minor

Minor Requirements: 27-30 credits to include 9 credits in one of two geophysics options: Solid Earth (GPHYS 401, 402, 403) or Fluids (GPHYS 404, 405, 406); 3 additional credits in geophysics, including seminar or independent research; 6 credits in electromagnetism (PHYS 321, 322); 9 credits in mathematical physics (PHYS 424, 425, 426) or 12 credits in applied mathematics (AMATH 401, 402, 403). Minimum grade of 2.0 required for each course taken as part of the minor.

Graduate Program

For information on the Department of Geophysics graduate program, see the graduate and professional volume of the *General Catalog* or visit the *General Catalog* online at www.washington.edu/students/gencat/.

Faculty

Chair

J. Michael Brown

Professors

Baker, Marcia * 1980; MS, 1960, Stanford University; PhD, 1971, University of Washington; cloud physics, atmospheric geophysics.

Bergantz, George W. * 1988, (Adjunct); PhD, 1988, Johns Hopkins University; physical petrology, heat and mass transfer, geophysics.

Booker, John R. * 1971; PhD, 1968, University of California (San Diego); geomagnetic induction, magnetotellurics, inverse theory, geophysical fluid dynamics.

Brown, J. Michael * 1984; PhD, 1980, University of Minnesota; experimental and theoretical mineral physics at high pressure and temperature.

Businger, Joost A. * 1958, (Emeritus); PhD, 1954, University of Utrecht (Netherlands); boundary layer meteorology, air-sea interaction, atmospheric turbulence.

Charlson, Robert J. * 1962, (Emeritus); MS, 1959, Stanford University; PhD, 1964, University of Washington; atmospheric chemistry, aerosol physics, aerosol/cloud/climate interaction and instrumentation.

Clark, Kenneth C. * 1948, (Emeritus); PhD, 1947, Harvard University; optical spectroscopy, upper atmosphere.

Creager, Kenneth C. * 1986; PhD, 1984, University of California (San Diego); global seismology and geophysical inverse theory.

Criminale, William O. * 1968; PhD, 1960, Johns Hopkins University; fluid dynamics, mathematical physics, nonlinear mechanics, stability theory.

Crosson, Robert S. * 1966; PhD, 1966, Stanford University; seismology, structure and tectonics, earthquake hazards.

Ghose, Subrata * 1972, (Adjunct); PhD, 1959, University of Chicago; mineralogy.

Hernandez, Gonzalo * 1988, (Research); PhD, 1962, University of Rochester; optical interference phenomena, with application to remote sensing of atmospheres.

Holzworth, Robert * 1982; PhD, 1977, University of California (Berkeley); experimental space plasma physics, atmospheric/magnetospheric electric fields, thunderstorms.

LaChapelle, Edward R. * 1955, (Emeritus); ScD, 1967, University of Puget Sound; snow-ice physics.

Leovy, Conway B. * 1967, (Emeritus); PhD, 1964, Massachusetts Institute of Technology; climatic role of clouds, planetary atmospheres and astrobology, upper-atmosphere circulation.

Lewis, Brian T. R. * 1970; PhD, 1970, University of Wisconsin; marine geophysics, marine seismology, gravity, magnetics, and computer modeling of those processes.

Malone, Stephen * 1972, (Research); PhD, 1972, University of Nevada; volcano seismology, general seismic network operations.

Maykut, Gary * 1969, (Research); PhD, 1969, University of Washington; polar air-sea-ice interaction, radiative transfer in ice and snow.

Merrill, Ronald T. * 1967; PhD, 1967, University of California (Berkeley); geomagnetism, geophysics of solids, rock magnetism.

Parks, George K. * 1971; PhD, 1966, University of California (Berkeley); particles and waves in auroral, magnetospheric, and interplanetary space plasma phenomena.

Raymond, Charles F. * 1969; PhD, 1969, California Institute of Technology; glaciology, glacier and ice sheet dynamics.

Smith, Stewart W. * 1970, (Emeritus); PhD, 1961, California Institute of Technology; seismology, earthquake risk, seismotectonics.

Untersteiner, Norbert * 1957, (Emeritus); PhD, 1950, University of Innsbruck (Austria); air-sea-ice interaction, polar climatology, sea ice physics.

Waddington, Edwin D. * 1984; PhD, 1981, University of British Columbia (Canada); glacier and ice sheet modeling, interpretation of ice sheet stratigraphy.

Warren, Stephen G. * 1981; MA, 1969, PhD, 1973, Harvard University; atmospheric radiation, radiative properties of clouds, snow, and sea ice, Antarctic climate.

Whipple, Elden C. 1995, (Affiliate); PhD, 1965, George Washington University; magnetospheric physics, spacecraft-plasma interactions, kinetic theory of plasmas.

Associate Professors

Conway, Howard B. * 1987, (Research); PhD, 1986, University of Canterbury (New Zealand); glaciology with emphasis on physical process in snow and ice.

McCarthy, Michael P. * 1978, (Research); PhD, 1988, University of Washington; plasma physics in space, especially processes that accelerate or heat charged particles.

Mercer, James A. * 1968, (Research); PhD, 1983, University of Washington; ocean weather and climate change, acoustic tomography, seismoacoustics.

Odom, Robert I. Jr. * 1990, (Research); PhD, 1980, University of Washington; ocean acoustics, theoretical seismology, wave propagation and scattering.

Qamar, Anthony * 1983, (Research); PhD, 1971, University of California (Berkeley); earthquakes associated with volcanoes and glaciers, earth-structure and earthquake hazards.

Sahr, John D. * 1991, (Adjunct); PhD, 1990, Cornell University; radar remote sensing, ionospheric physics; signal processing; wireless communications.

Unsworth, Martyn J. * 1993, (Research); PhD, 1991, Cambridge University (UK); geomagnetic induction, magnetotellurics, electromagnetic geophysics.

Wilcock, William S. D. * 1993, (Adjunct); PhD, 1992, Massachusetts Institute of Technology; marine seismology, dynamics of mid-ocean ridges, geological fluid dynamics.

Winglee, Robert M. * 1991; PhD, 1984, University of Sydney (Australia); energetic phenomena in sun/earth plasmas, excitation of waves, high energy particle acceleration.

Assistant Professors

DeCosmo, Janice M. 1984, (Affiliate); PhD, 1991, University of Washington; atmosphere-ocean interaction, boundary layer processes, science education, educational technology.

Swanson, Brian * 1982, (Research); PhD, 1992, University of Washington; atmospheric geophysics, condensed-matter physics, physics of ice.

Willett, Sean D. * 1998, (Adjunct); PhD, 1988, University of Utah; numerical modeling of lithospheric processes.

Course Descriptions

See page 48 for an explanation of course numbers, symbols, and abbreviations.

For graduate-level course descriptions, see the graduate and professional study volume of the *General Catalog* or visit the online course catalog at www.washington.edu/students/crscat/.

GPHYS 201 Sun-Earth Connections (5) NW *Holzworth, Parks, Winglee* Describes the space environment around the Earth. Covers solar activity, radiation belts and hazards, effects on spacecraft and manned exploration, electron beams and guns, plasma storms, and auroras. Open to non-science majors. Offered: A.

GPHYS 202 Earthquakes (5) NW *Brown, Creager, Crosson* Earthquakes of the Pacific Northwest and around the world—their cause and relationship to plate tectonics; why, where, and when they occur. How earthquakes affect human life: shaping landscape, hazards. Laboratory explores physical processes associated with earthquakes. One field trip. Open to non-science majors. Offered: Sp.

GPHYS 203 Glaciers and Global Change (5) NW *Raymond, Waddington* Glaciers in Washington and the world. The ancient atmosphere inside of glaciers. Changes in glaciers now and ice-age cycles. Glaciers, global sea level and climate in the future. Open to non-science majors. Offered: W.

GPHYS 401 Geophysical Continuum Mechanics (3) NW Analysis of stress and strain. Measurement and interpretation of strain in geological materials. Elasticity applied to determine stress in the earth's lithosphere. Creep of solids and flow of geological materials. Prerequisite: either MATH 136 or both MATH 307 and MATH 308. Offered: A.

GPHYS 402 Seismology (3) NW Introduction to theoretical and observational seismology. Elastic plane wave propagation through stratified media. Surface waves, eigenvibrations, ray theory. Structure of the Earth's mantle and core. Seismicity distributions, earthquake focal mechanisms and relationship to tectonics. Prerequisite: GPHYS 401; recommended: concurrent registration in GPHYS 432. Offered: W.

GPHYS 403 Geophysics: The Earth (3) NW The earth and its interior; gravity, magnetism, heat flow, seismology. Earth's outer structure, studied through the unifying concepts of plate tectonic theory. Quantitative approaches to problems, using techniques of classical physics. Prerequisite: GPHYS 402; PHYS 322. Offered: Sp.

GPHYS 404 Geophysics: Fluids (3) NW Introduction to geophysical fluid dynamics. An overview of fluids in geophysics with emphasis on the oceans. A nonrigorous development of the equations of motion with examples drawn from oceanography and solid earth geophysics. Prerequisite: either MATH 136 or both MATH 307 and MATH 308; PHYS 322. Offered: A.

GPHYS 405 Space and Plasmas (3) NW Survey of various phenomena occurring in outer regions of Earth's atmosphere, ionosphere, magnetosphere, and Van Allen radiation belts. Laboratory applications include plasma thrusters and fusion. Concepts include charged particles in magnetic fields, drift motion, plasma, magnetohydrodynamic waves. Prerequisite: PHYS 321. Offered: W.

GPHYS 406 Geophysics: The Atmosphere (3) NW Phenomena of the lower atmosphere: some simple applications of the principles of classical thermodynamics, fluid dynamics, and radiative transfer to the atmospheric hydrological cycle, global energy balance, and atmospheric dynamics and climate. Prerequisite: GPHYS 404. Offered: Sp.

GPHYS 415 Principles of Glaciology (3) NW *Hallet, Raymond, Waddington, Warren* Snow deposition and metamorphism, avalanches, heat and mass balance at snow and ice surfaces, glacier flow and erosion, ice sheets, sea ice, frozen ground, methods of paleoclimate reconstruction, Ice Age theories. Offered: jointly with GEOL 415; A.

GPHYS 425 NASA Science and Engineering Research Seminar (1, max. 4) NW *DeCosmo* Review of current space science-related research. Emphasis varies, but topics may include planetary geology, astronomy, global change, aeronautical engineering, and remote sensing. Credit/no credit only. Offered: Sp.

GPHYS 431 Seismology and Earthquake Engineering (3) NW Overview of earthquake processes and details of the characteristics of destructive ground motion; effects of such motion on engineering structures; current practice in estimating earthquake hazards for important structures such as nuclear power plants. Prerequisite: either MATH 136 or both MATH 307 and MATH 308. Offered: jointly with CEE 431.

GPHYS 432 Applied Seismology (2) NW *Qamar* Interpretation methods in seismology. Seismogram interpretation, including body and surface waves. Seismic instrumentation. Earthquake location, magnitude, and fault-plane solutions. Seismic reflection and refraction methods. Measurement and interpretation of strong ground motion near the epicenter of large earthquakes. Recommended: concurrent registration in GPHYS 402. Offered: W.

GPHYS 435 Seismic Exploration (5) NW *Brown* Introduction to theory and practice of seismic exploration. Application of refraction and reflection techniques to problems in engineering geology and mineral exploration. Constraints in the interpretation of subsurface structure. Prerequisite: GEOL 392; either MATH 126, MATH 129, or MATH 136; PHYS 123. Offered: jointly with GEOL 435; Sp.

GPHYS 458 Volcanic Processes (3) NW *Bergantz, Nelson, Newhall, Qamar* Pre-eruption, eruption, and post-eruption processes. Examines triggers of magma ascent, controls on volatile build-up and loss, magma fragmentation, magma-groundwater interaction, eruption column dynamics, gravity-controlled eruptive phenomena, syn- and post eruption lahars and other re-working of deposits. Prerequisite: GEOL 391 or GEOL 392. Offered: Sp.

GPHYS 460 Water in the Environment (3) NW *Baker, Raymond, Waddington, Warren* Discusses the unique physical and chemical properties of the water molecule in relation to the atmospheric greenhouse effect, precipitation formation, oceanic circulations, infiltration of water through soils, geyser eruptions, and glacier and sea ice thickness. Prerequisite: either MATH 124, MATH 126, MATH 129, or MATH 136 and PHYS 123; PHYS 133. Offered: jointly with ATM S 460 and PHYS 460. Offered: A.

GPHYS 480 Special Topics in Geophysics (2-6, max. 12) NW Intensive treatment of a selected geophysical topic presented through faculty lectures, guest lectures, and student reports. For students in geophysics and related fields. Subject varies from year to year. Offered: AWSpS.

GPHYS 499 Independent Study for Undergraduates (1-5, max. 10) Offered: AWSpS.

Germanics

340C Denny



General Catalog Web page:
www.washington.edu/students/genecat/academic/germanics.html



Department Web page:
depts.washington.edu/uwgerman/

The Department of Germanics focuses on the language, literature, and civilization of the German-speaking countries; on the role of their history, literature, and philosophy in Western civilization; and on linguistic analysis, especially historic, of the Germanic languages.

The department's mission is the dissemination of German intellectual and artistic traditions. In the service of this mission, the Department of Germanics is committed to excellence in educating undergraduates who pursue majors and minors in German language, literature, and culture. The department offers a wide spectrum of courses conducted in English on aspects of German culture and history for general humanistic education.

Undergraduate Program

Adviser
Sabine Wilke
339 Denny, Box 353130
(206) 543-4198
uwgerman@u.washington.edu

The Department of Germanics offers a program of study leading to a Bachelor of Arts degree with options in German language and literature, and German area studies. The department also offers a minor with options in area studies, language and literature, and linguistics. The undergraduate program, with its mixture of language, literature, linguistics, and culture courses, offers students variety and sequential depth and allows them to choose combinations that fulfill their major, minor, or general-education requirements. The department's language-learning offerings are enhanced by several fast-track intensive language courses and a business German option for advanced students seeking to apply their knowledge of German in their professions.

Student Associations: German Club.

Internship or Cooperative Exchange Program Opportunities: A list of internships is available on the departmental Web page. They include local businesses and training sites, as well as internship options abroad. The Office of International Programs and Exchanges offers a number of different study abroad options for Austria and Germany. Students can consult their Web site at depts.washington.edu/ipe. The Department of Germanics offers a "Spring in Vienna" program. Students can consult the departmental Web site for more information, or pick up a brochure in the main office.

Bachelor of Arts

Admission: Admission to major status requires the completion of first- and second-year German or equivalent.

Introductory Course Work: First- and second-year German or equivalent. (The major begins with third-year German courses.) *Recommended:* Courses in Central European history, literature and culture, GERMAN 150 and 250.

Major Requirements

German Language and Literature: 53-55 credits: (1) 15 credits to include: GERMAN 311, 312, and 322 or 323; (2) 15 credits from the group GERMAN 411, 412, 421,

422, or 423; (3) one course from GERMAN 333, 334, 401, 403; (4) 20 credits in upper-division Germanics (which may include 210, but not more than 4 credits of 395 or 396). Specialization in linguistics: Students must take GERMAN 451 and 452 as part of the 53 credits and may, with the adviser's permission, count relevant courses outside Germanics among electives.

German Area Studies: 50 credits: (1) 15 credits to include GERMAN 322, 323, and 311 or 312; (2) 15 credits from the group GERMAN 210, 411, 412, 421, 422, 423; (3) 20 credits in upper-division Germanics and/or, with the permission of the adviser, courses relevant to German culture and civilization offered by other departments. Not more than 4 credits of 395 or 396 may be counted.

For both options above, a grade of at least 2.0 must be earned in every upper-division German course; an overall GPA of 2.50 is required for all courses counted toward the major.

Minor

Minor Requirements

Minimum 30 credits from one of the following three options:

Area Studies: GERMAN 322, 323, and 311 or 312; at least one 300-level Germanics course offered in English (210 also accepted); at least 10 upper-division elective credits in Germanics or other related courses.

Language and Literature: GERMAN 311, 312, and 322 or 323; at least one upper-division language course beyond 302; at least 12 elective credits in upper-division Germanics courses.

Linguistics: GERMAN 451 and 452; at least two courses beyond 302 in the language series; one course from 311, 312, 322, or 323; at least 9 upper-division elective credits in Germanics or other departments offering linguistics.

A minimum grade of 2.0 is required for each course counted toward the minor.

Graduate Program

For information on the Department of Germanics graduate program, see the graduate and professional volume of the *General Catalog* or visit the *General Catalog* online at www.washington.edu/students/genocat/.

Faculty

Chair

Richard T. Gray

Professors

Ammerlahn, Hellmut H. * 1968; PhD, 1965, University of Texas (Austin); Goethe, eighteenth to early twentieth century, comparative literature.

Barrack, Charles M. * 1968; PhD, 1969, University of Washington; Germanic linguistics.

Behler, Diana I. * 1971; PhD, 1970, University of Washington; romanticism, nineteenth century, comparative literature.

Brown, Jane K. * 1988; PhD, 1971, Yale University; seventeenth, eighteenth and nineteenth century, comparative literature.

Gray, Richard T. * 1991; PhD, 1981, University of Virginia; eighteenth-, nineteenth- and early twentieth-century literature, literary sociology, critical theory.

Hertling, Gunter H. * 1961, (Emeritus); PhD, 1963, University of California (Berkeley); eighteenth- and nineteenth-century literature.

Hruby, Antonin F. * 1961, (Emeritus); PhD, 1946, Charles University (Czechoslovakia); medieval literature, comparative literature.

Jaeger, C. Stephen * 1985; PhD, 1970, University of California (Berkeley); medieval German and Latin literature, medieval intellectual history, comparative literature.

Rey, William H. 1950, (Emeritus); PhD, 1937, University of Frankfurt (Germany); nineteenth and twentieth century German literature.

Voyles, Joseph B. * 1965; PhD, 1965, Indiana University; Germanics and linguistics.

Wilke, Sabine * 1988; PhD, 1986, University of Mainz (Germany); critical theory, contemporary theatre and film, literature and philosophy.

Associate Professors

Bansleben, Manfred * 1988; PhD, 1979, University of Vienna (Austria); German language and methodology, history, culture studies.

McLean, Sammy K. * 1967, (Emeritus); PhD, 1963, University of Michigan; Western drama, twentieth-century poetry, psychoanalysis and literature, literary translation, comparative literature.

Prutti, Brigitte * 1991; DPhil, 1988, University of Graz (Austria); PhD, 1995, University of California (Irvine); eighteenth-century literature, twentieth-century Austrian literature, theory and history of drama.

Rabura, Horst M. * 1961, (Emeritus); MA, 1966, University of Washington; German language and methodology.

Sauerlander, Anne M. 1949, (Emeritus); PhD, 1936, Cornell University; Germanics.

Assistant Professor

Ostmeier, Dorothee * 1993; PhD, 1993, Johns Hopkins University; eighteenth and twentieth century literature and philosophy, critical theory, German studies.

Course Descriptions

See page 48 for an explanation of course numbers, symbols, and abbreviations.

For graduate-level course descriptions, see the graduate and professional study volume of the *General Catalog* or visit the online course catalog at www.washington.edu/students/crsca/.

Credit Restrictions: Students may receive credit for only one course in each of the following: 101, 111, and the first 5 credits of 104; 102, 111, and the second 5 credits of 104; 103 and the last 5 credits of 104. They may, however, receive credit for courses in different first-year sequences if the courses are taken in progressively more advanced order (e.g., the first 5 credits of 104 followed by 102 and 103). 100 is the equivalent of 101, 102, 103, or 15 credits of 104.

GERMAN 100 Intensive First-Year German (15) Accelerated first-year German. Speaking and listening. Secondary objectives are reading and writing. Offered: S.

GERMAN 101 First-Year German (5) The methods and objectives are primarily audiolingual, with emphasis on speaking and listening. Secondary objectives are reading and writing. (See credit note following 104.) Prerequisite: score of 0-11 on GER TL placement test if German is language of admission. Offered: AWS.

GERMAN 102 First-Year German (5) The methods and objectives are primarily audiolingual, with emphasis on speaking and listening. Secondary objectives are reading and writing. (See credit note following 104.) Prerequisite: either GERMAN 101 or score of 12-35 on German placement test. Offered: AWSp.

ing 104.) Prerequisite: either GERMAN 101 or score of 12-35 on German placement test. Offered: AWSp.

GERMAN 103 First-Year German (5) The methods and objectives are primarily audiolingual, with emphasis on speaking and listening. Secondary objectives are reading and writing. (See credit note following 104.) Prerequisite: either GERMAN 102, GERMAN 111, or score of 36-56 on German placement test. Offered: AWSpS.

GERMAN 104 Individualized First-Year German (1-15, max. 15) Individualized approach to elementary German instruction. Students progress at their own pace. Credits vary. Depending upon amount of material mastered, any number of credits up to 15 may be earned per quarter. Credit/no credit only.

GERMAN 111 Basic German Review (5) Combines in one quarter the contents of 101 and 102. Designed for students with background in German who however feel unprepared to take 102. Highly motivated beginners are also encouraged to take the course. Offered: A.

GERMAN 121 First-Year Reading German (5) Special beginning course devoted exclusively to the reading objective. Offered: AS.

GERMAN 122 First-Year Reading German (5) Special beginning course devoted exclusively to the reading objective; 122 continuation of 121. Offered: WS.

GERMAN 150 Conversational German Through Films (2, max. 6) Conversational practice in small groups based on films. Because series progresses through the year, beginners may enroll only Autumn Quarter. May be taken concurrently with other Germanics courses. Cannot be taken for credit if 250 previously taken. Offered: AWSp.

GERMAN 200 Intensive Second-Year German (15) VLPA Accelerated second-year German. Systematic review of German grammar. Intensive practice in conversation, reading and writing. Recommended: GERMAN 103. Offered: S.

GERMAN 201 Second-Year German (5) VLPA Systematic review of German grammar. Intensive practice in conversation, reading, and writing. Recommended: GERMAN 103. 202. Offered: AWSp.

GERMAN 202 Second-Year German (5) VLPA Systematic review of German grammar. Intensive practice in conversation, reading, and writing. Recommended: GERMAN 201. Offered: AWSp.

GERMAN 203 Second-Year German (5) VLPA Systematic review of German grammar. Intensive practice in conversation, reading, and writing. Recommended: GERMAN 202. Offered: AWSp.

GERMAN 210 Classics of German Literature and Thought (5) VLPA Introduction to major figures of German culture from the Reformation to the present, their contribution to the intellectual life of the Western world. Luther, Kant, Goethe, Schopenhauer, Marx, Freud, Nietzsche, Kafka, Brecht, and Mann. In English.

GERMAN 221 The German Express: Second Year (10) VLPA Intensive version of 201 and 202. Stresses development of reading and speaking skills. Limited to students who have demonstrated exceptional skills in first year German. Recommended: GERMAN 103. Offered: A.

GERMAN 230 Conversational German (5) VLPA Intensive conversational German. Recommended: GERMAN 103. Offered: S.

GERMAN 243 Fairy Tale and Fantasy (5) VLPA Studies of the Grimm brothers' fairy tales, their reception in different cultural frameworks, and their influence on fantasy literature from the nineteenth century

to the twentieth century, including discussions of their sociological, psychological, and psychoanalytical implications and gender issues. In English.

GERMAN 250 Advanced Conversational German Through Films (2, max. 6) VLPA Conversational practice in small groups based on films. May be taken concurrently with other Germanics courses. Recommended: GERMAN 103 and GERMAN 150. Offered: WSp.

GERMAN 293 Introduction to Contemporary German Culture (5) VLPA/I&S Introduction to culture of today's German-speaking world through readings from various media and discussion of diverse manifestations of both high and popular culture, its underlying beliefs and values, and its institutions and historical background. Readings and discussions in English.

GERMAN 295 The Contributions of German Jews to German Culture (5) VLPA/I&S Contribution, assimilation and alienation of German-speaking Jews—such as Karl Marx, Sigmund Freud and Franz Kafka—emphasizing the multi-cultural nature of that which is understood as “German culture.”

GERMAN 299 Supervised Study (1-5, max. 10)

GERMAN 300 Studies in Germanics (5, max. 15) VLPA Topics or figures of German literature or language. German texts.

GERMAN 301 Conversation and Writing Skills (3-5) VLPA Language skill development (speaking, writing) using materials selected to broaden understanding of German-speaking countries. Recommended: GERMAN 203. Offered: AW.

GERMAN 302 Conversation and Writing Skills (3-5) VLPA Language skill development (speaking, writing) using materials selected to broaden understanding of German-speaking countries. Recommended: GERMAN 301. Offered: WSp.

GERMAN 303 Conversation and Writing Skills (3-5) VLPA Language skill development (speaking, writing) using materials selected to broaden understanding of German-speaking countries. Recommended: GERMAN 302. Offered: Sp.

GERMAN 304 Contemporary German Play (5) VLPA Reading, analysis, and performance of one play by a contemporary German author. Taught in German. Performance scheduled for last week of quarter. Prerequisite: GERMAN 203.

GERMAN 311 Critical Approaches to German Literature (5) VLPA Introduction to literary terminology. Diverse interpretive strategies, ranging from close reading to biographical and sociological approaches. Characteristics of different genres (poetry, prose, drama). Readings primarily from twentieth-century literature. Recommended: GERMAN 203. Offered: A.

GERMAN 312 Historical Approaches to German Literature (5) VLPA German literature from the Middle Ages to the present: Medieval Courtly period, Baroque, Enlightenment, *Sturm und Drang*, Classicism, Romanticism, Realism, Neoromanticism, Expressionism. Recommended: GERMAN 311. Offered: W.

GERMAN 322 Introduction to German Studies (5) VLPA German quest for national identity and the conflict of unity and division. Readings from literature, history, politics, and anthropology. Recommended: GERMAN 203; either GERMAN 311 or GERMAN 312. Offered: W.

GERMAN 323 Institutions and Their Ideas (5) VLPA/I&S Analysis of central institutions of contemporary Germany in their historical development. Recommended: GERMAN 203; either GERMAN 311 or GERMAN 312; GERMAN 322. Offered: Sp.

GERMAN 333 Business German 1 (5) VLPA Introduction to the language and practices of German business. Covers marketing, finance, accounting, economic theory, stock exchange, shipping, and production. Recommended: GERMAN 203. Offered: A.

GERMAN 334 Business German 2 (5) VLPA Introduction to the language and practices of German business. Covers industry, accounting, banking, and international trade. Recommended: GERMAN 203. Offered: W.

GERMAN 340 Friedrich Nietzsche in English (5) VLPA/I&S Analysis of Friedrich Nietzsche's chief works and the discussion of his position within modern German literature and thought.

GERMAN 341 Franz Kafka in English (5) VLPA Short stories and novels of Franz Kafka; emphasis on philosophical relevance and esthetic significance.

GERMAN 342 Thomas Mann in English (5) VLPA

GERMAN 345 Bertolt Brecht in English (5) VLPA Brecht's life and work, particularly his plays and writings on theatre, and some poems and short prose pieces to provide additional perspective on his life and work as a whole. The development of his writing and of his ideas and attitudes.

GERMAN 346 The Contemporary German Novel in English (5) VLPA Major novels of the postwar period (1945 to present), discussed in their historical context.

GERMAN 349 Goethe in English (5) VLPA Selected major works (especially *Faust*) of Goethe, whose literary, philosophical, and scientific achievements are examined as integral parts of his quest for meaning, wholeness, and universality, and whose impact on Western thinking is traced up to Thomas Mann and C. G. Jung.

GERMAN 350 The German Drama in English (5) VLPA German drama from the eighteenth to the twentieth centuries. German history and culture as reflected in the plays. Discussion of major themes.

GERMAN 351 Vienna 1900 in English (5) VLPA/I&S Interdisciplinary study of Vienna at the turn of the century. Discussion of literary texts with emphasis on other intellectual and cultural trends of this very rich and complex period.

GERMAN 352 Literature and Society in Weimar and National Socialist Germany in English (5) VLPA/I&S Literature, theater, and film, with adjunct consideration of art and architecture, in relation to the German social and cultural situation *circa* 1918 to *circa* 1947.

GERMAN 353 Postwar Germany (5) VLPA/I&S Postwar development and present-day character of cultural, social, and political life in Germany. Readings include literary and nonliterary texts devoted to culture and everyday life. In English.

GERMAN 355 German Literature and Film in English (5) VLPA Relationship between literature and film in the German tradition. Content varies; focus may be on a particular time period, director, or theme. Special attention paid to critical and analytical skills required for interpreting the two mediums.

GERMAN 356 Pagan Germany: Myth, Religion, Folklore in English (5) VLPA/I&S History and culture of the German peoples before and during the conversion to Christianity. Readings include Tacitus's *Germania* and other historical sources, *Beowulf*, *Nibelungenlied*, *Grimm's Fairy Tales*, and German legends. Treatment of archaeological finds and a variety of materials that bear on religion, prophecy, magic, folk customs, and festivals.

GERMAN 360 Women in German Literature in English (5) I&S/VLPA Investigates the changing social roles of women in German society on the example of various literary texts from different periods.

GERMAN 370 History of German Cinema (5) I&S/VLPA History of German cinema, emphasizing the cultural and political context. Works considered include films by Lang, Murnau, Sternberg, Riefenstahl, Fassbinder, Wenders, and Trotta. Readings and discussions in English.

GERMAN 371 Special Topics: German Cinema (5, max. 10) VLPA Covers one or more German film directors, a specific genre, or a chosen theme. Topics vary.

GERMAN 390 Germanic Studies in English (5, max. 15) VLPA Topics or figures of German literature or language.

GERMAN 395 Proctoring of First-Year German Film Course (1-2, max. 6) VLPA Restricted to upper-division students of German who have demonstrated sufficient proficiency in speaking German to lead discussion groups in 150. Leaders may participate one or two hours per week and receive 1 credit for each hour in class with 6 credits allowed in 3 quarters. Credit/no credit only. Recommended: GERMAN 203. Offered: AWSp.

GERMAN 396 Proctoring of Second-Year German Film Course (1-2, max. 6) VLPA Restricted to upper-division students of German who have demonstrated sufficient proficiency in speaking German to lead discussion groups in 250. Leaders may participate one or two hours per week and receive 1 credit for each hour in class with 6 credits allowed in three quarters. Credit/no credit only. Recommended: GERMAN 303; either GERMAN 322 or GERMAN 323. Offered: WSp.

GERMAN 397 Foreign Studies in German Literature (1-6, max. 15) VLPA

GERMAN 398 Foreign Studies in German Language (1-6, max. 15) VLPA

GERMAN 399 Foreign Studies in German Culture (1-6, max. 15) VLPA/I&S

GERMAN 401 Advanced Writing and Conversation (3-5) VLPA Texts and exercises, both grammatical and stylistic, to develop vocabulary, stylistic awareness, and the practical application of grammatical rules in written German. Recommended: GERMAN 303. Offered: AWSp.

GERMAN 403 Advanced Writing and Conversation (3-5) VLPA Texts and exercises, both grammatical and stylistic, to develop vocabulary, stylistic awareness, and the practical application of grammatical rules in written German. Recommended: GERMAN 303. Offered: AWSp.

GERMAN 406 Intensive Elementary Yiddish (5-15, max. 15) Intensive study of Yiddish grammar, with oral and written drills and reading of selected texts. Offered: S.

GERMAN 411 Studies in Medieval Literature and Culture (5) VLPA Rotating special topics in literature and culture of the Middle Ages, such as particular movements, authors, genres, themes, or problems. Recommended: GERMAN 303; either GERMAN 311, GERMAN 312, GERMAN 322, or GERMAN 323.

GERMAN 412 Studies in Renaissance and Baroque Literature and Culture (5) VLPA Rotating special topics in literature and culture of the Renaissance and Baroque, such as particular movements, authors, genres, themes, or problems. Recommended: GERMAN 303; either GERMAN 311, GERMAN 312, GERMAN 322, or GERMAN 323.

GERMAN 421 Studies in Eighteenth-Century Literature and Culture (5) VLPA Rotating special topics in literature and culture of the eighteenth century, such as particular movements, authors, genres, themes, or problems. Recommended: GERMAN 303; either GERMAN 311, GERMAN 312, GERMAN 322, or GERMAN 323.

GERMAN 422 Studies in Nineteenth-Century Literature and Culture (5) VLPA Rotating special topics in literature and culture of the nineteenth century, such as particular movements, authors, genres, themes, or problems. Recommended: GERMAN 303; either GERMAN 311, GERMAN 312, GERMAN 322, or GERMAN 323.

GERMAN 423 Studies in Twentieth-Century Literature and Culture: (5) VLPA Rotating special topics in literature and culture of the twentieth century, such as particular movements, authors, genres, themes, or problems. Recommended: GERMAN 303; either GERMAN 311, GERMAN 312, GERMAN 322, or GERMAN 323.

GERMAN 444 Undergraduate Thesis in Germanics (5) VLPA Supervised research leading to the writing of a research thesis.

GERMAN 445 Undergraduate Honors Thesis in Germanics VLPA (5) Supervised research for honors students leading to the writing of an honors thesis.

GERMAN 446 Internship in German (2-5, max. 10) Prerequisite: 6 credits of upper-level German language courses. Credit/no credit only.

GERMAN 447 Undergraduate Research (1-5, max. 15) Supervised research with faculty member. Offered: AWSpS.

GERMAN 451 Linguistic Analysis of German (5) VLPA Recommended: GERMAN 203 Offered: A.

GERMAN 452 History of the German Language (5) VLPA From early Germanic to the present. Recommended: GERMAN 203 Offered: W.

GERMAN 490 Contemporary German Literature (5) VLPA Interpretation of selected works by contemporary German authors. Recommended: GERMAN 303; either GERMAN 311 or GERMAN 312.

GERMAN 493 Special Topics in German Culture (5) VLPA/IS Recommended: GERMAN 303; either GERMAN 322 or GERMAN 323.

GERMAN 494 Studies in German Poetry (5) VLPA Introduction to various methods of interpretation and to their practical application. Recommended: GERMAN 303; either GERMAN 311 or GERMAN 312.

GERMAN 495 Proseminar in German Literature (5, max. 15) VLPA Special topics, the subject matter and depth of which are not included in other literature courses, arranged through consultation among students and faculty members.

GERMAN 496 History of Germanic Philology (5) VLPA Introduction to the works of outstanding scholars in the field of Germanics.

GERMAN 497 Studies in German Literature (1-6, max. 15)

GERMAN 498 Studies in the German Language (1-6, max. 15)

GERMAN 499 Studies in German Culture (1-6, max. 15)

History

315 Smith



General Catalog Web page:
www.washington.edu/students/gencat/academic/history.html



Department Web page:
depts.washington.edu/clio/

History undertakes the study of human affairs in a manner that seeks to understand change and development rather than the state of things at a given moment, taking into account societies in diverse parts of the world from the earliest times for which written records exist to the present.

Undergraduate Program

Adviser
318 Smith, Box 353560
(206) 543-5691
histadv@u.washington.edu

The Department of History offers a program of study leading to a Bachelor of Arts with an optional emphasis in history and science. The department also offers minors in history and history of science.

Bachelor of Arts

Admission Requirements:

1. Minimum University GPA of 2.00.
2. Completion of 10 credits of college history with a minimum cumulative GPA of 2.50.
3. Completion of 10 credits of composition/writing courses with a minimum grade of 2.0 for each course. The requirement may be met by a freshman English composition course, a "W" course, or any course in which the student has written a graded paper of at least 10 pages (paper to be reviewed by the Department of History).
4. For the history and science emphasis, HIST 311, 312 constitute the 10 required credits of history with minimum 2.50 GPA; 10 credits of college-level science are also required.
5. Students may apply to the major at any time in the quarter. Transfer students must be enrolled at the UW before applying.

Suggested Introductory Course Work: Courses that develop writing skills.

Major Requirements

History: 55 credits in history with a minimum GPA of 2.25 for all history courses and minimum grade of 2.0 in all history courses taken to fulfill requirements for the major. At least one 5-credit "broad" course (as designated by the department) in each of the following fields: European, United States, and non-Western history (any area outside Europe, the United States, and Canada). At least 10 credits in pre-modern history and 10 credits in modern history (as designated by the department). At least 25 upper-division credits. Transfer students must complete a minimum of 25 upper-division (300- and 400-level) credits of history in residence at the UW. One undergraduate senior seminar or colloquium is required, with a major paper. Beyond the required subjects, the student may or may not specialize, depending upon personal interests and career plans. In addition to all courses with a HIST, HSTAA, HSTAM, HSTAS, or HSTEU prefix, the history major may include approved courses offered outside the Department of History. A short list of these courses is maintained by undergraduate advisers.

History and Science Emphasis: 55 credits in history with a minimum GPA of 2.25 for all history courses and a minimum grade of 2.0 in all history courses taken to fulfill requirements for the major. Requirements include 15 credits of HIST 311, 312 and one additional approved course in the history of science, technology, and medicine; 5 credits of junior colloquium; 10 credits of senior thesis; of the remaining 25 credits in history at least 20 must be in courses outside the history of science and must include at least one 5-credit "broad" course (as designated by the department) in each of the following fields: European, United States, and non-Western history; 35 credits of Natural World courses to include at least 20 credits above the 100 level in the same Natural World department. Natural World courses are to be chosen from astronomy, atmospheric sciences, biology, botany, chemistry, computer science, environmental studies, geological sciences, mathematics, physics, psychology, and zoology.

Minors

Minor Requirements

History: 30 credits of history, of which 20 must be upper-division, with a minimum grade of 2.0 in each course applied toward the minor. A minimum of 15 of the 20 upper-division credits must be completed in residence at the UW.

History of Science: 25 credits, including HIST 311, 312, 390, and 490; plus one course from HIST 215, 310, 313, 315, 316, 317, 318, 412, 498 (when topic is relevant), MHE 401, 422, 424. A minimum grade of 2.0 is required in each course.

Graduate Program

For information on the Department of History graduate program, see the graduate and professional volume of the *General Catalog* or visit the *General Catalog* online at www.washington.edu/students/gencat/.

Faculty

Chair

Robert C. Stacey

Professors

Alden, Dauril * 1959; MA, 1952, PhD, 1959, University of California (Berkeley); Latin American history, colonial history.

Bacharach, Jere L. * 1967; MA, 1962, Harvard University; PhD, 1967, University of Michigan; history of the Middle East, Islam.

Barlow, Tani E. * 1994, (Adjunct); MA, 1979, PhD, 1985, University of California (Davis); history of modern China, gender studies, feminist theory, historiography.

Behlmer, George K. * 1979; MA, 1972, PhD, 1977, Stanford University; modern Britain, social history of family.

Benson, Keith R. * 1981, (Adjunct); MA, 1973, PhD, 1979, Oregon State University; history of modern American biology, marine biology, and evolutionary biology.

Bergquist, Charles W. * 1989; MA, 1968, PhD, 1973, Stanford University; modern Latin American history, labor history.

Bridgman, Jon M. * 1961, (Emeritus); PhD, 1960, Stanford University; modern European history (especially military).

Butow, Robert J. C. * 1960, (Emeritus); PhD, 1953, Stanford University; East Asian diplomatic history.

Conlon, Frank F. * 1968; PhD, 1969, University of Minnesota; history of India, modern South Asia.

Ebrey, Patricia B. * 1997; PhD, 1975, Columbia University; early Imperial China, Song dynasty, social history.
 Ellison, Herbert J. * 1968; PhD, 1955, University of London (UK); modern Russian history.

Ferrill, Arthur L. * 1964; PhD, 1964, University of Illinois; Ancient Rome, military history.

Findlay, John M. * 1987; PhD, 1982, University of California (Berkeley); history of the American West, Pacific.

Fowler, Wilton B. * 1969; PhD, 1966, Yale University; U.S. foreign policy, diplomatic.

Gil, Carlos * 1974; PhD, 1975, University of California (Los Angeles); Hispanics of the United States, Latin America.

Glenn, Susan A. * 1993; PhD, 1983, University of California (Berkeley); twentieth-century U.S. social and cultural history including women's history.

Griffiths, Gordon 1959, (Emeritus); PhD, 1942, University of California (Berkeley); MA, 1946, Oxford University (UK); Renaissance and Reformation.

Hankins, Thomas L. * 1964; PhD, 1964, Cornell University; history of science.

Hanley, Susan B. * 1970, (Adjunct); PhD, 1971, Yale University; premodern Japanese history.

Johnson, Richard R. * 1972; PhD, 1972, University of California (Berkeley); early American history, constitutional history.

Jonas, Raymond A. * 1985; PhD, 1985, University of California (Berkeley); modern France.

Kirkendall, Richard S. * 1988, (Emeritus); PhD, 1958, University of Wisconsin; twentieth-century US, agricultural.

Lebsock, Suzanne D. * 1995; MA, 1973, PhD, 1977, University of Virginia; history of women, American social history, history of the American South.

Levy, Fred J. * 1960; PhD, 1960, Harvard University; Tudor-Stuart England, English historiography.

McCormick, Richard L. * 1995; PhD, 1976, Yale University; U.S. political history.

Palais, James B. * 1968; PhD, 1968, Harvard University; Korean history.

Pease, Otis A. * 1966, (Emeritus); PhD, 1954, Yale University; United States in the twentieth century.

Pressly, Thomas J. * 1949, (Emeritus); PhD, 1949, Harvard University; nineteenth-century United States, Civil War and Restoration.

Pyle, Kenneth B. * 1964; PhD, 1965, Johns Hopkins University; modern Japanese history.

Ramet, Sabrina P. * 1983, (Adjunct); PhD, 1981, University of California (Los Angeles); politics and history of former Yugoslavia, East European religion and culture.

Rorabaugh, William J. * 1976; PhD, 1976, University of California (Berkeley); United States social history, nineteenth-century US.

Saum, Lewis O. * 1965, (Emeritus); PhD, 1962, University of Missouri; U.S. intellectual history.

Stacey, Robert C. * 1988; PhD, 1983, Yale University; medieval.

Sullivan, Woodruff T. III * 1973, (Adjunct); PhD, 1971, University of Maryland; radio astronomy, galactic and extragalactic structure, history of astronomy.

Taylor, Quintard * 1995; MA, 1971, PhD, 1977, University of Minnesota; African American, American west.

Thomas, Carol G. * 1964; PhD, 1965, Northwestern University; ancient Greece.

Toews, John E. * 1979; PhD, 1973, Harvard University; European intellectual and cultural.

Ullman, Joan Connelly * 1966, (Emeritus); PhD, 1963, Bryn Mawr College; modern Spain.

Walter, John C. * 1989, (Adjunct); PhD, 1971, University of Maine; Afro-American studies; Afro-American, American, Caribbean immigrant, sport, and women's history.

White, Richard * 1990, (Affiliate); PhD, 1975, University of Washington; American West, American Indian, environmental history.

Whorton, James C. * 1970, (Adjunct); PhD, 1969, University of Wisconsin; history of medicine, public health, pharmacy and alternative healing.

Williams, Michael A. * 1976, (Adjunct); PhD, 1977, Harvard University; early Christianity and religions of antiquity.

Wineburg, Samuel S. * 1989, (Adjunct); PhD, 1990, Stanford University; educational psychology, cognitive psychology of school subjects, historical cognition.

Associate Professors

Felak, James R. * 1989; PhD, 1989, Indiana University; Eastern European history.

Gamboa, Erasmo * 1976, (Adjunct); MA, 1973, PhD, 1984, University of Washington; history, Pacific Northwest, Chicano and Latino, social, labor and immigration.

Gowing, Alain M. * 1988, (Adjunct); PhD, 1988, Bryn Mawr College; Latin and Greek historiography, Latin literature of the Empire.

Gregory, James N. * 1993; PhD, 1983, University of California (Berkeley); twentieth-century United States, race, politics, labor.

Guy, R. Kent * 1980; PhD, 1981, Harvard University; late imperial China.

Hevly, Bruce W. * 1989; PhD, 1987, Johns Hopkins University; history of technology and science.

Leiren, Terje I. * 1977, (Adjunct); PhD, 1978, North Texas State University; Scandinavian history, nationalism, immigration, ethnicity, Norwegian language.

McKenzie, Robert T. * 1988; PhD, 1988, Vanderbilt University; nineteenth-century United States, U.S. economic, civil war and reconstruction.

O'Neil, Mary R. * 1983; PhD, 1982, Stanford University; Renaissance/Reformation, early modern Europe.

Salas, Elizabeth 1987, (Adjunct); MA, 1977, California State University, Los Angeles; PhD, 1987, University of California (Los Angeles); New Mexican history and politics, Chicana, Mexicana and Chicano history, minorities in the military.

Sears, Laurie J. * 1989; PhD, 1986, University of Wisconsin; Southeast Asia, historiography.

Stacey, Robin C. * 1988; PhD, 1986, Yale University; medieval history, Celtic.

Waugh, Daniel Clarke * 1972; PhD, 1972, Harvard University; medieval Russian history.

Yee, Shirley J. * 1988, (Adjunct); PhD, 1987, Ohio State University; U.S. women's history, African-American history, nineteenth-century U.S. social history.

Young, Glennys J. * 1992; PhD, 1989, University of California (Berkeley); Imperial and Soviet Russia, religion, women.

Assistant Professors

Camp, Stephanie M. H. 1998; PhD, 1998, University of Pennsylvania; African American history.

Dong, Yue 1996, (Adjunct); MA, 1991, University of Oregon; PhD, 1996, University of California (San Diego); late 19th and 20th century China, social and cultural history, urban history, gender studies.

Harmon, Alexandra J. * 1991, (Adjunct); PhD, 1995, University of Washington; history of U.S. race relations, American Indians, and legal culture.

Nash, Linda L. 1999, (Acting); MS, 1989, University of California (Berkeley); environmental, American west.

Poiger, Uta G. * 1995; MA, 1990, PhD, 1995, Brown University; modern German history, European, women, gender, historiography.

Schmidt, Benjamin * 1996; MA, 1988, PhD, 1994, Harvard University; early modern European history, the Netherlands.

Singh, Nikhil Pal * 1999; PhD, 1995, Yale University; U.S. intellectual, African American, ethnicity and nationalism.

Thomas, Lynn M. * 1997; MA, 1989, Johns Hopkins University; MA, 1993, Northwestern University; PhD, 1997, University of Michigan; Africa, cultural and social.

Walker, Joel T. 1997; PhD, 1998, Princeton University; late antiquity, Byzantine, early Middle Ages.

Course Descriptions

See page 48 for an explanation of course numbers, symbols, and abbreviations.

For graduate-level course descriptions, see the graduate and professional study volume of the *General Catalog* or visit the online course catalog at www.washington.edu/students/crscat/.

Upper-division courses (300 and 400 levels) in the Department of History do not generally require prerequisites. Most 400-level courses deal with a single nation during a limited period. The 300-level courses deal with broader subjects at a relatively advanced level. Both are primarily for juniors and seniors, but they are open to freshmen and sophomores with an interest or background in the subject of the course.

History

HIST 111 The Ancient World (5) I&S Origins of Western civilization to the fall of Rome.

HIST 112 The Medieval World (5) I&S Political, economic, social, and intellectual history of the Middle Ages. Cannot be taken for credit toward a history major if HSTAM 331 or 332 or 333 previously taken.

HIST 113 The Modern World (5) I&S Political, economic, social, and intellectual history of modern Europe. Cannot be taken for credit toward a history major if HSTEU 302 or 303 previously taken.

HIST 140 Russia from the Tenth Century to the Present (5) I&S Russian political, social, and economic history from the tenth century to the present. Offered: jointly with SISRE 140.

HIST 192 The Historian as Detective (5) I&S Examples illustrate how "clues" from the past are used by historians to build inferential "cases;" collection, analysis, and interpretation of evidence as a historical method. Open to all students.

HIST 199 Foreign Study (3-5, max. 10) I&S Lower-division history courses, for which there are no direct University of Washington equivalents, taken through the University of Washington Foreign Study Program.

HIST 204 Europe and America in the Era of the World Wars (5) I&S Declining role of Europe in the world and rise of the United States from 1914 to 1945.

HIST 207 Introduction to Intellectual History (5) I&S Ideas in historical context. Comparative and developmental analysis of Western conceptions of "community," from Plato to Freud. Offered: jointly with CHID 207.

HIST 211 Introduction to the History of Science (5) I&S Introduction to major themes in the history of science. Investigation of historical and scientific methods through the study of particular historical cases.

HIST 215 The History of the Atomic Bomb (5) I&S History of the atomic bomb from the beginning of nuclear physics to the security hearing of J. Robert Oppenheimer. Includes a study of the scientific achievements that made the bomb possible, the decision to deploy the bomb, the moral misgivings of the scientists involved.

HIST 225 The Silk Road (5) I&S *Waugh* History of cultural and economic exchange across Eurasia from the early Common Era to modern times. Spread of religions such as Islam and Buddhism, overland trade in rare commodities, interaction between nomadic and sedentary cultures, role of empires, culture of daily life, and the arts. Offered: jointly with SISRE 225.

HIST 249 Introduction to Labor Studies (5) I&S Conceptual and theoretical issues in the study of labor and work. Role of labor in national and international politics. Formation of labor movements. Historical and contemporary role of labor in the modern world. Offered: jointly with POL S 249/SOC 266.

HIST 250 The Jews in Western Civilization (5) I&S History of the Jews from late antiquity to the present. Examines the relationship between Jewish communities and the larger societies in which they are found. Offered: jointly with SISJE 250.

HIST 251 Introduction to African History (5) I&S Explores African history from ancient times through the era of the slave trade and European colonialism to the present. Traces the themes of the politics of wealth and identity to situate contemporary events and processes in Africa within historical perspective. Special attention to the regions of West and East Africa.

HIST 261 Survey of the Muslim Near East (5) I&S The Middle East (the Arab countries, Israel, Turkey, Iran, and Afghanistan) from the emergence of Islam in AD 622 to the present: culture, economics, politics.

HIST 283 Introduction to Women's History (5) I&S Includes units on American, European, and Third World women that examine centers of women's activities (convents, women's clubs), women's place in male-dominated spheres (politics), women's impact on culture (health, arts), and the effect of larger changes on women's lives (technology, colonization). Offered: jointly with WOMEN 283.

HIST 294 Honors Historiography (5) I&S Readings in the great historians, from the earliest time to the beginning of the twentieth century. Investigates how perception of the human past has altered our times.

HIST 307 History of Christianity (5) I&S Christian religion, including doctrine, practice, church organization, and culture, from the time of Jesus Christ to the present. No attempt to avoid the controversial aspects of the topic is made, but the necessity of founding argument on knowledge is stressed.

HIST 309 Marx and Nietzsche: The Assault on Bourgeois-Christian Civilization (5) I&S Major dilemmas and conflicts of modern Western consciousness through historical analysis of Marx, Nietzsche, and the movements they spawned. Emphasis on the relationship between sociocultural change, biography, and ideological innovation.

HIST 310 Science and Religion in Historical Perspective (5) I&S Scientific and religious ideas have been two of the major forces shaping our modern view of the world. Often regarded as being in conflict, they can equally well be seen as complementary and interdependent. Study of the relationship between scientific and religious ideas with focus on particular episodes of history from ancient to modern times.

HIST 311 Science in Civilization: Antiquity to 1600 (5) I&S From preclassical antiquity to the end of the Middle Ages, stressing the growth of scientific ideas,

the cultural context in which they take shape, and their relationship to other movements of thought in the history of civilization.

HIST 312 Science in Civilization: Science in Modern Society (5) I&S Growth of modern science since the Renaissance, emphasizing the scientific revolution of the seventeenth century, the development of methodology, and the emergence of new fields of interest and new modes of thought.

HIST 313 Science in Civilization: Physics and Astrophysics Since 1850 (5) I&S/NW Organization and pursuit of the physical and astrophysical sciences, focusing on the major unifying principles of physics and astronomy and the social and cultural settings in which they were created. Offered: jointly with ASTR 313.

HIST 314 The Psychoanalytic Revolution in Historical Perspective (5) I&S Genesis and evolution of Freudian theory in context of the crisis of liberal-bourgeois culture in central Europe and parallel developments in philosophy, literature, and social theory. Emergence and division of the psychoanalytic movement. Transformation of psychoanalysis as it was absorbed into British, French, and especially American cultural traditions.

HIST 315 History of Technology to 1940 (5) I&S Technology since the Middle Ages, in its social and historical contexts. From the medieval foundations of metal working, its social consequences and the establishment of a class of engineering practitioners, to the transformation of American rural life, domestic technology, and industry before World War II.

HIST 316 History of American Science (5) I&S History of science in the United States, including migration of European science, development in colonial America, growth of an American scientific community, and expansion of American science in the twentieth century. Issues of scientific attitudes to the natural world, race, ethnicity, and gender are included.

HIST 335 The United States and Vietnam (5) I&S American involvement in Vietnam, including: the complex of negotiations; strategies and objectives of both sides; military, political, and economic operations of the United States; efforts at pacification; impact of Vietnam on American affairs.

HIST 345 War and Society (5) I&S Analysis of the techniques of war from the Renaissance to the present with consideration of the social, political, and economic consequences of war in the Western world.

HIST 346 Images of War in History, Literature, and Media (5) VLPA/I&S Explores images of war generated by historians, writers, artists, filmmakers, television producers, and journalists, analyzing the perspectives on war adopted by various observers to see what motivates their representations. Focuses on ways in which various media shape images of war and the effect of this shaping on human consciousness.

HIST 361 Slavery in History: A Comparative Study (5) I&S Slavery as a universal historical phenomenon lending itself to a comparative analysis is studied in terms of its philosophical justifications, economic importance, and local practices. The following historical periods are surveyed: the ancient Near East, Greece, Rome, Islam, Africa, Latin America, and North America.

HIST 363 Wars in the Modern Near East (3) I&S The Middle East, scene of some of the most significant military events in modern world history, with focus on the repercussions for participants in terms of political and psychological changes. Resident military specialists supplement the historical approach by analyzing the battles and wars on these terms.

HIST 370 History of the Expansion of Islam (5) I&S Comparative perspective on the expansion of the religion and community of Islam from its origins to the modern age. Patterns and processes of expansion, conversion, and social and cultural assimilation in a number of world regions (e.g., the Arab World, Iberia, Anatolia, West Africa, Iran, India, and Southeast Asia). Specific case studies of Islam in its regional setting (e.g., South Asia).

HIST 388 Colloquium: Introduction to History (5, max. 10) I&S Introduction to the discipline of history for new or prospective majors. Emphasizes the basic skills of reading, analysis, and communication (both verbal and written) that are central to the historian's craft. Each seminar discusses a different subject or problem.

HIST 390 Colloquium in History and Science (5) I&S Study in the history of science to bridge the gap between the natural sciences and the humanities. Students should have a strong background both in history and in a natural science.

HIST 395 Modern Historical Writing, Honors Seminar (5) I&S New types of problems examined by historians and new techniques that have evolved for solution. Brief historiographical introduction, reaching back to the "scientific" historians of the mid-nineteenth century, then continues by examining the impact on historians of new disciplines such as psychology, sociology, and economics, and of new techniques such as statistics and prosopography. Readings are in the theorists and in those who followed their lead. Admission by departmental invitation only.

HIST 398 Advanced Historical Detection (5) I&S Examination of varieties of historical evidence and analysis by contemporary historians; discussion of weekly readings, some in common, others individually assigned; preparation of three short papers, one based upon original research in University of Washington manuscript holdings. For honors students, upper division.

HIST 399 Advanced Foreign Study (3-5, max. 15) I&S Upper-division history courses, for which there are no direct University of Washington equivalents, taken through the University of Washington Foreign Study Program.

HIST 412 Science and the Enlightenment (5) I&S The role of science in relation to intellectual, social, economic, and religious forces in the eighteenth century, and growth of the international community in science during the same period.

HIST 425 History of the British Empire and Commonwealth Since 1783 (5) I&S Britain in the Caribbean, Africa, India, Southeast Asia, and the Pacific; and the settlement, economic development, and political evolution of Canada, Australia, New Zealand, and South Africa.

HIST 449 Issues in Comparative Labor History (5) I&S Role of labor in the modern world. Emphasis on the centrality of workers' struggles in the evolution of national societies on the conceptual, research, and expository strategies of contemporary students of the labor movement and on differences and relationships between labor in developed and underdeveloped countries.

HIST 451 Eastern and Central Africa Since 1500 (5) I&S Explores the history of Eastern and Central Africa from the period prior to the slave trade through European colonialism to the post-colonial present. Focuses on political, economic, and social change and continuity. Emphasis on understanding how various historical actors and historians have interpreted these processes.

HIST 452 Southern Africa Since 1500 (5) I&S Explores the history of Southern Africa from pre-colonial social institutions through European colonialism and industrialization to the post-apartheid

present. Focuses on the interplay between race, class, ethnicity, and gender in the structuring of political relations. Emphasis on understanding how various historical actors and historians have interpreted these processes.

HIST 455 Topics in African History (5) I&S Explores important issues in the history and historiography of sub-Saharan Africa since 1500. Content varies. Possible topics include labor and the family; health and healing; and resistance, ethnicity, and nationalism.

HIST 461 History of the Middle East: 622-1300 (5) I&S Political and economic analysis of the period circa AD 600, preliminary to rise of Islam, to arrival of the Turks. Muhammad's teaching and impact; Islamization and Arabization.

HIST 462 History of the Middle East: 1258-1798 (5) I&S Conquests by successors of Ghengis Khan; creation in Egypt, Syria, and Iran of cavalry-based states; domination of political, social, and economic history by Ottoman and Safavid empires. The Napoleonic invasion.

HIST 463 History of the Middle East Since 1789 (5) I&S Critical issues and themes in the changing Middle East, including Westernization, growth of nationalism, Arab-Israeli dispute, Iranian revolution, and the role of Islam.

HIST 467 Nations and States in the Modern World (5) I&S Development of national consciousness in the "old nations" of Europe before the French Revolution. Replacement by new nationalism, spreading into East Central Europe, Russia, Ibero-America, Asia, and Africa. Offered: jointly with SIS 467.

HIST 470 History of the Jews in the Twentieth Century (5) I&S Historical experience of the Jews since World War I in Europe, North America, and the Middle East under the impact of three developments: growth of mass-based American Jewish community, destruction of Jewish life in Central and Eastern Europe, and creation of the State of Israel. Offered: jointly with SISJE 470.

HIST 481 Economic History of Europe (5) I&S Origins of the modern European economy; historical analysis of economic change and growth from medieval times that stresses the preconditions and consequences of industrialization. Recommended: ECON 201. Offered: jointly with ECON 460.

HIST 490 Senior Thesis (5, max. 10) I&S Preparation of the senior thesis for the History and Science emphasis.

HIST 491- Honors Historical Method (5-) I&S The purposes, materials, and techniques of historical scholarship. Theory, practice, and criticism. For honors students.

HIST -492 Honors Historical Method (-5) I&S The purposes, materials, and techniques of historical scholarship. Theory, practice, and criticism. For honors students.

HIST 495 History Internship (1-5, max. 10) Off-campus independent fieldwork with a community agency in an apprenticeship or internship situation. Work to be jointly supervised by a member of the History Department and an on-site field supervisor.

HIST 496- Public and Local History (5-) I&S Reviews the nonacademic applications of history (museums, parks, business, archives, planning, policy-making, popular media). Includes directed research and writing on local topics in one applied setting. Students ordinarily undertake a lengthy research project in an internship-like role.

HIST -497 Public and Local History (-5) I&S Reviews the nonacademic applications of history (museums, parks, business, archives, planning, policy-

making, popular media). Includes directed research and writing on local topics in one applied setting. Students ordinarily undertake a lengthy research project in an internship-like role.

HIST 498 Colloquium in History (3-5, max. 15) I&S Each seminar examines a different subject or problem. A quarterly list of the seminars and their instructors is available in the Department of History undergraduate advising office.

HIST 499 Undergraduate Research (1-5, max. 15)

History of the Americas

HSTAA 135 The American People and Their Culture in the Modern Era: A History of the United States Since 1940 (5) I&S Through study of documents, personal testimony, and other source materials, through written reports on historical problems, and through discussions, lectures, films, and audiovisual presentations, students are encouraged to examine evidence and to think "historically" about persons, events, and movements within the memory of their own generation and that immediately preceding theirs. Primarily for first-year students.

HSTAA 150 Afro-American History (5) I&S Introductory survey of topics and problems in Afro-American history with some attention to Africa as well as to America. Provides some general knowledge and serves as a basic introductory course for a sequence of lecture courses and seminars in Afro-American history. Offered: jointly with AFRAM 150.

HSTAA 180 History of the Chicano People to 1848 (5) I&S Historical survey of the Chicano people from pre-Hispanic times to the war between the United States and Mexico. Offered: jointly with CHSTU 180.

HSTAA 181 History of the Chicano People Since 1848 (5) I&S Historical survey of the Chicano people since the war between the United States and Mexico.

HSTAA 200 The Peoples of the United States (5) I&S Surveys American diversity since 1500. Repeopling of America through conquest and immigration by Native Americans, Europeans, Africans, Asians, and Latin Americans. Contributions of various peoples and the conflicts between them, with special attention to changing constructions of race and ethnicity and evolving understandings of what it means to be American.

HSTAA 201 Survey of the History of the United States (5) I&S Supplies the knowledge of American history that any intelligent and educated American citizen should have. Objective is to make the student aware of his or her heritage of the past and more intelligently conscious of the present.

HSTAA 202 Makers of American Foreign Policy, 1776 to the Present (5) I&S Survey of the history of American foreign relations. Focus on the individuals responsible for initiating new foreign policies or for realigning old ones.

HSTAA 212 The Military History of the United States From Colonial Times to the Present (5) I&S Development of American military policies, organizational patterns, tactics, and weaponry, from beginnings as a seventeenth-century frontier defense force to the global conflicts and military commitments of the twentieth century. Interaction and tension between need for an effective military force and concept of civilian control of that force.

HSTAA 213 African Americans in the American West (5) I&S *Taylor* Explores pre-1848 Spanish-speaking black settlers, slavery, post-civil war migration, buffalo soldiers. 19th and 20th century black urban settlers, World War II migration, the civil rights movement in the West, the interaction of African Americans with other people of color. Particular focus on Seattle and the Pacific Northwest.

HSTAA 270 The Jazz Age (5) I&S Interdisciplinary study of period after World War I to Great Crash. Afro-American and Anglo-American currents and impulses that flowed together in the Roaring Twenties. Covers politics of normalcy, economics of margin, literature of indulgence and confusion, transformation of race relations, and cultural influence of jazz. Offered: jointly with AFRAM 270.

HSTAA 281 Introduction to Latin American History: From Columbus to Castro (5) I&S Survey of political, economic, and social history of Latin America from the Iberian conquest to the present. Lectures, discussions, and films focus on developing understanding of Latin America's current problems through study of their historical roots. Designed for the beginning student and the nonspecialist.

HSTAA 285 Latin American History Through Film (5) VLPA/I&S Critical analysis of Latin American films as historical documents. Subjects include Iberian conquest and colonialism, the struggle for independence in the nineteenth century, social revolutions of the twentieth century, and problems of contemporary development. Readings and lectures place each film in the context of the historiography of the subject matter.

HSTAA 301 Foundations of American Civilization (5) I&S Early America from the sixteenth century to the end of the American Revolution: the founding years, social and religious development, race relations, development of the Atlantic world, origins and legacy of American independence.

HSTAA 302 American Civilization: The First Century of Independence (5) I&S Establishment of the constitutional system; national expansion; intellectual and cultural development; internal conflicts, the Civil War, and Reconstruction.

HSTAA 303 Modern American Civilization From 1877 (5) I&S Emergence of modern America, after the Civil War; interrelationships of economic, social, political, and intellectual developments.

HSTAA 315 Researching Indians' History (5) I&S *Harmon* Finding and interpreting sources of information about American Indians' history. Offered: jointly with AIS 370.

HSTAA 321 African-American History, Conquest to 1865 (5) I&S History of Africans in America from slave trade through the Civil War, with emphasis on how gender informed African-American experience. Topics include slave trade, middle passage, life in plantation south, culture, family structure and resistance, and the experience of free blacks, North and South.

HSTAA 322 African-American History, 1865 To The Present (5) I&S African-American experience from Reconstruction to the present, emphasizing the variety of African-American political expression. Gender and class differences closely examined, as well as such constructs as "community," "race," and "blackness."

HSTAA 333 The American South Since the 1920s (5) I&S Political, social, and economic developments in the eleven states of the former Confederacy. Special attention to the questions of race relations, civil rights, and cultural distinctiveness.

HSTAA 334 The Sixties in America: Conflict, Confrontation, and Concession (5) I&S Politico-cultural movements that collided in the sixties. Includes politics of confrontation and civil disobedience, economics of "guns and butter," literature of conflict and angst, polarization of arts, transformation of race relations, role of Rock, and influence of domestic politics on foreign relations. Recommended: AFRAM 150; AFRAM 270. Offered: jointly with AFRAM 334.

HSTAA 351 American Constitutional History: From Colonial Times to the Present (5) I&S European origins; the constitution-making of the American Revolution; the growth of government; Civil War and Reconstruction as constitutional crises; reform and the new federalism; the Supreme Court and civil rights; Congress, the presidency, and modern American constitutionalism.

HSTAA 365 The History of the American Film (5) I&S/VLPA Explores relationship between film and American social and cultural history. Considers films as products of specific periods, individual filmmakers, and developments within film industry. Examines representations of political and social issues on the screen, impact of movies on our understanding of the past, and significance of genres and visual styles.

HSTAA 370 Consumer Culture in Twentieth Century America (5) I&S Studies the American attempt in this century to create, sustain, and organize the world's first consumer-oriented industrial society. Topics to be considered include: the economy of mass consumption, how a culture of consumption was created, and the ideas of social critics who have rejected consumerism.

HSTAA 373 Social History of American Women (5) I&S Survey of United States women, sixteenth century to present: critical analysis of the production of female images and their relationship to women's unpaid work; participation in paid labor force; charitable, reform activities; feminist movements of the nineteenth and twentieth centuries. Use of primary materials, i.e., diaries, letters, speeches, artifacts. Recommended: WOMEN 200, WOMEN 283, or HSTAA 201. Offered: jointly with WOMEN 383.

HSTAA 377 History of Canada (5) I&S General survey and analysis of political, economic, social, and cultural aspects of Canadian history from the foundation of New France to present; Canadian-American relations, the rise of Quebec nationalism, and the development of the Canadian West. Offered: jointly with SISC 377.

HSTAA 381 Latin America: The Early Colonial Period (5) I&S Discovery and founding of Spanish and Portuguese empires in the New World and their development until the eighteenth-century reorganizations.

HSTAA 382 Latin America: Late Colonial and Early National Periods (5) I&S Imperial reforms, the struggle for independence; the founding of new nations.

HSTAA 383 Modern Latin America (5) I&S Analysis of economic problems, political and social changes, and intellectual trends in major Latin American republics since the late nineteenth century.

HSTAA 384 Latin America: Inter-American and Intra-Continental Relations (5) I&S Inter-American relations, focusing on the United States' diplomatic and military responses to the problems of Latin America since 1776. Intra-Latin American relations and regional organizations (e.g., the Organization of American States).

HSTAA 401 American Revolution and Confederation (5) I&S Causes of separation of the United States from the British empire; political theory of the Revolution; its military history; diplomacy of the Revolution; the Revolution as a social movement; intellectual aspects; readjustment after independence; the formation of the American union; the Constitution.

HSTAA 404 New England: From the Foundings to the Civil War (5) I&S New England from colonial beginnings to the region's emergence to national leadership in the mid-nineteenth century. Emphasis on Puritanism, the New England town, adjustment to empire, revolution and constitution making, the

growth of party, abolitionism, the flowering of a regional culture, and the personalities who embodied these key themes and periods.

HSTAA 409 American Social History: The Early Years (5) I&S Survey of American society and institutions from the colonial era through the Civil War, with special attention to reform, labor, immigration, education, law enforcement and the city.

HSTAA 410 American Social History: The Modern Era (5) I&S Survey of American society and institutions from Reconstruction to the present with special attention to reform, poverty, social mobility, immigrant and ethnic groups, the city and law enforcement.

HSTAA 411 The United States During the Era of Civil War and Reconstruction (5) I&S Conflicting interests, ideologies, and ways of life in the United States from the 1840s to the 1870s.

HSTAA 412 The Westward Movement, 1700-1850 (5) I&S Anglo-American advance into interior of continental United States culminating in occupation of Far West. Rivalry with New France and New Spain in colonial period; role of federal government in westward expansion; land policy and land distribution; migration, settlement, and the pioneering experience; federal Indian policies and implementation; political evolution, urbanization, and economic development of trans-Appalachian West; shaping of national character and institutions.

HSTAA 413 History of the Trans-Mississippi West (5) I&S Anglo-American exploration, conquest, occupation, and exploitation of the trans-Mississippi West, with emphasis on economic development into the twentieth century. Considers wide range of developmental themes (social, political, cultural) in historiography of American West.

HSTAA 414 The Canadian West, 1670-1990 (5) I&S Examines the history of colonization and settlement of Canada's four westernmost provinces with emphasis on their economic, social, and Native history.

HSTAA 416 American Law and the American Indian (3) I&S Relationship between Indians and the United States from 1789 to the present. Significant constitutional, legislative, and judicial actions. Legal events explored within their political, military, social, and cultural contexts. Comparisons with other minority-group experiences. Offered: jointly with LAW 467.

HSTAA 417 Indians in Western Washington History (3) I&S *Harmon* Relations of Indians and non-Indians in the Puget Sound region, 1790s to the present, with emphasis on evolving ideas about Indian identity. Offered: jointly with AIS 425.

HSTAA 420 Farmers in United States History (5) I&S From pre-colonial practices to the modern agricultural system with emphasis on the demographic, geographic, and technological dimensions and their social, economic, and political implications.

HSTAA 421 American Environmental History (5) I&S American attitudes toward the natural environment. Impact of settlement on the major natural regions of the United States. Evolution of the conservation movement, including development of the national park system and national forest system and emergence of the ecological perspective.

HSTAA 426 American Urban History Since 1870 (3/5) I&S Development of American cities for the past century. Topics include physical development, immigration, politics, and changes in society and culture.

HSTAA 431 American Politics and Society Since 1920 (5) I&S Political, social, economic, and intellectual developments in the United States from 1920 to the present.

HSTAA 432 History of Washington and the Pacific Northwest (5) I&S Exploration and settlement; economic development; growth of government and social institutions; statehood.

HSTAA 436 American Jewish History Since 1885 (5) I&S Political, social, economic, religious history of American Jewish community from great eastern European migration to present. Integration of immigrant community into general American community; rise of nativism; development of American socialism; World War I and II; and reactions of American Jews to these events. Offered: jointly with SISJE 436.

HSTAA 445 Economic History of the United States (5) I&S Growth and development of the United States economy from the colonial period to the present. Follows the course of economic change, examines contemporary reactions, and analyzes implications for American society and politics.

HSTAA 450 Class and Labor in American History (5) I&S The history of workers and class formation from early industrialization to the present. Emphasizes the interaction of class with race, ethnicity, gender, and political culture within the context of American economic development. Explores the role of unions, labor politics, and radical movements.

HSTAA 451 Constitution Making in America, 1776-89 (5) I&S Intensive study of the framing of the Articles of Confederation, the state constitutions, the territorial ordinances, the United States Constitution of 1787, and the Bill of Rights. Class discussions and term paper, in addition to required attendance at lectures offered in 351, which cover the English and colonial backgrounds and developments to 1840. Credit cannot be received for both 351 and 451.

HSTAA 454 The Intellectual History of the United States (5) VLPA/I&S Lectures and discussions devoted to the development of the American mind, from historical beginnings to the present.

HSTAA 456 The American Character (5) I&S Explores prevailing explanations for the American character and tries to assess its historical consequences. Lectures, discussion, reading, reports.

HSTAA 461 Diplomatic History of the United States, 1776-1901 (5) I&S Foreign policy of the United States government prior to the twentieth century. Emphasis on international wars, territorial expansion, and the peculiarities of the American position in world politics.

HSTAA 462 Diplomatic History of the United States, 1901-Present (5) I&S Foreign policy of the United States government during the twentieth century. International wars and the other major episodes in diplomacy are emphasized.

HSTAA 470 Colloquium in American History: the Progressive Era, 1900-1917 (5) I&S The principal problems and themes of the Progressive Era, emphasizing political, economic, social, and cultural aspects.

HSTAA 471 Colloquium in American History: the 1920s in America (5) I&S Achievements and issues of the New Era; causes and consequences of the stock-market crash and Great Depression, with emphasis on political, economic, social, and cultural analysis.

HSTAA 472 Colloquium in American History: Franklin D. Roosevelt and the New Deal (5) I&S Analysis of the key political, economic, social, and cultural factors in the New Deal, including the role played by President Roosevelt.

HSTAA 473 Colloquium in History: the American Experience in World War II (5) I&S Problems and policies of the people of the United States and their government in World War II; the role of the United States in winning the war; impact of the war on American society.

HSTAA 480 Labor and Popular Movements in Latin America (5) I&S Interdisciplinary approach to origins and trajectory of labor movement from late nineteenth century to present. Emphasis in contemporary period on popular movements, including neighborhood associations, religious base communities, women's movement, and ethnic mobilization for democratic social and political reform. Recommended: two non-English-language Latin American studies courses. Offered: jointly with SISLA 480.

HSTAA 482 The History of Brazil: Colonial Period to the Present (5) I&S Colonial foundations; the first and second empires; the old and new republics; current problems; prospects for the future.

HSTAA 483 Southern South America (5) I&S History of the four countries that form southern South America: Argentina, Uruguay, Paraguay, and Chile, focusing on economic, social, and political change in the nineteenth and twentieth centuries. Governments of Juan Perón in Argentina and Salvador Allende in Chile. Relations of the four countries with Europe and the United States.

HSTAA 486 History of Mexico: Colonial Origins to 1822 (5) I&S Political, social, and economic history of Mexico from its discovery by the Spanish to its independence from Spain.

HSTAA 487 History of Mexico: 1822 to the Present (5) I&S Political, social, and economic history of Mexico from its independence from Spain to the present.

HSTAA 488 History of the Caribbean and Central America (5) I&S Political, social, and economic history of principal countries in the Caribbean and Central America from their discovery to the present.

Ancient and Medieval History

HSTAM 201 Ancient History (5) I&S Development and characteristics of ancient Greek civilization from the Bronze Age to the Roman conquest. Emphasizes interaction of cultures of the eastern Mediterranean.

HSTAM 202 Ancient History (5) I&S Political, social, economic, and cultural development of Rome from the beginnings in the eighth century BC to the beginning of the Middle Ages.

HSTAM 203 Introduction to the Middle Ages: Medieval People (5) I&S Introduction to the Western Middle Ages through a study of social roles and statuses as seen through documents and imaginative literature. The groups studied are rulers, aristocracy, peasants, townspeople, clergy, outcasts, and outsiders.

HSTAM 205 Military History of the Ancient World (5) I&S Military history from prehistoric times to the fall of the Roman Empire, with special emphasis on the Greco-Roman period and the campaigns of Alexander the Great, Hannibal, Scipio Africanus, and Julius Caesar.

HSTAM 276 Celtic Civilizations of the European Middle Ages (5) I&S Introduction to the history and pseudo-history of medieval Ireland, Wales, Scotland, and Gaul. Topics include "Celtic" religion, mythology, social institutions, nationalism, and the relationship between history and myth. Particular attention to how historians "do" history in the absence of straightforward historical sources.

HSTAM 301 Greek History: 7000 BC to 1000 AD (5) I&S Ancient Greece from its Neolithic village origins through the Bronze Age civilization and that of the Classical period, continuing with developments during the battles of Alexander's successors, Greece's incorporation into the Roman Empire, and its new form in the Byzantine Empire.

HSTAM 330 The Age of Augustus (5) VLPA/I&S Detailed study of the history and culture of the reign of Augustus, the first Roman emperor (31 BC-AD 14). Includes readings in Augustan authors such as Virgil, Ovid, and Horace as well as the study of Augustan art and architecture. Offered: jointly with CLAS 330.

HSTAM 331 Early Middle Ages (5) I&S The Dark Ages, feudalism, emergence of the medieval order of civilization, and the development of Romanesque culture.

HSTAM 332 Central Middle Ages (5) I&S Europe in the central Middle Ages: culture of cathedrals and universities, formation of national states, development of urban society.

HSTAM 333 Late Middle Ages (5) I&S Disintegration of the medieval order under the impact of the national state, the secularization of society, and the decline of the church. Movements of reform and revolution. The culture of late gothic Europe.

HSTAM 336 The Humanist Ideal: From the Greeks to the Renaissance (3) I&S Students read certain ancient, medieval, and Renaissance texts, selected to show the continuity and the transformations of the humanistic tradition, and write periodic essays on their reading as well as a term paper. Intended to supplement courses on the history of the respective periods.

HSTAM 340 Medieval Women (5) I&S The experiences of women in medieval society: public and private power, changing concepts of family and the domestic sphere, ideal and reality in courtly love, women in religious life, women in the workplace, the querelle des femmes and the beginnings of "feminist" thought.

HSTAM 342 Celtic Britain and Ireland (5) I&S Ireland, Scotland, and Wales in the early Middle Ages: Celtic religion and mythology, interaction between Christian culture and native traditions, sacred kingship and the formation of "nations," Arthurian fact and fiction, Celtic art, the Norman conquests of the Celtic "fringe."

HSTAM 360 Medieval Christianity (5) I&S Development of Christianity in the medieval west circa 400 to 1500. Emphasis on the forms of religious life: monasticism, the papacy, friars, hermits, mystics, and reformers; and on the emergence of new modes of piety, both lay and clerical.

HSTAM 370 The Vikings (5) VLPA/I&S The Vikings at home in Scandinavia and abroad, with particular emphasis on their activities as revealed in archaeological finds and in historical and literary sources. Offered: jointly with SCAND 370.

HSTAM 401 Early Greece (5) I&S Bronze and Dark Age Greece: realities of the heroic age of ancient Greece.

HSTAM 402 Classical Greece (5) I&S The classical civilization of ancient Greece, with special emphasis on the legacy of Greece to Western civilization.

HSTAM 403 Alexander the Great and the Hellenistic Age (5) I&S Rise of Macedonia, conquest of Near East by Alexander, and division into lesser kingdoms after Alexander's death. Special emphasis on fusion of cultures and change from city-state to world-state.

HSTAM 405 Topics in Ancient History (5, max. 10) I&S Select topics in the history of the ancient world, from the Neolithic Near East to the late Roman Empire. Offered by various faculty/instructors.

HSTAM 411 The Early Roman Republic (3) I&S Political, social, economic, and cultural history, with emphasis on the development of the constitution and territorial expansions.

HSTAM 412 The Late Roman Republic (3) I&S Political, social, and cultural history, with special emphasis on the period of Cicero and Caesar.

HSTAM 413 The Early Roman Empire (3) I&S Political, social, economic, and cultural history, with emphasis on the Julio-Claudians.

HSTAM 414 The Late Roman Empire (3) I&S Political, social, economic, and cultural history, with emphasis on the decline of ancient civilization.

HSTAM 421 The Byzantine Empire (5) I&S Political, social, economic, and cultural history of the eastern Roman Empire from the fourth to fifteenth centuries.

HSTAM 431 Topics in Medieval History, 500-1000 (5) I&S Study in depth of one or more topics in the history of Europe during the early Middle Ages.

HSTAM 443 Kievan and Muscovite Russia: 850-1700 (5) I&S Development of Russia from earliest times to the reign of Peter the Great. Offered jointly with SISRE 443.

HSTAM 446 Medieval Russian Chronicles (5) I&S History of Russian chronicle writing; study of the chronicles as literature and as historical sources, with emphasis on the latter.

HSTAM 460 Medieval England, 1042-1485 (5) I&S Upper level survey of English history from the Norman conquest until 1485. Emphasis on political, social, and economic history, with special attention to the peculiarities of English development as these had emerged by 1485.

HSTAM 472 Intellectual and Religious History of the Later Middle Ages (5) I&S Selected topics in intellectual and religious history, 1250 to 1550. Concentration on Europe north of the Alps and on philosophical and theological issues rather than on "humanism" and the history of scholarship. Most reading in original sources in translation.

History of Asia

HSTAS 201 Ancient Indian Civilization (5) I&S Religions, literature, philosophy, politics, arts, and history of India from earliest times to the Mughal empire.

HSTAS 202 Modern Indian Civilization (5) I&S The Islamic impact, British conquest, and contemporary India. Emphasis on the rise of nationalism, social organization, and contemporary life and history.

HSTAS 211 History of Chinese Civilization (5) I&S Intensive survey of Chinese civilization from earliest times to today. Introduces all students, including East Asian history majors, to the general sweep of Chinese history. Social, cultural, and intellectual developments.

HSTAS 212 History of Korean Civilization (5) I&S From earliest times to the present. Development of Korean society and culture in terms of government organization, social and economic change, literature, and art. Offered: jointly with SISEA 212.

HSTAS 221 History of Southeast Asia (5) I&S Surveys Southeast Asian civilizations at the outset of Western colonial rule; the colonial impact on the traditional societies of Burma, Thailand, Cambodia, Laos, Vietnam, Malaysia, Indonesia, and the Philippines; nineteenth- and twentieth-century nationalist and revolutionary movements; emergence of Southeast Asia as a region in the modern world. Offered: jointly with SISSE 221.

HSTAS 341 Japanese Civilization (5) I&S Japan's civilization, including its origins, government, literature, economic institutions, material culture, social organization, and religions, in relation to the development of Japan as a society and nation. Offered: jointly with SISEA 341.

HSTAS 348 Alternative Routes to Modernity (5) I&S Routes to modernity followed by non-Western societies between 1600 and 1900. Historical experiences of non-Western societies seen in the contexts of European history and of development theory. Primary sources and techniques for posing theoretical questions of historical data. Offered: jointly with SIS 348.

HSTAS 401 History of Ancient India (5) I&S India in ancient times; emphasis on forms of political organizations and economic life, social organizations, and cultural developments.

HSTAS 402 History of Medieval and Mughal India (5) I&S Medieval India; emphasis on forms of political organizations and economic life, social organizations, and cultural developments.

HSTAS 403 History of Modern India to 1900 (5) I&S Modern India; emphasis on forms of political organizations and economic life, social organizations, and cultural developments.

HSTAS 404 History of Twentieth-Century India (5) I&S Analysis of the problems in the fields of social life, international and domestic politics, education, economics, and other areas that confront India today.

HSTAS 422 History of Tokugawa Japan (5) I&S Background to the unification of Japan in 1600; establishment of the Tokugawa political structure; and the social, economic, and cultural history of the period 1600-1868. Offered: jointly with SISEA 422.

HSTAS 423 History of Modern Japan (5) I&S Political, social, economic, and cultural development of Japan from the late Tokugawa period to the present with special emphasis on the cultural impact of the West. Offered: jointly with SISEA 423.

HSTAS 424 The Emergence of Postwar Japan (5) I&S The making of modern Japan; World War II and surrender; American occupation; postoccupation rebuilding; emergence as an industrial power. Recommended: HSTAS 423 or SISEA 423. Offered: jointly with SISEA 440.

HSTAS 431 Tibetan History (3) I&S Tibet from earliest times to the present. Emphasis on the status and relations of Tibet in Asian affairs and on the evolution of the political institutions of a lama-ruler state.

HSTAS 441 Economic and Social History of Japan to 1900 (5) I&S Lecture-seminar on Japanese economic and social history from 700 to 1900. Analyses of the rise and decline of the shoen system, the rise of commerce, social change, changes in the living standard, demographic changes, and the early phases of industrialization. Political and cultural developments as related to economic and social change. Prerequisite: either SISEA 341 or HSTAS 341. Offered: jointly with SISEA 441.

HSTAS 451 Chinese History: Earliest Times to 221 BC (5) I&S Preimperial China.

HSTAS 452 Chinese History from Earliest Times to 1276(5) I&S *Ebrey* Traces the development of Chinese civilization from earliest times through the Song dynasty. Examines social, cultural, political, and economic history.

HSTAS 453 Chinese History: AD 906 to 1840 (5) I&S *Guy* Political, social, economic, and intellectual history from the time of the Mongol conquest of China to the Sino-Japanese war. Focus on the evolution of the late imperial Chinese state and the "early modern" era in China.

HSTAS 454 History of Modern China (5) I&S Social, cultural, political, economic, and intellectual transformations and continuities in China from the end of the imperial period to the present. Offered: jointly with SISEA 454.

HSTAS 456 Topics in Chinese Social History (5) I&S Surveys major issues and approaches to the study of the role of the Chinese people in China's historical development. Historical focus of course varies with instructor. Prerequisite: HSTAS 211. Offered: jointly with SISEA 456.

HSTAS 462 Southeast Asian History to 1800 (5) I&S Absorption and modification of cultures (Indian and Chinese), religions (Islam, Buddhism, Catholicism), and peoples (northern European) by island- and mainland-Southeast Asians. Main themes are cultural contact and the growth of states and peoples.

HSTAS 463 Southeast Asian History from 1800 to the Present (5) I&S Post-eighteenth-century history of the present countries of Burma, Thailand, Cambodia, Laos, Vietnam, Malaysia, Singapore, Brunei, Indonesia, and the Philippines. Deals with colonial rule, emerging nationalism, and political independence. Investigates broad themes of social, economic, and cultural history.

HSTAS 465 The Vietnam Wars (5) I&S Analyzes Vietnamese, Cambodian, and Laotian wars fought in Southeast Asia from 1946 to present. Examines how the Vietnamese managed to defeat both the French and Americans. Questions whether these wars were wars of independence, civil wars, or "proxy wars" in which local forces served the interests of great powers.

HSTAS 469 Topics in Southeast Asian History (5) I&S Introduces major issues within the history and culture of one country of Southeast Asia. Content varies. Topics may include religion, economics, colonialism, perspectives on gender, labor history, literatures, popular culture, and performing arts. Focuses on a different Southeast Asian country each time offered. Offered: jointly with SISEA 469.

HSTAS 481 History of Traditional Korea: Earliest Times to the Nineteenth Century (5) I&S Korean history from earliest times to the modern period.

HSTAS 482 History of Modern Korea: 1860 to the Present (5) I&S Traditional institutions and society, Japanese colonial rule, liberation and the Korean War, early Korean communist movement, and North Korea and South Korea since 1945.

Modern European History

HSTEU 210 Paris (5) VLPA/I&S Taught in English. Provides an introduction to the art, architecture, politics, and literature of the City of Light. Offered: jointly with FRENCH 210.

HSTEU 220 Introduction to East European Studies (5) I&S Introduction to the history of post-1945 Eastern Europe focusing on political, economic, social, cultural, and diplomatic issues. Countries surveyed include Albania, Bulgaria, Czechoslovakia, Hungary, Poland, Romania, and Yugoslavia. Offered: jointly with SIRE 220.

HSTEU 250 Rome (5) VLPA/I&S Focuses on Rome as an historical, intellectual, and artistic world center. Literary and historic documents, visual arts, architecture, film, and opera used to explore the changing paradigms of the Eternal City. In English. Offered: jointly with ART H 250/ITAL 250.

HSTEU 273 Women and Gender in Modern Europe (5) I&S Examines European women's changing social role and competing views of femininity from the Enlightenment to the end of the cold war. Special focus on the relationship of gender and politics and on the female body in bourgeois society, industrialization, imperialism, the welfare state, fascism, and the cold war.

HSTEU 275 Life in England (5) I&S Social history of England from the Norman conquest to the present, seen through letters, autobiographies, novels, and plays of the time. Life of the ordinary inhabitant-in the village and the manor house.

HSTEU 301 Early Modern European History: 1450-1648 (5) I&S Political, social, economic, and cultural history from the late Renaissance to the Peace of Westphalia.

HSTEU 302 Modern European History: 1648-1815 (5) I&S Political, social, economic, and cultural history from the Peace of Westphalia to the fall of Napoleon.

HSTEU 303 Contemporary European History Since 1815 (5) I&S Political, social, economic, and cultural history from the fall of Napoleon to the present.

HSTEU 304 Cultural History of Renaissance Europe (5) VLPA/I&S Examination of Medicean Florence, late sixteenth-century France, Elizabethan England, and the baroque courts of the early seventeenth century as cultural centers. Includes analysis of painters such as Botticelli and Rubens; poets such as Ronsard and Donne; philosophers such as Pico and Montaigne; and playwrights such as Marlowe, Shakespeare and Lope de Vega.

HSTEU 305 European Witch Trials (5) I&S Witchcraft and magical beliefs in Europe considered as a problem in intellectual, social, and legal history. Medieval background, systematization of witchcraft theory in fifteenth century; comparison of learned and popular beliefs; mechanisms of witch trials and inquisitorial procedure; the Faust legend; growth of skepticism and decline of witchcraft in seventeenth century.

HSTEU 369 The Destruction of European Jewry, 1933-45 (5) I&S History of anti-Semitism; dimensions of the Holocaust; the Holocaust organization and the victims' responses; reactions of world to events in Europe, allied policies, refugee policy, and American actions. Legal, historical, and sociological questions raised by these events. Offered: jointly with SISJE 369.

HSTEU 380 History of Scandinavia to 1720 (5) I&S Scandinavian history from the Viking Age to 1720, with an emphasis on the political, social, and economic development of Denmark, Norway, Sweden, Finland, and Iceland from the Middle Ages to the Enlightenment. Offered: jointly with SCAND 380.

HSTEU 381 History of Scandinavia Since 1720 (5) I&S Scandinavian history from the Enlightenment to the Welfare State with emphasis on the political, social, and economic development of the modern Scandinavian nations of Denmark, Norway, Sweden, Finland, and Iceland. Offered: jointly with SCAND 381.

HSTEU 401 The Reformation (5) I&S Origins of the disunity of Europe in the crisis of the sixteenth century with emphasis on the relations between religion and politics.

HSTEU 405 European Intellectual History: Eighteenth Century (5) VLPA/I&S Development of the social sciences, moral theory, political theory, and religious thought in eighteenth-century Europe. Rationalism, empiricism, utilitarianism, and the sources of idealism.

HSTEU 406 European Intellectual History: Nineteenth Century (5) VLPA/I&S Selected topics in intellectual history up to 1890. The philosophical consequences of the French Revolution, the development of idealism, conservatism, romanticism, and early socialist theory; positivism, the problems of historicism, new forms of Christian apologetics, utilitarianism in decline, liberalism as philosophy, the early Marx.

HSTEU 407 European Intellectual History: Twentieth Century (5) VLPA/I&S Selected topics in the intellectual history of the late nineteenth and early twentieth centuries. The aftermath of Darwinism, the problems of methodology in modern social science,

historicism and moral relativism, irrationalism in philosophy and social theory, revisionism in secular and orthodox religions.

HSTEU 410 The Renaissance: 1300-1560 (5) I&S Conditions of Renaissance culture: Italian republics and despots, humanism, the classical ideal of the arts, Machiavelli and the foundations of modern political thought; the end of an era.

HSTEU 411 Europe: 1814-70 (5) I&S Development of Europe during the age of Metternich, the revolutions of 1848, and the emergence of new national states.

HSTEU 413 Europe: 1914-45 (5) I&S Politics and society of Europe in the age of the concentration camp.

HSTEU 415 Europe in the Six Years' War: 1939-45 (5) I&S Inquiry to discover what the war of 1939-45 was about and what it did to more than five hundred million Europeans.

HSTEU 421 France: 1429-1789 (5) I&S Political and cultural history, from Joan of Arc to the eve of the French Revolution. Villon, Rabelais, Montaigne, Molière, Voltaire, Rousseau, de Tocqueville.

HSTEU 422 The French Revolution and Napoleon: 1789-1815 (5) I&S Transformation of France under the Revolution of 1789; the Reign of Terror and Napoleon; the impact of the revolution and Napoleon upon Europe.

HSTEU 423 France Since 1814 (5) I&S Political, economic, and social history since the Congress of Vienna. Special emphasis upon the continuity of the revolutionary tradition.

HSTEU 425 Topics in the History of France (5) I&S An exploration of the political, social, cultural, or psychological dimensions of key themes in the history of France.

HSTEU 431 Germany: 1648-1914 (5) I&S Culture(s) and politics in central Europe from the end of the Thirty Years' War to the formation of the first German national state. Emphasis on the self-perception of societies and on the variety of interpretations of this period's history that are offered by different "schools" of historians.

HSTEU 432 Germany: 1914-1945 (5) I&S Politics and society from the collapse of the Bismarckian empire to the collapse of Hitler's empire.

HSTEU 433 Central Europe: the Habsburg Monarchy, 1740-1918 (5) I&S Social, political, cultural history of Europe's second-largest state, from the reign of Maria Theresa to the dissolution of the empire at the end of World War I. Topics include: state formation, nineteenth-century revolutions, nationality conflicts, political radicalism and anti-Semitism, and literature and the arts.

HSTEU 434 Germany 1871-1989 (5) I&S Society and politics from Germany's first unification to its reunification; domestic and foreign policy; political, economic, social, and cultural developments; high emphasis on German society's self-perception and on the variety of interpretations of this period's history offered by different "schools" of historians.

HSTEU 435 World War I (5) I&S European society on the eve of the war. War experience of the Europeans. Long term consequences of the war on European social, political, and economic institutions. Impact of the war on non-European world. The war in European literature.

HSTEU 439 Soviet Union Since World War II (5) I&S Domestic and foreign policy; political, economic, social, and cultural developments.

HSTEU 440 History of Communism (5) I&S Communism from its origins in the Bolshevik faction of Russian social democracy to the present, treating the development of the ideology, the various communist parties, and the communist states. Recommended: two history or politics of Europe courses. Offered: jointly with SIS 440.

HSTEU 444 Imperial Russia: 1700-1900 (5) I&S Development of Russia from Peter the Great to Nicholas II. Offered jointly with SISRE 444.

HSTEU 451 East-Central Europe Since 1342 (5) I&S Focus on the lands of today's Poland, Czechoslovakia, Hungary, and Germany from the time they were great powers to the present. Traces the major changes in the fortunes of these lands in both local and international settings.

HSTEU 452 Eastern Europe Since 1918 (5) I&S Poland, Czechoslovakia, Hungary, Romania, Yugoslavia, Bulgaria, and Albania, from the end of World War I to the present.

HSTEU 453 History of the Balkans, 1400 to the Present (5) I&S Centuries of Ottoman rule that produced a new basis for the reemergence of independent states in the nineteenth and twentieth centuries; history of these new states until the present.

HSTEU 454 Baltic History (5) I&S Overview of the history of the area occupied by the Baltic countries of Latvia, Lithuania, and Estonia. Emphasizes their emergence as modern European nation-states. Era from World War I to present treated in depth, including the historical role and present situation of non-Baltic peoples, particularly Russians.

HSTEU 461 Spain and Its Golden Age, 1469-1700 (5) I&S History and culture of Spain and its empire from the late Middle Ages through the seventeenth century.

HSTEU 462 Spain: 1700 to the Present (5) I&S Political, economic, and cultural attempts of Spain to adjust to capitalism, liberalism, and secularism.

HSTEU 464 The Jews in Spanish History (5) I&S Sephardic Jews in Spanish politics, economy, and culture, emphasizing the medieval Golden Age and the Inquisition. Offered: jointly with SISJE 464.

HSTEU 465 The Jews of Eastern Europe (5) I&S Jewish society in Poland, Russia, the Hapsburg Lands, and Romania from the late Middle Ages to the Holocaust. Offered: jointly with SISJE 465.

HSTEU 466 The Sephardic Diaspora: 1492-Present (5) I&S *Stein* Examines the history and culture of Sephardic Jewry from the expulsion from the Iberian Peninsula in 1492 to the present. Explores the creation of Sephardic communities in the Dutch and Ottoman Empires, Western Europe, the Americas, and Africa, and the history of the conversos and "hidden Jews." Offered: jointly with SISJE 466.

HSTEU 467 Medieval Jewish History (5) I&S Social and intellectual history of the Jews in western Europe to the fifteenth century. Jews under Islam and Christianity; the church and the Jews; the Crusades and their legacy; intellectual achievements; conflict and cooperation. Offered: jointly with SISJE 467.

HSTEU 468 Early Modern Jewish History, 1492-1789 (5) I&S Jews in the early-modern period. The Spanish expulsion in 1492 to the onset of political and social emancipation in western Europe and America. Offered: jointly with SISJE 468.

HSTEU 469 Enlightenment, Emancipation, Antisemitism: History of the Jews, 1770-1914 (5) I&S The Jewish experience in the modern world from the European Enlightenment to the First World War. Focus on the debates surrounding Jewish emancipation, the reception of Jews within European society, modern antisemitism, nationalist movements, mass migration, and war. Offered: jointly with SISJE 469.

HSTEU 470 The Jacobethan Age: England 1580-1630 (5) I&S Emphasis on arts and society instead of the traditional kings, battles, and politics; the way people at all levels of society lived, in towns and in the countryside, within the bounds of the royal court or outside in the political wilderness. Classes on poetry, drama, music, architecture, painting, interior decoration, and some of the minor arts, as well as on demography and some of the traditional historical subjects. Not open for credit to students who have taken 471 or 472.

HSTEU 471 England in the Sixteenth Century (5) I&S Political, administrative, and social history from Henry VII to Elizabeth I, with emphasis on the Reformation and its effects and on conditions of life in Elizabethan England. Not open to students who have taken 470.

HSTEU 472 England in the Seventeenth Century (5) I&S Political, administrative, and social history from the accession of James I to the Glorious Revolution. Not open to students who have taken 470.

HSTEU 474 England in the Nineteenth Century (5) I&S Political, social, and cultural development; the agrarian, industrial, and French revolutions; the rise of parliamentary democracy; the Victorian age; political thought from utilitarianism to Fabianism; Irish home rule.

HSTEU 475 England in the Twentieth Century (5) I&S From the Boer War to the present; conservatism, liberalism, and socialism; England in two world wars; the decline of British imperialism.

HSTEU 476 Modern Irish History (5) I&S Political and social history from 1800 to the present; the Irish Question after the Act of Union; development of Irish nationalism in the Home Rule and Sinn Féin periods; the Irish Free State and Northern Ireland since 1921; current problems in Northern Ireland.

HSTEU 480 European Socialism (5) I&S Origins and development of socialist theory and practice in Europe since the French Revolution. Socialism as a political movement.

HSTEU 482 Fascism in Europe (5) I&S History of the fascist era in modern Europe from 1919 to 1945. A study of the principal examples of national fascism and fascist-like movements coupled with a general theoretical consideration of the phenomenon.

Honors

211 Mary Gates Hall



General Catalog Web page:
www.washington.edu/students/gencat/academic/honors.html



Department Web page:
depts.washington.edu/uwhonors/

uwhonors@u.washington.edu

The honors program offers outstanding undergraduate students a special curriculum featuring small classes, challenging instruction, and close contact with faculty and other honors students. An emphasis on writing is incorporated into the honors core curriculum and honors seminars. Directed and independent study are particularly encouraged for upper-division students, commonly leading to a senior honors thesis or project. For a description of honors program requirements, see the Undergraduate Study section of this catalog.

Course Descriptions

See page 48 for an explanation of course numbers, symbols, and abbreviations.

For current course descriptions, visit the online course catalog at www.washington.edu/students/crscat/.

H A&S 220 Science for Honors Students I (5)

Evolution of an idea or concept central to the natural sciences. Intended for non-science majors. Content varies from year to year. For university honors students only. Offered: A.

H A&S 221 Science for Honors Students II (5)

Evolution of an idea or concept central to the natural sciences. Intended for non-science majors. Content varies from year to year. For university honors students only. Offered: W.

H A&S 222 Science for Honors Students III (5)

Evolution of an idea or concept central to the natural sciences. Intended for non-science majors. Content varies from year to year. For university honors students only. Offered: Sp.

H A&S 251 Western Civilization I (5)

Introduction to ideas and society in Western Civilization. For university honors students only. Offered: A.

H A&S 252 Western Civilization II (5)

Introduction to ideas and society in Western Civilization. For university honors students only. Offered: W.

H A&S 253 Western Civilization III (5)

Introduction to ideas and society in Western Civilization. For university honors students only. Offered: Sp.

H A&S 261 World Civilization I (5)

Introduction to ideas and society of civilization other than the Western. Specific civilization (Chinese, Japanese, Middle Eastern, South Asian) differs from year to year and section to section. For university honors students only. Offered: A.

H A&S 262 World Civilization II (5)

Introduction to ideas and society of civilization other than the Western. Specific civilization (Chinese, Japanese, Middle Eastern, South Asian) differs from year to year and section to section. For university honors students only. Offered: W.

H A&S 263 World Civilization III (5)

Introduction to ideas and society of civilization other than the Western. Specific civilization (Chinese, Japanese, Middle Eastern, South Asian) differs from year to year and section to section. For university honors students only. Offered: Sp.

H A&S 350 Honors Seminar (2, max. 20)

Discussion of selected topics in a variety of subject-matter fields. Topics and reading material vary from year to year. For university honors students only. Credit/no credit only.

H A&S 396 Interdisciplinary Special Topics-Natural Science (1-5, max. 10)

Special courses drawn from interdisciplinary groups in the natural sciences. Content varies.

H A&S 397 Interdisciplinary Special Topics-Social Science (1-5, max. 10)

Special courses drawn from interdisciplinary groups in the social sciences. Content varies.

H A&S 398 Interdisciplinary Special Topics-Humanities (1-5, max. 10)

Special courses drawn from interdisciplinary groups in the humanities. Content varies.

Humanities (Simpson Center for the Humanities)

Course Descriptions

See page 48 for an explanation of course numbers, symbols, and abbreviations.

For graduate-level course descriptions, see the graduate and professional study volume of the *General Catalog* or visit the online course catalog at www.washington.edu/students/crscat/.

HUM 200 Issues in the Humanities (1-5, max. 15)

I&S/VLPA Topics and issues of current interest in the humanities and the study of the arts. Features numerous guest lecturers from the U.W. faculty together with distinguished visiting teachers, scholars, and artists. Credit/no credit only.

HUM 210 Texts in Context (5, max. 15)

I&S/VLPA Links a single, major work from any medium, or a narrowly bounded group of closely related, smaller works, to the cultural, intellectual, and historical circumstances of its creation and interpretation. Emphasizes close-reading and careful writing.

HUM 220 Themes in Time and Culture (5, max. 15)

I&S/VLPA Traces the articulation and development of a single overarching idea in different idioms, cultures and eras. Asks how, and if, notions that are fundamental to one era or culture find expression in other times and places. Emphasizes comparative analysis and careful writing.

HUM 498 Special Topics in the Humanities (1-5, max. 15)

I&S/VLPA Examination of selected topics in the humanities and the study of the arts. Taught by U.W. faculty and visiting scholars and artists.

International Studies

401 Thomson



General Catalog Web page:
www.washington.edu/students/gencat/academic/international_studies.html



Department Web page:
jis.arts.washington.edu

The Henry M. Jackson School of International Studies organizes and supports interdisciplinary teaching and research in international affairs. The school consists of a group of interdisciplinary area-studies programs on major world regions, as well as topical and comparative programs of study that transcend national and regional boundaries.

Undergraduate Program

Advisers

James Donnen

Linda Iltis

111 Thomson, Box 353650

(206) 543-6001

jisadv@u.washington.edu

The School of International Studies offers eight programs of study leading to the Bachelor of Arts degree. Students may concentrate on a major world area within the context of the humanities and social sciences, specialize in topical studies, or pursue a more general course of study in International Studies. Most programs also offer a minor.

Student Associations: Jackson School Student Association.

Internship or Cooperative Exchange Program Opportunities: The Asia Internship Program, as well as scholarships for unpaid internships.

African Studies

Lucy Jarosz, Chair

Adviser

Sandra Chait

220 Old Electrical Engineering Building, Box 352515
(206) 616-0998

African Studies involves an interdisciplinary group of faculty, staff, and students who share an interest in cross-disciplinary questions relating to Africa and the African Diaspora. Africa-focused courses are taught in a variety of scholarly disciplines and programs, including art, music, anthropology, geography, history, the International Health program, and American ethnic studies. An umbrella organization, the Program on Africa, coordinates and disseminates information on African Studies activities and administers a minor for undergraduates.

Minor

Minor Requirements: 30 credits chosen from at least three departments whose courses are listed below, including at least 10 credits at the 200 or 300 level and at least 20 credits at the 400 level. Students are encouraged to study relevant languages such as Arabic, Swahili, Portuguese, or French. Courses may be chosen from the following: AFRAM 201, 306 through 309, 401, 402, 403, 492; ANTH 313, 318, 401, 402, 434, 471, ANTH/WOMEN 351, ARCHY 312, 401; GEOG 371, GEOG/SIS 335; HIST 251, 361, 451, 452, 455; SIS 456/ POL S 450, SISAF 444, 499; SOC/AES 462; ART H 205, 330, 337, 436, 437, 438; MUSIC 317; ARAB 401, 411 through 416. A minimum grade of 2.0 is required for each course applied toward the minor. A minimum of 15 credits must be completed at the University of Washington.

Asian Studies

The undergraduate program in Asian Studies is directed by a committee consisting of the chairs of China Studies, Korea Studies, Japan Studies, South Asian Studies, and Southeast Asian Studies, and a designated faculty coordinator.

The Asian Studies major combines language training with interdisciplinary study of an Asian region or single country. The program emphasizes social science approaches to the study of history, culture, and society, with provision for study of literature and the arts as well. Students may focus on China, Japan, Korea, South Asia (Bangladesh, India, Nepal, Pakistan, Sri Lanka, Tibet), Southeast Asia (Brunei, Burma (Myanmar), Cambodia, East Timor, Indonesia, Laos, Malaysia, the Philippines, Singapore, Thailand, Vietnam), or Asia as a whole. Five interdisciplinary minors on individual countries or regions also are offered.

Bachelor of Arts

Admission: Students in good academic standing may declare this major at any time.

Suggested Introductory Course Work: SISA 210 and two introductory Asian civilization course (see major requirements, below). Two years of a relevant Asian language. Courses that develop writing skills, especially in the social sciences.

Major Requirements: 30 credits or second-year equivalent language training in a language appropriate to student's track; SISA 210, 5 credits; two Asian civilization courses (one in student's track and one on a second civilization) chosen from SISEA/HSTAS 212, 341, HSTAS 201, 202, 211, SISSE/HSTAS 221, 10 credits; a thematic or cross-regional course chosen from an approved list, 5 credits; and 30 credits of

approved coursework from one regional or country track, or from the general Asia track. Approved research paper required in one of the upper-division track courses. Minimum grade of 2.0 in all courses counted toward the major (except first- and second-year language courses, where grades must average 2.00). 30 of the 35 credits required for the thematic/cross-regional and track requirements must be taken in residence at the University of Washington.

Minors

The following are the approved Asian civilization courses for the minors: SISEA/HSTAS 212 (Korea), SISEA/HSTAS 341 (Japan); SISSE/HSTAS 221 (South-east Asia); HSTAS 201 (India), 202 (India); 211 (China).

China Studies

Minor Requirements: 30 credits, to include (1) HSTAS 211 and either RELIG 202 or one additional Asian civilization course from approved list above (10 credits); (2) 15 credits of electives taken at the UW, chosen from SISEA 370, 444, 445, 449, 454, 468 (or their joint-listed equivalents), ECON 466, GEOG 336, HSTAS 453; a maximum of 5 credits chosen from CHIN 373, 374, 380, 381, ART H 311, 410 through 418, 430 also may be included; (3) 5 additional credits chosen from the elective list above, or in Chinese language beyond second-year level, or in upper-division transfer courses on China. Minimum grade of 2.0 required in each course applied toward the minor.

Japan Studies

Minor Requirements: 30 credits, to include (1) SISEA/HSTAS 341 and one additional Asian civilization course from approved list above (10 credits); (2) 15 credits of electives taken at the UW, chosen from SISEA 422, 423, 435, 440, 441, 442, 447, 475, 482, 494 (or their joint-listed equivalents); a maximum of 5 credits chosen from JAPAN 321, 322, 323, ART H 204, 321, 420 through 427, 429, I BUS 440 also may be included; (3) 5 additional credits in Japanese language beyond second-year level, or in upper-division transfer courses on Japan, or in additional electives chosen from list above. Minimum grade of 2.0 required in each course applied toward the minor.

Korea Studies

Minor Requirements: 30 credits, to include (1) SISEA/HSTAS 212 and one additional Asian civilization course from approved list above, (10 credits); (2) 15 credits of electives taken at the UW, chosen from SISEA/ANTH 448, HSTAS 481, 482, SIS/ANTH 449; a maximum of 5 credits chosen from other upper-division SISEA-prefix courses on China, Japan, or East Asia also may be included; (3) 5 additional credits in Korean language beyond second-year level, or in upper-division transfer courses on Korea, or in additional electives chosen from list above. Minimum grade of 2.0 required in each course applied toward the minor.

South Asian Studies

Minor Requirements: 30 credits, to include (1) HSTAS 201 and one additional Asian civilization course from approved list above (HSTAS 202 may be chosen) (10 credits); (2) 15 credits of electives taken at the UW, chosen from any SISA-prefix course or its joint-listed equivalent, ANTH 412, 419, 471, ART H 204, ASIAN 203, 206, 263, HSTAS 401 through 404, 431, PHIL 412, 413, 418, RELIG 202, 350, 352, 354, 452, SIS/POL S 337, 436, MUSIC 316, 428, 447; (3) 5 additional credits in a South Asian language beyond second-year level, or in upper-division transfer courses on South Asia, or in additional electives chosen from list above. Minimum grade of 2.0 required in each course applied toward the minor.

Southeast Asian Studies

Minor Requirements: 30 credits, to include (1) SISSE/HSTAS 221 and one additional Asian civilization course from approved list above (10 credits); (2) 15 credits of electives taken at the UW, chosen from any SISSE-prefix course or its joint-listed equivalent, ANTH 357, 471, ANTH/NURS 492, ART H 204, HSTAS 462, 463, 465, HIST 335, RELIG 202, 354, RELIG 350/ANTH 352, MUSIC 316, 439; (3) 5 additional credits in a Southeast Asian language beyond second-year level, or in upper-division transfer courses on Southeast Asia, or in additional electives chosen from list above. Minimum grade of 2.0 required in each course applied toward the minor.

Canadian Studies

Katharyne Mitchell, Chair

Canadian Studies offers a program that provides a broad understanding of Canadian society, culture and communications, historical development, and contemporary problems.

Bachelor of Arts

Admission: Students in good academic standing may declare this major at any time.

Suggested Introductory Course Work: SIS 200, 201, 202; ECON 200, 201. Two years of French language. Canadian history courses. Courses that develop writing skills.

Major Requirements: 30 credits or second-year-equivalent French language training; SIS 200, 201, 202; ECON 200, 201; SISCAS 356, 498; minimum 18 credits from approved Canadian Studies elective course list.

Minor

Minor Requirements: 25 credits, including SISCAS 356 and 498 (10 credits) and 15 credits of electives. Recommended electives: SISCAS 308, 341, 377, 424, 430, 441, or joint-listed equivalents. Other approved electives: AAS 372, ANTH 310, CMU420/SIS 419/POL S 468, ENGL 359/AIS 377. Minimum grade of 2.0 required in each course applied to the minor. Minimum of 15 credits to be completed at the UW.

Comparative Religion

Martin S. Jaffee, Chair

The Comparative Religion major introduces students to broad theoretical issues in the academic study of religion, and encourages them to explore these issues through mastering details of the textual canons, historical traditions, social contexts, and cultural forms of religion.

Bachelor of Arts

Admission: Students in good academic standing may declare this major at any time.

Suggested Introductory Course Work: RELIG 201, 202. Courses that develop writing proficiency. Courses in particular religious traditions such as Christianity, Judaism, Islam, Hinduism, and Buddhism. Courses in the history of civilizations such as Chinese, South Asian, and Western.

Major Requirements: RELIG 201, 202; RELIG/CHID 380; 35 supplementary credits in RELIG or non-RELIG prefix courses, of which at least 15 must be at the 300 level or above, selected from the three rubrics of textual canons, historical traditions, and social contexts and cultural forms. The distribution must include at least 5 credits and no more than 20 credits in any particular rubric.

Minor

Minor Requirements: 30 credits, to include RELIG 201, 202; 15 additional credits in RELIG-prefix courses or joint-listed equivalents; and 5 additional credits chosen from RELIG courses or from ANTH/SISSE 315, ANTH 447/SISSE 445, ANTH 321, 421, HIST/SISJE 250, HIST 307, 310, HSTAS 201, 211, HSTAS/SISEA 212, NEAR E/SISME 210, PHIL 267, SISEA/HSTAS 341, SOC 457.

European Studies

Christine Ingebritsen, Chair

The curriculum in European Studies prepares students to pursue careers requiring an understanding of all the forces, both material and cultural, contemporary and historical, that are shaping Europe today (north, south, east, and west), taking into account transitions involved in the post-Soviet era and the movement toward greater political, economic, and cultural integration among the various nations involved. Students also may concentrate, within the major, on Hellenic studies.

Bachelor of Arts

Admission: Students in good academic standing may declare this major at any time. A survey course on modern Europe.

Suggested Introductory Course Work: Two years of a European language.

Major Requirements: 10 credits of a foreign language at the third-year level or beyond; 15 credits of core courses, including EURO 301 (5 credits), a survey course on modern Europe (5), and a cross-cultural or cross-disciplinary case study (5); one quarter (10 credits minimum) of foreign study; 15 credits from approved list of electives; EURO 490-491, Senior Research Seminar (10 credits). See adviser for specific course options.

Minor

Minor Requirements: Foreign language through the sixth quarter; 15 credits of core courses including EURO 301 (5 credits), a survey course on modern Europe (5), and a cross-cultural or cross-disciplinary case study (5); 10 credits from approved list of electives.

International Studies

Resat Kasaba, Chair

The general program in International Studies gives students a comprehensive and interdisciplinary perspective on world problems and an ability to analyze the subtle interactions of politics, economics, and culture within the global system.

Bachelor of Arts

Admission Requirements:

1. Admission is competitive, based on overall GPA, grades in the social sciences, a written statement of goals, language background, and any international experience. Before applying, students must complete either ECON 200 or 201, and either SIS 200 or 201. Grades in these courses will be given special consideration.

2. Application deadline is the third Friday of each quarter; students are notified by the sixth Friday of the quarter in which they apply. Transfer students must be enrolled at the UW before applying to the major.

Suggested Introductory Course Work: 30 credits of a single foreign language.

Major Requirements: Foreign-language competency through the second-year college level; ECON 200, 201; SIS 200, 201, 202, 401, 495, 498; three or four upper-division courses in an approved track; three upper-division interdisciplinary courses in international

studies from an approved core list; a research paper of approximately 25 pages to be completed in one of the courses in the student's approved track or in one of the approved interdisciplinary courses. Majors are required to maintain a GPA of at least 2.50, both overall and in the program, and to earn a minimum grade of 2.0 in all required SIS-prefixed courses.

Minors

Minor Requirements:

International Studies: 30 credits, to include 10 credits chosen from SIS 200, 201, 202; 15 credits in SIS-prefix courses numbered 200 or above, including at least 5 credits at 400 level (SIS 401 is recommended); and 5 additional credits chosen from SIS-prefix courses or from undergraduate courses having any of the following prefixes: SISA, SISAF, SISC, SISEA, SISJE, SISLA, SISME, SISRE, SISSA, SISSE, EURO, RELIG. Minimum grade of 2.0 is required in each course applied toward the minor.

International Forestry: A total of 30 credits to include the following: (1) Core courses (18 credits)—I BUS 300 or SIS 330; GEOG/SIS 335, F M 423, and F M 492. (2) Upper-division electives (12 credits)—For students majoring in forest management, wildland conservation, forest engineering, wildlife sciences, or environmental horticulture and urban forestry: SIS 375, 401, 430, SISC 308, and GEOG/SISA 372; or any I BUS, SIS, SISEA, SISLA, SISRE, SISSA, or SISSE course. For students majoring in other programs: ESC 322, ESC 410, F E 368, F M 320, 360, 371, 470, or any F M, ESC, or F E course. See faculty adviser for other options. Minimum grade of 2.0 required in each course.

Jewish Studies

Naomi Sokoloff, Chair

Jewish Studies brings the major disciplines of the humanities and the social sciences to bear on the history and culture of the Jewish people. Courses in history, both modern and premodern, comparative religion, and Near Eastern languages and civilization enable the student to study the history of the Jewish people, their rich and varied culture, and the influence of this culture upon world civilizations.

Bachelor of Arts

Admission: Students in good academic standing may declare this major at any time.

Suggested Introductory Course Work: RELIG 210, SISJE/HIST 250. Courses that develop writing skills. Courses in Western history—ancient, medieval, and modern. Modern European languages, e.g., French, German, Italian, Spanish.

Major Requirements: Second-year equivalent Hebrew language training; up to 15 credits of Hebrew language study may be applied toward the 55 minimum credits required for the major. RELIG 210 (5 credits); SISJE/HIST 250 (5); 30 credits of other courses in the Jewish studies curriculum, including a minimum of 10 credits at the 400 level.

Minor

Minor Requirements: 30 credits, to include RELIG 210 (5 credits), SISJE/HIST 250 (5), 20 additional credits chosen from any upper-division SISJE-prefix courses (except 499) or their joint-listed equivalents, or from ENGL 311, GERMAN 295, HEBR-prefix courses numbered 451 or higher, HEBR/ARAB 470, 472, NEAR E 251, 325, NEAR E/RELIG 240, RELIG 400, 410 415, 491. One course chosen from HEBR 333, 413, 421, 422, 423 may also be included. 15 credits of the minor must be taken in residence at the UW.

Latin American Studies

Eugene S. Hunn, Chair

The Latin American Studies major combines language study in Spanish and Portuguese with work in history, the humanities, and the social sciences. It provides a comprehensive, interdisciplinary understanding of this major world region, emphasizing themes such as economic development, popular movements, cultural analysis, and hemispheric relations. At the same time, it gives students the option to develop their own particular disciplinary and thematic interests.

Bachelor of Arts

Admission: Students in good academic standing may declare this major at any time.

Suggested Introductory Course Work: Substantial progress toward completing two years of Spanish and one year of Portuguese, or two years of Portuguese and one year of Spanish. Courses in any of the following disciplines that deal with Latin America: history, literature, economics, geography, sociology, political science.

Major Requirements: 45 credits (or equivalent) foreign language training, to include either two years of Spanish and one year of Portuguese or two years of Portuguese and one year of Spanish; 30 credits from an approved list, to include 10 each from the following: history; literature and arts; economic, political, and social/cultural development; 10 elective credits from approved list; and a 5-credit interdisciplinary seminar chosen from an approved list of research seminars. A senior research paper must be completed in conjunction with the interdisciplinary seminar.

Minor

Minor Requirements: One year of Spanish or Portuguese, or equivalent proficiency. 30 credits, including the following: (1) At least 5 credits chosen from HSTAA 281, 381, 382, 383, and 384. (2) At least 5 credits chosen from CHSTU 200, 201, 330, HSTAA 285, MUSIC 433, PORT 310, 335, SISLA/SPAN 485, 486, SPAN 307, 320, 321, 322, 332, 339, 376, 439, 473, 474, 475, 476, 483, 484. (3) At least 5 credits chosen from ANTH 404, 418, CHSTU 255, 352, 354, GEOG 330, 430, POL S 405, SISLA/POL S 322, 342, SISLA/SOC 355, SISLA/GEOG 451, SISLA/HSTAA 480, SPAN/WOMEN 468. (4) At least 15 additional credits chosen from the lists above or the following: ANTH 302, ARCHY 304, 476, CHSTU 256, 405, 491, GEOG 230, 371, 431, GEOG/SIS 335, HSTAA 181, 482, 483, 485, 486, 487, 488, HSTAA/CHSTU 180, HSTEU 461, 462, MUSIC 300, 317, 319, SIS 201, 401, 455, 480, SIS/ANTH/WOMEN 345, SISAF 444, SISLA 490, 492, SPAN 331, 461, 464, 465, 466, 478.

At least 20 of the 30 credits must be completed at the University of Washington (UW Foreign Study programs included). Minimum grade of 2.0 required in each course applied toward the minor.

Russian, East European, and Central Asian Studies

Stephen E. Hanson, Chair

The Russian, East European, and Central Asian Studies program is designed for students who wish to pursue concentrated study of these regions in an interdisciplinary framework. The curriculum covers most aspects, both the historical and contemporary, of the development of Russia; the independent states of the former Soviet Union; East Europe; the Baltic States; and Central Asia.

Bachelor of Arts

Admission: Students in good academic standing may declare this major at any time.

Suggested Introductory Course Work: Two years of a relevant language. Courses that develop writing skills.

For Central Asian Studies, SISRE/NEAR E 375. For East European Studies, SISRE/HSTEU 220. For Russian Studies, SISRE 243.

Major Requirements: A minimum of two years (30 credits, or equivalent proficiency—more is strongly recommended) of a relevant language, to be completed before taking the seminars in which the senior thesis is written; 15-20 credits of core courses including relevant surveys (for Russian focus, SISRE 243, 324; for Eastern Europe, SISRE/HSTEU 220; for Central Asia, SISRE 324 and SISRE/NEAR E 375 or equivalent) and a two-quarter sequence (SISRE 343, 457) leading to the writing of a senior thesis in which the relevant foreign language is to be used; 30-35 credits in 300- and 400-level courses in social sciences and humanities, approved by the program adviser. Majors generally focus on one of the geographic regions covered by the program (i.e., Russia, East Europe, the Baltics, or Central Asia), but in consultation with the adviser, combinations of courses may be approved that cover more than one region.

Graduate Program

For information on the Jackson School of International Studies graduate program, see the graduate and professional volume of the *General Catalog* or visit the *General Catalog* online at www.washington.edu/students/gencat/.

Faculty

Director

Jere L. Bacharach

Professors

Bacharach, Jere L. * 1967; MA, 1962, Harvard University; PhD, 1967, University of Michigan; history of the Middle East, Islam.

Brass, Paul R. * 1965, (Emeritus); PhD, 1964, University of Chicago; comparative politics (South Asia).

Butow, Robert J. C. * 1960, (Emeritus); PhD, 1953, Stanford University; East Asian diplomatic history.

Chirot, Daniel * 1974; PhD, 1973, Columbia University; political sociology, ethnic conflict.

Ebrey, Patricia B. * 1997; PhD, 1975, Columbia University; early Imperial China, Song dynasty, social history.

Ellison, Herbert J. * 1968; PhD, 1955, University of London (UK); modern Russian history.

Hanley, Susan B. * 1970; PhD, 1971, Yale University; premodern Japanese history.

Hellmann, Donald C. * 1967; PhD, 1964, University of California (Berkeley); Japanese politics and international relations.

Jackson, W. A. Douglas * 1955, (Emeritus); PhD, 1953, University of Maryland; Canada, political systems, nature and culture.

Jaffee, Martin S. * 1987; PhD, 1980, Brown University; rabbinic religion and literature in late antiquity.

Kasaba, Resat * 1985; PhD, 1985, State University of New York (Binghamton); historical sociology, world systems, social change in the Middle East.

Keyes, Charles F. * 1965; PhD, 1965, Cornell University; ethnic group relations, sociology of Theravada Buddhism, mainland Southeast Asia.

Legters, Lyman H. * 1966, (Emeritus); PhD, 1958, Freie University of Berlin (Germany); Russian and East European Studies.

Migdal, Joel S. * 1980; MA, 1968, PhD, 1972, Harvard University; state-society relations, rules of public space, Israel-Palestine.

Palais, James B. * 1968; PhD, 1968, Harvard University; Korean history.

Pempel, T. J. * 1995; PhD, 1972, Columbia University; comparative politics in Japan.

Poznanski, Kazimierz * 1987; PhD, 1974, University of Warsaw (Poland); comparative economic systems, technological change, political economy of Eastern Europe.

Pyle, Kenneth B. * 1964; PhD, 1965, Johns Hopkins University; modern Japanese history.

Ramet, Sabrina P. * 1983; PhD, 1981, University of California (Los Angeles); politics and history of former Yugoslavia, East European religion and culture.

Taylor, George E. 1939, (Emeritus); MA, 1928, LittD, 1957, University of Birmingham (UK); East Asian studies.

Townsend, James R. * 1968, (Emeritus); PhD, 1965, University of California (Berkeley); comparative government (China), politics of development.

Webb, Eugene * 1966; MA, 1962, PhD, 1965, Columbia University; modern English, French, and German literature, comparative religion.

Williams, Michael A. * 1976; PhD, 1977, Harvard University; early Christianity and religions of antiquity.

Wong, Christine P. W. 2000; PhD, 1979, University of California (Berkeley); Chinese public finance, rural industrialization in China, transition economies of Asia.

Yamamura, Kozo * 1972, (Emeritus); PhD, 1964, Northwestern University; economic development and economic history of Japan, comparative economic history.

Associate Professors

Anchordoguy, Marie C. * 1989; PhD, 1986, University of California (Berkeley); Japan's political economy; East Asian economic development.

Bachman, David M. * 1991; PhD, 1984, Stanford University; Chinese politics and foreign policy and China's political economy (1949-present); US-China relations.

Guy, R. Kent * 1980; PhD, 1981, Harvard University; late imperial China.

Ingebritsen, Christine * 1992; PhD, 1993, Cornell University; politics, international political economy, European integration, environmental policy.

Jones, Christopher D. * 1984; PhD, 1975, Harvard University; post-Cold War security issues in Europe and East Asia, political economy.

Lavelly, William R. * 1985; PhD, 1982, University of Michigan; social demography of China.

Sorensen, Clark W. * 1989; PhD, 1981, University of Washington; Korea, social change in East Asia, development, ethnic identity.

Waugh, Daniel Clarke * 1972; PhD, 1972, Harvard University; medieval Russian history.

Young, Glennys J. * 1992; PhD, 1989, University of California (Berkeley); Imperial and Soviet Russia, religion, women.

Assistant Professors

Callahan, Mary P. 1999; PhD, 1996, Cornell University; Southeast Asia, military politics, historical memory.

Dong, Yue 1996; MA, 1991, University of Oregon; PhD, 1996, University of California (San Diego); late 19th and 20th century China, social and cultural history, urban history, gender studies.

Giebel, Christoph * 1998; PhD, 1996, Cornell University; Vietnamese studies, Southeast Asian history.

Johnson, David T. 2000; PhD, 1996, University of California (Berkeley); comparative public law, Japanese law and politics, sociology of law, socio-legal theory.

Noegel, Scott B. * 1995; PhD, 1994, Cornell University; ancient Near Eastern languages.

Sparke, Matthew * 1995; MA, 1991, PhD, 1996, University of British Columbia (Canada); geopolitics, Cascadia, borderlands studies, globalization.

Stein, Sarah A. * 1999; PhD, 1999, Stanford University; Jewish history, Russian history, Ottoman history, nationalism/ethnicity.

Warren, Jonathan W. 1996; MA, 1990, PhD, 1997, University of California (Berkeley); race and ethnicity, Latin American studies, cultural studies, Native American studies.

Lecturer

Clowes, James D. 1988; MA, 1988, University of Montana; modern European intellectual history, early German romanticism, pedagogy.

Course Descriptions

See page 48 for an explanation of course numbers, symbols, and abbreviations.

For graduate-level course descriptions, see the graduate and professional study volume of the *General Catalog* or visit the online course catalog at www.washington.edu/students/crscat/.

International Studies

SIS 200 States and Capitalism: The Origins of the Modern Global System (5) I&S *Kasaba, Migdal* Origins of the modern world system in the sixteenth century and its history until World War I. Interacting forces of politics and economics around the globe, with particular attention to key periods of expansion and crisis.

SIS 201 Introduction to International Political Economy (5) I&S *Jones, Migdal, Pempel* International political economy through examination of major facets of the post-World War I era. Analyzes the twentieth century economic order and its crises in the 1930s, 1970s, and 1980s, North-South relations, and the cold war and its aftermath. Recommended: ECON 200.

SIS 202 Cultural Interactions in an Interdependent World (5) I&S *Guy, Sorensen* Cultural interaction among societies and civilizations, particularly Western and non-Western. Intellectual, cultural, social, and artistic aspects; historical factors.

SIS 301 War (5) I&S Origins and conduct of war; readings from anthropology, political science, economics, and history, as well as novels and some recent works on the arms-control controversy. Modern forms of warfare, including guerrilla war, world war, and nuclear war. Offered: jointly with SOC 301.

SIS 302 Intercultural Relations (5) I&S Perspectives on foreign cultures through literary example. Interdisciplinary approaches to the study of culture as such and problems of intercultural relations. Prerequisite: either one 200-level ANTH course, LING 203 or SIS 202.

SIS 330 Political Economy of Development (5) I&S *Pempel, Poznanski* Growth, income distribution, and economic development in less-developed countries today. Policies concerning trade, industrialization, the agricultural sector, human resources, and financing of development. Prerequisite: ECON 201 which may be taken concurrently.

SIS 332 Political Economy of International Trade and Finance (5) I&S *Pempel, Poznanski* Theoretical and historical analysis to explore the causes and effects of the rise and decline of four major international trade and monetary regimes. Foundations and emerging features of the new international trade and monetary regime and its implications for the world economy.

SIS 333 Gender and Globalization: Theory and Process (5) I&S *Ramamurthy* Theoretical, historical, and empirical analysis of how current processes of globalization are transforming the actual conditions of women's lives, labor, gender ideologies, and politics in complex and contradictory ways. Topics include feminist exploration of colonialism, capitalism, economic restructuring policies, resistance in consumer and environmental movements. Offered: jointly with WOMEN 333.

SIS 335 Geography of the Developing World (5) I&S Characteristics and causes, external and internal, of Third World development and obstacles to that development. Special attention to demographic and agricultural patterns, resource development, industrialization, and urbanization, drawing on specific case studies from Asia, Africa, and Latin America. Offered: jointly with GEOG 335.

SIS 337 Collective Violence and the State (5) I&S Comparative study of collective violence in modern states with emphasis on riots and pogroms. Readings include case materials drawn from Russian pogroms of the nineteenth and twentieth centuries, Hindu-Muslim riots in modern India, and race riots in the United States and Great Britain. Offered: jointly with POL S 337.

SIS 342 Social Theory in International Context (5) I&S *Ramet* Comparative, historical introduction to the foundations of modern social theory in the work of Max Weber, Sigmund Freud, and Claude Levi-Strauss. Focus on tensions between universalist claims, European origins, and non-European applications of models of cultural formation and development.

SIS 344 Migration in the Global Economy (5) I&S *Mitchell* Analyzes the relationship between human mobility in the late 20th century and changes in the global economy. Allows the student to gain familiarity with scholarly research on international migration from a diversity of approaches and methods. Offered: jointly with GEOG 344; W.

SIS 345 Women and International Economic Development (5) I&S *Ramamurthy* Questions how women are affected by economic development in Third World and celebrates redefinitions of what development means. Theoretical perspectives and methods to interrogate gender and development policies introduced. Current processes of globalization and potential for changing gender and economic inequalities assessed. Offered: jointly with ANTH 345/ WOMEN 345.

SIS 348 Alternative Routes to Modernity (5) I&S Routes to modernity followed by non-Western societies between 1600 and 1900. Historical experiences of non-Western societies seen in the context of European history and of development theory. Emphasizes primary sources and techniques for posing theoretical questions of historical data. Offered: jointly with HSTAS 348.

SIS 350 Environmental Norms in International Politics (5) I&S Surveys development of international environmental consciousness from 1960s to present. Models of "green development"; ways in which norms for resource use have entered global politics. Patterns of state compliance with international environmental agreements, and why states fall short of meeting their international obligations. Offered jointly with SCAND 350.

SIS 365 World Cities (5) I&S *Kasaba, Sparke* Factors that have propelled New York, London, and Tokyo into key positions in the organization of the late twentieth century international system. Asks historical and comparative questions and discusses the reasons behind the diminished position of cities such as Venice, Vienna, and Istanbul in that system.

SIS 375 Geopolitics (5) I&S An introduction to both political geography and geopolitics, addressing the fundamental links between power and space. Topics covered include: theories of power, space, and modernity; the formation of modern states; international geopolitics in the aftermath of the Cold War; the post-colonial nation-state; and the geopolitics of resistance. Offered: jointly with GEOG 375.

SIS 390 Political Economy of Industrialized Nations (5) I&S *Ingebritsen, Pempel* Theoretical bases of various political economic systems of industrialized nations. Several major issues these political economies currently face; usefulness and limits of economic analyses within broader perspective of political economy. Prerequisite: ECON 201 which may be taken concurrently.

SIS 397 Junior Honors Seminar (5) I&S Designed to facilitate writing of honors thesis through methodological and bibliographical research. Required of honors candidates.

SIS 399 Study Abroad—International Studies (1-5, max. 15) I&S For participants in study abroad program. Specific course content varies. Courses do not automatically apply to major/minor requirements.

SIS 401 International Political Economy (5) I&S *Ingebritsen, Poznanski* Establishment, maintenance, and decay of the post-1945 international economic order. Political economy of international trade, monetary relations, inflation, and North-South relations. Prerequisite: SIS 201 which may be taken concurrently; ECON 201 which may be taken concurrently.

SIS 406 Political Islam and Islamic Fundamentalism (5) I&S Study of resurgence, since mid-1970s, of political Islam and what has come to be called Islamic fundamentalism, especially in the Middle East. Topics include the nature and variety of political Islam today, causes and implications of the current resurgence, and comparison with previous resurgences. Offered: jointly with POL S 432.

SIS 419 Comparative Media Systems (5) I&S Provides students an understanding of policies that shape national communication processes and systems. Uses comparative analysis to identify both similarities and differences among media structures of nations at different levels of development. Primary emphasis on broadcast media. Offered: jointly with CMU 420/POL S 468.

SIS 421 National Security and International Affairs (5) I&S *Jones* Major military aspects of contemporary international politics. Uses and limitations of military capabilities for sustaining a stable international order and national security. Processes by which states detect and assess threats to their security; practice of deterrence; transfer of arms among states; pursuit of arms control. Recommended: one SIS or international relations course.

SIS 422 The United States in the Contemporary International System (5) I&S United States in the world: ways in which international circumstances shape the political-strategic, economic, and cultural dimensions of America's policy. Case studies from post-1945 period. Recommended: one international relations or foreign policy course.

SIS 423 Practicing American Foreign Policy (5) I&S Develops familiarity with tools available to promote international objectives of the United States. International case studies selected to illustrate the diverse considerations inherent in the policy process and evaluate the strengths and weaknesses of the national institutions involved. Prerequisite: SIS 201.

SIS 426 World Politics (5) I&S *Caporaso, Modelski* Nation-state system and its alternatives; world distributions of preferences and power; structures of international authority; historical world societies and their politics. Offered: jointly with POL S 426.

SIS 430 International Population (5) I&S *Lavelly* Demographic situation of the world and of major world regions. The demographic transition. Topics include public health, policies of fertility and mortality control, international migration, relation of population growth to economic development, social change, and resource constraints. Exploration and manipulation of international demographic data.

SIS 432 Population and Modernization (3) I&S *Hirschman, Lavelly* Examines role of demographic factors in process of social modernization and economic growth. Approach is historical, focusing on populations of developed countries since 1700, and analytic, stressing attempts made by different disciplines to model demographic relationships, with attention to less developed regions. Offered: jointly with SOC 432.

SIS 436 Ethnic Politics and Nationalism in Multi-Ethnic Societies (5) I&S Provides a broad theoretical base, both descriptive and analytical, for the comparative study of ethnicity and nationalism. Examples drawn from ethnic movements in different societies. Some previous exposure either to introductory courses in political science or to courses in ethnicity in other departments is desirable. Offered: jointly with POL S 436.

SIS 440 History of Communism (5) I&S *Ellison, Ramet* Communism from its origins in Bolshevik faction of Russian social democracy to the present, treating the development of the ideology, the various communist parties, and the communist states. Recommended: two history or politics of Europe courses. Offered: jointly with HSTEU 440.

SIS 444 Peasants in Politics (5) I&S *Young* Interdisciplinary study of peasants, with special attention to questions of rural transformation. Peasant involvement in an increasingly independent world. Rebellion and revolution, impact of the international market, agricultural development. Offered: jointly with POL S 446.

SIS 449 Social Transformation of Modern East Asia (5) I&S *Sorensen* Comparative study of social change in China, Japan, Korea, and Vietnam since 1945. Concentration on small-scale social units in rural and urban areas under both communist and capitalist political systems. Recommended: two history or anthropology of East Asia courses. Offered: jointly with ANTH 449.

SIS 450 Political Economy of Women and Family in the Third World (5) I&S Theoretical and empirical aspects of the political economy of women and the family in the Third World during the process of development, with a focus on labor. Main theoretical approaches examined and applied to case studies from Asia and Latin America. Offered: jointly with SOC 450.

SIS 455 Industry and the State (5) I&S *Whiting* Builds on states and markets approach of 200 and 201 through specific examination of effects of industry and industrial structure on political outcomes and roles of state. Emphasis on late-developing and newly developing economies. Prerequisite: SIS 200; SIS 201.

SIS 456 State-Society Relations in Third World Countries (5) I&S *Bachman, Kasaba* Relationships among political, social, and economic changes in Asia, Africa, and Latin America. Problems of economic and political development, revolution and reform, state-society relations, imperialism and dependency. Offered: jointly with POL S 450.

SIS 460 Law, State, and Society (5) I&S *Migdal* Examination of both state law and non-state law (rules and ways of ordering behavior such as customary law, religious law, and social conventions). Focuses on the ways non-state law interacts with and affects state law and is affected by state law.

SIS 465 Deeply Divided Societies (5) I&S *Migdal* Ethnic conflict seen from two perspectives: 1. the study of theoretical approaches as a means of understanding deeply divided societies; 2. a focus on one or more specific conflicts. Recommended: SIS 201 or POL S 204.

SIS 467 Nations and States in the Modern World (5) I&S Development of national consciousness in the "old nations" of Europe before the French Revolution. Replacement by the new nationalism and its spread into East Central Europe, Russia, Ibero-America, Asia, and Africa. Offered: jointly with HIST 467.

SIS 476 Comparative International Political Economy (5) I&S *Ingebritsen, Pempel, Pozanaski* Comparative analysis of four major approaches to international political economy: mercantilism, Marxism, liberalism, and evolutionary approach. Focus on international cooperation, social change, and economic institutions. Theoretical analysis of the four paradigms and applications to historic and current issues in international political economy: hegemonic cycle, post-communist transition, and cross-national income inequality.

SIS 480 The Catholic Church in World Politics (5) I&S *Ramet* Acquaints students with the self-identity, theology, ecclesiology, and political role of the Catholic Church in the contemporary era, with emphasis on its role in the United States, the USSR, China, Eastern Europe, and Latin America. Recommended: SIS 201, SIS 202, or RELIG 201.

SIS 490 Special Topics (1-5, max. 15) I&S Content varies from quarter to quarter.

SIS 491- Senior Honors Seminar (5-) I&S Study of issues related to students' thesis topics. Develops thesis-writing skills. Open only to Jackson School honors students.

SIS -492 Senior Honors Seminar (-5) I&S Students write a senior thesis working with their individual writing advisers.

SIS 495 Task Force (5) I&S Small-group seminars address current problems in international affairs, each focusing on one specific policy question and producing a joint task force report. Restricted to senior majors in International Studies. Prerequisite: SIS 200; SIS 201; SIS 202; SIS 401.

SIS 497 Internship (1-5, max. 15) Credit for the completion of an approved internship in international studies. Credit/no credit only.

SIS 498 Readings in International Studies (5) I&S Reading and discussion of selected works of major importance in interdisciplinary international studies. Restricted to majors in International Studies.

SIS 499 Undergraduate Research (1-5, max. 15)

European Studies

EURO 301 Europe Today (5) I&S A multi-disciplinary approach to contemporary Europe focusing on social, political, cultural, and economic change, with special reference to developments in the countries of the European Union and those in Eastern Europe in the post-Soviet era.

EURO 360 Contemporary Spain (5) VLP/IA&S Social, political, and cultural developments in Spain since the end of the Franco dictatorship in 1975. Extensive use of Spanish Web sites. Prerequisite: SPAN 302 which may be taken concurrently. Offered: jointly with SPAN 360.

EURO 395 Supervised Internship (1-5, max. 5)

EURO 399 Study Abroad (1-5, max. 15) I&S For participants in Study Abroad program. Specific course content varies. Courses do not automatically apply to major/minor requirements.

EURO 425 European Media Systems (5) I&S Examines media systems in selected countries in Europe and policy issues that link (or divide) members of the European Union and other major media producers. Media studied in context of the contemporary economic, social, political, and cultural milieu in which they operate. Offered: jointly with CMU 425.

EURO 481 August Strindberg and European Cultural History (5) I&S/VLPA Examines the work of Swedish dramatist, novelist, and painter August Strindberg, in the context of European literary movements and history of ideas from 1880 to 1912, and Strindberg's influence on 20th-century drama and film. Offered: jointly with SCAND 481.

EURO 490 Senior Seminar I (5) I&S Introduction to research into European topics and to the analysis of problems.

EURO 491 Senior Seminar II (5) I&S Writing and discussion of senior thesis. Prerequisite: EURO 490. Offered: Sp.

EURO 498 Special Topics (1-5, max. 15) I&S

EURO 499 Undergraduate Research (1-5, max. 5)

African Studies

SISAF 399 Study Abroad: African Studies (1-5, max. 15) I&S For participants in study abroad program. Specific content varies. Courses do not automatically apply to major/minor requirements.

SISAF 444 African Studies Seminar (5, max. 15) I&S Interdisciplinary seminar focusing upon one particular aspect of the African continent. Emphasis may be humanistic, social scientific, or historical. African Studies faculty and visiting scholars lecture on areas of their own expertise.

SISAF 490 Special Topics (1-5, max. 15) I&S

SISAF 499 Undergraduate Research (1-5, max. 15)

Asian Studies

SISA 210 Rise of Asia (5) I&S *Anchardoguy, Bachman, Giebel, Sorensen* Key themes in the study of Asia, with focus on the present. Topics include: the notion of "Asia;" cultural and religious similarities and differences; comparison of colonial experiences under Western and Asian powers; World War II and liberation; postwar patterns of economic and political development; social patterns and issues. Offered: A.

SISA 372 Asian Sustainable Development (5) I&S *Jhaveri* Examines the contemporary relationship between environmental protection and development paths in Asia. Inquires into the forces driving both environmental change and societal responses (state and local regulations, social movements, etc.) to that change, at many geographical scales. Asian concepts of nature-society relations also explored. Offered: jointly with GEOG 372.

SISA 399 Study Abroad: Asian Studies (1-5, max. 15) I&S For participants in study abroad program. Specific course content varies. Courses do not automatically apply to major/minor requirements.

SISA 490 Special Topics (1-5, max. 15) I&S Content varies.

SISA 499 Undergraduate Research (1-5, max. 15)

Canadian Studies

SISCA 308 Canada: A Geographic Interpretation (5) I&S *Sparke* Examines the overlapping economic, cultural, and political geographies shaping life in contemporary Canada. Topics include: free trade, constitutional crisis, feminism in Canada, aboriginal politics, and border region phenomena. Attention

paid to how specific geographic interpretations of Canada by Canadians actually play a part in national life. Offered: jointly with GEOG 308.

SISCA 341 Government and Politics of Canada (5) I&S Critical analysis of parliamentary institutions, political parties, and the federal system in Canada. Offered: jointly with POL S 341.

SISCA 356 Canadian Society (5) I&S Origins to the present in its North American setting; political development, cultural evolution, and emergence of multinationalism; economic base; arts and literature; problems of the environment; Canadian foreign relations.

SISCA 377 History of Canada (5) I&S General survey and analysis of political, economic, social, and cultural aspects of Canadian history from the foundation of New France to present; Canadian-American relations, the rise of Quebec nationalism, and the development of the Canadian West. Offered: jointly with HSTAA 377.

SISCA 399 Study Abroad: Canadian Studies (1-5, max. 15) I&S For participants in study abroad program. Specific course content varies. Courses do not automatically apply to major/minor requirements.

SISCA 424 Canadian Media Systems (5) I&S Structure and operation of Canadian mass media and telecommunications industries. Impact of United States media on Canadian culture. Role of domestic media in lives of minorities. Laws and policies governing communications. Offered: jointly with CMU 424.

SISCA 430 Canadian Documentary Film Traditions (5) VLPA/I&S History and development of non-fiction film documentary traditions, especially in Canada, the first institutionally defined area in which documentaries became prominent through the National Film Board and the Canadian Broadcasting Corporation. Discussion of Flaherty, Greirson, and independent network producers who developed present-day style of documentaries. Offered: jointly with CMU 430.

SISCA 441 Québécois Literature (5) VLPA Readings of novels, plays, and occasionally, poetry. Special attention paid to how Québécois authors represent in their works the complex socio-political reality of their culture. Conducted in French. French majors required to read and write in French; all others may read and write in English. Prerequisite: FRENCH 303; FRENCH 306. Offered: jointly with FRENCH 441.

SISCA 490 Special Topics (1-5, max. 15) Content varies.

SISCA 495 Multiculturalism in Canada (5) I&S History of the multi-racial and multi-ethnic character of Canadian society. Impact of federal policy of bilingualism and multiculturalism. Current issues of language rights, retention of cultural heritage, self-government for aboriginal peoples, and improving race and ethnic relations.

SISCA 498 Seminar: Canadian Problems (5) I&S Major issues pertaining to Canadian society, government, and economic development.

SISCA 499 Undergraduate Research (1-5, max. 15)

Comparative Religion

RELIG 201 Introduction to World Religions: Western Traditions (5) I&S *Jaffee, Webb, Williams* History of religions, concentrating on religious traditions that have developed west of the Indus. Primary attention to the Semitic religions (Judaism, Christianity, Islam) and to their ancient world background with emphasis on basic conceptual and symbolic structures.

RELIG 202 Introduction to World Religions: Eastern Traditions (5) I&S *Conlon, Cox* History of religions, concentrating on religions that have developed in South Asia and East Asia. Primary attention to Hinduism and Buddhism; other important Asian religions are discussed in relation to them, with emphasis on basic conceptual and symbolic structures.

RELIG 210 Introduction to Judaism (5) I&S *Jaffee* Basic ideas and motifs of Judaism: God, Covenant, Law, Life Cycle (birth, marriage, family life, sexual laws, role of women, death); Cycle of the Year (Sabbath, holidays, festivals); Holy Land, prayer, Messianism.

RELIG 211 Islam (5) VLPA/I&S *Wheeler* Introduction to important cultural and historical aspects of Islam, focusing on basic concepts and developments such as prophethood, Quran and Hadith, canon and law, ritual, social theory, Sufism, theology, and sectarianism. Special attention to comparison of varied Muslim practices and beliefs, and their relation to textual and personal authority. Offered: jointly with NEAR E 211.

RELIG 212 Introduction to the Quran (5) VLPA/I&S *Wheeler* Emphasis on the historical context of the Quran, the history of the text, its collection, organization, and interpretation. In English. Offered: jointly with NEAR E 212.

RELIG 220 Introduction to the New Testament (5) VLPA/I&S *Williams* Modern scholarly methods of research and analysis in dealing with New Testament books and their interpretation. Genres of various books (gospel, epistle, sacred history, apocalypse); problems of the relationships among author, material, and intended audience; relationships between theme and image.

RELIG 240 Introduction to the Hebrew Bible: Old Testament (5) VLPA/I&S *Noegel* Examines the Hebrew Bible (Old Testament) in translation and its relationship with literatures of ancient Near East. Comparisons drawn between the biblical text and the literary works of Canaan, Egypt, Greece, and Mesopotamia. Emphasis on the sophisticated literary techniques employed by the biblical writers. Offered: jointly with NEAR E 240.

RELIG 301 Religious Thought Since the Middle Ages (5) I&S Development of religious thought in the West from the Middle Ages to the twentieth century. History of focal ideas: God, man, knowledge, and authority during this period and the relation of changes in these ideas to the ways in which basic issues in religious thought have been conceived. Recommended: RELIG 201

RELIG 320 Comparative Study of Death (5) I&S Death analyzed from a cross-cultural perspective. Topics include funerary practices, concepts of the soul and afterlife, cultural variations in grief, cemeteries as folk art, and medical and ethical issues in comparative context. American death practices compared to those of other cultures. Offered: jointly with ANTH 322.

RELIG 322 The Gospels and Jesus of Nazareth (5) I&S *Williams* Gospel material from early Christianity, including both canonical and noncanonical gospels. Relation of gospels to analogous literature from the Hellenistic-Roman period. Recommended: ENGL 310 or RELIG 220.

RELIG 324 The Emergence of Christianity (5) I&S *Williams* Studies stages in the development of Christianity as a new religion, during the first to fifth centuries CE, as the classical forms and institutions of Christian "orthodoxy" gradually achieved definition, and as this emerging Christian tradition became a dominant cultural and socio-political force. Recommended: HIST 307, RELIG 201, or RELIG 220.

RELIG 327 Eastern Christian Traditions (5) I&S Eastern Christian traditions, with principal focus on Eastern Orthodox tradition in Byzantium and Russia from time of the Council of Nicea to the twentieth century. Considers significant differences between eastern and western Christianity and their doctrinal and cultural origins; explores distinctive features of eastern tradition. Recommended: HIST 307 or RELIG 201.

RELIG 350 Buddhism and Society: The Theravada Buddhist Tradition in South and Southeast Asia (5) I&S *Keyes* Religious tradition of Theravada Buddhism (as practiced in Sri Lanka, Burma, Thailand, Laos, and Cambodia). Variations in ethical orientations developed through Theravada Buddhist ideas. Recommended: RELIG 202 or one eastern religions course. Offered: jointly with ANTH 352.

RELIG 352 Hinduism (5) I&S *Pauwels* Varieties of Hindu religious practice; the diverse patterns of religious thought and action among contemporary Hindus. Includes ritual behavior, village Hinduism, tantrism, sadhus, yoga, sects, the major gods and their mythologies, religious art, and the adjustments of Hinduism to modernity. Recommended: RELIG 202 or one South Asian culture course.

RELIG 354 Buddhism (5) I&S *Cox* Buddhism as a religious way and as a way of thinking; the forms of Buddhism known in South Asia (India, Sri Lanka) and those introduced from there to Tibet and other parts of Central Asia. Includes the "Three Jewels" (i.e., the Buddha or Awakened Person, the Teaching [Dharma], and Community [Sangha]) around which Buddhism is traditionally articulated. Recommended: RELIG 202 or one Asian cultures course.

RELIG 380 The Nature of Religion and Its Study (5) I&S *Jaffee* Study of religion as a general human phenomenon. Manner in which different methods of inquiry (phenomenology, anthropology, sociology, psychology, literary criticism, archaeology, philosophy, theology) illuminate different aspects of religion and help to shape our conceptions of its nature. Recommended: RELIG 201 or RELIG 202. Offered: jointly with CHID 380.

RELIG 399 Study Abroad—Comparative Religion (1-5, max. 15) I&S For participants in study abroad program. Specific course content varies. Courses do not automatically apply to major/minor requirements.

RELIG 400 The Jewish Mystical Tradition (5) I&S *Jaffee* Jewish esoteric thought from antiquity to early modern times. Emergence of Spanish Kabbalah. The thought of Isaac Luria and its immense influence in Jewish history through other movements—specifically the mystical messiah. Sabbetai Sevi, and the rise of Hasidism. Recommended: RELIG 201 or RELIG 210.

RELIG 405 Scripture in Judaism (5) I&S *Jaffee* Explores the phenomenon of religious interpretation of sacred books by attending to the destiny of the Bible as read within Judaism. Begins with the canonization of the biblical text itself and continues into the rationalist and mystical interpretive innovations of the Middle Ages. Recommended: HIST/SISJE 250, RELIG 201, or RELIG 210.

RELIG 415 Modern Jewish Thought (5) I&S *Jaffee* Major trends in Jewish religious thought since the European Enlightenment, focusing on encounters between Judaism and the modern world. Includes Haskalah; varieties of religious reform and accommodation; Zionism; socialism; the philosophy of Rosenzweig, Buber, and Kaplan; and theological responses to the Holocaust. Recommended: HIST/SISJE 250, HSTEU/SISJE 469, RELIG 201, or RELIG 210.

RELIG 420 The World of the Early Church (5) I&S *Williams* Early Christian church within the context of the Greco-Roman sociopolitical, philosophical, and religious environment. Covers the period from about AD 100 to 300. Christian thinkers and documents

studied include both the classical "orthodox" and the "heretical." Recommended: HIST 307, RELIG 220, or RELIG 324.

RELIG 421 The Age of St. Augustine (5) I&S *Williams* Christian church in the fourth and fifth centuries as a major institution in the Roman Empire. Great figures of patristic theology, such as Athanasius, Gregory Nazianzus, Gregory of Nyssa, and Augustine. Recommended: HIST 307, RELIG 320, or RELIG 324.

RELIG 426 Gnosticism and Early Christianity (5) I&S *Williams* Impact of Gnosticism on the development of Christianity and several other religious groups of that period. Readings dating from the first through the third centuries AD.

RELIG 428 Modern Christian Theology (5) I&S *Webb* Modern Protestant and Catholic thought since the nineteenth century: Kierkegaard, Barth, Bultmann, Rahner, Lonergan, and other major figures. Recommended: RELIG 301.

RELIG 430 Scripture in Islam (5) VLPA/I&S *Wheeler* Examines concept and use of scripture in Islam, with special attention to issues of canon and commentary, heavenly books, talismanic uses, and the place of scripture in ritual. In English. Offered: jointly with NEAR E 430.

RELIG 432 Ritual and Law in Islam (5) VLPA/I&S Comparative study of Islamic ritual practices and related development of jurisprudence and law. Focus on sacrifice, political and social legal theory, pilgrimage, regulation of the body, and the diversity of contemporary practices. In English. Offered: jointly with NEAR E 432; W.

RELIG 433 Life of Prophet Muhammad (5) VLPA/I&S *Wheeler* Examines historical and religious traditions associated with the life of the Prophet Muhammad with particular attention to the biography in classical Islam. Focuses on Muhammad as prophet, holy man, law-giver, mystic, and statesman. Comparison with other religious figures such as Jesus and the Buddha. In English. Offered: jointly with NEAR E 433.

RELIG 442 Art, Religion, and Politics in the Early Christian Period, 300-700 AD (3) VLPA/I&S *Kartsonis* Evolution of the art of the early Christian period (300-700 AD) in the context of contemporary religious, political, and cultural developments. Recommended: some background in Byzantine art or history. Offered: jointly with ART H 452.

RELIG 445 Greek and Roman Religion (3) VLPA/I&S *Harmon, Langdon* Religion in social life of Greeks and Romans; emphasis on their public rituals and festivals. Priesthoods, personal piety, rituals of purification and healing, and the conflict of religions in the early Roman Empire. Recommended: RELIG 201. Offered: jointly with CLAS 445.

RELIG 449 Religious Movements: The Sociology of Cults and Sects (5) I&S *Stark* Understanding religion, what it is and what it does. Examines the formation of new religious movements, cults, and sects and the conditions under which they succeed or fail. Offered: jointly with SOC 445.

RELIG 456 Women in Ancient Judaism (3) I&S/VLPA *Noegel* Explores those texts in early Jewish literature in which women play prominent roles and those in which women are surprisingly absent. Discusses the literary portrayal of women for what they tell us about the people who wrote the texts. No knowledge of Hebrew is required. Offered: jointly with NEAR E 456.

RELIG 457 The History of Biblical Interpretation (3) I&S/VLPA *Noegel* Traces biblical interpretation and translation technique from the earliest translations of the Hebrew Bible (Old Testament) to the various historical literary, deconstructionist, and

holistic strategies of more recent times. Adopts a "hands-on" approach to the material and explores various hermeneutics by applying them in class. Offered: jointly with NEAR E 457.

RELIG 490 Special Topics (1-5, max. 15) I&S Topics vary with each offering.

RELIG 491 Seminar: Topics and Issues in Judaism (5) I&S *Jaffee* Topics vary. Recommended: RELIG 210; RELIG 400, RELIG 405, or RELIG 410.

RELIG 492 Seminar: Topics in Early Christianity (5) I&S *Williams* Topics vary. Recommended: one early Christian history or literature course.

RELIG 497 Field Archaeology (1-10, max. 20) Professionally-guided archaeological fieldwork at a recognized archeological dig in the United States or abroad. Offered: S.

RELIG 498 Honors Thesis (5) I&S Required course for Comparative Religion honors students.

RELIG 499 Undergraduate Research (1-5, max. 15) Primarily for comparative religion majors and majors in the School of International Studies.

East Asian Studies

SISEA 212 History of Korean Civilization (5) I&S From earliest times to present. Development of Korean society and culture in terms of government organization, social and economic change, literature, art. Offered: jointly with HSTAS 212.

SISEA 341 Japanese Civilization (5) I&S *Hanley* Japan's civilization, including its origins, government, literature, economic institutions, material culture, social organization, and religions, in relation to the development of Japan as a society and nation. Offered: jointly with HSTAS 341.

SISEA 370 Han Chinese Society and Culture (5) I&S *Anagnost, Harrell* Themes in the society and culture of the Han Chinese people. Concepts of self; personal interaction; family, gender, and marriage; communities and the state; religion and ritual; class, social categories, and social mobility; culturalism, nationalism, and patriotism. Offered: jointly with ANTH 370.

SISEA 399 Study Abroad: East Asian Studies (1-5, max. 15) I&S For participants in study abroad program. Specific course content varies. Courses do not automatically apply to major/minor requirements.

SISEA 422 History of Tokugawa Japan (5) I&S Background to the unification of Japan in 1600; establishment of the Tokugawa political structure; and the social, economic, and cultural history of the period 1600-1868. Offered: jointly with HSTAS 422.

SISEA 423 History of Modern Japan (5) I&S *Pyle* Political, social, economic, and cultural development of Japan from the late Tokugawa period to the present with special emphasis on the cultural impact of the West. Offered: jointly with HSTAS 423.

SISEA 424 Perspectives on East Asia for Teachers (3, max. 6) I&S Substantive concepts, resources, and materials employed in teaching about East Asia. Requirements may vary in relation to the background of participants.

SISEA 434 Demographic Issues in Asia (3-5) I&S *Hirshman, Lavelly* Contemporary Asian countries face a number of issues with demographic components, including environmental and resource issues, ethnic rivalries, international migration, and public health. Addresses a set of these issues by focusing on the demography of one or more countries in Asia. Offered: jointly with SOC 434.

SISEA 435 Japanese Government and Politics (5) I&S *Hellmann* Government and politics of Japan with emphasis on the period since 1945. Offered: jointly with POL S 435.

SISEA 440 The Emergence of Postwar Japan (5) I&S *Pyle* The making of modern Japan; World War II and surrender; American occupation; postoccupation rebuilding; emergence as an industrial power. Recommended: HSTAS 423 or SISEA 423. Offered: jointly with HSTAS 424.

SISEA 441 Economic and Social History of Japan to 1900 (5) I&S *Hanley* Lecture-seminar on Japanese economic and social history from 700 to 1900. Analyses of the rise and decline of the shoen system, the rise of commerce, social change, changes in the living standard, demographic changes, and the early phases of industrialization. Political and cultural developments as related to economic and social change. Prerequisite: SISEA 341/HSTAS 341. Offered: jointly with HSTAS 441.

SISEA 442 Political Economy of Postwar Japan (5) I&S *Anchoroguy* Political and economic problems of Japan since 1945. Utility of competing theoretical approaches to analysis of government and economy of Japan. Policy-making processes and effects of policies adopted. Some knowledge of postwar Japan desirable. Recommended: SISEA 440/HSTAS 424.

SISEA 443 Class and Culture in East Asia (5) I&S Examines the nexus between culture and systems of social stratification/class in East Asia, with an emphasis on Taiwan, Korea, Japan, and China. Topics include class formation, mechanisms of social mobility and reproduction, markers of status and hierarchy, resistance, and the formation of class identity. Offered: jointly with ANTH 446.

SISEA 444 Politics of Representation in Modern China (5) I&S Focuses on issues of representation and power in twentieth century China. Combines substantive information on modern Chinese society and culture with recent debates in social theory and the politics of representation. Major themes include Chinese nationalism, body politics, popular culture, and everyday practice. Offered: jointly with ANTH 444.

SISEA 445 Religion in China (5) I&S *Harrell* Religion in Chinese society, doctrines, practices, and social consequences of the eclectic folk religion, the elite Confucian, Taoist, and Buddhist traditions, syncretistic sects, and imported Christianity. Prerequisite: either one 200-level ANTH course, ANTH 370, ANTH 403, LING 203, HSTAS 211, HSTAS 454, RELIG 202, SISEA 370, or SISEA 443. Offered: jointly with ANTH 447.

SISEA 448 Modern Korean Society (5) I&S *Sorensen* Social organization and values of twentieth-century Korea. Changes in family and kinship, gender relations, rural society, urban life, education, and industrial organization since 1900. Differences between North and South Korea since 1945. Recommended: HSTAS/SISEA 212. Offered: jointly with ANTH 448.

SISEA 449 Government and Politics of China (5) I&S *Whiting* Post-1949 government and politics, with emphasis on problems of political change in modern China. Offered: jointly with POL S 442.

SISEA 454 History of Modern China (5) I&S *Dong* Social, cultural, political, economic, and intellectual transformations and continuities in China from the end of the imperial period to the present. Offered: jointly with HSTAS 454

SISEA 459 United States-China Relations (5) I&S *Bachman* Surveys the history of United States-China relations and examines the evolution of bilateral relations, particularly since 1949. Focus on the period since 1972 and the major issues as they have evolved since that time, including trade, human rights, security, and Taiwan. Offered: jointly with POL S 419.

SISEA 468 China's Economic Reforms: Integration Into World Economy (5) I&S A systematic survey of China's economic reforms since 1978, including China's increasing integration into world economy. Prerequisite: ECON 201. Offered: jointly with ECON 468.

SISEA 470 Minority Peoples of China (5) I&S *Harrell* Interaction between China and the peoples of its periphery, including Inner Asia, Tibet, Northern Mainland, Southeast Asia, and aboriginal peoples of Taiwan. Emphasis on ethnicity, ethnic group consciousness, and role of the Chinese state. Prerequisite: either ANTH/SISEA 370, HSTAS 454, LING 203, or one 200-level ANTH course. Offered: jointly with ANTH 470.

SISEA 475 Japanese Society (5) I&S *Hanley* Discusses rapidly changing Japanese society and history of its unique aspects. Readings and lectures in sociology, anthropology, economics, and politics; emphasis on Japanese search for cultural identity and prevalent interpretations of Japanese society and behavior. Recommended: SISEA 341/HSTAS 341.

SISEA 478 Readings in the Social Sciences in Japanese (3-5) I&S Introduction to articles and short works in economics, history, political science, and other social sciences. Assignments chosen from major Japanese monthlies and academic works. All readings in Japanese. Prerequisite: JAPAN 313.

SISEA 479 Readings in the Social Sciences in Japanese (3-5) I&S Introduction to articles and short works in economics, history, political science, and other social sciences. Assignments chosen from major Japanese monthlies and academic works. All readings in Japanese. Prerequisite: JAPAN 313.

SISEA 480 New Orders in East Asia (5) I&S *Pyle* Rise and fall of successive international systems in East Asia over the past 150 years: Sino-centric, imperialist, Washington Treaty system, Japan's East Asian order, Yalta system, cold-war system. Post-cold-war search for a new order. Special attention to triangular relations among the United States, China, and Japan.

SISEA 482 Japanese Business and Technology (5) I&S *Anchoroguy* Examination of Japan's postwar enterprise system in its historical context. Topics include corporate and financial structure, production and distribution, trade and investment policies, government-business relations, system of innovation, technological developments, prospects for the future.

SISEA 490 Special Topics (1-5, max. 15) I&S Course content varies.

SISEA 494 Economy of Japan (5) I&S *Yamamura* Analysis of the economic growth of Japan since about 1850 to the present. The reasons for rapid industrialization, various effects of sustained economic growth, and significant contemporary issues are investigated. Prerequisite: ECON 201. Offered: jointly with ECON 494.

SISEA 499 Undergraduate Research (1-5, max. 15)

Jewish Studies

SISJE 250 The Jews in Western Civilization (5) I&S History of the Jews from late antiquity to the present. Examines the relationship between Jewish communities and the larger societies in which they are found. Offered: jointly with HIST 250.

SISJE 369 The Destruction of European Jewry, 1933-45 (5) I&S History of anti-Semitism; dimensions of the Holocaust; the Holocaust organization and the victims' responses; reaction of world to events in Europe, allied policies, refugee policy, and American actions. Legal, historical, and sociological questions raised by these events. Offered: jointly with HSTEU 369.

SISJE 399 Study Abroad—Jewish Studies (1-5, max. 15) I&S For participants in study abroad program. Specific course content varies. Courses do not automatically apply to major/minor requirements.

SISJE 436 American Jewish History Since 1885 (5) I&S Political, social, economic, religious history of American Jewish community from great eastern European migration to present. Integration of immigrant community into general American community; rise of nativism; development of American socialism; World War I and II; and reactions of American Jews to these events. Offered: jointly with HSTAA 436.

SISJE 452 The Biblical Song of Songs (3) VLPA *Noegel* Examines the erotic and beautiful Song of Songs within the context of ancient (and medieval) Near Eastern love poetry and correlates close readings of the book with various interpretations it has received from antiquity until today. No knowledge of Hebrew or the Bible is required. Offered: jointly with NEAR E 452

SISJE 453 The Biblical Prophets (3) VLPA I&S *Noegel* Explores the biblical prophets (in translation) within their Near Eastern contexts. Studies them for their historicity, literary and rhetorical sophistication, and ideological agendas. This course seeks to uncover the meaning and distinctiveness of Israelite prophecy within the context of the larger Near East. No knowledge of the Bible is required. Offered: jointly with NEAR E 453.

SISJE 454 Israel: The First Six Centuries BCE (3) VLPA I&S *Noegel* Traces the Israelites, from the Babylonian destruction of the Jerusalem Temple (586 BCE) to events following the destruction of the second Temple (1st century CE). Focuses on primary historical and literary sources as well as archaeological and artistic evidence. No knowledge of Hebrew or the Bible is required. Offered: jointly with NEAR E 454.

SISJE 455 The Kings of Monarchic Israel (3) VLPA I&S *Noegel* Examines the biblical accounts (in translation) concerning the formation and collapse of the united Israelite monarchy. Investigates the archaeological and textual evidence for their historicity, the literary sophistication of these accounts, and Israelite kingship within the wider context of the ancient Near East. No knowledge of the Bible is required. Offered: jointly with NEAR E 455.

SISJE 464 The Jews in Spanish History (5) I&S *Ullman* Sephardic Jews in Spanish politics, economy, and culture, emphasizing the medieval Golden Age and the Inquisition. Offered: jointly with HSTEU 464.

SISJE 465 The Jews of Eastern Europe (5) I&S Jewish society in Poland, Russia, the Habsburg Lands, and Romania from the late Middle Ages to the Holocaust. Offered: jointly with HSTEU 465.

SISJE 466 The Sephardic Diaspora: 1492-Present (5) I&S *Stein* Examines the history and culture of Sephardic Jewry from the expulsion from the Iberian Peninsula in 1492 to the present. Explores the creation of Sephardic communities in the Dutch and Ottoman Empires, Western Europe, the Americas, and Africa, and the history of the conversos and "hidden Jews." Offered: jointly with HSTEU 466.

SISJE 467 Medieval Jewish History (5) I&S *Stacey* Social and intellectual history of the Jews in Western Europe to fifteenth century. Jews under Islam and Christianity; the church and the Jews; the Crusades and their legacy; intellectual achievements; conflict and cooperation. Offered: jointly with HSTEU 467.

SISJE 468 Early Modern Jewish History, 1492-1789 (5) I&S *Stein* Jews in the early-modern period. The Spanish expulsion in 1492 to the onset of political and social emancipation in western Europe and America. Offered: jointly with HSTEU 468.

SISJE 469 Enlightenment, Emancipation, Antisemitism: History of the Jews, 1770-1914 (5) I&S *Stein* The Jewish experience in the modern world from the European Enlightenment to the First World War. Focus on the debates surrounding Jewish emancipation, the reception of Jews within European society, modern antisemitism, nationalist movements, mass migration, and war. Offered: jointly with HSTEU 469.

SISJE 470 History of the Jews in the Twentieth Century (5) I&S Historical experience of the Jews since World War I in Europe, North America, and the Middle East under the impact of three developments: growth of mass-based American Jewish community, destruction of Jewish life in Central and Eastern Europe, and creation of the State of Israel. Offered: jointly with HIST 470.

SISJE 490 Special Topics (1-5, max. 15) I&S Content varies.

SISJE 495 Seminar in Jewish Studies (5) I&S *Jaffee* History of Jewish Studies as an organized field of academic inquiry. Explores the implications for Jewish Studies of its present setting within the context of the humanities and the social sciences.

SISJE 497 Field Archaeology (1-10, max. 20) Professionally-guided archaeological fieldwork at a recognized archeological dig in the United States or abroad. Offered: S.

SISJE 499 Undergraduate Research (1-5, max. 15)

Latin American Studies

SISLA 322 International Political Economy of Latin America (5) I&S Exploration of politics underlying Latin America's economic development. Topics covered include import-substituting industrialization, mercantilism, the debt crisis, neoliberalism, market integration, and poverty. Review of major theoretical perspectives such as modernization theory, dependency, and the new political economy. Offered: jointly with POL S 322.

SISLA 342 Government and Politics of Latin America (5) I&S Analysis of the political dynamics of change in Latin America comparing various national approaches to the political problems of modernization, economic development, and social change. Offered: jointly with POL S 342.

SISLA 355 Social Change in Latin America (5) I&S *Warren* Problems of development and dependency in Latin America. Relations of power and production between social classes and ethnic groups, with special emphasis on Meso-America (Mexico, Guatemala) and the Andes (Peru, Bolivia). Offered: jointly with SOC 355.

SISLA 399 Study Abroad: Latin American Studies (1-5, max. 15) I&S For participants in study abroad program. Specific course content varies. Courses do not automatically apply to major/minor requirements.

SISLA 451 Cultural Geography of Latin America (5) I&S Interdisciplinary senior seminar examining how physical and social geographies are culturally constructed and interconnected with subjectivities and power in Latin America. Topics include identity formation grounded in particular territories and the social constitution of space via an interplay of material and cultural forces. Offered: jointly with GEOG 451.

SISLA 470 Latin American Studies Internship (1-5, max. 10) Off-campus fieldwork with a community national, or international organization, in an apprenticeship or internship situation. Supervised by on-site field supervisor and Latin American Studies faculty member.

SISLA 480 Labor and Popular Movements in Latin America (5) I&S Interdisciplinary approach to origins and trajectory of labor movement from late nineteenth century to present. Emphasis in contemporary period on popular movements, including neighborhood associations, religious base communities, women's movement, and ethnic mobilization for democratic social and political reform. Recommended: two non-language Latin American studies courses. Offered: jointly with HSTAA 480.

SISLA 485 Cultural Studies of Latin America (5) VLP/IA&S Identity, representation, and transculturation in Latin American popular culture. Topics vary but may include, cinema, folk art, and historical, ethnographic, and travel writing. Prerequisite: SPAN 303; SPAN 322; one additional 300-level course above SPAN 303. Offered: jointly with SPAN 485.

SISLA 486 Photography and Cultural Studies in Latin America (5) VLP/IA&S Interdisciplinary exploration of the connections between visual anthropology (ethnography through photography and film), documentary and art photography, and colonial and post-colonial discourse in Latin America during the twentieth century. Offered jointly with SPAN 486.

SISLA 490 Special Topics (1-5, max. 15) I&S Content varies.

SISLA 492 Latin American Studies Seminar (5, max. 15) I&S

SISLA 499 Undergraduate Research (1-5, max. 15)

Middle Eastern Studies

SISME 210 Introduction to Islamic Civilization (5) VLP/IA&S *DeYoung* Major developments in Islamic civilization from advent of Islam in seventh century to present. Islamic history, law, theology, and mysticism, as well as the politics, cultures, and literatures of the various Islamic societies. Offered: jointly with NEAR E 210.

SISME 213 Introduction to the Modern Middle East (5) I&S Major social and political trends in the Middle East during the 18th, 19th, and 20th centuries. Basic principles of Islam and its diversity, changing balance of power during the early modern period; European colonialism and withdrawal; pan-Arabism, nationalism, feminism and religious resurgence. Offered: jointly with NEAR E 213.

SISME 399 Study Abroad: Middle Eastern Studies (1-5, max. 15) I&S For participants in study abroad program. Specific course content varies. Courses do not automatically apply to major/minor requirements.

SISME 400 The Middle East in the Modern World (5) I&S *Kasaba* Economic, political, and cultural ties between the Middle East and the modern world between the eighteenth century and the present. Particular attention to the transformation of societies, formation of modern states, the relationship between Islam and democracy, and gender and society in the Middle East.

SISME 430 Economic Development of the Middle East (5) I&S *Kasaba* Comparative examination of economic development in the Middle East. Includes population growth, agrarian change, industrialization, foreign trade, capital flows, and fiscal and monetary policies.

SISME 490 Special Topics (1-5, max. 15) I&S Content varies.

SISME 495 Trends in the Contemporary Middle East (3) I&S Perspectives on cultural, political, and other aspects of Middle Eastern societies. Focuses on background complexities rather than immediate political-military confrontations. Topics vary. Offered: jointly with NEAR E 495.

SISME 499 Undergraduate Research (1-5, max. 15)

Russian, East European, and Central Asian Studies

SISRE 220 Introduction to East European Studies (5) I&S *Felak* Introduction to the history of post-1945 Eastern Europe focusing on political, economic, social, cultural, and diplomatic issues. Countries surveyed include Albania, Bulgaria, Czechoslovakia, Hungary, Poland, Romania, and Yugoslavia. Offered: jointly with HSTEU 220.

SISRE 225 The Silk Road (5) I&S *Waugh* History of cultural and economic exchange across Eurasia from the early Common Era to modern times. Topics include spread of religions such as Islam and Buddhism, overland trade in rare commodities, interaction between nomadic and sedentary cultures, the role of empires, the culture of daily life, and the arts. Offered: jointly with HIST 225.

SISRE 243 Russian Civilization (5) I&S *Waugh*, *Young* Russia's civilization, including fine arts, literature, religion, and history; political, social, and legal institutions and thought in relation to the general development of Russian society from early times to 1917.

SISRE 324 Soviet and Post-Soviet Society (5) I&S *Ellison*, *Young* Social, cultural, political, and economic systems of the major nations which, until 1991, comprised the Soviet Union and are now independent states. Deals with period of full communist power and changes brought about by its demise.

SISRE 343 Seminar on Russia, Eastern Europe, Central Asia (5) I&S Required course for majors focusing on library research and paper-writing skills. Preparation for writing of senior thesis. Prerequisite: either HSTEU 220, SISRE 220, SISRE 243, SISRE 375, or NEAR E 375; either RMN/ROMN 406, BULGR 406, CR SB 406, CZECH 406, POLSH 406, or RUSS 203.

SISRE 345 Baltic Cultures (5) VLP/IA&S Cultures and peoples of Estonia, Latvia, and Lithuania. Baltic literature, music, art, and film in social and historical context. Traditional contacts with Scandinavia and Central and East Europe. Offered: jointly with SCAND 345.

SISRE 347 The Baltic States and Scandinavia (5) I&S Survey of the cultures and history of Estonia, Latvia, and Lithuania from the Viking Age to the present, with particular attention to Baltic-Scandinavian contacts. Offered: jointly with SCAND 344.

SISRE 375 Turkic Peoples of Central Asia (3) I&S *Cirtautas* History of the Turkic peoples, AD 552 to present. Emphasis on current status of Turkic peoples in Central Asia. Geographical distribution, demographic data, reactions and adaptations to changes resulting from the 1917 revolution. Turkic viewpoint on past and present developments. Offered: jointly with NEAR E 375.

SISRE 399 Study Abroad: Russian, East European, and Central Asian Studies (1-5, max. 15) I&S For participants in study abroad program. Specific course content varies. Courses do not automatically apply to major/minor requirements.

SISRE 418 Eastern Europe: the Political Economy of the Region (5) I&S *Pozanski* Focus on the classical command-type economy and the most recent economic and political transition in Eastern Europe. Analysis of current institutional reform, privatization, and trade relations.

SISRE 424 Security Affairs of Russia and Eurasia (5) I&S *Jones* Surveys history of Soviet military and Soviet empire from 1917 to 1985, breakup of the USSR during 1985 to 1991, and the emergence of new security issues among those Eurasian states that formally constituted the national components of the USSR and its communist military allies.

SISRE 425 Anthropology of the Post-Soviet States

(5) I&S Analysis of Soviet and post-Soviet culture and identity. Historical transformations in Soviet approaches to ethnicity and nationality; contemporary processes of nationbuilding and interethnic conflict. Examination of culture through the intersection of social ritual, government policies, language, economic practices, and daily life. Regional focus will vary. Offered: jointly with ANTH 425.

SISRE 443 Kievan and Muscovite Russia: 850-1700 (5) I&S

Development of Russia from earliest times to the reign of Peter the Great. Offered jointly with HSTAM 443.

SISRE 445 Politics and Society Eastern Europe (5) I&S

Ramet Political and social issues in lands east of the Elbe, treating some historical problems but focusing particularly on developments since 1945. Includes all communist states of Eastern Europe and their successors. Offered: jointly with POL S 445.

SISRE 448 Twentieth-Century Russia (5) I&S

Russia and the USSR from Nicholas II to the present. Offered: jointly with HSTEU 445.

SISRE 455 Marine Business Environment in Russia and Eastern Europe (3) I&S

Kaczynski International marine business environment of Russia and the maritime nations of East Europe; their transition process from communist to free market economic systems. Covers aspects of doing business in marine-related fields such as shipping, fisheries, shipbuilding, ports, and land infrastructures, marine tourism, and water sports. Offered: jointly with SMA 455.

SISRE 457 Senior Colloquium (5) I&S

Required for majors. Involves writing of senior thesis. Prerequisite: SISRE 343; either RMN/ROMN 406, BULGR 406, CR SB 406, CZECH 406, POLSH 406, ROMN 406, or RUSS 203.

SISRE 490 Special Topics (1-5, max. 15) I&S

Topics vary.

SISRE 499 Undergraduate Research (1-5, max. 15)**South Asian Studies****SISSA 340 Government and Politics of South Asia (5) I&S**

Comparison of problems of national integration and political development in India, Pakistan, and Ceylon. Offered: jointly with POL S 340.

SISSA 386 Introduction to the Philosophical Systems of India (5) I&S

Potter Fundamental views of classical Indian philosophical schools on epistemology and metaphysics through readings in translation of basic works. Nyaya, Vaisheshika, Samkhya, Yoga, Jain philosophy, Vijnanavada and Madhyamika Buddhism, Advaita Vedanta, and later developments. Offered: jointly with PHIL 386.

SISSA 399 Study Abroad: South Asian Studies (1-5, max. 15) I&S

For participants in study abroad program. Specific course content varies. Courses do not automatically apply to major/minor requirements.

SISSA 434 International Relations of South Asia (5) I&S

Interrelationships of domestic, interstate, and extraregional forces and their effects upon the resolution or expansion of interstate conflicts in South Asia. Offered: jointly with POL S 434.

SISSA 490 Special Topics (1-5, max. 15) I&S

Topics vary.

SISSA 498 Undergraduate Colloquium on South Asia (5) I&S

Interrelationship of the various social science disciplines in the study of South Asian history and culture.

SISSA 499 Undergraduate Research (1-5, max. 15)**Southeast Asian Studies****SISSE 221 History of Southeast Asia (5) I&S**

Giebel, Sears Surveys Southeast Asian civilizations at the outset of Western colonial rule; the colonial impact on the traditional societies of Burma, Thailand, Cambodia, Laos, Vietnam, Malaysia, Indonesia, and the Philippines; nineteenth- and twentieth-century nationalist and revolutionary movements; emergence of Southeast Asia as a region in the modern world. Offered: jointly with HSTAS 221.

SISSE 314 Culture, Environment, and Identity of Island Southeast Asia (5) I&S

Lowe Anthropological study of colonial and post-colonial contexts of Island Southeast Asia. Emphasis on historical legacies, influence of world religions, formation of national and collective identities, revolution and national politics, and modernities. Prerequisite: either one 200-level ANTH course, LING 203, or one SIS course. Offered: jointly with ANTH 314.

SISSE 315 Southeast Asian Civilization: Buddhist and Vietnamese (5) I&S

Keyes Civilizations of Theravada Buddhist societies in Burma, Thailand, Cambodia, and Laos and in Vietnamese societies of Southeast Asia. Culture of tribal peoples who live on peripheries of these societies. Cultural transformations consequent upon the war in Indochina and resettlement of Indochinese refugees in United States. Offered: jointly with ANTH 315.

SISSE 343 Politics and Change in Southeast Asia (5) I&S

Callahan Government and politics in the countries of Southeast Asia, with attention given to the nature of the social and economic environments that condition them. Offered: jointly with POL S 343.

SISSE 399 Study Abroad: Southeast Asian Studies (1-5, max. 15) I&S

For participants in study abroad program. Specific course content varies. Courses do not automatically apply to major/minor requirements.

SISSE 445 Literature and Society in Southeast Asia (5, max. 10) VLPA/I&S

Focus on either Vietnam or Thailand. Provides students with opportunity to explore how those living in Southeast Asia have reflected on the radical social changes their societies have undergone through novels, short stories, and poetry. Prerequisite: one 200-level ANTH course or LING 203. Offered: jointly with ANTH 445.

SISSE 469 Topics in Southeast Asian History (5) I&S

Introduces major issues within the history and culture of one country of Southeast Asia. Content varies. Topics may include religion, economics, colonialism, perspectives on gender, labor history, literatures, popular culture, and performing arts. Focuses on a different Southeast Asian country each time offered. Offered: jointly with HSTAS 469.

SISSE 490 Special Topics in Southeast Asian Studies (2-5, max. 15) I&S

Content varies.

SISSE 499 Undergraduate Research (1-5, max. 15)**Japan Studies**

See International Studies.

Jewish Studies

See International Studies.

Korea Studies

See International Studies.

Labor Studies

General Catalog Web site:

www.washington.edu/students/gencat/academic/labor.html

Adviser

101 Smith, Box 353530

(206) 543-7946

pcls@u.washington.edu

Minor

The Labor Studies minor brings together a series of courses on labor in core social-science departments. It provides students with an interdisciplinary program of study focusing on the importance of labor to the economic, social, political, and cultural evolution of modern societies.

Minor Requirements: 30 credits, including HIST 249/ POL S 249/SOC 266 (5 credits). Additional 25 credits (no more than 10 from any one department) from the following: HIST 449, HSTAA 450, HSTAA 480, POL S 405, POL S 447, SOC 447, SOC 466, AES 361, CHSTU 354, ECON 443, ECON 444, HRMOB 420. A minimum grade of 2.0 is required for each course applied toward the minor.

Linguistics

A210 Padelford



General Catalog Web page:

www.washington.edu/students/gencat/academic/linguistics.html



Department Web page:

depts.washington.edu/lingweb/

Linguistics is the scientific study of language, which is one of the most characteristic human attributes. Courses provide training in the method and theory of language analysis and description, as well as studies of language change and language in society. The Romance Linguistics program allows the student to specialize in the analysis and history of one or more Romance languages.

Undergraduate Program

Adviser

Anna Dailey McCartney

A215 Padelford, Box 354340

(206) 685-4846

lingadv@u.washington.edu

The Department of Linguistics offers a program of study that leads to a Bachelor of Arts degree with options in general linguistics and Romance linguistics. The department also offers a minor.

Student Associations: The Linguistics Undergraduate Association (LingUA)

Bachelor of Arts**General Linguistics**

Admission Requirements:

1. Completion of at least the third quarter of a foreign language.

2. Completion of at least one writing (W) course and one quantitative and symbolic reasoning (QSR) course, with a minimum grade of 2.0 in each course and a cumulative GPA of 2.50 in the two courses.
3. The department accepts students who meet the minimum requirements stated above, but recognizes that a GPA of 2.50 or higher is indicative of the motivation and academic skills needed for the reasonable probability of success in the program. Applicants who do not meet the minimum requirements may submit alternative materials for consideration.

Suggested Introductory Course Work: LING 200. One year of a foreign language that belongs to a different family from the student's native language.

Major Requirements: LING 200 or other introductory course in linguistics; 450, 451, 461, 462; at least one of 432, 442, or 481; at least one year of each of two languages, one of which must belong to a different family of languages than the student's native language; 20 additional credits of departmentally approved courses in linguistics.

Romance Linguistics

Admission Requirements:

1. Completion of at least one year of college work in a single Romance language.
2. Completion of at least one writing (W) course and one quantitative and symbolic reasoning (QSR) course, with a minimum grade of 2.0 in each course and a cumulative GPA of 2.50 in the two courses.
3. The department accepts students who meet the minimum requirements stated above, but recognizes that a GPA of 2.50 or higher is indicative of the motivation and academic skills needed for the reasonable probability of success in the program. Applicants who do not meet the minimum requirements may submit alternative materials for consideration.

Suggested Introductory Course Work: Two college years of study in a Romance language; LING 200.

Major Requirements: LING 400 (a 200- or 300-level introductory course may be taken in its place, with permission); three courses from LING 450, 451, 461, and 462; four courses from among FRLING 400 through 409, SPLING 400 through 409, and ROLING 402; 15 credits at the 300 level or higher of one Romance language; ROLING 490.

Minor

Minor Requirements: 28 credits to include LING 400 or other introductory course in linguistics; three courses from LING 442, 451, 452, 453, 461, 462, or 481; 12 additional credits from a list of departmentally approved courses in linguistics.

Graduate Program

For information on the Department of Linguistics graduate program, see the graduate and professional volume of the *General Catalog* or visit the *General Catalog* online at www.washington.edu/students/gencaat/.

Faculty

Chair

Frederick J. Newmeyer

Professors

Augerot, James E. * 1960, (Adjunct); MA, 1959, New Mexico Highlands University; PhD, 1968, University of Washington; Slavic linguistics, Romanian, Bulgarian.

Brame, Michael K. * 1974; PhD, 1970, Massachusetts Institute of Technology; syntax, phonology, structure of Arabic and English.

Contreras, Heles * 1964, (Emeritus); PhD, 1961, Indiana University; Spanish linguistics, syntax and semantics.

Dale, Philip S. * 1968, (Adjunct); PhD, 1968, University of Michigan; psycholinguistics, language and cognitive development in normal and exceptional children.

Kaisse, Ellen * 1976; PhD, 1977, Harvard University; phonology, historical linguistics, ancient and modern Greek, Spanish, syntax-phonology interface.

Klausenburger, Jürgen * 1969; PhD, 1969, University of Michigan; Romance linguistics.

Micklesen, Lew R. * 1966, (Emeritus); PhD, 1951, Harvard University; Slavic linguistics.

Newmeyer, Frederick J. * 1969; PhD, 1969, University of Illinois; theoretical and English syntax, history of linguistics.

Shapiro, Michael C. * 1970, (Adjunct); PhD, 1973, University of Chicago; Indo-Aryan languages and linguistics.

Silberstein, Sandra V. * 1982, (Adjunct); PhD, 1982, University of Michigan; TESL, critical theory, discourse analysis, sociolinguistics, language and culture.

Tarlinkaya, Marina * 1984, (Research); DPhil, 1976, Moscow Institute of Foreign Languages; theory of translation, theory of versification, second language acquisition, semantics.

Tollefson, James W. * 1984, (Adjunct); PhD, 1978, Stanford University; English as a second language, language planning.

Voyles, Joseph B. * 1965, (Adjunct); PhD, 1965, Indiana University; Germanics and linguistics.

Associate Professors

Coats, Herbert S. * 1968, (Adjunct); MA, 1964, Fordham University; PhD, 1970, University of Illinois; Slavic linguistics, Russian phonology, Russian syntax, Slavic accentuation.

Hargus, Sharon Louise * 1985; PhD, 1985, University of California (Los Angeles); phonology, morphology, northwestern Native American languages, lexicography, phonetics.

Herschensohn, Julia R. * 1985; PhD, 1976, University of Washington; Romance linguistics, French syntax, second language acquisition.

Ogihara, Toshiyuki * 1991; PhD, 1989, University of Texas (Austin); semantic theory, structure of Japanese, syntax-semantics interface.

Riggenbach, Heidi R. * 1989, (Adjunct); PhD, 1989, University of California (Los Angeles); teaching English as a second language, discourse analysis, sociolinguistics.

Strozer, Judith R. * 1987; PhD, 1976, University of California (Los Angeles); comparative Romance syntax, second language acquisition, foreign language teaching.

Zagona, Karen T. * 1987; PhD, 1982, University of Washington; syntactic theory and Spanish syntax, tense, and aspect.

Assistant Professors

Kim, Soowon * 1992; PhD, 1991, Brandeis University; syntactic theory, syntax-semantics interface, argument structure, Japanese/Korean linguistics.

Wassink, Alicia Beckford * 1998; PhD, 1999, University of Michigan; sociolinguistics, experimental phonetics, creole linguistics.

Wright, Richard A. * 1998; PhD, 1996, University of California (Los Angeles); production and perception of language, phonetics and phonology of African and Austronesian languages.

Course Descriptions

See page 48 for an explanation of course numbers, symbols, and abbreviations.

For graduate-level course descriptions, see the graduate and professional study volume of the *General Catalog* or visit the online course catalog at www.washington.edu/students/crscat/.

Credit is allowed for only one of the following: LING 200, 201, or 203. Ordinarily students who have taken one of these courses should not then take LING 400, although credit for both is allowed.

Linguistics

LING 100 Fundamentals of Grammar (5) VLPA Introduction to basic grammatical concepts and terminology. Specifically intended for students planning to take a foreign language or linguistics.

LING 200 Introduction to Linguistic Thought (5) VLPA/I&S,QSR Language as the fundamental characteristic of the human species; diversity and complexity of human languages; phonological and grammatical analysis; dimensions of language use; language and writing; impact of historical linguistics on contemporary theory. Not open for credit to students who have completed LING 201.

LING 201 Introduction to Linguistic Theory and Analysis (5) VLPA/I&S,QSR Background and scope of modern linguistics; behaviorist versus rationalist theories of language; universal and cognitive aspects of language structure; interplay of genetic and social factors in language formation; linguistic analysis. Not open for credit to students who have completed LING 200.

LING 203 Introduction to Anthropological Linguistics (5) VLPA/I&S Hargus, Hunn, Palmer Linguistic methods, theories used within anthropology. Basic structural features of language; human language and animal communication compared; evidence for the innate nature of language. Language and culture: linguistic relativism, ethnography of communication, sociolinguistics. Language and nationalism, language politics in the U.S. and elsewhere. Offered jointly with ANTH 203.

LING 242 Introduction to Meaning (5) VLPA Ogihara Non-technical introduction to meaning in language and how it functions in communication and thinking. Discussion of how and why meanings of words change through time. Prerequisite: either LING 200, LING 201, ANTH/LING 203, or LING 400.

LING 300 Introduction to the Languages of the World (5) VLPA Brame, Klausenburger A survey of the world's languages, focusing on their syntactic, phonological, and morphological properties. Prerequisite: either LING 200, LING 201, ANTH/LING 203, or LING 400.

LING 347 Psychology of Language I (5) VLPA/I&S Corina, Osterhout Introduction to the study of language, including language structure, speech perception, language acquisition, psychological pro-

cesses underlying comprehension and production of language, the relation between brain and language, and the question of the species-specificity of human language. Prerequisite: either PSYCH 101, PSYCH 102, LING 200, or LING 201. Offered: jointly with PSYCH 347; A.

LING 400 Survey of Linguistic Method and Theory (4) I&S/VLPA, QSR Major linguistic theories in phonology, syntax and semantics; linguistic analysis and argumentation. Intended for students who plan to pursue further linguistic or language-related study. Students who have taken LING 200 or 201 should not take LING 400, although credit is allowed for both if 400 is taken after 200 or 201.

LING 402 Survey of the History of Linguistics (3) VLPA/I&S *Newmeyer* Main trends in linguistic theory and philosophy of linguistics from ancient times through advent of transformational-generative grammar. Includes nineteenth-century comparative and historical grammar, Prague school grammar, American structuralist grammar, major concerns of linguistics today. Prerequisite: LING 451.

LING 403 Structure of American Sign Language (5) VLPA *Hargus* Introduction to the phonological, morphological, and syntactic structure of American Sign Language. Topics include acquisition, sociolinguistics, neurolinguistics, lexicography, history, and culture. Knowledge of American Sign Language is not required. Prerequisite: LING 200, 201, 203, or 400.

LING 404 Indo-European (3) VLPA *Voyles* Overview of the Indo-European languages, of comparative method, and of the phonology, morphology, and syntax of reconstructed Indo-European. Grammatical analyses and texts from various attested ancient and modern Indo-European languages, selected according to the interests of the students.

LING 432 Sociolinguistics I (5) VLPA/I&S *Wassink* Social variation in the phonology, morphology, syntax, lexicon of languages and dialects. Nonstandard language, diglossia, pidgins and creoles, gender differences, bi- and multilingualism, ethnography of speaking, pragmatics, and language attitudes. Prerequisite: LING 400; recommended: prior or concurrent registration in LING 451. Offered: jointly with ANTH 432.

LING 433 Language Politics and Cultural Identity (3) VLPA/I&S *Bilaniuk* Theories and case studies of the power of language and how it is manipulated. Multilingualism, diglossia. Role of language and linguistics in nationalism. Standardization, educational policy, language and ethnicity. World languages, language death and revival. Prerequisite: either LING 200, LING 201, ANTH/LING 203, or LING 400. Offered: jointly with ANTH 464.

LING 434 Sociolinguistics II (3) VLPA/I&S *Wassink* Examines field methods linguists use in socially oriented studies of language variation and change. Students learn to target and design interviews appropriate for eliciting specific kinds of linguistic data. Discussion of issues related to recording, ethics, and analysis of large bodies of data. Prerequisite: LING 432. Offered: jointly with ANTH 433.

LING 442 Semantics I (4) VLPA/NW *Ogihara* Introduction to the study of meaning as part of linguistic theory. Relation of semantics to syntax. Emphasis on formal semantics and pragmatics. Discussion of various semantic phenomena in natural language that are theoretically relevant. Prerequisite: either LING 200, LING 201, ANTH/LING 203, or LING 400.

LING 444 Philosophy of Language-Pragmatics (3) VLPA/I&S *Potter* Language as communicative activity. Speech act theory in Austin, Grice, and contemporary writings. Applications to problems of reference, presupposition, metaphor, relativism. Offered: jointly with PHIL 444.

LING 446 Descriptive Aspects of English: Phonology and Morphology (3) VLPA *Hargus, Kaisse* Descriptively oriented analysis of English phonology and morphology; dialect differences. Prerequisite: either LING 200, LING 201, ANTH/LING 203, or LING 400.

LING 447 Psychology of Language II (4) VLPA/I&S *Corina, Osterhout* Psychological principles applied to linguistic development and organization; language in both its stimulus and response aspects. Prerequisite: either PSYCH 101 or PSYCH 102. Offered: jointly with PSYCH 447.

LING 449 Second-Language Learning (3) VLPA *Herschensohn, Tarlinskaja* Issues related to the psychological aspects of second-language learning. Prerequisite: either LING 200, LING 201, ANTH/LING 203, or LING 400.

LING 450 Introduction to Linguistic Phonetics (5) VLPA/NW *Wright* Introduction to the articulatory and acoustic correlates of phonological features. Issues covered include the mapping of dynamic events to static representations, phonetic evidence for phonological description, universal constraints on phonological structure, and implications of psychological speech-sound categorization for phonological theory. Prerequisite: either LING 200, LING 201, ANTH/LING 203, or LING 400.

LING 451 Phonology I (4) VLPA/I&S *Hargus, Kaisse* Speech sounds, mechanism of their production, and structuring of sounds in languages; generative view of phonology; autosegmental and metrical phonology. Prerequisite: LING 450.

LING 452 Phonology II (4) VLPA/I&S *Hargus, Kaisse* Speech sounds, mechanism of their production, and structuring of sounds in languages; generative view of phonology; autosegmental and metrical phonology. Prerequisite: LING 451.

LING 453 Phonology III (4) I&S/NW/VLPA *Hargus, Kaisse* Speech sounds, mechanism of their production, and structuring of sounds in languages; generative view of phonology; autosegmental and metrical phonology. Prerequisite: LING 451.

LING 455 Areal Linguistics (3, max. 6) VLPA/I&S Issues involved in classification of languages. Systems of classification based on structure, word order, areal features. Ways in which languages may be classified for different purposes. Processes such as borrowing, vocabulary specialization, lexical change, and language death and revival. Offered: jointly with ANTH 455.

LING 457 Language Development (5) VLPA/I&S *Dale* First-language acquisition and use by children. Emphasis on theoretical issues and research techniques. Prerequisite: either PSYCH 306, LING 200, or LING 400. Offered: jointly with PSYCH 457.

LING 458 Language and Gender (5) I&S, VLPA *Bilaniuk* Survey of the theoretical trends, methods, and research findings on the relationship between language and gender. Focus on power relations in gendered language use. Extensive study of research based on conversational analysis and other aspects of identity such as sexuality, class, and age. Prerequisite: LING 200; either LING 201, LING 203, or ANTH 203. Offered: jointly with ANTH 450 and WOMEN 450.

LING 461 Syntax I (4) VLPA/I&S *Brame, Contreras, Kim, Newmeyer, Zagana* Study of the structural properties of language; introduction to generative transformational syntax. Prerequisite: either LING 200, LING 201, ANTH/LING 203, or LING 400.

LING 462 Syntax II (4) VLPA/I&S *Brame, Contreras, Kim, Newmeyer, Zagana* Study of the structural properties of language; introduction to generative transformational syntax. Prerequisite: LING 461.

LING 472 Introduction to Computational Linguistics (3) VLPA *Hoard* Introduction to computer applications of linguistic theory, including syntactic processing, semantic and pragmatic interpretation, and natural language generation. Prerequisite: LING 461. Offered: jointly with CSE 472.

LING 476 Philosophy of Language (5) VLPA/I&S Current theories of meaning, reference, predication, and related concepts. Offered: jointly with PHIL 453.

LING 479 Semantics II (3) VLPA/I&S/NW *Ogihara* Formal characterization of linguistic meaning. Emphasis on nature and purpose of formal semantics and on its relation to formal syntax. Prerequisite: LING 442. Offered: jointly with PHIL 479.

LING 480 Topics in Linguistics (3, max. 12) VLPA Introduction to an area of linguistic study not covered by the regular departmental course offerings.

LING 481 Introduction to Morphology (4) VLPA *Brame, Hargus, Kaisse, Newmeyer* Structure of words and the processes by which they are formed. Morphological processes in a wide variety of languages. Prerequisite: LING 451; LING 461.

LING 484 Lexical Semantics and the Lexicon (3) VLPA *Kim* Role of the lexicon in syntax and semantics. Topics include the syntax-lexicon mapping; theories of argument structure; complex predicate formation and lexical subordination; the lexicon and language acquisition; the role of the lexicon in linguistic theory; and the lexicon and sentence processing. Prerequisite: LING 461.

LING 499 Undergraduate Research (1-5, max. 5) Credit/no credit only.

French Linguistics

FRLING 400 The Syntactic Structure of French (5) VLPA Scientific study of the syntax of French: phrase structure and movement, with emphasis on passives, relatives, and interrogatives. Prerequisite: either FRENCH 203, FRENCH 223, or FRENCH 234; either LING 200 or LING 400.

FRLING 401 The Morphological Structure of French (5) VLPA *Klausenburger* Linguistic study of French morphology. Prerequisite: either FRENCH 203, FRENCH 223, or FRENCH 234; either LING 200 or LING 400.

FRLING 402 The Phonological Structure of French (5) VLPA *Klausenburger* The phonological component of the generative grammar of French: representations of syllabic and segmental units, phonological rules, distinctive features and their articulatory correlates. Prerequisite: either FRENCH 203, FRENCH 223, or FRENCH 234; either LING 200 or LING 400.

FRLING 403 Background of Modern French (5) VLPA *Klausenburger* Linguistic analysis of the important developments in the history of the French language from its Latin origin to contemporary speech. Prerequisite: either FRENCH 203, FRENCH 223, or FRENCH 234; either LING 200 or LING 400.

FRLING 406 Advanced French Grammar (5) VLPA *Herschensohn* Problems of French grammar. Differences between forms and structures of French and English. Problems of effective teaching of French. Prerequisite: FRENCH 303.

FRLING 409 The Phonetics of French (5) VLPA *Klausenburger* Scientific study of the French sound system with special emphasis on "lower level" phonetic rules. Focus on data from standard French as well as socioeconomic and geographic variations. Prerequisite: either FRENCH 203, FRENCH 223, or FRENCH 234; either LING 200 or LING 400.

Romance Linguistics

ROLING 402 Historical Romance Linguistics (5) VLPA *Klausenburger* Comparative historical survey of the development of the principal Romance tongues. Prerequisite: LING 400.

ROLING 490 Senior Essay (2) VLPA Essay on linguistic problem of student's choice written with faculty consultant.

Spanish Linguistics

SPLING 400 The Syntactic Structure of Spanish (5) VLPA *Strozer, Zagana* Scientific study of the syntax of Spanish: structure of phrases, transformationally derived structures, grammatical relations, principles of interpretation. Prerequisite: SPAN 301; either ANTH 203, LING 200, 201, 203, LING 400, or SPAN 323. Offered: jointly with SPAN 400.

SPLING 401 The Morphological Structure of Spanish (5) VLPA *Strozer, Zagana* Principles of word formation, including derivational and inflectional morphology. Relationship between inflectional morphology and other components of grammar. Prerequisite: SPAN 301; either ANTH 203, LING 200, 201, 203, LING 400, or SPAN 323. Offered: jointly with SPAN 401.

SPLING 402 The Phonological Structure of Spanish (5) VLPA *Strozer, Zagana* Phonological component of the generative grammar of Spanish; representations of syllabic and segmental units, phonological rules, distinctive features and their articulatory correlates. Prerequisite: SPAN 301; either ANTH 203, LING 200, 201, 203, LING 400, or SPAN 323. Offered: jointly with SPAN 402.

SPLING 403 The Evolution of the Spanish Language (5) VLPA *Zagana* Historical survey of Spanish phonology, morphology, and syntax, from Latin origins to the modern language. Prerequisite: SPAN 301; either ANTH 203, LING 200, 201, 203, LING 400, or SPAN 323. Offered: jointly with SPAN 403.

SPLING 406 Advanced Spanish Grammar (5) VLPA *Anderson, Strozer* Problems of Spanish grammar. Difference from English grammar. Techniques for the effective teaching of Spanish. Prerequisite: SPAN 303; SPAN 323. Offered: jointly with SPAN 406.

SPLING 409 Spanish Phonetics (5) VLPA Analysis of sounds: training in pronunciation, intonation, and close transcription of Spanish language in its modalities. Prerequisite: SPAN 301; either ANTH 203, LING 200, 201, 203, LING 400, or SPAN 323. Offered: jointly with SPAN 409.

spired by the needs of these other disciplines. The two facets of mathematics—tool of science and subject of inquiry for its own sake—have come to be interwoven into a complex fabric.

Undergraduate Program

Advisers

Julie Martinson
Brooke Miller
C36 Padelford, Box 354350
(206) 543-6830

The Department of Mathematics cooperates with the departments of Applied Mathematics, Computer Science and Engineering, and Statistics in an interdepartmental Bachelor of Science degree program in Applied and Computational Mathematical Sciences (ACMS). The program builds a broad foundation in the mathematical sciences.

The Bachelor of Science degree in mathematics provides a solid background in mathematics for students who wish to obtain a detailed understanding of this complex fabric, either for its use in other mathematical sciences or for its aesthetic beauty. One hallmark of mathematics, in contrast to empirical sciences, is its reliance on logic and pure reasoning as the foundational tools for the establishment of knowledge. The Bachelor of Science program introduces students to mathematical reasoning early in their studies, and provides them with a consistent opportunity to observe the role of mathematical reasoning in the development and application of mathematical results. The Bachelor of Arts liberal arts degree, in contrast, allows a student to put together a program of mathematical study that is less rigorous. There is also a Bachelor of Arts option designed specifically for students who plan to pursue secondary teaching careers.

In the B.A.-Liberal Arts and B.S. options, a minimum grade of 2.0 must be obtained in all mathematics courses presented to satisfy the mathematics requirement and in required related courses.

A GPA of 2.00 or higher must be obtained in all mathematics courses taken at the UW. At least 18 credits of graded mathematics courses numbered 300 or higher must be taken in residence at the UW.

The B.A.-Teacher Preparation option requires a minimum grade of 2.5 in all courses presented to satisfy the program requirements, with the exception of PHYS 407, 408, and 409, which require a grade of 3.5.

Bachelor of Arts

Admission Requirements for Liberal Arts:

1. MATH 124, 125, 126 (or MATH 127, 128, 129, or MATH 134, 135, 136), and at least one 200- or 300-level mathematics course required for the degree, preferably 307.
2. A minimum grade of 2.0 in each course to be offered as part of the major; a minimum overall GPA of 2.00 for all mathematics courses.
3. Application to the program should be made at the end of the sophomore year. Transfer students must be enrolled at the UW before applying to the major.

Admission Requirements for Teacher Preparation:

1. MATH 124, 125, 126 (or MATH 127, 128, 129, or MATH 134, 135, 136) and at least one 200- or 300-level mathematics course required for the degree, preferably 307.
2. A minimum grade of 2.5 in each course to be offered as part of the major; a minimum overall GPA of 2.50 for all mathematics courses.
3. Application to the program should be made at the end of the sophomore year. Transfer students must be enrolled at the UW before applying to the major.

Major Requirements

Liberal Arts Option: A minimum of 50 approved credits in mathematics, including MATH 124, 125, 126 (or 127, 128, 129, or 134, 135, 136); 307; 205, 308, or 318; 324; and 26 additional credits at the 300 level and above.

Teacher Preparation Option: A minimum of 58 approved credits in mathematics including: MATH 124, 125, 126 (or 127, 128, 129, or 134, 135, 136); MATH 307; 308 or 205; 394, 411, 412, 444, 445, 487; either MATH 354 and 355 or PHYS 407, 408, 409; either STAT 311, MATH/STAT 390, or QSCI 381; 6 credits of electives at the 300-level in MATH, AMATH, or STAT.

Bachelor of Science

Admission Requirements:

A minimum grade of 2.0 in the following courses: MATH 124, 125, 126 (or MATH 127, 128, 129); MATH 300; MATH 324. (See departmental adviser for information on Advanced Placement exemption.) A student can substitute the following courses, with a minimum grade of 2.0: MATH 134, 135, 136; either MATH 300 or 334.

Major Requirements

1. A minimum grade of 2.0 in all courses applied toward the major.
2. A minimum GPA of 2.00 in all mathematics courses taken at the University. At least 18 credits must be from courses at the 300-level or higher, taken in residence at the University.
3. **Elementary Mathematics Core (21 credits):** MATH 124, 125, 126 (or 127, 128, 129) (5, 5, 5); MATH 300 (3); MATH 324 (3). (MATH 134, 135, 136 may be substituted for MATH 124, 125, 126, 307, and 318.)
4. **Intermediate Mathematics Core (12 credits):** MATH 308 (3) or 318 (3); MATH 326, 327, 328 (3, 3, 3). (MATH 334, 335, 336 may be substituted for MATH 300, 309, 324, 326, 327, and 328.)
5. **Advanced Mathematics Core (21 credits):** At least seven courses from the following, from at least three different areas, and including at least two two-quarter sequences: *Algebra:* MATH 402, 403, 404 (3, 3, 3). *Analysis:* MATH 424, 425, 426 (3, 3, 3). *Geometry:* MATH 441, 442, 443 (3, 3, 3). *Other Analysis:* MATH 307, 309 (3, 3); 427, 428, 429 (3, 3, 3); 435, 436 (3, 3); 438, 439 (3, 3). *Probability:* MATH 394, 395, 396 (3, 3, 3); 491, 492 (3, 3). *Other Mathematics:* MATH 381 (3); 407, 408, 409 (3, 3, 3); 461, 462 (3, 3); 464, 465, 466 (3, 3, 3).
6. **Electives (12 credits):** Four additional mathematics courses, including a two-quarter sequence at the 300- or 400-level (teacher-preparation courses not allowed). Two of the four courses may be chosen from an approved list of courses offered by the departments of Applied Mathematics, Statistics, and Computer Science, or from certain other departments. The list is updated each year by the Undergraduate Program Coordinator; students may petition for approval of courses not on the list. Courses from the additional mathematics core sequences not used to fulfill core requirements can be used to fulfill the elective requirement.

Comprehensive Option

The department also offers a Comprehensive Option to the Bachelor of Science Degree. This option emphasizes the fundamental subjects of algebra, analysis, and geometry and is designed to provide a deep understanding of these basic areas of modern mathematics. It lays a good foundation for more advanced study. For this option, the elementary core and elective requirements remain unchanged, with the same substitutions permitted from the accelerated/honors sequences. MATH 318 is required in the intermediate core and the advanced mathematics core becomes the following:

Mathematics

C138 Padelford



General Catalog Web page:
www.washington.edu/students/gencat/academic/mathematics.html



Department Web page:
www.math.washington.edu

Mathematics is both a science and an art. Like any great art, mathematics has an intrinsic beauty and coherence that has attracted practitioners for centuries. Yet, unlike other arts, mathematics is a surprisingly effective tool for describing the natural world. Indeed, mathematics has come to serve as the foundation of modern science, through its language and results. Some mathematical results were initially developed in order to solve internally generated mathematical problems and only later found application in other disciplines; other mathematical results were in-

5. *Advanced Mathematics Core, Comprehensive Option (24 credits)*: At least eight courses must be taken from the following, including at least two in each of the first three areas. If only six courses are chosen from the first three areas, then the two courses chosen from the fourth area must form a two-quarter sequence: *Algebra*: MATH 402, 403, 404 (3, 3, 3). *Analysis*: MATH 424, 425, 426 (3, 3, 3). *Geometry*: MATH 441, 442, 443 (3, 3, 3). *Other Analysis*: MATH 307, 309 (3, 3); 427, 428, 429 (3, 3, 3); 435, 436 (3, 3); 438, 439 (3, 3).

Minor

Minor Requirements: 33 credits to include core (21-25 credits): MATH 124, 125, 126 (or 127, 128, 129), 307, and 308 (21 credits) or MATH 134, 135, 136 (25 credits, including 10 advanced-placement credits); and electives (8-12 credits): mathematics courses numbered 300 or higher. At least 9 credits of courses numbered 300 or higher must be taken in residence at the UW. Minimum grade of 2.0 required for each course offered as part of the minor.

Graduate Program

For information on the Department of Mathematics graduate program, see the graduate and professional volume of the *General Catalog* or visit the *General Catalog* online at www.washington.edu/students/gencat/.

Faculty

Chair

Donald E. Marshall

Professors

Arsove, Maynard G. * 1951, (Emeritus); MS, 1948, PhD, 1950, Brown University; potential theory, complex function theory, theory of bases.

Birnbaum, Z. W. * 1939, (Emeritus); PhD, 1929, John Casimir State University (Poland); probability, mathematical statistics (distribution-free statistics, reliability theory).

Blumenthal, Robert M. * 1956, (Emeritus); PhD, 1956, Cornell University; probability theory (Markov processes).

Borgs, Christian 1999, (Affiliate); PhD, 1987, University of Munich (Germany); field theory and statistical mechanics.

Brownell, Francis H. III * 1950, (Emeritus); PhD, 1949, Yale University; spectral analysis of Hilbert space operators, mathematical quantum mechanics.

Bube, Kenneth P. * 1986; PhD, 1978, Stanford University; numerical analysis, partial differential equations.

Burdzy, Krzysztof * 1988; PhD, 1984, University of California (Berkeley); probability theory.

Burke, James V. * 1985; PhD, 1983, University of Illinois; optimization, nonsmooth analysis.

Chayes, Jennifer T. 1999, (Affiliate); PhD, 1983, Princeton University; theoretical condensed-matter physics.

Collingwood, David * 1987; PhD, 1983, University of Utah; representation theory of Lie groups.

Curjel, Caspar R. * 1964, (Emeritus); DSc, 1960, Eidgenösse Technische Hochschule (Switzerland); algebraic topology.

Curtis, Edward B. * 1970; PhD, 1962, Harvard University; graph theory, networks.

Dubisch, Roy 1961, (Emeritus); PhD, 1943, University of Chicago; teacher training, elementary and secondary curriculum.

Duchamp, Thomas E. * 1979; PhD, 1976, University of Illinois; differential geometry, computer graphics.

Erickson, Kent B. * 1973; PhD, 1970, University of Wisconsin; probability theory.

Folland, Gerald Budge * 1973; PhD, 1971, Princeton University; harmonic analysis and differential equations.

Freedman, Michael H. 1999, (Affiliate); PhD, 1973, Princeton University; topology.

Gangolli, Ramesh A. * 1962, (Emeritus); PhD, 1961, Massachusetts Institute of Technology; probability theory, harmonic analysis on Lie groups.

Goldstein, Allen A. * 1964, (Emeritus); PhD, 1954, Georgetown University; approximation theory, nonlinear programming, control theory, calculus of variations.

Goodearl, Kenneth R. * 1998, (Affiliate); MS, 1969, PhD, 1971, University of Washington; noncommutative algebra (noetherian rings, quantum groups, regular rings, C*-algebras).

Graham, C. Robin * 1984; PhD, 1981, Princeton University; partial differential equations, differential geometry, invariant theory.

Greenbaum, Anne * 1997; PhD, 1981, University of California (Berkeley); numerical analysis.

Greenberg, Ralph * 1978; PhD, 1971, Princeton University; number theory.

Grunbaum, Branko * 1966; PhD, 1957, Hebrew University (Israel); geometry.

Irving, Ronald S. * 1981; PhD, 1977, Massachusetts Institute of Technology; representations of Lie algebras and Lie groups, ring theory.

Jans, James P. * 1957, (Emeritus); PhD, 1955, University of Michigan; ring structures and homological algebra.

Kas, Arnold * 1996, (Affiliate); PhD, 1966, Stanford University; partial differential equations, applied mathematics.

Klee, Victor * 1953, (Emeritus); PhD, 1949, University of Virginia; convex sets, functional analysis, analysis of algorithms, optimization, combinatorics.

Koblitz, Neal I. * 1979; PhD, 1974, Princeton University; number theory and cryptography.

Lee, John M. * 1986; PhD, 1982, Massachusetts Institute of Technology; differential geometry and partial differential equations.

Leveque, Randall J. * 1985; PhD, 1982, Stanford University; numerical analysis, hyperbolic conservation laws, computational fluid dynamics.

Lind, Douglas A. * 1976; PhD, 1973, Stanford University; ergodic theory.

Lovasz, Laszlo * 1999, (Affiliate); PhD, 1977, Hungarian Academy of Sciences; discrete mathematics.

Marshall, Donald E. * 1976; PhD, 1976, University of California (Los Angeles); complex analysis.

Michael, Ernest A. * 1953, (Emeritus); PhD, 1951, University of Chicago; topology.

Mitchell, Stephen A. * 1985; PhD, 1981, University of Washington; algebraic topology.

Morrow, James Allen * 1969; PhD, 1967, Stanford University; complex singularities, inverse problems.

Namioka, Isaac * 1963, (Emeritus); PhD, 1956, University of California (Berkeley); functional analysis.

Nijenhuis, Albert * 1988, (Affiliate); PhD, 1952, University of Amsterdam (Netherlands); geometry, combinatorics, computational complexity.

Nunke, Ronald * 1958, (Emeritus); PhD, 1955, University of Chicago; category theory, Abelian groups.

Osborne, M. Scott * 1975; PhD, 1972, Yale University; representation theory.

Phelps, Robert R. * 1956, (Emeritus); PhD, 1958, University of Washington; convexity, functional analysis, geometry of Banach spaces, optimization.

Pyke, Ronald * 1960, (Emeritus); PhD, 1956, University of Washington; probability - Brownian and empirical processes.

Ragozin, David * 1971; PhD, 1967, Harvard University; approximation theory, splines, wavelets, numerical analysis, harmonic analysis.

Rockafellar, R. T. * 1966; PhD, 1963, Harvard University; variational analysis and optimization.

Schramm, Oded 1999, (Affiliate); MS, 1987, Hebrew University (Israel); PhD, 1990, Princeton University; complex analysis.

Segal, Jack * 1960; PhD, 1960, University of Georgia; topology and shape theory.

Shorack, Galen * 1965, (Adjunct); PhD, 1965, Stanford University; empirical processes, robustness, nonparametric statistics.

Smith, Hart F. * 1991; PhD, 1989, Princeton University; partial differential equations, Fourier analysis.

Smith, S. Paul * 1986; PhD, 1981, University of Leeds (UK); algebra.

Stout, Edgar L. * 1969; PhD, 1964, University of Wisconsin; complex analysis.

Sullivan, John B. * 1973; PhD, 1971, Cornell University; representations of classical groups.

Sylvester, John * 1987; PhD, 1980, New York University; partial differential equations.

Tseng, Paul Yun * 1990; PhD, 1986, Massachusetts Institute of Technology; optimization.

Tuncel, Selim * 1986; PhD, 1982, University of Warwick (UK); ergodic theory, symbolic dynamics.

Uhlmann, Gunther A. * 1984; PhD, 1976, Massachusetts Institute of Technology; partial differential equations.

Warner, Garth * 1966; PhD, 1966, University of Michigan; algebraic topology.

Westwater, Michael J. * 1970; PhD, 1967, Cambridge University (UK); mathematical physics.

Associate Professors

Arms, Judith M. * 1980; MA, 1974, PhD, 1977, University of California (Berkeley); geometric analysis of Hamiltonian systems with symmetry.

Bungart, Lutz * 1966, (Emeritus); PhD, 1962, Princeton University; analysis/geometry (several complex variables, complex varieties).

Dekker, David B. 1948, (Emeritus); PhD, 1948, University of California (Berkeley); numerical analysis, curve fitting, numerical solutions of differential equations.

Devinatz, Ethan S. * 1991; PhD, 1985, Massachusetts Institute of Technology; algebraic topology.

King, James Richard * 1975; PhD, 1969, University of California (Berkeley); complex manifolds, instructional computing in geometry.

McGovern, William M. * 1990; PhD, 1987, Massachusetts Institute of Technology; representation theory.

Monk, George Stephen * 1964; PhD, 1966, University of Minnesota; mathematics education.

Moore, Robert T. * 1968; PhD, 1964, Princeton University; operator theory, group representation, mathematical software and experimental mathematics.

Rohde, Steffen * 1998; PhD, 1989, University of Berlin (Germany); complex analysis, complex dynamics, geometric function theory.

Solomyak, Boris * 1990; PhD, 1986, Leningrad University (Russia); fractals and dynamics.

Toro, Tatiana * 1996; MS, 1989, PhD, 1992, Stanford University; analysis and geometric measure theory.

Zhang, Jian James * 1994; MS, 1985, Fudan University (China); PhD, 1991, Massachusetts Institute of Technology; algebra and noncommutative algebraic geometry.

Assistant Professors

Babson, Eric K. * 1998; PhD, 1993, Massachusetts Institute of Technology; algebraic and geometric combinatorics.

Chen, Zhen-Qing * 1998; PhD, 1992, Washington University; probability theory and stochastic analysis.

Hoffman, Christopher * 1999; PhD, 1996, Stanford University; ergodic theory and probability theory.

Iovita, Adrian * 1998; PhD, 1996, Boston University; p-adic co-homology of algebraic varieties.

Ozols, Vilnis * 1968; PhD, 1967, University of California (Berkeley); Lie groups, Riemannian geometry.

Palmieri, John * 1999; PhD, 1991, Massachusetts Institute of Technology; algebraic topology, modular representation theory, and the connections between them.

Pollack, Daniel * 1996; MS, 1986, University of Pennsylvania; PhD, 1991, Stanford University; differential geometry, nonlinear partial differential equations.

Senior Lecturer

Warfield, Virginia 1977; MA, 1965, PhD, 1971, Brown University; probability and the teaching of mathematics.

Lecturers

Averbeck, Patrick J. 1998; MS, 1993, Oregon State University; mathematics education.

Plochinski, Kenneth 1991; MS, 1983, University of Michigan; Director of Math Study Center.

Course Descriptions

See page 48 for an explanation of course numbers, symbols, and abbreviations.

For graduate-level course descriptions, see the graduate and professional study volume of the *General Catalog* or visit the online course catalog at www.washington.edu/students/crsclat.

MATH 098 Intermediate Algebra (0) Intermediate algebra equivalent to third semester of high school algebra. Instruction provided by community colleges on UW campus. Extra fee required. Replaces MATH 101. Offered: AWSp.

MATH 100 Algebra (5) Similar to the first three terms of high school algebra. Assumes no previous experience in algebra. Open only to students [1] in the Educational Opportunity Program or [2] admitted with an entrance deficiency in mathematics. Offered: AWSp.

MATH 102 Algebra (5) Similar to the first three terms of high school algebra. Assumes no previous experience in algebra. Open only to students [1] in the Educational Opportunity Program or [2] admitted with an entrance deficiency in mathematics. Offered: AWSp.

MATH 103 Introduction to Elementary Functions (5) Continues the study of algebra begun in 100 and 102 with emphasis on functions (polynomial, rational, logarithmic, exponential, and trigonometric). Open only to students who have completed 102. Prerequisite: score of 56% on MATHEA placement test. Offered: AWSp.

MATH 107 Mathematics: A Practical Art (5) NW, QSR For students not planning to take additional mathematics. The exponential function; how it ap-

plies to a wide variety of phenomena. Elementary probability and statistics; their use in a variety of applications. Offered: WSp.

MATH 111 Algebra with Applications (5) NW, QSR Use of graphs and algebraic functions as found in business and economics. Algebraic and graphical manipulations to solve problems. Exponential and logarithm functions; various applications to growth of money. Prerequisite: either 2.0 in MATH 098, 2.0 in MATH 102, 2.0 in MATH 103, score of 49% on MATHIA placement test, score of 35% on MATHPC placement test, or score of 56% on MATHEA placement test. Offered: AWS.

MATH 112 Application of Calculus to Business and Economics (5) NW, QSR Rates of change, tangent, derivative, accumulation, area, integrals in specific contexts, particularly economics. Techniques of differentiation and integration. Application to problem solving. Optimization. Credit does not apply toward a mathematics major. Prerequisite: 2.0 in MATH 111. Offered: AWSpS.

MATH 120 Precalculus (5) NW Polynomial, rational, exponential, and trigonometric functions. For students needing preparation for 124; not advised for students who will not take MATH 124, 127, or 144. Does not satisfy Q/SR proficiency requirement. Prerequisite: either 2.5 in MATH 098, 3.0 in MATH 103, score of 60% on MATHIA placement test, score of 40% on MATHPC placement test, or score of 77% on MATHEA placement test. Offered: AWSpS.

MATH 124 Calculus with Analytic Geometry I (5) NW, QSR Differentiation, applications of derivative, integration. Calculus for natural sciences and engineering students. Prerequisite: either 2.5 in MATH 120, score of 67% on MATHPC placement test, score of 75% on MATHEC placement test, or score of 2 on advanced placement test. Offered: AWSpS.

MATH 125 Calculus with Analytic Geometry II (5) NW Applications of integration, transcendental functions, methods of integration and improper integrals, introduction to first order ordinary differential equations. Prerequisite: either 2.0 in MATH 124, 2.0 in MATH 127, score of 3 on AB advanced placement test, or score of 3 on BC advanced placement test. Offered: AWSpS.

MATH 126 Calculus with Analytic Geometry III (5) NW Vectors and vector functions in space, functions of several variables and applications, multiple integrals. Prerequisite: either 2.0 in MATH 125, 2.0 in MATH 128, 2.0 in MATH 145, 2.0 in MATH 146, score of 5 on AB advanced placement test, or score of 4 on BC advanced placement test. Offered: AWSpS.

MATH 127 Calculus for Mathematical Sciences (5) QSR, NW Limits, continuity, differentiation, integration. More emphasis on mathematical rigor and less emphasis on mathematical modeling than in MATH 124. Prerequisite: either 2.5 in MATH 120, score of 67% on MATHPC placement test, score of 75% on MATHEC placement test, or score of 2 on advanced placement test.

MATH 128 Calculus for Mathematical Sciences (5) NW Applications of the integral, techniques of integration, Taylor's theorem. More emphasis on mathematical rigor and less emphasis on mathematical modeling than in MATH 125. Prerequisite: either 2.0 in MATH 124, 2.0 in MATH 127, score of 3 on AB advanced placement test, or score of 3 on BC advanced placement test.

MATH 129 Calculus for Mathematical Sciences (5) NW Vectors, vector-valued functions, multivariable calculus, multiple integrals. More emphasis on mathematical rigor and less emphasis on mathematical modeling than in MATH 126. Prerequisite: either 2.0 in MATH 125, 2.0 in MATH 128, 2.0 in MATH 145, 2.0 in MATH 146, score of 5 on AB advanced placement test, or score of 4 on BC advanced placement test.

MATH 134 Accelerated [Honors] Calculus (5) NW, QSR Covers the material of 124, 125, 126; 307, 308, 318. First year of a two-year accelerated sequence. May receive advanced placement (AP) credit for 124 after taking 134. For students with above average preparation, interest, and ability in mathematics. Offered: A.

MATH 135 Accelerated [Honors] Calculus (5) NW Covers the material of 124, 125, 126; 307, 308, 318. First year of a two-year accelerated sequence. May receive advanced placement (AP) credit for 125 after taking 135. For students with above average preparation, interest, and ability in mathematics. Offered: W.

MATH 136 Accelerated [Honors] Calculus (5) NW Covers the material of 124, 125, 126; 307, 308, 318. First year of a two-year accelerated sequence. May not receive credit for both 126 and 136. For students with above average preparation, interest, and ability in mathematics. Offered: Sp.

MATH 144 Calculus for the Life Sciences (5) NW, QSR Introduction discrete probability, with examples from the life sciences. Exponential and logarithmic functions; exponential growth; allometry. Introduction to differentiation. Prerequisite: either 2.5 in MATH 120, score of 67% on MATHPC placement test, score of 75% on MATHEC placement test, or score of 2 on advanced placement test.

MATH 145 Calculus for the Life Sciences (5) NW Differential and integral calculus, with examples from the life sciences. Applications of the derivative to curve sketching; min/max problems. Antiderivatives; fundamental theorem of calculus with applications. Prerequisite: either 2.0 in MATH 124, 2.0 in MATH 127, 2.0 in MATH 144, 3.2 in MATH 120, score of 75% on MATH PC placement test, or score of 3 on advanced placement test.

MATH 146 Calculus for the Life Sciences (5) NW Further applications of the integral; density functions and continuous probability. Linear and separable differential equations, with examples from the life sciences; growth models. Prerequisite: either 2.0 in MATH 125, 2.0 in MATH 128, or 2.0 in MATH 145.

MATH 170 Mathematics for Elementary School Teachers (3) NW Basic concepts of numbers and operations. Emphasizes problem solving, communication of mathematical ideas, and analysis of sources of difficulty in learning/teaching these concepts. Credit may not apply toward a mathematics major. Required for elementary education students. Credit/no credit only. Offered: AWS.

MATH 171 Mathematics for Elementary School Teachers (3) NW Basic concepts of geometry. Emphasizes problem solving, communication of mathematical ideas, and analysis of sources of difficulty in learning/teaching these concepts. Credit may not apply toward a mathematics major. Credit/no credit only. Offered: Sp.

MATH 187 Elementary Mathematics Computer Laboratory (1, max. 3) NW Laboratory activities designed to introduce computing as a tool for doing mathematics, to be taken jointly with a designated section of a 100-level mathematics course. Credit/no credit only. Offered: AWSp.

MATH 197 Problem Solving in Mathematics (2, max. 4) NW Lectures and problem sessions in mathematics with applications. Enrollment restricted to EOP students only. Credit/no credit only. Offered: AWSp.

MATH 198 Special Topics in Mathematics (1-5, max. 15) Independent reading in math. Does not count as credit toward a math major. Credit/no credit only. Offered: AWSpS.

MATH 205 Elementary Matrix Algebra (3) NW

Systems of equations, vector spaces, matrices, linear transformations, characteristic vectors. Not open for credit to students who have taken 308. Prerequisite: either 2.0 in MATH 124, 2.0 in MATH 127, or 2.0 in MATH 144. Offered: S.

MATH 300 Introduction to Mathematical Reasoning (3) NW

Mathematical arguments and the writing of proofs in an elementary setting. Elementary set theory, elementary examples of functions and operations on functions, the principle of induction, counting, elementary number theory, elementary combinatorics, recurrence relations. Prerequisite: either 2.0 in MATH 125, MATH 128, MATH 145, or MATH 135.

MATH 301 Elementary Number Theory (3) NW

Brief introduction to some of the fundamental ideas of elementary number theory. Prerequisite: either 2.0 in MATH 126 or 2.0 in MATH 127.

MATH 307 Introduction to Differential Equations (3) NW

Taylor series, first and second order ordinary differential equations. Prerequisite: either 2.0 in MATH 125, 2.0 in MATH 128, or 2.0 in MATH 145. Offered: AWSpS.

MATH 308 Matrix Algebra with Applications (3) NW

Systems of linear equations, vector spaces, matrices, subspaces, orthogonality, least squares, eigenvalues, eigenvectors, applications. For students in engineering, mathematics, and the sciences. Prerequisite: either 2.0 in MATH 126 or 2.0 in MATH 146; recommended: MATH 307. Offered: AWSpS.

MATH 309 Linear Analysis (3) NW

First order systems of linear differential equations, Fourier series and partial differential equations, the phase plane and/or Laplace transforms. Prerequisite: either 2.0 in MATH 307 and 2.0 in MATH 308 or 2.0 in MATH 136. Offered: AWSpS.

MATH 318 Linear Algebra (3) NW

Introduction to the mathematical concepts, arguments, and proofs that occur in linear algebra. Vectors and matrices, systems of linear equations, determinants, subspaces, dimension, bases, linear transformations, eigenvalues and eigenvectors. Prerequisite: either 2.0 in MATH 126, MATH 129, or MATH 146.

MATH 324 Advanced Multivariable Calculus I (3) NW

Vector and scalar fields, line integrals, surface and volume integrals, theorems of Green, Gauss, and Stokes. Prerequisite: either 2.0 in MATH 126 or 2.0 in MATH 129. Offered: AWSpS.

MATH 326 Advanced Multivariable Calculus II (3) NW

Elementary topology, general theorems on partial differentiation, maxima and minima, differentials, Lagrange multipliers, implicit function theorem, inverse function theorem and transformations, change of variables formula. Prerequisite: either 2.0 in MATH 136 or 2.0 in MATH 308; 2.0 in MATH 324. Offered: AWSpS.

MATH 327 Introductory Real Analysis I (3) NW

Limits and continuity of functions, sequences, series tests, absolute convergence, uniform convergence. Power series, improper integrals, uniform continuity, fundamental theorems on continuous functions, theory of the Riemann integral. Prerequisite: either 2.0 in MATH 126, 2.0 in MATH 129, or 2.0 in MATH 136. Offered: AWSpS.

MATH 328 Introductory Real Analysis II (3) NW

Limits and continuity of functions, sequences, series tests, absolute convergence, uniform convergence. Power series, improper integrals, uniform continuity, fundamental theorems on continuous functions, theory of the Riemann integral. Prerequisite: 2.0 in MATH 327. Offered: AWSpS.

MATH 334 Accelerated [Honors] Advanced Calculus (5) NW

Introduction to proofs and rigor; uniform convergence, Fourier series and partial differential equations, vector calculus, complex variables. Stu-

dents who complete this sequence are not required to take MATH 300, 308, 309, 324, 326, 327, 328, and 427. Second year of an accelerated two-year sequence; prepares students for senior-level mathematics courses. Prerequisite: either 2.0 in MATH 136 or 2.0 in MATH 126, 2.0 in MATH 307, and 2.0 in either MATH 205 or MATH 308. Offered: A.

MATH 335 Accelerated [Honors] Advanced Calculus (5) NW

Introduction to proofs and rigor; uniform convergence, Fourier series and partial differential equations, vector calculus, complex variables. Students who complete this sequence are not required to take 309, 324, 326, 327, 328, and 427. Second year of an accelerated two-year sequence; prepares students for senior-level mathematics courses. Prerequisite: 2.0 in MATH 334. Offered: AWSpS.

MATH 336 Accelerated [Honors] Advanced Calculus (5) NW

Introduction to proofs and rigor; uniform convergence, Fourier series and partial differential equations, vector calculus, complex variables. Students who complete this sequence are not required to take 309, 324, 326, 327, 328, and 427. Second year of an accelerated two-year sequence; prepares students for senior-level mathematics courses. Prerequisite: 2.0 in MATH 335. Offered: Sp.

MATH 340 Abstract Linear Algebra (3) NW

Linear algebra from a theoretical point of view. Abstract vector spaces and linear transformations, bases and linear independence, matrix representations. Jordan canonical form, linear functionals, dual space, bilinear forms, and inner product spaces. Prerequisite: either 2.0 in MATH 205, 2.0 in MATH 308, or 2.0 in MATH 136.

MATH 354 Math Enrichment for the Schools (5) NW

Map and graph coloring, spanning trees, dominating sets, cryptography, interpretation of graphs, circular motion, statistics that mislead, other topics. Focus on middle school level, with sixth or seventh grade classroom visits lasting all Tuesday morning in alternate weeks. Discussion of readings on math education reform. Prerequisite: MATH 126. Offered: A.

MATH 355 Math Enrichment for the Schools (5) NW

Map and graph coloring, spanning trees, dominating sets, cryptography, interpretation of graphs, circular motion, statistics that mislead, other topics. Focus on middle school level, with sixth or seventh grade classroom visits lasting all Tuesday morning in alternate weeks. Discussion of readings on math education reform. Prerequisite: MATH 354. Offered: W.

MATH 381 Discrete Mathematical Modeling (3) NW

Introduction to methods of discrete mathematics, including topics from graph theory, network flows, and combinatorics. Emphasis on these tools to formulate models and solve problems arising in variety of applications, such as computer science, biology, and management science. Prerequisite: either 2.0 in MATH 136, 2.0 in MATH 308, or 2.0 in MATH 318.

MATH 382 Mathematical Modeling (3) NW

Continuation of MATH 381. Prerequisite: either 2.0 in MATH 309 or 2.0 in AMATH 351; MATH 381.

MATH 387 Intermediate Mathematics Computer Laboratory (1/2, max. 6) NW

Laboratory activities in the use of computing as tool for doing mathematics, to be taken jointly with a designated section of a 300-level mathematics course. Credit/no credit only.

MATH 390 Probability and Statistics in Engineering and Science (4) NW

Concepts of probability and statistics. Conditional probability, independence, random variables, distribution functions. Descriptive statistics, transformations, sampling errors, confidence intervals, least squares and maximum likelihood. Exploratory data analysis and interactive computing. Students may receive credit for only one of 390, STAT/ECON 481, and ECON 580. Prerequisite: either MATH 126 or MATH 136. Offered: jointly with STAT 390; AWSpS.

MATH 394 Probability I (3) NW Sample spaces; basic axioms of probability; combinatorial probability; conditional probability and independence; binomial, Poisson, and normal distributions. Prerequisite: either 2.0 in MATH 126 or 2.0 in MATH 127; recommended: MATH 324 or MATH 327. Offered: jointly with STAT 394; AWS.

MATH 395 Probability II (3) NW

Random variables; expectation and variance; laws of large numbers; normal approximation and other limit theorems; multidimensional distributions and transformations. Prerequisite: STAT/MATH 394. Offered: jointly with STAT 395; WSpS.

MATH 396 Probability III (3) NW

Characteristic functions and generating functions; recurrent events and renewal theory; random walk. Prerequisite: 2.0 in MATH 395 or 2.0 in STAT 511. Offered: jointly with STAT 396; Sp.

MATH 398 Special Topics in Mathematics (1-5, max. 15)

Independent reading in math. Does not count as credit toward a math major. Credit/no credit only. Offered: AWSpS.

MATH 402 Introduction to Modern Algebra (3) NW

Algebraic systems; elementary theory of groups, rings, and fields; polynomials; topics in linear algebra; reductions of forms. Prerequisite: either 2.0 in MATH 136, 2.0 in MATH 327, or 2.0 in MATH 340. Offered: AS.

MATH 403 Introduction to Modern Algebra (3) NW

Algebraic systems; elementary theory of groups, rings, and fields; polynomials; topics in linear algebra; reductions of forms. Prerequisite: 2.0 in MATH 402. Offered: WS.

MATH 404 Introduction to Modern Algebra (3) NW

Algebraic systems; elementary theory of groups, rings, and fields; polynomials; topics in linear algebra; reductions of forms. Prerequisite: 2.0 in MATH 403. Offered: Sp.

MATH 407 Linear Optimization (3) NW

Maximization and minimization of linear functions subject to constraints consisting of linear equations and inequalities; linear programming and mathematical modeling. Simplex method, elementary games and duality. Prerequisite: either 2.0 in MATH 136, 2.0 in MATH 308, or 2.0 in AMATH 352. Offered: AWS.

MATH 408 Nonlinear Optimization (3) NW

Maximization and minimization of nonlinear functions, constrained and unconstrained; nonlinear programming problems and methods. Lagrange multipliers; Kuhn-Tucker conditions, convexity. Quadratic programming. Prerequisite: 2.0 in MATH 308; 2.0 in MATH 327. Offered: W.

MATH 409 Discrete Optimization (3) NW

Maximization and minimization problems in graphs and networks (shortest paths, minimum spanning trees, maximum flows, minimum cost flows); transportation and trans-shipment problems, NP-completeness. Prerequisite: 2.0 in MATH 407. Offered: Sp.

MATH 411 Introduction to Modern Algebra for Teachers (3) NW

Basic concepts of abstract algebra with an emphasis on problem solving, constructing proofs, and communication of mathematical ideas. Designed for teaching majors; not open for credit to students who have taken 402, 403. Prerequisite: either 2.0 in MATH 205, 2.0 in MATH 308, or 2.0 in MATH 136. Offered: AS.

MATH 412 Introduction to Modern Algebra for Teachers (3) NW

Basic concepts of abstract algebra with an emphasis on problem solving, constructing proofs, and communication of mathematical ideas. Designed for teaching majors; not open for credit to students who have taken 402, 403. Prerequisite: 2.0 in MATH 411. Offered: WS.

MATH 414 Number Theory (3) NW Congruences, arithmetic of quadratic fields, binary quadratic forms, Dirichlet's theorem on primes in an arithmetic progression, Chebyshev's theorem on distribution of primes, the partition function, equations over finite fields. Prerequisite: either 2.0 in MATH 301 or 2.0 in MATH 402.

MATH 415 Number Theory (3) NW Congruences, arithmetic of quadratic fields, binary quadratic forms, Dirichlet's theorem on primes in an arithmetic progression, Chebyshev's theorem on distribution of primes, the partition function, equations over finite fields. Prerequisite: 2.0 in MATH 414.

MATH 420 History of Mathematics (3) NW Survey of the development of mathematics from its earliest beginnings through the first half of the twentieth century. Prerequisite: either 2.0 in MATH 402 or 2.0 in MATH 411, either of which may be taken concurrently. Offered: S.

MATH 424 Fundamental Concepts of Analysis (3) NW Sets, real numbers, topology of metric spaces, normed linear spaces, multivariable calculus from an advanced viewpoint. Introduction to Lebesgue measure and integration. Prerequisite: either 2.0 in MATH 328 or 2.0 in MATH 335. Offered: A.

MATH 425 Fundamental Concepts of Analysis (3) NW Sets, real numbers, topology of metric spaces, normed linear spaces, multivariable calculus from an advanced viewpoint. Introduction to Lebesgue measure and integration. Prerequisite: either 2.0 in MATH 326 or 2.0 in MATH 335; 2.0 in MATH 424. Offered: W.

MATH 426 Fundamental Concepts of Analysis (3) NW Sets, real numbers, topology of metric spaces, normed linear spaces, multivariable calculus from an advanced viewpoint. Introduction to Lebesgue measure and integration. Prerequisite: 2.0 in MATH 425. Offered: Sp.

MATH 427 Topics in Applied Analysis (3) NW Elementary functions of a complex variable; Cauchy integral formula. Taylor and Laurent series; conformal mapping. Fourier series; orthogonal functions; boundary value problems; applications. Prerequisite: either 2.0 in MATH 327 or 2.0 in MATH 335; recommended: MATH 328. Offered: AS.

MATH 428 Topics in Applied Analysis (3) NW Elementary functions of a complex variable; Cauchy integral formula. Taylor and Laurent series; conformal mapping. Fourier series; orthogonal functions; boundary value problems; applications. Prerequisite: either 2.0 in MATH 335, or 2.0 in MATH 309 and 2.0 in MATH 327. Offered: W.

MATH 429 Topics in Applied Analysis (3) NW Elementary functions of a complex variable; Cauchy integral formula. Taylor and Laurent series; conformal mapping. Fourier series; orthogonal functions; boundary value problems; applications. Prerequisite: either 2.0 in MATH 427 or 2.0 in MATH 336; 2.0 in MATH 428. Offered: Sp.

MATH 435 Introduction to Dynamical Systems (3) NW Examples of dynamical systems in mathematics and in natural phenomena. Iterated functions, phase portraits, fixed and periodic points. Hyperbolicity, bifurcations. *Chaos*. Interval maps; quadratic families. Fractals; iterated function systems. Elements of higher dimensional dynamics. Julia sets, the Mandelbrot set. Prerequisite: 2.0 in MATH 335 or 2.0 in MATH 327; either 2.0 in MATH 309 or 2.0 in AMATH 352 and 2.0 in AMATH 353.

MATH 436 Introduction to Dynamical Systems (3) NW Examples of dynamical systems in mathematics and in natural phenomena. Iterated functions, phase portraits, fixed and periodic points. Hyperbolicity, bifurcations. *Chaos*. Interval maps; quadratic families. Fractals; iterated function systems. Elements of higher dimensional dynamics. Julia sets, the Mandelbrot set. Prerequisite: 2.0 in MATH 435.

MATH 441 Topology (3) NW Metric and topological spaces, convergence, continuity, finite products, connectedness, and compactness. Prerequisite: either 2.0 in MATH 328 or 2.0 in MATH 335. Offered: A.

MATH 442 Differential Geometry (3) NW Curves in 3-space, continuity and differentiability in 3-space, surfaces, tangent planes, first fundamental form, area, orientation, the Gauss Map. Prerequisite: either 2.0 in MATH 335, or 2.0 in MATH 326 and 2.0 in MATH 328 and 2.0 in either MATH 308 or 2.0 in MATH 318. Offered: W.

MATH 444 Geometry for Teachers (3) NW Concepts of geometry from multiple approaches; discovery, formal and informal reasoning, transformations, coordinates, exploration using computers and models. Topics selected from Euclidean plane and space geometry, spherical geometry, non-Euclidean geometries, fractal geometry. Designed for teaching majors. Prerequisite: either 2.0 in MATH 126 or 2.0 in MATH 127. Offered: AS.

MATH 445 Geometry for Teachers (3) NW Concepts of geometry from multiple approaches; discovery, formal and informal reasoning, transformations, coordinates, exploration using computers and models. Topics selected from Euclidean plane and space geometry, spherical geometry, non-Euclidean geometries, fractal geometry. Designed for teaching majors. Prerequisite: 2.0 in MATH 444. Offered: WS.

MATH 461 Combinatorial Theory (3) NW Selected topics from among: block designs and finite geometries, coding theory, generating functions and other enumeration methods, graph theory, matroid theory, combinatorial algorithms, applications of combinatorics. Prerequisite: either 2.0 in MATH 308 or 2.0 in MATH 318.

MATH 462 Combinatorial Theory (3) NW Selected topics from among: block designs and finite geometries, coding theory, generating functions and other enumeration methods, graph theory, matroid theory, combinatorial algorithms, applications of combinatorics. Prerequisite: 2.0 in MATH 461.

MATH 464 Numerical Analysis I (4) NW Basic principles of numerical analysis, classical interpolation and approximation formulas, finite differences and difference equations. Numerical methods in algebra, systems of linear equations, matrix inversion, successive approximations, iterative and relaxation methods. Numerical differentiation and integration. Solution of differential equations and systems of such equations. Prerequisite: either 2.0 in MATH 136, 2.0 in MATH 308 and 2.0 in MATH 327, or 2.0 in MATH 335; 2.0 in CSE/ENGR 142. Offered: A.

MATH 465 Numerical Analysis II (4) NW Basic principles of numerical analysis, classical interpolation and approximation formulas, finite differences and difference equations. Numerical methods in algebra, systems of linear equations, matrix inversion, successive approximations, iterative and relaxation methods. Numerical differentiation and integration. Solution of differential equations and systems of such equations. Prerequisite: 2.0 in MATH 464. Offered: W.

MATH 487 Advanced Mathematics Computer Laboratory (1/2, max. 6) NW Laboratory activities in the use of computing as a tool for doing mathematics, to be taken jointly with a designated section of a 400-level mathematics course. Credit/no credit only.

MATH 491 Introduction to Stochastic Processes (3) NW Random walks, Markov chains, branching processes, Poisson process, point processes, birth and death processes, queueing theory, stationary processes. Prerequisite: 2.0 in MATH/STAT 396. Offered: jointly with STAT 491; A.

MATH 492 Introduction to Stochastic Processes (3) NW Random walks, Markov chains, branching processes, Poisson process, point processes, birth and death processes, queueing theory, stationary processes. Prerequisite: 2.0 in MATH/STAT 491. Offered: jointly with STAT 492; W.

MATH 496 Honors Senior Thesis (1-5) NW Problem seminar for honors students. Cannot be repeated for credit. Offered: AWSp.

MATH 497 Special Topics in Mathematics for Teachers (2-9, max. 9) NW Study of selected areas of mathematics. Designed for the improvement of teachers of mathematics. Offered: jointly with EDC&I 478.

MATH 498 Special Topics in Mathematics (1-5, max. 15) Reading and lecture course intended for special needs of advanced students. Offered: AWSp.

MATH 499 Undergraduate Research (8) Summer research opportunity for undergraduates. Credit/no credit only. Offered: S.

Microbiology

G315 Health Sciences



General Catalog Web page:
www.washington.edu/students/genocat/academic/MicrobiologyAS.html



Department Web page:
depts.washington.edu/micro/

Microbiology is a natural science that deals with microorganisms such as bacteria, fungi, protozoa, algae, and viruses. It is concerned with the nature and properties of these organisms, their effects on humans and the environment, and how they can be exploited to provide useful products.

Undergraduate Program

Adviser
Sarah Mears
G315 Health Sciences, Box 357242
(206) 543-2572
advmicro@u.washington.edu

The microbiology baccalaureate degree program leads to a Bachelor of Science and offers students an excellent education in the biology of microorganisms, namely bacteria, fungi, protozoa, and viruses. Through learning about the biology of these microorganisms and viruses, students can more fully understand the pivotal position they occupy in establishing and maintaining our biosphere, their effects on human and plant life, and how the biological properties of certain microbes are exploited for certain purposes. Microorganisms are important in drinking water, wastewater and sewage treatment, production and spoilage of foods, production of antibiotics, bioremediation of toxic compounds, and genetic engineering of organisms having unique characteristics. Insight into strategies used by microorganisms and viruses to cause disease and the mechanisms used by their host to defend themselves are presented. The opportunity to learn practical state-of-the-art laboratory techniques and skills, and to participate in a research program is one of the cornerstones of the program.

The program also offers a minor.

Graduates have found research positions in biotechnology and pharmaceutical companies, as well as in state and government positions hiring microbiologists. Students interested in a health profession or graduate program have benefited from this challenging program.

Bachelor of Science

Admission Requirements:

1. A minimum of 75 credits applicable to graduation, with a minimum cumulative GPA of 2.25 in prerequisite chemistry and biology courses.
2. Students should complete the following prerequisite courses before applying for admission: BIOL 201, 202, 203; CHEM 142, 152, 162; CHEM 223, 224, or 237, 238, 239.

Suggested Introductory Course Work: PHYS 114, 115, 116, or PHYS 121/131, 122/132, 123/133; one of the following: MATH 112, 124, 127, 144, Q SCI 381, or STAT 311.

Additional Information: The first microbiology course for majors is MICROM 410, taken after the student has completed introductory biology and organic chemistry. MICROM 101, 301, and 302 (courses most commonly offered at community colleges) may not be used toward the graduation requirements for a degree in microbiology. To graduate in four years, the student must complete introductory biology and organic chemistry before autumn quarter of the junior year.

Major Requirements: Minimum 90 credits (including microbiology courses) in the biological, physical, and mathematical sciences, as follows: BIOL 201, 202, 203 or equivalent (15 credits/one year); MICROM 402, 410, 411, 412, 431, 441, 442, 443, 496, and 445 or 450; and approved microbiology electives (36 credits, not to include MICROM 301, 302, 331); CHEM 142, 152, 162 (16 credits) (or CHEM 145, 155); CHEM 223, 224 (8 credits) (or 237, 238, 239; or 335, 336, 337); PHYS 114, 115 (8 credits) (or 121/131, 122/132) (PHYS 116 or 123/133 recommended); either MATH 112, 124, 127, 144, Q SCI 381, or STAT 311 (5 credits); BIOC 405, 406 (6 credits) (or 440, 441, 442). In all required and elective microbiology courses used toward graduation, a minimum 2.25 cumulative GPA and a minimum grade of 1.8 in each course. Transfer students must complete at least 20 of the required and elective microbiology credits at the UW.

Minor

Minor Requirements: 30 credits to include 15 credits in biology and chemistry (BIOL 201 or 101-102 or equivalent; CHEM 237 or 220, 221 or equivalent) and 15 credits in 400-level, graded microbiology courses, including at least one lab course (MICROM 402 or 431 or 443; 302 also acceptable), and both MICROM 410 and 496. Minimum cumulative 2.00 GPA for all courses used toward the minor.

Graduate Program

For information on the Department of Microbiology graduate program, see the graduate and professional volume of the *General Catalog* or visit the *General Catalog* online at www.washington.edu/students/gencat/.

Music

102 Music



General Catalog Web page:
www.washington.edu/students/gencat/academic/music.html



Department Web page:
depts.washington.edu/musicweb/

The School of Music prepares students for careers as composers, performers, teachers, or researchers. It also offers general courses to nonmajors, designed to enhance the student's understanding of the art of music.

Undergraduate Program

Adviser
Beth Miguel-Alipio
116 Music, Box 353450
(206) 543-1239
musicadv@u.washington.edu

Undergraduate programs include four-year programs leading to either the Bachelor of Arts or Bachelor of Music degrees, and five-year programs leading to the concurrent Bachelor of Arts and Bachelor of Music double degrees. A minor in music is also offered. An undergraduate music-related degree program in ethnomusicology is offered through General Studies. See music or general studies adviser for details. Graduate programs lead to the degrees of Master of Arts, Master of Music, Doctor of Musical Arts, and Doctor of Philosophy.

Student Associations:

Ethnomusicology Student Association: A student association which deals with the concerns of the ethnomusicology division, as well as meeting socially. For further information, contact the division at (206) 543-0949 or 64 Music Building.

Music Educators National Conference (MENC): A local chapter of this national scholarly organization of music educators is directly involved in annual state and regional meetings and events. Contact Professor Patricia Campbell (pcamp@u.washington.edu) for further details.

Music Student Association (MSA): A group of undergraduate and graduate students from various divisions of the School of Music, working to foster a stronger sense of professional community, serve the larger cultural community, and build practical tools for encouraging and promoting student musicians' endeavors. For more information, contact sonare@u.washington.edu.

Mu Phi Epsilon: An international honors music society whose purpose is to promote musicianship, scholarship and friendship. For more information, check the Mu Phi bulletin board on the main floor of the Music Building, or drop a note in the Mu Phi mailbox in the lounge.

Society for Ethnomusicology: The Northwest Chapter of this national organization meets annually in the spring and provides a forum for presentation of scholarly papers and new research. For more information, contact the ethnomusicology division at (206) 543-0949, 64 Music Building.

Major

Admission Requirements

All students must audition and qualify at the 320 level or better in their principal performance areas in order to be admitted as music majors and to receive private instruction. Major status in performance areas is accorded when, after admission to the College of Arts and Sciences is acknowledged and the required School of Music audition is successfully completed, the student commences applied-music study in a performance medium (e.g., voice) with an approved faculty member of the School of Music. Subsequent juries are required for additional qualification for specific performance-program emphases and for the Bachelor of Music performance programs. In Music History, Music Education, and Composition, additional entrance requirements apply, and the faculty members of the particular divisions determine the status of individuals accepted.

All music programs require instruction on an instrument. Auditions into freshman-level applied-music instruction (private lessons) are based on the assumption that a student's background includes four to eight years of private study on an instrument. Completion of a further two years of college-level pri-

vate instruction does not automatically guarantee entry at the junior level of private instruction; placement is determined by an audition.

Most degree programs in the School of Music require one to two years of basic piano.

Continuation of Major Status

Performance studies should begin after audition and acceptance, and continue each subsequent quarter of registration until the minimum program requirements for applied-music lessons have been met. Applied-music study should continue as long as the student is registered and in residence until the final approved recital is given. In order to retain major standing, the student must make and demonstrate consistent and acceptable progress at the annual required jury. Concurrent enrollment or participation in at least one School of Music ensemble is required during each quarter in which a student receives "MUSAP" applied-music instruction. Also, basic piano proficiency is required for all majors. Non-keyboard majors must enroll in the MUSAP 133-235 series until appropriate proficiency is attained. Any departure from the above requirements must have the recommendation of the appropriate divisional chair and the written consent of the Director of the School of Music.

Grade Point Requirements

In all options, undergraduate music majors are required to earn a minimum grade of 2.0 in each course (core and elective) counted toward music major requirements. An overall minimum GPA in music course work required for graduation is 2.50 for the B.A. or B.A.-B.Mus. double degree programs, and 3.20 for the B.Mus. program.

Pre-Core Preparation

In preparation for beginning the music core course work, all students must be evaluated by placement test to determine their levels in music theory and music history. Students who have minimal background in these areas may be required to take MUSIC 113/119 and 120 before beginning the music core.

Music Core Requirements

The music core (36 credits), required in each of the undergraduate program tracks, is as follows: MUSIC 201/204, 202/205, 203/206 (12 credits); MUSIC 301/304, 302/305, 303/306 (12 credits); MUHST 210, 211, 212 (9 credits); MUSIC 250 (3 credits).

Minor

Minor Requirements: A minimum of 25 credits of music courses (MUSIC, MUHST, MUSEN, MUSAP, or MUSED prefixes). Maximum 10 credits at the 100 level, minimum 15 credits at the 200 level or above including:

1. At least 4 credits from courses dealing with the elements of music (chosen from MUSIC 116, 117, 118, 113/119, or 120).
2. 5 credits from courses for nonmajors that focus on a particular music area (MUSIC 121, 122, 160, 162, 316, 317, 318, 319, 331).
3. Maximum 10 transfer credits (including maximum 5 transfer credits in performance lessons and ensembles) may count toward the minor.

Bachelor of Arts

General Requirements: A minimum of 180 credits, of which 90 must be taken in departments other than the School of Music. Piano proficiency at MUSAP 135 level. All College of Arts and Sciences graduation requirements must be met. Cumulative GPA of 2.50 for all music courses and a minimum grade of 2.0 for each music course.

Major Requirements

Music Theory-History Option: Music core, plus 6 credits of 300-level MUHST electives, 6 credits of 400-level MUSIC or MUHST electives, 10 credits of MUSAP vocal or instrumental private applied instruction, 5 credits of MUSEN (ensembles), for a minimum of 63 credits.

Vocal or Instrumental Option: Music core, plus 6 credits of approved upper-level MUSIC or MUHST electives to include 3 credits of MUHST at the 300 level, 18 credits of MUSAP vocal or instrumental private applied instruction, and 9 credits in ensembles, for a minimum of 69 credits.

Bachelor of Music

Admission Requirements: The Bachelor of Music majors are intended for specially qualified students who wish to emphasize professional training in performance or composition within a four-year program. Students should see the undergraduate adviser regarding special admission procedures for this program. Admission to the B.Mus. degree programs is accomplished by jury and special recommendation during the sophomore year.

General Requirements: A minimum of 180 credits, of which at least 60 must be taken in departments other than the School of Music. All College of Arts and Sciences degree requirements must be met (including Language Skills and Reasoning and Writing in Context), except that students need take only 60 credits in Areas of Knowledge, to include at least 20 credits each in two of the following three areas: Visual, Literary, & Performing Arts; Individuals & Societies; and the Natural World. Of the 120 credits allowed in the School of Music, 100 may be in the major, but the additional 20 must be outside the primary area of the major (e.g., for applied-music majors, 20 credits in non-performance areas). Piano proficiency at MUSAP 235 level, a minimum grade of 2.0 in each music course counted toward the major, and a GPA of 3.20 in all music courses.

Applied Music Major Requirements

Guitar, Orchestral Instruments, Organ, Piano, Strings, and Voice: Music core (36 credits) plus 9-15 credits of division-approved upper-level MUSIC or MUHST electives to include 3 credits (6 credits for strings) of MUHST at the 300 level; 36 credits of MUSAP applied instruction; 1-2 credits of recitals; and 10-12 credits of MUSEN ensembles. Total major credits are 117-120. See the music undergraduate adviser for additional specific requirements in each area.

Composition: Music core (36 credits) plus 9 credits of division-approved upper-level electives to include 3 credits of MUHST at the 300 level; MUSIC 380, 381, 382, 395, 490, 471 or 472 (12 credits); 36 credits of private instruction in composition, 18 credits of MUSAP private applied-music instruction, and 9 credits of MUSEN ensembles, for a total of 120 credits.

Jazz Studies: Music core (36 credits) plus 9 credits of division-approved upper-level MUSIC or MUHST electives (see adviser for approved list); MUSIC 331 or 319, 425, 336, 436, 467, 468, 469, 379, 479 (15-18 credits); 6 credits of MUSIC 464; 10-12 credits of approved MUSIC electives; 30 credits of MUSAP private applied-music instruction; 12 credits of MUSEN ensembles. See the music undergraduate adviser for special requirements in this program.

Bachelor of Arts and Bachelor of Music (Concurrent)

General Requirements: A minimum of 225 credits, of which 90 must be in areas other than music; all College of Arts and Sciences graduation requirements must be met. Of the remaining 135 credits, 115 may be in the major within the School of Music, but the additional 20 must be outside the primary area of the major (e.g., for applied-music majors, in non-performance music areas).

Major Requirements: 2.50 GPA in all music courses, minimum grade of 2.0 in each music course counted toward the major, and piano proficiency at MUSAP 235 level. See the music undergraduate adviser for special requirements in ensembles, and for approved electives lists for each option.

Performance Options

Composition

Music core (36 credits) plus 15 credits of division-approved upper-level MUSIC or MUHST electives to include 3 credits of MUHST at the 300 level; MUSIC 380, 381, 382, 395, 490, 471 or 472 (12 credits); 36 credits of private instruction in composition; 18 credits of MUSAP applied-music instruction; and 12 credits of MUSEN ensembles, for a total of 129 credits.

Guitar

Music core (36 credits) plus 9 credits of division-approved upper-level MUSIC or MUHST electives to include 3 credits of MUHST at the 300 level; MUSIC 380, 381, 382, 326, 327, 328, 434, 435, 436, 487 or 438, 379, 479 (20 credits); 45 credits of MUSAP 338/438 applied instruction in guitar; 12 credits of MUSEN ensembles; 6 credits of additional music electives, for a total of 128 credits.

Jazz Studies

Music core (36 credits) plus 9 credits of division-approved upper-level MUSIC or MUHST electives (see adviser for approved list); MUSIC 331 or 319, 425, 336, 436, 467, 468, 469, 379, 479 (15-17 credits); 6 credits of MUSAP 233, 234, 235 or 301; 6 credits of MUSIC 464; 4-6 credits of approved MUSIC electives; 39 credits of MUSAP applied-music instruction; 15 credits of MUSEN ensembles.

Orchestral Instrument

Music core (36 credits) plus 12 credits of division-approved upper-level MUSIC or MUHST electives to include 3 credits of MUHST at the 300 level; MUSIC 380, 381, 382, 379, 479 (5 credits); 6 credits of MUSAP 233, 234, 235 or 301; 45 credits of MUSAP applied instruction on an orchestral instrument; 21 credits of MUSEN ensembles.

Organ

Music core (36 credits) plus 9 credits of division-approved upper-level MUSIC or MUHST electives to include 3 credits of MUHST at the 300 level; MUSIC 350, 351, 352, 454, 458, 459, 473, 474, 487, 479, and one 3-credit advanced-analysis course (25 credits); 45 credits of MUSAP 322/ 422 applied instruction in organ; 15 credits of MUSEN ensembles; 5 credits of additional music electives; piano proficiency at MUSAP 321 level or 6 credits of MUSAP 301. An optional junior recital is encouraged in preparation for senior recital.

Piano

Music core (36 credits) plus 9 credits of division-approved upper-level MUSIC or MUHST electives to include 3 credits of MUHST at the 300 level; MUSIC 326, 327, 328, 434, 435, 436, 487, 479, and one 3-credit advanced-analysis course (19 credits); 45 credits of MUSAP 321/421 applied instruction in piano; 15 credits of MUSEN ensembles; 11 credits of electives other than performance. An optional junior recital is encouraged in preparation for senior recital.

String Instrument

Music core (36 credits) plus 15 credits of division-approved upper-level MUSIC or MUHST electives to include 6 credits of MUHST at the 300 level; MUSIC 326, 327, 328, 329, 380, 434, 435, 436, 379, 479 (18 credits); 45 credits of MUSAP applied instruction on string instrument; 15-21 credits of MUSEN ensembles.

Voice

The voice faculty strongly recommends emphasis in languages, especially Italian, which may also be used for the Language Skills requirement. SPHSC 300 is strongly recommended for 5 credits of the Natural World, and some course work in acting is also strongly recommended (e.g., MUSIC 465).

Music core (36 credits) plus 12 credits of division-approved upper-level electives; MUSIC 307, 308, 309; 326, 327, 379, 479 (12 credits); 8 credits of advanced vocal repertoire; 45 credits of MUSAP applied instruction in voice; 13 credits of MUSEN ensembles; and 6 credits of music electives.

Academic Options

Music History

Admission Requirements: Formal application to music history division, to include verified completion of music core, 3.00 GPA in music core courses, 3.00 overall GPA, and a writing sample. Completion of minimum entrance requirements does not guarantee admission. The program of study and preparation of the senior thesis is developed in consultation with a music-history faculty adviser. Students who intend to pursue graduate studies are strongly advised to establish proficiency in German or French and to acquire some acquaintance with one or two additional foreign languages.

Major Requirements: Music core (36 credits) plus 6 credits of 300-level MUHST electives; 36 credits of 400-level MUSIC or MUHST (minimum 12 courses); a 3-credit 400-level course in ethnomusicology; 3 credits of MUSIC 498; 18 credits of MUSAP applied instruction (3 years); 9 credits of MUSEN ensembles; and 24 credits of music electives.

Music Education

Instrumental or Choral General Emphasis leading to K-12 certification

Admission Requirements: Acceptance to program is by both performance audition and a Music Education Entrance Examination. Piano proficiency at MUSAP 135 level for Instrumental concentration or MUSAP 235 level for Choral concentration. Application to the Music Teacher Education Program is made to the music education faculty two quarters before part-time student teaching. (Non-native speakers of English are required to demonstrate language proficiency by successfully passing the SPEAK test with a score of 2.0 out of a possible 3.0 in each area of the test and a minimum of 2.2 in the pronunciation section, prior to full acceptance to the Music Education Program.)

Major Requirements: Music core (36 credits) plus 6-10 credits of division-approved upper-level electives; MUSIC 350, 351, 352 (or 380, 381, 382), MUSED 301, 302, 340, 403, 440, 443, 452, 465 (20 credits); MUSIC 400; 9 credits from a combination of MUSED 304, 305, 306, and 442 or 432; 10-14 credits of applied techniques classes; 18 credits of MUSAP applied instruction; 7 credits of MUSEN ensembles; 3 credits of jazz studies; 2 credits of MUSAP 389; EDLPY 479, EDPSY 304, EDC&I 494 (9 credits). (15 credits of MUSIC 404, full-time student teaching, is required for certification, but not graduation. See the School of Music undergraduate adviser for special requirements in ensembles and techniques classes, and for approved electives lists for each choral and instrumental option. Due to changes in state-mandated requirements, additional courses may be required for certification. For current certification requirements, always consult the music adviser and members of the music education faculty.)

Graduate Program

For information on the School of Music's graduate program, see the graduate and professional volume of the *General Catalog* or visit the *General Catalog* online at www.washington.edu/students/genocat/.

Faculty

Chair

Robin L. McCabe

Professors

Beale, James M. * 1948, (Emeritus); MMus, 1947, Yale University; theory/composition.

Bernard, Jonathan W. * 1987; MA, 1973, MPhil, 1975, PhD, 1977, Yale University; theory and analysis of twentieth-century music.

Bozarth, George S. Jr. * 1982; MFA, 1973, PhD, 1978, Princeton University; music history and literature, Brahms.

Campbell, Patricia S. * 1989; MM, 1975, University of Akron; PhD, 1981, Kent State University; music and child development, multicultural music education, comparative music education.

Carlsen, James C. * 1967, (Emeritus); MA, 1958, Washington University; PhD, 1962, Northwestern University; systematic musicology, psychomusicology, research methodology, theories of music instruction.

Chaloupka, Vladimir * 1981, (Adjunct); PhD, 1975, University of Geneva (Switzerland); experimental elementary-particle physics.

Curtis-Verna, Mary * 1969, (Emeritus); BA, 1943, Hollins College (Virginia); voice.

Dahlstrom, Robert A. * 1971, (Adjunct); MA, 1967, University of Illinois; scene design.

Dempster, Stuart R. * 1968, (Emeritus); MA, 1967, San Francisco State; trombone, contemporary music.

Eros, Peter S. * 1989; Diploma, 1956, Franz Liszt Academy; orchestra and opera.

Grossman, Arthur * 1968; Diploma, 1955, Curtis Institute of Music; bassoon.

Heinitz, Eva M. 1948, (Emeritus); studied at State Academy of Music (Berlin); violoncello.

Hokanson, Randolph H. * 1949, (Emeritus); studied with Dame Myra Hess, Howard Ferguson (London); piano.

Jacobs, Sue-Ellen * 1974, (Adjunct); PhD, 1970, University of Colorado (Boulder); anthropological studies of women, applied anthropology, ethnohistory, Native North America.

Jenkins, Speight 1991, (Affiliate); BA, 1957, University of Texas (Austin); LLB, 1961, Columbia University.

Kaplan, Abraham * 1977; Diploma, 1957, Juilliard School; choral conducting.

Kappy, David L. * 1979; MM, 1971, University of Wisconsin; French horn performance, chamber music, and theory.

Karpen, Richard S. * 1989; MA, 1986, DMA, 1989, Stanford University; composition, computer music, and music theory.

Kechley, Gerald * 1955, (Emeritus); MA, 1950, University of Washington; theory/composition.

Kind, Silvia E. 1969, (Emeritus); Konzert-Reife-Prufung, 1934, Hochschule für Musik (Germany); harpsichord.

Lundquist, Barbara R. * 1973, (Emeritus); MS, 1959, Montana State University; DMA, 1973, University of Washington; music education, sociomusicology, ethnomusicology in schools.

McCabe, Robin L. 1987; MMus, 1973, DMA, 1976, Juilliard School; concert piano performance, communication skill, pedagogy.

McColl, William D. * 1968; Diploma, 1955, State Academy of Music (Austria); clarinet.

Moore, John T. 1948, (Emeritus); MM, 1941, University of Illinois; piano.

Patrick, Julian * 1990; BA, 1950, Cincinnati Conservatory; music, opera, song literature, musical theater, legitimate theater, teaching voice.

Patterson, Ronald G. 1999; violin teaching and performance, chamber music, orchestral studies.

Rahn, John * 1975; MFA, 1972, PhD, 1974, Princeton University; theory/composition.

Sakata, Hiromi L. * 1977, (Affiliate); MA, 1968, PhD, 1976, University of Washington; ethnomusicology.

Saks, Toby * 1976; MS, 1966, Juilliard School; performance and teaching of violoncello and chamber music.

Salzman, Timothy O. * 1987; MM, 1979, Northern Illinois University; wind ensemble conducting, pedagogy and repertoire.

Schwarz, Gerard 1988, (Affiliate); MS, 1972, MM, 1972, Juilliard.

Siki, Bela * 1985, (Emeritus); Diploma, 1948, Conservatoire de Musique (Switzerland); piano literature with special interest in interpretation and performance.

Skowronek, Felix E. * 1968; BMus, 1956, Curtis Institute of Music; flute.

Smith, William O. * 1966, (Emeritus); MA, 1952, University of California (Berkeley); theory/composition.

Sokol, Vilem 1961, (Emeritus); BMus, 1938, MMus, 1946, Oberlin College; violin, viola, conducting.

Starr, Lawrence * 1977; PhD, 1973, University of California (Berkeley); music history and literature.

Staryk, Steven S. * 1987, (Emeritus); studied at the Royal Conservatory of Music (Toronto); violin.

Storch, Laila * 1968, (Emeritus); BA, 1964, Wilkes College; oboe.

Terry, Carole R. * 1979; MM, 1973, University of Rochester; DMA, 1977, Stanford University; organ, harpsichord.

Thome, Diane * 1977; MA, 1966, University of Pennsylvania; PhD, 1973, Princeton University; theory/composition, computer music.

Tufts, Paul Dewitt 1961, (Emeritus); MA, 1951, University of Washington; theory/composition.

Verrall, John 1948, (Emeritus); BA, 1934, University of Minnesota; Cert of Music, 1932 Liszt Conservatory (Budapest); theory/composition.

Winn, William David * 1985, (Adjunct); PhD, 1972, Indiana University; educational technology, instructional theory, instructional design, visual information processing.

Zsigmondy-Liedemann, Denes 1973, (Emeritus); BA, 1940, Gymnasium, Budapest (Hungary); violin.

Associate Professors

Benshoof, Kenneth 1963, (Emeritus); MA, 1963, San Francisco State; theory/composition.

Demorest, Steven M. * 1993; MM, 1983, Westminster Choir College; PhD, 1989, University of Wisconsin; music education, choral ensembles.

Dunlop, William M. * 1962, (Adjunct); MA, 1965, Cambridge University (UK); Shakespeare, nineteenth-century literature, poetry writing.

Durand, Joel-Francois * 1991; MM, 1984, Musikhochschule, Freiburg (Germany); PhD, 1988, State University of New York (Stony Brook); composition.

Ellingson, Terry J. * 1983; PhD, 1979, University of Wisconsin; MA, 1979, University of Chicago; ethnomusicology.

Geissmar, Else J. 1947, (Emeritus); MM, 1944, University of Michigan; piano.

Jussila, Clyde F. 1971, (Emeritus); MS, 1951, Kansas State University; music education.

Michaelian, Patricia * 1984; Diploma, 1970, Curtis Institute of Music; concert pianist: orchestral soloist, recitalist, and chamber musician.

Pelton, Carmen 1992; BMus, 1977, University of Wisconsin; voice.

Rosinbum, Ralph 1942, (Emeritus); MA, 1948, University of Washington; opera production.

Schuyler, Philip D. 1999; MA, 1974, PhD, 1979, University of Washington; ethnomusicology, ethnography of art.

Seales, Marc A. 1987; BA, 1978, Western Washington University; jazz studies, keyboard.

Taricani, Jo Ann * 1980; PhD, 1986, University of Pennsylvania; music history and literature.

Waterman, Christopher * 1985, (Affiliate); PhD, 1986, University of Illinois; ethnomusicology.

Assistant Professors

Boers, Geoffrey Paul * 1996; MA, 1985, Portland State University; DMA, 1987, University of Arizona; choral music: literature, history, conducting, rehearsal techniques.

Callus, Helen Sarah 1996; MA, 1994, Johns Hopkins University; viola teaching and performance, chamber music.

Dudley, Shannon K. * 1996; MA, 1988, PhD, 1996, University of California (Berkeley); ethnomusicology, steel band.

Henderson, Rebecca A. * 1996; MM, 1985, Eastman School of Music; oboe performance and teaching, chamber music.

Immel, Don T. 1999; MM, 1996, Rice University; trombone performance, soloist, chamber music, jazz and orchestral trombone teaching.

Kopp, David 1997; MA, 1980, State University of New York (Stony Brook); PhD, 1995, Brandeis University; theory, composition.

Morrison, Steven J. * 1997; MM, 1988, University of Wisconsin; PhD, 1995, Louisiana State University; factors in the development of music listening and performance behaviors.

Will, Richard J. * 1993; MA, 1989, PhD, 1994, Cornell University; European music 1700-1850, popular music since 1900.

Zahn, Claudia 1998; BFA, 1976, Carnegie Mellon University; opera production.

Senior Artist in Residence

Sheppard, Craig * 1993; MSc, 1971, Juilliard School; piano.

Lecturers

Brockman, Michael S. 1987; MM, 1982, New England Conservatory of Music (Boston); saxophone performance and teaching, jazz studies, music education.

Collier, Thomas W. 1980; BMus, 1971, BA, 1971, University of Washington; percussion.

Cross, David B. 1993; MM, 1971, Washington State University; vocal jazz ensemble, music education.

Herbolsheimer, Bern H. 1984; MM, 1973, University of Washington; advanced vocal repertoire, vocal accompanying/coaching, composition.

McDavid, J. Bradley 1994; MM, 1970, Arizona State University; conducting athletic band and concert band, music education.

Miller, Douglas 1993; BA, Antioch College (Seattle); jazz bass performance and teaching, jazz studies.

Novacek, Steven A. 1984; BMus, 1975, California State University, Northridge; guitar.

Vokolek, Pamela C. 1968; MM, Cleveland Institute of Music; harp performance and teaching, harp ensemble.

Artists in Residence

Bergman, Lisa E. 1988; BA, 1978, University of Washington; MM, 1980, State University of New York (Stony Brook); MM, 1982, Juilliard School; piano accompanying and vocal (operatic) coaching.

Crusoe, Michael 1990; BMus, 1974, University of Missouri; timpani.

Harper, Thomas 1998; MM, 1976, University of Arkansas (Fayetteville).

Krishnaswami, Rajan S. 1996; MM, 1987, Juilliard School; cello teaching and performance.

Lieberman, Barry 1991; BA, 1971, Cleveland Institute of Music; string bass.

Tindemans, Margaretha E. 1987; Diploma, 1972, Conservatorium (Netherlands); viola da gamba, early music.

Course Descriptions

See page 48 for an explanation of course numbers, symbols, and abbreviations.

For graduate-level course descriptions, see the graduate and professional study volume of the *General Catalog* or visit the online course catalog at www.washington.edu/students/crscat/.

Music

MUSIC 113 Pre-Core Ear Training (0/1, max. 1) VLPA *Bernard, Durand, Karpen, Rahn, Thome* Pre-core course in musicianship. Offered: ASp.

MUSIC 116 Elementary Music Theory (2) VLPA For nonmusic majors. For people with no hands-on music experience. Rudiments of music; notation of time, small pitch structures (e.g., some scales, chords, rhythmic patterns), some analysis. Recommended: some music training including ability to read music.

MUSIC 117 Elementary Music Theory (2) VLPA For nonmusic majors. For students who can read music, having some performance experience. Prerequisite: MUSIC 116.

MUSIC 118 Elementary Music Theory (2) VLPA For nonmusic majors. For students who read music, have some performance experience, are familiar with scales, chords, intervals. Includes analysis composition in various styles. Prerequisite: MUSIC 117.

MUSIC 119 Introduction to Music Theory and Musicianship (3) VLPA *Bernard, Durand, Kopp, Rahn, Thome* Basic elements of music theory: introduction to acoustics, major and minor scales, triads and seventh chords, keys, four-part writing, functional harmony, modes, simple forms, and jazz notation. Offered: A.

MUSIC 120 Survey of Music (5) VLPA Studies in listening, with emphasis on the changing components of Western art music. Illustrated lectures, laboratory section meetings, and presentations by guest artists.

MUSIC 121 The Orchestra (2) VLPA Development of the orchestra and its literature.

MUSIC 122 The Opera (2) VLPA An introduction to opera through selected masterworks, from Monteverdi to the present. Primarily for nonmajors.

MUSIC 137 Class Instruction: Voice (1) VLPA Basic fundamentals of good singing: breathing, diction, voice focus. Materials include mainly early Italian art songs, some English and French songs. Designed primarily for Music Education majors.

MUSIC 138 Class Instruction: Voice (1) VLPA Basic fundamentals of good singing: breathing, diction, voice focus. Materials include mainly early Italian art songs, some English and French songs. Designed primarily for Music Education majors. Prerequisite: MUSIC 137.

MUSIC 139 Class Instruction: Voice (1) VLPA Basic fundamentals of good singing: breathing, diction, voice focus. Materials include mainly early Italian art songs, some English and French songs. Designed primarily for Music Education majors. Prerequisite: MUSIC 138.

MUSIC 160 Anglo-American Folk Music (5) VLPA Genres and styles from earliest roots to the 1960s; Anglo-American ballads, dance music, French and other European immigrant groups.

MUSIC 161 American Musical Theater (5) VLPA Historical and stylistic study of the development of the American musical theater. European roots in opera and operetta. Contributions from jazz and popular music. Selected musicals studied.

MUSIC 162 American Popular Song (5) VLPA Historical, social, and stylistic study of popular idioms from the late nineteenth century to the present. Most attention to contemporary idioms (rock, country-western, soul, disco). Various facets of the industry examined to learn how they influence taste and musical style.

MUSIC 185 The Concert Season (2) VLPA Performances from the School of Music concert season, supplemented by lecture topics related to concert repertoire. Analysis of applicable musical topics appropriate for enhanced appreciation of historical and cultural contexts of works performed. Attendance at ten concerts required.

MUSIC 191 Composition (3, max. 9) VLPA One-hour private instruction and one-hour laboratory session each week. Intended to develop skill in creative musical expression. For composition majors only.

MUSIC 200 Music, Child, and Family (3) VLPA *Campbell* Study of music in childhood as part of socialization and enculturation of the child within family and community. Emphasis given to songs and music listening experiences provided by parents to nurture the child's musical, social, and intellectual development from infancy through middle childhood. For nonmajors.

MUSIC 201 First-Year Theory I (3) VLPA *Bernard, Durand, Kopp, Thome* Core theory sequence for majors. Introduction to modal counterpoint and 16th-century polyphony through the species. Prerequisite: 2.0 in MUSIC 119; recommended: concurrent registration in MUSIC 204. Offered: W.

MUSIC 202 First-Year Theory II (3) VLPA *Durand, Kopp* Core theory sequence for majors. Instruction in tonal harmony and counterpoint. Prerequisite: 2.0 in MUSIC 201; recommended: concurrent registration in MUSIC 205. Offered: Sp.

MUSIC 203 First-Year Theory III (3) VLPA *Durand, Kopp* Core theory sequence for majors. Further instruction in total harmony and counterpoint; introduction to canon, modulation, and classical dance forms. Prerequisite: 2.0 in MUSIC 202; recommended: concurrent registration in MUSIC 206. Offered: A.

MUSIC 204 First-Year Ear Training I (0/1, max. 1) VLPA *Durand, Kopp* Core ear-training sequence for majors. Prerequisite: 2.0 in MUSIC 113. Offered: W.

MUSIC 205 First-Year Ear Training II (0/1, max. 1) VLPA *Durand, Kopp* Core ear-training sequence for majors. Prerequisite: 2.0 in MUSIC 204. Offered: Sp.

MUSIC 206 First-Year Ear Training III (0/1, max. 1) VLPA *Durand, Kopp* Core ear-training sequence for majors. Prerequisite: 2.0 in MUSIC 205. Offered: AWSp.

MUSIC 216 Introductory Composition (2) VLPA For students not majoring in composition. Prerequisite: MUSIC 202.

MUSIC 217 Introductory Composition (2) VLPA For students not majoring in composition. Prerequisite: MUSIC 216.

MUSIC 218 Introductory Composition (2) VLPA For students not majoring in composition. Prerequisite: MUSIC 217.

MUSIC 237 Secondary Class Instruction: Voice (2, max. 6) VLPA Continuation of basic fundamentals of good singing: breathing, diction, voice focus and repertoire. Designed for students not yet prepared for private instruction. For music majors only. Prerequisite: MUSIC 139.

MUSIC 240 Reed-Making Techniques (1, max. 6) VLPA Applies basic reed-making principles and techniques. Individualized instruction allows students of all levels to take the course simultaneously.

MUSIC 250 World Music (3) VLPA/I&S Introduction to world musical traditions, including both sound and socio-cultural dimensions of music. Topics include instruments, rhythm, melody, form, composition, improvisation, music in the family and community, politics, economy, religion, and case studies of major world musical traditions. Prerequisite: MUSIC 201; MUSIC 204.

MUSIC 270 World Popular Music (5) VLPA/I&S A global survey of popular music, including Latin America, Africa, Eastern Europe, the Middle East, Asia, and the Pacific. Emphasis on students' ability to recognize styles and to analyze the social and historical processes that have shaped them.

MUSIC 291 Composition (3, max. 9) VLPA One-hour private instruction and one-hour laboratory session per week. Prerequisite: MUSIC 191.

MUSIC 301 Second-Year Theory (3) VLPA *Bernard, Durand, Kopp, Thome* Core theory sequence for majors. Further study of form and modulation; introduction to chromaticism. Prerequisite: 2.0 in MUSIC 203; 2.0 in MUSIC 206; corequisite: MUSIC 304. Offered: W.

MUSIC 302 Second-Year Theory (3) VLPA *Bernard, Durand, Kopp, Thome* Core theory sequence for majors. Further study of chromaticism, including jazz usages; song form. Prerequisite: 2.0 in MUSIC 301; 2.0 in MUSIC 304; corequisite: MUSIC 305. Offered: Sp.

MUSIC 303 Second-Year Theory (3) VLPA *Bernard, Durand, Kopp, Rahn, Thome* Core theory sequence for majors. Introduction to the theory and analysis of 20th-century music. Prerequisite: 2.0 in MUSIC 302; 2.0 in MUSIC 305; corequisite: MUSIC 306. Offered: A.

MUSIC 304 Second-Year Ear-Training I (0/1, max. 1) VLPA *Bernard, Durand, Kopp, Thome* Core ear-training sequence for majors. Prerequisite: 2.0 in MUSIC 203; 2.0 in MUSIC 206; corequisite: MUSIC 301. Offered: W.

MUSIC 305 Second-Year Ear-Training II (0/1, max. 1) VLPA *Bernard, Durand, Kopp, Thome* Core ear-training sequence for majors. Prerequisite: 2.0 in MUSIC 301; 2.0 in MUSIC 304; corequisite: MUSIC 302. Offered: Sp.

MUSIC 306 Second-Year Ear-Training III (0/1, max. 1) VLPA *Bernard, Durand, Kopp, Rahn, Thome* Core ear-training sequence for majors. Prerequisite: 2.0 in MUSIC 302; 2.0 in MUSIC 305; corequisite: MUSIC 303. Offered: A.

MUSIC 307 Diction for Singers (2) VLPA Application of basic rules of diction, enunciation, and articulation in Italian. Materials include texts from the basic vocal repertoire. Primarily for the voice majors at freshman and sophomore levels; nonmajors on a space-available basis.

MUSIC 308 Diction for Singers (2) VLPA Application of basic rules of diction, enunciation, and articulation in French. Materials include texts from the basic vocal repertoire. Primarily for the voice majors at freshman and sophomore levels; nonmajors on a space-available basis.

MUSIC 309 Diction for Singers (2) VLPA Application of basic rules of diction, enunciation, and articulation in German. Materials include texts from the basic vocal repertoire. Primarily for the voice majors at freshman and sophomore levels; nonmajors on a space-available basis.

MUSIC 316 Music Cultures of the World (5) VLPA/I&S Near East, Central Asia, Far East, South and southeast Asia, Indonesia, and the Philippines.

MUSIC 317 Music Cultures of the World (5) VLPA/I&S Music of sub-Saharan Africa, Americas, and Oceania.

MUSIC 318 Music Cultures of the World (5) VLPA/I&S Folk and popular music in western and eastern Europe and the Americas.

MUSIC 319 Afro-American Music (5) VLPA/I&S Centers on Black music in the United States, but also clarifies the relationship of this music to the musics of other Afro-American cultures as well as to their African roots.

MUSIC 326 Repertoire (2) VLPA For music majors.

MUSIC 327 Repertoire (2) VLPA For music majors.

MUSIC 328 Repertoire (2) VLPA For music majors.

MUSIC 331 History of Jazz (3) VLPA Extensive overview of important musicians, composers, arrangers, and stylistic periods of jazz history from emergence of the first jazz bands at the turn of the 20th century through post-modern bebop era of the 1990s.

MUSIC 334 Band Arranging (2) VLPA Prerequisite: MUSIC 303.

MUSIC 336 Jazz Arranging (2) VLPA Writing in jazz style for various instrumental combinations. To be able to arrange for modern jazz orchestra. Prerequisite: MUSIC 303.

MUSIC 350 Choral Conducting (1) VLPA *Kaplan* Overview of choral conducting patterns. Score, voice warm-up, and intonation. Tempo fluctuation, left hand, diction, discipline. Designed for music and music education majors. Prerequisite: MUSIC 302; corequisite: MUSEN 307.

MUSIC 351 Choral Conducting (1) VLPA *Kaplan* Overview of choral conducting patterns. Score, voice warm-up, and intonation. Tempo fluctuation, left hand, diction, discipline. Designed for music and music education majors. Prerequisite: MUSIC 350; corequisite: MUSEN 307.

MUSIC 352 Choral Conducting (1) VLPA *Kaplan* Overview of choral conducting patterns. Score, voice warm-up, and intonation. Tempo fluctuation, left hand, diction, discipline. Designed for music and music education majors. Prerequisite: MUSIC 351; corequisite: MUSEN 307.

MUSIC 366 Cylinders to Platters-A Survey of Recorded Music Since 1888 (3) VLPA Music as reflected through the influences of the recording industry and the development of related technologies. Examines social and artistic impacts that the recording age has brought to American and European musical cultures. Recommended: MUSIC 120; MUSIC 162.

MUSIC 367 Beginning Jazz Improvisation I (1) VLPA Beginning jazz improvisation techniques used in the performance of basic jazz styles such as the blues. Primarily for music majors. Prerequisite: MUSIC 302.

MUSIC 368 Beginning Jazz Improvisation II (1) VLPA Beginning jazz improvisation techniques used in the performance of basic jazz styles such as the blues. Primarily for music majors. Prerequisite: MUSIC 367.

MUSIC 369 Beginning Jazz Improvisation III (1) VLPA Beginning jazz improvisation techniques used in the performance of basic jazz styles such as the blues. Primarily for music majors. Prerequisite: MUSIC 368.

MUSIC 379 Junior Recital (1) VLPA For participants in the Bachelor of Music degree program only.

MUSIC 380 Instrumental Conducting (1) VLPA *Salzman* Acquaints the beginning conductor with beat patterns and their expressive modifications, basic rehearsal techniques and score study. Prerequisite: either MUSIC 212 or MUSIC 302.

MUSIC 381 Instrumental Conducting (1) VLPA *Salzman* Acquaints the beginning conductor with beat patterns and their expressive modifications, basic rehearsal techniques and score study. Prerequisite: MUSIC 380.

MUSIC 382 Instrumental Conducting (1) VLPA *Salzman* Acquaints the beginning conductor with beat patterns and their expressive modifications, basic rehearsal techniques and score study. Prerequisite: MUSIC 381.

MUSIC 384 Ideas in Music (5) VLPA/I&S *Taricani* Examines selected sources and compositions of music from the Western tradition (from the tenth through the twentieth centuries), in relation to the intellectual background of the periods and countries that produced them. Musical studies accompanied by assigned readings in philosophical, religious, literary, and artistic texts in addition to the primary readings in musical history.

MUSIC 388 Jazz Pedagogy (2) VLPA Stylistic and esthetic developments in the performance of jazz. Key musical ingredients in the evolution of jazz as an art form and the skills commensurate with teaching these. Designed for music majors

MUSIC 390 Special Topics in Music (5) VLPA (5) *Starr* Topics vary.

MUSIC 391 Composition (3, max. 9) VLPA One-hour private instruction and one-hour laboratory session each week. Prerequisite: MUSIC 291.

MUSIC 395 Composition with Synthesizers (3, max. 9) VLPA *Karpen* Musical composition using special-purpose hardware music synthesizers, which may be interfaced to microcomputers in a music workstation system.

MUSIC 400 Computer Applications to Music (3, max. 9) VLPA Music workstation applications using microcomputers, music synthesizers, and analog-to-digital converters: music editing and score production, transcription, waveform and spectral analysis, and introduction to programming.

MUSIC 401 Computer Music Seminar 1 (3) VLPA *Karpen* Use of computers in musical composition, software digital sound synthesis, score generation,

theoretical investigations. Prerequisite: either MUSIC 212, MUSIC 302, MUSIC 456, or PHYS 207.

MUSIC 402 Computer Music Seminar 2 (3) VLPA *Karpen* Use of computers in musical composition, digital sound synthesis, digital signal processing. Hardware used includes NeXT computers, digital recorders. Software used includes CSound, Common LISP, UNIX. Prerequisite: MUSIC 401.

MUSIC 403 Computer Music Seminar 3 (3) VLPA *Karpen* Advanced use of computers for musical composition, digital sound synthesis, digital signal processing. Advanced synthesis techniques such as LPC for speech and vocal synthesis, phase vocoders, reverberation, and spatial location. Hardware used includes NeXT computers and peripherals. Software includes CSound, Common Lisp, C, and UNIX. Prerequisite: MUSIC 402.

MUSIC 410 ElectroAcoustic Music: History and Analysis (3) VLPA *Thome* Examines the music of major electro-acoustic composers. Emphasis on the relationship between technological resources and compositional advances. Addresses issues raised by the diversity of approaches to musical composition; relates particular creative contributions to the historical, cultural, and technological contexts in which they originated. Prerequisite: MUSIC 303; MUSIC 306; MUHST 210. Offered: Sp.

MUSIC 418 Baroque Ornamentation and Improvisation (3) VLPA *Terry* The study of ornamentation and improvisation for keyboard, woodwinds, voice, and strings of selected German, Italian, French, and English repertoire from 1600 to 1800.

MUSIC 420 Organ Improvisation and Service Playing I (2) VLPA Prepares students to improvise, especially for the church/synagogue service. Includes a brief study of hymnology, hymn elaboration, altered harmonizations, improvisation based on existing hymn tunes, interludes, chorale preludes, ornamented chorales. Prerequisite: MUSIC 303; MUSIC 306. Offered: A.

MUSIC 421 Organ Improvisation and Service Playing II (2) VLPA Continuation of MUSIC 420. Includes brief review of figured bass and functional harmony, free improvisation in simple antecedent/consequent ABA forms and more complex forms (rondo, theme, and variation), improvising partitas, interludes, improvisations based on plainchant. A survey of important improvisation texts. Prerequisite: MUSIC 420. Offered: W.

MUSIC 422 Organ Improvisation and Service Playing III (2) VLPA Continuation of MUSIC 421. Advanced improvisation: baroque improvisation techniques, fuguetas, baroque preludias and fantasias, canons, toccatas, duos, trios, and simple fugues. Prerequisite: MUSIC 421. Offered: Sp.

MUSIC 425 Jazz History and Analysis (3) VLPA *Collier* Major eras and styles of jazz with emphasis on technical aspects of jazz music: composition, arranging, improvisation practices.

MUSIC 426 Advanced Jazz Arranging (2) VLPA *Brockman* Advanced arranging techniques for jazz ensembles of various sizes, exploring methods employed by Duke Ellington, Gil Evans, and others. Assignments include one original arrangement each for small-combo and full-jazz ensemble. Prerequisite: MUSIC 336. Offered: Sp.

MUSIC 427 Music of Africa (3) VLPA/I&S Music cultures of sub-Saharan Africa. Traditional styles and more recent developments. Open to all students with an interest in the area. Prerequisite: MUSIC 317.

MUSIC 428 Music of North India (3) VLPA/I&S Classical music of North India, the Hindustani tradition with emphasis on the Dhrupad and Khayal styles. Recommended: ethnomusicology or South Asian studies background.

MUSIC 430 Organology (3) VLPA Systematic study of musical instruments, involving the history, acoustical phenomena, and physical topologies of instruments from around the world, with emphasis on non-Western music.

MUSIC 433 Music of Latin America (3) VLPA/I&S The Indian, African, and European music of the Spanish-, French-, and Portuguese-speaking New World countries.

MUSIC 434 Pedagogy (2) VLPA Principles of effective studio teaching; survey and evaluation of teaching materials.

MUSIC 435 Pedagogy (2) VLPA Principles of effective studio teaching; survey and evaluation of teaching materials.

MUSIC 436 Pedagogy (2) VLPA Principles of effective studio teaching; survey and evaluation of teaching materials.

MUSIC 438 Problems in Contemporary Music Performance (3, max. 9) VLPA *Kappy* An active course examining and solving problems relevant to the successful performance of twentieth-century music. Preparation for complex rhythms, odd groupings, new notation, and extended performing techniques.

MUSIC 439 Music of Indonesia and the Philippines (3) VLPA/I&S Includes the gong culture traditions of Sumatra, Sunda, Java, Bali, Sunda Islands, and the Philippines. Open to students in music and to students with an interest in the area. Prerequisite: MUSIC 316.

MUSIC 444 Music of the Near East (3) VLPA/I&S *Sakata* Classical and folk musical traditions of Iran, Turkey, and the Arab world. Prerequisite: MUSIC 316.

MUSIC 445 Selected Topics in Ethnomusicology (3, max. 9) VLPA/I&S Deals with topics not covered by regular courses in ethnomusicology. Frequently taught by visiting lecturers. Content varies with different instructors.

MUSIC 447 Music of Southern India (3) VLPA/I&S Classical music of South India, the Karnatic tradition, with emphasis on the concert repertoire. Recommended: ethnomusicology or South Asian studies background.

MUSIC 448 Music of China (3) VLPA/I&S Confucian philosophies that relate to music, theory, scale systems, cosmology. Development of instrumental styles, vocal and dramatic regional forms from early historical periods to the present; recommended: background in either ethnomusicology or East Asian Studies. Recommended: ethnomusicology or East Asian studies background.

MUSIC 454 Organ Pedagogy (3) VLPA *Terry* Pedagogical approaches to organ techniques and performance practice, provides opportunity for practical application by means of student teaching.

MUSIC 455 Choral Arranging (3) VLPA Primarily for choral conductors who need to modify, arrange or compose material to suit the capabilities of specific choral groups and performance situations.

MUSIC 458 Organ Repertoire: Middle Ages through Baroque (3) VLPA *Terry* Analysis and performance practices of organ literature, Middle Ages through baroque period. Development of the organ as musical instrument. Prerequisite: either MUHST 400, MUHST 401, MUHST 402, MUHST 403, MUHST 406, or MUHST 407.

MUSIC 459 Organ Repertoire: Bach to Present (3) VLPA *Terry* Analysis and performance practices of organ literature, classical period through the twentieth century. Development of the organ as a musical instrument. Prerequisite: either MUHST 408, MUHST 409, MUHST 410, MUHST 411, MUHST 412, MUHST

413, MUHST 414, MUHST 415, MUHST 417, MUHST 418, MUHST 419, MUHST 423, MUHST 424, or MUHST 426.

MUSIC 460 Advanced Vocal Repertoire: Pre-Nineteenth-Century Art Songs (2, max. 6) VLPA Professional preparation of pre-nineteenth-century songs with a view to total artistic-musical realization in performance. Appropriate style, character, balance, phrasing, diction, and projection for vocalists and pianists. Prerequisite: MUSIC 328.

MUSIC 461 Advanced Vocal Repertoire: Nineteenth-Century Art Songs (2, max. 6) VLPA Professional preparation of works from the literature of nineteenth-century German lieder, with a view to total artistic-musical realization in performance. Appropriate style, character, balance, phrasing, diction, and projection for vocalists and pianists. Prerequisite: MUSIC 460.

MUSIC 462 Advanced Vocal Repertoire: Twentieth-Century Art Songs (2, max. 6) VLPA Preparation of works from the twentieth-century repertoire of French, German, Italian, Spanish, and English songs, with a view to total artistic-musical realization in performance. Appropriate style, character, balance, phrasing, diction, and projection for vocalists and pianists. Prerequisite: MUSIC 461.

MUSIC 464 Jazz Laboratory (1, max. 9) VLPA *Seales* Forum for testing new technical skills, improvisational techniques, and jazz compositions and/or arrangements in a formal laboratory setting.

MUSIC 465 Acting for Singers (2, max. 6) VLPA Workshop designed specifically for the singing actor, focusing on character analysis, movement, and audition deportment skills.

MUSIC 467 Advanced Jazz Improvisation I (1) VLPA *Collier, Seales* Performance techniques in jazz improvisation for the advanced student. Prerequisite: MUSIC 369.

MUSIC 468 Advanced Jazz Improvisation II (1) VLPA *Collier, Seales* Performance techniques in jazz improvisation for the advanced student. Prerequisite: MUSIC 467.

MUSIC 469 Advanced Jazz Improvisation III (1) VLPA *Collier, Seales* Performance techniques in jazz improvisation for the advanced student. Prerequisite: MUSIC 468.

MUSIC 470 Analysis of Tonal Music: Introduction to Schenker (3) VLPA *Bernard, Kopp, Rahn* Introduction to the theories of Heinrich Schenker and their subsequent development; analysis of music from the common-practice period (1700-1900), with possible excursions into the twentieth century. Prerequisite: either MUSIC 303 and MUHST 212 or MUSIC 312 and MUHST 215.

MUSIC 471 Introduction to Atonal Theory and Analysis (3) VLPA *Bernard, Rahn* Theory of atonal music, including the "classical" twelve-tone repertoire. Analysis of works by Schoenberg, Berg, Webern, and others. Prerequisite: either MUSIC 303 and MUHST 212 or MUSIC 312 and MUHST 215.

MUSIC 472 Analysis of Twentieth Century Music, 1900-1950 (3, max. 6) VLPA *Bernard, Durand, Karpen, Kopp, Rahn, Thome* Analytical examination of musical works of the first half of the twentieth century in Europe and the United States, with emphasis on music other than that of the second Viennese school. Prerequisite: either MUSIC 303 and MUHST 212 or MUSIC 312 and MUHST 215.

MUSIC 473 Keyboard Harmony and Transposition (3) VLPA *Terry* Keyboard harmonization from the baroque period to present; transposition of vocal and instrumental pieces to different pitch levels. Prerequisite: either MUSIC 303 and MUHST 212 or MUSIC 312 and MUHST 215. Offered: alternate years.

MUSIC 474 Keyboard Harmony and Transposition (3) VLPA *Terry* Keyboard harmonization from the baroque period to present; transposition of vocal and instrumental pieces to different pitch levels. Prerequisite: MUSIC 473. Offered: alternate years.

MUSIC 475 Figured Bass Realization (3) VLPA *Terry* Various styles of continuo realization for keyboardists, emphasizing Bach cantatas, Haydn symphonies, and Mozart operas. Prerequisite: MUSIC 474. Offered: alternate years.

MUSIC 476 Advanced Vocal Repertoire: Seventeenth and Eighteenth Centuries (2) VLPA Opera repertoire, 1600 to the Bel Canto era (Bellini, Rossini, Donizetti); style, traditions, embellishments in Italian, French, and German arias. Prerequisite: MUSIC 328.

MUSIC 477 Advanced Vocal Repertoire: Nineteenth Century (2) VLPA Opera repertoire, the post Bel Canto era through Verdi, Puccini and verismo, and significant German, French, and Slavic repertoire. Prerequisite: MUSIC 476.

MUSIC 478 Advanced Vocal Repertoire: Twentieth Century (2) VLPA Opera repertoire, twentieth-century opera literature (Barber, Menotti, Bartok, Dvorak); understanding of style, character and overall artistic and musical needs of the present. Prerequisite: MUSIC 477.

MUSIC 479 Senior Recital (1) VLPA

MUSIC 480 The Anthropology of Music (3) VLPA/I&S Analysis of aspects of anthropological thought influential in ethnomusicology. Critical evaluation of dominant theoretical schools and modes of explanation. e.g., evolutionist, diffusionist, historical particularist, structuralist, functionalist, symbolist, and semiotic, through detailed examination of seminal texts. Offered: jointly with ANTH 430.

MUSIC 481 Choral Repertoire: Sixteenth and Seventeenth Centuries (3) VLPA Sacred and secular choral literature from the Renaissance through the early baroque, covering Europe and England. Various genres and styles of major composers, including performance practice, rehearsals, and conducting.

MUSIC 482 Choral Repertoire: Eighteenth Century (3) VLPA Sacred and secular choral literature of the baroque, covering mainland Europe and England. Choral works of Bach, his predecessors, and contemporaries. Stylistic analysis and study of performance practice.

MUSIC 483 Choral Repertoire: Nineteenth Century (3) VLPA Sacred and secular choral literature of the nineteenth century, covering mainland Europe and England. Analysis of accompanied and a cappella choral works by major composers with implications for conducting and programming of literature.

MUSIC 484 Choral Repertoire: Twentieth Century (3) VLPA Choral literature of the twentieth century, covering America, England, and mainland Europe. Various genres and styles, including score study and teaching strategies.

MUSIC 487 Tonal Counterpoint (3) VLPA *Durand, Karpen, Rahn* Evaluation of fugal practices from the baroque era to the present. Prerequisite: either MUSIC 311 or MUSIC 202.

MUSIC 489 Special Topics in Music Theory (3, max. 9) VLPA Prerequisite: either MUSIC 303 and MUHST 210 or MUSIC 312 and MUHST 314.

MUSIC 490 Orchestration (3) VLPA Study of the instruments of the orchestra and practical experience in combining them; to enable the student to score for various instrumental combinations. Ideally to be taken before band arranging or jazz arranging, but is not a prerequisite.

MUSIC 491 Composition (3, max. 18) VLPA One-hour private instruction and one-hour laboratory session each week. Prerequisite: MUSIC 391.

MUSIC 492 Opera Direction and Production (4) VLPA Practical experience with problems of the theater.

MUSIC 493 Opera Direction and Production (4) VLPA Practical experience with problems of the theater. Prerequisite: MUSIC 492.

MUSIC 495 Music of Japan (3) VLPA/I&S Instrumental and dramatic forms including Gagaku, Sankyoku, Noh, and Kabuki, as well as regional and popular styles. Open to students in music and East Asian area studies. Prerequisite: MUSIC 316.

MUSIC 498- Senior Thesis (3-, max. 9) VLPA Design and completion of an individual research project and writing of a thesis under supervision of a faculty member. Required of students in the pre-Systematic Musicology major.

MUSIC 499 Undergraduate Research (* max. 6)

Music Applied

MUSAP 133 Basic Keyboard (2) VLPA *Michaelian* Keyboard harmony and simple keyboard pieces. Class instruction.

MUSAP 134 Basic Keyboard (2) VLPA *Michaelian* Keyboard harmony and simple keyboard pieces. Class instruction. Prerequisite: MUSAP 133.

MUSAP 135 Basic Keyboard (2) VLPA *Michaelian* Keyboard harmony and simple keyboard pieces. Class instruction. Prerequisite: MUSAP 134.

MUSAP 136 Basic Jazz Keyboard (2, max. 6) VLPA *Seales* Basics of jazz and pop chord voicings, reading lead sheets, basic accompanying in various jazz and pop styles.

MUSAP 205 String Techniques (2, max. 12) VLPA Designed to prepare music education students to teach beginning and intermediate strings in the public schools.

MUSAP 210 Wind Techniques (2, max. 12) VLPA Designed to prepare music education students to teach beginning and intermediate woodwinds and brass in the public schools.

MUSAP 217 Percussion Techniques (2, max. 4) VLPA *Collier* The study of basic percussion techniques as they apply to music in the public schools. Acquaints the prospective music education major with percussion performance and teaching techniques.

MUSAP 218 Guitar Techniques (2, max. 4) VLPA *Novacek* Includes exercises to develop a good basic technique emphasizing correct position and movement of both hands, basic folk song accompaniments including a variety of strums, finger picking patterns, hammering on and bass runs, reading guitar music, classical pieces, special effects, and access to other styles. Offered: W.

MUSAP 220 Musical Instrumental Digital Interface Systems Techniques (2) VLPA Overview of MIDI (Musical Instrumental Digital Interface) technology and practical applications of other music technologies in the school environment. Primarily for music education majors.

MUSAP 221 Secondary Musical Instrumental Digital Interface Systems Techniques (2) VLPA Explores further applications in the use of MIDI technology in the school environment. Focuses on editing and performance techniques involving a complex MIDI workstation. Primarily for music education majors.

MUSAP 233 Secondary Piano (2) VLPA Focus is on advanced keyboard skills and piano repertoire. Prerequisite: MUSAP 135.

MUSAP 234 Secondary Piano (2) VLPA Focus is on advanced keyboard skills and piano repertoire. Prerequisite: MUSAP 233.

MUSAP 235 Secondary Piano (2) VLPA Focus is on advanced keyboard skills and piano repertoire. Prerequisite: MUSAP 234.

MUSAP 239 Secondary Piano (2, max. 8) VLPA Intermediate level keyboard repertoire. Private instruction. Prerequisite: MUSAP 235.

MUSAP 300 Private instruction: Voice (2-3, max. 45) VLPA *Harper, Patrick, Pelton*

MUSAP 301 Private Instruction: Piano (2-3, max. 45) VLPA *Herrman, McCabe, Michaelian, O'Doan, Seales, Sheppard, Siki*

MUSAP 302 Private Instruction: Organ (2-3, max. 45) VLPA *Terry*

MUSAP 303 Private Instruction: Harpsichord (2-3, max. 45) VLPA *Terry*

MUSAP 304 Private Instruction: Violin-Viola (2-3, max. 45) VLPA

MUSAP 305 Private Instruction: Violoncello (2-3, max. 45) VLPA *Krishnaswami, Saks*

MUSAP 306 Private Instruction: Double Bass (2-3, max. 45) VLPA *Lieberman*

MUSAP 307 Private Instruction: Flute (2-3, max. 45) VLPA *Skowronek*

MUSAP 308 Private Instruction: Oboe (2-3, max. 45) VLPA *Henderson*

MUSAP 309 Private Instruction: Clarinet (2-3, max. 45) VLPA *McColl*

MUSAP 310 Private Instruction: Bassoon (2-3, max. 45) VLPA *Grossman*

MUSAP 311 Private Instruction: Saxophone (2-3, max. 45) VLPA *Brockman*

MUSAP 312 Private Instruction: Horn (2-3, max. 45) VLPA *Kappy*

MUSAP 313 Private Instruction: Trumpet (2-3, max. 45) VLPA

MUSAP 314 Private Instruction: Trombone (2-3, max. 45) VLPA *Immel*

MUSAP 315 Private Instruction: Tuba (2-3, max. 45) VLPA *Phillips*

MUSAP 316 Private Instruction: Harp (2-3, max. 45) VLPA *Vokolek*

MUSAP 317 Private Instruction: Percussion (2-3, max. 45) VLPA *Collier, Crusoe*

MUSAP 318 Private Instruction: Guitar (2-3, max. 45) VLPA *Novacek*

MUSAP 319 Private Instruction: Viola da Gamba (2-3, max. 45) VLPA *Tindemans*

MUSAP 320 Private Instruction: Voice (2-3, max. 27) VLPA *Harper, Patrick, Pelton*

MUSAP 321 Private Instruction: Piano (2-3, max. 27) VLPA *Herrman, McCabe, Michaelian, Seales, Sheppard, Siki*

MUSAP 322 Private Instruction: Organ (2-3, max. 27) VLPA *Terry*

MUSAP 323 Private Instruction: Harpsichord (2-3, max. 27) VLPA *Terry*

MUSAP 324 Private Instruction: Violin-Viola (2-3, max. 27) VLPA *Callus, Patterson*

MUSAP 325 Private Instruction: Violoncello (2-3, max. 27) VLPA *Krishnaswami, Saks*

MUSAP 326 Private Instruction: Double Bass (2-3, max. 27) VLPA *Lieberman*

MUSAP 327 Private Instruction: Flute (2-3, max. 27) VLPA *Skowronek*

MUSAP 328 Private Instruction: Oboe (2-3, max. 27) VLPA *Henderson*

MUSAP 329 Private Instruction: Clarinet (2-3, max. 27) VLPA *McColl*

MUSAP 330 Private Instruction: Bassoon (2-3, max. 27) VLPA *Grossman*

MUSAP 331 Private Instruction: Saxophone (2-3, max. 27) VLPA *Brockman*

MUSAP 332 Private Instruction: Horn (2-3, max. 27) VLPA *Kappy*

MUSAP 333 Private Instruction: Trumpet (2-3, max. 27) VLPA

MUSAP 334 Private Instruction: Trombone (2-3, max. 27) VLPA *Immel*

MUSAP 335 Private Instruction: Tuba (2-3, max. 27) VLPA *Phillips*

MUSAP 336 Private Instruction: Harp (2-3, max. 27) VLPA *Vokolek*

MUSAP 337 Private Instruction: Percussion (2-3, max. 27) VLPA *Collier, Crusoe*

MUSAP 338 Private Instruction: Guitar (2-3, max. 27) VLPA *Novacek*

MUSAP 339 Private Instruction: Viola da Gamba (2-3, max. 27) VLPA *Tindemans*

MUSAP 340 Timpani (2-3, max. 27) VLPA *Crusoe*

MUSAP 341 Mallet Percussion (2-3, max. 27) VLPA *Collier*

MUSAP 389 World Music (2-3, max. 18) VLPA/I&S World music traditions taught by visiting native artists. Consult ethnomusicology staff for current offerings. Credit/no credit only.

MUSAP 420 Private Instruction: Voice (2-3, max. 27) VLPA *Harper, Patrick, Pelton*

MUSAP 421 Private Instruction: Piano (2-3, max. 27) VLPA *Herrman, McCabe, Michaelian, Seales, Sheppard, Siki*

MUSAP 422 Private Instruction: Organ (2-3, max. 27) VLPA *Terry*

MUSAP 423 Private Instruction: Harpsichord (2-3, max. 27) VLPA *Terry*

MUSAP 424 Private Instruction: Violin-Viola (2-3, max. 27) VLPA *Callus, Patterson*

MUSAP 425 Private Instruction: Violoncello (2-3, max. 27) VLPA *Krishnaswami, Saks*

MUSAP 426 Private Instruction: Double Bass (2-3, max. 27) VLPA *Lieberman*

MUSAP 427 Private Instruction: Flute (2-3, max. 27) VLPA *Skowronek*

MUSAP 428 Private Instruction: Oboe (2-3, max. 27) VLPA *Henderson*

MUSAP 429 Private Instruction: Clarinet (2-3, max. 27) VLPA *McColl*

MUSAP 430 Private Instruction: Bassoon (2-3, max. 27) VLPA *Grossman*

MUSAP 431 Private Instruction: Saxophone (2-3, max. 27) VLPA *Brockman*

MUSAP 432 Private Instruction: Horn (2-3, max. 27) VLPA *Kappy*

MUSAP 433 Private Instruction: Trumpet (2-3, max. 27) VLPA

MUSAP 434 Private Instruction: Trombone (2-3, max. 27) VLPA *Immel*

MUSAP 435 Private Instruction: Tuba (2-3, max. 27) VLPA *Phillips*

MUSAP 436 Private Instruction: Harp (2-3, max. 27) VLPA *Vokolek*

MUSAP 437 Private Instruction: Percussion (2-3, max. 27) VLPA *Collier, Crusoe*

MUSAP 438 Private Instruction: Guitar (2-3, max. 27) VLPA *Novacek*

MUSAP 439 Private Instruction: Viola da Gamba (2-3, max. 27) VLPA *Tindemans*

MUSAP 440 Timpani (2-3, max. 27) VLPA *Crusoe*

MUSAP 441 Mallet Percussion (2-3, max. 27) VLPA *Collier*

MUSAP 442 Jazz and Non-Western Drumming Techniques (2/3, max 18) VLPA *Collier* Focused study of American jazz drumming and/or hand drumming techniques of various world music cultures to broaden the skills of percussion students, preparing them for new demands of contemporary musical styles. Designed primarily for music majors enrolled in the percussion program.

Music Education

MUSED 301 Techniques for Teaching Music to Children (2) VLPA *Campbell* Exercises and applied experiences in sight-singing and error detection, keyboard skills, record and instruments of the Orff ensemble relevant to the teaching of music to children. Prerequisite: either MUSIC 212 or MUSIC 302; MUSAP 135.

MUSED 304 Introductory Music Methods (2, max. 4) VLPA *Demorest, Morrison* Comprehensive examination of materials for training beginning vocal and instrumental students. Topics include recruiting, motivation, and problems associated with evaluation. Methods of starting beginners and rehearsing ensembles are demonstrated with techniques addressing problems unique to public school ensemble instruction. Must be taken concurrently with MUSED 301; MUSED 340. Offered: A.

MUSED 305 Introductory Music Methods II (2, max. 4) VLPA *Demorest Morrison* Comprehensive examination of materials for training beginning vocal and instrumental students. Topics include recruiting, motivation, problems associated with evaluation. Methods of starting beginners and rehearsing ensembles are demonstrated with techniques addressing problems unique to public school ensemble instruction. Offered: W.

MUSED 306 Introductory Music Methods III (2, max. 4) VLPA *Demorest, Morrison* Comprehensive examination of materials for training beginning vocal and instrumental students. Topics include recruiting, motivation, problems associated with evaluation. Methods of starting beginners and rehearsing ensembles are demonstrated with techniques addressing problems unique to public school ensemble instruction. Offered: Sp.

MUSED 340 Music in Education (3) VLPA *Demorest* An orientation to the broad scope of issues regarding music in the schools (K-12), including curriculum, the development of instructional strategies, and evaluation techniques.

MUSED 403 Part-Time Student Teaching in Music (6) VLPA *Campbell, Demorest, Morrison* Supervised teaching internship. Directed observations of distinguished teachers in an elementary or secondary music setting. Weekly seminars. Credit/no credit only. Offered: AWP.

MUSED 404 Full-Time Student Teaching in Music (15) VLPA *Campbell, Demorest, Morrison* Supervised teaching internship. Directed observations of distinguished teachers in an elementary or secondary music setting. Weekly seminars. Credit/no credit only. Prerequisite: MESED 403. Offered: AWP.

MUSED 405 Marching Band Technique (2) VLPA *McDavid, Morrison, Salzman* Basics of marching and maneuvering discussed and used to write drill. Covers selection of music, use of marching procession, and show design. Students complete a drill for their own band or for an instrumentation determined by the instructor.

MUSED 410 Instrumental Rehearsal Techniques (3) VLPA *Salzman* Includes score preparation, rehearsal formats, and error detection.

MUSED 431 Curriculum in Music Education (3) VLPA *Campbell, Demorest, Morrison* Principles and practices of curriculum design applied to the development of the music curriculum. Individual or group work on elementary and secondary school music curriculum projects.

MUSED 432 Comprehensive Music in the Secondary School (3) VLPA *Demorest* The teaching of music and its literature in music classes other than traditional ensembles from grade six through adults. Prerequisite: MUSED 340.

MUSED 440 Music for Children (3) VLPA *Campbell* Identification and selection of appropriate objectives, materials, teaching strategies and evaluation techniques used in teaching music from birth through grade five, with consideration of various approaches (e.g., Delcroze, Kodaly, Orff) for the musical development of children. Prerequisite: MUSED 302; MUSED 340

MUSED 442 Instrumental Curriculum: Methods and Materials (3) VLPA *Morrison* Study of the organization and administration of school instrumental music; the selection and use of materials and teaching strategies from beginning to advanced levels of instrumental instruction. Prerequisite: MUSED 340.

MUSED 443 Choral Curriculum: Methods and Materials (3) VLPA *Demorest* Study of the organization and administration of school choral music; the selection and use of materials and teaching strategies from beginning to advanced levels of choral instruction. Prerequisite: MUSED 340.

MUSED 452 Ethnomusicology in the Schools (3) VLPA *Campbell* Issues, teaching materials, and techniques involved in incorporating music cultures of United States and related world music repertoires in K-12 classroom instruction. Prerequisite: MUSED 340.

MUSED 453 Approaches to Classroom Instruction: K-12 (3) VLPA *Campbell* Examines such major instructional approaches as MMCP, Orff, Kodaly, and Dalcroze. Included are the philosophy of each and the methods, materials, and instructional skills needed for classroom application. Prerequisite: MUSED 403.

MUSED 465 Classroom Management and Evaluation in Music Education (3) VLPA *Morrison* Provides future teachers with strategies and techniques for classroom management, motivation, assessment, and evaluation for applications to K-12 school music programs. Prerequisite: MUSED 340.

MUSED 475 Teaching the Music of Selected Cultures (1, max. 6) VLPA *Campbell* Music and culture of a specific world region with particular attention to songs, stories, and instrumental pieces applicable to the teaching of music and the arts in elementary and secondary schools.

MUSED 480 Music Methods for Classroom Teachers (3) VLPA *Campbell* Addresses the basic fundamentals of music and methods for teaching K-6 school children. Topics include repertoire appropriate for different age levels, methods and materials for integrating music into the K-6 curriculum.

MUSED 496 Special Topics in Music Education (1-3, max. 10) VLPA Special studies designed to reflect contemporary emphases and concerns in the music education profession.

Music Ensemble

MUSEN 100 University Singers (1, max. 15) VLPA Credit/no credit only.

MUSEN 300 University Symphony Orchestra (1, max. 15) VLPA

MUSEN 301 Wind Ensemble (1, max. 15) VLPA *Salzman*

MUSEN 302 Symphonic Band (1, max. 10) VLPA *Salzman*

MUSEN 303 Marching Band (2, max. 10) VLPA *McDavid* Credit/no credit only.

MUSEN 304 Percussion Ensemble (1, max. 12) VLPA *Collier*

MUSEN 305 Brass Ensemble (1, max. 12) VLPA *Kappy*

MUSEN 306 Woodwind Ensemble (1, max. 12) VLPA *Skowronek*

MUSEN 307 University Oratorio Chorus (1, max. 15) VLPA *Kaplan* Credit/no credit only.

MUSEN 325 Accompanying (2, max. 30) VLPA *Bergman*

MUSEN 340 Vocal Jazz Ensemble (1, max. 6) VLPA Credit/no credit only.

MUSEN 345 Jazz Workshop (1, max. 12) VLPA *Collier, Seales*

MUSEN 346 Studio Jazz Ensemble (1, max. 6) VLPA

MUSEN 347 Opera Chorus (1, max. 12) VLPA *Kaplan*

MUSEN 350 University Chorale (1, max. 12) VLPA Credit/no credit only.

MUSEN 351 Chamber Singers (1, max. 15) VLPA *Boers*

MUSEN 361 Piano Ensemble (1, max. 3) VLPA Study and performance of works for four hands at one or two pianos. Designed for upper-level piano majors or students with equivalent ability.

MUSEN 368 Harp Ensemble (1, max. 12) VLPA *Vokolek*

MUSEN 369 Baroque Chamber Ensemble (1, max. 18) VLPA *Terry, Tindemans*

MUSEN 375 Opera Workshop (1, max. 6) VLPA *Zahn* Preparation of music theatre repertoire. Intended for the mature voice student.

MUSEN 381 Chamber Music (1, max. 18) VLPA

MUSEN 382 Opera Theatre (2, max. 6) VLPA *Zahn* Public performance of roles in opera.

MUSEN 383 Collegium Musicum (1, max. 6) VLPA
Tindemans

MUSEN 384 Contemporary Group (1, max. 6) VLPA
Durand Exploration of notation and performance problems in today's music; preparation for public performance. Credit/no credit only.

MUSEN 446 Advanced Studio Jazz Ensemble (1, max. 9) VLPA Preparation and performance of material appropriate to large jazz ensemble concerts, clinics, and radio and television broadcasts. Recommended: three quarters of MUSEN 346.

Music History

MUHST 210 Introduction to the History of Western Music I (3) VLPA *Taricani* Introduction to the critical study of Western music history including representative composers, works, and genres as well as significant concepts and issues. Origins of Western Music. Prerequisite: 2.0 in MUHST 212. Offered: A.

MUHST 211 Introduction to the History of Western Music II (3) VLPA *Starr, Taricani, Will* Introduction to the critical study of Western music history including representative composers, works, and genres as well as significant concepts and issues. Baroque and Classical Periods. Prerequisite: either placement by exam or 3.0 in MUSIC 120. Offered: W.

MUHST 212 Introduction to the History of Western Music III (3) VLPA *Starr, Will* Introduction to the critical study of Western music history including representative composers, works, and genres as well as significant concepts and issues. Nineteenth and Twentieth Centuries. Prerequisite: 2.0 in MUHST 211. Offered: Sp.

MUHST 260 Orchestral Music (5) VLPA Orchestral music from its beginnings in the seventeenth century through recent developments; evolution of the symphony.

MUHST 261 Mozart (5) VLPA Introduction to Mozart's music and to musical life in Habsburg Austria during the Enlightenment. Mozart's musical personality studied through masterpieces in all genres, with principal emphasis on listening. Ability to read music not required.

MUHST 262 Introduction to Twentieth-Century Music (3) VLPA *Starr* Listener's survey of important composers and trends from Debussy through electronic music.

MUHST 263 Opera (5) VLPA Contributions of music, text, and staging; study of representative works concentrating on problems of combining these elements into a composite work of art.

MUHST 301 Music and the American Experience (3) VLPA/I&S *Starr, Will* Survey of American music from the colonial period to the present day, with emphasis on in-depth examination of representative works from both cultivated and vernacular traditions. Offered: WSp.

MUHST 310 Perspectives in Music History (3, max. 6) VLPA/I&S Overview of different stylistic periods in music history. Perspectives include music and philosophy, music and gender, and music and text. Students develop an insight into the manner in which similar questions have been approached in diverse cultures and periods. Prerequisite: MUHST 210. Offered: WSp.

MUHST 311 Beethoven in Western Culture (3) VLPA/I&S *Will* Comprehensive study of Beethoven's works and their 19th- and 20th-century reception, with consideration of how western culture has used Beethoven's music in its constructions of subjectivity, genius, and national and other collective identities. Prerequisite: MUSIC 303; MUSIC 306; MUHST 210. Offered: WSp.

MUHST 330 Music in the United States (5) VLPA Contribution of music to the development of American culture.

MUHST 332 Music in European Society: Antiquity to 1700 (5) VLPA/I&S Music and its relationship to aspects of European culture and society—philosophy, politics, social conditions, and the visual arts from antiquity to 1700.

MUHST 333 Music in European Society: 1700 to Present (5) VLPA/I&S Music as related to other aspects of modern European culture and society—philosophy, politics, social conditions, and the visual arts. Prerequisite: MUSIC 120.

MUHST 400 Medieval Music: To 1400 (3) VLPA *Taricani* Gregorian chant through Machaut and Landini. Prerequisite: one 300-level MUHST course.

MUHST 401 Early British Music: 1300-1700 (3) VLPA *Taricani* Examines the history of British music from its earliest polyphony through the music of Purcell. Stylistic features of English music studied, including medieval polyphony, Tudor music, Elizabethan music, and seventeenth-century music through Purcell. Prerequisite: one 300-level MUHST course.

MUHST 402 Late Renaissance Secular Music: 1525-1630 (3) VLPA *Taricani* The madrigal in Italy, England, and Germany. The Chanson, Jannequin through Lassus. Prerequisite: one 300-level MUHST course.

MUHST 403 Late Renaissance Sacred and Instrumental Music: 1525-1630 (3) VLPA *Taricani* Latin church music. Willaert through G. Gabrieli; early Reformation church music, Walther through Gibbons; instrumental music, Cabezon, the English virginal school, and Sweelinck. Prerequisite: one 300-level MUHST course.

MUHST 404 Baroque Keyboard Music (3) VLPA Forms and styles: Frescobaldi through J.S. Bach and C.P.E. Bach. Prerequisite: one 300-level MUHST course.

MUHST 405 Orchestral Music: 1620-1760 (3) VLPA Corelli through the Mannheim School. Prerequisite: one 300-level MUHST course.

MUHST 406 Baroque Choral Music (3) VLPA *Bozarth* Monteverdi through Handel. Prerequisite: one 300-level MUHST course.

MUHST 407 Baroque Opera (3) VLPA Opera of the Baroque period. Prerequisite: one 300-level MUHST course.

MUHST 408 Keyboard Music: 1760-1830 (3) VLPA *Bozarth* Haydn through Schumann. Prerequisite: one 300-level MUHST course.

MUHST 409 Chamber Music: 1760-1830 (3) VLPA Haydn through Schubert. Prerequisite: one 300-level MUHST course.

MUHST 410 Orchestral Music: 1760-1830 (3) VLPA *Will* Haydn through Berlioz. Prerequisite: one 300-level MUHST course.

MUHST 411 Art Song, 1760-1830 (3) VLPA The art song in European culture during the classical and early romantic periods. Prerequisite: one 300-level MUHST course.

MUHST 412 Choral Music: 1750-1830 (3) VLPA *Will* Large works for chorus and orchestra. Haydn through Berlioz. Prerequisite: one 300-level MUHST course.

MUHST 413 Opera: 1750-1830 (3) VLPA *Will* Gluck through Bellini. Prerequisite: one 300-level MUHST course.

MUHST 414 Keyboard Music: 1830-1915 (3) VLPA *Bozarth* Liszt through Debussy. Prerequisite: one 300-level MUHST course.

MUHST 415 Chamber Music: 1830-1915 (3) VLPA Schumann through Ravel. Prerequisite: one 300-level MUHST course.

MUHST 416 Orchestral Music: 1830-1915 (3) VLPA Liszt and Brahms through early Schoenberg and Stravinsky. Prerequisite: one 300-level MUHST course.

MUHST 417 Art Song: 1830-1915 (3) VLPA *Bozarth* The Lieder of Schumann, Brahms, Wolf, Strauss, Mahler, and Schoenberg. Prerequisite: one 300-level MUHST course.

MUHST 418 Choral Music: 1830-1915 (3) VLPA *Bozarth* Selected choral masterpieces. Brahms through Britten. Prerequisite: one 300-level MUHST course.

MUHST 419 Opera: 1830-1915 (3) VLPA *Will* Wagner through Puccini. Prerequisite: one 300-level MUHST course.

MUHST 420 Authenticity and Performance (3) VLPA The practical and philosophical issues raised by historically informed performance of early music on period instruments. Prerequisite: one 300-level MUHST course.

MUHST 421 Music Criticism (3) VLPA *Starr* Study of the various forms of music criticism, with an emphasis on the writing of valid examples and evaluation of one's own work along with that of others—classmates, journalists, and academic critics. Prerequisite: one 300-level MUHST course.

MUHST 423 Twentieth-Century Music: to 1945 (3) VLPA *Starr* Intensive study of selected composers and works exemplifying the new vocabularies, grammars, and styles of the early part of this century. Prerequisite: one 300-level MUHST course.

MUHST 424 Music Since 1945 (3) VLPA *Starr* Diversity of the contemporary musical scene. Vocabularies appropriate for the description and understanding of the new music, developed through study of representative composers and works, and appropriate readings. Prerequisite: one 300-level MUHST course.

MUHST 426 American Popular Music (3) VLPA *Starr* An in-depth consideration of American popular music styles and repertory from about 1920 to the present day. Analysis of representative pieces; consideration of critical and aesthetic issues relating to popular music; relationship of popular music to "art" music and to American culture and society. Prerequisite: one 300-level MUHST course.

MUHST 429 Music, Literature, and the Arts (3) VLPA Literary and visual art works that include musical subject matter and forms; musical genres that incorporate such other arts as opera and ballet. Related philosophical writings. Includes works of a particular time period or investigation of a specific problem in comparative arts. Prerequisite: one 300-level MUHST course.

MUHST 497 Special Topics in Music History (1-3, max. 6) VLPA Topics vary each quarter. Prerequisite: one 300-level MUHST course.

Near Eastern Languages and Civilization

229B Denny



General Catalog Web page:
www.washington.edu/students/gencat/academic/near_eastern.html



Department Web page:
depts.washington.edu/nelc/NELC/

The Department of Near Eastern Languages and Civilization focuses on the languages and civilizations of the Near with an emphasis on the ancient and medieval roots of these civilizations as well as more-recent cultural developments. Each of the languages offered by the department represents a major literary tradition. Arabic, Persian, Turkish, and Central Asian Turkic are the languages of the most significant literary manifestations of Islamic civilization. Hebrew and Aramaic are the languages of the Bible and are central to Judaism and Jewish culture. Egyptian languages (Coptic, Hieroglyphic) and other Mesopotamian and Mediterranean languages (Akkadian, Ugaritic, Phoenician) are important to the ancient and Christian cultures of the Near East. These languages are taught in conjunction with courses on the social, cultural, and religious history of the Near East, providing students with a broad understanding and solid foundation for more advanced studies or professional career development.

Undergraduate Program

Adviser

Brannon Wheeler
 229C Denny, Box 353120
 (206) 543-7343

The department offers a program of study leading to a Bachelor of Arts degree with options in Near Eastern languages and civilization, and Near Eastern civilization. The department also offers a minor.

Bachelor of Arts

Admission: Students in good academic standing may declare this major at any time.

Suggested Introductory Course Work: Courses in any discipline that deals with the Near East, e.g., history, political science, economics. Courses in writing, literature, French, German, and Russian are also recommended.

Major Requirements

Near Eastern Languages and Civilization: An approved program of 30 credits, excluding elementary and intermediate language courses, in courses offered by the department or courses on the Near East offered by other departments, or both, plus at least 9 credits in literature or text courses at the 400 level in the major language. Intermediate language courses are usually a prerequisite for these advanced courses. All majors are required to take NEAR E 210 and one of the following: NEAR E 211, NEAR E 240, or RELIG 210. Study opportunities in the Near East and in Central Asia are available on a competitive basis for a limited number of students.

Near Eastern Civilization: Two years of one Near Eastern language or its equivalent as evidenced by examination; NEAR E 210; one of the following: NEAR E 211, NEAR E 240, or RELIG 210; 20 credits in Near Eastern courses including at least one course from each of the following areas: Near Eastern civilization, Near Eastern religion, Near Eastern literature in translation; 8 credits in non-language, upper-division courses related to the

Near East in the department or in other departments; a senior essay on a topic of Near Eastern civilization (5 credits).

Minor

Minor Requirements: 25 credits including NEAR E 210; one course from NEAR E 211, 240, RELIG 210; additional credits from Near Eastern civilization or language courses (may not include language courses at the beginning or intermediate level).

Graduate Program

For information on the Department of Near Eastern Languages and Civilization graduate program, see the graduate and professional volume of the *General Catalog* or visit the *General Catalog* online at www.washington.edu/students/gencat/.

Faculty

Chair

Michael A. Williams

Professors

Bacharach, Jere L. * 1967, (Adjunct); MA, 1962, Harvard University; PhD, 1967, University of Michigan; history of the Middle East, Islam.

Cirtautas, Ilse D. * 1968; PhD, 1958, University of Hamburg (Germany); Turkic languages and literatures.

Heer, Nicholas L. * 1965, (Emeritus); PhD, 1955, Princeton University; Arabic language and literature, Islamic theology and philosophy.

Jaffee, Martin S. * 1987, (Adjunct); PhD, 1980, Brown University; rabbinic religion and literature in late antiquity.

Karimi-Hakkak, Ahmad * 1985; PhD, 1979, Rutgers University; Persian language and literature, Iranian culture and civilization.

MacKay, Pierre A. * 1966, (Emeritus); PhD, 1964, University of California (Berkeley); Greek literature, post-classical and Byzantine Greek literature, numismatics.

Sokoloff, Naomi B. * 1985; PhD, 1980, Princeton University; Hebrew language and literature.

Williams, Michael A. * 1976; PhD, 1977, Harvard University; early Christianity and religions of antiquity.

Ziadeh, Farhat J. * 1966, (Emeritus); LLB, 1940, University of London (UK); Arabic language and literature, Islamic law, Islamic institutions.

Associate Professors

Deyoung, Terri L. * 1991; PhD, 1988, University of California (Berkeley); Arabic language and literature.

Assistant Professors

Kuru, Selim Sirri 1999, (Acting); Other, 1999, Harvard University; Turkish language and literature.

Noegel, Scott B. * 1995; PhD, 1994, Cornell University; ancient Near Eastern languages.

Walker, Joel T. 1997, (Adjunct); PhD, 1998, Princeton University; late antiquity, Byzantine, early Middle Ages.

Wheeler, Brannon M. * 1996; PhD, 1993, University of Chicago; Islamic studies, comparative religion, late antiquity, Jewish studies, legal studies.

Course Descriptions

See page 48 for an explanation of course numbers, symbols, and abbreviations.

For graduate-level course descriptions, see the graduate and professional study volume of the *General Catalog* or visit the online course catalog at www.washington.edu/students/crscat/.

Akkadian

AKKAD 401 Elementary Akkadian (3) Introduction to the Akkadian language (Assyrian and Babylonian). Readings in original Akkadian cuneiform from historical, legal, and literary texts.

AKKAD 402 Elementary Akkadian (3) Introduction to the Akkadian language (Assyrian and Babylonian). Readings in original Akkadian cuneiform from historical, legal, and literary texts.

AKKAD 403 Elementary Akkadian (3) Introduction to the Akkadian language (Assyrian and Babylonian). Readings in original Akkadian cuneiform from historical, legal, and literary texts.

AKKAD 421 Intermediate Akkadian (3) Readings in Akkadian texts.

AKKAD 422 Intermediate Akkadian (3) Readings in Akkadian texts.

AKKAD 423 Intermediate Akkadian (3) Readings in Akkadian texts.

Arabic

ARAB 401 Intensive Elementary Arabic (15) Study of grammar, with oral and written drill and reading of simple texts. (Cannot be taken for credit if 411, 412, 413 taken.) Offered: S.

ARAB 411 Elementary Arabic (5) Study of grammar, with oral and written drill and reading of simple texts. (Cannot be taken for credit if 401 taken.)

ARAB 412 Elementary Arabic (5) Study of grammar, with oral and written drill and reading of simple texts. (Cannot be taken for credit if 401 taken.) Prerequisite: ARAB 411.

ARAB 413 Elementary Arabic (5) Study of grammar, with oral and written drill and reading of simple texts. (Cannot be taken for credit if 401 taken.) Prerequisite: ARAB 412.

ARAB 421 Intermediate Arabic (5) VLPA Reading of selected texts in standard Arabic, with continuing emphasis on grammar and syntax. Prerequisite: either ARAB 401 or ARAB 413.

ARAB 422 Intermediate Arabic (5) VLPA Reading of selected texts in standard Arabic, with continuing emphasis on grammar and syntax. Prerequisite: ARAB 421.

ARAB 423 Intermediate Arabic (5) VLPA Reading of selected texts in standard Arabic, with continuing emphasis on grammar and syntax. Prerequisite: ARAB 422.

ARAB 431 Advanced Arabic (3) VLPA Focus on Arabic at the advanced level through in-depth examination of grammar, reading of selected texts, and brief surveys of some major reference materials. Prerequisite: ARAB 423.

ARAB 432 Advanced Arabic (3) VLPA Focus on Arabic at the advanced level through in-depth examination of grammar, reading of selected texts, and brief surveys of some major reference materials. Prerequisite: ARAB 431.

ARAB 433 Advanced Arabic (3) VLPA Focus on Arabic at the advanced level through in-depth examination of grammar, reading of selected texts, and brief surveys of some major reference materials. Prerequisite: ARAB 432.

ARAB 452 Maqamat: Hamadhani, Hariri (3) VLPA *MacKay* Reading of several maqamat (essays in rhymed prose) of al-Hamadhani and al-Hariri. Examination of the maqamat genre as a whole. Prerequisite: ARAB 432.

ARAB 453 Historical Texts (3) VLPA/I&S *B. Wheeler* Readings in Arab historians with particular reference to scholars such as Tabari, Ibn al-Jawzi, and Ibn al-Athir. Prerequisite: ARAB 432.

ARAB 454 Quran and Its Interpretation (3) VLPA *B. Wheeler* Reading of selected passages from the Quran in relation to their interpretation in classical commentaries (tafsir) and in legal texts (ahkam al-Quran). Focus on the various types of classical scholarship applied to the text of the Quran (ulum al-Quran). Prerequisite: ARAB 432.

ARAB 455 Ritual and Legal Texts (3) VLPA *B. Wheeler* Selected readings from well-known Islamic legal texts (furu al-fiqh) with attention to the sources of the law and methods of exegesis (usul al-fiqh). Prerequisite: ARAB 432.

ARAB 456 Islamic Political Theorists (3) VLPA/I&S Readings from the main political theorists: al-Baghdadi, al-Mawardi, and Ibn Khaldun. Prerequisite: ARAB 432.

ARAB 458 Modern Poetry (3) VLPA *DeYoung* Neoclassical poetry of the nineteenth and twentieth centuries, and the development of modern verse. Prerequisite: ARAB 432.

ARAB 470 Stories of the Prophets (3) VLPA/I&S *B. Wheeler* Reading and discussion of Jewish and Islamic exegesis of selected Biblical and Quranic narratives dealing with such figures as Moses, Abraham, Jacob, or Adam and Eve. Prerequisite: either ARAB 432 or HEBR 423. Offered: jointly with HEBR 470.

ARAB 472 Quran and Bible Masorah (3) VLPA *B. Wheeler* Introduces and discusses selected readings in textual apparatuses for the Quran and Bible. Attention to marginalia in Rabbinic texts, and Islamic scholars such as al-Zarkashi and as-Suyuti. Prerequisite: either ARAB 432, HEBR 427, or HEBR 432. Offered: jointly with HEBR 472.

ARAB 490 Supervised Study (1-6 max. 18) Special work in literary texts for graduates and undergraduates. Prerequisite: ARAB 423.

ARAB 496 Special Studies in Arabic (3-5, max. 15) VLPA Topics vary. Offered occasionally by visiting or resident faculty.

ARAB 499 Undergraduate Research (1-6 max. 18)

Aramaic

ARAMIC 422 Targumic Aramaic (5) VLPA *Noegel* The Targum (ancient Aramaic translation) of the Hebrew Bible forms an important basis for biblical interpretation. Emphasis on comprehension and interpretive strategies. Recommended: knowledge of Hebrew and/or Aramaic. Prerequisite: HEBR 333 or HEBR 426.

Egyptian

EGYPT 410 Hieroglyphic Egyptian (5) VLPA *Noegel* Provides an introduction to hieroglyphic Egyptian as written during the Middle Kingdom (c. 2040-1782 BCE). Focuses on reading and writing hieroglyphics, including reading a complete Egyptian text. No knowledge of Egyptian or any other Near Eastern language is required.

EGYPT 411 Introduction to Coptic (3) *Williams* Elements of grammar of the Sahidic dialect of the Coptic language.

EGYPT 422 Readings in Coptic (3) VLPA *Williams* Readings from ancient Coptic Christian literature, with emphasis on the *Nag Hammadi* texts. Prerequisite: COPTC 411 or EGYPT 411.

EGYPT 423 Readings in Coptic (3) VLPA *Williams* Readings from ancient Coptic Christian literature, with emphasis on the *Nag Hammadi* texts. Prerequisite: COPTC 411 or EGYPT 411.

Hebrew

HEBR 401 Intensive Elementary Modern Hebrew (15) Intensive study of grammar, with oral and written drill and reading of simple texts. (Cannot be taken for credit if 411, 412, 413 taken.) Offered: S.

HEBR 411 Elementary Modern Hebrew (5) *Sokoloff* Modern Israeli Hebrew. Core vocabulary, grammar, conversational text, and oral and written communication. Excerpts from modern Hebrew prose and poetry. (Cannot be taken for credit if 401 taken.)

HEBR 412 Elementary Modern Hebrew (5) *Sokoloff* Modern Israeli Hebrew. Core vocabulary, grammar, conversational text, and oral and written communication. Excerpts from modern Hebrew prose and poetry. (Cannot be taken for credit if 401 taken.) Prerequisite: HEBR 411.

HEBR 413 Elementary Modern Hebrew (5) *Sokoloff* Modern Israeli Hebrew. Core vocabulary, grammar, conversational text, and oral and written communication. Excerpts from modern Hebrew prose and poetry. (Cannot be taken for credit if 401 taken.) Prerequisite: HEBR 412.

HEBR 421 Intermediate Modern Hebrew (5) VLPA *Sokoloff* Readings of selected texts in modern Hebrew with continuing emphasis on grammar and syntax. Prerequisite: either HEBR 401 or HEBR 413.

HEBR 422 Intermediate Modern Hebrew (5) VLPA *Sokoloff* Readings of selected texts in modern Hebrew with continuing emphasis on grammar and syntax. Prerequisite: HEBR 421.

HEBR 423 Intermediate Modern Hebrew (5) VLPA *Sokoloff* Readings of selected texts in modern Hebrew with continuing emphasis on grammar and syntax. Prerequisite: HEBR 422.

HEBR 427 Biblical Hebrew Poetry (5) VLPA *Noegel* Explores select poetic sections of the Hebrew Bible (Old Testament) in conjunction with English translations and commentaries. Emphasis on close readings, the grammatical insights of textual criticism, and the interpretive strategies and agendas of the English translations. Prerequisite: HEBR 333 or HEBR 426.

HEBR 428 Inscriptions from Biblical Times (5) VLPA *Noegel* Surveys Northwest Semitic inscriptions that bear significantly on our understanding of Biblical history and ancient Hebrew including the Moabite stone, Israelite ostraca, Siloam engraving, Gezer calendar, Deir Alla (Gilead) inscriptions, the Asherah texts, Ammonite fragments, and Phoenician monuments. Prerequisite: HEBR 333 or HEBR 426.

HEBR 451 Introduction to Hebrew Literature (3) VLPA *Sokoloff* Literary texts and analysis. Grammar, composition, and dictionary skills. Primarily modern texts-short poetry, fiction, and essays-with some selections as well from biblical passages, the liturgy, midrash, and medieval poetry. Prerequisite: HEBR 423.

HEBR 452 Introduction to Hebrew Literature (3) VLPA *Sokoloff* Literary texts and analysis. Grammar, composition, and dictionary skills. Primarily modern texts-short poetry, fiction, and essays-with some selections as well from biblical passages, the liturgy, midrash, and medieval poetry. Prerequisite: HEBR 423.

HEBR 453 Introduction to Hebrew Literature (3) VLPA *Sokoloff* Literary texts and analysis. Grammar, composition, and dictionary skills. Primarily modern texts-short poetry, fiction, and essays-with some selections as well from biblical passages, the liturgy, midrash, and medieval poetry. Prerequisite: HEBR 423.

HEBR 454 Hebrew Poetry (3) VLPA *Sokoloff* Selections of poetry by prominent twentieth-century Hebrew poets whose texts comment or elaborate on biblical texts. Original source considered side-by-side with modern poetry, to examine ways recent literature models itself on, draws upon, and revises traditional sources. Prerequisite: HEBR 423.

HEBR 470 Stories of the Prophets (3) VLPA/I&S *B. Wheeler* Reading and discussion of Jewish and Islamic exegesis of selected Biblical and Quranic narratives dealing with such figures as Moses, Abraham, Jacob, or Adam and Eve. Prerequisite: either ARAB 432 or HEBR 423. Offered: jointly with ARAB 470.

HEBR 472 Quran and Bible Masorah (3) VLPA *Wheeler* Introduces and discusses selected readings in textual apparatuses for the Quran and Bible. Attention to marginalia in Rabbinic texts, and Islamic scholars such as al-Zarkashi and as-Suyuti. Prerequisite: either ARAB 432, HEBR 427, or HEBR 432. Offered: jointly with ARAB 472.

HEBR 490 Supervised Study (1-6 max. 18) Special work in literary texts for graduates and undergraduates. Prerequisite: HEBR 423.

HEBR 499 Undergraduate Research (1-6 max. 18)

Persian

PRSAN 401 Intensive Elementary Tajik (15) Intensive study of grammar with oral and written drill and reading of selected texts in Tajik, the literary language spoken and written in the Central Asian Republic of Tajikistan. Offered: S.

PRSAN 404 Intensive Persian for Native Speakers (15) VLPA *Karimi-Hakkak* Enables students with a degree of proficiency in spoken Persian to read and write, to translate rudimentary texts, and to conceptualize the use of the formal style of composition. Reading, writing, and comprehension, particularly of handwritten manuscripts of the scribal tradition. Also covers calligraphy, translation, journalistic prose, and other facets of the language and the script. Offered: S.

PRSAN 411 Elementary Persian (5) Conversation, pronunciation, and graded reading. Persian alphabet and basic sentence constructions. Offers rudimentary conversational and reading ability with a vocabulary of about two thousand words.

PRSAN 412 Elementary Persian (5) Conversation, pronunciation, and graded reading. Persian alphabet and basic sentence constructions. Offers rudimentary conversational and reading ability with a vocabulary of about two thousand words. Prerequisite: PRSAN 411.

PRSAN 413 Elementary Persian (5) Conversation, pronunciation, and graded reading. Persian alphabet and basic sentence constructions. Offers rudimentary conversational and reading ability with a vocabulary of about two thousand words. Prerequisite: PRSAN 412.

PRSAN 421 Intermediate Persian (5) VLPA Reading of simple texts with emphasis on reading and writing, conversation skills, grammar, and syntax. Builds a vocabulary of standard Persian in preparation for advanced reading and comprehension of literary texts. Prerequisite: PRSAN 413.

PRSAN 422 Intermediate Persian (5) VLPA Reading of simple texts with emphasis on reading and writing, conversation skills, grammar, and syntax. Builds a vocabulary of standard Persian in preparation for advanced reading and comprehension of literary texts. Prerequisite: PRSAN 421.

PRSAN 423 Intermediate Persian (5) VLPA Reading of simple texts with emphasis on reading and writing, conversation skills, grammar, and syntax. Builds a vocabulary of standard Persian in preparation for advanced reading and comprehension of literary texts. Prerequisite: PRSAN 422.

PRSAN 431 Advanced Persian (3) VLPA Designed to improve reading and writing skills. Graded reading and writing and exposure to the writing system, textual history, newspaper reading, and translation. Cultural materials presented as appropriate. The art of calligraphy introduced. For students with a degree of proficiency in spoken Persian. Prerequisite: PRSAN 423.

PRSAN 451 Introduction to Persian Literature (3) VLPA *Karimi-Hakkak* Selected texts from modern and classical Persian poetry and prose. Provides insights into Iranian culture and its past and present achievements in literature. Prepares the student for a more comprehensive and critical study of Persian literature. Prerequisite: PRSAN 423.

PRSAN 452 Modern Persian Literature: A Survey (3) VLPA *Karimi-Hakkak* Development of poetry and prose after Iran felt and absorbed the impact of Western cultures. Periods and genres. Works of such authors as Jamalzadeh, Hedayat, Dehkoda, Al-e Ahmad, Nima, Sepehri, and Forugh. Prerequisite: PRSAN 423.

PRSAN 453 Classical Persian Literature: A Survey (3) VLPA *Karimi-Hakkak* History of Persian literature from Rudaki to Hafiz. Studies epic, lyric, and mystic traditions placed in historical settings. Covers the most important genres such as the *Qasida*, the *Ghazal*, the *Ruba'i* and the *Masnavi*. Prerequisite: PRSAN 423.

PRSAN 454 The Epic Tradition in Iran (3) VLPA *Karimi-Hakkak* Focuses on the *Shahnameh* of Firdawsi: explores the ancient legends that gave rise to it and follows the fortunes of epic poetry after Firdawsi, touching on the rise, development, and decline of romance in classical Persian literature. Prerequisite: PRSAN 433.

PRSAN 455 The Persian Ghazal (3) VLPA *Karimi-Hakkak* The Ghazal as the leading medium for lyrical expression in classical Persian tradition. Follows this genre from conception to culmination in the poetry of Hafiz. Conventions and devices of the *Ghazal*. Development placed in historical and social context. Prerequisite: PRSAN 433.

PRSAN 456 Sufism: Thought and Expression (3) VLPA/I&S *Karimi-Hakkak* Dynamics of mystical thought and expression as evolved in the writings of the great Sufi masters and reflected in the poetry of Sana'i, Attar, Rumi, and others. The fundamental unity of the mystical vision, with special attention to the peculiarities of individual style and expression. Prerequisite: PRSAN 433.

PRSAN 490 Supervised Study (1-6, max. 18) Special work in literary texts for graduates and undergraduates. Prerequisite: PRSAN 423.

PRSAN 499 Undergraduate Research (1-6, max. 18)

Turkic

TKIC 401 Intensive Elementary Uzbek (15) Intensive study of grammar, with oral and written drill and reading of simple texts in Uzbek. Covers first year Uzbek. Cannot be taken for credit if 411, 412, 413 taken. Offered: S.

TKIC 403 Intensive Elementary Kirghiz (15) Intensive study of grammar with oral and written drill of selected texts. Offered: S.

TKIC 404 Intensive Intermediate Uzbek (15) VLPA Allows students to complete second year Uzbek in one quarter. Reading of selected texts in Uzbek, with continuing emphasis on oral and written practice, grammar, and advanced readings. Cannot be taken for credit if 421, 422, 423 taken. Prerequisite: either TKIC 401 or TKIC 413. Offered: S.

TKIC 405 Intensive Intermediate Kazakh (15) VLPA Allows students to complete second year Kazakh in one quarter. Reading of selected texts in modern literary Kazakh, with emphasis on grammar, syntax, and oral practice. Prerequisite: either TKIC 402 or TKIC 416. Offered: S.

TKIC 406 Intensive Advanced Uzbek (15) VLPA Advanced-level instruction in speaking, writing, reading, and listening skills. Students work independently on translation projects. Emphasis on extensive writing practices in Uzbek and student participation in an Uzbek email conversation circle. Prerequisite: TKIC 423. Offered: S.

TKIC 411 Elementary Uzbek (5) Cirtautas Introduction to the modern written and spoken language. Cannot be taken for credit if 401 taken.

TKIC 412 Elementary Uzbek (5) Cirtautas Introduction to the modern written and spoken language. Cannot be taken for credit if 401 taken.

TKIC 413 Elementary Uzbek (5) Cirtautas Introduction to the modern written and spoken language. Cannot be taken for credit if 401 taken.

TKIC 421 Intermediate Uzbek (3) VLPA Cirtautas Continuation of elementary Uzbek. Oral work, grammar, and readings in Uzbek literature. Prerequisite: either TKIC 401 or TKIC 413.

TKIC 422 Intermediate Uzbek (3) VLPA Cirtautas Continuation of elementary Uzbek. Oral work, grammar, and readings in Uzbek literature. Prerequisite: TKIC 421.

TKIC 423 Intermediate Uzbek (3) VLPA Cirtautas Continuation of elementary Uzbek. Oral work, grammar, and readings in Uzbek literature. Prerequisite: TKIC 422.

TKIC 490 Supervised Study (1-6, max. 18) Special work in literary texts for graduates and undergraduates. Prerequisite: either TKIC 404, TKIC 405, or TKIC 423.

TKIC 499 Undergraduate Research (3-5, max. 15) For Turkic language and literature majors.

Turkish

TKISH 401 Intensive Elementary Modern Turkish (15) Intensive study of grammar, with oral and written drill and reading of simple texts. (Cannot be taken for credit if TKISH 411, 412, 413 taken.) Offered: S.

TKISH 411 Elementary Turkish (5) Introduction to modern Turkish. Pronunciation and conversation, grammar and composition, graded reading. Latin characters used throughout. (Cannot be taken for credit if TKISH 401 is taken.)

TKISH 412 Elementary Turkish (5) Introduction to modern Turkish. Pronunciation and conversation, grammar and composition, graded reading. Latin characters used throughout. (Cannot be taken for credit if TKISH 401 is taken.)

TKISH 413 Elementary Turkish (5) Introduction to modern Turkish. Pronunciation and conversation, grammar and composition, graded reading. Latin characters used throughout. (Cannot be taken for credit if TKISH 401 is taken.)

TKISH 421 Intermediate Turkish (5) VLPA Introduction to modern Turkish literature. Prerequisite: TKISH 413.

TKISH 422 Intermediate Turkish (5) VLPA Introduction to modern Turkish literature. Prerequisite: TKISH 421.

TKISH 423 Intermediate Turkish (5) VLPA Introduction to modern Turkish literature. Prerequisite: TKISH 422.

TKISH 454 Turkish Literary Genres: Prose (3) VLPA Major genres, styles, and themes of Turkish art-prose from Ottoman times to present; creation of stylistic and critical norms. Prerequisite: TKISH 423.

TKISH 490 Supervised Study (1-6, max. 18) Special work in literary texts for graduates and undergraduates. Prerequisite: TKISH 423.

TKISH 499 Undergraduate Research (1-6, max. 18)

Near Eastern Languages and Civilization

Courses in English

NEAR E 210 Introduction to Islamic Civilization (5) VLPA/I&S Major developments in Islamic civilization from advent of Islam in seventh century to present. Islamic history, law, theology, and mysticism, as well as the politics, cultures, and literatures of the various Islamic societies. Offered: jointly with SISSE 210.

NEAR E 211 Islam (5) VLPA/I&S B. Wheeler Introduction to important cultural and historical aspects of Islam, focusing on basic concepts and developments such as prophethood, Quran and Hadith, canon and law, ritual, social theory, Sufism, theology, and sectarianism. Special attention to comparison of varied Muslim practices and beliefs, and their relation to textual and personal authority. Offered: jointly with RELIG 211.

NEAR E 212 Introduction to the Quran (5) VLPA/I&S B. Wheeler Emphasis on the historical context of the Quran, the history of the text, its collection, organization, and interpretation. In English. Offered: jointly with RELIG 212.

NEAR E 213 Introduction to the Modern Middle East (5) I&S Major social and political trends in the Middle East during the 18th, 19th, and 20th centuries. Basic principles of Islam and its diversity, changing balance of power during the early modern period; European colonialism and withdrawal; pan-Arabism, nationalism, feminism and religious resurgence. Offered: jointly with SISME 213.

NEAR E 215 Prophets in Islam and Judaism (5) VLPA, I&S Noegel, Wheeler Explores prophecy and prophets within the context of the ancient Mediterranean world. Particular attention to the exegetical traditions concerning prophets in the Bible and Quran. Examines the stories of Abraham, Moses, Gideon, Elijah/Khidr, and others. Prophecy and mysticism examined for their relationship to oracles, sufism, and sacred texts. Offered: Sp.

NEAR E 230 Themes in Near Eastern Literature (5) VLPA, I&S Significant and interesting aspects of Near Eastern culture and society as represented by literary themes. Aspects of Near Eastern life and art such as women, minority groups, mysticism, and modern literature. Content varies.

NEAR E 240 Introduction to the Hebrew Bible: Old Testament (5) VLPA/I&S Examines the Hebrew Bible (Old Testament) in translation and its relationship with literatures of ancient Near East. Comparisons drawn between biblical text and literary works of Canaan, Egypt, Greece, Mesopotamia. Emphasis on the sophisticated literary techniques employed by biblical writers. Offered: jointly with RELIG 240.

NEAR E 250 Iranian Culture and Civilization (5) VLPA/I&S *Karimi-Hakkak* Explores the culture and civilization of this Middle Eastern society through a multi-disciplinary approach that includes such manifestations as architecture, carpet-weaving, story-telling, and the composition of poetry.

NEAR E 260 The Middle East in Film (3) VLPA/I&S The cinema of Egypt, Iran, Israel, Turkey, and other Middle Eastern nations; compares and contrasts the films with Middle Eastern literature from the twentieth century. Both films and literature illustrate how Middle Easterners view the world: their concepts of self versus society, religion, art, and politics.

NEAR E 325 Modern Hebrew Literature in English (3) VLPA *Sokoloff* Major developments in Hebrew literature from the Enlightenment to the current Israeli literature. Examines the development of modern Hebrew thought and literary style.

NEAR E 350 The City of Cairo (3) VLPA/I&S Development of Fustat and Cairo, 600-1800, with special emphasis on art and architecture. Consideration of the economic, social, and geographical influences on the creation of the distinctive Egyptian styles of Islamic art. Offered: jointly with ART H 350.

NEAR E 402 Classical Arabic Literature in Translation (3) VLPA *DeYoung* Examines development of Arabic literature from its beginnings through the fall of the Abbasid dynasty to the Mongols. Coincides with period when Arabic language and literature were dominant forces in Islamic civilization. Topics include: impact of Islam on the literature, courtly love, mystical poetry, the Thousand-and-One Nights, and Hispano-Arabic literature.

NEAR E 403 Colonialism, Nationalism, and the Modern Arabic Novel (3) VLPA/I&S *DeYoung* Examines how representative novels from the modern canon in Arabic have both endorsed and critiqued aspects of nationalism and colonialist ideology. Recommended: NEAR E 210.

NEAR E 420 Islamic Theological Literature in English (3) VLPA Readings from Mu'tazilite and Ash'arite works and from traditionalist works opposed to theology.

NEAR E 430 Scripture in Islam (5) VLPA/I&S *B. Wheeler* Examines concept and use of scripture in Islam, with special attention to issues of canon and commentary, heavenly books, talismanic uses, and the place of scripture in ritual. In English. Offered: jointly with RELIG 430.

NEAR E 433 Life of Prophet Muhammad (5) VLPA/I&S *B. Wheeler* Examines historical and religious traditions associated with the life of the Prophet Muhammad with particular attention to the biography in classical Islam. Focuses on Muhammad as prophet, holy man, law-giver, mystic, and statesman. Comparison with other religious figures such as Jesus and the Buddha. In English. Offered: jointly with RELIG 433.

NEAR E 442 Turkish Literature in Translation (3) VLPA Covers major theoretical issues concerning Ottoman court literature and Turkish epic and troubadour poetry. Major writers and works of modern Turkish literature read and analyzed in their social, political, and theoretical contexts. Previous study of Turkish literature not required.

NEAR E 451 Pharaonic Egypt in the Context of the Ancient Near East (3) VLPA I&S *Noegel* Surveys the history, literature, and archaeology of ancient Egypt from the first pharaohs to the conquest of Alexander the Great. Introduces the field of Egyptology, and focuses on the continuity of Egyptian history and culture in context. Slide presentations supplement the readings and in-class lectures.

NEAR E 452 The Biblical Song of Songs (3) VLPA *Noegel* Examines the erotic and beautiful Song of

Songs within the context of ancient (and medieval) Near Eastern love poetry and correlates close readings of the book with various interpretations it has received from antiquity until today. No knowledge of Hebrew or the Bible is required. Offered: jointly with SISJE 452.

NEAR E 453 The Biblical Prophets (3) VLPA I&S *Noegel* Explores the biblical prophets (in translation) within their Near Eastern contexts. Studies them for their historicity, literary and rhetorical sophistication, and ideological agendas. This course seeks to uncover the meaning and distinctiveness of Israelite prophecy within the context of the larger Near East. No knowledge of the Bible is required. Offered: jointly with SISJE 453.

NEAR E 454 Israel: The First Six Centuries BCE (3) VLPA I&S *Noegel* Traces the Israelites, from the Babylonian destruction of the Jerusalemite Temple (586 BCE) to events following the destruction of the second Temple (1st century CE). Focuses on primary historical and literary sources as well as archaeological and artistic evidence. No knowledge of Hebrew or the Bible is required. Offered: jointly with SISJE 454.

NEAR E 455 The Kings of Monarchic Israel (3) VLPA I&S *Noegel* Examines the biblical accounts (in translation) concerning the formation and collapse of the united Israelite monarchy. Investigates the archaeological and textual evidence for their historicity, the literary sophistication of these accounts, and Israelite kingship within the wider context of the ancient Near East. No knowledge of the Bible is required. Offered: jointly with SISJE 455.

NEAR E 456 Women in Ancient Judaism (3) I&S/ VLPA *Noegel* Explores those texts in early Jewish literature in which women play prominent roles and those in which women are surprisingly absent. Discusses the literary portrayal of women for what they tell us about the people who wrote the texts. No knowledge of Hebrew is required. Offered: jointly with RELIG 456.

NEAR E 457 The History of Biblical Interpretation (3) I&S/VLPA *Noegel* Traces biblical interpretation and translation technique from the earliest translations of the Hebrew Bible (Old Testament) to the various historical literary, deconstructionist, and holistic strategies of more recent times. Adopts a "hands-on" approach to the material and explores various hermeneutics by applying them in class. Offered: jointly with RELIG 457.

NEAR E 490 Supervised Study (1-6, max. 18) Special work in Near Eastern studies for graduates and undergraduates.

NEAR E 495 Trends in the Contemporary Middle East (3) I&S *Bacharach, De Young* Perspectives on cultural, political, and other aspects of Middle Eastern societies. Focuses on background complexities rather than immediate political-military confrontations. Topics vary. Offered: jointly with SISME 495.

NEAR E 496 Special Studies in Near Eastern Languages and Civilization (3-5, max. 15) VLPA Offered occasionally by visitors or resident faculty. Content varies.

NEAR E 499 Undergraduate Research (1-6, max. 18)

The neurobiology major offers students an intense introduction to the study of nervous systems. Faculty in both the College of Arts and Sciences and the School of Medicine teach courses in the major. Students will study the cellular and molecular properties of single nerve cells and the connections among them and learn how these properties determine animal behavior and human disease.

Undergraduate Program

Adviser
Thomas J. Freng
318 Hitchcock, Box 355320
(206) 616-3982

Bachelor of Science

Admission Requirements: BIOL 201, 202, with minimum 2.0 grade in each. Completion of most supporting course work in physics, math, and chemistry recommended, with minimum 2.50 GPA in any such work completed at time of application. Admission is competitive; meeting minimum standards guarantees consideration but not acceptance. Early application is encouraged and may increase chances for acceptance. Since the program uses rolling admission, there is no specific deadline for applying. See program administrator for details about applying.

Major Requirements: Minimum 86 credits, distributed as follows:

- Supporting course work (minimum 38 credits): (a) *Chemistry:* Option 1—CHEM 120,220,221; Option 2 (recommended)—CHEM 142, 152, 162 (or CHEM 145, 155, 165); and CHEM 223, 224 (or CHEM 237, 238, 239) (or CHEM 335, 336, 337) (labs not required). (b) *Physics:* PHYS 114, 115, or PHYS 121/131, 122/132 (recommended). (c) *Mathematics:* Two quarters of calculus (MATH 124, 125, or MATH 144, 145, or Q SCI 291, 292) plus a third quarter of either calculus or statistics (MATH 126, MATH 146, Q SCI 381, or STAT 311). (d) *Physical Chemistry:* Strongly recommended but not required. CHEM 355, or CHEM 452 and 453 (456 may be substituted).
- Introductory Biology (minimum 10 credits): BIOL 201 and 202. BIOL 203 recommended (may be taken concurrently with NBIO courses).
- Introduction to Neurobiology (10 credits): NBIO 301, 302.
- Advanced courses in neurobiology (12 credits): NBIO 401, 402, 403, 404.
- Electives: Minimum 16 credits from a wide variety of 400-level courses in the biological sciences. See program administrator for list of courses. Courses not listed may be allowed with permission of program director. Students may apply up to 7 credits of undergraduate research toward the 16 elective credits.

Course Descriptions

See page 48 for an explanation of course numbers, symbols, and abbreviations.

For graduate-level course descriptions, see the graduate and professional study volume of the *General Catalog* or visit the online course catalog at www.washington.edu/students/crscat/.

NBIO 301 Introduction to Cellular and Molecular Neurobiology (5) NW *Moody* Introduces students to the physiological and molecular properties of individual nerve cells and the synaptic connections between them, and to principles of nervous system development. Includes weekly laboratory sessions. Prerequisite: BIOL 202. Offered: W.

Neurobiology

318 Hitchcock



General Catalog web page:
www.washington.edu/students/genocat/academic/nbio.html

NBIO 302 Introduction to Systems and Behavioral Neurobiology (5) NW *O'Carroll* Introduces students to the mechanisms by which the properties of individual neurons and the synaptic connections among them produce complex behavioral outputs. Includes weekly laboratory sessions. Prerequisite: NBIO 301. Offered: Sp.

NBIO 401 Systems Neurobiology (3) NW *Robinson* Introduces students to the anatomical and physiological organization of the major sensory, motor, and associative systems of the mammalian brain. Behavioral data used to stress functional integration of systems. Includes gross brain anatomy demonstration and computer tutorials. Prerequisite: NBIO 302. Offered: A.

NBIO 402 Neuropathophysiology (3) NW *Crill* Introduces students to the basic physiological mechanisms of information processing in the mammalian brain by having students study a series of human neurological diseases that result from a specific disruption of these mechanisms. Prerequisite: NBIO 401. Offered: W.

NBIO 403 Systems and Behavioral Neurobiology (3) NW *Covey* Principles of neural circuits and systems. Topics include information processing in sensory and motor systems, sensory-motor integration, learning, and memory. Material presented from an empirical and theoretical approach, using examples relevant to animal behavior. Prerequisite: NBIO 401. Offered: Sp.

NBIO 404 Neuropharmacology (3) NW *Stella* Actions of drugs on the brain at clinical, cellular, and molecular levels. Therapeutic use of drugs in treatment of neurological and psychiatric diseases. Abuse of drugs and the mechanisms of addiction, tolerance, and withdrawal. Prerequisite: NBIO 401. Offered: Sp.

NBIO 440 Topics in Current Neurobiology Research (2, max. 6) NW Credit/no credit only. Prerequisite: NBIO 302.

NBIO 450 Current Research Literature in Neurobiology (2, max. 6) NW Weekly journal club in neurobiology. Students read and discuss original research articles in neurobiology, centered around a specific topic each quarter. Credit/no credit only. Prerequisite: BIOL 202.

NBIO 496 Peer Teaching Assistants in Neurobiology (5) Direct experience teaching in the classroom in NBIO 301 or 302. Peer teaching assistants attend lectures and weekly preparation meetings and practice in teaching techniques. Credit/no credit only. Prerequisite: NBIO 302. Offered: WSp.

NBIO 499 Individual Research in Neurobiology (3-6, max. 18) Students carry out projects in laboratories of program faculty. Prerequisite: NBIO 302.

Philosophy

345 Savery



General Catalog Web page:
www.washington.edu/students/gencat/academic/philosophy.html



Department Web page:
depts.washington.edu/philweb/

Philosophy is the study of the most fundamental issues concerning reality, knowledge, and value, and of the basic concepts, principles, and arguments of the major intellectual disciplines. Its fields include metaphysics, epistemology, logic, ethics, history of philosophy, political philosophy, aesthetics, philosophy of science, philosophy of mind, philosophy of language, philosophy of law, and philosophy of religion.

Undergraduate Program

Adviser
Gina Gould
345 Savery, Box 353350
(206) 616-1488
philinfo@u.washington.edu

The Department of Philosophy offers a program of study leading to a Bachelor of Arts degree, as well as a minor.

Although finding an opening for a philosopher in the want ads is rare, graduates of the Department of Philosophy acquire considerable skills in abstract thinking, analysis, and critical writing (constructing and critiquing arguments). Because of these skills, philosophical training is invaluable in almost any area of life. Recent graduates have been successful in software development, financial planning, journalism, teaching, and aviation. A few go on to graduate school and become professional philosophers. Philosophy is an ideal major for those interested in law school or any of the professional schools. Because the skills of philosophical analysis can be applied widely, philosophy is always a complementary, second degree for any major, whether it is in the physical sciences, the social sciences, arts, or humanities.

Student Associations: The Society for Undergraduate Philosophy Students (SUPS) is an organization dedicated to the informal discussion of philosophical issues.

Bachelor of Arts

Admission: 2.00 cumulative GPA and completion of 10 credits of philosophy course work.

Suggested Introductory Course Work: Introductory courses in symbolic logic, social philosophy, major problems of philosophy, and history of philosophy. Courses to develop writing skills, as well as language courses, especially Greek, French, or German. Mathematics courses through calculus.

Major Requirements: 50 credits in philosophy which must include (1) at least 25 credits at the UW; (2) PHIL 120 or an upper-division course in logic; (3) either PHIL 320 or PHIL 330 or PHIL 340 and PHIL 322 (or 400-level courses in the same areas; undergraduate adviser must approve substitutions); and (4) at least four UW courses at the 400 level or above, excluding PHIL 484, which normally cannot be used to satisfy this requirement.

Minor

Minor Requirements: 30 credits in philosophy to include PHIL 115 or 120, or an upper-division course in logic; at least 15 UW credits at the 300 level or above, excluding PHIL 484.

Graduate Program

For information on the Department of Philosophy graduate program, see the graduate and professional volume of the *General Catalog* or visit the *General Catalog* online at www.washington.edu/students/gencat/.

Faculty

Chair

Kenneth C. Clatterbaugh

Professors

Benson, Keith R. * 1981, (Adjunct); MA, 1973, PhD, 1979, Oregon State University; history of modern American biology, marine biology, and evolutionary biology.

Boler, John F. * 1960, (Emeritus); PhD, 1960, Harvard University; medieval philosophy.

BonJour, Laurence A. * 1977; PhD, 1969, Princeton University; epistemology, Kant, British empiricism.

Clatterbaugh, Kenneth C. * 1966; PhD, 1966, Indiana University; modern philosophy, social philosophy, gender studies.

Coburn, Robert C. * 1971; PhD, 1958, Harvard University; metaphysics, social philosophy.

Cohen, S. Marc * 1973; PhD, 1967, Cornell University; ancient philosophy, metaphysics.

Dietrichson, Paul * 1961, (Emeritus); PhD, 1955, Yale University; philosophy of religion, Kant, existentialism.

Jecker, Nancy A. S. * 1982, (Adjunct); MA, 1982, Stanford University; MA, 1984, PhD, 1986, University of Washington; philosophical and ethical aspects of health care delivery and policy.

Keyt, David * 1957; PhD, 1955, Cornell University; ancient philosophy, logic.

Marks, Charles * 1966; PhD, 1972, Cornell University; philosophy of mind, modern philosophy.

Potter, Karl H. * 1970, (Emeritus); PhD, 1955, Harvard University; Indian philosophy, philosophy of language.

Richman, Robert J. * 1961, (Emeritus); PhD, 1953, Harvard University; ethics, epistemology.

Associate Professors

Lange, Marc B. * 1997; PhD, 1990, University of Pittsburgh; philosophy of science, epistemology, metaphysics.

Mish'alani, James K. * 1963, (Emeritus); PhD, 1961, Brown University; contemporary continental philosophy.

Moore, Ronald M. * 1979; PhD, 1971, Columbia University; philosophy of law, aesthetics.

Roberts, Jean Valerie * 1992; PhD, 1982, University of Pittsburgh; ancient philosophy, ethics, philosophy of feminism.

Talbot, William J. * 1989; PhD, 1976, Harvard University; epistemology, ethics, social and political philosophy, rational choice theory.

Townsend, Michael F. * 1992, (Adjunct); MA, 1978, PhD, 1982, University of Michigan; JD, 1989, Yale University; law and science, intellectual property, use of quantitative methods.

Assistant Professors

Smith, Angela * 1999; PhD, 1999, Harvard University; ethics, political philosophy.

Taylor, Paul C. 1998; PhD, 1997, Rutgers University; social and political philosophy, American pragmatism, aesthetics, race theory.

Weller, Cass * 1997; PhD, 1983, University of Pittsburgh; ancient philosophy, modern philosophy, epistemology, philosophy of the mind.

Woody, Andrea I. * 1997; PhD, 1997, University of Pittsburgh; philosophy of science, history of science, philosophy of feminism.

Senior Lecturer

Baker, Ann Michelle 1994; MA, 1983, PhD, 1990, University of Washington; metaphysics, epistemology.

Course Descriptions

See page 48 for an explanation of course numbers, symbols, and abbreviations.

For graduate-level course descriptions, see the graduate and professional study volume of the *General Catalog* or visit the online course catalog at www.washington.edu/students/crsat/.

PHIL 100 Introduction to Philosophy (5) I&S *Baker, Marks* Major philosophical questions relating to such matters as the existence of God, the foundations of knowledge, the nature of reality, and the nature of morality. Approach may be either historical or topical. Offered: AWSpS.

PHIL 102 Contemporary Moral Problems (5) VLPA/I&S *Roberts, Talbott, Taylor* Philosophical consideration of some of the main moral problems of modern society and civilization, such as abortion, euthanasia, war, and capital punishment. Topics vary.

PHIL 110 Introduction to Social and Political Philosophy (5) I&S *Clatterbaugh, Coburn* An introduction to political theories such as conservatism, liberalism, and socialism and their treatment of select social issues.

PHIL 112 Philosophical Issues in Environmental Studies (5) I&S *Clatterbaugh, Coburn, Woody* Focuses on some of the philosophical questions that arise in connection with environmental studies. Topics to be considered include: the ideological roots of current issues, values and the natural world, public policy and risk assessment, intergenerational justice, and social change.

PHIL 114 Philosophical Issues in the Law (5) I&S *Moore* Analysis and critical assessment of various philosophical issues in law and legal reasoning. Material drawn from actual law cases, as well as writings by contemporary philosophers of law and lawyers. Topics include criminal responsibility, civil disobedience, abortion, enforcement of morals. Special legal or philosophical training not required.

PHIL 115 Practical Reasoning (5) I&S, QSR Introduction to logic emphasizing concepts and methods useful for practical analysis of arguments in everyday contexts; meaning, syllogisms, logical diagrams, inductive and statistical inference, informal fallacies, argument structure, perhaps some beginning symbolic logic. Offered: AWSpS.

PHIL 120 Introduction to Logic (5) I&S/NW, QSR *BonJour, Cohen, Keyt, Weller* Elementary symbolic logic. The development, application, and theoretical properties of an artificial symbolic language designed to provide a clear representation of the logical structure of deductive arguments. Offered: AWSpS.

PHIL 160 Why Do We Believe in Quarks, Evolution, and Other Crazy Things? Perspectives on Science, Reason, and Reality (5) I&S *Lange, Woody* Study of how scientific theories are justified and why they are accepted, using selected examples from the history of science.

PHIL 200 Topics in Philosophy (3-5, max. 10) I&S A study of philosophical topics at the introductory level. The content of the course is entirely at the discretion of the instructor.

PHIL 206 Philosophy of Feminism (5) I&S Philosophical analysis of the concepts and assumptions central to feminism. Theoretical positions within the feminist movement; view of the ideal society, goals and strategies of the movement, intersections of the sex-gender system with other systems of oppression. Offered: jointly with POL S 212/WOMEN 206.

PHIL 230 Philosophic Issues in World Affairs (3) I&S *Coburn* Moral problems that arise in connection with such topics as affluence, hunger, and overpopulation; global environmental degradation; war and weaponry; restructuring the international order.

PHIL 240 Introduction to Ethics (5) VLPA/I&S *Roberts, Smith, Talbott* Critical introduction to various philosophical views of the basis and presuppositions of morality and moral knowledge. Critical introduction to various types of normative ethical theory, including utilitarian, deontological, and virtue theories.

PHIL 241 Topics in Ethics (5, max. 10) VLPA/I&S Introduction to ethics through in-depth study of one or more selected topics (e.g., limits of moral community, animal rights, moral education, and freedom). Topics vary.

PHIL 267 Introduction to Philosophy of Religion (5) I&S *Coburn* Consideration of the sources of religious ideas and practices, the main kinds of religious views and the problems they raise, and the different forms that spirituality can take. Issues concerning the relations of religion to science and morality also treated.

PHIL 320 Ancient Philosophy (5) I&S *Cohen, Keyt, Roberts, Weller* Survey of ancient Greek philosophy, beginning with the pre-Socratics and proceeding on through Plato to Aristotle.

PHIL 321 Medieval Philosophy (5) I&S Development of main lines of philosophical thought in the Latin West from 400 to 1400, with emphasis on Augustine, Anselm, Abailard, Aquinas, and Ockham.

PHIL 322 Modern Philosophy (5) I&S *Baker, BonJour, Clatterbaugh, Coburn, Weller* Examination of metaphysical and epistemological problems from the works of Descartes, Spinoza, Leibniz, Locke, Berkeley, Hume, and Kant.

PHIL 325 Nineteenth-Century Philosophy (5) I&S *Coburn* Examination of post-Kantian thinkers through the end of the nineteenth century considering such major themes as idealism, romanticism, positivism, historicism, naturalism, existentialism, and pragmatism.

PHIL 327 American Philosophy (5) I&S Study of some of the major American philosophers such as Peirce, Royce, Dewey, William James, C. I. Lewis, Goodman, Quine.

PHIL 330 History of Ancient Political Philosophy (4) I&S *Keyt, Roberts* Political philosophy of fourth- and fifth-century Greece, especially the Sophists, Plato, and Aristotle, stressing the connection between the political philosophy and the underlying philosophical system of each philosopher.

PHIL 332 History of Modern Political Philosophy (5) I&S *BonJour, Clatterbaugh* Examination of major political philosophies from the sixteenth century to the nineteenth century, with attention to the underlying philosophical methods and foundations.

PHIL 334 Philosophy of Marxism (3) I&S *Clatterbaugh* Philosophy of Marx and the Marxist tradition with attention to key Marxist concepts such as exploitation, alienation, and historical materialism.

PHIL 338 Philosophy of Human Rights (3) I&S *Coburn* Theories of human rights and the bearing of these theories on issues of public policy such as legitimacy of war and terrorism, economic justice, and whether future generations have rights.

PHIL 340 History of Ancient Ethics (5) VLPA/I&S *Keyt, Roberts* Development of moral thought from Socrates through the Stoics. Particular emphasis on the ethical writings of Plato and Aristotle.

PHIL 342 History of Modern Ethics (5) VLPA/I&S *Jecker, Smith, Weller* Development of moral thought from Hobbes through Nietzsche, with particular emphasis on the ethical writings of Hume, Kant, and John Stuart Mill.

PHIL 345 Moral Issues of Life and Death (5) VLPA/I&S *Coburn* Examination of such topics as war and murder, famine relief, capital punishment, high-risk technologies, abortion, suicide, and the rights of future generations.

PHIL 346 Personal Values and Human Good (3) I&S *Baker, Coburn, Smith* Examination of the idea of a good human life. Emphases differ from year to year. Typical topics include happiness and pru-

dence, rationality and life plans, personal values and the meaning of life, autonomy and false consciousness, self-respect and self-esteem, honesty and self-deception, faith and "vital lies."

PHIL 347 Philosophy in Literature (5) VLPA/I&S *Marks* Study of philosophical ideas expressed in works of literature.

PHIL 350 Introduction to Epistemology (4) I&S *Baker, BonJour, Lange, Talbott* Nature, definition, and possibility of knowledge.

PHIL 353 Introduction to the Philosophy of Language (5) I&S Philosophical theories about the nature of language. Topics include meaning, reference, truth, propositions, relations between language and thought.

PHIL 356 Introduction to Metaphysics (5) I&S *Baker* Introductory examination of some of the main problems in metaphysics, such as the nature of truth and reality, the metaphysical status of properties, the existence of free will.

PHIL 360 Introductory Topics in Philosophy of Science (5, max. 10) I&S *Lange, Woody* Study of one or more current topics in philosophy of science such as scientific realism, explanation, confirmation, causation. Prerequisite: one PHIL course; recommended: PHIL 120; PHIL 160.

PHIL 363 Introduction to the Philosophy of Mind (5) I&S *Marks* Various theories of the nature of mind, the relationship between mind and body, the self, introspection, and knowledge of other minds.

PHIL 386 Introduction to the Philosophical Systems of India (5) I&S *Potter* The fundamental views of classical Indian philosophical schools on epistemology and metaphysics through readings in translation of basic works. Nyaya, Vaisheshika, Samkhya, Yoga, Jain philosophy, Vijñānavāda and Madhyamika Buddhism, Advaita Vedānta and later developments. Offered: jointly with SISSA 386.

PHIL 406 Philosophical Topics in Feminism (5) I&S *Roberts* Detailed examination of questions raised by recent feminist scholarship in particular areas of philosophy, such as political theory, ethics, epistemology, or philosophy of science. Emphasis varies.

PHIL 410 Social Philosophy (5) I&S *Clatterbaugh, Coburn, Talbott, Taylor* An examination of topics pertaining to social structures and institutions such as liberty, distributive justice, and human rights.

PHIL 411 Justice in Health Care (5) VLPA/I&S *Jecker* Examination of the ethical problem of allocating scarce medical resources. Emphasis on fundamental principles of justice that support alternative health policies. Recommended: prior courses in philosophy or medical ethics. Offered: jointly with MHE 474.

PHIL 412 Indian Philosophy (5) I&S *Potter* Historical survey of the major systems and the traditional problems of philosophy in India. Readings in Buddhism, Nyaya, Samkhya, and Vedānta.

PHIL 414 Philosophy of Law (3) I&S *BonJour, Moore* Nature and function of law. Relation of law to morality. Legal rights, judicial reasoning.

PHIL 418 Indian Buddhist Philosophy (3) I&S *Potter* Topics from Buddhist thought, both Sravakayanist and Mahayanist, touching on the following areas: epistemology, theory of liberation, metaphysics and the theory of the absolute, cosmology, and ethics. Readings in translation. At least one course in Indian philosophy or Hinduism or Buddhism recommended.

PHIL 422 Studies in Continental Rationalism (3, max. 9) I&S *Clatterbaugh, Coburn, Marks* Study of one or more of the major continental Rationalists: Descartes, Spinoza, Leibniz.

PHIL 425 Studies in Nineteenth-Century Philosophy (3) I&S *Baker* Study of post-Kantian metaphysical theories, with special emphasis on idealism, realism, and/or pragmatism. Typical authors include F. H. Bradley, J. McTaggart, Royce, and Green.

PHIL 426 Twentieth-Century Philosophy (5) I&S *Baker, Lange, Weller* A study of development of contemporary analytic philosophy, the revolt against idealism, and the linguistic turn in philosophy.

PHIL 430 Hellenistic Philosophy (3) I&S *Roberts* Survey of the Epicurean, Stoic, and Skeptic philosophy of the Hellenistic period. Emphasis may vary.

PHIL 431 Philosophy of Plato (3, max. 6) I&S *Cohen, Keyt, Roberts, Weller* Study of selected middle and late dialogues.

PHIL 433 Philosophy of Aristotle (3, max. 6) I&S *Cohen, Keyt, Roberts, Weller* Study of several major Aristotelian treatises.

PHIL 434 Philosophy of Thomas Aquinas (3) I&S Examination of the major philosophical positions of Thomas Aquinas in the theory of knowledge, metaphysics, and ethics.

PHIL 436 British Empiricism (3) I&S *BonJour* Examination of the metaphysical and epistemological views of Locke and Berkeley, with perhaps some attention also to Hume. Prerequisite: either PHIL 322 or PHIL 350.

PHIL 437 Philosophy of Hume (3) I&S *Marks, Weller* Study Hume's analyses of knowledge, the passions, and morals.

PHIL 438 Philosophy of Kant (5) I&S *BonJour, Weller* Systematic study of *The Critique of Pure Reason*.

PHIL 440 Ethics (5) I&S *Coburn, Roberts, Smith, Talbott* Critical examination of the concepts and judgments of value, including an analytical treatment of the notions of good and bad, right and wrong, and obligation. Emphasis varies from quarter to quarter.

PHIL 445 Philosophy of Art (5) VLPA/I&S *Moore* Critical examination of various accounts of the nature of art, artistic activity, the aesthetic experience. Problems in interpretation and evaluation of works of art.

PHIL 446 Development of Aesthetic Theory (5) VLPA/I&S *Moore, Taylor* Historical development of aesthetics, emphasizing such major figures as Plato, Aristotle, Hume, Kant, Hegel, and Goodman.

PHIL 450 Epistemology (5) I&S *Baker, BonJour, Lange, Talbott* Systematic study of some of the main problems of the theory of knowledge, such as: the definition of "knowledge;" a priori knowledge; perception and knowledge of the external world; and whether knowledge has or requires a foundation. Emphasis varies from quarter to quarter.

PHIL 453 Philosophy of Language (5) VLPA/I&S Current theories of meaning, reference, predication, and related concepts. Offered: jointly with LING 476.

PHIL 456 Metaphysics (5) I&S *Baker, Coburn* Examination of such topics as freedom of the will, the nature of persons and personal identity, the existence of God, time, necessary truth, and universals. The emphases vary from year to year.

PHIL 458 Phenomenology (5) I&S The contributions of phenomenology to selected topics in the theory of meaning, philosophy of mind, ontology, and epistemology.

PHIL 459 Philosophy of Medicine (5) I&S *Jecker* Familiarizes students with central issues in the philosophy of medicine. Focuses on the nature of medical knowledge, the connection between theory and observation, the meaning of medical concepts, and the relationship between theories and the world.

Recommended: prior courses in philosophy, history of science, or history of medicine. Offered: jointly with MHE 440.

PHIL 460 Philosophy of Science (5) I&S/NW *Lange, Woody* Critical study of the nature of scientific knowledge. Topics include the relation of theory to observation, the use of mathematics, how theories change, the requirements for the meaningfulness of a theory, and nature of confirmation.

PHIL 463 Philosophy of Mind (3) I&S *BonJour, Marks* Examination of current theories of the nature of the mind and mental processes.

PHIL 464 Philosophical Issues in the Cognitive Sciences (5) I&S/NW *Marks* Philosophical problems connected with research in psychology, artificial intelligence, and other cognitive sciences. Topics vary. Readings from both philosophical and scientific literature. Accessible to nonphilosophers with suitable interests and backgrounds.

PHIL 466 Philosophy of the Social Sciences (5) I&S *Talbott* Examination of fundamental issues in the foundations, methodology, and interpretation of the social sciences. Topics include value orientation and objectivity, methodological individualism, functionalism, reductionism, and the status of idealized models, including models involving idealized conceptions of individual rationality. Emphasis varies from quarter to quarter.

PHIL 467 Philosophy of Religion (5) I&S Study of selected topics and problems in the philosophy of religion, such as: arguments for the existence of God; the problem of evil; atheism; faith; religious experience and revelation; the attributes of God; miracles; immortality; and the relation between religion and morality. Readings from historical and contemporary authors.

PHIL 469 Existentialist Philosophy (3) I&S Examination of major ideas of selected existentialist philosophers.

PHIL 470 Intermediate Logic (5) I&S/NW, QSR *Keyt* An introduction to the concepts and methods of metatheory and their application to the sentential calculus.

PHIL 471 Advanced Logic (5) I&S/NW *Keyt* Study of the first-order predicate calculus with identity and function symbols. Consistency, soundness, completeness, compactness. Skolem-Löwenheim theorem. Formalized theories.

PHIL 472 Axiomatic Set Theory (5) I&S/NW *Keyt* Development of axiomatic set theory up to and including the consistency of the Axiom of Choice and Continuum Hypothesis with the Zermelo-Fraenkel Axioms.

PHIL 473 Philosophy of Mathematics (5) I&S/NW Study of the traditional accounts of the nature of mathematical entities and mathematical truth given by logicism, intuitionism, and formalism, and the impact of Gödel's incompleteness theorems on these accounts.

PHIL 474 Modal Logic (5) I&S/NW Notions of necessity and possibility, using the classical systems T, S4, and S5, and the syntax and the semantics (Kripke models) of these systems.

PHIL 479 Semantics II (3) VLPA/I&S/NW *Ogihara* Formal characterization of linguistic meaning. Emphasis on nature and purpose of formal semantics and on its relation to formal syntax. Prerequisite: LING 442. Offered: jointly with LING 479.

PHIL 481 Philosophy of Biology (5) I&S/NW *Lange* Study of several current topics in philosophy of biology, which may include the logical structure of evolutionary theory, fitness, taxonomy, the concept

of a living thing, reductionism, the concept of a biological species, evolutionary explanations, and philosophical consequences of sociology.

PHIL 482 Philosophy of Physical Science (5, max. 10) I&S/NW *Lange, Woody* Study of philosophical issues raised by theories in physics or chemistry, such as whether space (time) is a substance, how causation and locality are treated in quantum mechanics, temporal anisotropy and time travel, the nature of a field of force, the reduction of chemistry to physics. Prerequisite: one PHIL course.

PHIL 484 Reading in Philosophy (1-5, max. 15) Individual study of selected philosophical works.

PHIL 490 Advanced Topics in Epistemology (5, max. 15) I&S *BonJour, Talbott* Intensive study of a particular topic or area in epistemology. Prerequisite: either PHIL 350 or PHIL 450.

Physics

C121 Physics-Astronomy



General Catalog Web page:
www.washington.edu/students/gencat/academic/physics.html



Department Web page:
www.phys.washington.edu

Physics is the study of the fundamental structure of matter and the interaction of its constituents, with the goal of providing a quantitative description of nature based on a limited number of physical principles.

Undergraduate Program

Adviser

Margot Nims
C139A Physics-Astronomy, Box 351560
(206) 543-2772

The Department of Physics offers a program of study leading to Bachelor of Science degree, as well as a minor. The program is one of the largest in the nation, with 30 to 50 majors graduating every year. Graduates may continue to further studies in physics, further studies in other fields (such as astronomy, medicine, law, business, biology, or engineering), or join the private sector in a variety of technical occupations where analytical, computational, and problem-solving skills are highly valued.

Bachelor of Science

Admission Requirements: Students in good academic standing may declare this major at any time.

Suggested Introductory Course Work: MATH 124, 125, 126 (or 127, 128, 129, or MATH 144, 145, 146), 308, 324; PHYS 121/131, 122/132, 123/133, 224, 225, 227, 228. (Note: MATH 134, 135, and 136 can be used in place of 124, 125, 126, and 308.)

Additional Information: One year of high school physics is strongly recommended before taking PHYS 121/131. PHYS 101, 102, and 103 may substitute for one year of high school physics, if necessary.

The physics and mathematics courses listed above as "suggested" are required prerequisites for junior-level work in physics not only at the UW but also at most colleges and universities in the United States. Students who do not complete them during the first two years in college will either need to take more than four years to earn a degree or will be limited to a minimal course of study for graduation in four years.

Major Requirements: (1) Core courses—PHYS 121/131, 122/132, 123/133, 224, 225, 227, 228, 321, 322, 334. (2) 3 credits selected from upper-division lecture courses in modern physics—either PHYS 324 or 327. (3) 6 credits selected from upper-division physics laboratory courses. (4) 3 credits in PHYS 401, 402, 403, or 491, 492, 493, or 494, 495, 496. (5) 5 credits selected from approved upper-division physics courses or approved courses in cognate subjects. (6) MATH 124, 125, 126 (or 127, 128, 129, or 144, 145, 146), 308, 324, or MATH 134, 135, 136, and 324. (7) 9 credits selected from physical or biological sciences other than physics or mathematics, or from the history or philosophy of science, in addition to any courses in these fields taken to satisfy requirement (5) above. (8) At least 12 credits of the physics courses presented to satisfy requirements (1) through (5) shall be in physics courses numbered 300 or above taken at the UW. A minimum grade of 2.0 is required in all courses presented in fulfillment of requirements (1) through (5). Students who plan graduate study in physics are strongly advised to complete PHYS 323, 324, 325, 328, as well as several of the following: PHYS 231, 232, 331, 421, 422, 423, 424, 425, 426, 431, 432, 433, and AMATH 401, 402, 403.

Progress Requirement: In each academic year, every undergraduate physics major who either has completed the required 200-level courses in physics or has begun physics courses beyond the 200 level must (1) complete at least 15 credits of course work acceptable in fulfillment of the departmental major requirements, exclusive of credits earned by repeating courses in which acceptable credit has been earned previously, or (2) satisfactorily complete an approved part-time program of study. Students who do not satisfy the above requirement will be dropped as physics majors unless exempted explicitly by the Physics Undergraduate Majors Committee. Students dropped for this reason may petition the committee for readmission to the major.

Minor

Minor Requirements: 30-36 physics credits, including: (1) Core courses—PHYS 121/131, 122/132, 123/133, 224, and 225 (MATH 124, 125, 126, or 127, 128, 129, or 144, 145, 146); (2) one of the following three options: (a) *Physics Education*: PHYS 407, 408, 409 (total 36 physics credits); (b) *Experimental Physics*: PHYS 231, 334 and one course from PHYS 331, 335, 431, 432, 433, or 434 (total 30 physics credits); (c) *Mathematical Physics*: PHYS 227, 228 (MATH 308 required), and one course from PHYS 321 or 324 (MATH 324 required) (total 30 physics credits). Minimum grade of 2.0 required for each physics course counted toward the minor.

Graduate Program

For information on the Department of Physics graduate program, see the graduate and professional volume of the *General Catalog* or visit the *General Catalog* online at www.washington.edu/students/gencat/.

Faculty

Chair

David G. Boulware

Professors

Adelberger, Eric G. * 1972; PhD, 1967, California Institute of Technology; experimental nuclear physics.
 Alberg, Mary Ann 1983, (Affiliate); PhD, 1974, University of Washington; theoretical nuclear physics.
 Arons, Arnold B. 1968, (Emeritus); MS, 1940, Stevens Institute of Technology; PhD, 1943, Harvard University; physical oceanography, physics education.

Baker, Marcia * 1980, (Adjunct); MS, 1960, Stanford University; PhD, 1971, University of Washington; cloud physics, atmospheric geophysics.

Baker, Marshall * 1962; PhD, 1958, Harvard University; field theory, theoretical elementary-particle physics.

Bardeen, James M. * 1976; PhD, 1965, California Institute of Technology; general relativity, theoretical astrophysics.

Bertsch, George F. * 1992; PhD, 1965, Princeton University; theoretical physics, nuclear and atomic cluster physics.

Bichsel, Hans 1992, (Affiliate); PhD, 1951, University of Basel (Switzerland); experimental nuclear physics.

Bodansky, David * 1954, (Emeritus); PhD, 1950, Harvard University; experimental nuclear physics.

Boulware, David G. * 1965; PhD, 1962, Harvard University; field theory, theoretical elementary-particle physics, general relativity.

Bowles, Thomas J. 1995, (Affiliate); PhD, 1978, Princeton University; experimental nuclear physics.

Boynton, Paul E. * 1970; PhD, 1967, Princeton University; high-energy astrophysics, astronomy.

Brown, Frederick C. * 1987; PhD, 1950, Harvard University; use of synchrotron radiation in experimental solid state physics.

Brown, Lowell S. * 1968; PhD, 1961, Harvard University; field theory, theoretical elementary-particle physics.

Buck, Warren W. 1999, (Adjunct); MS, 1970, PhD, 1976, The College of William and Mary; physics and nuclear energy.

Burnett, Thompson H. * 1979; PhD, 1968, University of California (San Diego); experimental elementary-particle physics.

Cahn, John Werner 1984, (Affiliate); PhD, 1953, University of California (Berkeley); theoretical condensed-matter physics.

Campbell, Charles T. * 1989, (Adjunct); PhD, 1979, University of Texas (Austin); physical chemistry, analytical chemistry, surfaces, chemisorption, catalysis, biosensors.

Chaloupka, Vladimir * 1981; PhD, 1975, University of Geneva (Switzerland); experimental elementary-particle physics.

Chayes, Jennifer T. 1997, (Affiliate); PhD, 1983, Princeton University; theoretical condensed-matter physics.

Clark, Kenneth C. * 1948, (Emeritus); PhD, 1947, Harvard University; optical spectroscopy, upper atmosphere.

Cook, Victor * 1963; PhD, 1962, University of California (Berkeley); experimental high-energy physics.

Cramer, John G. * 1964; PhD, 1961, Rice University; experimental nuclear physics.

Dash, J. Gregory * 1961, (Emeritus); PhD, 1951, Columbia University; low-temperature condensed-matter physics.

Dehmelt, Hans G. * 1955; PhD, 1950, University of Göttingen (Germany); experimental atomic physics.

den Nijs, Marcel P. * 1981; PhD, 1979, Katholieke University (Netherlands); theoretical condensed-matter physics.

Doe, Peter J. * 1994, (Research); MSc, 1975, PhD, 1977, University of Durham (UK); experimental nuclear physics.

Drobny, Gary P. * 1981, (Adjunct); PhD, 1981, University of California (Berkeley); solid state nuclear magnetic resonance, biophysics, biomaterials.

Efimov, Vitaly 1990, (Affiliate); PhD, 1966, Physico-Technical Institute (Russia); theoretical nuclear physics.

Ellis, Stephen D. * 1975; PhD, 1971, California Institute of Technology; theoretical elementary-particle physics.

Engel, Thomas * 1980, (Adjunct); PhD, 1969, University of Chicago; surface chemistry and catalysis.

Fain, Samuel C. * 1970; PhD, 1969, University of Illinois; experimental condensed-matter physics, surface physics.

Farwell, George W. * 1948, (Emeritus); PhD, 1948, University of Chicago; experimental nuclear physics.

Fortson, E. Norval * 1963; PhD, 1964, Harvard University; experimental atomic physics.

Gerhart, James B. * 1956, (Emeritus); PhD, 1954, Princeton University; physics education.

Halpern, Isaac * 1953, (Emeritus); PhD, 1948, Massachusetts Institute of Technology; experimental nuclear physics.

Haxton, Wick C. * 1984; PhD, 1976, Stanford University; theoretical physics, nuclear physics.

Heckel, Blayne * 1983; PhD, 1981, Harvard University; experimental neutron and atomic physics.

Henley, Ernest M. * 1954, (Emeritus); PhD, 1952, University of California (Berkeley); theoretical nuclear physics, theoretical elementary-particle physics.

Hogan, Craig J. * 1990; PhD, 1980, Cambridge University (UK); astrophysical cosmology, especially the origin of astronomical structures in the expanding universe.

Holzworth, Robert * 1982, (Adjunct); PhD, 1977, University of California (Berkeley); experimental space plasma physics, atmospheric/magnetospheric electric fields, thunderstorms.

Ingalls, Robert L. * 1966; PhD, 1962, Carnegie Mellon University; experimental condensed-matter physics.

Jarboe, Thomas R. * 1989, (Adjunct); PhD, 1974, University of California (Berkeley); plasma physics and controlled fusion, magnetic reconnection and relaxation.

Kaplan, David B. * 1994; PhD, 1985, Harvard University; theoretical nuclear and elementary-particle physics.

Lake, George Russell * 1985, (Adjunct); PhD, 1980, Princeton University; stellar dynamics, galaxy structure and formation, cosmology, computational astrophysics.

Lord, Jere J. * 1952, (Emeritus); PhD, 1950, University of Chicago; cosmic rays, experimental elementary-particle physics.

Lubatti, Henry J. * 1969; PhD, 1966, University of California (Berkeley); experimental elementary-particle physics.

Margon, Bruce H. * 1980, (Adjunct); PhD, 1973, University of California (Berkeley); galactic and extragalactic x-ray astronomy, optical counterparts of x-ray sources.

McDermott, Lillian C. * 1971; PhD, 1959, Columbia University; physics education.

McDermott, Mark N. * 1962; PhD, 1959, Columbia University; experimental atomic physics.

Miller, Gerald A. * 1975; PhD, 1972, Massachusetts Institute of Technology; theoretical nuclear physics.

Mockett, Paul M. * 1972, (Research); PhD, 1965, Massachusetts Institute of Technology; experimental elementary-particle physics.

Nagourney, Warren * 1977, (Research); PhD, 1972, Columbia University; experimental atomic physics, high resolution laser spectroscopy of atoms.

Nelson, Ann E. * 1994; MA, 1981, PhD, 1984, Harvard University; theoretical elementary-particle physics.

Olmstead, Marjorie A. * 1991; PhD, 1985, University of California (Berkeley); experimental condensed-matter physics, surface and interface physics.

Parks, George K. * 1971, (Adjunct); PhD, 1966, University of California (Berkeley); particles and waves in auroral, magnetospheric, and interplanetary space plasma phenomena.

Pearsall, Thomas P. * 1989, (Adjunct); PhD, 1973, Cornell University; physics of semiconductors and the technology of semiconductor devices.

Puff, Robert D. * 1962; PhD, 1960, Harvard University; many-body theory, statistical physics.

Rehr, John J. * 1974; PhD, 1972, Cornell University; theoretical condensed-matter physics.

Reinhardt, William P. * 1991, (Adjunct); PhD, 1968, Harvard University; theoretical and computational chemistry with applications in chemistry and biophysics.

Riedel, Eberhard K. * 1975, (Affiliate); PhD, 1966, Technical University of Munich (Germany); theoretical condensed-matter physics.

Robertson, R. G. Hamish * 1994; MA, 1965, Oxford University (UK); PhD, 1971, McMaster University (Canada); experimental nuclear physics.

Rothberg, Joseph E. * 1969; PhD, 1963, Columbia University; experimental high-energy physics.

Schick, Michael * 1969; PhD, 1967, Stanford University; theoretical condensed-matter physics.

Sharpe, Stephen R. * 1986; PhD, 1983, University of California (Berkeley); theoretical particle physics: lattice gauge theory and strong interaction phenomenology.

Snover, Kurt Albert * 1972, (Research); PhD, 1969, Stanford University; experimental nuclear physics.

Sorensen, Larry B. * 1983; PhD, 1980, University of Illinois; experimental condensed-matter physics.

Spivak, Boris * 1991; PhD, 1970, Leningrad Polytechnical Institute (Russia); theoretical condensed-matter physics.

Stern, Edward A. * 1965; PhD, 1955, California Institute of Technology; experimental condensed-matter physics.

Storm, Derek * 1979, (Research); PhD, 1970, University of Washington; nuclear physics, especially medium energy, accelerator physics.

Streib, John F. * 1947, (Emeritus); PhD, 1941, California Institute of Technology; experimental nuclear physics.

Stubbs, Christopher * 1994; MSc, 1983, PhD, 1988, University of Washington; observational cosmology and gravitation.

Thouless, David * 1980; PhD, 1958, Cornell University; theoretical condensed-matter physics.

Trainor, Thomas A. * 1973, (Research); PhD, 1973, University of North Carolina; experimental nuclear physics.

Van Dyck, Robert S. Jr. * 1971; PhD, 1971, University of California (Berkeley); experimental atomic physics.

Vilches, Oscar E. * 1968; PhD, 1966, National University of Cuyo (Argentina); low-temperature condensed-matter physics.

Weitkamp, William G. * 1968, (Research Emeritus); MS, 1961, PhD, 1965, University of Wisconsin (Madison); experimental nuclear physics.

Wilets, Lawrence * 1958, (Emeritus); PhD, 1952, Princeton University; theoretical nuclear and atomic physics.

Wilkerson, John F. * 1994; MS, 1979, PhD, 1982, University of North Carolina; experimental nuclear physics.

Wilkes, Richard Jeffrey * 1974, (Research); PhD, 1974, University of Wisconsin; experimental cosmic ray and elementary particle physics.

Williams, Robert W. * 1959, (Emeritus); PhD, 1948, Massachusetts Institute of Technology; experimental high-energy physics, cosmic rays.

Yaffe, Laurence G. * 1988; PhD, 1980, Princeton University; quantum field theory, elementary particle theory.

Associate Professors

Bulgac, Aurel * 1993; PhD, 1977, Leningrad Nuclear Physics Institute (Russia); many body theory, molecular dynamics, classical and quantum chaos.

Gundlach, Jens 1984, (Research); PhD, 1990, University of Washington; experimental nuclear physics.

Jonsson, Hannes * 1988, (Adjunct); PhD, 1985, University of California (San Diego); theory and simulations of atomic scale structure and dynamics in liquids, glasses, and crystals.

Savage, Martin J. * 1996; MSc, 1985, University of Auckland (New Zealand); PhD, 1990, California Institute of Technology; nuclear and particle physics.

Schwinberg, Paul B. 1972, (Research); MS, 1975, PhD, 1979, University of Washington; experimental atomic physics.

Unsworth, Martyn J. * 1993, (Adjunct Research); PhD, 1991, Cambridge University (UK); geomagnetic induction, magnetotellurics, electromagnetic geophysics.

Vogel, Viola * 1990, (Adjunct); DPhil, 1987, Johann Wolfgang Goethe University (Germany); molecular assemblies and Langmuir-Blodgett films, liquid interfaces, nonlinear optics, microscopy.

Wettlaufer, John S. 1987, (Affiliate); PhD, 1991, University of Washington; fundamental and applied physics of ice and crystal growth.

Winglee, Robert M. * 1991, (Adjunct); PhD, 1984, University of Sydney (Australia); energetic phenomena in sun/earth plasmas, excitation of waves, high energy particle acceleration.

Zhao, Tianchi * 1986, (Research); PhD, 1987, Columbia University; experimental high-energy physics instrumentation and detectors.

Assistant Professors

Bedaque, Paulo S. F. 1996, (Research); MS, 1989, Sao Paulo State University (Brazil); PhD, 1994, University of Rochester; theoretical nuclear physics.

Elliott, Steven R. * 1995, (Research); PhD, 1987, University of California (Irvine); experimental nuclear physics.

Heron, Paula * 1995; MS, 1992, University of Ottawa (Canada); PhD, 1995, Western Ontario University (Canada); physics education.

Kaplan, Lev 1999, (Research); MS, 1993, PhD, 1996, Harvard University; theoretical nuclear physics.

Mittleman, Richard K. 1987, (Research); PhD, 1987, University of Chicago; experimental atomic physics.

Phillips, Daniel R. * 1998, (Research); PhD, 1995, University of South Australia; theoretical nuclear physics.

Rieke, Frederick Martin * 1997, (Adjunct); PhD, 1991, University of California (Berkeley); sensory signal processing and computation.

Romalis, Michael V. * 1997; PhD, 1997, Princeton University; atomic physics, low energy tests of fundamental particle physics.

Seidler, Gerald T. * 1996; MA, 1991, PhD, 1993, University of Chicago; condensed matter experiments: microstructural kinetics and nonequilibrium statistical mechanics.

Shaffer, Peter S. * 1985, (Research); PhD, 1993, University of Washington; physics education.

Steiger, Thomas D. 1994, (Research); MS, 1989, PhD, 1994, University of Michigan; experimental nuclear physics.

Vokos, Stamatis P. * 1992; MA, 1985, PhD, 1990, University of California (Berkeley); physics education.

Wasserbaech, Steven R. * 1993, (Research); PhD, 1989, Stanford University; experimental high-energy physics.

Watts, Gordon T. * 1999; PhD, 1995, University of Rochester; accelerator-based elementary particle physics.

Senior Lecturer

Robertson, Charles E. 1990; MS, 1981, University of Washington; physics education.

Course Descriptions

See page 48 for an explanation of course numbers, symbols, and abbreviations.

For graduate-level course descriptions, see the graduate and professional study volume of the *General Catalog* or visit the online course catalog at www.washington.edu/students/crscat/.

PHYS 101- Physical Science by Inquiry I (5-) NW, QSR Laboratory-based development of concepts and reasoning skills. Helps prepare preservice teachers to teach science by inquiry. Liberal arts students gain experience in the scientific process. Useful for students with weak science preparation before taking standard science courses. Forms foundation for scientific literacy. Offered: AW.

PHYS -102 Physical Science by Inquiry I (-5) NW, QSR Laboratory-based development of concepts and reasoning skills. Helps prepare preservice teachers to teach science by inquiry. Liberal arts students gain experience in the scientific process. Useful for students with weak science preparation before taking standard science courses. Forms foundation for scientific literacy. Prerequisite: PHYS 101. Offered: Sp.

PHYS 103 Physical Science by Inquiry I (5) NW, QSR See PHYS 101-102. Prerequisite: PHYS 102.

PHYS 110 Liberal Arts Physics (5) NW, QSR Basic concepts of physics presented with emphasis on their origin and their impact on society and the Western intellectual tradition. Primarily for students in the arts, humanities, and social sciences. Offered: AS.

PHYS 111 Liberal Arts Physics (5) NW, QSR Basic concepts of physics presented with emphasis on their origin and their impact on society and the Western intellectual tradition. Primarily for students in the arts, humanities, and social sciences. Prerequisite: PHYS 110. Offered: W.

Credit is not given for both 114 and 121.

PHYS 114 General Physics (4) NW, QSR Basic principles of physics presented without use of college-level mathematics. Suitable for students majoring in technically oriented fields other than engineering or the physical sciences. Mechanics and sound. Recommended: working knowledge of algebra and trigonometry; one year high school physics; concurrent registration in PHYS 117. Offered: AWSpS.

Credit is not given for both 115 and 122.

PHYS 115 General Physics (4) NW, QSR Basic principles of physics presented without use of college-level mathematics. Suitable for students majoring in technically oriented fields other than engineering or the physical sciences. Heat and electromagnetism. Prerequisite: PHYS 114 or 121; recommended: concurrent registration in PHYS 118. Offered: AWSpS.

Credit is not given for both 116 and 123.

PHYS 116 General Physics (4) NW, QSR Basic principles of physics presented without use of college-level mathematics. Suitable for students majoring in technically oriented fields other than engineering or the physical sciences. Light and modern physics. Prerequisite: PHYS 115 or 122; recommended: concurrent registration in PHYS 119. Offered: AWSpS.

Credit is not given for both 117 and 131.

PHYS 117 General Physics Laboratory (1) NW Mechanics laboratory. Credit/no credit only. Prerequisite: PHYS 114 which may be taken concurrently. Offered: AWSpS.

Credit is not given for both 118 and 132.

PHYS 118 General Physics Laboratory (1) NW Heat and electromagnetism laboratory. Credit/no credit only. Prerequisite: PHYS 115 which may be taken concurrently. Offered: AWSpS.

Credit is not given for both 119 and 133.

PHYS 119 General Physics Laboratory (1) NW Sound, light, and modern physics laboratory. Credit/no credit only. Prerequisite: PHYS 116 which may be taken concurrently. Offered: AWSpS.

The courses 121, 122, 123, 224, 225 plus appropriate laboratory together make up the general physics sequence for science and engineering students.

PHYS 121 Mechanics (4) NW, QSR Basic principles of mechanics. Prerequisite: MATH 124, MATH 127, MATH 134, or MATH 145, any of which may be taken concurrently; corequisite: PHYS 131; recommended: one year high school physics. Offered: AWSpS.

PHYS 122 Electromagnetism and Oscillatory Motion (4) NW Basic principles of electromagnetism, the mechanics of oscillatory motion. Prerequisite: MATH 125, MATH 128, MATH 134, or MATH 146, any of which may be taken concurrently; PHYS 121; corequisite: PHYS 132. Offered: AWSpS.

PHYS 123 Waves (4) NW Electromagnetic waves, optics, and waves in matter. Prerequisite: MATH 126, MATH 129, or MATH 134, any of which may be taken concurrently; PHYS 122; corequisite: PHYS 133. Offered: AWSpS.

PHYS 131 Experimental Physics (1) NW Experimental topics in physics for science and engineering majors. Corequisite: PHYS 121. Offered: AWSpS.

PHYS 132 Experimental Physics (1) NW Experimental topics in physics for science and engineering majors. Corequisite: PHYS 122. Offered: AWSpS.

PHYS 133 Experimental Physics (1) NW Experimental topics in physics for science and engineering majors. Corequisite: PHYS 123. Offered: AWSpS.

PHYS 207 The Physics of Music (3) NW The nature of sound; vibrations; traveling and standing waves; response of the ear to sound; production of musical sounds.

PHYS 208 The Physics of Sports (3) NW Record performances of top athletes shown close to limits imposed by physical laws. Studies the science of motion, forces, momentum, collisions, energy, and power. Emphasizes application of these ideas to human physiology and human experience such as sprinting, high jumping, baseball, tennis, football, and other sports. Recommended: working knowledge of algebra and trigonometry. Offered: Sp.

PHYS 210 Physics by Inquiry I (5) NW Selected topics in physics with emphasis on depth of understanding and development of skills essential to the scientific process. Background for teaching physics and physical science as a process of inquiry. Prerequisite: either PHYS 103, PHYS 116, or PHYS 123. Offered: A.

PHYS 211 Physics by Inquiry I (5) NW Selected topics in physics with emphasis on depth of understanding and development of skills essential to the scientific process. Background for teaching physics and physical science as a process of inquiry. Prerequisite: PHYS 210. Offered: W.

PHYS 212 Physics by Inquiry I (5) NW Selected topics in physics with emphasis on depth of understanding and development of skills essential to the scientific process. Background for teaching physics and physical science as a process of inquiry. Prerequisite: PHYS 211. Offered: Sp.

PHYS 214 Light and Color (5) NW, QSR Compares past explanation of certain familiar natural phenomena with present understandings. Lamps and lighting, outdoor light, optical devices, color vision, perspective, paints, and pigments. Quantitative comparison critical to the course, but college-level mathematics background not required. Intended for non-science students. Offered: A.

PHYS 215 Order and Disorder (5) NW, QSR Includes symmetry in biological systems and in inanimate nature, relation of structure to size, and micro- and macrostructure of universe, systems in chaos. Quantitative comparison critical to course, but college-level mathematics background not required. 214, 215, 216 may be taken independently or in any order. Intended for non-science students. Offered: W.

PHYS 216 Time and Change (5) NW, QSR Includes miracles and magic, how and why things move, basic forces in nature, quantum mechanics, relativity, past and future of the universe. Quantitative comparison critical to course, but college-level mathematics background not required. 214, 215, 216 may be taken independently or in any order. Intended for non-science students. Offered: Sp.

PHYS 224 Thermal Physics (3) NW Introduction to heat, thermodynamics, elementary kinetic theory, and the physics of continuous media. Prerequisite: MATH 126, MATH 129, or MATH 136, any of which may be taken concurrently; PHYS 122 which may be taken concurrently. Offered: AWSpS.

PHYS 225 Modern Physics (3) NW Special theory of relativity; phenomena of modern physics with emphasis on photons, electrons, and atoms; introduction to quantum physics. Prerequisite: PHYS 123 which may be taken concurrently. Offered: AWSpS.

PHYS 227 Elementary Mathematical Physics (3) NW Applications of mathematics in physics with emphasis on the mechanics of particles and continuous systems. Prerequisite: either MATH 136, MATH 308; PHYS 123. Offered: W.

PHYS 228 Elementary Mathematical Physics (3) NW Applications of mathematics in physics with emphasis on the mechanics of particles and continuous systems. Prerequisite: PHYS 227. Offered: Sp.

PHYS 231 Introductory Experimental Physics (3) NW Introduction to data acquisition and analysis using experiments which measure fundamental constants or properties of nature (Planck's constant, Boltzmann's constant, speed of light, charge of electron). Prerequisite: PHYS 123.

PHYS 232 Introduction to Computational Physics (3) NW Computational methods for physics introduced in a lecture/laboratory setting using high-level languages (Mathematica, Matlab). No previous computing experience expected. Experiments in radioactive decay, sound, physical optics. Uses techniques of data fitting, graphics, solving differential equations, Fourier analysis, synthesis, transforms, Monte Carlo methods. Prerequisite: PHYS 228 which may be taken concurrently. Offered: Sp.

PHYS 311 Relativity and Gravitation (3) NW Special theory of relativity, Newtonian gravity, and relativistic effects of gravitation, including black holes, gravitational waves, and applications to cosmology. Prerequisite: PHYS 123.

PHYS 321 Electromagnetism (3) NW First of a three-quarter sequence. Charges at rest and in motion; dielectric and magnetic media; electromagnetic waves; relativity and electromagnetism; physical optics. Prerequisite: MATH 324 which may be taken concurrently; PHYS 228. Offered: A.

PHYS 322 Electromagnetism (3) NW Continuation of PHYS 321. Charges at rest and in motion; dielectric and magnetic media; electromagnetic waves; relativity and electromagnetism; physical optics. Prerequisite: PHYS 321. Offered: W.

PHYS 323 Electromagnetism (3) NW Continuation of PHYS 322. Charges at rest and in motion; dielectric and magnetic media; electromagnetic waves; relativity and electromagnetism; physical optics. Prerequisite: PHYS 322. Offered: Sp.

PHYS 324 Quantum Mechanics (3) NW First part of a two-quarter sequence. Introduction to nonrelativistic quantum mechanics: need for quantum theory, Schrodinger equation, operators, angular momentum, the hydrogen atom, identical particles, and the periodic table. Prerequisite: MATH 324; PHYS 225; PHYS 228. Offered: A.

PHYS 325 Quantum Mechanics (3) NW Continuation of PHYS 324. Introduction to nonrelativistic quantum mechanics: perturbation theory, the variational principle, radiation; application of quantum mechanics to atomic physics, magnetic resonance, scattering, and various special topics. Prerequisite: PHYS 324. Offered: W.

PHYS 327 Introduction to Nuclear Physics (3) NW Nuclear structure, including nuclear reactions, fission, particle accelerators, and nuclear instrumentation; applications of nuclear phenomena in atomic energy and astrophysics. Prerequisite: PHYS 225. Offered: W.

PHYS 328 Statistical Physics (3) NW Elements of statistical mechanics and their applications. Prerequisite: PHYS 224; PHYS 324. Offered: Sp.

PHYS 331 Optics Laboratory (3) NW Measurements of interference and diffraction, optical properties of matter, image processing, interferometry, holography. Prerequisite: PHYS 227. Offered: Sp.

PHYS 334 Electric Circuits Laboratory (3) NW Basic elements of DC, AC, and transient circuits; electronic devices; electrical measurements. Prerequisite: either MATH 126, MATH 129, or MATH 136; PHYS 123. Offered: W.

PHYS 335 Electric Circuits Laboratory (3) NW Electrical measurements, data management, digital electronics of microprocessor systems. Building a microprocessor. Prerequisite: PHYS 334. Offered: Sp.

PHYS 341 Energy and Environment I (3) NW *Kramlich, Malte*. Energy consumption, US and world. Fossil energy: energy conversion systems; oil, gas and coal resources; air pollution and environmental impacts. Nuclear energy use, principles. Fission reactors, fuel cycle. Offered: jointly with M E 341, CHEM E 341, ENVIR 341; A.

PHYS 342 Energy and Environment II (3) NW Introduction to renewable energy. Principles, practices, and trends of solar, wind, hydro, and biomass (including fuel cell) energy conversion. Reductions in the environmental impact of energy conversion. Offered: jointly with M E 342, CHEM E 342, ENVIR 342; W.

PHYS 401 Special Problems (* max. 30) Supervised individual study. Offered: AWSpS.

PHYS 402 Special Problems (* max. 30) Supervised individual study. Offered: AWSpS.

PHYS 403 Special Problems (* max. 30) Supervised individual study. Offered: AWSpS.

PHYS 405- Physical Science by Inquiry II (5-) NW Emphasis on depth of understanding and development of reasoning and representational skills essential to the scientific process. Provides background for teaching physical science as a process of inquiry and develops scientific literacy. Offered: A.

PHYS -406 Physical Science by Inquiry II (-5) NW Emphasis on depth of understanding and development of reasoning and representational skills essential to the scientific process. Provides background for teaching physical science as a process of inquiry and develops scientific literacy. Offered: W.

PHYS 407 Physics by Inquiry II (5) NW Selected topics in physics, with emphasis on depth of understanding and development of skills essential to the scientific process. Background for teaching physics at secondary school and introductory college levels. Some mathematical proficiency required. Prerequisite: PHYS 123. Offered: A.

PHYS 408 Physics by Inquiry II (5) NW Selected topics in physics, with emphasis on depth of understanding and development of skills essential to the scientific process. Background for teaching physics at secondary school and introductory college levels. Some mathematical proficiency required. Prerequisite: PHYS 407. Offered: W.

PHYS 409 Physics by Inquiry II (5) NW Selected topics in physics, with emphasis on depth of understanding and development of skills essential to the scientific process. Background for teaching physics at secondary school and introductory college levels. Some mathematical proficiency required. Prerequisite: PHYS 408. Offered: Sp.

PHYS 410 Physics by Inquiry for In-Service Teachers (1-2, max. 10) NW A "hands-on" inquiry-oriented approach designed to train in-service teachers in the use of the physical science content for any of several science programs selected by a school or school district. Credit/no credit only.

PHYS 411 Physics by Inquiry for Lead Teachers (1-4, max. 4) NW Extends the content covered in previous courses and helps prepare lead teachers to train colleagues to use any of several science programs selected by schools or districts. Prerequisite: two courses selected from PHYS 405, PHYS 406, PHYS 407, PHYS 408, and PHYS 409. Offered: A.

PHYS 412 Physics by Inquiry for Lead Teachers (1-4, max. 4) NW Extends the content covered in previous courses and helps prepare lead teachers to train colleagues to use any of several science programs selected by schools or districts. Prerequisite: two courses selected from PHYS 405, PHYS 406, PHYS 407, PHYS 408, and PHYS 409. Offered: W.

PHYS 413 Physics by Inquiry for Lead Teachers (1-4, max. 4) NW Extends the content covered in previous courses and helps prepare lead teachers to train colleagues to use any of several science programs selected by schools or districts. Prerequisite: two courses selected from PHYS 405, PHYS 406, PHYS 407, PHYS 408, and PHYS 409. Offered: Sp.

PHYS 421 Atomic and Molecular Physics (3) NW Survey of the principal phenomena of atomic and molecular physics. Prerequisite: PHYS 323; PHYS 325.

PHYS 422 Nuclear and Elementary-Particle Physics (3) NW Survey of the principal phenomena of nuclear and elementary-particle physics. Prerequisite: PHYS 323; PHYS 325. Offered: Sp.

PHYS 423 Solid-State Physics (3) NW Survey of the principal phenomena of solid-state physics. Prerequisite: PHYS 323; PHYS 325. Offered: A.

PHYS 424 Mathematical Physics (3) NW Advanced classical mechanics. Prerequisite: PHYS 323; PHYS 325. Offered: A.

PHYS 425 Mathematical Physics (3) NW Mathematical techniques of particular use in physics, including partial differential equations. Prerequisite: PHYS 323; PHYS 325. Offered: W.

PHYS 426 Mathematical Physics (3) NW Mathematical techniques of particular use in physics, including partial differential equations. Prerequisite: PHYS 425. Offered: Sp.

PHYS 427 Applications of Physics (1-3, max. 12) NW Current applications of physics to problems in the sciences and technology.

PHYS 428 Selected Topics in Physics (1-5, max. 12) NW

PHYS 431 Modern Physics Laboratory (3) NW Measurement in modern atomic, molecular, and solid-state physics. Recommended: 30 credits in physics. Offered: A.

PHYS 432 Modern Physics Laboratory (3) NW Measurement in modern atomic, molecular, and solid-state physics. Recommended: 30 credits in physics. Offered: W.

PHYS 433 Modern Physics Laboratory (3) NW Techniques in nuclear and elementary-particle research. Prerequisite: either PHYS 327 or PHYS 422. Offered: Sp.

PHYS 434 Application of Computers to Physical Measurement (3) NW Laboratory giving specific instruction and experience in interfacing laboratory equipment to computers. Prerequisite: PHYS 335. Offered: A.

PHYS 436 Nonlinear Dynamics and Chaos (4) NW Variational Principle, Lagrangian and Hamiltonian Mechanics, phase space, nonlinear dynamics, approach to chaos, Lyapunov exponents, applications to physical systems. Numerical exercises to illustrate phenomena. Prerequisite: MATH 309.

PHYS 441 Quantum Physics (4) NW Introduction to concepts and methods of quantum physics: wave mechanics (de Broglie wavelength, uncertainty principle, Schrodinger equation), one-dimensional examples (tunneling, harmonic oscillator), formalism of quantum physics, angular momentum and the hydrogen atom. Recommended: 30 credits in physical science or engineering. Offered: W.

PHYS 451 Issues for Ethnic Minorities and Women In Science and Engineering (5) I&S Addresses issues faced by women and ethnic minorities in physical sciences and engineering. Focuses on participation, barriers to participation, and solutions to those issues for women and ethnic minorities in physical sciences and engineering. Offered: jointly with WOMEN 485.

PHYS 460 Water in the Environment (3) NW Baker, Raymond, Waddington, Warren Discusses the unique physical and chemical properties of the water molecule in relation to the atmospheric greenhouse effect, precipitation formation, oceanic circulations, infiltration of water through soils, geyser eruptions, and glacier and sea ice thickness. Prerequisite: either MATH 124, MATH 126, MATH 129, or MATH 136 and PHYS 123; PHYS 133. Offered: jointly with ATM S 460 and GPHYS 460. Offered: A.

PHYS 485 Senior Honors Seminar (1, max. 3) NW Offered: A.

PHYS 486 Senior Honors Seminar (1, max. 3) NW Offered: W.

PHYS 487 Senior Honors Seminar (1, max. 3) NW Offered: Sp.

PHYS 491 Independent Research (1-3, max. 3) Supervised, independent study requiring written and oral presentations summarizing work accomplished. Recommended: 12 credits in physics above 200 level. Offered: A.

PHYS 492 Independent Research (1-3, max. 3) Supervised, independent study requiring written and oral presentations summarizing work accomplished. Recommended: 12 credits in physics above 200 level. Offered: W.

PHYS 493 Independent Research (1-3, max. 3) Supervised, independent study requiring written and oral presentations summarizing work accomplished. Recommended: 12 credits in physics above 200 level. Offered: Sp.

PHYS 494 Seminar on Current Problems in Physics (1-3, max. 3) NW Supervised, independent study of topics (chosen by faculty in charge) of current interest in physics. Written and oral presentation summarizing work accomplished are required. Recommended: 12 credits in physics above 200 level. Offered: A.

PHYS 495 Seminar on Current Problems in Physics (1-3, max. 3) NW Supervised, independent study of topics (chosen by faculty in charge) of current interest in physics. Written and oral presentation summarizing work accomplished are required. Recommended: 12 credits in physics above 200 level. Offered: W.

PHYS 496 Seminar on Current Problems in Physics (1-3, max. 3) NW Supervised, independent study of topics (chosen by faculty in charge) of current interest in physics. Written and oral presentation summarizing work accomplished are required. Recommended: 12 credits in physics above 200 level. Offered: Sp.

Political Science

101 Gowen



General Catalog Web page:
www.washington.edu/students/gencat/academic/political_sci.html



Department Web page:
depts.washington.edu/polisci/

Students of political science examine the theory and practice of government and politics. They acquire knowledge of political institutions and processes and learn to think critically about public policies and their consequences. They learn how to evaluate individual, group, and mass behavior in political settings. Because of their understanding and interest in political systems, students who major in political science enter such career fields as government service, law, business, journalism, politics, public-policy analysis, and education.

The department is organized into four major fields of study: political theory, American government and politics, international relations, and comparative politics. Several subfields—public law, law and public policy, political communication, political culture, and political economy—cut across these main areas and provide focused specialization for both undergraduate and graduate students. The department has long been renowned in comparative and international politics, especially in the study of Asian political phenomena, in public law, and in American government and politics. The department has also augmented its faculty strength in public policy, political and feminist theory, and political economy.

Undergraduate Program

Adviser
Bonnie Lyon
215 Smith, Box 353530
(206) 543-1824
polsadv@u.washington.edu

The department offers a program of study that leads to a Bachelor of Arts degree, as well as a minor. Students begin their concentration by choosing three basic courses that define the discipline and its major fields of interest, then advance to more specialized study in the field areas. The department provides a Writing Center to help undergraduates become better writers and the Political Science Computer Classroom, which enables students and faculty to conduct research and analysis via computers and the Internet. Faculty provide opportunities for individual, supervised study through research fellowships, independent reading/research, and optional senior theses. Students gain practical experience through internships, service learning, and field work for employment after completion of the baccalaureate degree.

Bachelor of Arts

Admission Requirements:

1. Sophomore standing (completion of 45 college credits).
2. Minimum 2.00 cumulative GPA.
3. Students must have completed or be in the process of completing 15 credits of introductory political science courses, from the following: POL S 101, 201, 202, 203, 204, 205.
4. Students are admitted all quarters; no quarterly deadlines. Applications and additional information available from advisers in 215 Smith.

Suggested Introductory Course Work: A balanced combination of courses covering all three categories of the Arts and Sciences Areas of Knowledge requirement.

Major Requirements: 50 credits in political science, including (1) three courses (15 credits) in introductory political science field courses from POL S 101, 201, 202, 203, 204, 205; (2) three courses (15 credits) in field courses numbered POL S 212 and above—at least one course in each of three different areas of political science study: the five areas from which to select this requirement are political theory, comparative government, international relations, American government, and research methods; (3) 20 credits of elective political science course work numbered POL S 212 and above; (4) minimum cumulative GPA of 2.25 in political science courses at graduation and a minimum grade of 2.0 required in each political science course taken to fulfill requirements for the major. Transfer and postbaccalaureate students must meet all the above requirements and complete a minimum of 10 upper-division political science credits at the UW.

Political Economy and Political Communication: The department also offers political economy and political communication options, a specialized program of study that combines political science and economics or political science and communications. Students who wish to pursue these interdisciplinary options should consult with a political science adviser. A list of recommended course work is available.

Internships: In order to prepare students for career opportunities, the department offers three internship programs that range from part-time, 5-credit assignments to full-time, 15-credit programs. Students can elect to work in local agencies (POL S 496), in the state legislature during winter quarter (POL S 497), and in Washington, D.C. (POL S 498). Students in all majors may apply for the Washington Center Program, which

places students in Washington, D.C., during every academic quarter. Additional information is available from departmental advisers in 215 Gowen.

Minor

Minor Requirements

30 credits from one of the following options (see department for course lists and suggested course tracks):

American Government: POL S 202; 20 credits Group D electives; 5 credits Group D 400-level elective.

Comparative Politics: POL S 204; 20 credits Group B electives; 5 credits Group B 400-level elective.

International Relations: POL S 203; 20 credits Group C electives; 5 credits 400-level Group C elective.

Political Science (General): One from POL S 101, 201, 202, 203, 204, 205; 20 credits POL S electives; 5 credits 400-level POL S elective.

Political Theory: POL S 201; 20 credits Group A electives; 5 credits 400-level Group A elective.

Graduate Program

For information on the Department of Political Science's graduate program, see the graduate and professional volume of the *General Catalog* or visit the *General Catalog* online at www.washington.edu/students/gencat/.

Faculty

Chair

Michael W. McCann

Professors

Bennett, W. Lance * 1974; MPhil, 1973, PhD, 1974, Yale University; American politics, comparative politics, political communication, mass media, political culture.

Brass, Paul R. * 1965, (Emeritus); PhD, 1964, University of Chicago; comparative politics (South Asia).

Burstein, Paul * 1985, (Adjunct); PhD, 1974, Harvard University; political sociology, social stratification, public policy, law.

Caporaso, James A. * 1988; PhD, 1968, University of Pennsylvania; international political economy, comparative politics, European Community, research methodology.

Cassinelli, Charles W. * 1960, (Emeritus); PhD, 1953, Harvard University; comparative government (Latin America).

Gerberding, William P. * 1979, (Emeritus); PhD, 1959, University of Chicago; American government and politics, public policy.

Gore, William J. * 1966, (Emeritus); PhD, 1952, University of Southern California; public policy, public administration.

Hartsock, Nancy C. M. * 1984; PhD, 1972, University of Chicago; feminist theory, Marxism, contemporary political theory.

Hellmann, Donald C. * 1967; PhD, 1964, University of California (Berkeley); Japanese politics and international relations.

Jones, Bryan D. * 1996; PhD, 1970, University of Texas (Austin); decision-making and public policy processes in American government.

Keeler, John T. * 1980; PhD, 1978, Harvard University; comparative politics (Western Europe), international relations.

Lang, Gladys Engel * 1984, (Emeritus); PhD, 1954, University of Chicago; political effects of mass media, sociology of art, political movements and crowd behavior.

Lev, Daniel S. * 1970, (Emeritus); PhD, 1964, Cornell University; comparative politics (Southeast Asia).

Levi, Margaret * 1974; PhD, 1974, Harvard University; comparative politics, political economy, labor politics.

Majeski, Stephen J. * 1984; PhD, 1981, Indiana University; international relations, foreign policy, peace and conflict resolution.

Matthews, Donald Rowe * 1976, (Emeritus); PhD, 1953, Princeton University; American government and politics, comparative politics (Norway, U.K.).

May, Peter J. * 1979; PhD, 1979, University of California (Berkeley); policy analysis, quantitative methods, federal disaster policy.

McCann, Michael W. * 1982; MA, 1976, PhD, 1983, University of California (Berkeley); American government and politics, public law, political theory.

McCrone, Donald J. * 1979; PhD, 1966, University of North Carolina; American politics, political economy, methodology.

Migdal, Joel S. * 1980, (Adjunct); MA, 1968, PhD, 1972, Harvard University; state-society relations, rules of public space, Israel-Palestine.

Modelski, George * 1967, (Emeritus); PhD, 1954, University of London (UK); international relations, international political economy.

Olson, David J. * 1974; PhD, 1971, University of Wisconsin; American government and politics (urban, state, and labor relations).

Pempel, T. J. * 1995, (Adjunct); PhD, 1972, Columbia University; comparative politics in Japan.

Reshetar, John S. Jr. * 1957, (Emeritus); PhD, 1950, Harvard University; comparative government (Soviet Union), international relations.

Scheingold, Stuart A. * 1969; PhD, 1963, University of California (Berkeley); American politics (public law).

Taylor, Michael John * 1985; PhD, 1976, University of Essex (UK); political theory, political economy.

Townsend, James R. * 1968, (Emeritus); PhD, 1965, University of California (Berkeley); comparative government (China), politics of development.

Ward, Michael D. * 1997; PhD, 1977, Northwestern University; international relations, political economy, political geography, statistical models.

Associate Professors

Bachman, David M. * 1991, (Adjunct); PhD, 1984, Stanford University; Chinese politics and foreign policy and China's political economy (1949-present); US-China relations.

Di Stefano, Christine * 1985; PhD, 1984, University of Massachusetts; political theory (modern and contemporary), feminist theory, political culture.

Gill, Anthony J. * 1994; MA, 1989, PhD, 1994, University of California (Los Angeles); comparative politics, Latin America, political economy, methodology.

Goldberg, Ellis * 1985; PhD, 1983, University of California (Berkeley); political economy of the Middle East, comparative politics.

Gottfried, Alex 1951, (Emeritus); MA, 1948, PhD, 1952, University of Chicago; American government and politics.

Hanson, Stephen E. * 1990; MA, 1986, PhD, 1991, University of California (Berkeley); Soviet, post-Soviet and comparative politics.

Ingebritsen, Christine * 1992, (Adjunct); PhD, 1993, Cornell University; politics, international political economy, European integration, environmental policy.

Kier, Elizabeth L. * 1998; PhD, 1992, Cornell University; international relations.

Kiser, Edgar Vance * 1988, (Adjunct); PhD, 1987, University of Arizona; political sociology, theory, historical sociology.

Litfin, Karen T. * 1991; PhD, 1992, University of California (Los Angeles); international environmental politics, globalization processes, technology and politics.

Mayerfeld, Jason * 1991; MA, 1988, PhD, 1992, Princeton University; political theory, ethics.

Mercer, Jonathan L. * 1996; PhD, 1993, Columbia University; international relations theory, security, political psychology, rationality and emotion.

Riley, Walter 1946, (Emeritus); MA, 1935, PhD, 1957, Stanford University; political science.

Rivenburgh, Nancy * 1989, (Adjunct); MS, 1982, Boston University; PhD, 1991, University of Washington; international communications, the media, intercultural relations and identity, international news.

Rohn, Peter H. * 1962, (Emeritus); PhD, 1958, University of Washington; international relations, international law.

Wilkerson, John D. * 1990; MA, 1989, PhD, 1991, University of Rochester; American government and politics, quantitative methodology.

Assistant Professors

Givens, Terri E. 1999; MA, 1996, PhD, 1999, University of California (Los Angeles); comparative politics, Western Europe, political parties, political economy.

La Vaque-Manty, Mika T. 1998; PhD, 1998, University of Michigan; political theory.

Simon, Adam F. * 1997; MA, 1993, PhD, 1997, University of California (Los Angeles); American government, methodology, political communication, voting behavior, media.

Simpson, Andrea Y. * 1993; PhD, 1993, Emory University; ethnic identity and its effects on political attitudes and behavior.

Smith, Mark A. * 1997; PhD, 1997, University of Minnesota; American politics, interest groups, political economy, Congress, public policy.

Whiting, Susan H. * 1994; PhD, 1995, University of Michigan; political economy of development in post-1949 China.

Course Descriptions

See page 48 for an explanation of course numbers, symbols, and abbreviations.

For graduate-level course descriptions, see the graduate and professional study volume of the *General Catalog* or visit the online course catalog at www.washington.edu/students/crscat/.

Most upper-division courses (300- and 400-level) do not have prerequisites. However, because these courses generally offer more advanced subject matter, they are recommended for juniors and seniors. Freshmen or sophomores who wish to enroll in upper-division courses may do so, but they should consult with the instructor or department adviser first.

POL S 101 Introduction to Politics (5) I&S Political problems that affect our lives and shape the world around us. Offered: AWSpS.

POL S 201 Introduction to Political Theory (5) I&S Philosophical bases of politics and political activity. Provides an introduction to the study of politics by the reading of a few books in political philosophy. Organized around several key political concepts, such as liberty, equality, justice, authority, rights, and citizenship. Offered: AWSpS.

POL S 202 Introduction to American Politics (5) I&S Institutions and politics in the American political system. Ways of thinking about how significant problems, crises, and conflicts of American society are resolved politically. Offered: AWSpS.

POL S 203 Introduction to International Relations (5) I&S The world community, its politics, and government. Offered: AWSpS.

POL S 204 Introduction to Comparative Politics (5) I&S Political systems in a comparative framework. Traditional and contemporary approaches to the study of governments and societies in different countries. Offered: WSp.

POL S 205 Political Science as a Social Science (5) I&S Methodological perspectives of the various social science disciplines: commonalities and differences in assumptions, values, and paradigms. Current issues from the multiple perspective of social sciences; limits of the social sciences in resolving key social issues. Offered: W.

POL S 212 Philosophy of Feminism (5) I&S Philosophical analysis of the concepts and assumptions central to feminism. Theoretical positions within the feminist movement; view of the ideal society, goals and strategies of the movement, intersections of the sex-gender system with other systems of oppression. Offered: jointly with PHIL 206/WOMEN 206.

POL S 249 Introduction to Labor Studies (5) I&S Conceptual and theoretical issues in the study of labor and work. Role of labor in national and international politics. Formation of labor movements. Historical and contemporary role of labor in the modern world. Offered: jointly with HIST 249/SOC 266

POL S 270 Introduction to Political Economy (5) I&S Political economy as a tool for understanding and evaluating the political world. Combines theory, methods, and insights derived from economics and political science and applies them to a range of substantive issues.

POL S 273 The Concept of Political Power (5) I&S How to understand and explain relationships of power. Readings from Marxism, Weberian sociology, anarchism, classical political philosophy, and contemporary political science. May also include works of fiction.

POL S 301 Special Topics in Political Theory (5, max. 10) I&S Selected contemporary political issues. Political principles as reflected in concrete political problems. Topics might include: women's rights, civil disobedience, national health care, affirmative action, environmental protection, privacy, human rights, and redistribution of property. Recommended: POL S 101, POL S 201, POL S 202, POL S 203, POL S 204, or POL S 205.

POL S 303 Public Policy Formation in the United States (5) I&S Policy decision making with emphasis on: how issues arise, the way they become part of the policy agenda of the executive and the legislature, how these institutions organize to handle policy issues, and the roles of the legislature, the executive, and the bureaucracy. Public policy literature and familiarization with key aspects of policy decision making at the national, state, and local levels.

POL S 304 The Press and Politics in the United States (5) I&S Journalists' role in elections and public policy. Relationship between news coverage and political campaigns. Study and analysis of local political newswriting, reporting, and response by local and state political figures. Extensive off-campus experience included. Offered: jointly with CMU 341.

POL S 305 The Politics of Mass Communication in America (5) I&S Role of mass audiences in politics from the standpoint of the communication strategies used to shape their political involvement. Topics include: social structure and political partici-

pation, political propaganda and persuasion, the political uses of public opinion, and the mass media and politics. Offered: jointly with CMU 305.

POL S 306 Media, Society and Political Identity I&S (5) Explores how society and culture are both represented in and shaped by communication technologies and media content. Media include film, advertising, news, entertainment television, talk shows, and the Internet. Explores how media represent and affect individual identity, values, and political engagement. Offered: jointly with CMU 306.

POL S 308 The Western Tradition of Political Thought, Ancient and Medieval (5) I&S Origin and evolution of major political concepts from ancient Greece to the medieval period, from Thales through Aquinas.

POL S 309 The Western Tradition of Political Thought, Pre-Modern (5) I&S Continuation of 308, treating materials from the fifteenth through eighteenth centuries, Machiavelli through Rousseau.

POL S 310 The Western Tradition of Political Thought, Modern (5) I&S Continuation of 308 and 309, focusing on material from the eighteenth through twentieth centuries, from Rousseau through Lenin.

POL S 311 Individual and the State (5) I&S Individualism and communitarian critics. Political and ethical implications of both. Nature of the state, liberty, responsibility, cooperation. Important individualist and collectivist literature, dealing with market institutions and citizen politics, critically assessed.

POL S 313 Women in Politics (5) I&S Theoretical, historical, and empirical studies of women's participation in political and social movements. Women's diverse efforts to improve their political, social, and economic status. Policy issues of particular concern to women. Women's political experiences in household, local, regional, national, and international arenas Offered: jointly with WOMEN 313.

POL S 316 African-American Political and Social Thought (5) I&S Race relations in U.S. politics as defined by the struggle of African Americans for economic, political, and social equality. Studies of African-American political and social thought; expands and clarifies our understanding of the strengths and weaknesses of American democratic ideals.

POL S 317 The Politics of Race in the United States (5) I&S Political and social dilemma created by the attempt to reconcile ethnic and national identity. Effort of African Americans to resolve this dilemma examined through the writings of contemporary political scholars.

POL S 318 American Political Thought I (5) I&S Major thinkers and themes in American political and cultural development from Puritan origins to the Civil War.

POL S 321 American Foreign Policy (5) I&S Constitutional framework; major factors in formulation and execution of policy; policies as modified by recent developments; the principal policymakers-President, Congress, political parties, pressure groups, and public opinion.

POL S 322 International Political Economy of Latin America (5) I&S Exploration of politics underlying Latin America's economic development. Topics covered include import-substituting industrialization, mercantilism, the debt crisis, neoliberalism, market integration, and poverty. Review of major theoretical perspectives such as modernization theory, dependency, and the new political economy. Offered: jointly with SISLA 322.

POL S 324 Europe in World Politics (5) I&S Independent and coordinated efforts of Britain, France, and West Germany to adapt to the post-World War

II global system. Creation and development of the Atlantic Alliance. Relations with postcommunist states. Decolonization and the evolution of relations with the Third World. The movement for European integration. Recommended: POL S 203.

POL S 325 The Arab-Israeli Conflict (5) I&S The politics of conflicting ideologies: Zionism and Arab nationalism; formation of the state of Israel; development of Palestinian nationalism; Arab-Israeli wars. Re-emergence of Palestinian activism; domestic sources of foreign policy; the role of the superpowers.

POL S 326 Scandinavia in World Affairs (5) I&S Introduction to the foreign relations of Scandinavia with a focus on Nordic security, international economic pressures, and global conflict resolution. Survey of the national settings for international involvements and highlights the dilemmas for industrial societies exposed to the pressure of interdependence. Offered: jointly with SCAND 326.

POL S 328 International Organizations (5) I&S Explores historical, theoretical, and empirical aspects of the United Nations, its specialized agencies, and other international organizations, both governmental and nongovernmental. Recommended: POL S 203.

POL S 329 Global Communication (5) I&S Introduction to the history, purpose, channels, content, technologies, policy, and regulation of international communications systems. Issues covered include disparities in media development between post-industrial and developing nations, imbalances in international news and information flow, and the emergence of global communications. Offered: jointly with CMU 320.

POL S 330 Communications in International Relations (5) I&S Looks at communications in relations between international groups and states. Examines the range of functions and roles communication media play in international affairs, global issues, and intergroup relations. Also examines the strategic use of communications by various groups. Offered: jointly with CMU 321.

POL S 331 Government and Politics in the Middle East and North Africa (5) I&S Breakdown of traditional society and the problems of building modern political systems.

POL S 337 Collective Violence and the State (5) I&S Comparative study of collective violence in modern states with emphasis on riots and pogroms. Readings include case materials drawn from Russian pogroms of the nineteenth and twentieth centuries, Hindu-Muslim riots in modern India, and race riots in the United States and Great Britain. Offered: jointly with SIS 337.

POL S 340 Government and Politics of South Asia (5) I&S Comparison of problems of national integration and political development in India, Pakistan, and Ceylon. Offered: jointly with SISSA 340.

POL S 341 Government and Politics of Canada (5) I&S Critical analysis of parliamentary institutions, political parties, and the federal system in Canada. Offered: jointly with SISC 341.

POL S 342 Government and Politics of Latin America (5) I&S Analysis of the political dynamics of change in Latin America comparing various national approaches to the political problems of modernization, economic development, and social change. Offered: jointly with SISLA 342.

POL S 343 Politics and Change in Southeast Asia (5) I&S Government and politics in the countries of Southeast Asia, with attention given to the nature of the social and economic environments that condition them. Offered: jointly with SISSE 343.

POL S 346 Governments of Western Europe (5) I&S Modern government and politics of Great Britain, France, Germany, and Italy.

POL S 350 Government and Interest Groups in the United States (5) I&S Agrarian, labor, professional, business, and ethnic interest in politics; impact on representative institutions and governmental processes.

POL S 352 American Political Parties (5) I&S Theories of American parties, campaigns and voting behavior; party leadership; political socialization and participation.

POL S 353 United States Congress (5) I&S Organization and procedure of Congress, state legislative politics, lobbying, legislative roles, theory and practice of representative government.

POL S 354 Elections and Voting in the United States (5) I&S Electoral institutions and processes of the United States: the idea and practice of elections, the electoral system, individual voting behavior, collective voting behavior, and the impact of elections on policy.

POL S 355 The American Presidency (5) I&S The American presidency; its evolution, its occupants, and its place within the American system. Topics include presidential character, war, elections, Watergate, the economy, and the Constitution.

POL S 356 Society and Politics (5) I&S Focus on the causes of political change in democratic countries, including public opinion, social movements, interest group activity, and party organization. Offered: jointly with SOC 356.

POL S 360 Introduction to United States Constitutional Law (5) I&S Growth and development of the United States Constitution as reflected in decisions of the Supreme Court; political, social, and economic effects.

POL S 361 United States Courts and Civil Liberty (5) I&S Cases and literature bearing on protection of constitutionally guaranteed private rights, with particular reference to the period since 1937.

POL S 363 Law in Society (5) I&S Inquiry into how law matters in social practice. Examines general theories of law, the workings of legal institutions, and the character of legally constituted practices and relationships in diverse terrains of social life. Offered: jointly with SO JU 363.

POL S 365 Lawyers in American Politics (5) I&S Influence of lawyers on American politics. Official and unofficial political roles, lawyers as lobbyists, as legislators, in the bureaucracy, politics of the American Bar Association. Includes study of legal education, professional values, and avenues of political access.

POL S 382 State Government (5) I&S Focus on the structures, processes, and policy outputs of state governments in the United States.

POL S 383 Environmental Politics and Policy in the United States (5) I&S Interrelation between technological and environmental change and policy formation. Consideration of political behavior related to these phenomena and the capacity of urban public organizations to predict change and to formulate policies that can take future states into account.

POL S 398 Honors Seminar (5, max. 15) I&S Intensive and advanced studies in various aspects of political science. Open only to participants in the departmental honors program.

POL S 401 Advanced Special Topics in Political Theory (5, max. 10) I&S Topics can include, but are not limited to, analytical theory pertaining to justice, exploitation, and freedom; revolution and social

changes; collective choice and action; sexuality and politics; critical theory; Marxist theory; post-structuralism. Content varies. Recommended: POL S 201.

POL S 403 Advanced Special Topics in International Relations (5, max. 10) I&S Examination of contemporary developments in the field of international relations. Content varies according to the nature of developments and research interests of the instructor.

POL S 404 Topics in Public Policy (3-5) I&S Examines selected issues of importance in all areas of public policy. Focus on in-depth analysis of vital public policy issues and the integration of economic, political, and administrative perspectives on them. Offered: jointly with PB AF 499.

POL S 405 American Politics Seminar (5, max. 10) I&S Intensive reading and research in selected problems or fields of political analysis.

POL S 407 International Conflict (5) I&S Many forms of international conflict, including global wars, local wars, antiregime wars, military interventions, and international crises. Several political, social, and anthropological explanations for conflicts and examination of alternative world futures.

POL S 409 Undergraduate Seminar in Political Economy (5, max. 10) I&S Seminar in political economy with focus on Marxian and public choice approaches to political economy. Explores the questions raised by each approach, the assumption(s) and testability of hypotheses, and applies these approaches to a number of problems in political economy. Recommended: ECON 300; POL S 270. Offered: jointly with ECON 409.

POL S 410 Technology, Politics, and the State (5) I&S Relationships between politics, technological change, and development of multinational corporations. Considers whether the relations between political and economic systems of industrial societies have been fundamentally altered by the increased importance and interdependence of government, experts, and new technological possibilities for intervention in social life.

POL S 411 Theories of the State (5) I&S Topics may include origins and development of the state; arguments about the necessity, desirability, and proper role of the state; the nature and operation of modern states and the international state system; the legitimacy of modern state power.

POL S 412 Democratic Theory (5) I&S Explores the concept of democracy and theoretical models purporting to describe its central features: majority rule, participation, and deliberation. Themes also include: representative vs. direct democracy; the rights of minorities; the relationship between democracy and other political theories such as liberalism, socialism, and conservatism. Prerequisite: POL S 201; either POL S 308, POL S 309, POL S 310, or POL S 318.

POL S 413 Contemporary Political Theory (5) I&S Analysis of political theorists, exploring contemporary theories of humanity and society that form the basis for differing political ideas.

POL S 414 Politics and Culture (5) I&S How people interpret and shape the political world around them through the use of such cultural resources as language, symbolism, myth, and ritual. The various uses of these cultural elements establish the place of the individual in society, influence the perception of political events, and create opportunities for individual and mass political responses.

POL S 422 International Environmental Politics Seminar (5) I&S Study of the practical and theoretical challenges associated with global ecological interdependence. Examination of international treaties and institutions, state, and nonstate actors with an emphasis on the emerging concept of sustainability.

POL S 423 International Law (5) I&S Origin and present status of efforts to make rules of conduct for sovereign states; simulation of a treaty-drafting conference, with students playing roles of legal advisers to foreign governments.

POL S 426 World Politics (5) I&S The nation-state system and its alternatives, world distributions of preferences and power, structure of international authority, historical world societies and their politics. Offered: jointly with SIS 426.

POL S 427 International Political Economy (5) I&S Examines major theoretical problems, substantive issues, and school of thought in international political economy (IPE), including issues of trade, production, and finance. Preparation for critical analysis of dilemmas entailed in establishing and maintaining an instrumentally effective and ethically acceptable IPE system.

POL S 428 Military Intervention (5) I&S Historical and theoretical analysis of military intervention in the post-World War II era. Considers how and why interventions occur and evaluates intervention as a foreign-policy response.

POL S 429 National and International Security (5) I&S Examines what constitutes U.S. national interests; causes of war and means of deterring war; discusses role nuclear weapons play in international security; how to deter use of chemical and biological weapons; desirability of non-lethal weapons; and role for economic sanctions, intelligence, and ethics.

POL S 431 International Relations in the Middle East (5) I&S Study of domestic sources of foreign policy in the Middle East; politics of oil; the East-West rivalry in the arena; and conflict and collaboration among the local powers.

POL S 432 Political Islam and Islamic Fundamentalism (5) I&S Study of resurgence, since mid-1970s of political Islam and what has come to be called Islamic fundamentalism, especially in the Middle East. Topics include the nature and variety of political Islam today, causes and implications of the current resurgence, and comparison with previous resurgences. Offered: jointly with SIS 406.

POL S 434 International Relations of South Asia (5) I&S Interrelationships of domestic, interstate, and extraregional forces and their effects upon the resolution or expansion of interstate conflicts in South Asia. Offered: jointly with SISSA 434.

POL S 435 Japanese Government and Politics (5) I&S Government and politics of Japan with emphasis on the period since 1945. Offered: jointly with SISEA 435.

POL S 436 Ethnic Politics and Nationalism in Multi-Ethnic Societies (5) I&S Provides a broad theoretical base, both descriptive and analytical, for the comparative study of ethnicity and nationalism. Examples drawn from ethnic movements in different societies. Some previous exposure either to introductory courses in political science or to courses in ethnicity in other departments is desirable. Offered: jointly with SIS 436.

POL S 437 Politics in Scandinavia (5) I&S Twentieth-century politics in Scandinavia. How Scandinavian countries have been governed. Costs and consequences of their governmental style and its uncertain future. Optimal size of polities, problems of mature welfare states, process of leadership and representation in multiparty systems, decline of political parties. Offered: jointly with SCAND 437.

POL S 438 Politics in France (5) I&S Study of contemporary France. Structures of government in the Fifth Republic; nature of French voting behavior and evolution of the bipolarized political party system; behavior of political interest groups; training of France's administrative elite and functioning of the state bureaucracy; dynamics of policy-making.

POL S 441 Government and Politics of the Soviet Union and Russia (5) I&S Ideological and historical bases of Soviet politics; Leninism; Stalinism; Gorbachev's perestroika and the collapse of the USSR; the role of Yeltsin; problems of Russian state-building, market reform, and democratic transition; political parties and civil society; the relationship between the center and the regions; the problem of Russian national identity.

POL S 442 Government and Politics of China (5) I&S Post-1949 government and politics, with emphasis on problems of political change in modern China. Offered: jointly with SISEA 449.

POL S 443 Comparative Political Societies (5) I&S Analyses of modern and premodern types of stable political society; special attention to contemporary representative democracy.

POL S 445 Politics and Society in Eastern Europe (5) I&S Political and social issues in lands east of the Elbe, treating some historical problems but focusing particularly on developments since 1945. Includes all communist states of Eastern Europe and their successors. Offered: jointly with SISRE 445.

POL S 446 Peasants in Politics (5) I&S Interdisciplinary study of peasants, with special attention to questions of rural transformation. Peasant involvement in an increasingly interdependent world. Rebellion and revolution, impact of the international market, agricultural development. Offered: jointly with SIS 444.

POL S 447 Comparative Politics Seminar (5, max. 10) I&S Selected comparative political problems, political institutions, processes, and issues in comparative perspective. Strongly recommended: POL S 204.

POL S 448 Politics of the European Community (5) I&S Examines the origins, structures, and political dynamics of the European Community. Attention given to theories of integration, to relations between the European Community and member states, and to the role of the European Community in world politics.

POL S 449 Politics of Developing Areas (5) I&S Comparative study of problems of national integration and political development in the new states of Asia and Africa.

POL S 450 State-Society Relations in Third World Countries (5) I&S Relationships among political, social, and economic changes in Asia, Africa, and Latin America. Problems of economic and political development, revolution and reform, state-society relations, imperialism and dependency. Offered: jointly with SIS 456.

POL S 452 Political Processes and Public Opinion in the United States (5) I&S The foundations and environment of opinion; organization and implementation of opinion in controlling government and public opinion as a force in the development of public policy; public relations activities of government agencies.

POL S 461 Mass Media Law (5) I&S Survey of laws and regulations that affect the print and broadcast media. Includes material on First Amendment, libel, invasion of privacy, freedom of information, copyright, obscenity, advertising and broadcast regulation, and matters relating to press coverage of the judicial system. Offered: jointly with CMU 440.

POL S 464 The Politics of American Criminal Justice (5) I&S Political forces and value choices associated with the enforcement of criminal law. Distribution of resources among participants in the criminal justice system (e.g., police, attorneys, defendants, and judges). Understanding and evaluation of the interaction of criminal justice processes with the political system.

POL S 467 Comparative Law in Society (5) I&S Legal systems around the world as they actually work in their respective political, social, and economic contexts. Emergence and development of European legal systems, legal customs at variance with those of Europe, problems of legal processes in the modern state.

POL S 468 Comparative Media Systems (5) I&S Provides students an understanding of policies that shape national communication processes and systems. Uses comparative analysis to identify both similarities and differences among media structures of nations at different levels of development. Primary emphasis on broadcast media. Offered: jointly with CMU 420/SIS 419.

POL S 470 Public Bureaucracies in the American Political Order (5) I&S Growth, power, and roles of governmental bureaucracies in America: conflict and conformity with American political thought, other political institutions, and the public.

POL S 472 Topics in Public Leadership (3-5) I&S Examines the nature and variety of public leadership in modern political life. Discussion of the political, managerial, and ethical challenges facing today's public leaders as well as strategies of leadership in a wide variety of settings. Offered: jointly with PB AF 498.

POL S 473 Decision-Making in Politics (5) I&S Process of decision-making in politics at elite and mass levels, comparison of approaches based on the comprehensive rationality of decision makers with approaches based on limitations on the cognitive capacities of decision makers. Applications to real decision-making situations.

POL S 474 Government and the Economy (5) I&S Interaction between politics and the economy. Impact of policy makers on economic performance. Models of partisan and political business cycles. Concepts of economic voting. Marxist theories of modern capitalist economics. Recommended: ECON 201; MATH 124 or MATH 134.

POL S 475 Public Choice (5) I&S Problems and prospects for collective action in a political democracy. Designing rules and institutions for effective central authority and effective constraints on governmental power. Social choice theory and game theory. Recommended: POL S 270 or POL S 474.

POL S 476 Strategy in Politics (5) I&S Explores the problem of finding fair methods for making social decisions, and examines alternative methods of social choice. Emphasis on the importance of agenda control for outcomes, and the implications of theories of social choice for common interpretations of concepts such as democracy and the general will. Recommended: POL S 101 or POL S 202; POL S 481.

POL S 481 Big City Politics (5) I&S Contemporary big city politics, focusing on Seattle and the largest twenty-five cities. Social, economic, and political trends that have shaped characteristics of large American cities. Distribution and use of economic and political power among parties and groups. Future of large cities and politics of change.

POL S 488-Honors Senior Thesis (5-) I&S Students individually arrange for independent study of selected topics under the direction of a faculty member. Research paper is student's senior thesis. Students meet periodically as a group to discuss research in progress. Recommended: 15 credits POL S 398.

POL S -489 Honors Senior Thesis (-5) I&S Students individually arrange for independent study of selected topics under the direction of a faculty member. Research paper is student's senior thesis. Students meet periodically as a group to discuss research in progress. Recommended: 15 credits POL S 398.

POL S 490 Foundations of Political Analysis (5)

I&S Fundamental issues pertaining to research in political science: "logics of inquiry," problems of concept formation, and development of research methods. Positivist, postempiricist, and other arguments about the nature of scientific knowledge.

POL S 491 Political Research Design and Analysis (5)

I&S Major quantitative methods of empirical research in political science. Primary emphasis on research design, data collection, data analysis, and use of computers.

POL S 492 Advanced Political Research Design and Analysis (5)

I&S Third methods course in political research. Testing theories with empirical evidence. Examines current topics in research methods and statistical analysis in political science. Content varies according to recent developments in the field and with interests of instructor.

POL S 493 Qualitative Research Methods (5)

I&S Introduction to qualitative methods in political science, emphasizing practical experience with techniques. Readings and exercises cover research design, multiple methods, varieties of qualitative data, measurement and validation, participant observation, interviewing, and content analysis. Research decision-making issues include analytical strategies, presentation of data, ethics, epistemology, and theory-building.

POL S 496 Undergraduate Internship (5, max. 15)

Students serving in approved internships.

POL S 497 Political Internship in State Government (5, max. 20)

Students serving in approved internship program with state government agencies.

POL S 498 The Washington Center Internship (15)

Full-time academic internship with the Washington Center in Washington, DC Includes internship activities, academic seminar, assemblies, and related activities. Credit/no credit only. Recommended: POL S 202; 45 UW credits.

POL S 499 Individual Conference and Research (2-5, max. 20)

Intensive study with faculty supervision. No more than one registration in 499 under same instructor.

Undergraduate Program

Adviser
119 Guthrie, Box 351525
(206) 543-2698
psyadvise@u.washington.edu

The Department of Psychology offers programs of study leading to either a Bachelor of Arts or a Bachelor of Science degree. The department does not have formal programs in educational, school, or counseling psychology (see the College of Education section of this catalog); engineering psychology; or industrial psychology.

Student Associations: Psi Chi (national honors society for undergraduate psychology students).

Internship or Cooperative Exchange Program Opportunities: The Department of Psychology offers academic credit for approved field work experience. The advising office maintains internship listings which are updated regularly.

Admission Requirements:

1. Completion of one English composition course selected from the University list.
2. Completion of one of the following courses: MATH 111, 112, 120, 124, 127, or 144, or equivalent.
3. Completion of the following psychology courses with a minimum grade of 2.0 in each course and a cumulative GPA of 2.50 for all courses taken from this list, regardless of whether they are used to satisfy admission requirements: PSYCH 101 or 102; 209; one core course from 200, 222, or 333; one course from 205, 305, 306, 345, or 355.
4. Minimum 2.00 cumulative UW GPA.
5. Admission is competitive based on the following criteria: (1) preparation for a major in psychology as indicated by the grades earned in courses required for admission; (2) GPA, with an emphasis on grades earned in psychology courses; (3) other evidence of a commitment to becoming a psychology major; (4) personal statement reflecting an interest in and commitment to becoming a psychology major. Meeting the above criteria does not guarantee admission to the department.
6. The application deadline is the first Friday of autumn, winter, and spring quarters; no applications are accepted summer quarter. Applications and additional information are available in 119 Guthrie. Transfer students must be enrolled at the UW before applying to the major.

Bachelor of Science

The Bachelor of Science program is intended to prepare students for doctoral programs in psychology, leading to careers in teaching, research, or clinical psychology. It may also provide desirable preparation for some health-related professions. The program emphasizes laboratory/research experience, a strong background in related fields and statistics, and requires a 3.30 psychology GPA and a 3.00 UW GPA.

Major Requirements: 60 credits in psychology courses including PSYCH 101 or 102, 209, 217 and 218, 231 or 361; one course from 232, 233, 417, 418, or 419; one course from 200, 222, or 333; one course from 205 or 305; one course from 306, 345, or 355; 3 credits minimum of 499; three graded upper-division elective courses (excluding 496 through 499) with at least one course at the 400-level; and additional psychology electives at the 200 level or above to total 60 credits (9 credits maximum for 496 through 499). 30 credits in other disciplines, to include MATH 111 and 112, or 120 and 124, or 120 and 127, or 120 and 144; 5 credits of biology, zoology, or genetics; and 15 additional credits selected from computer science, biology, upper-division

zoology, genetics, sociology, anthropology, political science, women studies, ethnic studies, speech communications, and other adviser-approved departments. Cumulative minimum GPA of 3.00 in courses completed at the UW and 3.30 GPA in all psychology courses (UW and transfer), with a minimum grade of 2.0 in each course presented for the major. Transfer students must meet all the above requirements and are required to complete at least 15 graded credits in psychology at the 300 and 400 level at the UW.

Bachelor of Arts

The Bachelor of Arts program is intended to provide a general background in psychology for students seeking employment at the baccalaureate level, wanting to apply the principles of psychology in other disciplines, or preparing for many master's-level graduate programs or professional schools.

Major Requirements: 50 credits in psychology courses including PSYCH 101 or 102; 209; 213 (or 217 and 218); one lab course from 231, 232, 233, 361, 417, 418, or 419; one course from 200, 222 or 333; one course from 205, 305, 306, 345, or 355; one additional course from 200, 205, 222, 305, 306, 333, 345, or 355; three graded upper-division elective courses (excluding 496 through 499) with at least one course at the 400 level; additional psychology electives at the 200 level or above to total 50 credits (6 credits maximum for 496 through 499); and MATH 111, 112, 120, 124, or 144; minimum cumulative GPA of 2.00 in all courses completed at the UW; minimum cumulative GPA of 2.50 in all psychology courses (UW and transfer), with a minimum grade of 2.0 in each course presented for the major. Transfer students must meet all the above requirements and are required to complete at least 15 graded credits in psychology at the 300 and 400 level at the UW.

A student may earn either a Bachelor of Science or a Bachelor of Arts degree in psychology, but not both.

Graduate Program

For information on the Department of Psychology graduate program, see the graduate and professional volume of the *General Catalog* or visit the *General Catalog* online at www.washington.edu/students/gencat/.

Faculty

Chair

Michael D. Beecher

Professors

Barash, David P. * 1975; MA, 1968, PhD, 1970, University of Wisconsin; sociobiology, psychological aspects of nuclear war, peace studies, animal behavior and evolution.

Barnard, Kathryn E. * 1972, (Adjunct); MSN, 1962, Boston University; PhD, 1972, University of Washington; ecological factors of child development.

Becker, Joseph * 1965, (Emeritus); PhD, 1958, Duke University; psychosocial aspects of depression.

Beecher, Michael D. * 1978; MA, 1965, PhD, 1970, Boston University; animal communication, animal behavior, sensory processes.

Bernstein, Ilene L. * 1974; MA, 1967, Columbia University; PhD, 1972, University of California (Los Angeles); behavioral neuroscience, mechanisms affecting appetite and taste preference.

Booth, Cathryn L. * 1980, (Adjunct Research); PhD, 1974, Ohio State University; mother-infant interaction, observational methodology, child birth experiences and attachment.

Psychology

119 Guthrie



General Catalog Web page:
www.washington.edu/students/gencat/academic/psychology.html



Department Web page:
depts.washington.edu/psych/

Psychology involves the scientific study of behavior and its causes and the understanding of human behavior in a variety of settings. Psychology is studied either as a natural science, which stresses physical and biological causes of behavior, or as a social science, which stresses the effects of the social setting on human behavior. Major areas of emphasis are human cognition, animal behavior, physiological and sensory bases of behavior, personality and clinical psychology, developmental psychology, social psychology, and quantitative techniques.

- Brenowitz, Eliot A. * 1987; PhD, 1982, Cornell University; animal behavior, neuroethology, neuroendocrinology, animal communication.
- Carr, John E. * 1963; PhD, 1963, Syracuse University; clinical health psychology, behavioral medicine.
- Casseday, John H. * 1996, (Research); MA, 1963, PhD, 1970, Indiana University; neuroethology of sensory systems, echolocation and function of auditory mid-brain.
- Cauce, Ana Mari * 1986; PhD, 1984, Yale University; community/developmental psychology, socialization of children/adolescents of color, ethnic identity.
- Chapman, C. Richard * 1971, (Adjunct); PhD, 1969, University of Denver; human pain measurement, psychophysiology, sensation and perception, chronic pain.
- Curry, Susan J. * 1981, (Adjunct); MA, 1979, PhD, 1981, University of New Hampshire; health behavior change.
- Dale, Philip S. * 1968, (Affiliate); PhD, 1968, University of Michigan; psycholinguistics, language and cognitive development in normal and exceptional children.
- Dawson, Geraldine * 1985; PhD, 1979, University of Washington; developmental disabilities, autism, and neuropsychology.
- Diaz, Jaime * 1978; PhD, 1975, University of California (Los Angeles); brain development, developmental psychopharmacology, neurophysiology.
- Doerr, Hans O. * 1967, (Emeritus); PhD, 1965, Florida State University; psychophysiology of central and autonomic nervous systems, neuropsychology.
- Donovan, Dennis 1981, (Adjunct); MA, 1972, Western Washington University; PhD, 1980, University of Washington; cognitive-behavioral factors in substance abuse and addictive behaviors.
- Fiedler, Fred E. * 1969, (Emeritus); PhD, 1949, University of Chicago; leadership and group effectiveness, social, industrial, and organizational psychology.
- Fuchs, Albert F. * 1969, (Adjunct); PhD, 1966, Johns Hopkins University; oculomotor physiology.
- Gottman, John M. * 1986; PhD, 1971, University of Wisconsin; development of children's friendships, marriage and family, observational research techniques.
- Greenberg, Mark T. * 1977, (Affiliate); PhD, 1978, University of Virginia; developmental psychopathology, prevention of mental disorders in childhood.
- Greenwald, Anthony G. * 1986; PhD, 1963, Harvard University; social cognition, attitudes, self and self-esteem, methodology, unconscious cognition.
- Guralnick, Michael J. 1986; MS, 1964, PhD, 1967, Lehigh University; developmental disabilities, peer relations, social and language development, evaluation systems.
- Heiman, Julia R. * 1980, (Adjunct); PhD, 1975, State University of New York (Stony Brook); sexuality and sexual relationships, prevention and treatment of family abuse.
- Hunt, Earl B. * 1966; PhD, 1960, Yale University; individual differences in cognition, cognition in education and the workplace.
- Keating, John P. * 1972, (Affiliate); PhD, 1972, Ohio State University; social psychology, media effect on attitude, psychology and religion, emergency behavior psychology.
- Kiyak, H. Asuman * 1972, (Adjunct); MA, 1974, PhD, 1977, Wayne State University; geriatric dentistry, behavioral aspects of health care.
- Kuhl, Patricia K. * 1976, (Adjunct); MA, 1971, PhD, 1973, University of Minnesota; speech perception.
- Linehan, Marsha M. * 1977; PhD, 1971, Loyola University (Chicago); personality disorders, including borderline; suicidal behaviors, cognitive and behavior therapies.
- Lockard, Joan S. * 1962; PhD, 1963, University of Wisconsin; primate social behavior, animal behavior, sociobiology, human ethology, neurobehavior.
- Loftus, Elizabeth F. * 1973; PhD, 1970, Stanford University; cognition, long-term memory, eye-witness testimony, psychology and law.
- Loftus, Geoffrey R. * 1972; PhD, 1971, Stanford University; perception, cognitive processes and information processing, computer control of experimentation.
- Lunneborg, Clifford E. * 1962, (Emeritus); PhD, 1959, University of Washington; psychometrics, multivariate models, individual differences in cognition.
- Marlatt, G. Alan * 1972; PhD, 1968, Indiana University; health psychology and addictive behaviors (relapse prevention and harm reduction).
- McCauley, Elizabeth 1979, (Adjunct); PhD, 1973, State University of New York (Buffalo); clinical and developmental psychology.
- McMahon, Robert J. * 1987; PhD, 1979, University of Georgia; developmental psychopathology, prevention, family interaction, tobacco use in youth.
- Meltzoff, Andrew N. * 1977; PhD, 1976, Oxford University (UK); cognitive and social development of human infants.
- Mitchell, Terence R. * 1969; PhD, 1969, University of Illinois; organizational behavior.
- Morrison, Diane M. * 1980, (Adjunct Research); PhD, 1982, University of Washington; sexual decision-making, attitudes and behavior, teen pregnancy.
- Patterson, David R. * 1984, (Adjunct); PhD, 1982, Florida State University; treatment of acute pain, psychology of burn patients, psychological outcome of physical trauma.
- Robinson, Nancy M. * 1969, (Adjunct); PhD, 1958, Stanford University; developmental psychology, giftedness.
- Rubel, Edwin W. * 1986, (Adjunct); PhD, 1969, Michigan State University; developmental neurobiology, with special emphasis on vertebrate auditory system development.
- Sackett, Gene P. * 1970; PhD, 1963, Claremont Graduate School; primate behavior, early experience and development.
- Sarason, Irwin G. * 1956; PhD, 1955, Indiana University; personality, social support, stress and anxiety.
- Sax, Gilbert * 1965, (Emeritus); PhD, 1958, University of Southern California; measurement, statistics and research design.
- Smith, Ronald E. * 1973; PhD, 1968, Southern Illinois University; clinical psychology, personality, stress and coping, human performance enhancement.
- Smoll, Frank L. * 1976; PhD, 1970, University of Wisconsin; sport psychology, leadership behavior in youth sports, psychological correlates of motor development.
- Speltz, Matthew L. 1981, (Adjunct); MA, 1975, Western Washington University; PhD, 1980, University of Missouri; developmental psychotherapy, family therapy, pediatric behavioral medicine.
- Spieker, Susan J. * 1983, (Adjunct Research); PhD, 1982, Cornell University; developmental psychology, infant security, mother-infant interaction.
- Streissguth, Ann P. 1972, (Adjunct); MA, 1959, University of California (Berkeley); PhD, 1964, University of Washington; psychology and behavioral teratology.
- Teller, Davida Y. * 1965; PhD, 1965, University of California (Berkeley); vision, color vision, development of vision in infants.
- Teri, Linda * 1984, (Adjunct); PhD, 1980, University of Vermont; dementia, healthy aging and intervention research, depression and anxiety.
- Townes, Brenda D. * 1961, (Adjunct); PhD, 1970, University of Washington; psychology.
- Vitaliano, Peter P. * 1978, (Adjunct); PhD, 1975, Syracuse University; stress and coping.
- Vitiello, Michael V. * 1982, (Adjunct); PhD, 1980, University of Washington; sleep, sleep disorders and circadian rhythms in aging, age-related neuroendocrine/cognitive change.
- Weinstein, Philip * 1972, (Adjunct); PhD, 1971, University of Kentucky; dental behavioral science; dental fear and pain in children, adults, and early childhood cases.
- Westrum, Lesnick E. * 1966, (Adjunct); MD, 1963, University of Washington; PhD, 1966, University College, London (UK); neuroanatomy, synaptology, plasticity, olfactory and trigeminal systems, dental pathways.

Associate Professors

- Baer, John S. * 1985, (Research); PhD, 1986, University of Oregon; clinical psychology, addictive behaviors, early intervention.
- Bassok, Miriam * 1997; MA, 1978, PhD, 1984, Hebrew University (Israel); cognitive psychology, focus on learning, problem solving, and analogical reasoning.
- Bowen, Deborah J. * 1986, (Adjunct); PhD, 1986, Uniformed Service University of the Health Sciences; health psychology.
- Brown, Jonathon D. * 1989; PhD, 1986, University of California (Los Angeles); self-concept and social behavior; stress and physical health.
- Buck, Steven L. * 1979; PhD, 1976, University of California (San Diego); human visual psychophysics, perception, human and animal learning.
- Burns, Edward M. * 1984, (Adjunct); PhD, 1977, University of Minnesota; psychoacoustics.
- Corina, David P. * 1993; PhD, 1991, University of California (San Diego); functional neuroimaging, cognitive neuropsychology, psycholinguistics, sign-language processing.
- Covey, Ellen * 1996; MS, 1976, University of Houston; PhD, 1980, Duke University; structure and function of the central auditory system, echo location.
- Craft, Suzanne * 1994, (Adjunct); PhD, 1985, University of Texas (Austin); neuropsychology of attention and memory in aging and Alzheimer's disease.
- Culbert, Sidney S. * 1955, (Emeritus); PhD, 1950, University of Washington; perception, psycholinguistics, intercultural communication.
- Douglas, Robert J. * 1968; PhD, 1964, University of Michigan; neuropsychology of learning and memory, aging and inhibition.
- Fitts, Douglas A. * 1981, (Research); PhD, 1978, Washington State University; neurobiology, salt/water regulation, thirst.
- Frey, Karin S. * 1983, (Adjunct Research); PhD, 1978, University of Washington; educational psychology, relationships between social cognitions and behaviors.
- George, William H. * 1990; PhD, 1982, University of Washington; alcohol effects on social/sexual behavior, treatment and cultural issues in addiction.
- Gillmore, Gerald M. * 1973, (Affiliate); PhD, 1970, Michigan State University; measurement theory, assessment of student performance, program evaluation.
- Ginorio, Angela B. * 1981, (Adjunct); PhD, 1979, Fordham University; women and/in science, violence and women, socially defined identities, psychology issues for Latinas.

Gonzalez, Richard D. * 1990, (Affiliate); PhD, 1990, Stanford University; judgment and decision making, measurement statistics, group dynamics, psychology and law.

Ha, James C. * 1993, (Research); PhD, 1989, Colorado State University; animal behavior, behavioral ecology, infant primate development.

Kahn, Peter H., Jr. 2000, (Research); PhD, 1988, University of California (Berkeley); social cognition and development; multicultural psychology, environmental psychology.

Katz, Lynn Fainsilber 1991, (Research); PhD, 1988, University of California (Berkeley); antisocial children, social psychophysiology, family interaction, parent-child interaction.

Kenney, Nancy J. * 1976; PhD, 1974, University of Virginia; neural and endocrine controls of food and fluid intake, physiological basis of motivation.

Kerr, F. Beth * 1974; PhD, 1974, University of Oregon; cognition, human motor control and learning, attention, human factors.

Kivlahan, Daniel R. * 1983, (Adjunct); PhD, 1983, University of Missouri; evaluating assessment, prevention, and treatment approaches for addictive behaviors.

Kohlenberg, Robert J. * 1968; PhD, 1968, University of California (Los Angeles); behavior modification, learning, clinical behavior analysis, psychotherapy process.

Miyamoto, John M. * 1984; PhD, 1985, University of Michigan; mathematical models of mental processes, inductive reasoning and decision making.

Mizumori, Sheri J. 2000; PhD, 1985, University of California (Berkeley); neurobiology of learning and memory.

Olavarria, Jaime F. * 1990; MD, 1974, State University of Chile; PhD, 1984, University of California (Berkeley); visual system: anatomy and physiology, comparative and developmental studies.

Osterhout, Lee E. * 1991; PhD, 1990, Tufts University; psycholinguistics, cognitive psychophysiology.

Ramsay, Douglas S. * 1983, (Adjunct); DMD, 1983, University of Pennsylvania; PhD, 1988, MSD, 1990, University of Washington; behavioral medicine/dentistry, physiological psychology, orthodontics, pediatric dentistry.

Rose, Richard M. * 1966, (Emeritus); PhD, 1964, University of Pennsylvania; stochastic models, psychophysics, sleep.

Shoda, Yuichi * 1996; PhD, 1990, Columbia University; social and personality psychology, social cognition, health and coping.

Unis, Alan S. * 1987, (Adjunct); MD, 1976, University of Pittsburgh; early-onset psychopathology resulting from disrupted brain development.

Assistant Professors

Brown, Joseph L. 1999, (Acting); PhD, 1999, Stanford University; sociocultural influences on intellectual performance and identity, stereotyping and decision making.

Canfield, James G. 2000, (Research); PhD, 1995, University of Utah; neuroethical approach to the study of brain-behavior relationships.

Carlson, Stephanie M. * 1998; PhD, 1997, University of Oregon; cognitive and social development in preschool children.

Jones, Theresa A. * 1996; PhD, 1992, University of Texas (Austin); behavioral and neural plasticity after brain damage.

Kyes, Randall C. * 1993, (Research); PhD, 1989, University of Georgia; animal behavior, primate behavior and cognition, conservation biology.

Larimer, Mary E. * 1987, (Research); PhD, 1992, University of Washington; prevention of alcohol problems among college students.

Lengua, Liliana J. * 1993; PhD, 1994, Arizona State University; child-clinical, community psychology; contextual/family/individual predictors of child adjustment.

O'Donnell, Sean * 1996; PhD, 1993, University of Wisconsin; genetic and hormonal effects on behavior in social insects.

Richards, Jane M. 2000; PhD, 2000, Stanford University; how emotion regulation affects cognitive performance, social relationships, and personality processes.

Rudd, Michael * 1998; PhD, 1987, University of California (Irvine); quantitative psychology, statistics and mathematical modeling.

von der Emde, Gerhard 2000; PhD, 1987, Eberhard-Karls-Universität Tübingen (Germany); neuroethology, neural basis of animal behavior and animal sensory capabilities.

Senior Lecturers

Barrett, Kimberly * 1990; EdD, 1989, University of San Francisco; adolescent substance abuse, child development, parent education, ethnic identity development.

Fagan, Corey N. * 1989; PhD, 1988, University of Massachusetts; psychotherapy effectiveness, program evaluation, psychotherapy for adults and adolescents.

McDermott, Lois J. 1984; PhD, 1979, University of Chicago; human sexuality and reproductive physiology.

Passer, Michael W. * 1977; MA, 1972, PhD, 1977, University of California (Los Angeles); social psychology, organizational psychology, teaching of psychology.

Lecturers

Joslyn, Susan L. 1988; PhD, 1995, University of Washington; cognition, autobiographical memory, multitasking, applied issues.

Little, Laura M. 1997; PhD, 1998, University of New Mexico; quantitative methodology.

Course Descriptions

See page 48 for an explanation of course numbers, symbols, and abbreviations.

For graduate-level course descriptions, see the graduate and professional study volume of the *General Catalog* or visit the online course catalog at www.washington.edu/students/crscaf/.

PSYCH 101 Psychology as a Social Science (5) I&S *McDermott, Osterhout, Passer* Examines behavior from a social science perspective. Emphasizes human social behavior and influence, personality, learning, behavior disorders, and treatment. Related topics may include memory, cognition, states of consciousness, motivation and emotion, perception, development, language, intelligence, biological influences, and research methods. Offered: AWSpS.

PSYCH 102 Psychology as a Natural Science (5) NW *Bernstein, Douglas, Sackett* Behavior from a biological-science viewpoint. Emphasizes sensation and perception, brain and behavior, evolution, and animal behavior. Includes related aspects of cognition, behavior disorders, states of awareness, motivation and emotion, learning, development, social behavior, and research methods. Offered: AWSpS.

PSYCH 200 Comparative Animal Behavior (5) NW *Barash, Beecher, Brenowitz, O'Donnell* Research methods and findings of comparative animal behavior and their importance to an understanding of human behavior; rationale for study of behavioral differences and similarities between animal species, behavior viewed as part of the adaptation of each species to its natural habitat. Prerequisite: either PSYCH 101, PSYCH 102, BIOL 101, BIOL 102, BIOL 202, or BIOL 203. Offered: AWSpS.

PSYCH 201 Human Performance Enhancement (3) I&S *Smith, Small* Applications of psychological theories, research, and intervention strategies to performance enhancement in variety of life settings. Self-regulation models and techniques; stress and emotional control; attention control and concentration; mental rehearsal; time management; goal-setting; memory enhancement; communication and interpersonal conflict resolution. Participation in various psychological training procedures. Prerequisite: either PSYCH 101 or PSYCH 102. Offered: WS.

PSYCH 205 Introduction to Personality and Individual Differences (4) I&S *Lengua, Marlatt, Smith* Overview of the major theories, research findings, and applications in the scientific study of personality. Research methods and approaches to measuring personality variables also covered. Prerequisite: either PSYCH 101 or PSYCH 102. Offered: AWSpS.

PSYCH 207 Psychology of Peace (5) I&S *Barash* Examination of the psychological aspects of peace in the modern world. Topics include theories of individual aggressiveness and violence, leadership personalities, crisis decision making, nuclear psychology, images of the enemy, and psychological opportunities and obstacles to the establishment of a peaceful society. Offered: A.

PSYCH 209 Fundamentals of Psychological Research (4) *Buck, Kerr, Little, Passer* Psychological research methodology and techniques. Topics include the logic of hypothesis testing, experimental design, research strategies and techniques, fundamentals of scientific writing, search and evaluation of research literature in psychology, and ethical issues in psychological research. Required for all psychology majors. Prerequisite: either PSYCH 101 or PSYCH 102. Offered: AWSpS.

PSYCH 210 Human Sexuality (5) I&S *McDermott* Broad survey of biological, psychological, and social determinants of human sexuality and sexual behavior. Topics include cultural diversity, sexual development (physical and psychological), sexual health, reproduction (pregnancy, contraception, abortion), development of sex, gender and orientation, adult sexual bonding, sexual abuse and assault.

PSYCH 213 Elementary Psychological Statistics (6) QSR *Little, Miyamoto, Sackett* Statistics for psychological research. Elementary probability theory, hypothesis testing, and estimation. Satisfies the statistics requirement for majors registered in the Psychology Bachelor of Arts degree program. Prerequisite: 2.0 in PSYCH 209; either MATH 111 or MATH 120. Offered: AWSpS.

PSYCH 217 Introduction to Probability and Statistics for Psychology (4) QSR *Ha, Little, G Loftus* Probability theory as a model for scientific inference. Probabilistic variables and experimental outcomes, conditional probability, binomial and related distributions, experiments as samples, statistics and sampling distributions, the normal distribution, confidence intervals, problems of estimation from experiments. Prerequisite: 2.0 in PSYCH 209; either MATH 124, MATH 127, MATH 134, MATH 144, or 1.7 in MATH 112. Offered: AWSpS.

PSYCH 218 Statistical Inference in Psychological Research (4) QSR *Ha, Little, G Loftus* Hypothesis testing: probabilistic and statistical basis. Development and application of statistical inference tech-

niques employed in psychological research: confidence intervals, t-test, ANOVA, and correlation and regression. Nature and control of experimental and inferential error in research. Required for majors for psychology BS degree. Prerequisite: 2.0 in PSYCH 217. Offered: AWPp.

PSYCH 222 Survey of Physiological Psychology (4) NW *Douglas, Jones, Olavarria* The nervous system and how it works. Learning, memory, sleep, the senses, and the emotions. For students who do not intend to specialize in physiological psychology. Prerequisite: either PSYCH 101 or PSYCH 102. Offered: AWPpS.

PSYCH 231 Laboratory in Human Performance (4) I&S Selected aspects of human cognition, perception, and performance. Prerequisite: PSYCH 209; either 2.0 in PSYCH 213 or 2.0 in PSYCH 217. Offered: AWPpS.

PSYCH 232 Laboratory in Animal Learning (4) NW *Buck* Selected aspects of animal learning emphasizing behavioral experiments with the rat. Prerequisite: PSYCH 209; either 2.0 in PSYCH 213 or 2.0 in PSYCH 217. Offered: AWPpS.

PSYCH 233 Laboratory in Animal Behavior (5) NW *Brenowitz* Experience with a variety of animal species and experimental procedures and instrumentation. Prerequisite: either PSYCH 200 or BIOL 203; either PSYCH 213 or PSYCH 217. Offered: AWPpS.

PSYCH 250 Racism and Minority Groups (5) I&S *Barrett, JL Brown* Overview of the causes, contexts, and consequences of racism and its effects upon minority groups and society. Emphasis on cultural history, political and socioeconomic structures that contribute to racism. Examination of current issues in race relations and cultural pluralism in U. S. and selected international topics.

PSYCH 257 Psychology of Gender (5) I&S *Kenney* Major psychological theories of gender-role development; biological and environmental influences that determine and maintain gender differences in behavior; roles in children and adults; topics include aggression, cognitive abilities, achievement motivation, affiliation. Recommended: either PSYCH 101, PSYCH 102, or WOMEN 200. Offered: jointly with WOMEN 257; AS.

PSYCH 305 Abnormal Psychology (5) I&S *George, Kohlenberg, Linehan, McMahon, I Sarason, Smith* An overview of major categories of psychopathology, including description and classification, theoretical models, and recent research on etiology and treatment. Prerequisite: either PSYCH 101 or PSYCH 102. Offered: AWPpS.

PSYCH 306 Developmental Psychology (5) I&S *Barrett, Batterson, Carlson, Meltzoff* Study of child development in relation to biological, physical, and social interactions from infancy to adolescence. Prerequisite: either PSYCH 101 or PSYCH 102. Offered: AWPpS.

PSYCH 322 Introduction to Drugs and Behavior (3) NW *Diaz* Basic concepts of drug action emphasizing the behavioral consequences of the intake of a variety of drugs. Prerequisite: PSYCH 222. Offered: SpS.

PSYCH 333 Sensory and Perceptual Processes (5) NW *Beecher, Buck, Covey, Olavarria* Perception and processing by each of the senses with emphasis on behavioral studies and their relationship to underlying structure. Prerequisite: either PSYCH 101 or PSYCH 102. Offered: SpS.

PSYCH 335 Human Factors Psychology (4) I&S *Kerr* Consideration of human performance factors in the design of tools/equipment, tasks/jobs, and work and living environments. Emphasis on the importance of human perception, memory, attention, and motor control for understanding ways to optimize the

relationship between people and technology. Prerequisite: either PSYCH 101 or PSYCH 102; recommended: PSYCH 209. Offered: Sp.

PSYCH 345 Social Psychology (5) I&S *JD Brown, JL Brown, Shoda* Effects of the social environment upon the formation of individual attitudes, values, and beliefs, and upon individual and group behavior; major theoretical approaches; field and experimental research findings. Prerequisite: either PSYCH 101 or PSYCH 102. Offered: AWPpS.

PSYCH 347 Psychology of Language I (5) VLPA/I&S *Corina, Osterhout* Introduction to the study of language, including language structure, speech perception, language acquisition, psychological processes underlying comprehension and production of language, the relation between brain and language, and the question of the species-specificity of human language. Prerequisite: either PSYCH 101, PSYCH 102, LING 200, or LING 201. Offered: jointly with LING 347; A.

PSYCH 350- Honors Research Seminar in Psychology (2-, max. 4) *Teller* Presentations by professors and advanced students concerning the rationale, methodology, and progress of their research projects; assistance with research projects; preparation of junior paper. Four credits of 350 required for all junior honors and distinction candidates in conjunction with 498 and 499. Offered: AWPp.

PSYCH 355 Survey of Cognitive Psychology (5) I&S *Bassok, Hunt, E Loftus* Current theory and research in perception, attention, memory and learning, attitudes, thinking and decision making, and language. For the student who wishes a survey or who intends additional work in any of the above content areas. Prerequisite: either PSYCH 101 or PSYCH 102. Offered: AWPpS.

PSYCH 357 Psychobiology of Women (5) NW *Kenney* Physiological and psychological aspects of women's lives; determinants of biological sex; physiological and psychological events of puberty; menopause; sexuality; contraception, pregnancy, childbirth, and lactation; role of culture in determining psychological response to physiological events. Recommended: PSYCH/WOMEN 257. Offered: jointly with WOMEN 357; WS.

PSYCH 361 Laboratory in Social Psychology (5) I&S *Greenwald* Methodology of laboratory and field research on social behavior; data analysis and report writing; group research projects. Prerequisite: PSYCH 209; either PSYCH 213 or PSYCH 217; PSYCH 345. Offered: AWPp.

PSYCH 399 Foreign Study (3-5, max. 10) Upper division psychology courses for which there are no direct University of Washington equivalents taken through the University of Washington Foreign Study Program.

PSYCH 400 Learning (5) I&S/NW Experimental research and basic theories primarily in animal learning. Prerequisite: either PSYCH 101 or PSYCH 102.

PSYCH 401 Observing Interaction (4) I&S *Gottman* Surveys the methods of systematic observational research for the study of interaction. Emphasis on summarizing quantitative data for analysis of pattern and sequence, and for theory development. Prerequisite: PSYCH 101 and PSYCH 209.

PSYCH 402 Infant Behavior and Development (3/5) I&S *Meltzoff* Psychological development in the first two years of life. Basic and advanced techniques for assessing psychological development in infancy. Classic theories of human infancy and examination of a wide range of new experiments about infant behavior and development. Prerequisite: either PSYCH 306 or PSYCH 414. Offered: A.

PSYCH 403 Motivation (5) I&S/NW Theory and research on reinforcement, punishment, frustration, preference, instinctual mechanisms, and other factors controlling animal behavior. Prerequisite: either PSYCH 101 or PSYCH 102.

PSYCH 405 Advanced Personality: Theory and Research (5) I&S Intensive survey of theoretical concepts and detailed review of experimental methods and experiments in the field of personality. Prerequisite: PSYCH 205.

PSYCH 407 History of Psychology (5) I&S Historical and theoretical background of the basic assumptions of modern psychology, including such doctrines as behaviorism, determinism, and associationism and the scientists who developed them. Prerequisite: either PSYCH 101 or PSYCH 102.

PSYCH 408 Mechanisms of Animal Behavior (4) NW *Beecher, Brenowitz* Comparative exploration of physiological and perceptual mechanisms that control behaviors necessary for survival and reproduction in animals. Model systems discussed include animal communication, mate choice, escape behavior, learning and memory, orientation, biological rhythms, foraging behavior. Prerequisite: either PSYCH 200, BIOL 102, or BIOL 203. Offered: jointly with ZOOL 408; W.

PSYCH 409 Sociobiology (5) NW *Beecher, Rohwer* Biological bases of social behavior, emphasizing evolution as a paradigm. Topics are: individual versus group selection, kin selection, altruism, group versus individual living, mating systems, parental care of offspring, and competitive strategies. Prerequisite: either PSYCH 200 or both BIOL 202 and BIOL 203. Offered: jointly with ZOOL 409.

PSYCH 410 Child and Adolescent Behavior Disorders (5) I&S *McMahon* Introduction to psychopathology in children and adolescents, and an overview of principal modes of intervention. Particularly for students interested in advanced work in clinical psychology, social work, or special education. Prerequisite: PSYCH 305; PSYCH 306. Offered: WS.

PSYCH 412 Behavioral Genetics (4) NW *O'Donnell* Role of genetics in determining variation in human and animal behavior and in regulating behavioral development. Techniques for quantifying genetic variation, behavioral effects, and gene expression. Prerequisite: either PSYCH 200 or both BIOL 202 and BIOL 203. Offered: W.

PSYCH 414 Cognitive Development (5) I&S *Batterson* Key theoretical and research approaches to cognitive development from infancy through adolescence. Sensorimotor development, language development, imitation, number concepts, logical reasoning, memory, cognition in adolescents, intelligence, and the role of biology, environment, and experience. Prerequisite: PSYCH 209; PSYCH 306.

PSYCH 415 Personality Development of the Child (5) I&S *Carlson* Socialization theory and research, infant attachment and social relationships, development of aggressive and altruistic behaviors, sex-role development, moral development, parent and adult influences. Applied issues in social development and policy. Prerequisite: PSYCH 306.

PSYCH 416 Animal Communication (5) NW *Beecher, Brenowitz* Evolution and mechanisms of animal communication and related processes of perception, thinking, and social behavior. Prerequisite: either PSYCH 200, BIOL 102, or BIOL 203.

PSYCH 417 Human Behavior as a Natural Science (5) I&S/NW *Lockard* Evolution of human social behavior and the adaptive significance of communication systems from a sociobiological and anthropological perspective. Prerequisite: either PSYCH 200, or BIO A 201, or BIOL 202 and BIOL 203. Offered: WS.

PSYCH 418 Primate Social Behavior (5) NW *Lockard* Social behavior, ecology, and group structure of monkeys and apes from an evolutionary, sociobiological, and anthropological perspective. Prerequisite: either PSYCH 200, or BIO A 201, or BIOL 202 and BIOL 203. Offered: Sp.

PSYCH 419 Behavioral Studies of Zoo Animals (5, max. 10) NW *Lockard* Observational studies of behavior of zoo animals to expand basic knowledge of animal behavior, conservation of endangered species, and research methodology with discussions and tours focusing on zoo philosophy and operations. Offered in cooperation with Woodland Park Zoo. Prerequisite: either PSYCH 200, or BIO A 201, or BIOL 202 and BIOL 203. Offered: AS.

PSYCH 420 Drugs and Behavior (3) NW *Diaz* Animal and clinical research on the behavioral consequences of drug intake. Prerequisite: PSYCH 322.

PSYCH 421 Neural Basis of Behavior (5) NW *Diaz* Anatomical and physiological principles and resultant behavior involved in the integrative action of the nervous system. 431 recommended but not required to follow 421. Prerequisite: either PSYCH 101 or PSYCH 102. Offered: AS.

PSYCH 422 Physiological Psychology (5) NW *Douglas* Physiological mechanisms in behavior, including those basic to emotion, fatigue and sleep, learning, and memory. Prerequisite: either PSYCH 101 or PSYCH 102. Offered: Sp.

PSYCH 423 Sensory Basis of Behavior (5) NW *Olavarria* Study of sensory mechanisms as a way to understand behavior. Basic properties of neurons, anatomy, and physiology of sensory systems, with some emphasis on the visual system. Prerequisite: either PSYCH 222 or PSYCH 333. Offered: W.

PSYCH 424 Vision and Its Physiological Basis (5) NW *Teller* Behavioral neurobiology of human vision: color vision, acuity and spatial vision, light and dark adaptation, visual development. Correlation of visual functioning with known optical, biochemical, physiological, and anatomical substrates. Prerequisite: either PSYCH 101, PSYCH 102, BIOL 202, or ZOOL 301. Offered: jointly with P BIO 424; W.

PSYCH 425 Surgical and Histological Techniques (5) NW Practicum in basic and advanced surgical and histological techniques used in psychophysiological experimentation. Prerequisite: PSYCH 421.

PSYCH 426 Neurobiology of Learning and Memory (4) NW *T. Jones* Theory and research on how animals learn and remember, including basic concepts of brain plasticity, how brain areas and neurons adapt to changes in experiences throughout the lifespan, and cellular and structural substrates of a "memory". Prerequisite: either PSYCH 222, PSYCH 322, PSYCH 333, PSYCH 421, PSYCH 422, or PSYCH 423.

PSYCH 427 Behavioral Endocrinology (5) NW *Lattermann* The endocrine system and how its secretions influence and are influenced by behavior; relationships between the nervous and endocrine systems. Prerequisite: PSYCH 421.

PSYCH 428 Human Motor Control and Learning (5) I&S/NW *Kerr* Current theory and research in human motor performance and skill acquisition. Prerequisite: PSYCH 101 or PSYCH 102; recommended: PSYCH 209. Offered: W.

PSYCH 429 Brain Anatomy for the Behavioral Scientist (1) NW *Diaz* Detailed review of the neuroanatomical features of the sheep brain with laboratory demonstrations. Prerequisite: PSYCH 421 which may be taken concurrently. Offered: A.

PSYCH 430 Development of Brain Connections (4) NW *Olavarria* Analysis of innate and environmental factors that play a role in the development of brain

connections. Critical review of current literature on the various strategies used by neurons to find their appropriate targets. Prerequisite: either PSYCH 222, PSYCH 333, PSYCH 421, PSYCH 422, or PSYCH 423. Offered: Sp.

PSYCH 433 Regulatory Behavior (4) NW *Kenney* Neural and endocrine mechanisms in the control of food and water intake and the regulation of body weight and fluid balance. Prerequisite: either PSYCH 421 or PSYCH 427.

PSYCH 436 Developmental Aspects of Sport Competition (4) I&S *Small* Biophysical and psychosocial influences of sport participation on growth and development of children and youth. Competition readiness, injuries, stress, aggression, roles and responsibilities of parents and coaches. Prerequisite: either PSYCH 101 or PSYCH 102. Offered: AS.

PSYCH 437 Motor Development (4) NW *Small* Analysis of motor development from prenatal origins through adolescence with emphasis on relations between biophysical and psychosocial development of children and youth. Prerequisite: either PSYCH 101 or PSYCH 102. Offered: Sp.

PSYCH 441 Perceptual Processes (5) I&S/NW Theory and findings in perception with a focus on visual perception in humans. Discrimination and constancy for simple judgments, segregation and identification of visual objects, and specific areas of investigation such as reading and computer vision. Prerequisite: PSYCH 333.

PSYCH 445 Theories of Social Psychology (5) I&S *JD Brown* Evaluation of the major theories of human social behavior supported by the empirical literature; theories of social cognition and thought; major theories of social interaction, group processes, and social learning. Prerequisite: PSYCH 345.

PSYCH 446 Personality Assessment (3) I&S *R Smith* Measurement of personality variables in personality research, social psychology, and clinical psychology. Theoretical conceptions underlying various clinical and experimental scales and an assessment of their construct validity and behavioral correlates. Prerequisite: PSYCH 205; either PSYCH 213 or PSYCH 217; PSYCH 305.

PSYCH 447 Psychology of Language II (4) VLPA/I&S *Corina, Osterhout* Psychological principles applied to linguistic development and organization; language in both its stimulus and response aspects. Prerequisite: either PSYCH 101 or PSYCH 102. Offered: jointly with LING 447.

PSYCH 448 Seminar in Psychology (1-15, max. 15) Selected research topics of contemporary interest. Quarterly listings of specific offerings are available at departmental advisory office. Offered: AWSpS.

PSYCH 449 Organizational and Industrial Psychology (3) I&S *Passer* Examines research on human behavior in industrial and organizational environments. Topics include research methods, job analysis, the prediction of workplace performance, personnel selection and training, performance appraisal, group influences, job satisfaction, job motivation, leadership, and human factors. Prerequisite: either PSYCH 101 or PSYCH 102. Offered: S.

PSYCH 450- Honors Research Seminar in Psychology (2-, max. 4) *Teller* Senior thesis research; preparation of senior thesis; oral presentation of research. Four credits of 450 required for all senior honors and distinction candidates in conjunction with 498 and 499. Offered: AWSp.

PSYCH 451 Health Psychology (5) I&S/NW Overview of the psychological and behavioral factors in health and disease. Includes research on both psychological causes and treatments. Topics include stress, risky behaviors, patient-provider interactions, pain, behavioral/medical treatments, and lifestyle

interventions. Prerequisite: either PSYCH 101 or PSYCH 102; PSYCH 209; either PSYCH 205, PSYCH 222, PSYCH 305, or PSYCH 345.

PSYCH 452 Psychology of the Self-Concept (4) I&S *JD Brown* Examines psychological theory and research on the role of the self-concept in regulating behavior. Topics include the development of the self-concept; self-awareness; and self-esteem maintenance. Prerequisite: PSYCH 345. Offered: W.

PSYCH 454 Personality and Social Influence (4) I&S *Shoda* Survey of various theories and research for analyzing person-situation interactions—how the qualities of persons and situations combine to generate thoughts, feelings, and behaviors of a person in a given social situation. Prerequisite: PSYCH 209; either PSYCH 205 or PSYCH 345. Offered: A.

PSYCH 457 Language Development (5) VLPA/I&S First-language acquisition and use by children. Emphasis on theoretical issues and research techniques. Prerequisite: either PSYCH 306, LING 200, or LING 400. Offered: jointly with LING 457.

PSYCH 460 Cognitive Neuropsychology (4) NW *Corina, Osterhout* Discussion of neural systems underlying cognitive behavior with particular focus on breakdown of cognition following brain damage. Topics include object and space perception, language, voluntary movement, attention, and memory. Examination of contributions from related areas of neuroimaging, visual perception, linguistics, physiology, and neuroscience. Prerequisite: either PSYCH 222, PSYCH 333, PSYCH 355, or PSYCH 421.

PSYCH 462 Human Memory (5) I&S *Joslyn* Research and theory in key areas of memory. Issues covered include information processing theory, the link between memory processes and their biological underpinnings, autobiographical memory, implicit memory, and the effect of emotion on memory. Prerequisite: PSYCH 209; recommended: PSYCH 355. Offered: A.

PSYCH 465 Intelligence (5) I&S *Hunt* Analysis of individual differences in cognition. Includes description/use of psychometric ("intelligence test") models, test scores' relationship to academic and non-academic performance, information processing and biological models of intelligence (including genetic models). Discussion of male-female and demographic group differences in cognition. Prerequisite: either PSYCH 213 or PSYCH 217; PSYCH 355.

PSYCH 466 Psychology of Judgment and Decision Making (5) I&S *Miyamoto* Human information processing in judgment and decision making, especially the interface between cognitive theories and normative and prescriptive theories of decision making. Prerequisite: either PSYCH 213 or PSYCH 217; either PSYCH 231, PSYCH 355, or PSYCH 361.

PSYCH 467 Eyewitness Testimony (3) I&S *ELoftus* Perception, memory, and retrieval of real world events. The eyewitness in the legal system. Psychologists as expert witnesses regarding eyewitness accounts. Prerequisite: either PSYCH 101 or PSYCH 102; PSYCH 355. Offered: W.

PSYCH 469 Psychology of Reasoning (4) I&S *Bassok* Cognitive processes in human learning, problem solving, deductive and inductive reasoning. Prerequisite: either PSYCH 231 or PSYCH 355.

PSYCH 470 Psychology and Music (5) VLPA/I&S Introduction to the scientific study of musical behavior. An overview of current topics in the psychology of music from the areas of musical perception and cognition, musical development, music therapy, musical performance, and composition. Includes psychoacoustical and neuropsychological foundations, research methods, and some basic material in music theory. Prerequisite: either PSYCH 101 or PSYCH 102.

PSYCH 471 Applied Issues in Cognition (4-5, max. 10) I&S *Joslyn* Examines cognitive issues in applied settings, such as the workplace and education. Topics include such issues as attention, expertise, problem solving, decision-making, human error, automation, navigation, and individual differences. Prerequisite: either PSYCH 355 or PSYCH 462 or PSYCH 469.

PSYCH 480 Ideas of Human Nature (5) I&S *Barash* Reviews various approaches to the nature of human nature, including ideas from ancient philosophy, theories of the soul, empiricism, idealism, conditioning, social constructions, concepts of Freud, Marx, the existentialists, and neo-Darwinism. Prerequisite: either PSYCH 101 or PSYCH 102.

PSYCH 488 Stress and Coping (4) I&S/NW / *Sarason* Reviews theories and research concerning stress and its roles in behavior, personality, development, health, and interpersonal relationships. Coping analyzed as a factor in the way people respond to stressful circumstances. Prerequisite: either PSYCH 205 or PSYCH 305. Offered: Sp.

PSYCH 489 Clinical Psychology (3) I&S *George* Basic issues, methods, and research: professional issues, psychological assessment, and approaches to psychotherapy and behavioral change. Prerequisite: either PSYCH 205 or PSYCH 305.

PSYCH 490 Stress Management (3) I&S/NW Nature of stress. Physiological responses to stress and relaxation. Techniques of stress management with training in relaxation, biofeedback, meditation, cognitive restructuring, exercise, nutrition, interpersonal communication skills, and time management. Credit/no credit only. Prerequisite: either PSYCH 101 or PSYCH 102. Offered: S.

PSYCH 494 Field Study in Animal Behavior (2-3, max. 9) *Kyes* Field experience in areas relating to animal behavior through participation in seminar discussion and field exercises and training at foreign and domestic field study sites. Prerequisite: PSYCH 200.

PSYCH 496 Undergraduate Teaching Experience in Psychology (2-3, max. 6) Students are trained as assistants in quiz sections or as supplemental tutors for undergraduate psychology courses. Designed especially for those students planning graduate work or education certification. An overall maximum of 18 credits in 496, 497, 498, and 499 may apply toward a baccalaureate degree. Offered: AWSpS.

PSYCH 497 Undergraduate Fieldwork (2-5, max. 10) Individual consultation with faculty member and supervised practicum experience in a broad range of community settings and agencies dealing with psychological problems. An overall maximum of 18 credits in 496, 497, 498, and 499 may apply toward a baccalaureate degree.

PSYCH 498 Directed Reading in Psychology (1-3, max. 18) Readings in special interest areas under supervision of departmental faculty. Discussion of reading in conference with the instructor. An overall maximum of 18 credits in 496, 497, 498, and 499 may apply toward a baccalaureate degree. Offered: AWSpS.

PSYCH 499 Undergraduate Research (1-3, max. 18) Design and completion of individual research projects. An overall maximum of 18 credits in 496, 497, 498, and 499 may apply toward a baccalaureate degree. Offered: AWSpS.

Romance Languages and Literature

C104 Padelford



General Catalog Web page:
www.washington.edu/students/gencat/academic/romance.html

The department consists of two divisions: French and Italian Studies and Spanish and Portuguese Studies. The divisions offer programs designed to develop competence in the reading, speaking, and writing of the languages and in the study of the literatures and cultures.

French and Italian Studies

C254 Padelford



Division Web page:
depts.washington.edu/frenital/

Undergraduate Program

Adviser
Sabrina Tatta
C252 Padelford, Box 354361
(206) 616-5366

The Division of French and Italian Studies offers a program of study leading to a Bachelor of Arts degree with options in French and Italian, as well as a minor in Italian.

Bachelor of Arts

Admission: Students in good academic standing may declare this major at any time.

Suggested Introductory Course Work: Community-college students should take as many lower-division language courses as possible while at the community college.

Major Requirements

French: 54 credits beyond FRENCH 203, to include 301, 302, 303, 304, 305, 306, 378. Five 400-level courses chosen to satisfy the requirements for an emphasis on literature/culture. Transfer credits at the 400 level are accepted only by petition to the Faculty Studies Committee.

Italian: 50 credits in courses at the 300 and 400 levels, including ITAL 301, 302, 303, 401, 402 (or 403), and 404 (or 405); 15 additional credits in literature courses at the 400 level. Consult the Italian adviser about courses in translation.

Minor

Minor Requirements: Italian—30 credits in courses at the 300 and 400 levels, including ITAL 301, 302, 303, 401, 402 (or 403), and 404 (or 405), (or equivalent 400-level courses).

Graduate Program

For information on the Division of French and Italian Studies graduate program, see the graduate and professional volume of the *General Catalog* or visit the *General Catalog* online at www.washington.edu/students/gencat/.

Faculty

Chair

John T. Keeler

Professors

Borch-Jacobsen, Mikkel * 1986; Doct, 1981, University of Strasbourg (France); French twentieth-century literature, theory and criticism, psychoanalysis.

Christofides, Constantine * 1966, (Emeritus); PhD, 1956, University of Michigan; medieval, seventeenth-century, Romanesque art and literature.

Clausen, Meredith L. * 1979, (Adjunct); PhD, 1975, University of California (Berkeley); twentieth-century and American architecture.

Creore, A. Emerson 1940, (Emeritus); MA, 1936, University of Rochester; PhD, 1939, Johns Hopkins University.

Friedman, Lionel J. 1961, (Emeritus); PhD, 1950, Harvard University.

Handwerk, Gary J. * 1984, (Adjunct); PhD, 1984, Brown University; literary theory, English and Irish nineteenth- and twentieth-century narrative.

Jonas, Raymond A. * 1985, (Adjunct); PhD, 1985, University of California (Berkeley); modern France.

Keeler, John T. * 1980; PhD, 1978, Harvard University; comparative politics (Western Europe), international relations.

Leiner, Jacqueline * 1963, (Emeritus); DresLe, 1969, University of Strasbourg (France); modern French literature.

Nostrand, Howard L. 1982, (Emeritus); MA, 1933, Harvard University; Doct, 1934, Universite De Paris VI (France); French culture and civilization.

Pace, Antonio 1980, (Emeritus); MA, 1937, Syracuse University; PhD, 1943, Princeton University; Italian language and literature.

Vance, Eugene * 1990; PhD, 1964, Cornell University; French, English, and Italian medieval literature; history of rhetoric; sacred art; age of Augustine.

Associate Professors

Collins, Douglas P. * 1980; PhD, 1978, University of Missouri; twentieth-century French literature.

Dale, Robert C. * 1963, (Emeritus); PhD, 1963, University of Wisconsin; nineteenth-century French literature, cinema.

Delcourt, Denyse * 1990; PhD, 1987, University of Montreal (Canada); French Middle Ages, French Renaissance, French women writers and Quebecois literature.

Ellrich, Robert J. * 1964, (Emeritus); PhD, 1960, Harvard University; eighteenth-century French literature.

Friedrich, Pia * 1965, (Emeritus); PhD, 1946, University of Turin (Italy); pedagogy and twentieth-century Italian literature.

O'Neil, Mary R. * 1983, (Adjunct); PhD, 1982, Stanford University; Renaissance/Reformation, early modern Europe.

Sbragia, Albert J. * 1989; PhD, 1988, University of California (Berkeley); modern and contemporary Italian literature and cinema, Italian fascism, Rome.

Wortley, W. Victor * 1965, (Emeritus); PhD, 1964, University of Oregon; seventeenth-century French theatre and prose (nonfiction).

Assistant Professors

Collins, Jeffrey L. * 1994, (Adjunct); MA, 1989, Yale University; MA, 1992, Cambridge University (UK); PhD, 1994, Yale University; European Baroque art and architecture with an emphasis on Italy; American material culture.

Jackson, Dianah Leigh * 1998; PhD, 1999, University of Minnesota; body of Enlightenment culture and the epistolary novel, medical history of the 18th century.

Rubino, Nancy I. * 1997; PhD, 1996, Columbia University; 19th-century French literature, modernism, history of medicine, French cinema.

Van Elslande, Jean-Pierre * 1996; PhD, 1996, University of Geneva (Switzerland); seventeenth-century French literature and cultural history.

Senior Lecturer

Yowell, Donna Lynne * 1988; PhD, 1987, University of California (Berkeley); medieval Italian literature, Dante, Occitan lyric.

Lecturers

Collins, Hélène V. 1984; PhD, 1995, University of Washington; French pedagogy and curriculum development, French cinema studies.

Leporace, Giuseppe 1987; MA, 1989, University of Washington; Italian pedagogy and translation.

Meyer, Hedwige M. 1988; MA, 1992, University of Washington; French pedagogy.

Course Descriptions

See page 48 for an explanation of course numbers, symbols, and abbreviations.

For graduate-level course descriptions, see the graduate and professional study volume of the *General Catalog* or visit the online course catalog at www.washington.edu/students/crscat/.

French

FRENCH 101 Elementary (5) Methods and objectives are primarily oral-aural. Oral practice in the language laboratory is required. Prerequisite: score of 0-14 on FR TL placement test if French is language of admission.

FRENCH 102 Elementary (5) Methods and objectives are primarily oral-aural. Oral practice in the language laboratory is required. Prerequisite: either FRENCH 101 or score of 15-30 on FR TL placement test.

FRENCH 103 Elementary (5) Methods and objectives are primarily oral-aural. Oral practice in the language laboratory is required. Prerequisite: either FRENCH 102, FRENCH 110, or score of 31-56 on FR TL placement test.

FRENCH 110 Basic French Review (5) Combines in one quarter the contents of 101 and 102. Designed for students who have studied French in high school but who are not ready for 102. Prerequisite: score of 10-30 on FR TL placement test.

FRENCH 121 French Immersion (5) The "planned immersion" approach covers the equivalent of elementary French (101, 102, 103) through an alternative method with video as the central medium of presentation.

FRENCH 122 French Immersion (5) The "planned immersion" approach covers the equivalent of elementary French (101, 102, 103) through an alternative method with video as the central medium of presentation.

FRENCH 123 French Immersion (5) The "planned immersion" approach covers the equivalent of elementary French (101, 102, 103) through an alternative method with video as the central medium of presentation.

FRENCH 134 First-year Intensive French (15) Equivalent of 101, 102, 103. No more than 15 credits allowed for any combination of 101, 102, 103, and 134. Offered: S.

FRENCH 201 Intermediate (5) VLPA Designed to bring students to an intermediate level of proficiency. Emphasis on experiencing the language in context through a multi-media approach. Prerequisite: either FRENCH 103, FRENCH 134, or score of 57-100 on FR TL placement test.

FRENCH 202 Intermediate (5) VLPA Designed to bring students to an intermediate level of proficiency. Emphasis on experiencing the language in context through a multi-media approach. Prerequisite: FRENCH 201.

FRENCH 203 Intermediate (5) VLPA Designed to bring students to an intermediate level of proficiency. Emphasis on experiencing the language in context through a multi-media approach. Prerequisite: FRENCH 202.

FRENCH 210 Paris (5) VLPA/I&S Taught in English. Provides an introduction to the art, architecture, politics, and literature of the City of Light. Offered: jointly with HSTEU 210.

FRENCH 211 French Masterworks: Ancien Régime in English (5) VLPA *Collins* Introduction to major figures of French culture from the Middle Ages to the eighteenth century, their contributions to the intellectual life of the Western world. Readings include Montaigne, Descartes, Rousseau, Voltaire, and Molière. In English.

FRENCH 212 French Masterworks: Modern in English (5) VLPA *Collins* Introduction to major figures of French culture from the nineteenth and twentieth centuries. Readings include Balzac, Flaubert, Proust, Sartre, and Celine. In English.

FRENCH 214 The French Fairy Tale Tradition in English (5) VLPA *Delcourt* French fairy tales as a major trend in French literature and a continuing influence on modern fictions and films. Particular attention given to the numerous French women writers of fairy tales at the time of Charles Perrault (seventeenth century) and after. In English.

FRENCH 227 Intermediate Conversational French (2, max. 8) VLPA Practice of intermediate-level French conversational skills through class discussion and oral presentations. Topics oriented toward French culture and current events.

FRENCH 250 History of French Cinema in English (5) VLPA *V. Collins* History of cinema in France from the birth of film, the seventh art, to the present. Socio-historical context of French cinema explored. In English.

FRENCH 301 Advanced French (5) VLPA Designed to bring students to an advanced level of proficiency in grammar and composition. Emphasis on experiencing the language in context through a multi-media approach. 303 prepares students for literature classes. Prerequisite: either FRENCH 203 or FRENCH 234.

FRENCH 302 Advanced French (5) VLPA Designed to bring students to an advanced level of proficiency in grammar and composition. Emphasis on experiencing the language in context through a multi-media approach. 303 prepares students for literature classes. Prerequisite: FRENCH 301.

FRENCH 303 Advanced French (5) VLPA Designed to bring students to an advanced level of proficiency in grammar and composition. Emphasis on experi-

encing the language in context through a multi-media approach. 303 prepares students for literature classes. Prerequisite: FRENCH 302.

FRENCH 304 Survey of French Literature: Origins to 1600 (5) VLPA Thematic and formal developments in literature of the period with emphasis on movements and texts in relation to cultural background. Prerequisite: FRENCH 302.

FRENCH 305 Survey of French Literature: 1600-1789 (5) VLPA Emphasis on literary movements and texts in relation to cultural background. Prerequisite: FRENCH 302.

FRENCH 306 Survey of French Literature: 1789 to the Present (5) VLPA Development of modern literature through its most important writers and movements. Prerequisite: FRENCH 302.

FRENCH 313 Business Communication in French (5) VLPA Offers students the opportunity to develop French language skills (reading, writing, speaking, and listening) within the context of the French-speaking business world. Business-specific culture emphasized. May be taken in lieu of, or in addition to, 303. Prerequisite: FRENCH 302.

FRENCH 327 Advanced Conversation (2, max. 8) VLPA Not open to students whose native language is French. Prerequisite: FRENCH 203.

FRENCH 378 The Making of Contemporary France, Studied in French (5) VLPA/I&S Study of the historical origins and subsequent development of contemporary problems and characteristics of French government and politics, economy, and society. Prerequisite: FRENCH 203.

FRENCH 390 Supervised Study (2-6, max. 20)

FRENCH 406 Advanced French Composition (5) VLPA Extensive guidance in advanced French composition, emphasizing stylistics and grammar. Prerequisite: FRENCH 303.

FRENCH 411 Topics in the Middle Ages (5) VLPA Sixteenth-century literature with emphasis on poetry and the general artistic ambiance. Prerequisite: FRENCH 303; FRENCH 304; FRENCH 305; FRENCH 306.

FRENCH 412 Topics in Sixteenth Century French Literature (5) VLPA An introduction to major French literary texts of the Sixteenth Century. Prerequisite: FRENCH 303; FRENCH 304.

FRENCH 413 Topics in Seventeenth Century (5) VLPA Seventeenth-century literature, with emphasis on the development of classicism. Prerequisite: FRENCH 303; FRENCH 304; FRENCH 305; FRENCH 306.

FRENCH 414 French Literature of the Eighteenth Century: Enlightenment (5) VLPA Eighteenth-century literature, with emphasis on the development of the Enlightenment ideology. Prerequisite: FRENCH 303; FRENCH 304; FRENCH 305; FRENCH 306.

FRENCH 415 French Literature of the Eighteenth Century: Post-Enlightenment (5) VLPA Eighteenth-century literature, with emphasis on the "dark side of the Enlightenment" and nascent romanticism. Prerequisite: FRENCH 303; FRENCH 304; FRENCH 305; FRENCH 306.

FRENCH 416 French Literature of the Nineteenth Century: Romanticism (5) VLPA Nineteenth-century literature, with emphasis on romanticism and the early manifestations of realism. Prerequisite: FRENCH 303; FRENCH 304; FRENCH 305; FRENCH 306.

FRENCH 418 French Literature of the Early Twentieth Century (5) VLPA Twentieth-century literature, with emphasis on the period 1900-1939. Prerequisite: FRENCH 303; FRENCH 304; FRENCH 305; FRENCH 306.

FRENCH 420 Interdisciplinary Approaches to Literature (5) VLPA Interdisciplinary studies in French literature and culture, focusing on the complex interactions of literature and other disciplines, i.e. philosophy, psychoanalysis, anthropology, architecture. Prerequisite: FRENCH 303; FRENCH 304; FRENCH 306.

FRENCH 432 Critical Approaches to French Fiction (5) VLPA Addresses theory and practice of fiction within the context of a given century or movement. Content varies. Prerequisite: FRENCH 303.

FRENCH 435 Topics in Non-Fiction (5) VLPA Content varies. Prerequisite: FRENCH 303.

FRENCH 441 Québécois Literature (5) VLPA Readings of novels, plays, and occasionally, poetry. Special attention paid to how Québécois authors represent in their works the complex socio-political reality of their culture. Conducted in French. French majors required to read and write in French; all others may read and write in English. Prerequisite: FRENCH 303; FRENCH 306. Offered: jointly with SCSA 441.

FRENCH 445 Women Writers and Feminist Theory (5) VLPA Focus on French women writers from different periods and places. Gender issues addressed in critical fashion, considering the different historical and ideological contexts in which each of the works were produced. Prerequisite: FRENCH 303.

FRENCH 450 Themes in French Literature and Culture (5) VLPA Interdisciplinary studies in French literature and culture, focusing on the construction and representation of gender roles in the French novel from the early eighteenth century. Prerequisite: FRENCH 303; FRENCH 304; FRENCH 305; FRENCH 306.

FRENCH 455 One Author in French Literature/Culture (5, max. 15) VLPA In depth focus on the works of one author in French Literature or Culture. Prerequisite: FRENCH 303.

FRENCH 458 French Art and Literature: Period Studies (5) VLPA Comparative studies of theme and technique in art and literature to illustrate major concerns of a particular period as expressed in these two media. Recommended: background in French literature.

FRENCH 470 Cinema (5) VLPA Major films and figures of French cinema from the beginnings to the present. Prerequisite: FRENCH 303; FRENCH 304; FRENCH 305; FRENCH 306.

FRENCH 481 Twentieth-Century French Novel in English (5) VLPA

FRENCH 486 Literature of the Enlightenment in English (5) VLPA

FRENCH 487 Nineteenth-Century Fiction in English (5) VLPA

FRENCH 488 Women in French Literature in English (5) VLPA Masterpieces of French literature are read in an attempt to understand French attitudes toward women. From the sixteenth century, with a concentration on the twentieth century.

FRENCH 490 Honors Seminar (2-5, max. 10) VLPA Special studies in French literature. Required of candidates for honors and distinction in French.

FRENCH 499 Special Topics (1-5, max. 10) Topics to meet special needs. Prerequisite: FRENCH 303.

Italian

ITAL 101 Elementary (5) Methods and objectives are primarily oral-aural. Language laboratory is required. Offered: A.

ITAL 102 Elementary (5) Methods and objectives are primarily oral-aural. Language laboratory is required. Prerequisite: either ITAL 101 or score of 15-30 on IT TL placement test. Offered: W.

ITAL 103 Elementary (5) Methods and objectives are primarily oral-aural. Language laboratory is required. Prerequisite: either ITAL 102, ITAL 111, or score of 31-56 on IT TL placement test. Offered: Sp.

ITAL 111 Accelerated First-Year Italian (10) Intensive version of 101 and 102. Designed for highly motivated students. Offered: A.

ITAL 113 Accelerated First-Year Italian (10) Intensive version of 102 and 103. Design for highly motivated students. Offered: W.

ITAL 127 Beginning Conversational Italian (2, max. 6) Practice of beginning-level Italian conversational skills through class discussions and oral presentations. Topics vary. Not open to native speakers.

ITAL 134 Intensive First Year Italian (15) An intensive language course equivalent to 101, 102, 103, designed for highly motivated students. Not open for credit to students who have taken 102 and 103. Offered: S.

ITAL 201 Intermediate (5) VLPA Intensive speaking, reading, and writing. Functional review of grammar. Prerequisite: either ITAL 103, ITAL 113, ITAL 134, or score of 57-100 on IT TL placement test.

ITAL 202 Intermediate (5) VLPA Intensive speaking, reading, and writing. Functional review of grammar. Prerequisite: ITAL 201.

ITAL 203 Intermediate (5) VLPA Intensive speaking, reading, and writing. Functional review of grammar. Prerequisite: ITAL 202.

ITAL 227 Intermediate Conversational Italian (2, max. 6) VLPA Practice of intermediate-level Italian conversational skills through class discussions and oral presentations. Topics vary. Not open to native speakers. Prerequisite: ITAL 103.

ITAL 250 Rome (5) VLPA/I&S Focuses on Rome as an historical, intellectual, and artistic world center. Literary and historic documents, visual arts, architecture, film, and opera will be used to explore the changing paradigms of the Eternal City. In English. Offered: jointly with ART H 250/HSTEU 250.

ITAL 301 Advanced Syntax and Composition (5) VLPA Prerequisite: either ITAL 203 or ITAL 234.

ITAL 302 Advanced Syntax and Composition (5) VLPA Prerequisite: ITAL 301.

ITAL 303 Italian Stylistics (5) VLPA Functional grammar review; creative written and oral composition and reading, with special attention to problems of style. Prerequisite: ITAL 302.

ITAL 319 The Italian Short Story in English (5) VLPA The short story from the Novellino and Boccaccio to modern masters of the form. The translations are studied both as examples of narrative technique and as reflections of particular moments in Italian cultural history.

ITAL 327 Advanced Conversation (2, max. 8) VLPA Not open to students whose native language is Italian. Prerequisite: ITAL 203.

ITAL 366 Italian Society in Film and Literature (5) VLPA/I&S *Sbragia* Studies the evolution of Italian postwar society through the analysis of film and literature as well as critical, historical, and sociological readings.

ITAL 390 Supervised Study (2-6, max. 20)

ITAL 395 Italian Cultural History (5) VLPA/I&S Explores Italian cultural history through a variety of

literary and other textual traditions.

ITAL 401 Medieval Italian Readings (5) VLPA Exploration of medieval Italian cultural history through a broad variety of literary and other textual traditions.

ITAL 402 Early Modern Italian Readings I (5) VLPA Readings in Italian Quattro/Cinquecento, covering the period of the Renaissance.

ITAL 403 Early Modern Italian Readings II (5) VLPA Readings in Italian Sei/Settecento, covering the periods of Baroque and Enlightenment literature.

ITAL 404 Modern Italian Readings I (5) VLPA Readings in Italian Ottocento, covering the period of Romanticism. Prerequisite: ITAL 203.

ITAL 405 Modern Italian Readings II (5) VLPA Readings in Italian Novecento, covering the work of major Italian twentieth-century authors. Prerequisite: ITAL 203.

ITAL 466 Italian Society in Cinema and Literature in Italian (5) VLPA/I&S *Sbragia* Studies the evolution of Italian postwar society through the analysis of film and literature as well as critical, historical, and sociological readings. Offered in Italian.

ITAL 475 Italian Fascism: Architecture and Power (5) VLPA/I&S Fascism in Italy as studied within the broader European context of nationalism, imperialism, and modernization, with particular emphasis on the arts—literature, film, architecture, and urbanism. Offered: jointly with ART H 495; A.

ITAL 480 Dante's Comedy in English (5) VLPA Introduction to Dante's Comedy. Considers formal, structural, linguistic, literary, historical, cultural, philosophical, and theological issues raised by the text. Discusses the main currents of twentieth-century Dante criticism.

ITAL 481 Dante's Comedy in English (5) VLPA Second half of a two-quarter series. Close study of Dante's Purgatory and Paradiso and retrospective reading of Inferno. Explores Dante's concept of art, both human and divine, as it is developed in and defines the poem. Prerequisite: ITAL 480.

ITAL 482 The Decameron in English (5) VLPA An integral reading of the Decameron, with some consideration of its place in world literature and as an expression of the culture of its time.

ITAL 490 Proseminar in Italian Literature (3-5) VLPA Intended to help the student achieve a mature critical mastery of Italian literature.

ITAL 499 Special Topics (1-5, max. 10) Topics to meet special needs.

Spanish and Portuguese Studies

C104 Padelford



Division Web page:
depts.washington.edu/spanport/

Undergraduate Program

Adviser
Elena M. Johns
C104F Padelford, Box 354360
(206) 543-2075

The Division of Spanish and Portuguese Studies offers a program of study leading to a Bachelor of Arts in Spanish, as well as a minor.

Bachelor of Arts

Admission Requirements:

Spanish:

1. Completion of SPAN 203, with a minimum cumulative GPA of 2.70 or higher for all Spanish course work completed and a minimum grade of 2.5 in each Spanish course.
2. Completion of at least 10 credits of English composition with a minimum grade of 2.5 in each course.
3. Admission is competitive, based on the following minimum qualifications: (1) preparation for the major as indicated by a student's grades in courses required for application, (2) overall scholastic record, and (3) personal statement, in Spanish, of interest in and commitment to the major. Other evidence reflecting the student's interest may be appended. Completion of the above requirements does not guarantee admission.
4. Application deadline is the first Friday of autumn, winter, and spring quarters, for admission in the fifth week of the same quarter. Applicants denied admission may submit written petitions requesting reconsideration. Applications are available in C104F Padelford.

Suggested Course Work for the Major: Spanish, Latin American, and Chicano literature. Courses relating to history and culture. Courses in English literature and comparative literature.

Major Requirements

Spanish: Minimum 53 credits above SPAN 203, including 301, 302, 303, 321, 322, 323; three 300-level elective courses (maximum of two from film series); four 400-level courses (one from 400 through 409). Other than 400 through 409, only one course whose instructional materials are primarily in English may apply toward the major.

Minor

Minor Requirements: Spanish—Minimum 32 credits above the 203 level, to include SPAN 301, 302, 303 and five courses numbered 304 to 495, including at least 5 credits from 400 to 409.

Graduate Program

For information on the Division of Spanish and Portuguese Studies graduate program, see the graduate and professional volume of the *General Catalog* or visit the *General Catalog* online at www.washington.edu/students/gencaaf/.

Faculty

Chair

Cynthia Steele

Professors

Anderson, Farris Furman * 1967; MA, 1962, Duke University; PhD, 1968, University of Wisconsin; nineteenth- and twentieth-century Spanish literature and civilization, advanced Spanish grammar.

Hunn, Eugene S. * 1972, (Adjunct); PhD, 1973, University of California (Berkeley); cognitive anthropology, ethnobiology, cultural ecology and evolution, Mexico, North American Indians.

Lawson, Victoria A. * 1986, (Adjunct); PhD, 1986, Ohio State University; Latin America, critical development studies, feminist geography.

Steele, Cynthia * 1986; PhD, 1980, University of California (San Diego); Latin American literature and cultural studies; Mexican literature, film, and photography.

Associate Professors

Deyoung, Terri L. * 1991, (Adjunct); PhD, 1988, University of California (Berkeley); Arabic language and literature.

Flores, Lauro H. * 1980; PhD, 1980, University of California (San Diego); Chicano literature, contemporary Latin American literature (narrative).

Geist, Anthony L. * 1987; PhD, 1978, University of California (Berkeley); twentieth-century Spanish literature: ideology and literary form, cultural studies, film.

O'Hara, Edgar * 1989; PhD, 1989, University of Texas (Austin); Spanish, Latin American poetry, writing poetry and essays.

Petersen, Suzanne Helen * 1973; PhD, 1976, University of Wisconsin; medieval Spanish literature, oral poetry, pan-Hispanic ballad, medieval Spanish literature.

Shipley, George A. * 1967; PhD, 1968, Harvard University; Spanish Golden Age.

Strozer, Judith R. * 1987, (Adjunct); PhD, 1976, University of California (Los Angeles); comparative Romance syntax, second language acquisition, foreign language teaching.

Zagona, Karen T. * 1987, (Adjunct); PhD, 1982, University of Washington; syntactic theory and Spanish syntax, tense, and aspect.

Assistant Professors

Fuchs, Barbara * 1997, (Adjunct); PhD, 1997, Stanford University; early modern English and Spanish literature, literature and imperialism.

Santianez, Nil 1999; PhD, 1991, University of Illinois; naturalism and realism, modernism, 19th-century science fiction, theory of the novel.

Lecturers

Basdeo, Ganeshdath D. 1985; MA, 1976, University of Washington; second-year Spanish, Spanish linguistics.

Bensadon, Leon M. 1989; MA, 1991, University of Washington; French and Spanish pedagogy and curriculum development.

Borreguero, Paloma A. 1990; MA, 1992, University of Washington; Spanish language and culture, pedagogy and teaching methodology.

Fox, Joan H. 1984; MA, 1973, University of British Columbia (Canada); language pedagogy and translation.

Gillman, Maria 1990; MA, 1986, Oregon State University; third-year Spanish curriculum and pedagogy.

Marulanda, Sandra 1987; MA, 1989, University of Washington; language pedagogy, children's literature, translation.

Raneda-Cuartero, Immacula 1997; MA, 1994, University of Wisconsin; second- and third-year Spanish curriculum and pedagogy.

Course Descriptions

See page 48 for an explanation of course numbers, symbols, and abbreviations.

For graduate-level course descriptions, see the graduate and professional study volume of the *General Catalog* or visit the online course catalog at www.washington.edu/students/crscaaf/.

Portuguese

PORT 101 Elementary (5) Methods and objectives are primarily oral-aural. Covers all major elements of Portuguese grammar.

PORT 102 Elementary (5) Methods and objectives are primarily oral-aural. Covers all major elements of Portuguese grammar. Prerequisite: PORT 101.

PORT 103 Elementary (5) Methods and objectives are primarily oral-aural. Covers all major elements of Portuguese grammar. Prerequisite: PORT 102.

PORT 105 Intensive Portuguese for Spanish Speakers (6) Covers the verbal system and major grammatical points. Does not satisfy Foreign Language Requirement. Prerequisite: SPAN 203.

PORT 201 Intermediate (5) VLPA Modern texts, compositions, conversation, and a systematic review of grammar. Prerequisite: either PORT 103 or PORT 105.

PORT 202 Intermediate (5) VLPA Modern texts, compositions, conversation, and a systematic review of grammar. Prerequisite: PORT 201.

PORT 203 Intermediate (5) VLPA Modern texts, compositions, conversation, and a systematic review of grammar. Prerequisite: PORT 202.

PORT 301 Grammar and Lexicon (3) VLPA Prerequisite: PORT 203.

PORT 335 Twentieth Century Brazilian Fiction in English (5, max. 10) VLPA Reading texts in connection with cultural and theoretical issues.

Romanian

RMN 401 Elementary Romanian (5) Comprehensive introduction to spoken and literary Romanian. Offered: jointly with ROMN 401; A.

RMN 402 Elementary Romanian (5) Comprehensive introduction to spoken and literary Romanian. Prerequisite: RMN/ROMN 401. Offered: jointly with ROMN 402; W.

RMN 403 Elementary Romanian (5) Designed to increase vocabulary and enhance knowledge of grammar through readings in modern Romanian. Prerequisite: RMN/ROMN 402. Offered: jointly with ROMN 403; Sp.

RMN 404 Advanced Romanian (5) VLPA Continuation of 401, 402, 403. Introduction to Romanian literature, history, and culture through selected readings. Reinforces and extends basic knowledge of grammar and vocabulary. Prerequisite: RMN/ROMN 403. Offered: jointly with ROMN 404; A.

RMN 405 Advanced Romanian (5) VLPA Introduction to Romanian literature, history, and culture through selected readings. Reinforces and extends basic knowledge of grammar and vocabulary. Prerequisite: RMN/ROMN 404. Offered: jointly with ROMN 405; W.

RMN 406 Advanced Romanian (5) VLPA Introduction to Romanian literature, history, and culture through selected readings. Reinforces and extends basic knowledge of grammar and vocabulary. Prerequisite: RMN/ROMN 405. Offered: jointly with ROMN 406; Sp.

Spanish

Credit: The sequence 121, 122, 123 is parallel to 101, 102, 103; students can receive credit for 101 and 121, but not for 102 and 122 or 103 and 123. 101 and 121 cannot be taken for credit after 102, 103, 122, or 123. 134 is a 15-credit intensive course exactly equivalent to 121, 122, 123; a maximum of 15 credits are allowed for 134 and any of 102, 103, 121, 122, and 123. A student who completes 134 cannot later take 101 for credit, but a student who earns credit for 1001 can take 134 for 15 additional credits.

SPAN 101 Elementary (5) Methods and objectives are primarily oral-aural. Language laboratory is required. Prerequisite: score of 0-15 on SP100A placement test if Spanish is language of admission.

SPAN 102 Elementary (5) Methods and objectives are primarily oral-aural. Language laboratory is required. Prerequisite: either SPAN 101, or score of 16-44 on SP100A placement test.

SPAN 103 Elementary (5) Methods and objectives are primarily oral-aural. Language laboratory is required. Prerequisite: either SPAN 102, SPAN 110 or score of 45-69 on SP100A placement test.

SPAN 110 Basic Spanish Review (5) Covers the equivalent of 101 and 102 to prepare for 103. May not be taken in addition to 101 or 102. Prerequisite: score of 10-44 on SP100A placement test. Offered: A/WSp.

SPAN 121 Spanish Immersion (5) Covers the equivalent of elementary Spanish (SPAN 101, 102, 103) through an alternative "planned immersion" method with video as the central medium of presentation.

SPAN 122 Spanish Immersion (5) Covers the equivalent of elementary Spanish (SPAN 101, 102, 103) through an alternative "planned immersion" method with video as the central medium of presentation. Prerequisite: either SPAN 101 or SPAN 121.

SPAN 123 Spanish Immersion (5) Covers the equivalent of elementary Spanish (SPAN 101, 102, 103) through an alternative "planned immersion" method with video as the central medium of presentation. Prerequisite: either SPAN 102 or SPAN 122.

SPAN 134 Intensive First-Year Spanish (15) Equivalent of 121, 122, 123. Employs "planned immersion" method with video as the central medium of presentation. Not open for credit to students who have taken 121, 122, 123 or 102, 103. Offered: S.

SPAN 199 Foreign Study—Elementary (4-16, max. 16) Elementary instruction in approved foreign study program. Students who wish to satisfy foreign language proficiency requirement must see the departmental adviser and may be required to take additional courses through 103.

SPAN 201 Intermediate (5) VLPA Intensive practice in speaking, reading, and writing. Review of Spanish grammar. Oral practice based on literary and cultural readings. Prerequisite: either SPAN 103, SPAN 104, SPAN 123, SPAN 134, score of 70-100 on SP100A placement test, minimum score of 51 on SP TL placement test, or score of 0-59 on SP200A placement test.

SPAN 202 Intermediate (5) VLPA Intensive practice in speaking, reading, and writing. Review of Spanish grammar. Oral practice based on literary and cultural readings. Prerequisite: SPAN 201.

SPAN 203 Intermediate (5) VLPA Intensive practice in speaking, reading, and writing. Review of Spanish grammar. Oral practice based on literary and cultural readings. Prerequisite: SPAN 202

SPAN 204 Intensive Spanish Review-Intermediate (5) VLPA Intensive review of grammar, reading composition. For highly motivated students with at least one year of college Spanish, or equivalent. Synthesis of 201, 202, 203, and preparation for third-year work in language and literature. Prerequisite: either SPAN 103, SPAN 104, SPAN 123, SPAN 134, or score of 70-100 on SP100A placement test.

SPAN 299 Foreign Study—Intermediate (4-16, max. 16) VLPA Intermediate instruction in approved foreign study program. Evaluation by departmental adviser required to establish proficiency. Further study at 200-level subject to departmental evaluation.

SPAN 301 Grammar and Lexicon (5) VLPA Prerequisite: either SPAN 203 or SPAN 204.

SPAN 302 Grammar and Lexicon (5) VLPA Prerequisite: SPAN 301.

SPAN 303 Introduction to Stylistics Through Composition (5) VLPA Prerequisite: SPAN 302.

SPAN 304 Survey of Spanish Literature: 1140-1498 (3) VLPA Masterpieces of Spanish literature from origins to 1498. Prerequisite: SPAN 301 which may be taken concurrently.

SPAN 305 Survey of Spanish Literature: 1498-1681 (3) VLPA Prerequisite: SPAN 301 which may be taken concurrently.

SPAN 306 Survey of Spanish Literature: 1681 to the Present (3) VLPA Prerequisite: SPAN 301 which may be taken concurrently.

SPAN 307 Introduction to Latin American Literature (3) VLPA Study of selected works of twentieth-century Latin American literature and their sociohistorical context. Development of reading and writing skills. Prerequisite: SPAN 301 which may be taken concurrently.

SPAN 310 Spanish for Reading Knowledge I (5) Intended primarily for graduate students. Emphasis on developing reading comprehension of Spanish texts which are pertinent to graduate student's field of research. Credit may not be applied toward Spanish major.

SPAN 311 Spanish for Reading Knowledge II (5) VLPA Intended primarily for graduate students. Emphasizes developing reading comprehension of Spanish texts which are pertinent to graduate student's field of research. Credit may not be applied toward Spanish major. Prerequisite: SPAN 310.

SPAN 313 Business Communication in Spanish (5) VLPA This intermediate level course offers student the opportunity develop their Spanish language skills (reading, writing, speaking, and listening) within the context of the Spanish-speaking business world. Business-specific culture emphasized. Prerequisite: SPAN 203.

SPAN 314 Spanish for Bilingual/Heritage Students (5) VLPA *Gillman* Provides bilingual students whose formal education has primarily been in English with the skills necessary to succeed in upper-division Spanish classes. Intensive review of grammar, readings of literary and journalistic texts, Web-based exercises, writing review, and a play to enhance their verbal skills.

SPAN 321 Introduction to Hispanic Literary Studies (3) VLPA Acquaints the third-year student with elementary techniques of literary analysis, as applied to examples of narrative, poetry and theater, within the context of the Spanish and Latin American literary traditions. Prerequisite: SPAN 301 which may be taken concurrently.

SPAN 322 Introduction to Hispanic Cultural Studies (3) I&S/VLPA Introduces students to elite, mass, and folk cultures of Latin America, Spain, and Latinos in the United States. Sample topics include transculturation, globalization, border culture, and relations between culture, democratization, and human rights. Prerequisite: SPAN 301 which may be taken concurrently.

SPAN 323 Introduction to Spanish Linguistics (3) VLPA Synchronic and diachronic linguistic analysis of Spanish, including Spanish phonetics and phonology, morphology, syntax, and evolution of the language. Prerequisite: SPAN 301 which may be taken concurrently.

SPAN 331 Themes in Mexican-American Studies (5) VLPA/I&S Examination of significant historical and cultural themes of the Mexican-American experience. Prerequisite: SPAN 301 which may be taken concurrently.

SPAN 332 Chicano Film and Narrative (5) VLPA/I&S *Flores* Historical overview of the evolution of Chicano culture through film. Critical examination of the portrayal and self-portrayal of Chicanos in film and selected works of narrative. Prerequisite: SPAN 301 which may be taken concurrently.

SPAN 333 Hispanic Film Studies (3) VLPA/I&S Introduction to major issues in the study of Hispanic cinema from various national contexts. The relationship of film to other types of narrative, and of film to society, specifically relations between class, gender, ethnicity, and artistic production, as well as between cinema and social change. Prerequisite: SPAN 301 which may be taken concurrently.

SPAN 334 Latin American Film (3) VLPA/I&S Overview of the history of Latin American cinema, including the new Latin American cinema of the 1960s; the development of strong film industries in Mexico, Cuba, and Brazil; and recent developments in the context of globalization and democratization. Prerequisite: SPAN 301 which may be taken concurrently.

SPAN 337 Foreign Study Conversational Spanish (2-6, max. 6) VLPA For participants in foreign study program. Prerequisite: SPAN 203.

SPAN 350 Drama (3) VLPA Generic study of Spanish drama. Prerequisite: SPAN 301 which may be taken concurrently.

SPAN 351 Poetry (3) VLPA Generic study of Spanish poetry. Prerequisite: SPAN 301 which may be taken concurrently.

SPAN 352 Fiction (3) VLPA Generic study of Spanish fiction. Prerequisite: SPAN 301 which may be taken concurrently.

SPAN 360 Contemporary Spain (5) VLPA/I&S Social, political, and cultural developments in Spain since the end of the Franco dictatorship in 1975. Extensive use of Spanish Web sites. Prerequisite: SPAN 302 which may be taken concurrently. Offered jointly with EURO 360.

SPAN 376 Introduction to Latin American Poetry (3) VLPA Traces the oral, musical, and written traditions of Latin American poetry. Prerequisite: SPAN 301 which may be taken concurrently.

SPAN 390 Supervised Study (2-6, max. 20)

SPAN 393 Foreign Study (2-10, max. 20) VLPA Study in Spanish speaking country outside the standard Spanish curriculum of the University of Washington. Prerequisite: SPAN 301 which may be taken concurrently.

SPAN 400 The Syntactic Structure of Spanish (5) VLPA *Strozer, Zagana* Scientific study of the syntax of Spanish: structure of phrases, transformationally derived structures, grammatical relations, principles of interpretation. Prerequisite: SPAN 301; either ANTH 203, LING 200, 201, 203, LING 400, or SPAN 323. Offered: jointly with SPLING 400.

SPAN 401 The Morphological Structure of Spanish (5) VLPA *Strozer, Zagana* Principles of word formation, including derivational and inflectional morphology. Relationship between inflectional morphology and other components of grammar. Prerequisite: SPAN 301; either ANTH 203, LING 200, 201, 203, LING 400, or SPAN 323. Offered: jointly with SPLING 401.

SPAN 402 The Phonological Structure of Spanish (5) VLPA *Strozer, Zagana* Phonological component of the generative grammar of Spanish; representations of syllabic and segmental units, phonological rules, distinctive features and their articulatory correlates. Prerequisite: SPAN 301; either ANTH 203, LING 200, 201, 203, LING 400, or SPAN 323. Offered: jointly with SPLING 402.

SPAN 403 The Evolution of the Spanish Language (5) VLPA *Zagora* Historical survey of Spanish phonology, morphology, and syntax, from Latin origins to the modern language. Prerequisite: SPAN 301; either ANTH 203, LING 200, 201, 203, LING 400, or SPAN 323. Offered: jointly with SPLING 403.

SPAN 406 Advanced Spanish Grammar (5) VLPA Problems of Spanish grammar. Differences from English grammar. Techniques for the effective teaching of Spanish. Prerequisite: SPAN 303; SPAN 323. Offered: jointly with SPLING 406.

SPAN 408 Spanish Translation Workshop (5) VLPA Intensive practice in translation to and from Spanish. Texts include literary prose, poetry, expository writing, newspaper and magazine articles. Problems of standard versus colloquial language, transposition of cultural references, concept of fidelity in translation. Prerequisite: SPAN 303; SPAN 323; recommended: SPAN 406.

SPAN 409 Spanish Phonetics (5) VLPA Analysis of sounds: training in pronunciation, intonation, and close transcription of Spanish language in its modalities. Prerequisite: SPAN 301; either ANTH 203, LING 200, 201, 203, LING 400, or SPAN 323. Offered: jointly with SPLING 409.

SPAN 414 Spanish Literature: Eighteenth Century (5) VLPA Prerequisite: SPAN 303; SPAN 321; one additional 300-level course above SPAN 303.

SPAN 415 Spanish Literature: Nineteenth Century (5) VLPA Prerequisite: SPAN 303; SPAN 321; one additional 300-level course above SPAN 303.

SPAN 416 Spanish Literature: 1900-1936 (5) VLPA Spanish literature of the twentieth century prior to the Civil War (1900-1936). Concentration on Generations of 1898 and 1927. Prerequisite: SPAN 303; SPAN 321; one additional 300-level course above SPAN 303.

SPAN 417 Spanish Literature From 1940 to the Present (5) VLPA Prerequisite: SPAN 303; SPAN 321; one additional 300-level course above SPAN 303.

SPAN 420 Spanish Poetry: Origins Through the Fifteenth Century (5) VLPA Prerequisite: SPAN 303; SPAN 321; one additional 300-level course above SPAN 303.

SPAN 424 Hispanic Poetry (5) VLPA Modern lyric poetry of the Hispanic world. The period studied extends from 1870 to 1936 and deals with thirteen major poets, from Becquer to Hernandez. Prerequisite: SPAN 303; SPAN 321; one additional 300-level course above SPAN 303.

SPAN 426 Hispanic Poetry (5) VLPA Modern lyric poetry of the Hispanic world. The period studied extends from 1870 to 1936 and deals with thirteen major poets, from Becquer to Hernandez. Prerequisite: SPAN 303; SPAN 321; one additional 300-level course above SPAN 303.

SPAN 433 Golden Age Prose (5) VLPA Representative, and outstanding, prose works of sixteenth- and seventeenth-century Spain. Prerequisite: SPAN 303; SPAN 321; one additional 300-level course above SPAN 303.

SPAN 436 Spanish Novel of the Nineteenth Century (5) VLPA Representative works of Galdos, Clarin, Pereda, Valera, and Blasco Ibanez. Prerequisite: SPAN 303; SPAN 321; one additional 300-level course above SPAN 303.

SPAN 438 Spanish Novel: 1939 to the Present (5) VLPA Prerequisite: SPAN 303; SPAN 321; one additional 300-level course above SPAN 303.

SPAN 439 Women Writers (5) VLPA/I&S Feminist analysis of selected texts by Chicana/Latina writers in the United States as well as by Spanish-American,

Luso-Brazilian and/or Spanish women writers in their specific socio-historical contexts. Prerequisite: SPAN 303; SPAN 321; one additional 300-level course above SPAN 303.

SPAN 453 Cervantes and His Times (5) VLPA Study of Cervantes and his moment in Spanish history, with special attention to his cultural and artistic environment. Prerequisite: SPAN 303; SPAN 321; one additional 300-level course above SPAN 303.

SPAN 461 Cultural Background of Latin American Literature (5) VLPA Survey of ideas and art forms and their relationship to literature in four periods: pre-Columbian, colonial, early independence, and twentieth century. Prerequisite: SPAN 303; SPAN 322; one additional 300-level course above SPAN 303.

SPAN 462 Early Spanish Civilization (5) I&S/VLPA Development of Spanish society and art forms from early times to 1700. Prerequisite: SPAN 303; SPAN 322; one additional 300-level course above SPAN 303.

SPAN 463 Spanish Civilization Since 1700 (5) I&S/VLPA Spanish civilization and its major artistic products since 1700. Major moments in the development of Spanish society and intellectual life as reflected in music, painting, and especially literature. Prerequisite: SPAN 303; SPAN 322; one additional 300-level course above SPAN 303.

SPAN 465 Contemporary Chicano Literature (5) VLPA Examination of one or more problems, themes, and/or figures in the developing body of Chicano literature. Prerequisite: SPAN 303; SPAN 321; one additional 300-level course above SPAN 303.

SPAN 466 Chicano Literature: Fiction (5) VLPA Nineteenth- and early twentieth-century fiction, as well as contemporary works, are examined in attempts to trace the development of Chicano fiction in the proper historical trajectory. Prerequisite: either SPAN 303; SPAN 321; one additional 300-level course above SPAN 303.

SPAN 467 Spanish Women (5) VLPA/I&S Women's culture in Spain, focusing on women's experience during Civil War; persecution and censorship of women activists, artists, intellectuals during Franco years; changes in women's culture brought about by reintroduction of democracy; major issues addressed by contemporary Spanish feminists. Prerequisite: SPAN 303; SPAN 322; one additional 300-level course above SPAN 303.

SPAN 468 Latin American Women (5) VLPA/I&S The elaboration of discourses of identity in relation to gender, ethnicity, social class, and nationality, by women writers from South America, Mexico, Central America, and the Caribbean. Testimonial literature, literature and resistance, women's experimental fiction. Prerequisite: SPAN 303; SPAN 321; one additional 300-level course above SPAN 303. Offered: jointly with WOMEN 468.

SPAN 474 Latin American Fiction: Twentieth Century (5) VLPA Study of prose fiction in Latin America in the twentieth century. Prerequisite: SPAN 303; SPAN 321; one additional 300-level course above SPAN 303.

SPAN 475 Latin American Poetry: Colonial Through Nineteenth Century (5) VLPA Poetic movements of the seventeenth, eighteenth, and nineteenth centuries in Spanish American, Renaissance, baroque, neoclassicism, romanticism, and modernism. Prerequisite: SPAN 303; SPAN 321; one additional 300-level course above SPAN 303.

SPAN 476 Contemporary Latin American Poetry (5) VLPA Evolution of Latin American poetry, from postmodernism and vanguardism to the most recent poetic expression. Prerequisite: SPAN 303; SPAN 321; one additional 300-level course above SPAN 303.

SPAN 477 Latin American Essay (5) VLPA Literary expression of ideas in Latin American countries, nineteenth and twentieth centuries. Prerequisite: SPAN 303; SPAN 321; one additional 300-level course above SPAN 303.

SPAN 478 Modern Latin American Theater (5) VLPA Study of the origin, development, and achievements of Latin American theater with an overview of its history prior to the twentieth century. Prerequisite: SPAN 303; SPAN 321; one additional 300-level course above SPAN 303.

SPAN 480 Spanish Medieval Literature (5) VLPA Principal literary works of the Spanish Middle Ages in the context of evolving intellectual, spiritual, and artistic climates of the period. Covers the evolution of narrative and lyric prose and verse in both their traditional and learned manifestations. Prerequisite: SPAN 303; SPAN 321; one additional 300-level course above SPAN 303.

SPAN 481 Sixteenth- and Seventeenth-Century Spanish Literature (5) VLPA Spanish literature of the sixteenth and seventeenth centuries. Close study of key texts from all genres as well as their socio-historical contexts. Prerequisite: SPAN 303; SPAN 321; one additional 300-level course above SPAN 303.

SPAN 482 Eighteenth- through Twentieth-Century Spanish Literature (5) VLPA Survey of Spanish literature since 1700, and its historical context. Prerequisite: SPAN 303; SPAN 321; one additional 300-level course above SPAN 303.

SPAN 483 Latin American Literature: Origins to Independence (5) VLPA The elaboration of discourses of legitimization by the Spanish conquistadores, and of resistance and accommodation by native and mestizo peoples; the development of a New World Baroque aesthetic; literatures of independence from Spain and of nation-building. Prerequisite: SPAN 303; SPAN 321; one additional 300-level course above SPAN 303.

SPAN 484 Latin American Literature: Modernismo to the Present (5) VLPA Principal literary movements of Latin America, late nineteenth century to the present, with particular emphasis on poetry and narrative: modernismo, postmodernismo, the vanguard, nueva and novísima narrativa. Includes essays and autobiographical writings to help place the literary works in socio-historical perspective. Prerequisite: SPAN 303; SPAN 321; one additional 300-level course above SPAN 303.

SPAN 485 Cultural Studies of Latin America (5) VLPA/I&S Identity, representation, and transculturation in Latin American popular culture. Topics vary but may include cinema, folk art, and historical, ethnographic, and travel writing. Prerequisite: SPAN 303; SPAN 322; one additional 300-level course above SPAN 303. Offered: jointly with SISLA 485.

SPAN 486 Photography and Cultural Studies in Latin America (5) VLPA/I&S Interdisciplinary exploration of the connections between visual anthropology (ethnography through photography and film), documentary and art photography, and colonial and post-colonial discourse in Latin America during the twentieth century. Offered jointly with SISLA 486.

SPAN 487 Mexican Cinema (5) VLPA, I&S *Steele* Analysis of representative films about post-revolutionary Mexico by directors from both the Golden Age of Mexican Cinema (1940-1960) and the Mexican New Film movement (1975-the present). Revolutionary nationalism, modernization and its discontents; construction of gender, class and ethnicity; migration and globalization. Prerequisite: SPAN 303; SPAN 322 and one additional 300-level course beyond 303.

SPAN 490 Honors Seminar (2-5, max. 10) VLPA Special studies in Spanish literature. Required of candidates for Honors and Distinction in Spanish.

SPAN 491 Individual Authors and Special Topics in Spanish Literature (5, max. 10) VLPA Focus on an individual Spanish author or a special problem in Spanish literature. Prerequisite: SPAN 303; SPAN 321; one additional 300-level course above SPAN 303.

SPAN 493 Foreign Study (2-10, max. 20) VLPA Advanced study in Spanish speaking country outside the standard Spanish curriculum of the University of Washington. Prerequisite: SPAN 303; one additional 300-level course above SPAN 303.

SPAN 495 Study in Spain (12) VLPA Study in Spain. Course content varies from year to year. Consult the Division of Spanish and Portuguese for availability and further requirements.

SPAN 499 Special Topics (1-5, max. 10) Topics to meet special needs.

Courses in English

These courses are recommended as appropriate supporting studies for students majoring in other departments. Courses in English translation are not usually applicable toward undergraduate or graduate major programs in the Department of Romance Languages and Literature. Majors may take any of these courses for credit as one of their electives.

SPAN 320 Contemporary Latin American Literature in English Translation (3) VLPA Selected texts of contemporary Latin American literature, including examples of magical realism, the New Novel, and Central American poetry, in their sociohistorical context.

SPAN 339 Women Writers in English Translation (3) VLPA Feminist analysis of selected contemporary texts in English or English translation by Chicana/Latina writers in the United States; or by Spanish-American, Luso-Brazilian and/or Spanish women writers, in their specific socio-historical context.

SPAN 353 Cervantes' Don Quixote in English (5) VLPA Cervantes's *Don Quixote de la Mancha*: close study of this comic masterpiece, and the life, times, and works of its author. Consideration of the work's enduring influence and vitality.

Russian, East European, and Central Asian Studies

See International Studies.

Scandinavian Studies

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General Catalog Web page:
www.washington.edu/students/gencat/academic/scandinavian.html



Department Web page:
depts.washington.edu/scand/

The Department of Scandinavian Studies is concerned with the study of languages, literature, history, politics, and cultures of Denmark, Finland, Iceland, Norway, Sweden, and the Baltic States of Estonia, Latvia, and Lithuania. Emphasis is placed both on contemporary literature and culture and on historical development.

Although most courses designed for majors are taught in the original languages, a broad spectrum of courses designed primarily for nonmajors is offered in English.

Undergraduate Program

Adviser
Lotta Gavel Adams
305P Raitt, Box 353420
(206) 543-0643

The Department of Scandinavian Studies offers a program of study leading to a Bachelor of Arts degree with options in Danish, Norwegian, Swedish, or Scandinavian area studies.

The department also offers minors in Danish, Finnish, Norwegian, Swedish, Baltic studies, and Scandinavian area studies.

Student Associations: Several undergraduate clubs are available, including the Danish Club, the Norwegian Club, the Swedish Club, and the Finnish Club.

Internship or Cooperative Exchange Program Opportunities: Internships at museums or with Scandinavian businesses are possible. Exchange program opportunities with Aarhus, Copenhagen, Lkoping, Uppsala, Bergen, Oslo, Abo/Turku, and Helsinki also exist.

Bachelor of Arts

Admission: Students in good academic standing may declare this major at any time.

Suggested Introductory Course Work: First-year Danish, Estonian, Finnish, Latvian, Lithuanian, Norwegian, or Swedish.

Major Requirements

Danish, Norwegian, or Swedish: At least 65 credits, of which 35 are in upper-division courses. The 65 credits include 30 credits in first- and second-year language training, 15 credits in literature courses in the chosen language, one course in Scandinavian area studies, a course in the history of Scandinavian languages, a course in Scandinavian literature in translation, and a senior essay (SCAND 498).

Scandinavian Area Studies: 65 credits, of which 35 are in upper-division courses. The 65 credits include 30 credits in the chosen Scandinavian or Baltic language (normally first and second year), a minimum of one course from each of four area-studies fields (Scandinavian folklore and popular culture, literature, history, society and politics), and a senior essay (SCAND 498).

Minor

Minor Requirements

Baltic Studies: 35 credits to include 15 credits of an intermediate Baltic language (Estonian, Latvian, or Lithuanian); 10 credits of Baltic courses (SCAND 344 and 345); and 10 credits of additional course work (minimum 5 credits at the 300 level or above) from the fields of Scandinavian folklore and film, literature, history and mythology, and society and politics.

Danish, Finnish, Norwegian, or Swedish: 35 credits to include 15 credits of second-year language; 10 credits in literature courses in the chosen language; 10 credits of additional course work (minimum 5 credits at the 300 level or above) from the fields of Scandinavian folklore and film, literature, history and mythology, and society and politics.

Scandinavian Area Studies: 35 credits to include 15 credits of second-year language courses in Danish, Finnish, Norwegian, or Swedish; 20 credits of additional course work (minimum 15 credits at the 300 level or above) in two of the following fields: Scandinavian folklore and film, literature, history and mythology, and society and politics.

Graduate Program

For information on the Department of Scandinavian Studies graduate program, see the graduate and professional volume of the *General Catalog* or visit the *General Catalog* online at www.washington.edu/students/gencat/.

Faculty

Chair

Terje I. Leiren

Professors

Rossel, Sven H. * 1974, (Affiliate); PhD, 1968, University of Copenhagen (Denmark); Danish language and literature, medieval literature; European preromanticism, romanticism, symbolism.

Steene, Birgitta * 1973, (Emeritus); PhD, 1960, University of Washington; Scandinavian drama and film, children's literature, comparative literature.

Associate Professors

Conroy, Patricia L. * 1972; PhD, 1974, University of California (Berkeley); Scandinavian philology, Icelandic language and literature, Danish, Faroese.

Dubois, Thomas A. * 1990; PhD, 1990, University of Pennsylvania; Nordic folklore and mythology, Finnish, Sami.

Gavel Adams, Ann-Charlotte * 1986; PhD, 1990, University of Washington; August Strindberg, Scandinavian women's literature, Scandinavian turn-of-the-century drama and art.

Ingebritsen, Christine * 1992; PhD, 1993, Cornell University; politics, international political economy, European integration, environmental policy.

Leiren, Terje I. * 1977; PhD, 1978, North Texas State University; Scandinavian history, nationalism, immigration, ethnicity, Norwegian languages.

Remley, Paul G. * 1988, (Adjunct); PhD, 1990, Columbia University; Old and Middle English, medieval languages and literatures, critical theory.

Sehmsdorf, Henning K. * 1967, (Emeritus); PhD, 1968, University of Chicago; folklore and mythology, Norwegian language and literature, comparative literature.

Sjavi, Jan * 1978; PhD, 1979, Harvard University; Norwegian languages and literature, prose fiction, critical theory.

Stecher Hansen, Marianne T * 1988; MA, 1981, University of Washington; PhD, 1990, University of California (Berkeley); Danish language and literature, Scandinavian literature.

Warme, Lars G. * 1975, (Emeritus); PhD, 1974, University of California (Berkeley); Swedish language and literature, Scandinavian novel, comparative literature.

Senior Lecturer

Brandl, Klaus K. * 1991; PhD, 1991, University of Texas (Austin); foreign language pedagogy, computer-assisted language learning, applied linguistics.

Lecturers

Dubois, Ia G. 1989; PhD, 1991, University of Washington; Swedish language and literature, ethnicity.

Smidchens, Guntis I. 1993; PhD, 1996, Indiana University; Estonian, Latvian, and Lithuanian languages and literatures; Baltic studies; folklore.

Course Descriptions

See page 48 for an explanation of course numbers, symbols, and abbreviations.

For graduate-level course descriptions, see the graduate and professional study volume of the *General Catalog* or visit the online course catalog at www.washington.edu/students/crsct/.

Danish

DANISH 101 Elementary Danish (5) Fundamentals of oral and written Danish.

DANISH 102 Elementary Danish (5) Fundamentals of oral and written Danish.

DANISH 103 Elementary Danish (5) Fundamentals of oral and written Danish.

DANISH 201 Second Year Danish (5) VLPA Intensive practice in speaking, reading, and writing. Review of grammar. Introduction of modern literary texts. Discussion of culture and current events in Denmark. Recommended: DANISH 103.

DANISH 202 Second Year Danish (5) VLPA Intensive practice in speaking, reading, and writing. Review of grammar. Introduction of modern literary texts. Discussion of culture and current events in Denmark. Recommended: DANISH 103.

DANISH 203 Second Year Danish (5) VLPA Intensive practice in speaking, reading, and writing. Review of grammar. Introduction of modern literary texts. Discussion of culture and current events in Denmark. Recommended: DANISH 103.

DANISH 310 The Danish Short Story (5) VLPA Tales and stories by H. C. Andersen and Karen Blixen as well as Blicher, Jacobsen, Pontoppidan, Bang, Seeberg, and Sørensen. Recommended: DANISH 203.

DANISH 311 Topics in Danish Literature and Culture (5, max. 15) VLPA Selected topics in modern Danish literature and culture, such as women's literature, Danish identity and the European Union, contemporary drama and film, or children's literature. Recommended: DANISH 203.

DANISH 312 The Danish Novel (5) VLPA Selected Danish novels since the Modern Breakthrough. Works by Jacobsen, Bang, Jensen, Kirk, Blixen, Scherfig, Ditlevsen, and Riffbjerg. Recommended: DANISH 203.

DANISH 490 Supervised Reading (* max. 10) Readings in a selected area of Danish language, literature, or related fields.

Estonian

ESTO 101 Elementary Estonian (5) Fundamentals of oral and written Estonian.

ESTO 102 Elementary Estonian (5) Fundamentals of oral and written Estonian.

ESTO 103 Elementary Estonian (5) Fundamentals of oral and written Estonian.

ESTO 490 Supervised Reading (1-10) Readings in a selected area of Estonian language, culture, or society.

Finnish

FINN 101 Elementary Finnish (5) Fundamentals of oral and written Finnish.

FINN 102 Elementary Finnish (5) Fundamentals of oral and written Finnish.

FINN 103 Elementary Finnish (5) Fundamentals of oral and written Finnish.

FINN 150 Intensive First-Year Finnish (15) Fundamentals of oral and written Finnish. Intensive practice in speaking, reading, and writing. Interactive classroom, computer-assisted learning, and language and reading laboratories. Emphasis on contemporary Finnish culture and society.

FINN 201 Second-Year Finnish (5) VLPA Intensive practice in speaking, reading, and writing. Functional review of grammar. Recommended: FINN 103.

FINN 202 Second-Year Finnish (5) VLPA Intensive practice in speaking, reading, and writing. Functional review of grammar. Recommended: FINN 103.

FINN 203 Second-Year Finnish (5) VLPA Intensive practice in speaking, reading, and writing. Functional review of grammar. Recommended: FINN 103.

FINN 310 Topics in Finnish Language and Culture (5, max. 15) VLPA Topics related to Finnish literature, life, and civilization. Recommended: FINN 203.

FINN 490 Supervised Reading (1-5, max. 10) Readings in a selected area of Finnish language, culture, or society.

Latvian

LATV 101 Elementary Latvian (5) Fundamentals of oral and written Latvian.

LATV 102 Elementary Latvian (5) Fundamentals of oral and written Latvian.

LATV 103 Elementary Latvian (5) Fundamentals of oral and written Latvian.

LATV 490 Supervised Reading (1-10, max. 10) Readings in a selected area of Latvian language, culture, or society.

Lithuanian

LITH 101 Elementary Lithuanian (5) Fundamentals of oral and written Lithuanian.

LITH 102 Elementary Lithuanian (5) Fundamentals of oral and written Lithuanian.

LITH 103 Elementary Lithuanian (5) Fundamentals of oral and written Lithuanian.

LITH 490 Supervised Reading (1-10, max. 10) Readings in a selected area of Lithuanian language, culture, or society.

Norwegian

NORW 101 Elementary Norwegian (5) Fundamentals of oral and written Norwegian.

NORW 102 Elementary Norwegian (5) Fundamentals of oral and written Norwegian.

NORW 103 Elementary Norwegian (5) Fundamentals of oral and written Norwegian.

NORW 150 Intensive First-Year Norwegian (15) Fundamentals of oral and written Norwegian. Intensive practice in speaking, reading, and writing. Interactive classroom, computer-assisted learning, language and reading laboratories. Emphasis on contemporary Norwegian culture and society.

NORW 201 Second-Year Norwegian (5) VLPA Intensive practice in speaking, reading, and writing. Functional review of grammar. Recommended: NORW 103.

NORW 202 Second-Year Norwegian (5) VLPA Intensive practice in speaking, reading, and writing. Functional review of grammar. Recommended: NORW 103.

NORW 203 Second-Year Norwegian (5) VLPA Intensive practice in speaking, reading, and writing. Functional review of grammar. Recommended: NORW 103.

NORW 310 The Norwegian Short Story (5) VLPA Generic study of the Norwegian short story. Recommended: NORW 203.

NORW 312 Topics in Norwegian Literature and Culture (5, max. 15) VLPA Topics related to Norwegian literature, life, and civilization. Recommended: NORW 203.

NORW 321 The Plays of Henrik Ibsen (5) VLPA Study of selected plays of Ibsen. Recommended: NORW 203.

NORW 490 Supervised Reading (* max. 10) Readings in a selected area of Norwegian language, literature, or related fields.

Swedish

SWED 101 Elementary Swedish (5) Fundamentals of oral and written Swedish.

SWED 102 Elementary Swedish (5) Fundamentals of oral and written Swedish.

SWED 103 Elementary Swedish (5) Fundamentals of oral and written Swedish.

SWED 150 Intensive First-year Swedish (15) Fundamentals of oral and written Swedish. Intensive practice in speaking, reading, and writing. Interactive classroom, computer-assisted learning, language and reading laboratories. Emphasis on contemporary Swedish culture and society.

SWED 201 Second-year Swedish (5) VLPA Intensive practice in speaking, reading, and writing. Functional review of grammar. Recommended: SWED 103.

SWED 202 Second-year Swedish (5) VLPA Intensive practice in speaking, reading, and writing. Functional review of grammar. Recommended: SWED 103.

SWED 203 Second-year Swedish (5) VLPA Intensive practice in speaking, reading, and writing. Functional review of grammar. Recommended: SWED 103.

SWED 300 Swedish Women Writers (5) VLPA Readings from works by Swedish women writers. Recommended: SWED 203.

SWED 301 Topics in Swedish Literature and Culture (5, max. 15) VLPA Topics in Swedish literature, life, and civilization. Recommended: SWED 203.

SWED 302 The Swedish Novel (5) VLPA Selected works by novelists of the nineteenth and twentieth centuries. Recommended: SWED 203.

SWED 352 Strindberg and His Works (5) VLPA Representative short stories, dramas, autobiographical works, poems, and one novel. Recommended: SWED 203.

SWED 490 Supervised Reading (* max. 12) Readings in a selected area of Swedish language, literature, or related fields.

Scandinavian

Courses in English

SCAND 100 Introduction to Scandinavian Culture (5) VLPA/I&S The Scandinavian experience from the Viking Age to the present day; the background for contemporary Scandinavian democracy, with major emphasis on the cultural, political, and religious development of the Scandinavian countries.

SCAND 150 Norwegian Literary and Cultural History (5) VLPA A survey of Norwegian literary and cultural history from the Vikings to the present. Among the authors that will be read are Bjørnson, Ibsen, Hamsun, and Rølvaag.

SCAND 200 Contemporary Scandinavian Society (5) I&S Examines the distinctive policies, institutions, and social norms of contemporary Scandinavian societies. Topics include: Nordic geography, the development of a "middle way" between capitalism and socialism, universal social policies, Scandinavia in the international system, and contemporary challenges to Scandinavian societies. Recommended: SCAND 100.

SCAND 230 Introduction to Folklore Studies (5) VLPA/I&S Comprehensive overview of the field of folkloristics, focusing on verbal genres, customs, belief, and material culture. Particular attention to the issues of community, identity, and ethnicity. Offered: jointly with C LIT 230.

SCAND 232 Hans Christian Andersen and the Fairy Tale Tradition (5) VLPA Influence of Hans Christian Andersen and the fairy tale on modern Scandinavian tales and stories. Investigates the significance of the fairy tale in modern world, with attention to writers such as Isak Dinesen, Knut Hamsun, Villy Sørensen, William Heinesen.

SCAND 270 Sagas of the Vikings (5) VLPA Icelandic sagas and poetry about Vikings in the context of thirteenth-century society.

SCAND 280 Ibsen and His Major Plays in English (5) VLPA Reading and discussion of Ibsen's major plays.

SCAND 312 Masterpieces of Scandinavian Literature (5) VLPA Major works of Scandinavian literature by selected authors.

SCAND 325 Public Policy in Scandinavia (5) I&S Comparative and historical analysis of the evolution and change of domestic public policies in the Nordic welfare states; emphasis on health, education, social welfare, economic management, as well as the future of the welfare state.

SCAND 326 Scandinavia in World Affairs (5) I&S Introduction to the foreign relations of Scandinavia with a focus on Nordic security, international economic pressures, and global conflict resolution. Includes a survey of the national settings for international involvements and highlights the dilemmas for industrial societies exposed to the pressures of interdependence. Offered: jointly with POL S 326.

SCAND 327 Women in Scandinavian Society (5) VLPA/I&S Examines the changing position of women in Norway, Denmark, Finland, and Sweden from the 1880s to the contemporary period. Readings in literature and political science.

SCAND 330 Scandinavian Mythology (5) VLPA Integrative study of religious life in the pre-Christian North. Emphasis on source materials, including the *Prose Edda* and *Poetic Edda*. Discussion of historical, archeological, and folkloric evidence.

SCAND 331 Folk Narrative (5) VLPA Survey of various genres of folk narratives studied in performance contexts to reveal their socio-cultural functions in a variety of milieux. Theory and history of folk narrative study, taxonomy, genre classification, and interpretative approaches. Recommended: SCAND 230 or C LIT 230. Offered: jointly with C LIT 331.

SCAND 332 Folk Belief and World View (5) VLPA Study of folk belief and world view expressed in memorats, legends, magic formulas, and other examples of oral tradition. Analysis of forms and origins of belief genres, their esthetic and social functions, and the role of oral tradition as a tool of social control and change. Offered: jointly with C LIT 332.

SCAND 334 Immigrant and Ethnic Folklore (5) VLPA/I&S Survey of verbal, customary, and material folk traditions in ethnic context. Theories of ethnic folklore research applied to the traditions of American communities of Scandinavian, Baltic, or other European ancestry. Recommended: SCAND 230 or C LIT 230. Offered: jointly with C LIT 334.

SCAND 335 Scandinavian Children's Literature (5) VLPA The history, forms, and themes of Scandinavian children's literature from H. C. Andersen to the present. Exploration of the dominant concerns of authors, adult and non-adult audiences, and the uses to which juvenile and adolescent literature are put. Film adaptations and Scandinavian-American materials included.

SCAND 340 Kalevala and the Epic Tradition (5) VLPA An interdisciplinary approach to the Finnish national epic *Kalevala*, Estonian *Kalevipoeg*, and Saami *Peivebarnen suongah jehtanasan maa*. Discussion of traditional worldview, cultural revitalization, and emergent nationalism in nineteenth- and twentieth-century Finland, Estonia, and Saamiland.

SCAND 341 Sami Culture and History (5) VLPA/I&S An interdisciplinary look at the culture of Sami (Lapp) people in Scandinavia from the earliest archeological and textual evidence to the present day. Focus on indigenous modes of expression and worldview, as well as contemporary cultural and political activism.

SCAND 344 The Baltic States and Scandinavia (5) I&S Survey of the cultures and history of Estonia, Latvia, and Lithuania from the Viking Age to the present, with particular attention to Baltic-Scandinavian contacts. Offered: jointly with SISRE 347.

SCAND 345 Baltic Cultures (5) VLPA/I&S Cultures and peoples of Estonia, Latvia, and Lithuania. Baltic literature, music, art, and film in social and historical context. Traditional contacts with Scandinavia and Central and East Europe. Offered: jointly with SISRE 345.

SCAND 350 Environmental Norms in International Politics (5) I&S Surveys development of international environmental consciousness from 1960s to present. Models of "green development"; ways in which norms for resource use have entered global politics. Patterns of state compliance with international environmental agreements, and why states fall short of meeting their international obligations. Offered: jointly with SIS 350.

SCAND 360 Scandinavian Cinema (3/5) VLPA Major Scandinavian films and film directors from the 1920s to the present.

SCAND 367 Sexuality in Scandinavia: Myth and Reality (5) VLPA/I&S Examines selected Scandinavian literary and socio-political texts, films, and art to manifest the reality behind the myths of sexual freedom in Scandinavia.

SCAND 370 The Vikings (5) VLPA/I&S Vikings at home in Scandinavia and abroad, with particular emphasis on their activities as revealed in archaeological finds and in historical and literary sources. Offered: jointly with HSTAM 370.

SCAND 380 History of Scandinavia to 1720 (5) I&S Scandinavian history from the Viking Age to 1720, with an emphasis on the political, social, and economic development of Denmark, Norway, Sweden, Finland, and Iceland from the Middle Ages to the Enlightenment. Offered: jointly with HSTEU 380.

SCAND 381 History of Scandinavia Since 1720 (5) I&S Scandinavian history from the Enlightenment to the Welfare State with emphasis on the political, social, and economic development of the modern Scandinavian nations of Denmark, Norway, Sweden, Finland, and Iceland. Offered: jointly with HSTEU 381.

SCAND 427 Scandinavian Women Writers in English Translation (5) VLPA Selected works by major Scandinavian women writers from mid-nineteenth-century bourgeois realism to the present with focus on feminist issues in literary criticism. Offered: jointly with WOMEN 429.

SCAND 431 The Northern European Ballad (5) VLPA Integrative study of the Northern European Ballad, with an emphasis on texts, performance, context, history, theory, genre classification, and interpretive approaches. Offered: jointly with C LIT 431.

SCAND 437 Politics in Scandinavia (5) I&S Twentieth-century politics in Scandinavia. How Scandinavian countries have been governed. Costs and consequences of their governmental style and its uncertain future. Optimal size of polities, problems of mature welfare states, process of leadership and representation in multiparty systems, decline of political parties. Offered: jointly with POL S 437.

SCAND 460 History of the Scandinavian Languages (5) VLPA Development of languages from common Scandinavian to contemporary Danish, Norwegian, Swedish, Faroese, and Icelandic. Recommended: DANISH 203, FINN 203, NORW 203, or SWED 203.

SCAND 462 Isak Dinesen and Karen Blixen (5) VLPA The fiction of Isak Dinesen (pseudonym for Karen Blixen) reevaluated in light of current issues in literary criticism, particularly feminist criticism. Close readings of selected tales, essays, and criticism. Offered: jointly with WOMEN 462.

SCAND 481 August Strindberg and European Cultural History (5) I&S/VLPA Examines the work of Swedish dramatist, novelist, and painter August Strindberg, in the context of European literary movements and history of ideas from 1880 to 1912, and Strindberg's influence on 20th-century drama and film. Offered: jointly with EURO 481.

SCAND 490 Special Topics (1-5, max. 15) Special topics in Scandinavian art, literature, culture, and history. Course offerings based on instructor's specialty and student demand.

SCAND 498 Senior Essay (5) VLPA Undergraduate research and the writing of a senior essay in Scandinavian area studies.

SCAND 499 Independent Study or Research (1-5, max. 10) Independent study or research in Scandinavian area studies. May be done in a Scandinavian language or in English.

Slavic Languages and Literatures

M253 Smith



General Catalog Web page:
www.washington.edu/students/genocat/academic/slavic.html



Department Web page:
depts.washington.edu/slavweb/

The Department of Slavic Languages and Literatures offers instruction in the principal East European languages and literatures and in Slavic linguistics, working closely with the School of International Studies. Languages may include Bulgarian, Czech, Polish, Romanian, Russian, Croatian/Serbian, and Ukrainian.

Undergraduate Program

Adviser
David Miles
M253A Smith, Box 353580
(206) 543-6848
slavicll@u.washington.edu

The Department of Slavic Languages and Literatures offers a program of study leading to the Bachelor of Arts degree with options in Russian language, literature, and culture; Russian language and history; and East European languages and culture. The department also offers minors in Russian language, Russian literature/Slavic literature, and Slavic languages.

The department offers undergraduate courses in Russian and other Slavic and East European languages, cultures, and literatures. The courses are designed both for majors planning careers in teaching, translation, government service, communications, and international business, and for all students wishing to acquire a knowledge of East European regions of the world and their languages and cultures. In summers, the department sponsors the Russian House, where students are provided an opportunity to enhance their knowledge of Russian in a Russian-speaking environment.

Bachelor of Arts

Admission: Students in good academic standing may declare this major at any time.

Suggested Introductory Course Work: First- and second-year Russian. Courses that develop writing skills.

Major Requirements

Russian Language, Literature, and Culture Option: RUSS 301, 302, 303, or the equivalent; RUSS 401, 402, 403, or the equivalent; RUSS 321, 322, 323; 15 credits from the following: RUSS 324, 351, 352, 420, 421, 422, 430, 451, 461, 490, SLAV 351, 420, 423, 425, 490.

Russian Language and History Option: RUSS 301, 302, 303, or the equivalent; RUSS 401, 402, 403, or the equivalent; RUSS 321, 322, 323; HSTAM 443, HSTEU 444, 445.

East European Languages and Culture Option: Two years of a principal East European language, or the equivalent; SLAV 351; 20 credits of literature, culture, linguistics, and history, as appropriate.

Minor

Minor Requirements

Russian Language: 25 credits to include RUSS 301, 302, 303 and 10 credits from RUSS 351, 352, 401, 402, 403, 451, SLAV 351, 425.

Russian Literature/Slavic Literatures: 25 credits to include RUSS 321, 322, 323 and 10 credits from RUSS 420, 421, 422, 430, 461, 490 (Russian-literature option), or 10 credits from CR SB 420, CZECH 420, POLSH 420, SLAV 420, 423, 490 (Slavic-literatures option).

Slavic Languages: 25 credits to include language courses in a Slavic language other than Russian numbered 404, 405, 406; SLAV 351; and 5 credits from CR SB 420, CZECH 420, POLSH 420, SLAV 423, 490.

Graduate Program

For information on the Department of Slavic Languages and Literatures graduate program, see the graduate and professional volume of the *General Catalog* or visit the *General Catalog* online at www.washington.edu/students/genocat/.

Faculty

Chair

Jack V. Haney

Professors

Augerot, James E. * 1960; MA, 1959, New Mexico Highlands University; PhD, 1968, University of Washington; Slavic linguistics, Romanian, Bulgarian.

Diment, Galya * 1989; MA, 1978, Claremont Graduate School; PhD, 1987, University of California (Berkeley); nineteenth/twentieth-century Russian literature, comparative literature, modernism, cultural studies.

Haney, Jack V. * 1965; DPhil, 1970, Oxford University (UK); medieval Russian literature, Slavic folklore.

Kapetanac, Davor * 1972, (Emeritus); MA, 1954, PhD, 1972, University of Zagreb (Yugoslavia); Yugoslav literature, Slavic literary theory.

Kramer, Karl D. * 1970; MA, 1957, PhD, 1964, University of Washington; Russian and comparative literature.

Micklesen, Lew R. * 1966, (Emeritus); PhD, 1951, Harvard University; Slavic linguistics.

Associate Professors

Coats, Herbert S. * 1968; MA, 1964, Fordham University; PhD, 1970, University of Illinois; Slavic linguistics.

Dziwirek, Katarzyna A. * 1993; MA, 1984, University of Illinois; MA, 1985, University of Lodz (Poland); PhD, 1991, University of California (San Diego); linguistics, Polish syntax, and typology.

West, James D. * 1972; PhD, 1970, Cambridge University (UK); modern Russian literature, art and philosophy.

Assistant Professor

Crnkovic, Gordana * 1993; MA, 1991, PhD, 1993, Stanford University; East European literature, film, former Yugoslavia, theory, American literature, comparative literature.

Senior Lecturer

Polack, Zoya M. 1973; MA, 1975, University of Washington; Russian and Ukrainian languages.

Lecturer

Boyle, Eloise M. 1995; MA, 1983, PhD, 1988, Ohio State University; twentieth-century Russian literature, pedagogy, teaching methodology.

Course Descriptions

See page 48 for an explanation of course numbers, symbols, and abbreviations.

For graduate-level course descriptions, see the graduate and professional study volume of the *General Catalog* or visit the online course catalog at www.washington.edu/students/crscat/.

Language Courses

Bulgarian

BULGR 401 Elementary Bulgarian (5) Introduction to Bulgarian phonology and grammar in terms of the modern spoken language. Writing conventions of literary Bulgarian. Offered: A.

BULGR 402 Elementary Bulgarian (5) Introduction to Bulgarian phonology and grammar in terms of the modern spoken language. Writing conventions of literary Bulgarian. Prerequisite: BULGR 401. Offered: W.

BULGR 403 Elementary Bulgarian (5) Reading of modern texts to increase command of grammar and vocabulary. Prerequisite: BULGR 402. Offered: Sp.

BULGR 404 Advanced Bulgarian (5) VLPA Continuation of 401, 402, 403. Selected readings in Bulgarian literature, history, and culture. Reinforces and extends basic knowledge of Bulgarian grammar and vocabulary. Prerequisite: BULGR 403. Offered: A.

BULGR 405 Advanced Bulgarian (5) VLPA Continuation of 401, 402, 403. Selected readings in Bulgarian literature, history, and culture. Reinforces and extends basic knowledge of Bulgarian grammar and vocabulary. Prerequisite: BULGR 404. Offered: W.

BULGR 406 Advanced Bulgarian (5) VLPA Continuation of 401, 402, 403. Selected readings in Bulgarian literature, history, and culture. Reinforces and extends basic knowledge of Bulgarian grammar and vocabulary. Prerequisite: BULGR 405. Offered: Sp.

Croatian-Serbian

CR SB 401 Elementary Croatian/Serbian (5) Comprehensive introduction to spoken and written literary Croatian and Serbian. Offered: A.

CR SB 402 Elementary Croatian/Serbian (5) Comprehensive introduction to spoken and written literary Croatian and Serbian. Prerequisite: CR SB 401. Offered: W.

CR SB 403 Elementary Croatian/Serbian (5) Comprehensive introduction to spoken and written literary Croatian and Serbian. Prerequisite: CR SB 402. Offered: Sp.

CR SB 404 Advanced Croatian/Serbian (5) VLPA Continuation of 401, 402, 403; reinforces basic grasp of language and enlarges both vocabulary and command of grammatical patterns through the reading of contemporary short stories both Croatian and Serbian. Prerequisite: CR SB 403. Offered: A.

CR SB 405 Advanced Croatian/Serbian (5) VLPA Continuation of 401, 402, 403; reinforces basic grasp of language and enlarges both vocabulary and command of grammatical patterns through the reading of contemporary short stories both Croatian and Serbian. Prerequisite: CR SB 404. Offered: W.

CR SB 406 Advanced Croatian/Serbian (5) VLPA Continuation of 401, 402, 403; reinforces basic grasp of language and enlarges both vocabulary and command of grammatical patterns through the reading of contemporary short stories both Croatian and Serbian. Prerequisite: CR SB 405. Offered: Sp.

Czech

CZECH 401 Elementary Czech (5) Introduction to spoken and written Czech. Offered: A.

CZECH 402 Elementary Czech (5) Introduction to spoken and written Czech. Prerequisite: CZECH 401. Offered: W.

CZECH 403 Elementary Czech (5) Modern Czech prose, leading to a command of the language as a research tool and providing an adequate basis for further study. Prerequisite: CZECH 402. Offered: Sp.

CZECH 404 Advanced Czech (5) VLPA Continuation of 401, 402, 403. Selected readings from the main works of Czech authors of the nineteenth and twentieth centuries. Reinforces and extends basic knowledge of Czech grammar and vocabulary. Prerequisite: 403. Offered: A.

CZECH 405 Advanced Czech (5) VLPA Continuation of 401, 402, 403. Selected readings from the main works of Czech authors of the nineteenth and twentieth centuries. Reinforces and extends basic knowledge of Czech grammar and vocabulary. Prerequisite: 404. Offered: W.

CZECH 406 Advanced Czech (5) VLPA Continuation of 401, 402, 403. Selected readings from the main works of Czech authors of the nineteenth and twentieth centuries. Reinforces and extends basic knowledge of Czech grammar and vocabulary. Prerequisite: 405. Offered: Sp.

Polish

POLSH 401 Elementary Polish (5) Principal morphological and syntactic features of the Polish language through the medium of a basic vocabulary. Offered: A.

POLSH 402 Elementary Polish (5) Principal morphological and syntactic features of the Polish language through the medium of a basic vocabulary. Prerequisite: POLSH 401. Offered: W.

POLSH 403 Elementary Polish (5) Designed to enlarge general vocabulary by the reading of short texts selected from Polish authors of the nineteenth and twentieth centuries. Prerequisite: POLSH 402. Offered: Sp.

POLSH 404 Advanced Polish (5) VLPA Continuation of 401, 402, 403. Selected readings of the main works from nineteenth and twentieth centuries. Reinforces basic knowledge of vocabulary, grammatical patterns, and conversation. Prerequisite: POLSH 403. Offered: A.

POLSH 405 Advanced Polish (5) VLPA Continuation of 401, 402, 403. Selected readings of the main works from nineteenth and twentieth centuries. Reinforces basic knowledge of vocabulary, grammatical patterns, and conversation. Prerequisite: POLSH 404. Offered: W.

POLSH 406 Advanced Polish (5) VLPA Continuation of 401, 402, 403. Selected readings of the main works from nineteenth and twentieth centuries. Reinforces basic knowledge of vocabulary, grammatical patterns, and conversation. Prerequisite: POLSH 405. Offered: Sp.

Romanian

ROMN 401 Elementary Romanian (5) Comprehensive introduction to spoken and literary Romanian. Offered: jointly with RMN 401; A.

ROMN 402 Elementary Romanian (5) Comprehensive introduction to spoken and literary Romanian. Prerequisite: ROMN/RMN 401. Offered: jointly with RMN 402; W.

ROMN 403 Elementary Romanian (5) Designed to increase vocabulary and enhance knowledge of grammar through readings in modern Romanian. Prerequisite: ROMN/RMN 402. Offered: jointly with RMN 403; Sp.

ROMN 404 Advanced Romanian (5) VLPA Continuation of 401, 402, 403. Introduction to Romanian literature, history, and culture through selected readings. Reinforces and extends basic knowledge of grammar and vocabulary. Prerequisite: ROMN/RMN 403. Offered: jointly with RMN 404; A.

ROMN 405 Advanced Romanian (5) VLPA Continuation of 401, 402, 403. Introduction to Romanian literature, history, and culture through selected readings. Reinforces and extends basic knowledge of grammar and vocabulary. Prerequisite: ROMN/RMN 404. Offered: jointly with RMN 405; W.

ROMN 406 Advanced Romanian (5) VLPA Continuation of 401, 402, 403. Introduction to Romanian literature, history, and culture through selected readings. Reinforces and extends basic knowledge of grammar and vocabulary. Prerequisite: ROMN/RMN 405. Offered: jointly with RMN 406; Sp.

Russian

RUSS 101 First-Year Russian (5) Introduction to Russian. Emphasis on oral communication with limited vocabulary. Short readings and writing exercises. Basic grammar. Conducted mostly in Russian. See credit note above. Offered: A.

RUSS 102 First-Year Russian (5) Introduction to Russian. Emphasis on oral communication with limited vocabulary. Short readings and writing exercises. Basic grammar. Conducted mostly in Russian. See credit note above. Prerequisite: RUSS 101. Offered: W.

RUSS 103 First-Year Russian (5) Introduction to Russian. Emphasis on oral communication with limited vocabulary. Short readings and writing exercises. Basic grammar. Conducted mostly in Russian. See credit note above. Prerequisite: RUSS 102. Offered: Sp.

RUSS 150 Intensive First-Year Russian (15) Covers material of 101, 102, 103 in one quarter. Meets three to four hours daily. For continuation, see 250 or 201, 202, 203. See credit note above. Offered: S.

RUSS 201 Second-Year Russian (5) VLPA Comprehensive review of Russian grammar with continuing oral practice and elementary composition. Conducted mostly in Russian. See credit note above. Prerequisite: either RUSS 103 or RUSS 150. Offered: A.

RUSS 202 Second-Year Russian (5) VLPA Comprehensive review of Russian grammar with continuing oral practice and elementary composition. Conducted mostly in Russian. See credit note above. Prerequisite: RUSS 201. Offered: W.

RUSS 203 Second-Year Russian (5) VLPA Comprehensive review of Russian grammar with continuing oral practice and elementary composition. Conducted mostly in Russian. See credit note above. Prerequisite: RUSS 202. Offered: Sp.

RUSS 250 Intensive Second-Year Russian (15) VLPA Covers material of 201, 202, 203 in one quarter. Meets three to four hours daily. See credit note above. Prerequisite: either RUSS 103 or RUSS 150. Offered: S.

RUSS 301 Intermediate Russian (5) VLPA Extensive practice in spoken and written Russian based on a variety of prose readings. Intensive review and supplementation of strategic grammatical concepts. See credit note above. Prerequisite: either RUSS 203 or RUSS 250. Offered: A.

RUSS 302 Intermediate Russian (5) VLPA Extensive practice in spoken and written Russian based on a variety of prose readings. Intensive review and supplementation of strategic grammatical concepts. See credit note above. Prerequisite: RUSS 301. Offered: W.

RUSS 303 Intermediate Russian (5) VLPA Extensive practice in spoken and written Russian based on a variety of prose readings. Intensive review and supplementation of strategic grammatical concepts. See credit note above. Prerequisite: RUSS 302. Offered: Sp.

RUSS 304 Reading and Translation (1, max. 3) VLPA Translation techniques with emphasis on development of vocabulary and reading skills. Primarily for Russian regional studies majors. Credit/no credit only. Prerequisite: either RUSS 203 or RUSS 250. Offered: AWSp.

RUSS 313 Business Russian (5) VLPA Emphasizes the language and practice of business in Russia today. Prerequisite: either RUSS 203 or RUSS 250.

RUSS 350 Intensive Third-Year Russian (15) VLPA Covers material of 301, 302, 303 in one quarter. Meets three hours daily. See credit note above. Prerequisite: either RUSS 203 or RUSS 250. Offered: S.

RUSS 351 Intermediate Russian Phonetics (3) VLPA Systematic study of the Russian sound system, including phonetic transcription and intonational patterns. Instruction in correcting individual pronunciation errors. Conducted partly in Russian. Prerequisite: either RUSS 203 or RUSS 250.

RUSS 352 Intermediate Russian Morphology (3) VLPA Examination of Russian morphology with emphasis on topics that help to prepare the student for advanced courses in Russian. Conducted partly in Russian. Prerequisite: either RUSS 203 or RUSS 250.

RUSS 381 Phonetics in St. Petersburg (2, max. 6) VLPA Systematic analysis of the Russian sound system as well as intonational patterns. Practical reading exercises. Special attention to correcting individual pronunciation errors. (2 credits for Summer Quarter program, 5 credits for semester program.) Offered: AWSpS.

RUSS 382 Advanced Syntax and Composition in St. Petersburg (2, max. 6) VLPA Class lectures on Russian syntactic structures. Oral drilling and written exercises and compositions. (2 credits are offered for the six-week Summer Quarter program, 5 credits for the fourteen-week semester program.) Offered: AWSpS.

RUSS 383 Conversation in St. Petersburg (4, max. 12) VLPA Designed to increase active vocabulary, to further the student's control of idiomatic Russian, and to develop oral skills. (4 credits are offered for the six-week Summer Quarter program, 8 credits for the fourteen-week semester program.) Offered: AWSpS.

RUSS 384 Culture in St. Petersburg (4, max. 12) VLPA/I&S Lectures on education, history, economics, law, the arts, ethnography, architecture; complemented by visits to places of cultural and historical interest and meetings with Russian groups. 4 credits for summer program, 6 for semester program. Offered: AWSpS.

RUSS 401 Advanced Russian (5) VLPA Class discussion, oral presentations, and composition, based on reading a variety of texts, both literary and non-literary. Advanced grammar. Translation one full course period per week. See credit note above. Prerequisite: either RUSS 303 or RUSS 350. Offered: AWSp.

RUSS 402 Advanced Russian (5) VLPA Class discussion, oral presentations, and composition, based on reading a variety of texts, both literary and non-literary. Advanced grammar. Translation one full course period per week. See credit note above. Prerequisite: RUSS 401. Offered: AWSp.

RUSS 403 Advanced Russian (5) VLPA Class discussion, oral presentations, and composition, based on reading a variety of texts, both literary and non-literary. Advanced grammar. Translation one full course period per week. See credit note above. Prerequisite: RUSS 402. Offered: AWSp.

RUSS 420 Topics in Russian Literary and Cultural History (5, max. 20) VLPA A special topic in the literary and cultural history of Russia. Topics vary.

RUSS 430 Major Authors (5, max. 15) VLPA Major Russian writers of the nineteenth and twentieth centuries. Among authors read are Pushkin, Gogol, Lermontov, Turgenev, Tolstoy, Dostoevsky, Chekhov, Babel, Ilf and Petrov, Olesha. Content varies.

RUSS 450 Intensive Fourth-Year Russian (15) VLPA Covers material of 401, 402, 403 in one quarter. Meets three hours daily. See credit note above. Prerequisite: either RUSS 303 or RUSS 350. Offered: S.

RUSS 451 Structure of Russian (5) VLPA Descriptive analysis of contemporary standard Russian. Detailed phonetic transcription, discussion of major Great Russian dialects as well as variations in popular speech, examination of common roots and productive derivational elements in Russian words, and elementary principles of syntax. Prerequisite: either RUSS 303 or RUSS 350. Offered: A.

RUSS 452 Structure of Russian (5) VLPA Descriptive analysis of contemporary standard Russian. Detailed phonetic transcription, discussion of major Great Russian dialects as well as variations in popular speech, examination of common roots and productive derivational elements in Russian words, and elementary principles of syntax. Prerequisite: RUSS 451. Offered: W.

RUSS 461 Introduction to Russian Literature in Russian (5) VLPA Analysis of original Russian literary texts representative of different varieties of Russian writing. Vocabulary of Russian literary analysis; typically Russian approaches to literature, some readings of secondary critical texts; discussion in Russian of passages studied. Prerequisite: RUSS 403 or RUSS 450.

RUSS 463 Introduction to Russian Literature in Russian (5) VLPA Analysis of original Russian literary texts representative of different varieties of Russian writing. Vocabulary of Russian literary analysis; typically Russian approaches to literature, some readings of secondary critical texts; discussion in Russian of passages studied. Prerequisite: either RUSS 403 or RUSS 450.

RUSS 481 Russian Language in St. Petersburg (15) VLPA Daily work in phonetics, grammar, conversation, translation, analytical reading, stylistics, newspaper analysis, and advanced syntax. Prerequisite: either RUSS 403 or RUSS 450.

RUSS 482 Research Project in St. Petersburg (12) VLPA Supervised research in student's selected area of concentration, combined with language instruction tailored to the student's field. Successful completion of course requires a 15-page term paper in Russian. Prerequisite: either RUSS 403 or RUSS 450.

RUSS 483 Russian Literature in St. Petersburg (5, max. 10) VLPA Selection of courses on specialized topics in Russian literature; specific authors or periods. Prerequisite: either RUSS 403 or RUSS 450.

RUSS 484 Russian History in St. Petersburg (5, max. 10) VLPA/I&S Selection of courses on specialized topics in Russian political, economic, social, cultural, or art history. Prerequisite: either RUSS 403 or RUSS 450.

RUSS 485 Economics in St. Petersburg (5, max. 10) VLPA/I&S Selection of courses on topics relating to economic issues.

RUSS 490 Studies in Russian Literature (3-5, max. 15) VLPA In either Russian or English. Topics vary.

RUSS 499 Directed Study or Research (1-5, max. 15) Individual study of topics to meet specific needs. By arrangement with the instructor and the Department of Slavic Languages and Literatures office. Offered: AWSpS.

Slavic

SLAV 470 Special Topics in Slavic Linguistics (3-5, max. 15) VLPA *Augerot, Coats, Dziwirek* Special topics in Slavic linguistics. Course offerings based on instructor's specialty and student demand. Offered: AWSpS.

SLAV 490 Studies in Slavic Literatures (3-5, max. 15) VLPA Topics vary.

SLAV 499 Directed Study or Research (1-5, max. 15) Individual study of topics to meet specific needs. By arrangement with the instructor and the Department of Slavic Languages and Literatures office. Prerequisite: permission of instructor and undergraduate adviser. Offered: AWSpS.

Slavic Languages and Literatures

SLAVIC 498- Senior Honors Thesis ([3-9, max. 9]-) VLPA Directed research on a topic approved by department for a thesis presented in partial fulfillment of requirement for degrees "with honors" or "with distinction". Offered: AWSpS.

Ukrainian

UKR 401 Elementary Ukrainian (5) Introduction to spoken and written Ukrainian.

UKR 402 Elementary Ukrainian (5) Introduction to spoken and written Ukrainian.

UKR 403 Elementary Ukrainian (5) Introduction to spoken and written Ukrainian.

Literature Courses in English

Courses in this section usually do not require prerequisites. The 300-level courses generally deal with particular themes running through a body of literature or involve a comprehensive study of cultural history. The 400-level courses deal with Slavic literatures other than Russian or specific authors and periods in Russian literature. Both levels are primarily for juniors and seniors, but are open to freshmen or sophomores with an interest or background in the subject of the course.

Croatian/Serbian

CR SB 420 Drawn from the Fire: Literature of the Former Yugoslavia in English (5) VLPA Twentieth-century prose of the former Yugoslavia. Cultural identity at the crossroads between East and West. Relation of Yugoslav literature, created on the European margin, to the European cultural centers. Literature and the myths of socialism and nationalism. Yugoslav oral tradition. Issues of gender.

Russian

RUSS 321 Russian Literature and Culture to 1700 (5) VLPA/I&S Literature as an element in Russian culture. Art, architecture, music, philosophy, and folklore also treated. Periods covered include medieval, Renaissance, Reformation, and baroque. Offered: A.

RUSS 322 Russian Literature and Culture 1700-1900 (5) VLPA/I&S Literature as an element in Russian culture. Art, architecture, music, and philosophy also treated. Periods covered include the age of Peter the Great, romanticism, realism, and impressionism. Offered: W.

RUSS 323 Russian Literature and Culture of the Twentieth Century (5) VLPA/I&S Literature as an element in modern Russian culture. Art, architecture, and music also treated. Periods covered include symbolism, revolution, postrevolution, Stalinist, the "thaw," and contemporary. Offered: Sp.

RUSS 324 Russian Folk Literature in English (5) VLPA/I&S Russian popular tradition, including paganism and its survival into modern times. Genres of the oral tradition, including the folktale, the epic, spiritual and historical songs, and legends. Special attention to modern theories and western European analogues.

RUSS 421 Post-Soviet Literary and Cultural Scene (5, max. 15) VLPA Russian literature of the second half of the twentieth century. In English.

RUSS 490 Studies in Russian Literature (3-5, max. 15) VLPA In either Russian or English. Topics vary.

Slavic

SLAV 351 History of the Slavic Languages (5) VLPA External and internal history of Slavic literary languages from the beginnings to the present time, including the development of writing systems, external attempts at reform, and the development of vocabulary.

SLAV 420 The Other Europe: Contemporary East European Fiction (5, max. 15) VLPA *Crnković* Contemporary fiction by Czech, East German, Hungarian, Polish, Baltic, and Balkan writers. Topics include: history of colonization, the imagination of social utopia, socialism and nationalism, everyday life under communism, cultural identity between East and West, experimental writing, new fiction in post-communist Eastern Europe. All readings in English.

SLAV 423 East European Film (5) VLPA *Crnković* Survey of major East European film makers. Compares East European and Western production of those directors who worked partially in the West, e.g., Polanski, Forman, Holland, Makavejev. Topics include film in socialist versus market economy, politics, gender, sexuality.

SLAV 425 Ways of Meaning: Universal and Culture Specific Aspects of Language (5) VLPA/I&S *Dziwirek* Social and cultural conditioning of language use. Language as a mirror of culture and national character. Universal and culture/language specific components in linguistic expression of emotions, courtesy/politeness and rudeness, prejudice and (in)sensitivities, linguistic expression of gender differences in different cultures. Offered: Sp.

Slavic Languages and Literature

SLAVIC 175 The Slavic Text and Its Context (2) VLPA A contextual study of a significant work or intellectual movement from a Slavic culture study includes literature, film, music, or art. Credit/no credit only.

Social Sciences

Course Descriptions

See page 48 for an explanation of course numbers, symbols, and abbreviations.

For current course descriptions, visit the online course catalog at www.washington.edu/students/crscat/.

SOCSCI 200 The Family: Interdisciplinary Perspectives (5) I&S Explores how the study of families lies at the heart of classic questions in social science. Examines how people become social beings, how resources are distributed; who gets what and why, and what accounts for order and continuity in a society across generations.

Society and Justice

215 Smith



General Catalog Web page:
www.washington.edu/students/gencat/academic/soc_justice.html



Department Web page:
depts.washington.edu/sjustice/

A multi-disciplinary approach to the study of law, social relations, and justice, with particular emphasis on the study of criminal behavior and the criminal justice process in American society. Students select from a wide range of course offerings and are provided with research and field-experience opportunities.

Undergraduate Program

Adviser
Bonnie Lyon
215 Smith, Box 353530
(206) 543-1824
polsadv@u.washington.edu

The program in Society and Justice offers a program of study leading to a Bachelor of Arts, as well as a minor.

Bachelor of Arts

Admission Requirements:

1. A minimum cumulative GPA of 2.00.
2. Completion of the following courses with a minimum cumulative GPA of 2.50: POL S/SO JU 363; SOC 271 or 371; SOC 372. One research methods or statistics course from the program requirement list.
3. Admission is competitive, based on the following: GPA, with emphasis on grades received in courses required for admission (applicants accepted normally present cumulative GPAs considerably above 2.50); personal statement representing the student's interest in and commitment to becoming a society and justice major; other evidence of a commitment to the study of society, justice, and law. Junior standing preferred.
4. Admission is twice a year during spring and autumn quarters. Students admitted in the spring begin the Society and Justice major in the autumn; students admitted in the autumn begin the Society and Justice major in the winter. The application deadline is the second Friday of spring or autumn quarter; admission decisions are made by the end of the fifth week of the quarter.

Additional Information: Credits earned in administration of justice or law enforcement programs at community colleges are accepted on a limited basis at the UW.

Major Requirements: Minimum of 54 Credits from the Society and Justice list of affiliated courses to include: (1) the three required core courses listed under admission requirements above (15 credits); (2) three courses from one of the two designated options of study (criminal justice or law and legal institutions) and two courses from the other option; (3) SO JU 400 and 401; and (4) at least 8 credits of research methodology. See adviser for option track courses.

Minor

Minor Requirements: 30 credits to include three courses from SO JU/POL S 363, SOC 271, SOC 371, SOC 372 (15 credits); three courses from Society and Justice major options (two courses from one option, one course from another option) (15 credits). See adviser for option track courses.

Course Descriptions

See page 48 for an explanation of course numbers, symbols, and abbreviations.

For graduate-level course descriptions, see the graduate and professional study volume of the *General Catalog* or visit the online course catalog at www.washington.edu/students/crscat/.

SO JU 275 Murder (5) I&S Introduces topics related to the crime of murder, including: laws of homicide; research on the characteristics of victims, killers, and murders; theories of murder and related violence; investigation strategies; and crime and control policies. Offered: jointly with SOC 275.

SO JU 310 Research in Society and Justice (1-5, max. 15) I&S Supervised introductory individual and/or seminar based research on some aspect of society and justice.

SO JU 363 Law in Society (5) I&S Inquiry into how law matters in social practice. Examines general theories of law, the workings of legal institutions, and the character of legally constituted practices and relationships in diverse terrains of social life. Offered: jointly with POL S 363.

SO JU 380 Contemporary Issues in Criminal Justice (5) I&S Overview of selected contemporary issues in the criminal justice system. Theoretical, empirical, and practical aspects of such topics as the war on drugs, sexual predators, community policing, family and crime, media, and criminal justice. Recommended: POL S 101, POL S 202, POL S 204, or SOC 110.

SO JU 400 Seminar in Society and Justice (3, max. 6) I&S Aspects of the administration of justice.

SO JU 401 Field Experience in Society and Justice (5) Participant observation in some public or private agency relevant to the system of justice.

SO JU 405 Introduction to Organized and White Collar Crime (3) I&S Overview of organized and white collar crime. Exposure to definitional problems, distinctive characteristics, potential areas of overlap, and barriers to more effective social control. Addresses impediments resulting from inadequate conceptualizations, legal and operational difficulties in pursuing offenders, and effects of corruption and discretion in the justice system.

SO JU 425 Introduction to the American Court System (3) I&S Philosophical and structural bases of the American court system; roles of attorneys, judges and the public in that system. Some focus also on current challenges to the courts posed by court congestion and alternative dispute resolution, and on future prospects for the courts.

SO JU 430 The Police (5) I&S Conceptual and empirical issues concerning multifaceted and changing roles of the American police.

SO JU 440 Criminal Law and Procedure (4) I&S Substantive and procedural criminal law for lay persons; analysis of the philosophy behind the law, with an emphasis on due process in adult and juvenile courts; case-analysis teaching technique.

SO JU 450 Special Topics in Society and Justice (1-5, max. 15) I&S Examination of various current topics or issues concerning the criminal justice system in our society.

SO JU 473 Corrections (5) I&S Analyzes research on diversionary methods, treatment of convicted offenders. Emphasis on program evaluation. Community treatment, fines, restitution, probation, parole, halfway houses, other alternatives to incarceration; correctional institutions. Organization of state, fed-

eral systems. Problems of administration. Subsidies, governmental control. Planning, public participation. Recommended: SOC 371 and SOC 372. Offered: jointly with SOC 473.

SO JU 499 Readings in Society and Justice (1-5, max. 10) Individual readings in society and justice.

Sociology

202 Savery



General Catalog Web page:
www.washington.edu/students/gencat/academic/Sociology.html



Department Web page:
www.soc.washington.edu/soc.html

The Department of Sociology has a strong commitment to research, publication, and training and is dedicated to providing a rich undergraduate program, both for students majoring in sociology and for others who wish to learn about human society and social relations.

Undergraduate Program

Director of Instructional Programs
Bruce D. Bennett
210 Savery, Box 353340
(206) 543-5396
asksoc@u.washington.edu

The Department of Sociology offers a program of study leading to the Bachelor of Arts degree.

Bachelor of Arts

Admission Requirements:

1. One of the following (5 credits): SOC 110, 111, or 112.
2. One of the following (5 credits): SOC 240, 270, or 271.
3. SOC 220 (5 credits).
4. Minimum cumulative GPA of 2.50 for all sociology courses completed at the time of application with a minimum grade of 2.0 in each course. Special circumstances will be reviewed on a case-by-case basis.
5. Minimum cumulative GPA of 2.00 for all prior college work.
6. A one- to two-page personal statement indicating the relevance of a sociology degree to the student's life experiences and goals.
7. Application deadlines are the second Friday of each quarter. All applicants who meet the qualifications stated above will be admitted in time to register as Sociology majors for the following quarter.
8. Admission will be made to one of four major options: Law, Society, and Social Policy; The Life Course; Institutions, Organizations, and Markets; Globalization and Social Change.

Suggested Introductory Course Work: SOC 110, 112, 240, 241, 270, 271. An introductory mathematics course may be helpful before SOC 328, but it is not a prerequisite.

Major Requirements: 50 credits in sociology, to include the following: (1) 15 credits from the following: SOC 110 (5), 111 (5), 112 (5), 240 (5), 271 (5), or equivalents. (2) SOC 220 (5) and 316 (5). (3) 20 credits from one of the following options: Law; Society and Social Policy; Life Course; Institutions, Organizations, and

Markets; and Globalization and Social Change. Courses required to complete an option include: (a) a 300-level option entry course (5 credits); (b) 5 to 10 credits of a 300-/400-level option sequence (10 credits required unless the sequence includes the option entry course); (c) 5 to 10 credits of upper-division classes from the option elective list to bring total credits for the option to 20. See department for list of courses that may be taken to complete the option requirements. (4) 5 credits of electives chosen from any other SOC course. (5) Minimum grade of 2.0 in any course applied toward the major. Minimum GPA in SOC classes of 2.50.

Graduate Program

For information on the Department of Sociology graduate program, see the graduate and professional volume of the *General Catalog* or visit the *General Catalog* online at www.washington.edu/students/genocat/.

Faculty

Chair

Robert D. Crutchfield

Professors

Barth, Ernest A. T. 1955, (Emeritus); PhD, 1955, University of North Carolina.

Borgatta, Edgar F. * 1980, (Emeritus); PhD, 1952, New York University; methodology, social psychology, demography-ecology, aging.

Bridges, George S. * 1982; PhD, 1979, University of Pennsylvania; deviance, social control, law, and legal institutions.

Burstein, Paul * 1985; PhD, 1974, Harvard University; political sociology, social stratification, public policy, law.

Campbell, Frederick L. * 1966; PhD, 1967, University of Michigan; population and ecology, social organization.

Chiro, Daniel * 1974; PhD, 1973, Columbia University; political sociology, ethnic conflict.

Costner, Herbert L. * 1959, (Emeritus); PhD, 1960, Indiana University; methodology, social change.

Crutchfield, Robert D. * 1979; PhD, 1980, Vanderbilt University; deviance, criminology, social control, stratification.

Gillmore, Mary Louise 1977, (Adjunct); MS, 1970, University of Michigan; MA, 1977, PhD, 1983, University of Washington; adolescent sexuality and substance abuse.

Grembowski, David * 1981, (Adjunct); MA, 1975, Washington State University; PhD, 1982, University of Washington; dental care demand, fluoridation, dental health services research.

Gross, Edward * 1965, (Emeritus); PhD, 1949, University of Chicago; formal organizations, industrial sociology, symbolic interaction, sociology of law.

Guest, Avery * 1972; MS, 1964, Columbia University; MA, 1967, PhD, 1970, University of Wisconsin; demography, ecology, stratification.

Hamilton, Gary G. * 1993; PhD, 1975, University of Washington; economic sociology, historical comparative, organizational studies, East Asia.

Handcock, Mark S. 2000, (Acting); PhD, 1989, University of Chicago; spatial statistics.

Hechter, Michael N. * 1999; PhD, 1972, Columbia University; political sociology, theory, rational choice.

Hirschman, Charles * 1987; PhD, 1972, University of Wisconsin; demography, race and ethnic relations, social stratification, Southeast Asia.

Howard, Judith A. * 1982; PhD, 1982, University of Wisconsin; social psychology, sociology of gender, intersections of race/class/gender/sexuality.

Kasaba, Resat * 1985, (Adjunct); PhD, 1985, State University of New York (Binghamton); historical sociology, world systems, social change in the Middle East.

Lang, Kurt * 1984, (Emeritus); PhD, 1953, University of Chicago; political and social effects of the media on mass communication.

Larsen, Otto * 1958, (Emeritus); PhD, 1955, University of Washington; mass communications, public opinion, collective behavior.

Locke, Hubert G. * 1976, (Adjunct); MA, 1962, University of Michigan; criminal justice, urban policy, race and ethnic relations, ethics and public policy.

Matsueda, Ross L. * 1998; PhD, 1984, University of California (Santa Barbara); criminology, juvenile delinquency, deviance, quantitative methods.

Miyamoto, Frank 1941, (Emeritus); MA, 1938, University of Washington; PhD, 1950, University of Chicago; social psychology, collective behavior.

Raftery, Adrian Elmes * 1985; Doct, 1980, Université de Paris VI (France); time series, Bayesian statistics, spatial statistics, population estimation, model selection.

Schmitt, David R. * 1968; PhD, 1963, Washington University; experimental social psychology, behavior analysis.

Schwartz, Pepper J. * 1972; PhD, 1974, Yale University; family, gender, human sexuality, field methods.

Scott, Joseph W. * 1985; PhD, 1963, Indiana University; political sociology, family sociology, race/ethnic relations.

Stark, Rodney * 1971; PhD, 1971, University of California (Berkeley); scientific methods in theory and research, religion, deviance, prejudice, police.

Van Den Berghe, Pierre L. * 1965, (Emeritus); PhD, 1960, Harvard University; comparative sociology, stratification, race and ethnic relations, kinship, sociology.

Wager, L. Wesley * 1954, (Emeritus); PhD, 1959, University of Chicago; organizations/occupations, theory, culture.

Weis, Joseph G. * 1974; DCrim, 1974, University of California (Berkeley); crime, delinquency, social control, deviance.

Associate Professors

Brines, Julie E. * 1993; PhD, 1990, Harvard University; gender, stratification, family, methods.

Friedman, Debra 1993, (Affiliate); PhD, 1983, University of Washington; political sociology, theory, education.

Herting, Jerald R. * 1996, (Research); PhD, 1987, University of Washington; adolescent substance abuse and mental health, quantitative methods, social demography.

Kashima, Tetsuden * 1976, (Adjunct); PhD, 1975, University of California (San Diego); Japanese American incarceration and social organization, sociology of race and ethnic relations.

Kiser, Edgar Vance * 1988; PhD, 1987, University of Arizona; political sociology, theory, historical sociology.

Lavelly, William R. * 1985; PhD, 1982, University of Michigan; social demography of China.

Assistant Professors

Brewer, Devon 1996, (Affiliate); PhD, 1994, University of California (Irvine); social networks, research methodology.

Kim, Hyojoung * 1998; PhD, 1995, University of Wisconsin; social movements, comparative historical analysis, social networks, rational choice.

Kuo, Hsiang-Hui D. * 1996; PhD, 1995, University of Wisconsin; social stratification, life course and aging, quantitative methods, social demography.

Lepore, Paul C. * 1997; PhD, 1997, University of Wisconsin; social psychology, sociology of education, social structure and personality, sociological methods.

Pettit, Elizabeth M. 1999; PhD, 1999, Princeton University; family, demography, stratification/mobility.

Pfaff, Steven J. 1999; PhD, 1999, New York University; comparative/historical sociology, theory, collective behavior/social movements.

Pitchford, Susan * 1987; PhD, 1994, University of Washington; race and ethnic relations, social movements, comparative sociology.

Sunindyo, Saraswati * 1993, (Adjunct); PhD, 1993, University of Wisconsin; feminism and nationalism, comparative women's movements, Southeast Asia.

Warren, John R. * 1998; PhD, 1998, University of Wisconsin; social stratification and inequality, sociology of education, research methods.

Senior Lecturer

Black, Albert W. * 1972; MA, 1968, Wayne State University; PhD, 1976, University of California (Berkeley); race and ethnic relations, stratification, social movements, race and poverty.

Course Descriptions

See page 48 for an explanation of course numbers, symbols, and abbreviations.

For graduate-level course descriptions, see the graduate and professional study volume of the *General Catalog* or visit the online course catalog at www.washington.edu/students/crsocat/.

SOC 105 Sociology of Black Americans (5) I&S Black Sociocultural context of the Black person's environment and consequences of interaction with that environment.

SOC 110 Survey of Sociology (5) I&S LePore, Stark Human interaction, social institutions, social stratification, socialization, deviance, social control, social and cultural change. Course content may vary, depending upon instructor. Offered: AWSpS.

SOC 111 American Society (5) I&S Stovel Explores the power of social structures using examples drawn primarily from the American culture. The impact of social institutions, the emergence of concrete patterns of social relations which organize and regulate social life and the inequality inherent in most social structures.

SOC 112 Evolution and Revolution: An Introduction to the Study of Comparative Social Change (5) I&S Chiro, Hirschman Examines the major aspects of human societies, including political and economic systems, family structure, social stratification, and demographic patterns as influenced by environmental conditions, technology, cultural traditions, and legacies of prior history and relationships to other societies.

SOC 220 Introduction to Sociological Methods (5) I&S, QSR Familiarizes students with the logic of analysis in social sciences. Students learn to recognize good research design, understand and interpret main arguments employing different methods, and evaluate whether research findings support stated conclusions.

SOC 240 Introduction to Social Psychology: Perspectives on Individual Behavior (5) I&S *Schmitt* Major theoretical perspectives on individual behavior in social settings. Social cognition, behaviorism, symbolic interaction, and attitudes. Ways people develop as social beings. Traditional lecture format is not used in this course. Student learning is based on individualized programs of reading and frequent tests of student comprehension. Offered: AWSp.

SOC 241 Introduction to Social Psychology: Perspectives on Social Interaction (5) I&S Major perspectives on social interaction. Social exchange, cooperation and competition, group dynamics, social influence, leadership, altruism and aggression. Situational and personal variables that determine social interaction. Traditional lecture format is not used in this course. Student learning is based on individualized programs of reading and frequent tests of student comprehension. Offered: AWSp.

SOC 260 African American Family (5) I&S This course explores the structures and functioning of various types of black families. Single-parent families, two-parent families, extended families, and consensual families are explored. Their consequences for male/female relationships are linked and critiqued. Offered: jointly with AFRAM 260.

SOC 261 The African-American Experience Through Literature (5) VLPA/I&S Instructs students in hermeneutical and sociological methods of analyses. Analyzes selected novels, essays, poems, short stories, and plays with the purpose of understanding the structures and functions of both society and personality. Offered: jointly with AFRAM 261.

SOC 266 Introduction to Labor Studies (5) I&S *Reitman* Conceptual and theoretical issues in the study of labor and work. Role of labor in national and international politics. Formation of labor movements. Historical and contemporary role of labor in the modern world. Offered: jointly with HIST 249/POL S 249.

SOC 270 Social Problems (5) I&S Processes of social and personal disorganization and reorganization in relation to poverty, crime, suicide, family disorganization, mental disorders, and similar social problems.

SOC 271 Introduction to the Sociology of Deviance (5) I&S *Bridges, Crutchfield, Weis* Examination of deviance, deviant behavior, and social control. Deviance as a social process; types of deviant behavior (e.g., suicide, mental illness, drug use, crime, "sexual deviance," delinquency); theories of deviance and deviant behavior; nature and social organization of societal reactions; and social and legal policy issues. Offered: AWSpS.

SOC 275 Murder (5) I&S *Weis* Introduces topics related to the crime of murder, including: laws of homicide; research on the characteristics of victims, killers, and murders; theories of murder and related violence; investigation strategies; and crime and control policies. Offered: jointly with SO JU 275.

SOC 299 Sociology Interest Group (2) I&S Provides opportunity for students new to the major, or contemplating the major, to meet twice weekly in a small group to discuss issues relating to two designated five-credit sociology courses. Concurrent enrollment in the two five-credit designated courses required. See department adviser. Offered: ASP.

SOC 301 War (5) I&S *Chiro* Origins and conduct of war, readings from anthropology, political science, economics, and history, as well as two novels and some recent articles on the arms-control controversy. Modern forms of warfare, including guerrilla war, world war, and nuclear war. Offered: jointly with SIS 301.

SOC 316 Introduction to Sociological Theory (5) I&S Introduction to sociological theory. Includes

classical theorists Adam Smith, Karl Marx, Emile Durkheim, and Max Weber and their influence on contemporary theoretical debate.

SOC 328- Methodology of Sociological Research (5-) I&S, QSR Logic of formulating, testing, and modifying hypotheses. Methods of producing social data (survey research, evaluation research, field observation) and utilizing stored data (census tapes, historical materials). Methods of quantitative data analysis techniques commonly used in contemporary sociological analysis. Not open for credit to students who have taken 320 or 323. Offered: AWS.

SOC -329 Methodology of Sociological Research (-5) I&S, QSR Logic of formulating, testing, and modifying hypotheses. Methods of producing social data (survey research, evaluation research, field observation) and utilizing stored data (census tapes, historical materials). Methods of quantitative data analysis techniques commonly used in contemporary sociological analysis. Not open for credit to students who have taken 320 or 323. Offered: WSpS.

SOC 330 Human Ecology (5) I&S Factors and forces that determine the distribution of people and institutions.

SOC 331 Population and Society (5) I&S *Guest, Lavelly* Population growth and distribution, population composition, population theory, urbanization. Determinants and consequences of fertility and mortality trends and migration in economically developed and underdeveloped areas.

SOC 340 Symbolic Interaction (5) I&S Role of language and culture in changing the human organism into a socialized human being; interpersonal processes and how they are shaped by the symbolic environment.

SOC 341 Tutoring Sociology (2-4, max. 4) Trains students to serve as tutors in designated courses. Teaches how to assist with writing assignments, explain course material, and lead group discussions. Credit/no credit only.

SOC 344 Cognitive Social Psychology (5) I&S *Howard* Cognitive structures and processes and their antecedents and consequences, both societal and individual. Reciprocal influences of social roles, social institutions, and social cognition.

SOC 352 The Family (5) I&S *Schwartz* The family as a social institution. Historical changes and societal variation in family patterns. Changes over the life cycle. Alternative family forms.

SOC 354 The Comparative Study of Societies (5) I&S Entire societies at various levels of technological complexity are compared to explore problems of their development and structural organization. Both historical and contemporary Western and non-Western societies are examined. Offered: jointly with ANTH 354.

SOC 355 Social Change in Latin America (5) I&S Problems of development and dependency in Latin America. Relations of power and production between social classes and ethnic groups. Offered: jointly with SISLA 355.

SOC 356 Society and Politics (5) I&S *Burstein* Causes of political change in democratic countries, including public opinion, social movements, interest group activity, and party organization. Offered: jointly with POL S 356.

SOC 360 Introduction to Social Stratification (5) I&S Social class and social inequality in American society. Status, power, authority, and unequal opportunity are examined in depth, using material from other societies to provide a comparative and historical perspective. Sociological origins of recurrent conflicts involving race, sex, poverty, and political ideology.

SOC 362 Race Relations (5) I&S *Black* Interracial contacts and conflicts.

SOC 363 Ethnicity, Business, Unions, and Society (5) I&S *Scott* Interrelationships of ethnicity, business, unions, and the larger society. Examines financial and sociological structure of business and manufacturing sector, how this sector performs, and consequences of performance for selected ethnic groups in United States. Offered: jointly with AES 361.

SOC 364 Women in the Social Structure (5) I&S *Howard* Gender and social institutions; the family, politics, education, medicine, law, the labor force. Intersection of gender with other minority statuses such as race, age, socioeconomic status, and sexual orientation. Structural, ideological, and historical determinants of gender relations.

SOC 365 Urban Community (5) I&S *Conley, Guest* Comparative and analytic study of organization and activities of urban groups.

SOC 366 Bureaucracy in Society (5) I&S *Hamilton* The coming of organizational societies; historical causes of bureaucracy; informal relations and work groups; ideologies; authority and the division of labor; social change in bureaucracies; comparative organizations.

SOC 371 Criminology (5) I&S *Bridges, Crutchfield, Weis* Survey of legal definitions, types of criminal behavior, trends and patterns, recidivism, characteristics of offenders, environmental influences, diagnostic methods, prediction, theories of crime and delinquency prevention, social policy.

SOC 372 Introduction to Criminal Justice (5) I&S Examines role of police, courts, and corrections in criminal justice. Applies sociological theories and perspectives to issues in law enforcement, adjudication, and corrections. Legislative reforms. Innovations in policy.

SOC 374 Law and Society (5) I&S Introduces major issues of the sociological foundations and implications of legal institutions; examines social life within legal institutions, the individual and collective justice, the malleability of precedent, and truth and the effects of inequality on legal outcomes. Encompasses legal practice and social science.

SOC 399 Undergraduate Internship (2-5, max. 10) Students serve in approved internships. Credit/no credit only.

SOC 401 Special Topics in Sociology (5, max. 15) I&S Selected topics of contemporary interest taught by a sociologist active in the field. Topics vary and may be substantive, theoretical, or methodological.

SOC 410 History of Sociological Thought (5) I&S Contributions of individual theorists (from Comte to the present); emphasis on cumulative development of concepts and principles, emergence of sociology as a science, probable future developments.

SOC 411 Selected Topics in History of Sociological Thought (5) I&S Specific areas or eras in the history of sociological thought. Emphasis on the development of sociological theory in relation to the intellectual and social setting of the time. Topics change from quarter to quarter. Some topics are: the development of concepts of order in sociological thought; conflict theories; the development of action theory in sociology; German sociology; Marx, Weber, and Simmel.

SOC 416 Sociological Theory (5) I&S *Kiser* Theories of individual action, social order, and institutional change. Cumulative development of solutions rather than on works of given theorists. Theories of social order. How sociological treatments of these issues compare with those offered by economists and other social scientists.

SOC 419- Fieldwork: Observation and Interviewing (5-) I&S *Becker* Perspective, logic, and techniques of qualitative social research and analysis. Nature and uses of intensive interviewing, participant observation, and analytic ethnography. Application of field research principles. Research project required in addition to reading and analysis of classic studies. Offered: W.

SOC -420 Fieldwork: Observation and Interviewing (-5) I&S *Becker* Logic and techniques of qualitative social research and analysis. Intensive interviewing, participant observation, qualitative data analysis (including applications of data base technology, problem reformulation, and techniques of visual documentation). Results of student work reported and discussed in class. Offered: Sp.

SOC 424- Applied Social Statistics (3-) I&S Applications of statistics in sociology and related social sciences. Emphasis on problems of analysis with imperfect data. Probability in statistical inference. Analysis of variance; contingency table analysis, nonparametric procedures; regression analysis in social research. Offered: W.

SOC -425 Applied Social Statistics (-3) I&S Applications of statistics in sociology and related social sciences. Emphasis on problems of analysis with imperfect data. Probability in statistical inference. Analysis of variance; contingency table analysis, nonparametric procedures; regression analysis in social research. Offered: Sp.

SOC 428 Principles of Study Design (3) I&S *Crutchfield, Guest* Study design from problem formulation to the analysis and interpretation of data. Offered: Sp.

SOC 429 Practicum in Data Analysis (3) I&S *Bridges, Crutchfield, Guest* Introduction to selected programs for data analysis and practice in their application. Practice in coordination research problem, data, and mode of analysis into a coherent, interrelated set. Interpretation of results. Offered: A.

SOC 431 Fertility and Mortality (3) I&S *Lavelly* Theories of fertility and mortality, demographic transitions, individual variations. Specific analytic approaches. Familiarity with basic fertility and mortality measures, and with the life table, is assumed.

SOC 432 Population and Modernization (3) I&S *Hirschman, Lavelly* Examines role of demographic factors in the process of social modernization and economic growth. The approach is both historical, focusing on populations of developed countries since 1700, and analytic, stressing the attempts made by different disciplines to model demographic relationships, with attention to less-developed regions. Offered: jointly with SIS 432.

SOC 433 Research Methods in Demography (3) I&S *Hirschman* Basic measures and models used in demographic research. Sources and quality of demographic data. Rate construction, standardization, the life table, stable population models, migration models, population estimation and projection, measures of concentration and dispersion, measures of family formation and dissolution.

SOC 434 Demographic Issues in Asia (3-5) I&S *Lavelly* Contemporary Asian countries face a number of issues with demographic components, including environmental and resource issues, ethnic rivalries, international migration, and public health. This seminar addresses a set of these issues by focusing on the demography of one or more countries in Asia. Offered: jointly with SISEA 434.

SOC 447 Social Movements (5) I&S Social movements as collective attempts to change society: why people join; characteristics of successful and unsuccessful movements; consequences of social movement activities.

SOC 450 Political Economy of Women and Family in the Third World (5) I&S Theoretical and empirical aspects of the political economy of women and the family in the Third World during the process of development, with a focus on labor. Main theoretical approaches examined and applied to case studies from Asia and Latin America. Offered: jointly with SIS 450.

SOC 451 Theory and Process of Social Change (5) I&S *Hamilton* Basic trends in economic and social development; comparative and historical analysis of social and economic changes; the rise of capitalist societies.

SOC 456 Political Sociology (5) I&S *Burstein* Relationships between social change and political change. Focus on selected issues, including social bases of democracy, political organization, elections, and consequences of public policy.

SOC 457 Sociology of Religion (5) I&S The relations between religion, polity, economy, and social structure; in particular, the political, economic, and social impact of religious beliefs and organizations, as well as the social determination of these beliefs and organizations; the rise of secularism, the rationalization of modern life, and the emergence of political quasi-religions.

SOC 460 Social Differentiation (5) I&S Analysis of societal organization based on sex, age, residence, occupation, community, class, caste, and race.

SOC 461 Comparative Ethnic Race Relations in the Americas (5) I&S *Scott* Sketches the ethnoracial systems operating in American society. Studies these systems as systems and examines their institutional and interpersonal dynamics. Compares ethnoracial systems in order to arrive at empirical generalizations about race/ethnorelations in the Americas. Offered: jointly with AES 461.

SOC 462 Comparative Race and Ethnic Relations (5) I&S *Scott* Race and ethnicity as factors of social differentiation in a number of Western and non-Western societies in Europe, Africa, Asia, and the Americas. Offered: jointly with AES 462.

SOC 465 Complex Organizations (5) I&S *Hamilton* Examination of the structure of complex organizations. Attention to developing generalizations applicable to industrial organizations, businesses, hospitals, prisons, labor unions, governments, universities, armies, and similar formally instituted organizations. The major focus is on empirical research, with some attention to methodological problems in studying such organizations.

SOC 466 Economic Sociology (5) I&S *Hamilton, Reitman* Changing focus of field; cultural variation, work, and the worker; technology, society, and the evolution of industrial forms; types and forms of industrial organizations; industrial organizations as social and technical systems; issues of control, process, and change; the individual in social and technical systems.

SOC 472 Juvenile Delinquency (5) I&S *Crutchfield, Weis* Factors in delinquency, juvenile courts. Programs of treatment and prevention.

SOC 473 Corrections (5) I&S *Weis* Analyzes research on diversionary methods and treatment of convicted offenders. Emphasis on program evaluation. Community treatment, fines, restitution; probation, parole, halfway houses, and other alternatives to incarceration; correctional institutions. Organization of state and federal systems. Problems of administration. Subsidies and governmental control. Planning and public participation. Recommended: SOC 371; SOC 372. Offered: jointly with SO JU 473.

SOC 481 Issues in Analytic Sociology (5, max. 15) I&S Examination of current issues in sociological analysis. Specific content of the course varies according to recent developments in sociology and the interests of the instructor.

cording to recent developments in sociology and the interests of the instructor.

SOC 483 Issues in Analytic Sociology (1-3, max. 9) I&S Examination of current issues in sociological analysis. Specific content of the course varies according to recent developments in sociology and the interests of the instructor.

SOC 485 Family Change in Western Europe and the United States (5) I&S Investigates patterns of recent family change. Explores similarities and differences in family life between Western Europe and US as well as variations among countries and among population subgroups within countries. Focuses on differences and similarities in social, economic, political, and cultural environments. Offered: jointly with EURO 485.

SOC 486 Human Family Systems: Biological and Social Aspects (5) I&S Biological bases for human mating and reproduction, and an examination of the range of cross-cultural variability in human systems of kinship and marriage. Compares wide range of human and nonhuman species, and Western and non-Western human societies. Interplay of biological, ecological, and sociocultural factors in determining the structure and function of human family systems. Offered: jointly with ANTH 486.

SOC 487 Sociology of Gender and Sexuality (5) I&S Addresses the intersection of gender and sexuality in U.S. society, social institutions and movements, families, and the individual. Topics include the history of sexuality as practiced and politicized since colonial times, major theoretical approaches to sexuality, and how gender and other social status characteristics influence the meanings of sexuality.

SOC 490 The Urban Underclass (5) I&S Examines underlying issues which have led to the emergence and perpetuation of an underclass within an affluent society. Explores some of the consequences for these people and for this society. Considers policies that might be used to address problems of the urban underclass.

SOC 491 Sociology of Science (5) I&S *Becker* Sociological study of scientific activity. Social origins of scientific thought and practice, the organization of scientific work, and the process of change in science. Major theories in the area, including Merton, Kuhn, and Latour.

SOC 492 Sociology of Education (5) I&S *LePore* Emphasizes the ways in which schools and colleges reproduce, reinforce, and challenge prevailing social, economic, and political relationships. Examines the structures, practices, content, and outcomes of schooling and its relationship to the wider society as well as the rise and dynamics of the modern education system.

SOC 495 Honors Senior Thesis (1-5, max. 5) I&S Preparation of senior honors thesis. Sociology majors only.

SOC -497- Honors Senior Seminar (-[3/5]-) I&S Exploration of selected sociological problems with emphasis on research experience and the interpretation of data. For sociology majors only, primarily for honors students. Offered: W.

SOC -498 Honors Senior Seminar (-[3/5]) I&S Exploration of selected sociological problems with emphasis on research experience and the interpretation of data. For sociology majors only, primarily for honors students. Offered: Sp.

SOC 499 Undergraduate Independent Study or Research (2-5, max. 10) Credit/no credit only.

Speech and Hearing Sciences

210 Eagleson



General Catalog Web page:
www.washington.edu/students/gencat/academic/speech_hearing.html



Department Web page:
depts.washington.edu/sphsc/

The speech and hearing sciences concern the processes and disorders of human communication. The undergraduate programs include the study of normal hearing and language development, speech acoustics, speech physiology and perception, hearing, the nature of language, speech and hearing disorders in children and adults, social and cultural aspects of communication disorders, and the clinical processes involved in identification, prevention, and remediation of those disorders.

Undergraduate Program

Director of Academic Services
 202 Eagleson, Box 354875
 (206) 685-7400
sphscadv@u.washington.edu

The Department of Speech and Hearing Sciences offers a program of study leading to a Bachelor of Science degree.

Student Associations: Students may elect to join the National Student Speech Language Hearing Association (NSSLHA) UW chapter. NSSLHA is the national pre-professional organization for undergraduate and graduate students interested in the study of human communication and related disabilities. The NSSLHA office is located in 153 Eagleson.

Bachelor of Science

Admission Requirements: Admission is competitive. The Admissions Committee reviews all applicants based on the following criteria: GPA (minimum 2.50 overall GPA guarantees consideration but not admission), personal statement reflecting an interest in and commitment to speech and hearing sciences; other evidence of a commitment to becoming a speech and hearing sciences major. Students may apply any time after they have earned 60 credits. The deadline to apply for current UW students is Monday of the third week of the quarter for the next quarter; transfer students should contact the department for application deadlines. Applicants will be notified of the department's decision within four weeks. Applications and additional information are available in 202 Eagleson.

Students who meet admission requirements are eligible for one of two options: Option I, General Academic, is intended to provide broad perspectives of the discipline, but not to prepare students specifically for careers in clinical speech pathology and audiology. It is appropriate for students with interests in education, health care, and communication. Option II, Speech and Hearing Sciences and Disorders, is intended for students interested in speech and hearing sciences and clinical speech-language pathology and audiology. (Note that graduate study is required for the professions of speech language pathologist and audiologist.)

Major Requirements

Core Requirements for Both Options: 32 credits in the following courses: SPHSC 250, 261, 302, 303, 304, 320, 371, 461. A cumulative GPA of 3.00 is required in core courses for students following Option II.

Option I, General Academic: Core requirements listed above; 22 credits from the following: SPHSC 305, 308, 405, 406, 425, 435, 445, 462, 499; ZOOL 118; a 3-5 credit college-level mathematics (not including MATH 098, 100, 102, 103) or statistics course (not including STAT 111); minimum 9 credits at the 200 level or above in psychology, educational psychology, or special education, or 300 level or above in linguistics.

Option II, Speech and Hearing Sciences and Disorders: Core requirements listed above; SPHSC 305, 308, 405, 406, 425, 445, 471, 481; ZOOL 118; a 3-5 credit college-level mathematics (not including MATH 098, 100, 102, 103) or statistics course (not including STAT 111); minimum 9 credits at the 200 level or above in psychology, educational psychology, or special education, or 300 level or above in linguistics.

Graduate Program

For information on the Department of Speech and Hearing Sciences graduate program, see the graduate and professional volume of the *General Catalog* or visit the *General Catalog* online at www.washington.edu/students/gencat/.

Faculty

Chair

Carol Stoel-Gammon

Professors

Folsom, Richard C. * 1976; PhD, 1979, University of Washington; pediatric audiology, auditory evoked potentials.

Gates, George A. 1993, (Adjunct); MD, 1959, University of Michigan; otology/neurotology, cochlear implantation.

Kuhl, Patricia K. * 1976; MA, 1971, PhD, 1973, University of Minnesota; speech perception.

Meltzoff, Andrew N. * 1977, (Adjunct); PhD, 1976, Oxford University (UK); cognitive and social development of human infants.

Miner, Adah L. 1965, (Emeritus); MA, 1948, University of Washington; PhD, 1962, University of Wisconsin; speech pathology, clinical supervision.

Minifie, Fred D. * 1971, (Emeritus); PhD, 1963, University of Iowa; speech acoustics.

Olswang, Lesley B. * 1977; PhD, 1978, University of Washington; language development and disorders/clinical processes.

Prins, David * 1969, (Emeritus); PhD, 1961, University of Michigan; fluency disorders.

Stoel-Gammon, Carol * 1983; PhD, 1974, Stanford University; developmental phonology and phonetics.

Thompson, Gary * 1966, (Emeritus); PhD, 1967, University of Minnesota; pediatric audiology, clinical evaluation.

Thompson, Marie D. * 1979, (Adjunct); PhD, 1970, University of Washington; special education (hearing impaired).

Werner, Lynne A. * 1986; PhD, 1980, Loyola University (Chicago); auditory development, infant psychoacoustics.

Wilson, Wesley * 1966, (Emeritus); PhD, 1969, University of Washington; audiology, infant assessment and aural rehabilitation.

Yantis, Phillip A. * 1965, (Emeritus); PhD, 1955, University of Michigan; audiology, clinical evaluation.

Yorkston, Kathryn * 1975, (Adjunct); PhD, 1975, University of Oregon; neurogenic communication disorders in adults.

Associate Professors

Burns, Edward M. * 1984; PhD, 1977, University of Minnesota; psychoacoustics.

Carpenter, Robert L. * 1970; PhD, 1969, Northwestern University; language and language disorders.

Coggins, Truman E. * 1974; PhD, 1976, University of Wisconsin; language disorders in children.

Cooker, Harry S. * 1976, (Emeritus); PhD, 1963, University of Iowa; speech physiology.

Moore, Christopher A. * 1995; MA, 1981, PhD, 1985, Purdue University; speech production, development, and physiology; acoustics, motor control, coordination.

Norton, Susan J. * 1991, (Adjunct); PhD, 1982, University of Washington; normal and non-normal hearing, specifically cochlear mechanics, in humans and animals.

Rees, Thomas 1971, (Adjunct); MA, 1969, University of Redlands; PhD, 1972, University of Washington; audiology.

Reich, Alan R. * 1977; PhD, 1975, University of Iowa; speech physiology and voice disorders.

Rogers, Margaret A. * 1992; PhD, 1992, University of Iowa; spoken language production including semantics, phonology, and motor control; speech aphasia/apraxia.

Schwartz, Ilene Sharon * 1991, (Adjunct); PhD, 1989, University of Kansas; early childhood, classroom-based interventions, and applied behavior analysis.

Assistant Professors

Kujawa, Sharon Guilds 1997, (Adjunct); PhD, 1993, University of Arizona; audiology.

Souza, Pamela E. * 1996; MS, 1992, PhD, 1996, Syracuse University; hearing aids, effects of sensorineural hearing loss on speech perception.

Tremblay, Kelly L. 1998; PhD, 1998, Northwestern University; hearing sciences, clinical audiology, evoked potentials, central auditory plasticity.

Senior Lecturers

Alarcon, Nancy B. 1988; MS, 1981, University of Wisconsin; speech-language disorders/adult.

Labiak, James M. 1974; MA, 1971, University of Washington; audiologic evaluation/calibration.

Sanborn, E. Sue 1988; MA, 1967, PhD, 1971, University of Washington; clinical audiology/aural rehabilitation.

Course Descriptions

See page 48 for an explanation of course numbers, symbols, and abbreviations.

For graduate-level course descriptions, see the graduate and professional study volume of the *General Catalog* or visit the online course catalog at www.washington.edu/students/crscat/.

SPHSC 100 Voice and Articulation Improvement (3) VLPA For native speakers of English only. Voice production and the sound system of standard American speech. Speech standards, regional and social dialects, voice quality and basic language-oriented characteristics. Practice for improving speech style. Offered: AWSp.

SPHSC 111 The American English Sound System (2, max. 4) For non-native speakers of English only. Speech sounds of American English. Practice in listening and using American speech sounds and intonation patterns. Credit/no credit only. Offered: AWSp.

SPHSC 250 Human Communication and Its Disorders (5) I&S/NW Overview of normal and impaired human oral communication, including speech, language, and hearing disorders. Required for majors, open to nonmajors. Offered: A.

SPHSC 261 The Nature of Sound (3) NW Fundamental principles of sound and vibration with emphasis on examples relevant to the speech and hearing systems. Required for majors; open to nonmajors. Recommended: MATH 101. Offered: A.

SPHSC 300 Speech Science (5) NW Basic physiological and acoustical attributes of normal speech and hearing. Offered: AWSp.

SPHSC 302 Phonetics (3) VLPA Introduction to the description and classification of speech sounds with a focus on American English. Phonetic analysis of segmental and suprasegmental properties of speech. Practice using the International Phonetic Alphabet to transcribe normal and disordered speech patterns. Required for majors; open to nonmajors. Prerequisite: SPHSC 303, LING 200, or LING 400. Offered: W.

SPHSC 303 Language Science (3) VLPA *Stoel-Gammon* Introduction to techniques of linguistic analysis used in the study of phonology, morphology, syntax, and semantics. Required for majors; open to nonmajors. Offered: A.

SPHSC 304 Developmental Aspects of Communication (5) I&S Patterns of communicative development in English speaking children and adolescents. Introduction to the study of language and communication from a developmental perspective. Application to children with various types of communication impairments. Required for majors; open to nonmajors. Prerequisite: either SPHSC 303, ANTH 203, LING 200, or LING 400. Offered: Sp.

SPHSC 305 Speech and Language Disorders (5) NW Etiology and nature of developmental and acquired communication disorders across the lifespan. Behavioral characteristics of language delay and disorders, developmental apraxia of speech, phonological disorders, stuttering, acquired aphasia, apraxia of speech and dysarthria, craniofacial anomalies, and voice disorders. Required for majors; open to nonmajors. Prerequisite: SPHSC 302; SPHSC 304; SPHSC 320. Offered: A.

SPHSC 308 Social-Cultural Aspects of Communication (3) I&S Introduction to human communication in context. Exploration of ways communication is influenced by context, including situational, social/interpersonal, and cultural variables. Studies systems and cultural practices as they influence communication. Required for majors; open to nonmajors.

SPHSC 320 Anatomy and Physiology of Speech (5) NW Anatomy and physiology of the respiratory, laryngeal, and articulatory systems. Examples and laboratory work are directed toward clinical issues in Speech-Language Pathology. Required for majors; open to nonmajors. Offered: WSp.

SPHSC 371 Hearing Disorders (3) I&S/NW Introduction to abnormal hearing. Pathologies of the ear and their treatments. Audiometric correlates, communicative and social consequences of hearing loss. Overview of management of children and adults. Required for majors; open to nonmajors. Offered: W.

SPHSC 391 Practicum in Audiology (1-4, max. 10) Guided experiences in audiological assessment and aural rehabilitation of children and adults. Credit/non credit only. Offered: AWSpS.

SPHSC 405 Diagnosis of Speech and Language Disorders (3) NW Principles and procedures for the diagnosis of speech and language disorders. Required for majors. Prerequisite: SPHSC 305. Offered: W.

SPHSC 406 Treatment of Speech and Language Disorders (3) NW Principles and procedures for planning, implementing, and evaluating treatment for speech and language disorders. Required for majors. Prerequisite: SPHSC 405. Offered: SpS.

SPHSC 425 Speech, Language, and the Brain (5) NW Historical perspectives and current research on speech acoustics, speech perception, and brain processing of speech information; speech development; techniques used in speech analysis; machine recognition of speech; brain imaging techniques, animal communication systems; speech evolution; implications for impaired populations. Offered: A.

SPHSC 435 Forensic Acoustics: Courtroom Applications of Speech and Hearing Sciences (5) I&S/NW *Reich* Forensic applications of speech and hearing sciences: audio tape enhancement; tape authentication; speech transcription; speech level and audibility; speaker identification; voice stress analysis; gunshot, aviation, microphone, and telephone sound analysis; train and emergency vehicle audibility; the judicial process; being an effective expert witness.

SPHSC 445 Models of Speech Processing (3) NW Examines models and basic issues concerning how spoken language is processed. Presents current issues, theories, and research relative to the levels of processing entailed in producing and comprehending speech. Required for majors; open to nonmajors. Recommended: SPHSC 302; SPHSC 303; SPHSC 320; SPHSC 425.

SPHSC 449 Special Studies in Speech Pathology and Audiology (* max. 30) Selected special problems in speech pathology and audiology. Offered: S.

SPHSC 454 Augmentative and Alternative Communication: Access for Technology (3) NW Communication technology and motor evaluation of augmentative and alternative users. Issues related to hardware, software, switch placement and access, with opportunities for clinical trials. Recommended: SPHSC 453 or REHAB 458. Offered: jointly with REHAB 459.

SPHSC 462 Hearing Development (3) NW Description of the changes that occur in human hearing during development. Consideration of the possible explanations for early immaturity. Prerequisite: SPHSC 461. Offered: even years; A.

SPHSC 471 Basic Audiometry (5) NW Theory and practice of the assessment of hearing function, including standard pure-tone audiometry, speech audiometry, and basic impedance audiometry. Required for majors. Prerequisite: SPHSC 371 which may be taken concurrently; SPHSC 461. Offered: WSp.

SPHSC 481 Management of Hearing Loss (4) NW Introduction to methods of communicative rehabilitation of person with hearing loss. Remediation principles of auditory and visual perception, amplification, communication strategies, and information counseling. Required for majors. Prerequisite: SPHSC 471. Offered: WS.

SPHSC 491 Audiology Practicum in Schools (2) Special projects in clinical audiology practicum, offered only in the school setting. Provides an opportunity for students to extend audiology practicum experiences into the school environment. Prerequisite: SPHSC 471. Offered: A.

SPHSC 499 Undergraduate Research (1-5, max. 15) Offered: AWSpS.

Speech Communication

205 Raitt



General Catalog Web page:
www.washington.edu/students/genocat/academic/speech_comm.html



Department Web page:
depts.washington.edu/spcom/

Speech communication is the study of how people in specific contexts verbally and nonverbally negotiate meanings. The discipline studies such contexts as classrooms, families, political campaigns, and online environments, and examines how meanings are interactively constructed there. The Department of Speech Communication integrates theory, criticism, and practice.

Undergraduate Program

Advisers

Robert M. Post
205G Raitt, Box 353415
(206) 543-4665
Beatrice Restoule
206B Raitt, Box 353415
(206) 543-4896

The Department of Speech Communication offers a program of study leading to the Bachelor of Arts degree, as well as a minor. The major is designed to enable students to enhance their theoretical knowledge by understanding speech communication as an outcome of choices, a social activity, and an aesthetic endeavor; to improve their critical capabilities through analysis of communicative behavior and discourse; and to develop their abilities to apply theory and criticism in the practice of communicating.

Students in the department begin their study with a course in the nature, elements, and functions of human communication and continue with specific courses in interpersonal communication, public speaking, instructional communication, oral interpretation, and small-group decision making. In advanced courses, students reflect in depth on the theories and practices of persuasion, argumentation, small-group processes, conflict management, political communication, online relationships, instructional settings, and communication ethics.

Bachelor of Arts

Admission Requirements:

1. A minimum of 30 quarter credits completed, a minimum 2.50 overall GPA (2.50 guarantees consideration, but not acceptance), and completion of SP CMU 102.
2. Students submit an application packet that includes (a) application form, (b) copies of transcripts and grade reports, and (c) statement.
3. Admission is competitive, based on GPA in speech, recommended courses, cumulative GPA, and statement.
4. Applications are due the end of the third week of the quarter. Admission is once a quarter: autumn, winter, and spring. Transfer students must be enrolled at the UW before applying to the major.

Suggested Introductory Course Work: At least 5 credits in each of the following areas: (a) English composition, (b) quantitative/symbolic reasoning, (c) Visual, Literary, & Performing Arts, (d) Individuals & Societies, and (e) the Natural World.

Major Requirements: 60 approved credits, including: (1) *Core requirements (30 credits):* SP CMU 102 (5); 10 credits from SP CMU 103 (5), 140 (5), 203 (5), or 220 (5); 5 credits from SP CMU 305 (5), 306 (5), or 476 (5); 5 credits from SP CMU 310 (5), 425 (5), or 426 (5); and SP CMU 400 (5). (2) *Electives (30 credits):* 15 credits of electives must be in courses at the 400 level, excluding SP CMU 400 and 499. (3) Cumulative GPA of 2.50 for all Speech Communication courses taken.

Minor

Minor Requirements: 30 credits including at least 5 credits in theory (SP CMU 102, 103, 203, 305, 306, 308, 310, 384, 385, 434, 455, 456, 471, 472, 474, 475, 476, 478); at least 5 credits in criticism (SP CMU 222, 329, 375, 382, 423, 424, 425, 426, 477); and at least 5 credits in practice (SP CMU 140, 220, 235, 301, 320, 334, 335, 341, 349, 368, 369, 373, 421, 440, 442, 444, 446, 473, 495). SP CMU 400 and 499 do not count toward the minor. Minimum 10 credits at the 400 level. Minimum grade of 2.0 required in each course applied to the minor.

Graduate Program

For information on the Department of Speech Communication graduate program, see the graduate and professional volume of the *General Catalog* or visit the *General Catalog* online at www.washington.edu/students/genocat/.

Faculty

Chair

Barbara P. Warnick

Professors

Baskerville, Barnet 1940, (Emeritus); MA, 1944, University of Washington; PhD, 1948, Northwestern University; public address, rhetorical criticism.

Bennett, W. Lance * 1974, (Adjunct); MPhil, 1973, PhD, 1974, Yale University; American politics, comparative politics, political communication, mass media, political culture.

Bosmajian, Haig A. * 1965, (Emeritus); PhD, 1960, Stanford University; rhetoric, freedom of speech.

Coney, Mary B. * 1976, (Adjunct); PhD, 1973, University of Washington; writing style and theories of technical communication, rhetoric, reader response theory.

Nilsen, Thomas R. 1946, (Emeritus); MA, 1948, University of Washington; PhD, 1953, Northwestern University; contemporary rhetorical theory, ethics of rhetoric.

Philipsen, Gerry F. * 1978; PhD, 1972, Northwestern University; ethnography of communication.

Scheidel, Thomas M. * 1976, (Emeritus); MA, 1955, PhD, 1958, University of Washington; communication theory and research, small group processes.

Stamm, Keith R. * 1973, (Adjunct); PhD, 1968, University of Wisconsin; communities and newspapers, political communication, communication and environmental problems.

Staton, Ann Q. * 1977; PhD, 1977, University of Texas (Austin); instructional communication.

Stewart, John R. * 1969; PhD, 1970, University of Southern California; philosophy of qualitative research and interpersonal communication.

Warnick, Barbara P. * 1980; PhD, 1977, University of Michigan; rhetorical theory and criticism.

Associate Professors

Manusov, Valerie L. * 1993; PhD, 1989, University of Southern California; the interplay between communication behaviors and cognitions in interpersonal interactions.

Parks, Malcolm R. * 1978; PhD, 1976, Michigan State University; communication theory, interpersonal communication, research methods.

Post, Robert M. * 1960; PhD, 1961, Ohio University; oral interpretation of literature.

Rivenburgh, Nancy * 1989, (Adjunct); MS, 1982, Boston University; PhD, 1991, University of Washington; international communications, the media, intercultural relations and identity, international news.

Assistant Professors

Ceccarelli, Leah M. * 1996; MA, 1992, PhD, 1995, Northwestern University; rhetoric of science, rhetorical criticism.

Gastil, John W. * 1997; PhD, 1994, University of Wisconsin; political participation and deliberative forms of democratic decision making.

Wulff, Donald H. * 1982, (Affiliate); PhD, 1984, University of Washington; communication in instructional settings, including interpersonal and small-group communication.

Senior Lecturer

Nyquist, Jody D. * 1966; MA, 1967, University of Washington; communication occurring in higher education and/or business/industry training units.

Lecturers

Coutu, Lisa 1990; PhD, 1996, University of Washington; culture and communication.

Zediker, Karen E. 1996; , PhD, 1995, University of Washington; philosophy of communication, instructional communication, conflict management.

Course Descriptions

See page 48 for an explanation of course numbers, symbols, and abbreviations.

For graduate-level course descriptions, see the graduate and professional study volume of the *General Catalog* or visit the online course catalog at www.washington.edu/students/crsca/.

SP CMU 102 Speech, the Individual, and Society (5) VLPA/I&S Provides a basic understanding of human speech communication. Covers three major areas: (1) the nature of human communication, including models, principles, settings; (2) elements of verbal and nonverbal communication; and (3) approaches to, and functions of, human communication including persuasion, interpersonal communication, argument, propaganda, free speech.

SP CMU 103 Interpersonal Communication (5) VLPA/I&S Emphasizes analyzing and understanding communication variables affecting human relationships, such as person perception, feedback, idea development, nonverbal cues. Focus on informal communication settings.

SP CMU 140 Oral Interpretation of Literature (5) VLPA Analysis and critical study of imaginative literature through the medium of oral performance in diverse cultural settings. Includes verse, prose, and drama.

SP CMU 203 Communication in the Classroom (5) VLPA/I&S Emphasizes understanding of the human communication process as it occurs in classrooms, as well as the practice of instructional communication. Designed to prepare prospective teachers to

structure productive learning environments and to interact effectively with diverse student populations. Recommended for teacher candidates and prospective teachers of any subject area.

SP CMU 220 Introduction to Public Speaking (5) VLPA/I&S Designed to increase competence in public speaking and the critique of public speaking. Emphasizes choice and organization of material, sound reasoning, audience analysis, and delivery.

SP CMU 222 Speech Communication in a Free Society (3) VLPA/I&S Problems and arguments related to freedom of speech; early English writers on freedom of expression; background of freedom of speech in the United States; contemporary freedom of speech issues.

SP CMU 235 Parliamentary Procedure (3) VLPA/I&S Principles and practice: a study of the historical bases and contemporary uses of parliamentary procedure; methods and practice in organizing and conducting public meetings.

SP CMU 301 Interviewing (5) VLPA/I&S Interviewing principles and practices, with emphasis on information gathering, selection, and persuasive interviews. Purposes and types of interviews, structure of interviews, and influence of communication patterns on interview outcomes.

SP CMU 305 Perspectives on Language in Speech Communication (5) VLPA/I&S Study of language and meaning, and survey of several influential modern approaches, including the semantic, general semantic, behavioral, and analytic philosophical. Relates theories of language and meaning to the study of speech communication.

SP CMU 306 Nonverbal Communication (5) VLPA/I&S Reviews the nature of nonverbal communication as part of the human message system. Discusses research on the types of cues that are part of the nonverbal system, reviews some communicative functions allowed by nonverbal cues (e.g., emotional expressions, relational messages, deception, coordination, or interaction), and ties nonverbal communication to language.

SP CMU 308 Social Approaches to Interpersonal Communication (5) VLPA/I&S Exploration of several social approaches to interpersonal communication, emphasizing the theorists' philosophical orientations and practical applications.

SP CMU 310 The Rhetorical Tradition in Western Thought (5) VLPA/I&S Analysis of the major theories that prescribe and describe the use of symbols to change attitudes and behavior. Principal emphasis is placed upon defining the nature and scope of rhetoric and upon analyzing the art's underlying assumptions about human beings as symbol users. Some background in history, philosophy, and literature is desirable.

SP CMU 320 Public Speaking (5) VLPA/I&S Practice in preparation and presentation of a variety of types of public speeches based on study of their structure and form; emphasis on organization and delivery. Prerequisite: SP CMU 220.

SP CMU 329 Rhetoric of Social and Political Movements (5) VLPA/I&S Inquiry into the rhetoric of social and political movements; emphasis on investigation of persuasive discourse; examination of the nonverbal symbols of persuasion.

SP CMU 334 Essentials of Argument (5) VLPA/I&S Argument as a technique in the investigation of social problems; evidence, proof, refutation, persuasion; training in argumentative speaking.

SP CMU 341 Oral Interpretation of Children's Literature (3) VLPA Study and performance of children's literature, emphasizing oral interpretation as a method of teaching literature in the elementary school.

SP CMU 349 Readers Theatre (2, max. 10) VLPA
Preparation and public presentation of programs of literary works. Credit/no credit only.

SP CMU 368 Small-Group Facilitation (3) VLPA/I&S Methods for facilitating discussion in small groups formed for the purposes of instruction. Emphasis is on each student's practical application of the insights derived. Corequisite: SP CMU 369; recommended: SP CMU 102.

SP CMU 369 Small-Group Facilitation Practicum (2) VLPA/I&S Implementation of the theoretical principles taught in 368. Emphasis on direct application of those principles to an assigned group of students from 102. Corequisite: SP CMU 368.

SP CMU 373 Principles of Group Discussion (5) VLPA/I&S Discussion as an everyday community activity, with emphasis on the informal cooperative decision-making methods of committee, conference, and roundtable groups.

SP CMU 375 Ethics in Interpersonal and Public Speech Communication (5) VLPA/I&S Ethical problems in interpersonal and public speech communication. Alternative ways of evaluating and responding to moral problems in a variety of communication situations.

SP CMU 382 Introduction to Communication Research (5) I&S Comprehensive introduction to research methods employed in basic and applied communication research, including sample surveys, content analysis, experimentation, and elementary statistics. Offered: jointly with CMU 382.

SP CMU 384 Cultural Codes in Communication (5) VLPA/I&S Social and cultural codes in interpersonal communication, with special reference to contemporary American subcultural groups and their communication patterns.

SP CMU 385 Fieldwork in Communication Studies (5) Theory and practice of participant observation, intensive interviewing, and discourse analysis in the study of communicative practices.

SP CMU 400 Theoretical Backgrounds in Speech Communication (5) VLPA/I&S Capstone course, surveying development of the discipline and describing and analyzing its contemporary emphases. Students link appropriate subdisciplinary research and applications to their own 2-5 year post-baccalaureate trajectories.

SP CMU 421 Advanced Speech Composition (5) VLPA/I&S Preparation and delivery of public speeches with emphasis on style, thought organization, and proof. Analysis of model speeches. Recommended: SP CMU 220.

SP CMU 423 Public Discourse on the Internet (5) I&S/VLPA Study of public advocacy and persuasion in internet environments, including public interest advocacy sites, political campaigns, advertisements, editorials, and essays. Various critical models applied to analyze narratives, style, argument structure, and credibility of internet discourse. Recommended: SP CMU 310, SP CMU 425, or SP CMU 426.

SP CMU 425 Historic American Public Discourse (5) VLPA/I&S Rhetorical criticism of historical public speeches, essays, and declarations. Includes readings of public texts in their historical and political context to increase understanding of those texts, their rhetorical construction, and the culture from which they arose. Covers the beginnings of the nation to the middle of the 20th century.

SP CMU 426 Contemporary American Public Discourse (5) VLPA/I&S Rhetorical criticism of contemporary public messages. Includes reading of public texts in their context to increase understanding of those texts, their rhetorical construction, and the culture from which they arose. Covers mid-20th century to the present.

SP CMU 434 Argumentation Theory (5) VLPA/I&S Theory and research on the structure and properties of argument, argument fields, argument modeling, the influence of audience, argument criticism, and related topics. Prerequisite: either SP CMU 220 or SP CMU 334.

SP CMU 440 Oral Interpretation of Poetry (3) VLPA Study of forms of verse, representing various literary movements and cultures, through analysis and oral presentation. Recommended: SP CMU 140.

SP CMU 442 Oral Interpretation of Fiction (3) VLPA Analysis and oral interpretation of narrative perspectives in diverse works of prose fiction. Recommended: SP CMU 140.

SP CMU 444 Oral Interpretation of Modern and Contemporary Dramatic Literature (3) VLPA Study of dramatic literature from Ibsen to the present for purposes of developing understanding, appreciation, and ability to communicate its meaning. Playwrights from various cultures represented. Recommended: SP CMU 140.

SP CMU 455 Communication in Children's Environments (5) VLPA/I&S Study of the communication capacity of children with emphasis on the analysis of the communication process in formal and informal learning environments. Includes examination of communication-based educational approaches and instructional strategies.

SP CMU 456 Communication in Adolescent Environments (5) VLPA/I&S Study of the communication process in youth environments with a primary focus on formal and informal learning. Includes critical analysis of communication in contemporary instructional settings and the development of communication strategies for teaching and learning.

SP CMU 471 Persuasion (3) VLPA/I&S Analysis of the ways in which beliefs, values, attitudes, and behavior are deliberately influenced through communication.

SP CMU 472 Empirical Approaches to Interpersonal Communication (5) I&S Examination of theories and research on the development and deterioration of interpersonal relationships. Emphasis on the nature of interpersonal interaction, the role of language and nonverbal communication in relationships, functional and dysfunctional interaction patterns, and the dynamics of interpersonal networks.

SP CMU 474 Communication, Conflict, and Cooperation (5) VLPA/I&S Role of communication in resolving informal conflicts and in facilitating interpersonal and intergroup cooperation. Review of empirical literature. In-class simulations and exercises.

SP CMU 475 Organizational Communication (5) VLPA/I&S Role of communication in organizations, the types of problems arising, and approaches to their resolution. Communication in the human relations and productivity of organizations. Applying communication skills in various organization roles.

SP CMU 476 Models and Theories in Speech Communication (5) I&S Examination of selected theories and models of speech communication as well as of criteria applicable to them. Emphasis on the nature and function of theories and models, especially as these relate to basic principles underlying the scientific, interpretive, and critical study of speech communication phenomena. Offered: jointly with CMU 476.

SP CMU 477 Political Deliberation (5) I&S Exploration of philosophical and empirical writings on political deliberation in small groups, campaigns, and other public settings. Contemporary deliberative theory. Participation in face-to-face discussions on current issues. Recommended: SP CMU 368, SP CMU 369, or SP CMU 373.

SP CMU 478 Intercultural Communication (5) I&S Investigates intercultural communication theory and its application for varying levels of human interaction: interpersonal, intergroup, and international. Recommended: SP CMU 384. Offered: jointly with CMU 421.

SP CMU 482 Computer-Mediated Interpersonal Communication (5) I&S Examination of relationships and groups formed through computer-mediated interpersonal communication. Focus on how people manage interactions and identities, develop interpersonal relationships, engage in collaboration and conflict, and develop communities in virtual environments. Involves both the study and use of network-based computer-mediated systems.

SP CMU 495 Internship Theory and Practicum (3-5, max. 5) Faculty-supervised study of communication principles in internship contexts. Readings to aid students in observations of communication concepts combined with individualized reading structured around topics of interest for each student.

SP CMU 496 Honors Seminar (5) VLPA/I&S Preparation for researching and writing senior honors thesis.

SP CMU 497 Honors Thesis (5, max. 15) VLPA/I&S Researching and writing honors thesis.

SP CMU 498 Special Topics in Speech Communication (2-5, max. 15) Lecture, seminar, and/or team study. Topics vary.

SP CMU 499 Undergraduate Research (1-5, max. 10)

Statistics

B313 Padelford



General Catalog Web page:
www.washington.edu/students/gencat/academic/statistics.html



Department Web page:
www.stat.washington.edu

Probability provides the conceptual foundation and mathematical language for the logic of uncertainty and induction. Statistics is concerned with procedures for the acquisition, management, exploration, and use of information in order to learn from experience in situations of uncertainty and to make decisions under risk. Statistical practice includes design of experiments and of sampling surveys; exploration, summarization, and display of observational data; drawing inferences, and assessing their uncertainty; and building mathematical models for systems with stochastic components.

By means of joint faculty appointments and joint research projects, courses, and seminars, the Department of Statistics maintains active academic contacts with the School of Business Administration; the College of Engineering; the departments of Applied Mathematics, Atmospheric Sciences, Cardiology, Computer Science, Economics, Genetics, Geological Sciences, Geophysics, Mathematics, Psychology, Radiology, Sociology, and Zoology; the National Research Center for Statistics and the Environment; the Quantitative Ecology and Resource Management program; the Center for Statistics and the Social Sciences; the Applied Physics Laboratory; the Applied Statistics Division of the Boeing Company; Microsoft Research; and the StatSci division of Math Soft. The department has an especially close relationship with the Department of Biostatistics; for example, the two departments are jointly developing new curricula in statistical genetics.

Undergraduate Program

Adviser
Kristin Sprague
B309 Padelford, Box 354322
(206) 543-8296

The Department of Statistics cooperates with the departments of Applied Mathematics, Computer Science and Engineering, and Mathematics in an interdepartmental Bachelor of Science degree program in Applied and Computational Mathematical Sciences. The program builds a broad foundation in the mathematical sciences and offers the option of specializing in statistics through choice of the Statistics option. Degree requirements can be found in the Applied and Computational Mathematical Sciences section.

The department also offers its own Bachelor of Science degree program. This program serves the need of future statisticians in science, industry, business, and government, as well as providing the necessary background and stimulation for graduate study. It is also well suited for double-majoring in statistics and, especially, either mathematics or computer science.

Bachelor of Science

Admission Requirements:

1. Completion of 45 credits, including MATH 124, 125, 126 (or 127, 128, 129); a minimum 8 credits from one of the following groups of courses: ASTR 101, 102, 190, 201, 301; CHEM 120, 142, 145, 152, 155; GENET 351, 372, 453, 455; PHYS 114, 115, 116, 117, 118, 119, 121/131, 122/132, 123/133, 210, 211, 212; and one course from STAT 220, 301, 311, 390, or an approved substitute. The 8 credits must be from within the same group (e.g., CHEM 142, 152).
2. Minimum grade of 2.0 in each of the above listed prerequisites and a cumulative GPA of 2.80 for these courses.

Students wishing to declare a statistics major must apply by contacting the adviser after prerequisites are completed and graded.

Suggested Introductory Course Work: CSE/ENGR 142; CSE 143; MATH 307, 308, 309, 327, 328. Additional courses in the sciences and quantitative methods. It is recommended that the student declare the major only after completion of STAT 341.

Major Requirements: MATH 124, 125, 126 (or 127, 128, 129); 307, 308, 309; 327, 328 (the honors sequences in calculus may replace the corresponding regular sequences); ENGR/CSE 142, CSE 143; one course from STAT 220, 301, 311, 390, or approved substitute (311 is recommended); 394, 395, followed by 341, 342, 421, 423. Electives (at least 9 credits): one upper-division course in statistics, mathematics, or computer science, plus two upper-division courses in any discipline (including but not limited to statistics, mathematics, and computer science), all subject to prior approval by the Statistics adviser. The first elective gives an opportunity to define the flavor of the major within these interrelated mathematical fields, and the other two give a chance to broaden the basis of the major into a special-interest area, chosen from the full range of upper-division courses offered at the University. However, three Department of Statistics courses is the most common choice. Any other choice must fit into an approved coherent plan. A minimum grade of 2.0 is required in all courses used to satisfy major requirements. A minimum cumulative GPA of 2.50 in required statistics courses is necessary.

Minor

Minor Requirements: MATH 124, 125, 126 (or 127, 128, 129); STAT 311 or approved substitute; 394, followed by 341, 342, 421 (or 423); one elective from the following choices: 395 (strongly recommended), 396, 403, 423, 427, 428, CSE/ENGR 142, MATH 307, 308, AMATH 351, 353. A minimum grade of 2.0 is required in each course used to satisfy minor requirements.

Graduate Programs

For information on the Department of Statistics graduate program, see the graduate and professional volume of the *General Catalog* or visit the *General Catalog* online at www.washington.edu/students/gencat/.

Faculty

Chair

Werner Stuetzle

Professors

Besag, Julian E. * 1989; BS, 1963, University of Birmingham (UK); spatial statistics, applications to epidemiology, image analysis, agriculture; inference via MCMC.

Birnbaum, Z. W. * 1939, (Emeritus); PhD, 1929, John Casimir State University (Poland); probability, mathematical statistics (distribution-free statistics, reliability theory).

Burdzy, Krzysztof * 1988, (Adjunct); PhD, 1984, University of California (Berkeley); probability theory.

Felsenstein, Joseph * 1968, (Adjunct); PhD, 1968, University of Chicago; evolution and population genetics.

Fleming, Thomas Richard * 1984; MA, 1974, PhD, 1976, University of Maryland; survival analysis, cancer clinical trials, AIDS research, sequential analysis.

Ford, E. David * 1985, (Adjunct); PhD, 1968, University College, London (UK); forest ecology and ecophysiology, crop growth, quantitative methods, philosophy of science.

Guttorp, Peter * 1980; PhD, 1980, University of California (Berkeley); point processes, stochastic models, applications in hydrology, atmospheric and environmental science.

Handcock, Mark S. 2000, (Acting); PhD, 1989, University of Chicago; spatial statistics.

Kronmal, Richard A. * 1964; PhD, 1964, University of California (Los Angeles); nonparametric density estimation, computer algorithms, cardiovascular data analysis, clinical trials.

Lunneborg, Clifford E. * 1962, (Emeritus); PhD, 1959, University of Washington; psychometrics, multivariate models, individual differences in cognition.

Martin, R. Douglas * 1974; PhD, 1969, Princeton University; robust methods, time series, wavelets and neural networks.

Nelson, Charles R. * 1975, (Adjunct); PhD, 1969, University of Wisconsin; econometric analysis of time series data, financial markets, monetary economics.

Perlman, Michael D. * 1979; PhD, 1967, Stanford University; multivariate analysis, graphical Markov models, decision theory, probability inequalities, convexity.

Raftery, Adrian Elmes * 1985; Doct, 1980, Universite De Paris VI (France); time series, Bayesian statistics, spatial statistics, population estimation, model selection.

Sampson, Paul D. * 1981, (Research); PhD, 1979, University of Michigan; spatial statistics and environmetrics, morphometrics, applied multivariate analysis.

Scholz, Friedrich-Wilhelm * 1972, (Affiliate); PhD, 1971, University of California (Berkeley); large sample theory, reliability, risk and tolerance analysis, bootstrap, extreme value theory.

Shorack, Galen * 1965; PhD, 1965, Stanford University; empirical processes, robustness, nonparametric statistics.

Siegel, Andrew F. * 1983, (Adjunct); MS, 1975, PhD, 1977, Stanford University; statistics, computing, corporate finance, investments, data analysis.

Stuetzle, Werner * 1984; PhD, 1977, Swiss Federal Institute of Technology; nonparametric methods in multivariate analysis, statistical applications of computer graphics.

Thompson, Elizabeth A. * 1985; PhD, 1974, Cambridge University (UK); statistical analysis of human genetic data, population genetics, statistics of conservation.

Wellner, Jon A. * 1983; PhD, 1975, University of Washington; large-sample theory, asymptotic efficiency, empirical processes, semiparametric models.

Associate Professors

Haynor, David R. * 1979, (Adjunct); PhD, 1971, University of California (Berkeley); MD, 1979, Harvard University; medical image processing and segmentation, image deformation, functional MRI, expression arrays.

Percival, Donald B. * 1979, (Affiliate); PhD, 1983, University of Washington; time series and signal analysis, computational environments, statistics of clocks.

Richardson, Thomas S. * 1996; PhD, 1996, Carnegie Mellon University; graphical models, algorithmic model selection, Bayesian inference, causal models.

Wakefield, Jonathan Clive * 1999; PhD, 1992, Nottingham University (United Kingdom); Bayesian data analysis, statistical methods in epidemiology, spatial epidemiology.

Zeh, Judith * 1982, (Research); PhD, 1979, University of Washington; estimation of whale population size and dynamics, statistics in infectious disease research.

Assistant Professors

Gneiting, Tilmann J. * 1997; PhD, 1997, Bayreuth University (Germany); spatial and environmental statistics, positive definite functions.

Stephens, Matthew 2000; PhD, 1997, University of Oxford (UK); statistical genetics.

Lecturer

Courbois, Jean-Yves Pip 1999; PhD, 2000, Oregon State University; survey methodology, design-based inference, interactive data visualization, data communication.

Course Descriptions

See page 48 for an explanation of course numbers, symbols, and abbreviations.

For graduate-level course descriptions, see the graduate and professional study volume of the *General Catalog* or visit the online course catalog at www.washington.edu/students/crscat/.

STAT 111 Lectures in Applied Statistics (1) NW
Weekly lectures illustrating the importance of statisticians in a variety of fields, including medicine and the biological, physical, and social sciences. Contact instructor for information on emphasized fields of applications. Credit/no credit only. Offered: jointly with BIOST 111; Sp.

STAT 220 Basic Statistics (5) NW, QSR Objectives and pitfalls of statistical studies. Structure of data sets, histograms, means, and standard deviations.

Correlation and regression. Probability, binomial and normal. Interpretation of estimates, confidence intervals, and significance tests. (Students may receive credit for only one of 220, 301, 311, and ECON 311.) Offered: AWSpS.

STAT 301 Basic Statistics with Applications (5) NW, QSR Objectives, pitfalls of statistical studies. Structure of data sets, histograms, means, standard deviations. Correlation, regression. Probability, binomial and normal. Interpretation of estimates, confidence intervals, significance tests. Application to problems in student's major field. (Students may receive credit for only one of 220, 301, 311, and ECON 311.) Offered: Sp.

STAT 311 Elements of Statistical Methods (5) NW, QSR Elementary concepts of probability and sampling; binomial and normal distributions. Basic concepts of hypothesis testing, estimation, and confidence intervals; t-tests and chi-square tests. Linear regression theory and the analysis of variance. (Students may receive credit for only one of 220, 301, 311, and ECON 311.) Prerequisite: either MATH 111, MATH 120, MATH 124, MATH 127, or MATH 144. Offered: AWSpS.

STAT 316 Regression Analysis and Design of Experiments (3) NW Introduction to the analysis of data from planned experiments. Analysis of variance and regression analysis with applications in engineering. Prerequisite: IND E 315. Offered: jointly with IND E 316.

STAT 341 Introduction to Probability and Statistical Inference I (4) NW Brief review of: sample spaces, random variables, probability. Distribution: binomial, normal, Poisson, geometric. Followed by: expectation, variance, central limit theorem. Basic concepts of estimation, testing, and confidence intervals. Maximum likelihood estimators and likelihood ratio tests, efficiency. Introduction to regression. Prerequisite: STAT/ECON 311; either MATH 126, MATH 129, or MATH 136; STAT/MATH 394. Offered: W.

STAT 342 Introduction to Probability and Statistical Inference II (4) NW Brief review of: sample spaces, random variables, probability. Distribution: binomial, normal, Poisson, geometric. Followed by: expectation, variance, central limit theorem. Basic concepts of estimation, testing, and confidence intervals. Maximum likelihood estimators and likelihood ratio tests, efficiency. Introduction to regression. Prerequisite: STAT 341. Offered: Sp.

STAT 361 Statistics for Social Scientists (3) NW Introduction to statistical methodology, measurement scales, design of surveys and experiments, descriptive statistics, exploratory data analysis, probability distributions, use of computer packages for statistical data analysis, point and interval estimation hypothesis testing. Comparisons, two sample tests, nonparametric methods, measuring and testing association, correlation, simple linear and multiple regression, time series, multivariate data analysis, analysis of variance (ANOVA) and analysis and covariance (ANCOVA). Computers used, but no prior experience required. Prerequisite: either STAT/ECON 311 or STAT 220. Offered: A.

STAT 362 Statistics for Social Scientists (3) NW Introduction to statistical methodology, measurement scales, design of surveys and experiments, descriptive statistics, exploratory data analysis, probability distributions, use of computer packages for statistical data analysis, point and interval estimation hypothesis testing. Comparisons, two sample tests, nonparametric methods, measuring and testing association, correlation, simple linear and multiple regression, time series, multivariate data analysis, analysis of variance (ANOVA) and analysis and covariance (ANCOVA). Computers used, but no prior experience required. Prerequisite: STAT 361. Offered: W.

STAT 390 Probability and Statistics in Engineering and Science (4) NW Concepts of probability and statistics. Conditional probability, independence, random variables, distribution functions. Descriptive statistics, transformations, sampling errors, confidence intervals, least squares and maximum likelihood. Exploratory data analysis and interactive computing. Students may receive credit for only one of 390, STAT/ECON 481, and ECON 580. Prerequisite: either MATH 126 or MATH 136. Offered: jointly with MATH 390; AWSpS.

STAT 394 Probability I (3) NW Sample spaces; basic axioms of probability; combinatorial probability; conditional probability and independence; binomial, Poisson and normal distributions, central limit theorem. Prerequisite: either 2.0 in MATH 126, 2.0 in MATH 129, or 2.0 in MATH 136; recommended: MATH 324 or MATH 327. Offered: jointly with MATH 394; AWS.

STAT 395 Probability II (3) NW Random variables; expectation and variance; laws of large numbers; normal approximation and other limit theorems; multidimensional distributions and transformations. Prerequisite: STAT/MATH 394. Offered: jointly with MATH 395; WSpS.

STAT 396 Probability III (3) NW Characteristic functions and generating functions; recurrent events and renewal theory; random walk. Prerequisite: either 2.0 in MATH 395 or 2.0 in STAT 395. Offered: jointly with MATH 396; Sp.

STAT 403 Introduction to Resampling Inference (4) NW Introduction to computer-intensive data analysis for experimental and observational studies in empirical sciences. Students design, program, carry out, and report applications of bootstrap resampling, rerandomization, and subsampling of cases. Credit allowed for 403 or 503 but not both. Prerequisite: either STAT 220, STAT 301, STAT/ECON 311, STAT 341, STAT 361, STAT/MATH 390, or STAT/ECON 481. Offered: Sp.

STAT 421 Applied Statistics and Experimental Design (4) NW Computer-aided data analyses using comparisons between batches, analysis of variance and regression. Evaluation of assumptions, data transformation, reliability of statistical measures (jackknife, bootstrap). Fisher-Gosset controversy. Prerequisite: either STAT 342, STAT/MATH 390, or STAT/ECON 481; recommended: MATH 308. Offered: A.

STAT 423 Applied Regression and Analysis of Variance (4) NW Regression analysis. Problems in interpreting regression coefficients. Estimation, including two-stage least squares. Guided regression: building linear models, selecting carriers. Regression residuals. Analysis of variance. Nonparametric regression. Factorial designs, response surface methods. Prerequisite: either STAT 342, STAT/MATH 390, STAT 421, or STAT/ECON 481; recommended: MATH 308. Offered: W.

STAT 427 Introduction to Analysis of Categorical Data (4) NW Techniques for analysis of count data. Log-linear models, logistic regression, and analysis of ordered response categories. Illustrations from the behavioral and biological sciences. Computational procedures. Prerequisite: either STAT 342, STAT 362, or STAT 421. Offered: alternate years.

STAT 428 Multivariate Analysis for the Social Sciences (4) NW Multivariate techniques commonly used in the social and behavioral sciences. Linear models for dependence analysis (multivariate regression, MANOVA, and discriminant analysis) and for interdependence analysis (principal components and factor analysis). Techniques applied to social science data using computer statistical packages. Prerequisite: either STAT 342, STAT 362, or STAT 421. Offered: alternate years.

STAT 480 Sampling Theory for Biologists (3) NW *Gallucci, Rustagi* Theory and applications of sampling finite populations including: simple random sampling, stratified random sampling, ratio estimates, regression estimates, systematic sampling, cluster sampling, sample size determinations, applications in fisheries and forestry. Other topics include sampling plant and animal populations, sampling distributions, estimation of parameters and statistical treatment of data. Prerequisite: Q SCI 482; recommended: Q SCI 483. Offered: jointly with Q SCI 480; even years.

STAT 481 Introduction to Mathematical Statistics (5) NW Probability, generating functions; the d-method, Jacobians, Bayes theorem; maximum likelihoods, Neyman-Pearson, efficiency, decision theory, regression, correlation, bivariate normal. (Credit allowed for only one of 390, 481, and ECON 580.) Prerequisite: STAT/ECON 311; either MATH 136 or MATH 126 with either MATH 308 or MATH 309. Offered: jointly with ECON 481; A.

STAT 486 Experimental Design (3) NW Topics in analysis of variance and experimental designs: choice of designs, comparison of efficiency, power, sample size, pseudoreplication, factor structure. Prerequisite: Q SCI 482; recommended: Q SCI 483. Offered: jointly with Q SCI 486.

STAT 491 Introduction to Stochastic Processes (3) NW Random walks, Markov chains, branching processes, Poisson process, point processes, birth and death processes, queuing theory, stationary processes. Prerequisite: 2.0 in MATH/STAT 396. Offered: jointly with MATH 491; A.

STAT 492 Introduction to Stochastic Processes (3) NW Random walks, Markov chains, branching processes, Poisson process, point processes, birth and death processes, queuing theory, stationary processes. Prerequisite: 2.0 in MATH/STAT 491. Offered: jointly with MATH 492; W.

STAT 498 Special Topics (1-5, max. 15) NW Reading and lecture course intended for special needs of students. Offered: when demand is sufficient.

STAT 499 Undergraduate Research (1-5, max. 15) Offered: AWSpS.

Summer Arts Program

Course Descriptions

See page 48 for an explanation of course numbers, symbols, and abbreviations.

For current course descriptions, visit the online course catalog at www.washington.edu/students/crscat/.

ARTS 150 Experiencing the Arts (1-5, max. 15) VLPA Investigates several art forms through readings, lecture, discussion, and attendance at artistic presentations. Topics vary. Offered: S.

ARTS 350 Arts in Collaboration (1-5, max. 10) VLPA Collaboratively taught workshop for students from multiple artistic disciplines involving interactive development of a performance work to be presented in the Summer Arts Festival. Topics vary.

Women Studies

B110 Padelford



General Catalog Web page:
www.washington.edu/students/genocat/academic/women_studies.html



Department Web page:
depts.washington.edu/webwomen/

Women Studies is an interdisciplinary department that offers students a cohesive framework for the study of women's and men's lives within historical and contemporary contexts, and from multi-disciplinary, multi-cultural, and international perspectives. As a field of inquiry, Women Studies challenges traditional scholarship about human societies and fosters the construction of new theoretical and methodological approaches to understanding diverse experiences and realities.

Undergraduate Program

Adviser

B110C Padelford, Box 354345
 (206) 543-6900
womenst@u.washington.edu

The Department of Women Studies offers a program of study leading to a Bachelor of Arts degree, as well as a minor. Students select a variety of courses offering breadth in Women Studies scholarship, while pursuing concentrated study in a particular track, such as women and arts; gender, race, ethnicity, women, and health; and women and the law; or self-designed programs.

Bachelor of Arts

Admission: Any student with a cumulative GPA of at least 2.00 can declare this major at any time.

Suggested Introductory Course Work: WOMEN 200, and any of the following: WOMEN 206, 250, 257, 283.

Major Requirements: WOMEN 200 or equivalent; one of the following: 206, 250, 257, 283, or transfer equivalent; 322 or 456 (may overlap with track or upper-division requirement); 455; senior-thesis sequence of 491, 492, and 493; 497 fieldwork; and 15 additional upper-division credits (excludes independent-study course options and may include ENGL 367 or 368). A 25-credit interdisciplinary focus of study called an option is also required. Options can include up to 15 credits of upper-division courses from other departments. Students may select pre-approved options or design an option specific to their academic interest in consultation with the Women Studies adviser.

Minor

Minor Requirements: 30 credits to include WOMEN 200; one of the following: 206, 250, 257, or 283 or transfer equivalent; 322 or 456; 15 additional upper-division credits in women studies (excludes independent-study courses, but ENGL 367 and 368 may be included).

Graduate Program

For information on the Department of Women Studies graduate program, see the graduate and professional volume of the *General Catalog* or visit the *General Catalog* online at www.washington.edu/students/genocat/.

Faculty

Chair

Shirley J. Yee

Professors

Allen, Carolyn * 1972, (Adjunct); MA, 1966, Claremont Graduate School; PhD, 1972, University of Minnesota; twentieth-century literature, women writers, contemporary critical theory.

Allen, David G. * 1988, (Adjunct); PhD, 1975, University of Iowa; philosophy of science, critical and feminist theory, psychosocial nursing theory.

Baldasty, Gerald J. * 1974, (Adjunct); MA, 1974, University of Wisconsin; PhD, 1978, University of Washington; communications history, media and gender, race, government-press relations.

Barlow, Tani E. * 1994; MA, 1979, PhD, 1985, University of California (Davis); history of modern China, gender studies, feminist theory, historiography.

Bereano, Philip L. * 1975, (Adjunct); JD, 1965, Columbia University; MRP, 1971, Cornell University; technology assessment, biotech policies, policy and technology, social values, citizen participation.

Blake, Kathleen * 1971, (Adjunct); PhD, 1971, University of California (San Diego); Victorian literature, children's literature, women's studies.

Boersma, P. Dee * 1974, (Adjunct); PhD, 1974, Ohio State University; ecology and conservation biology, reproductive strategies, colonial seabird biology.

Butler, Johnella E. * 1987, (Adjunct); EdD, 1979, University of Massachusetts; Afro-American and multicultural studies, comparative American ethnic literature, African diaspora.

Cauce, Ana Mari * 1986, (Adjunct); PhD, 1984, Yale University; community/developmental psychology, socialization of children/adolescents of color, ethnic identity.

Clatterbaugh, Kenneth C. * 1966, (Adjunct); PhD, 1966, Indiana University; modern philosophy, social philosophy, gender studies.

Glenn, Susan A. * 1993, (Adjunct); PhD, 1983, University of California (Berkeley); twentieth-century U.S. social and cultural history including women's history.

Goldsmith, Layne * 1983, (Adjunct); MA, 1975, San Jose State College; MFA, 1979, Cranbrook Academy of Art; fiber arts and related historic and contemporary textile structures and processes.

Gorbman, Claudia L. * 1990, (Adjunct); PhD, 1978, University of Washington; film studies: history, theory, criticism; film sound and music.

Gordon, Margaret T. * 1988, (Adjunct); PhD, 1972, Northwestern University; news media and public policy, trust in government, urban policy.

Graham, Katherine J. 1988, (Adjunct); MN, 1967, PhD, 1978, University of Washington; quality of life across life, work; health systems.

Hartsock, Nancy C. M. * 1984, (Adjunct); PhD, 1972, University of Chicago; feminist theory, Marxism, contemporary political theory.

Howard, Judith A. * 1982, (Adjunct); PhD, 1982, University of Wisconsin; social psychology, sociology of gender, intersections of race/class/gender/sexuality.

Jacobs, Sue-Ellen * 1974; PhD, 1970, University of Colorado (Boulder); anthropological studies of women, applied anthropology, ethnohistory, Native North America.

Jeffords, Susan E. * 1985; MA, 1977, PhD, 1981, University of Pennsylvania; feminist theory, American popular culture, and the representation of Vietnam.

Kaplan, Sydney J. * 1971, (Adjunct); PhD, 1971, University of California (Los Angeles); twentieth-century literature, women writers, feminist criticism.

Lawson, Victoria A. * 1986, (Adjunct); PhD, 1986, Ohio State University; Latin America, critical development studies, feminist geography.

Lebsock, Suzanne D. * 1995, (Adjunct); MA, 1973, PhD, 1977, University of Virginia; history of women, American social history, history of the American South.

McElroy, Colleen J. * 1972, (Adjunct); PhD, 1973, University of Washington; Black literature, women writers, poetry writing.

Richey, Cheryl A. * 1973, (Adjunct); DSW, 1974, University of California (Berkeley); cultural and gender issues, intervention design and research.

Schauman, Sally * 1979, (Adjunct); MS, 1971, University of Michigan; landscape ecology, stressed landscapes, countryside conservation.

Schwartz, Pepper J. * 1972, (Adjunct); PhD, 1974, Yale University; family, gender, human sexuality, field methods.

Silberstein, Sandra V. * 1982, (Adjunct); PhD, 1982, University of Michigan; TESL, critical theory, discourse analysis, sociolinguistics, language and culture.

Sokoloff, Naomi B. * 1985, (Adjunct); PhD, 1980, Princeton University; Hebrew language and literature.

Steele, Cynthia 1986, (Adjunct); PhD, 1980, University of California (San Diego); Latin American literature and cultural studies; Mexican literature, film, and photography.

Treat, John W. * 1983, (Affiliate Adjunct); PhD, 1982, Yale University; Japanese language and literature.

Woods, Nancy * 1978, (Adjunct); PhD, 1978, University of North Carolina; women's health.

Associate Professors

Anagnost, Ann S. * 1990, (Adjunct); PhD, 1985, University of Michigan; ethnography of the state, ideology and popular culture, peasant society; China.

Brines, Julie E. * 1993, (Adjunct); PhD, 1990, Harvard University; gender, stratification, family, methods.

Cabeen, Louise * 1993, (Adjunct); MFA, 1989, The School of Art Institute Of Chicago; socially critical art with research specialties in textile history and techniques.

Cummings, Katherine * 1985, (Adjunct); PhD, 1985, University of Wisconsin; feminist, psychoanalytic, and literary theory, modern and contemporary literature.

Di Stefano, Christine * 1985, (Adjunct); PhD, 1984, University of Massachusetts; political theory (modern and contemporary), feminist theory, political culture.

Dubois, Thomas A. * 1990, (Adjunct); PhD, 1990, University of Pennsylvania; Nordic folklore and mythology, Finnish, Sami.

Dubrow, Gail Lee * 1989, (Adjunct); MA, 1979, University of Oregon; PhD, 1991, University of California (Los Angeles); preservation, urban design, public art, public history, gender, multiculturalism.

England, Kim V. L. 1999, (Adjunct); MA, 1984, PhD, 1988, Ohio State University; feminist geographies, labor markets, social identities and space.

Friedman, Kathie * 1987, (Adjunct); MA, 1979, Other, 1990, State University of New York (Binghamton); sociology of gender, immigration, race, and ethnicity in the U.S.

Gavel-Adams, Ann-Charlotte * 1986, (Adjunct); PhD, 1990, University of Washington; August Strindberg, Scandinavian women's literature, Scandinavian turn-of-the-century drama and art.

Ginorio, Angela B. * 1981; PhD, 1979, Fordham University; women and/in science, violence and women, socially defined identities, psychology issues for Latinas.

Heuving, Jeanne D. * 1990, (Adjunct); PhD, 1988, University of Washington.

Ingebritsen, Christine * 1992, (Adjunct); PhD, 1993, Cornell University; politics, international political economy, European integration, environmental policy.

Jarosz, Lucy A. * 1990, (Adjunct); PhD, 1990, University of California (Berkeley); political economy of development, food and agriculture, feminist geography, political ecology.

Kenney, Nancy J. * 1976; PhD, 1974, University of Virginia; neural and endocrine controls of food and fluid intake, physiological basis of motivation.

Klawitter, Marieka * 1990, (Adjunct); MS, 1986, PhD, 1992, University of Wisconsin; family and employment policy, sexual orientation, women's studies.

Magyary, Diane L. * 1981, (Adjunct); PhD, 1981, University of Washington; family centered health care of children at risk, disabled or handicapped.

Mitchell, Katharyne 1993, (Adjunct); PhD, 1993, University of California (Berkeley); urban, cultural and economic geography, Pacific Rim, migration, transitional studies.

Moody, Joycelyn K. * 1991, (Adjunct); MA, 1980, University of Wisconsin; PhD, 1993, University of Kansas; nineteenth-century American, African-American, and women's literature, autobiography.

Noble, Kathleen D. * 1984, (Research); PhD, 1984, University of Washington; feminist talent development, spirituality and mental health, feminist psychological theory.

Rhodes, Lorna A. * 1983, (Adjunct); PhD, 1973, Cornell University; medical anthropology, anthropology of institutions, religion, psychiatry.

Roberts, Jean Valerie * 1992, (Adjunct); PhD, 1982, University of Pittsburgh; ancient philosophy, ethics, philosophy of feminism.

Ross, Luana K. 1999; MSW, 1981, Portland State University; PhD, 1992, University of Oregon; criminology/deviance, race/ethnic relations and gender, documentary film.

Salas, Elizabeth 1987, (Adjunct); MA, 1977, California State University, Los Angeles; PhD, 1987, University of California (Los Angeles); New Mexican history and politics, Chicana, Mexicana and Chicano history, minorities in the military.

Sears, Laurie J. * 1989, (Adjunct); PhD, 1986, University of Wisconsin; Southeast Asia, historiography.

Simpson, Caroline Chung * 1994, (Adjunct); MA, 1989, University of Houston; PhD, 1994, University of Texas (Austin); Asian American literature and culture, post-war fiction and film.

Stacey, Robin C. * 1988, (Adjunct); PhD, 1986, Yale University; medieval history, Celtic.

Stecher Hansen, Marianne T * 1988, (Adjunct); MA, 1981, University of Washington; PhD, 1990, University of California (Berkeley); Danish language and literature, Scandinavian literature.

Stygall, Gail * 1990, (Adjunct); PhD, 1989, Indiana University; rhetoric and composition, English language linguistics, law and literature.

Twine, France Winddance 1994; MA, 1990, PhD, 1994, University of California (Berkeley); critical race feminisms, racism/antiracism, whiteness studies, multiracial families, Brazil, Britain.

Ward, Deborah * 1987, (Adjunct); PhD, 1987, Boston University; health policy and politics, women's paid and unpaid caregiving work.

Yee, Shirley J. * 1988; PhD, 1987, Ohio State University; U.S. women's history, African-American history, nineteenth-century U.S. social history.

Assistant Professors

Boyer, Debra 1988, (Affiliate); PhD, 1986, University of Washington; feminist research methodology, policy and evaluation issues, urban applied anthropology.

Dong, Yue 1996, (Adjunct); MA, 1991, University of Oregon; PhD, 1996, University of California (San Diego); late 19th and 20th century China, social and cultural history, urban history, gender studies.

Ensign, B. Josephine * 1994, (Adjunct); MS, 1986, Virginia College of Medicine; MPH, 1992, DPH, 1994, Johns Hopkins University; community-based health service for adolescents.

Khanna, Ranjana * 1996, (Adjunct); PhD, 1993, York University (Canada); postcolonial theory, transnational feminism, twentieth-century writing.

Ostmeier, Dorothee * 1993, (Adjunct); PhD, 1993, Johns Hopkins University; eighteenth and twentieth century literature and philosophy, critical theory, German studies.

Ramamurthy, Priti * 1997; PhD, 1995, Syracuse University; political economy of development, third-world feminism, irrigation, agro-food systems, South Asia.

Rose, Elaine 1993, (Adjunct); PhD, 1993, University of Pennsylvania; labor, development, applied microeconomics.

Schroeder, Carole A. 1993, (Adjunct); MSN, 1985, University of Nevada; PhD, 1993, University of Colorado (Denver); women's health, community health, models of care delivery, health care systems.

Sunindyo, Saraswati * 1993; PhD, 1993, University of Wisconsin; feminism and nationalism, comparative women's movements, Southeast Asia.

Taylor, Janelle S. * 1999, (Adjunct); PhD, 1999, University of Chicago; anthropology of medicine, science, and technology; reproduction; gender; consumption.

Thomas, Lynn M. * 1997, (Adjunct); MA, 1989, Johns Hopkins University; MA, 1993, Northwestern University; PhD, 1997, University of Michigan; Africa, cultural and social.

Weinbaum, Alys E. * 1998, (Adjunct); PhD, 1998, Columbia University; 19th and 20th century American and European literature.

Woody, Andrea I. * 1997, (Adjunct); PhD, 1997, University of Pittsburgh; philosophy of science, history of science, philosophy of feminism.

Lecturer

Tupper, Kari Lynn 1988; PhD, 1997, University of Washington; literature and law, American studies, women writers.

Course Descriptions

See page 48 for an explanation of course numbers, symbols, and abbreviations.

For graduate-level course descriptions, see the graduate and professional study volume of the *General Catalog* or visit the online course catalog at www.washington.edu/students/crsat/.

WOMEN 200 Introduction to Women Studies (5) I&S Feminist analysis of the construction and enforcement of gender differences and gender inequalities in various contexts. Emphasis on the intersection of race, class, sexuality, and nationality in the lives of women. Topics include feminist theory, motherhood, popular culture, sexual autonomy, racism, and activism in the United States, Asia, Latin America. Offered: AWSpS.

WOMEN 206 Philosophy of Feminism (5) I&S Philosophical analysis of the concepts and assumptions central to feminism. Theoretical positions within

the feminist movement; view of the ideal society, goals and strategies of the movement, intersections of the sex-gender system with other systems of oppression. Offered: jointly with PHIL 206/POL S 212.

WOMEN 257 Psychology of Gender (5) I&S *Kenney* Major psychological theories of gender-role development; biological and environmental influences that determine and maintain gender differences in behavior; roles in children and adults; topics include aggression, cognitive abilities, achievement motivation, affiliation. Recommended: either PSYCH 101, PSYCH 102, or WOMEN 200. Offered: jointly with PSYCH 257; A.

WOMEN 283 Introduction to Women's History (5) I&S Includes units on American, European, and Third World women that examine centers of women's activities, women's place in male-dominated spheres (politics), women's impact on culture (health, arts), and the effect of larger changes on women's lives (technology, colonization). Offered: jointly with HIST 283; A.

WOMEN 305 Feminism in an International Context (5) I&S *Ramamurthy, Sunindyo* Women and feminism from global theoretical perspectives. Critical theoretical ways of thinking about feminism. How women are differently situated throughout the world. How they are represented affects women's agency. Focus on how race and gender affect one another. Representations of and by women throughout the world.

WOMEN 310 Women and the Law (5) I&S Examines how law addresses women, how the courts have made attempts to address women of color, poor women, lesbians, and women with disabilities. Topics include constitutional construction of equality, employment discrimination, reproductive rights, regulation of sexuality, families and motherhood, sexual harassment, violence against women and international women and human rights.

WOMEN 313 Women in Politics (5) I&S *DiStefano* Theoretical, historical, and empirical studies of women's participation in political and social movements. Women's diverse efforts to improve their political, social, and economic status. Policy issues of particular concern to women. Women's political experiences in household, local, regional, national, and international arenas Offered: jointly with POL S 313.

WOMEN 322 Race, Class, and Gender (5) I&S *Ramamurthy, Sunindyo* The intersection of race, class, and gender in the lives of women of color in the United States from historical and contemporary perspectives. Topics include racism, classism, sexism, activism, sexuality, and inter-racial dynamics between women of color groups. Offered: jointly with AES 322.

WOMEN 333 Gender and Globalization: Theory and Process (5) I&S *Ramamurthy* Theoretical, historical, and empirical analysis of how current processes of globalization are transforming the actual conditions of women's lives, labor, gender ideologies, and politics in complex and contradictory ways. Topics include feminist exploration of colonialism, capitalism, economic restructuring policies, resistance in consumer and environmental movements. Offered: jointly with SIS 333.

WOMEN 342 Pueblo Indian Women of the American Southwest (5) I&S *Jacobs* Examination of historical, archaeological, and anthropological writings about Native women of Pueblo homelands in New Mexico and Arizona. Emphasis on contemporary lives in modern upper Rio Grande Tewa Pueblos. Recommended: WOMEN 200; either AIS 201, AIS 202, AIS 240, AIS 317, WOMEN 353, or ANTH 353. Offered: jointly with AIS 342.

WOMEN 345 Women and International Economic Development (5) I&S *Ramamurthy* Questions how women are affected by economic development in Third World and celebrates redefinitions of what development means. Theoretical perspectives and methods to interrogate gender and development policies introduced. Current processes of globalization and potential for changing gender and economic inequalities assessed. Offered: jointly with ANTH 345/ SIS 345.

WOMEN 350 Women in Law and Literature (5) VLPA, I&S *Tupper* Representations of women in American law and literature. Considers how women's political status and social roles have influenced legal and literary accounts of their behavior. Examines how legal cases and issues involving women are represented in literary texts and also how law can influence literary expression. Offered: jointly with CHID 350.

WOMEN 353 Anthropological Studies of Women (5) I&S *Jacobs* Critical examination of the intersections between anthropology, research on gender issues, and feminism. Readings and class discussions examine the ways women have been represented in the field of anthropology and the repercussions of these anthropological images of women on contemporary understandings of gender. Offered: jointly with ANTH 353; W.

WOMEN 354 Lesbian Lives and Culture (5) I&S An exploration and overview of lesbianism in historical, social, cultural, and interpersonal contexts. Prerequisite: either WOMEN 200 or WOMEN 206.

WOMEN 355 Men and Masculinity (5) I&S *Clatterbaugh* Critical study of systematic responses of men to feminist movements, including conservative, pro-feminist, men's rights, mythopoetic, and religious responses. How men of color and gay men view these various men's movements and their issues. Special attention given to philosophical problems such as nature of oppression, human nature, justice, and masculinity. Recommended: WOMEN 200.

WOMEN 357 Psychobiology of Women (5) NW *Kenney* Physiological and psychological aspects of women's lives: determinants of biological sex; physiological and psychological events of puberty, menstruation, and menopause; sexuality; pregnancy, childbirth; the role of culture in determining the psychological response to the physiological events. Recommended: PSYCH/WOMEN 257. Offered: jointly with PSYCH 357; WS.

WOMEN 383 Social History of American Women (5) I&S *Yee* Survey of United States women, sixteenth century to present: critical analysis of the production of female images and their relationship to women's unpaid work; participation in paid labor force; charitable, reform activities; feminist movements of the nineteenth and twentieth centuries. Use of primary materials, i.e., diaries, letters, speeches, artifacts. Recommended: WOMEN 200, WOMEN 283, or HSTAA 201. Offered: jointly with HSTAA 373; W.

WOMEN 392 Asian-American Women (5) I&S *Root* History of and contemporary issues related to Asian-American women in the United States. Recommended: AAS 205 or AAS 206. Offered: jointly with AAS 392.

WOMEN 405 Comparative Women's Movements and Activism (5) I&S *Sunindyo* Comparative cultural, national, and historical study of women's movements and activism. Critically analyzes multiple arenas of women's movements and resistance. Topics include feminist anti-racism, pre-nationalism and nationalism, economics, electoral politics, women's and human rights, and international/transnational feminisms. Prerequisite: either WOMEN 205, WOMEN 305, or SOC 364.

WOMEN 415 Gender and Education (5) I&S Gender bias, discrimination, and gender-equity efforts in education. Includes curriculum instruction, instructional materials, testing, counseling, athletics, teacher education, educational employment issues, and sexual harassment. Relevant federal and state laws, court decisions, and strategies for promoting gender equity also addressed. Recommended: WOMEN 200 or SOC 110. Offered: jointly with EDC&I 440; S.

WOMEN 424 Women in Midlife (5) I&S Explores women's lives, experiences, and concerns in the middle years. Topics include physical and physiological changes; psychological development; representations and treatment of midlife women in literature, media, and other institutions; economics of aging; crosscultural and subcultural differences in the aging process; the synergistic effects of sexism and ageism on women.

WOMEN 425 Femininity, Feminism, and Antifeminism in Popular Culture (5) VLPA/I&S *Twine* Explores shifting meanings and reconfigurations of femininity, feminism, and antifeminism in United States popular culture. Analyzes the incorporation and transformation of feminist critiques of dominant ideologies into popular culture. Popular forms examined may include television serials, music videos, advertisements, films, and novels. Prerequisite: WOMEN 200.

WOMEN 427 Women and Violence (5) I&S *Ginorio* Multi-disciplinary explorations of the continuum of violence which affects women's lives, ranging from experience in personal settings (family violence) to cultural or state policies (prisons, wars). Violence against women explored in the context of societal, political, and state violence. Recommended: WOMEN 200.

WOMEN 429 Scandinavian Women Writers in English Translation (5) VLPA *Gavel-Adams* Selected works by major Scandinavian women writers from mid-nineteenth-century bourgeois realism to the present with focus on feminist issues in literary criticism. Offered: jointly with SCAND 427.

WOMEN 440 Reading Native American Women's Lives (5) I&S *Jacobs, Ross* Seminar based on social science writings, autobiographies, biographies, and fiction written by, with, or about indigenous women of the United States and Canada. Prerequisite: either WOMEN 342, WOMEN 423, AIS 201, AIS 330, or AIS 423. Offered: jointly with AIS 440.

WOMEN 442 Images of Natives in the Cinema and Popular Cultures (5) I&S/VLPA *Ross* Cultural examination of images of native people in cinema and popular culture based on social science writings and films by or about natives in the United States and Canada. Offered: jointly with AIS 442. Prerequisite: AIS 330 and WOMEN 200.

WOMEN 447 Economics of Gender (5) I&S *Rose* Microeconomic analysis of the sources of gender differences in earnings, labor force participation, occupational choice, education, and consumption. Economic theories of discrimination, human capital, fertility and intrahousehold resource allocation. Economics of the family in developed and developing countries. Prerequisite: ECON 300. Offered: jointly with ECON 447.

WOMEN 450 Language and Gender (5) I&S, VLPA *Bilaniuk* Survey of the theoretical trends, methods, and research findings on the relationship between language and gender. Focus on power relations in gendered language use. Extensive study of research based on conversational analysis and other aspects of identity such as sexuality, class, and age. Prerequisite: LING 200; either LING 201, LING 203, or ANTH 203. Offered: jointly with ANTH 450 and LING 458.

WOMEN 454 Women, Words, Music, and Change (5) VLPA/I&S *Jacobs* Comparative analysis of use of myths, tales, music, and other forms of expressive culture to account for, reinforce, and change women's status and roles. Recommended: WOMEN 353. Offered: jointly with ANTH 454.

WOMEN 455 Contemporary Feminist Theory (5) I&S *Barlow* Raises the question of how political contexts condition the way some ideas become theory. Emphasizes the present crises in thinking about a transnational feminism.

WOMEN 456 Feminism, Racism, and Anti-Racism (5) I&S *Twine* Examines meaning of racism and feminism in women's lives in an international context. Building upon an analysis of racial hierarchies and institutionalized racism, explores strategies used by women engaged in feminist and anti-racist activism. Prerequisite: WOMEN 200.

WOMEN 458 Ideologies and Technologies of Motherhood (5) I&S *Twine* Examines how motherhood is culturally constituted, regulated, and managed within various ideological and technological milieus. Uses ethnographies from anthropology and case studies from feminist legal theory. Topics include slave mothers, surrogate mothers, lesbian mothers, transracial mothers, co-mothers, teen mothers. Prerequisite: WOMEN 200. Offered: jointly with ANTH 484.

WOMEN 462 Isak Dinesen and Karen Blixen (5) VLPA *Stecher-Hansen* The fiction of Isak Dinesen (pseudonym for Karen Blixen) reevaluated in light of current issues in literary criticism, particularly feminist criticism. Close readings of selected tales, essays, and criticism. Offered: jointly with SCAND 462.

WOMEN 468 Latin American Women (5) VLPA/I&S *Steele* The elaboration of discourses of identity in relation to gender, ethnicity, social class, and nationality, by women writers from South America, Mexico, Central America, and the Caribbean. Testimonial literature, literature and resistance, women's experimental fiction. Prerequisite: SPAN 303; SPAN 321; one additional 300-level course above SPAN 303. Offered: jointly with SPAN 468.

WOMEN 485 Issues for Ethnic Minorities and Women In Science and Engineering (3/5) I&S Addresses issues faced by women and ethnic minorities in physical sciences and engineering. Focuses on participation, barriers to participation, and solutions to those issues for women and ethnic minorities in physical sciences and engineering. Offered: jointly with PHYS 451.

WOMEN 488 Women and Science (5) I&S *Ginorio* Explores science as a method of inquiry and as a profession while also expanding knowledge about women through the use of biographies of women scientists, discipline-based and feminist critiques, and the psycho-social concept of socially defined identities. Recommended: one Women Studies course and one college-level science course.

WOMEN 489 Ethnicity, Gender, and Media (5) I&S *Baldasty* Media portrayal of women and people of color; creation of alternative media systems by women and people of color in the United States. Offered: jointly with CMU 489/AES 489.

WOMEN 490 Special Topics in Women Studies (2-5, max. 15) I&S Exploration of specific problems and issues relevant to the study of women. Offered by visiting or resident faculty members. Primarily for upper-division and graduate students.

WOMEN 491 Senior Thesis I (3) I&S Introductory course of the senior thesis sequence required of all majors. Students attend a weekly seminar, select a thesis topic, and contract with an appropriate faculty adviser. Successful completion of the course is contingent on submission of an acceptable thesis proposal. Majors and senior standing only. Offered: A.

WOMEN 492 Senior Thesis II (3) I&S Second course in senior thesis sequence required of majors. Majors and seniors only. Prerequisite: WOMEN 491. Offered: W.

WOMEN 493 Senior Thesis III (4) I&S Research and writing of thesis under supervision of a faculty member. Required of all majors. Prerequisite: WOMEN 492. Offered: AWSpS.

WOMEN 495 Tutoring Women Studies (5) Students train to serve as tutors in designated courses. Facilitate weekly group discussions, assist with writing assignments, explain course materials. Credit/no credit only.

WOMEN 497 Fieldwork in Women Studies (1-15, max. 15) Internships in local agencies. Allows development of specific skills in area of specialization. Credit/no credit only. Offered: AWSpS.

WOMEN 499 Undergraduate Research (1-5, max. 10) Independent study and research supervised by a faculty member with appropriate academic interest. Offered: AWSpS.

Zoology

106 Kincaid



General Catalog Web page:
www.washington.edu/students/gencat/academic/zoology.html



Department Web page:
www.zoology.washington.edu

Zoology is a natural science concerned primarily with animals: their development, structure, and function, and their relationship with their environments.

Zoology field courses are offered both at the main campus and at the Friday Harbor Laboratories. See individual course listings for location.

Undergraduate Program

Advisers

Leal Dickson
Thomas Freng
Kimberly Swayze
Michelle Townsend
318 Hitchcock, Box 355320
(206) 543-9120
bioladv@u.washington.edu

The department offers two degree programs. The Bachelor of Science provides a solid foundation in the biological and physical sciences in preparation for careers in biology and for graduate study. The Bachelor of Arts program has fewer requirements and is a good option for liberal arts students and those preparing for careers in biology not requiring math or physics.

A liberal arts degree in zoology is applicable to many different fields, depending upon student interests. Students in the program gain analytical and laboratory skills that prepare them for entry-level positions in a variety of biologically related areas, including but not limited to biotechnology, laboratory or field research support, health science support, wildlife biology, and ecology and conservation work. Students may also continue their education in professional schools (for instance, in medicine, veterinary science, dentistry, law, or medical technology), or in graduate programs that focus on some aspect of biological science (such as zoology, genetics, ecology, environmental health, wildlife sciences, and cell and molecular biology).

Bachelor of Science

Admission: One of the following: BIOL 201 with a minimum grade of 2.5; BIOL 201, 202, 203 with a cumulative GPA of 2.00 for the three courses; or BIOL 101, 102 with a grade of 2.5 in each course. A minimum cumulative GPA of 2.00 is required for all courses to be applied toward the major (including all required chemistry, physics, mathematics, and biological-science courses).

Suggested Introductory Course Work: BIOL 101-102 or 201, 202, 203; CHEM 120, 220, 221, or 142, 152, 162, 223, 224; one of the following pairs: MATH 124, 125; 127, 128; 144, 145; Q SCI 291, 292; 482, 483; one of the following sequences: PHYS 114, 115 or 121/131, 122/132.

Major Requirements: A minimum of 90 credits distributed as follows: (1) *Supporting course work* (minimum of 38 credits): (a) Chemistry (minimum of 20 credits): Option 1: CHEM 120, 220, 221, 250, or Option 2: CHEM 142, 152, 162, and 223, 224 (or 237, 238, 239); (b) Physics (8 to 10 credits): PHYS 114 or 121/131, and 115 or 122/132; (c) Mathematics (10 credits): MATH 124, 125, or MATH 127, 128, or MATH 144, 145, or Q SCI 291, 292, or Q SCI 482, 483. Students who choose calculus for their mathematics requirement are encouraged to take a statistics course such as STAT 311 or Q SCI 381. (2) *Introductory Biology* (15 credits): BIOL 201, 202, 203; or BIOL 101-102 (with a minimum grade of 2.5 in each), GENET 371; (3) 37 upper-division biological-science credits to include (a) Zoology Core: a minimum of 25 credits including at least two lecture courses from each of three groups and at least one course with a laboratory component from two groups: Group I—Cell Biology, Development, Gene Action; Group II—Morphology, Physiology; Group III—Ecology, Natural History, Evolution, Organisms. Consult zoology adviser for a list of approved courses. (b) Zoology Electives: 12 elective credits in the biological sciences. Consult zoology adviser for a list of approved courses.

A minimum of 15 credits must be from 400-level courses in zoology and biology. A minimum of 15 upper-division credits (300- and 400-level) in zoology and biology must be taken at the UW. A minimum GPA of 2.00 is required, to include all courses required for the major.

Bachelor of Arts

Admission: One of the following: BIOL 201 with a minimum grade of 2.5; BIOL 201, 202, 203 with a cumulative GPA of 2.00 for the three courses; or BIOL 101, 102 with a grade of 2.5 in each course. A minimum cumulative GPA of 2.00 is required for all courses to be applied toward the major (including all required chemistry, physics, mathematics, and biological-science courses).

Suggested Introductory Course Work: BIOL 101-102 or 201, 202, 203; CHEM 120, 220, 221; one of the following options: MATH 124, 125; MATH 127, 128; MATH 144, 145; Q SCI 291, 292; Q SCI 381; STAT 311.

Major Requirements: A minimum of 70 credits distributed as follows: (1) *Supporting course work* (minimum of 20 credits): (a) Chemistry (15 to 20 credits): Option 1: CHEM 120, 220, 221 or Option 2: CHEM 142, 152, 162, and 223, 224 (or 237, 238, 239); (b) Mathematics (5 to 10 credits): MATH 124, 125, or MATH 127, 128, or MATH 144, 145, or Q SCI 291, 292 or STAT 311 or Q SCI 381. General physics courses are recommended, but not required. (2) *50 credits in biology and zoology courses*, with not more than 20 credits in 100- and 200-level courses, to include: (a) Introductory Biology: BIOL 201, 202, 203; or BIOL 101-102 (with a minimum grade of 2.5 in each), GENET 371; (b) Zoology Core: a minimum of 20 credits including at least one lecture course from each of three groups and at least one course with a laboratory component: Group I—Cell Biology, Development, Gene Action; Group II—Morphology, Physiology; Group III—Ecology, Natural History, Evolution, Organisms. Consult zoology adviser for

a list of approved courses. (c) Zoology Electives: elective credits to complete 50 total credits in the biological sciences. Consult zoology adviser for a list of approved courses.

A minimum of 15 credits must be from 400-level courses in zoology and biology. A minimum of 15 upper-division credits (300- and 400-level) in zoology and biology must be taken at the UW. A minimum GPA of 2.00 is required, to include all courses required for the major.

Graduate Program

For information on the Department of Zoology graduate program, see the graduate and professional volume of the *General Catalog* or visit the *General Catalog* online at www.washington.edu/students/gencat/.

Faculty

Chair

Barbara T. Wakimoto

Professors

Beecher, Michael D. * 1978, (Adjunct); MA, 1965, PhD, 1970, Boston University; animal communication, animal behavior, sensory processes.

Boersma, P. Dee * 1974; PhD, 1974, Ohio State University; ecology and conservation biology, reproductive strategies, colonial seabird biology.

Brenowitz, Eliot A. * 1987; PhD, 1982, Cornell University; animal behavior, neuroethology, neuroendocrinology, animal communication.

Cloney, Richard A. * 1962, (Emeritus); PhD, 1959, University of Washington; invertebrate embryology, histology, morphogenetic movements, metamorphosis, biology of ascidians.

Daniel, Thomas L. * 1984; PhD, 1982, Duke University; functional morphology, biomechanics, mechanics and energetics of animal locomotion.

Deyrup-Olsen, Ingrith J. * 1964, (Emeritus); PhD, 1944, Columbia University; general physiology, cell-membrane phenomena.

Ebrey, Thomas 2000, (Research); PhD, 1968, University of Chicago; phototransaction in biology, halo bacteria.

Edwards, John S. * 1967; PhD, 1960, Cambridge University (UK); arthropod neurobiology, insect physiology and development, tundra and alpine biology.

Felsenstein, Joseph * 1968, (Adjunct); PhD, 1968, University of Chicago; evolution and population genetics.

Foe, Victoria 1984, (Research); PhD, 1975, University of Texas (Austin); cell cycle control and morphogenesis in *Drosophila* embryos.

Gorbman, Aubrey * 1963, (Emeritus); PhD, 1940, University of California (Berkeley); endocrinology and neuroendocrinology.

Graubard, Katherine * 1979, (Research); PhD, 1973, University of Washington; cellular neurophysiology, neural basis of behavior.

Hauschka, Stephen D. * 1972, (Adjunct); PhD, 1966, Johns Hopkins University; muscle gene regulation, gene therapy, stem cell phenotypic conversion.

Herring, Susan W. * 1990, (Adjunct); PhD, 1971, University of Chicago; vertebrate functional morphology, relations between muscular function and skull growth.

Hille, Merrill B. * 1976; PhD, 1965, Rockefeller University; developmental biology, gastrulation in sea urchin embryos, translational regulation during meiosis.

Huey, Raymond B. * 1977; PhD, 1975, Harvard University; evolutionary and physiological ecology, herpetology, behavior.

Karr, James * 1991; PhD, 1970, University of Illinois; ecology and conservation biology, water resources, environmental sciences, natural resources.

Kenagy, George James * 1976; PhD, 1972, University of California (Los Angeles); ecophysiology and behavior, reproduction and life history, population biology, evolution, mammalogy.

Kingsolver, Joel * 1986; PhD, 1981, Stanford University; physiological ecology and evolutionary morphology of insects.

Kohn, Alan J. * 1961, (Emeritus); PhD, 1957, Yale University; invertebrate zoology, ecology and functional morphology of marine invertebrates.

Kozloff, Eugene N. * 1964, (Emeritus); PhD, 1950, University of California (Berkeley); biology of lower invertebrates, ciliates, orthonectids, turbellarians and kinorhynches.

Laird, Charles D. * 1971; PhD, 1966, Stanford University; cell and developmental biology, human genetics.

Martin, Arthur W. 1958, (Emeritus); PhD, 1936, Stanford University; comparative invertebrate physiology.

Moody, William J. * 1982; PhD, 1977, Stanford University; single cell electrophysiology, development of electrical properties in embryos.

Morse, M. Patricia 1992, (Acting); PhD, 1966, University of New Hampshire; invertebrates, interstitial molluscs, functional ultrastructure of bivalve heart-kidney and blood

Murray, James D. * 1988, (Adjunct); PhD, 1956, DSc, 1968, Oxford University (UK); mathematical biology, biological pattern formation, wound healing, spread of epidemics.

Nordlander Edwards, Ruth 1997, (Acting); PhD, 1968, DDS, 1980, Case Western Reserve University; frog embryology and axonal guidance.

Odell, Garrett M. * 1985; PhD, 1972, Johns Hopkins University; mathematical biology, ecology, models in cell and developmental biology.

Orians, Gordon H. * 1960, (Emeritus); PhD, 1960, University of California (Berkeley); ecology and ethology, vertebrate social systems, community structure, plant-herbivore interactions.

Paine, Robert T. * 1962, (Emeritus); PhD, 1961, University of Michigan; experimental ecology, organization and structure of marine communities.

Palka, John M. * 1969; PhD, 1965, University of California (Los Angeles); neurophysiology, sensory physiology, developmental neurobiology.

Pietsch, Theodore W. * 1978, (Adjunct); PhD, 1973, University of Southern California; ichthyology.

Pinter, Robert B. * 1967, (Adjunct Emeritus); MS, 1960, PhD, 1964, Northwestern University; cybernetics, robotics, biophysics.

Reeder, Ronald H. * 1981, (Affiliate); PhD, 1965, Massachusetts Institute of Technology; regulation of ribosomal RNA transcription by RNA polymerase I.

Riddiford, Lynn M. * 1973; PhD, 1961, Cornell University; insect development and physiology, invertebrate endocrinology, mechanisms of hormone action.

Rohwer, Sievert A. * 1973; PhD, 1971, University of Kansas; ecology and evolution of social behavior, avian biology and systematics.

Schubiger, Gerold A. * 1972; PhD, 1968, University of Zurich (Switzerland); developmental genetic control of *Drosophila* embryos, pattern formation in imaginal disks.

Steiner, Robert A. * 1977, (Adjunct); PhD, 1975, University of Oregon; neuroendocrinology.

Strathmann, Richard R. * 1973; PhD, 1970, University of Washington; invertebrate development, larval ecology and developmental strategies of marine invertebrates.

Truman, James W. * 1973; PhD, 1970, Harvard University; hormones and invertebrate behavior, insect neural development, circadian rhythms.

Wakimoto, Barbara T. * 1984; PhD, 1981, Indiana University; developmental genetics, gene expression and chromosome organization in eukaryotes.

Ward, Peter D. * 1984, (Adjunct); PhD, 1976, McMaster University (Canada); invertebrate paleontology, paleobiology.

Whiteley, Arthur H. * 1947, (Emeritus); PhD, 1945, Princeton University; comparative developmental physiology of invertebrates, gene action, fertilization.

Willows, A. O. Dennis * 1969; PhD, 1967, University of Oregon; invertebrate neurophysiology, neural mechanisms underlying behavior.

Wingfield, John C. * 1985; PhD, 1973, University College of North Wales (UK); environmental and hormonal control of avian reproductive cycles.

Yao, Meng Chao * 1988, (Affiliate); PhD, 1975, University of Rochester; regulation of gene amplification and chromosome rearrangements in *Tetrahymena*.

Associate Professors

Bakken, Aimee * 1973; PhD, 1970, University of Iowa; gene regulation during oogenesis and embryogenesis, developmental, cellular and molecular biology.

Cooper, Mark S. * 1990; PhD, 1985, University of California (Berkeley); cellular physiology and cell motility in developing tissues.

Dethier, Megan N. 1985, (Research); PhD, 1981, University of Washington; marine intertidal ecology, shoreline classification systems, plant-herbivore interactions.

Edwards, Scott V. 1994; PhD, 1992, University of California (Berkeley); molecular population genetics and evolution, avian comparative biology and systematics.

Griffiths, W. Mary 1971, (Emeritus); MA, 1942, PhD, 1953, University of California (Berkeley); zoology.

Kimelman, David * 1989, (Adjunct); PhD, 1985, Harvard University; molecular regulation of early vertebrate development.

Ostrander, Elaine A. * 1994, (Affiliate); PhD, 1987, Oregon Health Sciences University; study of human cancer susceptibility genes.

Parkhurst, Susan M. 1994, (Affiliate); PhD, 1995, Johns Hopkins University; developmental, genetic and molecular analysis of *Drosophila* embryogenesis.

Priess, James R. * 1993, (Affiliate); PhD, 1983, University of Colorado (Boulder); reliability models, fault trees.

Wright, Robin L. * 1990; PhD, 1985, Carnegie Mellon University; biogenesis of membranes, yeast cell biology.

Assistant Professors

Bosma, Martha * 1987; PhD, 1986, University of California (Los Angeles); development of CNS neuronal properties, electrophysiology and imaging of single cells.

Groom, Martha 1989, (Adjunct); PhD, 1995, University of Washington; environmental studies.

Grünbaum, Daniel 1998, (Research); PhD, 1991, Cornell University; theoretical ecology, marine biology, biomechanics, biomedical ecology, conservation biology.

Maron, John L. * 1998, (Adjunct); PhD, 1996, University of California (Davis); plant population biology, plant-consumer interactions, conservation biology.

Moens, Cecilia B. * 1998, (Affiliate); PhD, 1993, University of Toronto; molecular and medical genetics.

Naeem, Shahid * 1998; PhD, 1988, University of California (Berkeley); ecosystem consequences of declining plant, animal, and microbial biodiversity.

O'Carroll, David C. * 1998; PhD, 1989, Flinders University (Australia); neuroethology, sensory systems and behavior, visual processing.

Parrish, Julia * 1990, (Research); PhD, 1988, Duke University; behavioral ecology, conservation biology, predator-prey interactions.

Raible, David W. * 1995, (Adjunct); PhD, 1989, University of Pennsylvania; zebrafish neural development.

Ruesink, Jennifer 1990; PhD, 1996, University of Washington; marine community ecology, especially food web interactions, species, invasions, and conservation.

Rutherford, Suzanne L. 1999, (Affiliate); PhD, 1995, University of California (San Diego); developmental canalization and the evolution of networks of signal transduction pathways.

Schindler, Daniel E. * 1997; PhD, 1995, University of Wisconsin; ecosystem and community ecology, especially of aquatic systems; limnology.

Secord, David L. 1995, (Adjunct); PhD, 1995, University of Washington; population and community ecology, marine ecology and biodiversity, conservation biology.

Swalla, Billie J. 1999; PhD, 1988, University of Iowa; evolution of invertebrates studied by comparison of gene expression and sequences.

Wasser, Samuel K. * 1982, (Adjunct); PhD, 1981, University of Washington; behavioral ecology, endocrinology, conservation genetics and reproductive biology.

Lecturers

Frederickson, Richard 1994; PhD, 1970, University of North Dakota; human physiology.

Herron, Jon 1997; PhD, 1996, University of Washington; evolution, physiological ecology, population genetics, evolutionary psychology.

Petersen, Karen E. 1991; PhD, 1983, University of New Mexico; introductory human physiology, comparative vertebrate anatomy, vertebrate natural history.

Ramenofsky, Marilyn 1987; PhD, 1982, University of Washington; environmental endocrinology, physiology and behavior of avian migration.

Rudkin, Alison H. 1974; MS, 1973, University of Washington; physiology and development.

Shellenbarger, David 1977; PhD, 1974, University of Iowa; developmental biology, cell biology.

Wenderoth, Mary Pat 1994; PhD, 1987, Rush Medical College; animal physiology and anatomy, muscle development, science education.

Course Descriptions

See page 48 for an explanation of course numbers, symbols, and abbreviations.

For graduate-level course descriptions, see the graduate and professional study volume of the *General Catalog* or visit the online course catalog at www.washington.edu/students/crscat/.

ZOOL 100 Evolution and Human Behavior (3) NW
Introduction to evolution by natural selection, examining the light it can throw on human biology and behavior in such areas as the nature of sex differences, sexual conflict, and conflict between parents and children. Does not fulfill major requirements. Offered: jointly with BIO A 100.

ZOOL 114 Evolution (2) NW *Kingsolver* Evolutionary biology for nonmajors. Evolutionary history of the earth and various theories of evolution.

ZOOL 118 Survey of Physiology (5) NW Human physiology, for nonmajors and health sciences students. Offered: AWSpS.

ZOOL 119 Elementary Physiology Laboratory (1) NW Prerequisite: ZOOL 118 which may be taken concurrently. Offered: AWSpS.

ZOOL 220 Diversity in Animals (5) NW Huey, Naeem Morphological, functional, and ecological diversity within the major phyla of animals. Students who have taken 330, 362, 430, 433, 434, or 453 are strongly discouraged from taking this course, due to substantial overlap of material. Recommended: high school biology.

ZOOL 301 Introductory Physiology (3) NW Fundamentals of cellular, integrative, and organismal physiology: cell membranes, excitability, sensory systems, muscle structure and function, circulation, respiration, osmoregulation, digestion, thermoregulation. Prerequisite: either BIOL 101 or BIOL 202; either CHEM 120, CHEM 150, CHEM 152, or CHEM 155; either PHYS 115 or PHYS 122. Offered: WSp.

ZOOL 302 Introductory Physiology Laboratory (1) NW Cooper Student-initiated research projects, experimental design and techniques, data analysis, written reports. Prerequisite: ZOOL 301 which may be taken concurrently. Offered: Sp.

ZOOL 315 Mammalian Physiology (3) NW Principles of mammalian physiology with special emphasis on the cardiac, respiratory, renal, digestive, and immune systems taught at the organ and organ systems level. Prerequisite: either ZOOL 118, BIOL 101, or BIOL 202; recommended: 10 credits in biological science.

ZOOL 330 Natural History of Marine Invertebrates (5) NW Field and laboratory course emphasizing the habits, habitats, adaptations, and interrelationships of marine animals. Students are required to share a portion of the costs of field trips.

ZOOL 397 Preparing Avian Research Specimens (5) NW Preservation of avian study skins, skeletal specimens, extended wings, and tissues for genetic analyses. Standards required for deposit of specimens in research collections. Examines needs for continued collecting, uses of specimens in discovering new knowledge, and impacts of collecting on wild populations.

ZOOL 403 Comparative Vertebrate Histology (5) NW Microscopic and submicroscopic anatomy of vertebrates. Emphasis on mammals. Light microscopy and interpretation of ultrastructure. Functions of basic tissue types and organs as related to structure. Prerequisite: either BIOL 202 or BIOL 355.

ZOOL 408 Mechanisms of Animal Behavior (4) NW Beecher, Brenowitz Comparative exploration of physiological and perceptual mechanisms that control behaviors necessary for survival and reproduction in animals. Model systems discussed include animal communication, mate choice, escape behavior, learning and memory, orientation, biological rhythms, foraging behavior. Prerequisite: either BIOL 102, BIOL 203, or PSYCH 200. Offered: jointly with PSYCH 408; W.

ZOOL 409 Sociobiology (5) NW Rohwer Biological bases of social behavior, emphasizing evolution as a paradigm. Topics are: individual versus group selection, kin selection, altruism, group versus individual living, mating systems, parental care of offspring, and competitive strategies. Prerequisite: either PSYCH 200 or both BIOL 202 and BIOL 203. Offered: jointly with PSYCH 409.

ZOOL 410 Ethology and Ecology Laboratory (4) NW Boersma Field projects on foraging and social behavior, species interactions and structure of terrestrial and marine communities, including special student research problems. Students may be re-

quired to share a portion of the transportation costs of field trips. Prerequisite: BIOL 472. Offered: Sp.

ZOOL 414 Molecular Evolution (5) NW S Edwards Survey of empirical approaches to the study of molecular evolution and ecology, drawing on examples from a variety of taxa and the recent literature. Topics include DNA sequencing and systematics, fingerprinting approaches in behavioral ecology, and adaptive evolution at the molecular level.

ZOOL 430 Marine Zoology (8) NW Strathmann Survey of groups of invertebrate animals represented in marine environments; natural history, ecology, distribution, habitat, adaptation, and trophic interrelationships. Permission of Director, Friday Harbor Laboratories required for registration. Recommended: 20 credits in biological sciences. Offered: at Friday Harbor Laboratories; Sp.

ZOOL 432 Marine Invertebrate Zoology (9) NW Comparative morphology and biology of marine invertebrates with emphasis on field and laboratory studies. Representatives of all major and most minor phyla are collected, observed alive, and studied in detail. Not open for credit to students who have taken 433 or 434. Recommended: 20 credits in biological sciences. Offered: at Friday Harbor Laboratories; S.

ZOOL 433 Invertebrate Zoology (5) NW Comparative biology and morphology of invertebrates. Laboratory work emphasizes structures and functions. Deals with principles of animal organization, Protista, simpler multicellular animals, echinoderms, and chordates. Not open to students who have taken 430 or 432. Prerequisite: BIOL 102 or BIOL 202. Offered: A.

ZOOL 434 Invertebrate Zoology (5) NW Comparative biology and morphology of invertebrates. Laboratory work emphasizes structures and functions. Emphasizes annelids and related worms, mollusks, and arthropods. Not open to students who have taken 430 or 432. Prerequisite: BIOL 102 or BIOL 202. Offered: W.

ZOOL 435 Parasitology (5) NW General course covering the principles of parasitism and the major groups of animal parasites. Prerequisite: BIOL 102 or BIOL 202.

ZOOL 436 Invertebrate Endocrinology (3) NW Survey of endocrine mechanisms used by invertebrate groups to regulate homeostasis, growth, reproduction, and behavior. Special emphasis given to invertebrate model systems that provide unique insights into basic biological processes. Prerequisite: either BIOL 202, ZOOL 301, or ZOOL 315; either CHEM 220, CHEM 224, CHEM 239, or CHEM 337; either PHYS 115 or PHYS 122.

ZOOL 438 Comparative Endocrinology (3) NW Wingfield Hormonal integration of living processes at all levels in animals: molecules, cells, organs, organisms, populations. Prerequisite: either BIOL 202 or BIOL 102 with either ZOOL 301 or ZOOL 315; recommended: a 400-level course in physiology and biochemistry.

ZOOL 439 Comparative Endocrinology Laboratory (2) NW Wingfield A broad introduction to endocrine techniques with appropriate experiments to accompany and enlarge on material presented in 438. Prerequisite: ZOOL 438 which may be taken concurrently.

ZOOL 440 Biomechanics (4) NW Daniel Physical biology emphasizing a mechanical approach to ecological, evolutionary, and physiological questions. Basic principles underlying fluid and solid mechanics to explore responses of animals to flows, loads, and motions. Recommended: either BIOL 102 or BIOL 202; either MATH 125 or Q SCI 292; either PHYS 114 or PHYS 121.

ZOOL 444 Entomology (3) NW Biology of terrestrial arthropods, with emphasis on insects. Structure, classification, physiology, and ecology of insects. Interrelationships of insects and man. Prerequisite: either BIOL 102 or both BIOL 202 and BIOL 203. Offered: Sp.

ZOOL 445 Entomology Laboratory (2) NW Structure and function of arthropods, with emphasis on insects. Field studies and taxonomy of important insect groups. Students may be required to share a portion of the transportation costs of field trips. Prerequisite: ZOOL 444 which may be taken concurrently. Offered: Sp.

ZOOL 448 Concepts of Nervous System Function (3) NW Palka Broad examination of integrative mechanisms in central nervous system function, with emphasis on sensory processing, plasticity, and control of behavior. Examples are taken from a variety of animal groups. Prerequisite: BIOL 202.

ZOOL 451 Vertebrate Zoology (5) NW Kenagy The biology of vertebrate animals, emphasizing their diversity, adaptations, and evolutionary history. Introduces aspects of behavior, physiology, morphology, and ecology that emerge from the comparative study of vertebrates. Laboratory includes local field trips, films, and introduction to regional vertebrate fauna. Prerequisite: either BIOL 102 or both BIOL 202 and BIOL 203.

ZOOL 453 Comparative Anatomy of Vertebrates (5) NW Comparison of the structure of vertebrates with emphasis on evolution and organ system functions. Prerequisite: BIOL 202; recommended: B STR 301; ZOOL 451. Offered: W.

ZOOL 455 Developmental Biology of Animals (4) NW Schubiger Embryology and subsequent development of vertebrate and invertebrate animals, including *Xenopus*, mammals, chicks, *Drosophila*, echinoderms. Morphological changes in developing animals; experimental analysis of developing systems; underlying genetic and biochemical regulation of development. Prerequisite: either BIOL 202, BIOL 401, or either BIOL 355, BIOC 405, BIOC 440, or ZOOL 301 with either GENET 371 or GENET 372.

ZOOL 456 Developmental Biology of Animals Laboratory (3) NW Shellenbarger Normal development of living embryos (frog, chick, insect, echinoderm). Internal anatomy of embryos on prepared slides. Comparisons between vertebrate and invertebrate animals. Scientific style reports on experiments. Prerequisite: ZOOL 455 which may be taken concurrently.

ZOOL 457 Methods and Problems in Development (3) NW Schubiger, Kimelman Special topics in development. Integrating classical and current approaches. Developmental genetics, experimental embryology, molecular mechanisms of developmental regulation, and gene function in cell determination and cell differentiation in animal systems. Prerequisite: either ZOOL 455 or BIOL 202 with BIOL 401 and either GENET 371 or GENET 372.

ZOOL 459 Developmental Neurobiology (3) NW Bosma Invertebrate and vertebrate examples illustrate the mechanisms used in constructing nervous systems. Focus on the cellular and molecular mechanisms that underlie questions about the basis of neuronal diversity, axonal pathfinding and target recognition, synaptogenesis, and activity-dependent plasticity. Prerequisite: either BIOL 202, BIOL 355, or ZOOL 301; either BIOL 401 or ZOOL 455.

ZOOL 464 Natural History of Birds (5) NW S Edwards, Wingfield Field, lecture, and laboratory study of birds framed in biological theory rather than taxonomy. Breeding systems, brood parasitism, appearance, molt, migration, orientation, social behavior, song, and flight are emphasized. Includes Saturday and weekend field trips for which students

are required to share a portion of transportation costs. Prerequisite: either BIOL 102 or both BIOL 202 and BIOL 203. Offered: Sp.

ZOOL 467 Comparative Animal Reproduction (3) NW *Ramenofsky, Wingfield* Reproductive mechanisms, environmental influences on reproductive endocrinology, physiology, behavior, ecology of vertebrates. Discussions extend from organismal to cellular level, and focus on diversity of reproductive patterns among vertebrates. Prerequisite: BIOL 102 or both BIOL 202 and BIOL 203; recommended: biochemistry and physiology.

ZOOL 468 Comparative Animal Reproduction Laboratory (2) NW *Ramenofsky, Wingfield* Laboratory and field studies on animal reproduction involving endocrinology, anatomy, behavior, and ecology. Accompanies, supplements, and extends material presented in 467. Prerequisite: ZOOL 467 which may be taken concurrently.

ZOOL 470 Techniques for Mathematical Biology (3) NW *Odell* Equips students to use, rather than prove, many applied mathematics techniques essential in mathematical biology. Includes instruction to use symbolic computation software (Mathematica, Macsyma) to do by computer the kind of mathematical formula manipulation that mathematicians formerly performed by hand. Recommended: calculus, linear algebra.

ZOOL 471 Models in Biology (4) NW *Odell* Explores use of models in biology in a wide range of topics, including morphogenesis, nerve signals, ecological interactions, population biology, and evolutionary theory. Emphasis on the biological insights models can provide rather than mathematical techniques. Prerequisite: either ZOOL 470, MATH 125, MATH 128, MATH 134, MATH 145, or Q SCI 292.

ZOOL 484 Animal Physiology (3) NW *Huey, Riddiford, Truman* Physiology at levels of organisms and behavior, organ systems, and cells—an evolutionary and integrative perspective. Organismal physiology: metabolism, temperature, locomotion, osmoregulation, respiration, circulation, digestion. Prerequisite: either BIOL 202, ZOOL 301, ZOOL 315, or BIOL 355; either CHEM 155, CHEM 160, CHEM 162, CHEM 164, CHEM 165, or CHEM 220; either PHYS 114 or PHYS 121.

ZOOL 485 Animal Physiology (3) NW *Huey, Riddiford, Truman* Physiology at levels of organisms and behavior, organ systems, and cells—an evolutionary and integrative perspective. Integrative physiology: neurons, muscles, and hormones. Prerequisite: either BIOL 202, ZOOL 301, ZOOL 315, or BIOL 355; either CHEM 160, CHEM 162, CHEM 164, CHEM 165, or CHEM 220; either PHYS 114 or PHYS 121.

ZOOL 486 Animal Physiology Lab (2) NW *Huey, Riddiford, Truman* Experimental design and techniques, data analysis, written reports. Project labs in organismal-level physiology. Prerequisite: ZOOL 484 which may be taken concurrently.

ZOOL 487 Animal Physiology Lab (2) NW *Huey, Riddiford, Truman* Experimental design and techniques, data analysis, written reports. Experiments in integrative physiology. Prerequisite: ZOOL 485 which may be taken concurrently.

ZOOL 490 Undergraduate Seminar (3, max. 6) NW Supervised reading and group discussion on selected concepts of zoology. Recommended: one upper-division zoology course.

ZOOL 491 Topics in Zoological Research (1, max. 3) NW Undergraduate seminar on research problems currently under investigation by department faculty members. Includes discussions and laboratory demonstrations of aims, techniques, and results of zoological research. Credit/no credit only. Recommended: one upper-division zoology course.

ZOOL 492 Animal Migration (3) NW Undergraduate seminar on evolution, ecology, behavior, and physiology of migration. Student presents a seminar and leads class discussion on a selected topic. Prerequisite: either BIOL 102 or BIOL 203; recommended: course in physiology, ecology, or animal behavior.

ZOOL 498 Special Problems in Zoology (1-5, max. 15) Recommended: one upper-division zoology course. Offered: AWSpS.

School of Business Administration

Dean

Yash P. Gupta
114 Mackenzie

Associate Dean for Academic Affairs

Kamran Moinsadeh
116 Mackenzie

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General Catalog Web page:
www.washington.edu/students/genocat/academic/School_BusinessAdmin.html



School Web page:
depts.washington.edu/bschool/

Men and women embarking on business careers will have the opportunity to influence many of the social, political, and economic forces in today's world. The Business School prepares students for professional careers in management and related disciplines in both the private and public sectors.

The Business School offers an undergraduate program leading to the degree of Bachelor of Arts (BA) in Business Administration and graduate programs leading to the degrees of Master of Business Administration (MBA), Executive Master of Business Administration (EMBA), Master of Professional Accounting (MPAcc), and Doctor of Philosophy (PhD). Evening, BA, and MBA programs are also offered.

Business Administration became an independent unit within the University system in 1917. It has been accredited by the International Association for Management Education (AACSB) since 1921.

Facilities and Services

Most Business School classes and activities are in four buildings. Balmer Hall, named for Thomas Balmer, former president of the University Board of Regents, contains classrooms and computer labs. There are four computer labs in Balmer Hall that are available to Business School students. Mackenzie Hall, named in memory of Prof. Donald Mackenzie, Chair of the Department of Accounting from 1949 to 1955, contains the Dean's Office, the Undergraduate Program Office, the Graduate Program Office, the PhD Program Office, Business Administration Computer Services (BACS), Office of Development and External Relations, faculty offices, five department offices, and other business administration program offices. Nearby Lewis Hall contains the Business Career Center and other faculty and administrative offices. A fourth building, on the north side of Balmer, has three distinct components: the Bank of America Executive Education Center (which includes the James B. Douglas Executive Forum), the Boeing Auditorium, and the Albert O. and Evelyn Foster Business Library.

To serve the continuing education needs of middle- and senior-level managers, the Business School offers a number of certificate programs, either University-initiated or co-sponsored with various community and industry organizations. The Management Program, a nine-month, one night per week program, strengthens understanding and skills in all areas of management and provides an opportunity for successful managers to learn from a distinguished faculty and each other.

Short courses and seminars are offered throughout the year in all areas of management, including marketing strategy, finance and accounting for non-financial executives, negotiation skills, and many others. In addition, the School develops and runs custom programs under contract with individual companies and organizations. Information on continuing education programs may be obtained from the Office of Executive Programs, (206) 543-8560, fax (206) 685-9236, uwexp@u.washington.edu.

International Business Programs

International business programs are coordinated and developed by the School's Center for International Business Education and Research (CIBER). These activities include special graduate and undergraduate certificate programs, seminars, internships, business foreign-language programs, special guest-speaker programs, and graduate foreign-exchange programs and study tours. Although the Marketing and International Business Department offers a general curriculum in international business, each of the five academic departments within the School maintains faculty with special international teaching and research expertise. Internationally oriented courses are offered by each department.

At the undergraduate level, the School offers the Certificate of International Studies in Business (CISB) Program. Students in the program complete the same demanding business curriculum as other students and enhance this training with foreign language study, area studies, and an international experience. The program requires that students have a solid foundation in one of six language tracks: Chinese, French, German, Japanese, Russian, and Spanish; a seventh custom track for other languages is also an option.

The Education for the Global Entrepreneur (EDGE) program teams undergraduate and graduate students with local businesses to provide information and assistance necessary to compete successfully in the international arena. This is accomplished through student consulting teams, overseas research projects which involve Business School students on exchange programs, and student interns.

Questions regarding these programs may be directed to the Program Assistant, CIBER, 303 Lewis, (206) 685-3432, fax (206) 685-4079, uwiciber@u.washington.edu.

Entrepreneurship Programs

The focus of the Business School's entrepreneurship programs is on nurturing skills that generate creative ideas, innovative processes, and new business growth. These skills are developed through special graduate and undergraduate programs, a high-tech entrepreneurship speaker series, internships, a business plan competition, club activities, and consulting opportunities with area businesses.

The Program in Entrepreneurship and Innovation (PEI) is open to both undergraduate and graduate students from the Business School as well as other schools and colleges of the University. Contact PEI for more information at (206) 685-9868.

Business and Economic Development Program

The Business and Economic Development Program (BEDP) matches undergraduate and graduate student consulting teams with small-business owners in Seattle's inner city to implement business development projects. Through courses, independent study options, summer internships, and hands-on projects with inner-city entrepreneurs, students explore the challenges faced by central city businesses, while also providing valuable assistance. Questions about the Business and Economic Development Program can be directed to the program office at (206) 543-9327.

Retail Management Program

The University of Washington Retail Management Program (RMP) prepares interested students for first-line management careers in the retail industry. This interactive program includes visiting speakers, executives-in-residence, and store visits. Participating students complete a series of courses and a summer internship. The various facets of the program are designed to provide students with a comprehensive background in retail management. Questions about the Retail Management Program can be directed to the program office at (206) 221-5269.

Business Career Center

The Business Career Center coordinates all MBA and MPAcc career services. These include career counseling and career management workshops, the administration of special career events such as firm nights, company presentations, on-campus MBA and MPAcc recruitment, and a job-listing service. The Business Career Center also administers ASK (Alumni Sharing Knowledge), an alumni mentoring program. Questions regarding these programs and services may be directed to the center's office, 202 Lewis, (206) 685-2410.

Undergraduate business-career counseling and on-campus recruitment is provided by the UW Center for Career Services, 301 Loew, (206) 543-0535.

Instructional Resources Office

The Instructional Resources Office promotes excellence in teaching by providing resources in current practice and research in teaching and learning. The office serves faculty and teaching assistants with individual consultations, coordinates a teaching preparation program for doctoral students, and offers assistance with instructional innovations. Questions can be directed to the Instructional Resources Office, 317 Lewis, (206) 685-9608.

The Business Writing Center

The mission of the Business Writing Center is to help undergraduates develop the writing skills essential to professional success. The center offers one-on-one tutoring, workshops and peer feedback for special class projects, and opportunities for advanced students to be peer tutors. Questions can be directed to the center's office, 337 Lewis, bwite@u.washington.edu.

Honor Societies

Beta Gamma Sigma is the national scholastic honor society in the field of business. Election to membership is available to both undergraduate and graduate students in business. Selection is based on outstanding scholastic achievement.

Beta Alpha Psi is the accounting honor society. Membership is based primarily on scholastic achievement, but some community service is also required. Beta Alpha Psi provides a mechanism for students, professionals, and educators to meet on both formal and informal bases.

Student Organizations

Chapters of Alpha Kappa Psi, Association of Black Business Students, Program in Entrepreneurship and Innovation Club, International Association of Students in Economics and Business (AIESEC), American Marketing Association, Business Information Technology Society, Dow Dawgs Investment Club, Northwest Human Resources Management Association, Out for Business, Business and Economic Development Program Leadership Team, Undergraduate Finance Club, Undergraduate Management Consulting Association, University Sales Club, and Undergraduate Leadership Forum provide opportunities for undergraduate students to meet informally and to participate in a variety of projects and events.

Undergraduate Programs

137 Mackenzie

Associate Dean

Roland E. "Pete" Dukes

Director

Patsy Wosepka

Associate Director

Elaine G. Solomon

Academic Advisers

Holly Bauman
Nancy Clarke
Jacqueline Hoekstra
137 Mackenzie, Box 353200
(206) 543-4350

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The Business School admits only for autumn quarter, offering application for early admission to those attending the UW and prepared to declare a business major during their freshman year, and application for upper-division admission to all other students. Admitted students may elect to take classes the summer quarter prior to autumn-quarter admission.

Academic advisers are available to help with selecting classes, understanding UW and Business school policies and procedures, long-range planning, applying for graduation, making referrals to other campus resources and programs, and providing any needed general assistance.

Evening Degree Program

Students may earn a Bachelor of Arts in Business Administration through the Evening Degree Program. Admission and graduation requirements are identical to requirements for the day business program, shown below. The Evening Degree Program offers concentrations in Marketing, Management, and General Business.

Undergraduate Business Educational Opportunity Program

Director, Jeffrey Hedgepeth

Recruitment, admissions counseling, advising, and support services are available for minority students underrepresented at the University, and students from educationally and economically disadvantaged backgrounds. Special scholarships are also available for underrepresented minority students. Academic advisers have information on the Business Educational Opportunity Program.

Bachelor of Arts in Business Administration

Admission Requirements

Applicants are considered in two admission cycles, the Early Admission Group and the Upper-Division Admission Group, described below. The following requirements apply to both groups:

1. A minimum cumulative GPA of 2.50 for all college course work.
2. A minimum cumulative GPA of 2.50 for all required business administration courses.

3. A student who has previously attended the UW also must have GPAs of at least 2.50, both UW cumulative and in UW business administration courses.
4. Since eligible applicants exceed the space available, acceptance is competitive. Admission will be based on evaluation of five factors: (a) for Early Admission Group, pre-college test scores from SAT or ACT; (b) overall scholastic record; (c) grades in pre-business courses, described below; (d) written communication skills; and (e) evidence of leadership skills, community activities, and the promise of achievement in a business or professional career. Consideration is also given to such factors as economic and educational disadvantage, significantly higher recent grades, rigor of courses taken, and exceptional extracurricular activities or work experience.

Admission is offered once a year, for autumn quarter only. A Business School application, together with all supporting materials, must be on file by April 1 (April 15 for transfer students). Records of all course work completed by the deadline must be submitted at the time of application.

Early Admission Group (EAG)

This admission path is open to students who began their studies at the UW as freshmen, have been enrolled no more than three quarters, and have completed 30 graded credits at the UW. Courses completed prior to applying must include ECON 200; MATH 112, 124, 127, or 144; an approved English composition course chosen from C LIT 240, ENGL 104-105, 111, 121, 131, 182, 197, 198, 199, or 281; and pre-college test scores (ACT or SAT). General education or elective courses can be taken to complete the minimum of 30 graded credits.

Upper-Division Admission Group (UAG)

Students must present a minimum of 60 academic credits at the time of application including the following graded credits: ACCTG 215; ECON 200 or 201; MATH 112, 124, 127, or 144; an approved English composition course, chosen from C LIT 240, ENGL 104-105, 111, 121, 131, 182, 197, 198, 199, or 281. In addition, the following courses must be completed prior to admission in autumn quarter: ACCTG 225; ECON 200 and 201; O E 200; QMETH 201. Applicants should take general education or elective courses to complete the minimum of 60 graded credits.

Students admitted to the UW as freshmen are expected to take ACCTG 215, 225; O E 200; and QMETH 201 in residence.

Transfer Applicants: Qualified applicants with at least 45 credits and a minimum 2.85 GPA who meet University admission requirements, but not Business School requirements, are eligible to be placed in the College of Arts and Sciences as pre-business majors.

Graduation Requirements

General Education Requirements: The following must be selected from the University Areas of Knowledge courses: 20 credits in Visual, Literary, & Performing Arts; 20 credits in Individuals & Societies, including 10 credits in microeconomics and macroeconomics (ECON 200 and 201); 20 credits in the Natural World, including 5 credits in calculus (MATH 112, 124, 127, or 144); most students need precalculus before taking college calculus (some precalculus courses qualify for the Natural World requirement); 5 credits in English composition.

Students from community colleges in Washington should check the Transfer Guide or consult with their community college adviser for equivalent courses. Students from other four-year schools should see an adviser at their school. Students entering the Business School under the terms of the Associate Degree Agree-

ment may apply courses selected from the community college's breadth list toward the general education requirements.

Business School Requirements: ACCTG 215, 225; QMETH 201; O E 200; B ECON 300; MKTG 301; I S 300; I BUS 300; OPMGT 301; FIN 350; HRMOB 300; O E 302; B POL 470 or 471 or 480; and 300- or 400-level business administration electives (or area of concentration) to bring total number of business administration credits to 72; two writing-intensive courses, one from B CMU 301, B CMU 410, ENGL 281, ENGL 381; one from English composition, or from the remaining three courses listed immediately above, or from any W course. No more than 6 lower-division business elective credits; a minimum of 72 non-business-administration credits, and 72 business administration credits, including those listed under the preceding requirements sections; a cumulative GPA of at least 2.50 in all business administration credits earned at the UW; and a cumulative GPA of 2.50 for all UW credits. Students must complete six of the nine upper-division core courses, including Business Policy, and 35 of the 53 required upper-division business credits at the UW. Students who have taken more than three of the nine upper-division core business courses at another school should consult an academic adviser in the Business School Undergraduate Program Office prior to applying.

Accounting Option: Students wanting a concentration in Accounting should indicate this on their application to the Business School. If demand for the Accounting option exceeds the supply of spaces available, students will be admitted based on the five factors identified for admission to the Business School and on their grade-point average in all previous accounting courses. The notation "Accounting" will be included on the permanent record, or transcript, of a student who graduates with a degree of Bachelor of Arts in Business Administration and who completes the following courses with a minimum cumulative GPA of 2.50: ACCTG 301, 302, 311, 320, 321, 421, 440, and 470. Students who have completed ACCTG 505 may not apply to the accounting concentration.

Information Systems Option: The notation "Information Systems" will be indicated on the transcript of all students who are accepted into this option and successfully complete the following courses with a minimum cumulative GPA of 2.50: I S 320, 460, 470, and 480.

Students who apply to the IS option will be admitted at the same time they are admitted to the Business School. Admission to the option is based on the same criteria as admission to the Business School. Currently demand is greater than space in this option. Therefore, admission is competitive. Admission to the Business School does not guarantee admission to the IS option.

Double Baccalaureate and Second Baccalaureate

Students who wish to earn more than one baccalaureate degree should consult an academic adviser in the Business School Undergraduate Program Office, either during or before their junior year. Persons seeking a second baccalaureate should apply at the University's Office of Undergraduate Admissions. To be considered, applicants must complete by quarter of entry the same prerequisites for admission as applicants for the first baccalaureate degree. Since the number of eligible applicants exceeds that for which space is available, acceptance will be competitive, based on the criteria listed above for selection of first baccalaureate degree applicants. The Business School will use the GPA for the last 90 credits earned.

Graduate Programs

For information on the Business School's graduate programs, see the graduate and professional volume of the *General Catalog* or visit the *General Catalog* online at www.washington.edu/students/gencat/.

Accounting

Accounting involves development and communication of financial and operational information for business and nonprofit economic entities. The curriculum includes understanding accounting information systems, using accounting information in managerial decision making, preparing and auditing financial statements under generally accepted accounting and auditing standards, and understanding the fundamental aspects of personal and corporate taxation. Elective courses provide in-depth instruction in managerial and financial accounting, not-for-profit accounting, and taxation. Courses provide a foundation for careers in accounting (public, industrial, private, or governmental), for a general business career, or for other professions such as law.

Faculty

Chair

Stephan E. Sefcik

Professors

Berg, Kenneth B. * 1950, (Emeritus); MS, 1941, PhD, 1952, University of Illinois; financial and managerial accounting.

Bowen, Robert M. * 1978; PhD, 1978, Stanford University; financial and managerial accounting.

Burgstahler, David C. * 1980; PhD, 1981, University of Iowa; financial and managerial accounting, statistical methods.

Dukes, Roland E. * 1979; PhD, 1974, Stanford University; financial and managerial accounting.

Heath, Loyd C. * 1962, (Emeritus); PhD, 1965, University of California (Berkeley); financial accounting.

Jiambalvo, James * 1977; PhD, 1977, Ohio State University; managerial accounting, auditing.

Mueller, Fred J. * 1953, (Emeritus); PhD, 1956, Ohio State University; auditing, not-for-profit, tax accounting.

Noreen, Eric W. * 1976; PhD, 1976, Stanford University; managerial accounting.

Ramanathan, K. V. * 1972; PhD, 1970, Northwestern University; managerial accounting.

Sefcik, Stephan E. * 1986; PhD, 1983, University of Illinois; financial reporting and environmental accounting issues.

Shevlin, Terrence J. * 1985; PhD, 1986, Stanford University; financial accounting, capital markets, taxation.

Sundem, Gary L. * 1971; PhD, 1971, Stanford University; information systems, managerial accounting, information economics.

Associate Professors

Kennedy, S. Jane 1991; MBA, 1977, University of Alberta (Canada); PhD, 1992, Duke University; financial and managerial accounting.

Shores, Donna J. * 1986; MS, 1980, University of Wisconsin; PhD, 1986, Stanford University; financial and managerial accounting.

Assistant Professors

Kadous, Kathryn K. 1998; PhD, 1996, University of Illinois; auditing, financial accounting.

Myers, James N. 1996; PhD, 1997, University of Michigan; accounting/financial statement analysis.

Paperman, Joseph B. 1995; MS, 1984, Purdue University; PhD, 1997, Cornell University; capital markets/financial accounting.

Rajgopal, Shivaram 1998; PhD, 1998, University of Iowa; reverse recognition accounting.

Senior Lecturers

Resler, William M. 1982; JD, 1972, University of Washington; LLM, 1973, New York University; tax accounting.

Rice, Steven J. 1985; MS, 1971, Oklahoma State University; PhD, 1974, University of Texas (Austin); tax accounting.

Lecturers

Angell, Patricia L. 1998; MPAcc, 1999, University of Washington.

Britzmann, Jeannie R. 1993; MPAcc, 1994, University of Washington; tax accounting.

Creech, William R. 1992; LLM, 1983, New York University; taxation.

Gillick, James V. 1986; BBA, 1957, University of Louisville.

Wells, William L. 1988; MPAcc, 1989, University of Washington; financial reporting, not-for-profit accounting.

Finance and Business Economics

Finance and Business Economics address the financial and economic aspects of business decision making. The Finance curriculum focuses on financial management and the financial markets within which firms and individual investors operate. Business Economics courses concern the economic behavior of firms, including factors that determine costs and prices, and real and monetary forces (such as government policies) that affect the national and international economic environment.

Faculty

Chair

Lawrence D. Schall

Professors

Alberts, William * 1967, (Emeritus); PhD, 1961, University of Chicago; capital investment planning, business strategy, economics of industrial organization.

Bourque, Philip J. * 1957, (Emeritus); PhD, 1956, University of Pennsylvania; business economics.

Bradford, William D. 1994; MBA, 1968, PhD, 1972, Ohio State University; corporate finance, small and minority business, financial markets and institutions.

Conrad, Douglas A. * 1977, (Adjunct); MHA, 1973, University of Washington; MBA, 1977, PhD, 1978, University of Chicago; managed care, corporate finance in managed care.

D'ambrosio, Charles A. * 1960, (Emeritus); PhD, 1962, University of Illinois; finance.

Ferson, Wayne E. * 1992; PhD, 1982, Stanford University; financial economics and investments.

Frost, Peter A. * 1969; PhD, 1966, University of California (Los Angeles); investments, business finance, econometrics, monetary theory.

Haley, Charles * 1966; PhD, 1968, Stanford University; business finance, financial management of banks, international finance.

Hanson, Kermit O. 1948, (Emeritus); MS, 1940, PhD, 1950, Iowa State University; accounting and statistics.

Hess, Alan C. * 1967; PhD, 1969, Carnegie Mellon University; banking, financial markets, microeconomics and macroeconomics.

Higgins, Robert C. * 1967; PhD, 1969, Stanford University; financial management, international financial management.

Johnson, Dudley * 1960, (Emeritus); PhD, 1957, Northwestern University; business economics.

Kamara, Avraham * 1984; PhD, 1986, Columbia University; financial economics, investment, futures and options.

Karpoff, Jonathan M. * 1983; PhD, 1982, University of California (Los Angeles); corporate finance, law and economics, natural resources.

Malatesta, Paul H. * 1980; PhD, 1982, University of Rochester; corporate finance, security and capital markets, corporate mergers, and empirical methods in finance.

Roley, V. Vance * 1983; PhD, 1977, Harvard University; financial markets, finance, monetary theory, monetary policy.

Schall, Lawrence D. * 1968; PhD, 1969, University of Chicago; corporate finance, valuation, leasing, performance evaluation, acquisitions.

Siegel, Andrew F. * 1983; MS, 1975, PhD, 1977, Stanford University; statistics, computing, corporate finance, investments, data analysis.

Associate Professors

Dewenter, Kathryn L. * 1992; PhD, 1993, University of Chicago; international finance, macroeconomics.

Koski, Jennifer Lynch * 1991; MBA, 1987, Harvard University; PhD, 1991, Stanford University; corporate finance, market microstructure.

Pigott, William 1954, (Emeritus); MA, 1955, PhD, 1957, University of Washington; finance and business economics.

Pontiff, Jeffrey E. * 1992; PhD, 1994, University of Rochester; corporate finance, capital market theory, closed-end mutual funds, investments.

Rice, Edward M. * 1979; PhD, 1978, University of California (Los Angeles); corporate finance, microeconomics, industrial organization.

Assistant Professor

Novaes, Walter 1993; PhD, 1993, Massachusetts Institute of Technology; corporate finance, contract theory, industrial organization.

Senior Lecturers

Glassman, Debra A. 1989; PhD, 1980, University of Wisconsin; international finance, international economic policy, macroeconomics.

Hadjimichalakos, Karma G. 1976; MA, 1968, PhD, 1974, University of Rochester; monetary policy, banking, financial markets, domestic and international macroeconomics.

Tarhouni, Ali A. 1985; MA, 1978, PhD, 1983, Michigan State University; economic theory, international trade and finance, financial markets.

Management and Organization

Management and Organization provides an understanding of the processes and structures of organizations through three distinct programs. The Human Resource Management and Organizational Behavior (HRMOB) courses address personnel and industrial-relations topics such as selection, performance appraisal, compensation, and negotiations, as well as behavioral topics such as leadership, motivation, and group dynamics. They prepare students for managing an organization's human resources effectively. The Organization and Environment (O E) courses examine organization theory, organization design, and management of technology and innovation, as well as the social, political, legal, and ethical environments in which organizations operate. They give students the knowledge, perspective, and analytical tools to deal effectively with organization-environment interactions. The Business Policy (B POL) courses focus on organizational effectiveness from the viewpoint of top management. Emphasis is placed on an integrated view through strategic management and control, planning, decision making, and entrepreneurship.

Faculty

Chair

Charles William L. Hill

Professors

Fenn, Margaret P. * 1950, (Emeritus); DBA, 1963, University of Washington; organizational behavior and administrative theory.

French, Wendell L. * 1958, (Emeritus); EdD, 1956, Harvard University; organizational behavior, human resources management, organization development.

Gist, Marilyn Elaine * 1987; PhD, 1985, University of Maryland; cognitive processes involved in motivation training and work task performance.

Henning, Dale A. * 1955, (Emeritus); PhD, 1954, University of Illinois; administrative theory and organizational behavior.

Hill, Charles William L. * 1988; PhD, 1983, University of Manchester (UK); business policy, corporate strategy, multinational enterprise.

Huber, Vandra Lee * 1987; DBA, 1982, Indiana University; human resource decision making, compensation, and performance appraisal.

Johnson, Richard A. * 1969, (Emeritus); DBA, 1958, University of Washington; business policy.

Jones, Thomas M. * 1977; PhD, 1977, University of California (Berkeley); ethics, business, government and society.

Kast, Fremont E. * 1978, (Emeritus); DBA, 1956, University of Washington; administrative theory and organizational behavior.

Lee, Thomas W. * 1983; PhD, 1984, University of Oregon; administrative theory and organizational behavior, human resources management.

Mitchell, Terence R. * 1969; PhD, 1969, University of Illinois; organizational behavior.

Moxon, Richard W. * 1971; DBA, 1973, Harvard University; international business.

Newell, William T. * 1963, (Emeritus); PhD, 1962, University of Texas (Austin); operations management and business policy.

Peterson, Richard B. * 1971; PhD, 1966, University of Wisconsin; cross-cultural management, industrial relations.

Rosenzweig, Jim E. * 1956, (Emeritus); PhD, 1956, University of Illinois; administrative theory and organizational behavior.

Saxberg, Borje O. * 1957; PhD, 1958, University of Illinois; administrative theory, organizational behavior, entrepreneurship.

Scott, William George * 1966, (Emeritus); DBA, 1957, Indiana University; administrative theory and organizational behavior.

Sutermeister, Robert A. 1949, (Emeritus); MA, 1942, University of Washington; personnel and organizational behavior.

Vesper, Karl H. * 1969; PhD, 1969, Stanford University; business policy, mechanical engineering, marine studies.

Wheeler, Bayard O. 1948, (Emeritus); MA, 1930, University of Washington; PhD, 1942, University of California (Berkeley); urban economics.

Associate Professors

Butler, John E. * 1985; PhD, 1985, New York University; entrepreneurship, technology and innovation, strategic management.

Hansen, Gary S. * 1984; PhD, 1987, University of Michigan; business and corporate strategy, innovation and entrepreneurship.

Kienast, Philip K. * 1970; PhD, 1972, Michigan State University; human resources management.

Kotha, Suresh * 1996; MBA, 1983, Rensselaer Polytechnic Institute; MArch, 1985, MS, 1986, PhD, 1988, Rensselaer Polytechnic Institute; competitive strategy, competing on the Internet and e-commerce, and international management.

Strong, Dennis Fulton * 1967, (Emeritus); PhD, 1959, University of Washington; business history.

Wickman, James A. * 1953, (Emeritus); DBA, 1961, University of Washington; risk control and insurance.

Wicks, Andrew C. * 1992; PhD, 1992, University of Virginia; normative business ethics including stakeholder theory, trust, and managed care.

Assistant Professors

Boeker, Warren * 1998; PhD, 1987, University of California (Berkeley); strategic management.

Chen, Xiao-Ping 1999; PhD, 1998, University of Illinois; cross-cultural management, organizational behavior.

Fuller, Sally R. 1992; PhD, 1993, University of Wisconsin; organizational behavior and organizational theory.

Rindova, Viola 1998; PhD, 1999, New York University; strategic management and entrepreneurship.

Sarasvathy, Saras D. 1998; PhD, 1998, Carnegie Mellon University; entrepreneurship and finance.

Schulz, Martin 1993; PhD, 1993, Stanford University; organizations, qualitative and quantitative methods.

Lecturers

Berger, Robert H. 1985; JD, 1967, MBA, 1983, University of California (Berkeley); law.

Gautschi, Frederick H. 1988; PhD, 1978, University of California (Berkeley); law, organization behavior.

George-Falvy, Jane 1989; PhD, 1995, University of Washington; organizational behavior and human resource management.

Hauser, Owen Shannon 1990; MBA, 1974, Pepperdine University; entrepreneurship.

Huwe, Ruth A. 1990; PhD, 1999, University of Washington; speech communication, negotiation.

Management Science

The Department of Management Science consists of three subareas: Information Systems (I S), Operations Management (OPMGT), and Quantitative Methods (QMETH). The Information Systems area focuses on the management of computer-based information systems. The IS curriculum is designed to give students a basic understanding of IS technology and its impact on all phases of an organization. Specific areas of study include telecommunications and network design, systems analysis and design, database management, expert systems, and applications programming. The Operations Management (OPMGT) area of study refers to the functional area of management which produces goods or services in an organization. Specifically, the OPMGT curriculum focuses on the many changes which have occurred in the past ten years in the way that managers think, plan, and operate manufacturing and service facilities. The area includes courses in logistics, quality, inventory and supply-chain management, project management, and waiting lines, among others. The Quantitative Methods (QMETH) area focuses on the theory and application of mathematical and statistical tools in the modeling and analysis of business problems. The QMETH curriculum includes courses in statistics and data analysis as well as courses in operations research (e.g., linear programming, forecasting, using spread-sheets to construct decision support models).

Faculty

Chair

Theodore Klasterin

Professors

Chiu, John S. Y. * 1960, (Emeritus); PhD, 1960, University of Illinois; business statistics.

Faaland, Bruce H. * 1971; PhD, 1971, Stanford University; manufacturing, networks, production scheduling, mathematical programming, forestry.

Gupta, Yash P. 1999; PhD, 1976, University of Bradford (UK); management and administration.

Klasterin, Theodore * 1974; PhD, 1973, University of Texas (Austin); operations management, facility location, project management, waiting lines, logistics, inventory.

Moinzadeh, Kamran * 1984; MS, 1982, PhD, 1984, Stanford University; operations management, production management, inventory, quality and supply chain management.

Siegel, Andrew F. * 1983; MS, 1975, PhD, 1977, Stanford University; statistics, computing, corporate finance, investments, data analysis.

Tamura, Hirokuni * 1967; MS, 1961, PhD, 1967, University of Michigan; statistical models for auditing, cost accounting, total quality management/global strategy.

Associate Professors

Mookerjee, Vijay * 1991; MBA, 1984, Indian Institute of Technology (India); PhD, 1991, Purdue University; artificial intelligence, decision support systems, expert systems.

Schmitt, Thomas G. * 1979; MBA, 1974, University of Cincinnati; DBA, 1979, Indiana University; management of service and manufacturing operations.

Assistant Professors

Dewan, Sanjeev * 1998; PhD, 1991, University of Rochester; economics of information systems and information technology.

Dey, Debabrata * 1997; MS, 1989, Syracuse University; MS, 1992, PhD, 1994, University of Rochester; database theory/design, telecommunications, heterogeneous/distributed systems, software engineering.

Hillier, Mark S. * 1993; MS, 1991, PhD, 1994, Stanford University; operations management, inventory, commonality, mathematical programming applications.

Jain, Apurva 1999; PhD, 1999, Purdue University; supply chains, Web retailing, logistics, inventory.

Senior Lecturers

Burrows, William E. 1968; MA, 1972, University of Washington; systems analysis/design methodologies and data/file structures.

Morita, June G. * 1982; MA, 1978, PhD, 1984, University of California (Berkeley); sample surveys, quality control, survival analysis, statistical data analysis, statistics education.

Pilcher, Martha G. * 1987; MS, 1978, PhD, 1985, Georgia Institute of Technology; operations research/operations management, health care applications and logistics.

Marketing and International Business

Marketing (MKTG) provides knowledge of concepts and relationships in the areas of consumer behavior, channels of distribution, measurement and analysis of markets, pricing, physical movement of goods, product development, promotion, and sales administration. Marketing careers may involve specialization in Internet marketing, product or brand management, advertising, selling, sales management, marketing research, retailing, wholesaling, and international marketing for a wide spectrum of firms and industries. International Business (I BUS) includes trade, payments, and multinational corporate systems and activities. The area prepares students for international responsibilities in domestic business firms, governmental agencies, and overseas business. Courses in Business Communications (B CMU) stress writing in organizations to accomplish goals, oral reporting, business plan presentation, and the use of computer graphics in communication.

Faculty

Chair

Gary Erickson

Professors

Erickson, Gary * 1980; MBA, 1973, PhD, 1978, Stanford University; quantitative models of marketing and analysis of competitive strategies.

Gautschi, David A. * 1992; MBA, 1974, University of Oregon; PhD, 1979, University of California (Berkeley); marketing management, marketing strategies in the global information telecommunications industries.

Gordon, Guy G. 1957; (Emeritus); MBA, 1950, University of Washington; PhD, 1957, University of California (Berkeley); marketing.

Harder, Virgil E. * 1955, (Emeritus); PhD, 1958, University of Illinois; business communications.

Ingene, Charles A. * 1982; MA, 1972, PhD, 1975, Brown University; retailing and distribution strategy and marketing management.

Jacobson, Robert L. * 1984; PhD, 1981, University of California (Berkeley); marketing strategy, marketing management and entrepreneurial management.

Kolde, Endel-Jakob * 1951, (Emeritus); DBA, 1954, University of Washington; international business and marketing.

MacLachlan, Douglas * 1970; MBA, 1965, MA, 1970, PhD, 1971, University of California (Berkeley); marketing research, sales forecasting, psychological measurement and statistics.

Moinpour, Reza * 1966; MBA, 1966, PhD, 1970, Ohio State University; consumer decision making, new product development and marketing research.

Narver, John C. * 1966, (Emeritus); MBA, 1960, PhD, 1965, University of California (Berkeley); market strategy, market-driven organization, pricing policies, marketing management.

Spratlen, Thaddeus H. * 1972; MA, 1957, PhD, 1962, Ohio State University; retailing, marketing management, marketing and the city.

Sullivan, Jeremiah J. * 1975; MA, 1967, PhD, 1970, New York University; MBA, 1975, University of Washington; international business, Japanese management.

Wheatley, John J. * 1960, (Emeritus); MBA, 1954, PhD, 1959, State University of New York (Buffalo); marketing management, marketing research, sales management.

Yalch, Richard F. * 1971; MS, 1970, Carnegie Mellon University; PhD, 1974, Northwestern University; advertising management and consumer behavior, marketing management, marketing research.

Associate Professor

Grathwohl, Harrison L. * 1958, (Emeritus); DBA, 1957, Indiana University; marketing.

Assistant Professors

Forehand, Mark Robeck 1997; PhD, 1997, Stanford University; international business.

Louie, Therese A. * 1993; PhD, 1992, University of California (Los Angeles); behavioral biases that influence the perception of self and others.

Okada, Erica Mina 1999; MBA, 1992, Dartmouth College; PhD, 1999, University of Pennsylvania; international marketing, decision theory and marketing strategy.

Turner, Daniel J. 1999, (Acting); PhD, 2000, Northwestern University; retailing, marketing models.

Lecturers

Quarton, Mary Ann O. 1995; MBA, 1971, PhD, 1980, Stanford University; retailing and retail management.

Stearns, Elizabeth P. 1995; MBA, 1978, New York University; advertising, direct marketing.

Whelan, John F. 1985; MA, 1977, Yale University; business communications.

Course Descriptions

See page 48 for an explanation of course numbers, symbols, and abbreviations.

For graduate-level course descriptions, see the graduate and professional study volume of the *General Catalog* or visit the online course catalog at www.washington.edu/students/crscat/.

Accounting

ACCTG 199 Accounting Problem Solving (2) Supplementary lectures, discussions, and problem solving sessions in introductory accounting. Enrollment priority to EOP students. Credit may not be applied to fulfill specific course requirements or to 180 credits required for graduation. Credit/no credit only. Corequisite: ACCTG 215.

ACCTG 215 Introduction to Accounting and Financial Reporting (5) Nature and social setting of accounting; uses of accounting information; introduction of basic accounting concepts and procedures; interpretation of financial statements.

ACCTG 225 Fundamentals of Managerial Accounting (5) Analyses and evaluation of accounting information as part of the managerial process of planning, decision making, and control. Concentrates on information useful to enterprise managers. Prerequisite: either ACCTG 210, ACCTG 220, or ACCTG 215; ECON 200.

ACCTG 301 Intermediate Accounting I (3) Concepts and principles of financial accounting. Analysis of controversies and problems related to the measurement of enterprise income and asset and liability valuation. Prerequisite: 2.0 in ACCTG 225

ACCTG 302 Intermediate Accounting II (3) Concepts and principles of financial accounting. Analysis of controversies and problems related to the measurement of enterprise income and asset and liability valuation. Prerequisite: 2.0 in ACCTG 301.

ACCTG 303 Intermediate Accounting III (3) Concepts and principles of financial accounting. Analysis of controversies and problems related to the measurement of enterprise income and asset and liability valuation. Prerequisite: 2.0 in ACCTG 302.

ACCTG 311 Cost Accounting (3) Introduction to the theory of cost accounting; job order, process, and standard cost systems; overhead accounting; problems in accumulation and allocation of costs; decision making with cost data. Prerequisite: 2.0 in ACCTG 301.

ACCTG 320 Introduction to Accounting Information Systems (3) Concepts of accounting information systems in organizations. Processes of analyzing and designing accounting information systems, with emphasis on those using computer facilities. Internal controls and auditing considerations. Prerequisite: ACCTG 225; I S 300 which may be taken concurrently.

ACCTG 321 Database Management and Telecommunications for Accountants (3) Continuation of ACCTG 320, covering database and processing architectures, database reliability, database recovery, database security, database administration, downloading data, internets and intranets, and network security. Prerequisite: ACCTG 320. Offered: jointly with I S 321.

ACCTG 330 Introduction to Accounting Information Systems (3) Concepts of accounting information systems in organizations. Processes of analyzing and designing accounting information systems, with emphasis on those using computer facilities. Internal controls and auditing considerations. Prerequisite: 2.0 in ACCTG 302; 2.0 in I S 300.

ACCTG 375 Topics in Financial Reporting (4) Critical examination of the uses and limitations of general purpose financial statements that have been prepared in accordance with generally accepted accounting principles. Not open for credit to accounting majors or to students who have completed 301. Prerequisite: either 2.0 in ACCTG 225 or 2.0 in ACCTG 230.

ACCTG 411 Auditing Standards and Principles (3)

Intensive introduction to the attest function in society today. The environment, the process, and the report of the public auditor are analyzed. Potential extensions of the attest function are examined. Prerequisite: 2.0 in ACCTG 302; 2.0 in ACCTG 311; 2.0 in either ACCTG 320 or ACCTG 330.

ACCTG 421 Tax Effects of Business Decisions (3)

Issues in taxation, including tax considerations in business decision making, tax effects of business transactions, taxation of compensation, fringe benefits, capital gains, fixed asset transactions, disposition of business distribution from corporations. Prerequisite: 2.0 in ACCTG 302.

ACCTG 440 Accounting and Financial Management Decisions (3)

Business financial planning with an emphasis of the role of accounting information in financial decisions. Topics include the accounting and finance aspects of business valuation, short and long term financing, short and long term investments, alternative types of debt and equity financing, and related topics. Prerequisite: ACCTG 302; ACCTG 311; FIN 350.

ACCTG 450 Business Taxation (3)

Issues of taxation for entities other than individuals, including corporations, subchapter S corporations, partnerships, estates, and trusts. Includes corporate distributions, liquidations, and reorganizations. Prerequisite: 2.0 in ACCTG 421.

ACCTG 451 Individual Income Taxation (3)

Political, economic, and social forces influencing federal income taxation, role of taxation in personal decisions. Coverage of individual income tax matters, including business and investment income, business and personal deductions, property transactions, and tax issues of employees. Prerequisite: 2.0 in ACCTG 421.

ACCTG 460 Advanced Cost Accounting (3)

Advanced analysis of cost and management accounting problems; special applications of cost accounting techniques for management planning and control; current developments in cost accounting. Prerequisite: 2.0 in ACCTG 311.

ACCTG 470 Accounting for Mergers, Acquisitions, and International Operations (3)

Accounting for business combinations, parent-subsidiary and branch relationships, and foreign operations. Prerequisite: ACCTG 321; ACCTG 421 which may be taken concurrently; ACCTG 440 which may be taken concurrently.

ACCTG 480 Accounting for Not-for-Profit Organizations (3)

Fund and budgetary accounting as applied to public sector organizations, such as governments, foundations, hospitals, and colleges. Prerequisite: 2.0 in ACCTG 302.

ACCTG 485 Advanced Financial Accounting (3)

Accounting for partnerships, accounting for business combinations, parent-subsidiary and branch relationships, foreign exchange. Prerequisite: 2.0 in ACCTG 302.

ACCTG 490 Special Topics in Accounting (1-6, max. 6)

Special topics of current concern to faculty and students. Offered only when faculty is available and student interest is sufficient. Class is announced in advance of scheduled offerings.

ACCTG 495 Accounting Internship (1-4, max. 4)

One quarter's internship with a certified public accounting firm, industrial organization, or government agency. Credit/no credit only.

ACCTG 499 Undergraduate Research (1-6, max. 9)

Arranged and supervised by individual members of the faculty.

Business Administration

B A 371 Cooperative Education in Business (2, max. 6)

Business practicum: one or two quarter internship with approved business or governmental agency. Open only to students who meet requirements of internship program. Internship credit may not be applied to fulfill specific course requirements or to 180 credits required for graduation. Credit/no credit only.

Business Communication

B CMU 301 Basic Written Business Communications (4)

Broad analytical approach to written communications as a management tool. Analysis of the psychology, semantics, planning, and principles of effective business writing. Practical application through messages that inform and persuade, grant and refuse; plus short business reports and applications for positions.

B CMU 410 Business Reports and Other Specialized Communications (4)

Covers both internal and external communications that businessmen and businesswomen write on the job. Emphasis on various types of internal reports, ranging from short informal memos to the more complex formal reports. Also covered are specialized external types of communications directed to customers. Prerequisite: B CMU 301.

B CMU 490 Special Topics in Business Communications (1-6, max. 12)

Students and faculty focus on current topics of concern. Prerequisite: B CMU 301.

B CMU 499 Research in Business Communications (1-6, max. 9)

Business Economics

B ECON 300 Managerial Economics (3)

Analysis of economic factors affecting decisions made by business firms. Demand and cost analysis, and alternative policies from the firm's point of view. Prerequisite: ECON 200.

B ECON 301 Intermediate Macroeconomics (4)

Analysis of economy including business cycle, output of goods and services (GNP), inflation, unemployment, and government's fiscal and monetary policies. How the economy affects individuals and firms and how to deal effectively with economic environment. Prerequisite: ECON 201.

B ECON 420 Financial Markets (4)

Analysis of the structure and functions of the money and capital markets; the saving-investment process and financial intermediaries; supply and demand for lendable funds and the level and structure of interest rates, role of Federal Reserve and Treasury in money market developments. Prerequisite: either B ECON 301 or ECON 301.

B ECON 427 International Finance (4)

Asset choice and institutional operations in international finance, foreign exchange problems, the impact of international financial problems and operations on business, short- and long-term international financing. Prerequisite: either B ECON 300 or ECON 300; either B ECON 301 or ECON 301.

B ECON 490 Special Topics in Business Economics (1-6, max. 6)

Study and research on topics of current concern to faculty and students. Only offered when allowed by faculty availability and sufficient student interest. Seminar content to be announced in advance of scheduled offerings.

B ECON 499 Undergraduate Research (1-6, max. 9)

Research in selected areas of business economics. Recommended: either ECON 301 or B ECON 300 and B ECON 301.

Business Policy

B POL 370- Creating a Company (4-) Blumenthal, Ralston

Two-course sequence with B POL 371. Working in teams, students investigate the opportunities for new import-export ventures through the development of a business plan, present their plans to a panel of potential investors, obtain funding, run the business, and exit the firm at the end of the second quarter. Offered: AW.

B POL -371 Creating a Company (-4) Blumenthal, Ralston

Two-course sequence with B POL 370. Working in teams, students investigate the opportunities for new import-export ventures through the development of a business plan, present their plans to a panel of potential investors, obtain funding, run the business, and exit the firm at the end of the second quarter. Offered: WSp.

B POL 470 Business Policy (4)

Policy making and administration from a general management point of view. Emphasis is on problem analysis, the decision-making process, administration and control, and continuous reappraisal of policies and objectives. This course integrates and builds upon the work of the core curriculum. Prerequisite: FIN 350; MKTG 301; either HRMOB 300 or HRMOB 400; recommended: OPMGT 301.

B POL 471 Entrepreneurship (4)

Entrepreneurship presents the real challenges of starting new businesses, focusing on the skills and contacts an entrepreneur needs to develop ideas. The many facets of entrepreneurship—organization form, funding sources, the start-up team, the product launch—are illustrated through field and case studies and guest speakers. Prerequisite: FIN 350; MKTG 301; either HRMOB 300 or HRMOB 400; recommended: OPMGT 301.

B POL 472 Business Planning for Entrepreneurs and Product Managers (4)

Focuses on the process of developing and selling the new venture's business growth plan. Also covers franchising and business acquisition. Students develop their own business plans for venture concepts. Prerequisite: B POL 471.

B POL 473 Practicum in Entrepreneurship (4)

Explores requirements and challenges in establishing a business in the State of Washington. Broad areas of interest include developing business concepts, marshalling resources, startup actions, and strategic and operation planning. Recommended: B POL 472.

B POL 474 Small Business Management (4)

Explores entrepreneurial activities within the special environment of the small firm and family-owned companies. Combines case studies with field projects assisting companies in the Puget Sound area.

B POL 480 Business Simulation (5)

Critical analysis of integrated business policy formulation in a complex and dynamic industrial environment by means of simulation (business gaming). Prerequisite: FIN 350; MKTG 301; either HRMOB 300 or HRMOB 400; recommended: OPMGT 301.

B POL 490 Special Topics in Business Policy (1-6, max. 6)

Study and research topics of current interest to faculty and students. Offered only when faculty is available and student interest is sufficient. Class is announced in advance of scheduled offerings.

B POL 499 Undergraduate Research (1-6, max. 9)

Finance

FIN 350 Business Finance (4) Sources, uses, cost, and control of funds in business enterprises. Internal management of working capital and income sources and cost of long-term funds; capital budgeting; financing of the growth and expansion of business enterprises; government regulation of the financial process.

FIN 423 Banking and the Financial System (4) Role of banks and nonbank financial institutions in the financial system; asset choices of banks and non-bank financial institutions; problems in the management of financial institutions with emphasis on commercial banks. Prerequisite: FIN 350; either B ECON 300 or ECON 300.

FIN 450 Problems in Corporate Finance (4) Case problems in corporate financial management. Includes cases on management of current assets, obtaining short-term loans, raising long-term capital, capital budgeting, and dividend policy. The management point of view is stressed. Prerequisite: FIN 350; either B ECON 300 or ECON 300.

FIN 453 Financial Theory and Analysis (4) Business financial strategic planning. Topics include business valuation and financing, performance evaluation, risk analysis, capital budgeting, and inflation and taxes. Emphasizes tools with real-world applications while incorporating modern finance concepts. Prerequisite: FIN 350; either B ECON 300 or ECON 300.

FIN 460 Investments (4) Introduction to the nature, problems, and process of evaluating particular securities and portfolio construction and administration. Special attention is directed to the risk and rate-of-return aspects of particular securities portfolios, and total wealth. Prerequisite: FIN 350; either B ECON 300 or ECON 300.

FIN 461 Financial Futures and Options Markets (4) Introduction to financial futures and options markets. Instructional aspects and social functions of these markets, pricing of options and futures, and risk shifting by hedging. Prerequisite: FIN 350; either B ECON 300 or ECON 300.

FIN 490 Special Topics in Finance (1-6, max. 6) Study and research topics of current concern to faculty and students. Only offered when faculty availability and sufficient student interest. Seminar content to be announced in advance of scheduled offerings.

FIN 499 Undergraduate Research (1-6, max. 9) Research in selected areas of business finance, money and banking, or investments, with permission of instructor. Recommend: FIN 350; either B ECON 300 or ECON 300.

Human Resources Management and Organizational Behavior

HRMOB 300 Managing for Organizational Effectiveness (4) *Bell, Buck, Fuller, Lee* Organizational behavior and organization theory concepts show how managers can improve organizational effectiveness by attending to the human side of the enterprise. Topics such as leadership, motivation, power and politics, and organization design are examined for their effects on performance. Offered: AWSpS.

HRMOB 301 Personnel Systems and Industrial Relations (3) The personnel/industrial relations function from a managerial perspective. Selection, compensation, performance appraisal, and training

and development. Special emphasis on union-management relations and relevant behavior science research.

HRMOB 410 Staffing (4) Affirmative action, recruitment, testing, interviewing, placement, promotion, and overall human resource planning.

HRMOB 415 Performance Appraisal and Compensation (4) The various kinds of systems used by organizations to evaluate and reward employee performance. Job analysis, job evaluation, setting performance standards, giving appraisal feedback, designing incentive systems, administering a salary plan.

HRMOB 420 Collective Bargaining and Arbitration (4) Labor-management relations. The legal context, union organizing, grievance administration, collective bargaining. Individual and group simulations used.

HRMOB 450 Leadership and Decision Making (4) The manager as leader and decision maker. Various leadership theories, styles, and behaviors. Decision-making models and techniques.

HRMOB 460 Negotiations (4) The art and science of negotiations with the goal of making students more effective negotiators in a variety of business situations, such as budget negotiations, buying and selling, contracts, and merger negotiations. Concept and skill development.

HRMOB 470 Motivation and Performance (4) Various strategies for influencing employee motivation and performance. Reward systems, goal-setting procedures, and various techniques to enlarge and enrich ones job. Effects of these formal and informal strategies on job attitudes.

HRMOB 475 Organization Development and Change (4) Provides a conceptual understanding of organization development theory, practice, and research. Organization development is an umbrella term for a collection of behavioral science techniques for increasing individual, group, and organizational effectiveness.

HRMOB 490 Special Topics in Human Resources Management and Organizational Behavior (1-6, max. 6) Topics of current interest to faculty and students. Offered when allowed by faculty availability and sufficient student interest. Content announced in advance of scheduled offerings.

HRMOB 499 Undergraduate Research (1-6, max. 9)

Information Systems

I S 300 Introduction to Information Systems (5) Fundamentals of information systems, what they are, how they affect organizations. Technical and organizational foundations of information systems, building information systems, managing information system resources. Laboratory emphasizes using computer to analyze, coordinate, solve organizational decision-making problems. Prerequisite: ACCTG 225; ECON 200; either MATH 112, MATH 124, MATH 127, MATH 134, or MATH 135; either ECON 311, QMETH 201, PSYCH 213, PSYCH 218, STAT 220, STAT 301, STAT 311, or STAT 390.

I S 320 Fundamentals of Application Programming (4) Fundamental programming concepts including data types, control structures, modularization, and structure programming. Developing solutions for problems in interactive business applications. Introduction to data and file structures. Extensive use of an event-driven programming language. Prerequisite: I S 300.

I S 321 Database Management and Telecommunications for Accountants (3) Continuation of ACCTG 320, covering database and processing architectures, database reliability, database recover, database security, database administration, downloading data, internets and intranets, and network security. Prerequisite: ACCTG 320. Offered: jointly with ACCTG 321.

I S 423 Object-Oriented Systems (4) Covers the design and programming of object-oriented application software. Includes introduction to object-oriented principles, representing objects in software, object management, object analysis and design, construction of object-oriented applications, and use of object-oriented language to program working applications. Prerequisite: 3.5 in I S 320.

I S 460 Systems Analysis and Design I (4) First course in analysis and design of business information systems. Concentrates on analysis phase of systems development. Systems development life cycle, the feasibility study, analysis of user requirements, and the development of a logical model for the system under study. Prerequisite: I S 320.

I S 461 Systems Analysis and Design II (4) Second course in analysis and design of business information systems. Concentrates on design and implementation phases of systems development. Translation of logical system model into physical model, design of modules, file design, testing, implementation. Includes a project using third- and fourth-generation software development tools. Prerequisite: I S 460.

I S 470 Business Data Communications (4) Technology and applications of business data communications including characteristics of data, fundamentals of transmission, communications hardware and software, common-carrier services, network configurations (LAN, MAN, WAN), design, management, and security. Exercises in use of information retrieval/distribution systems, file transfer, and Internet resources. Prerequisite: I S 320.

I S 480 Database Management (4) Concepts of physical and logical data base organization. Physical file structures used in data management. Logical data models, including hierarchical, network, relational. Data base design, data dictionaries, data manipulation languages. Exercises in design, implementation, and use of data base systems. Survey of commercial data base management systems. Prerequisite: I S 320.

I S 490 Selected Topics in Information Systems (1-6, max. 20) Topics of current concern to faculty and students. Potential topics include networks and distributed information-processing systems, office automation, artificial intelligence and knowledge-based systems, new approaches to systems development, fourth- and fifth-generation languages, economics of information systems. Prerequisite: I S 320.

I S 495 Practical Experience in Information Systems (1-4, max. 8) Undergraduate substantive I S internship and mentorship. Internships can be repeated up to two quarters for maximum of 4 credits; grades based on weekly status reports, paper, demonstration of knowledge. Mentorship program (maximum 1 credit/quarter) allows student to be matched with I S executive; grade based on status reports, other participatory events.

I S 499 Undergraduate Research (1-6, max. 12) Selected problems in information systems and computer applications.

International Business

I BUS 300 The International Environment of Business (5) Prepares students to understand the most important aspects of the international political economy. Emphasis on the important relationships among nations and business and economic institutions that influence students' performances as managers, consumers, and citizens. Prerequisite: ECON 200.

I BUS 330 Business Environment in Developing Nations (4) The international environment for transnational trade, investment, and operations in the less-developed countries; survey of the economics of underdevelopment; analysis of foreign economic, cultural, and political environments and their impact on international business; foreign investment in the development process; case studies. Prerequisite: I BUS 300.

I BUS 340 Business Environment in Industrial Countries (4) Factors and conditions affecting business operations and behavior in developed countries, international integration, business relations among nation states and integrated supranational systems, direct investment and multinational industrial activities, analysis of sources and causes of international change. Prerequisite: I BUS 300.

I BUS 440 Business in Asia (4) Major aspects of the Asian business environment and how Asian enterprises are managed. Problems and opportunities of foreign corporations in Asia. Prerequisite: I BUS 300.

I BUS 470- Management of International Trade Operations 1 (4-) Integrated study of international trade functions, practices, concepts, management, strategy, and policy. The approach utilizes lectures, case studies, research, guest speakers, and extensive practical application. Designed as a two-quarter sequence. Students may enroll at the beginning of any quarter, summer included. Prerequisite: I BUS 300.

I BUS -471 Management of International Trade Operations 2 (-4) Integrated study of international trade functions, practices, concepts, management, strategy, and policy. The approach utilizes lectures, case studies, research, guest speakers, and extensive practical application. Designed as a two-quarter sequence. Students may enroll at the beginning of any quarter, summer included. Prerequisite: I BUS 300.

I BUS 480 Multinational Operations Management (4) Case studies in foreign operations management: planning international objectives and strategies; developing multinational company structures and executives; adapting administrative practices and operating policies to international diversities. Prerequisite: I BUS 300.

I BUS 490 Special Topics in International Business (1-6, max. 12) Students and faculty focus on current topics of concern. Offered when faculty, student interest, and availability allow. Prerequisite: I BUS 300.

I BUS 491 CISB Track Seminar (1, max. 6) Students meet with business community leaders to discuss international aspects of their companies. Allows for networking and sharing experiences with other students as well as practicing foreign languages.

I BUS 495 International Business Practicum (4) Offers students opportunity to apply principles, concepts, and skills learned previously to actual business situation. Working on projects provides students an exposure to the issues and choices facing managers operating in an international business environment. Prerequisite: either I BUS 340 and I BUS 470 or I BUS

340 and I BUS 480 or I BUS 340 and MKTG 301 or I BUS 470 and MKTG 301 or I BUS 480 and MKTG 301 or I BUS 470 and I BUS 480.

I BUS 499 Undergraduate Research (1-6, max. 9)
Prerequisite: I BUS 300.

Marketing

MKTG 301 Marketing Concepts (4) Tools, factors, and concepts used by management in planning, establishing policies, and solving marketing problems. Marketing concepts, consumer demand and behavior, location analysis, marketing, functions, institutions, channels, prices, and public policy. Prerequisite: ECON 200.

MKTG 310 Product and Price Policies (4) Important aspects of product planning and development, product line decisions, packaging, brand policies, guarantees, and services. Price theory is considered but emphasis is placed on special pricing policies and problems and legal constraints on pricing activity. Prerequisite: MKTG 301; B ECON 300.

MKTG 335 Principles of Selling (4) Focuses on role of influence and persuasion in professional selling and other organizational settings. In addition to formal theoretical coursework in such areas as consumer behavior, negotiation, and communication, students practice sales skills in role plays, presentations, and other exercises requiring practical application of selling theory. Prerequisite: MKTG 301.

MKTG 340 Advertising (4) Management of the advertising function and its integration with other forms of promotion. Planning the program, determining the most effective approach, evaluation of media and budget, advertising research, advertising institutions, economic and social aspects. Prerequisite: MKTG 301.

MKTG 370 Retailing (4) Profit planning and business control; buying, stock control, pricing, promotion; store location, layout, organization, policies, systems; coordination of store activities. Prerequisite: MKTG 301.

MKTG 430 Sales Force Management (4) Sales and distribution planning; sales organization and training; management of the sales force; methods of sales, cost, and performance analysis. Prerequisite: MKTG 301.

MKTG 450 Consumer Behavior (4) Theory and practice pertinent to marketing decisions of individuals and business firms; utilization of theories from behavioral sciences in marketing research; theories of fashion, characteristics of goods, shopping behavior, product differentiation, market segmentation, and opinion leadership; application of concepts to management of advertising, personal selling, pricing, and channels of distribution. Prerequisite: MKTG 301; recommended: either ECON 311, QMETH 201, PSYCH 213, PSYCH 218, STAT 220, STAT 301, STAT 311, or STAT 390.

MKTG 452 Marketing Issues for New Ventures (4) Examines the skills and tools entrepreneurs need for bootstrap marketing in their start-up firms. Students learn to identify target market segments, position their products, estimate demand, set prices, gain access to channels, and manage the issues of rapid growth.

MKTG 460 Marketing Research (4) Marketing research process; preliminary steps and research design, questionnaires, secondary and primary data, sampling, processing and interpreting data, evaluation and effective presentation of findings. A class research project provides practical application of methods studied. Prerequisite: MKTG 301; either ECON 311, QMETH 201, PSYCH 213, PSYCH 218, STAT 220, STAT 301, STAT 311, or STAT 390.

MKTG 475 Retail Structure and Strategy (4) Analysis of the nature and scope of competition within and between sectors of retail trade. Emphasis is placed on the importance of demographic, environmental, and legal differences between geographical areas in determining the level of competition. Prerequisite: MKTG 370.

MKTG 480 Advanced Marketing Management (4) Introduction to advanced marketing management through the application of various decision-making models and selected computer routines to such marketing problems as advertising budgeting, media planning, sales forecasting, sales-force allocation, and pricing. Applications include market simulation, Bayesian approaches, and linear programming. Prerequisite: either MATH 112, MATH 124, MATH 127, MATH 134, or MATH 145.

MKTG 490 Special Topics and Issues in Marketing (1-6, max. 8) Contemporary topics and issues in marketing: marketing in nonprofit organizations, marketing of services, marketing in the public sector, and marketing in an economy of scarcity. Ordinarily only one topic area is addressed in any one quarter. Course content reflects contemporary developments and the current interests of instructors and students. Prerequisite: MKTG 301.

MKTG 499 Undergraduate Research (1-6, max. 9)
Prerequisite: MKTG 301.

Operations Management

OPMGT 301 Principles of Operations Management (4) Examines problems encountered in planning, operating, and controlling production of goods and services. Topics include: waiting-line management, quality assurance, production systems, project management, and inventory management. Computer and quantitative models used in formulating managerial problems. Prerequisite: ACCTG 225; ECON 200; either MATH 112, MATH 124, MATH 127, MATH 134, or MATH 145; either ECON 311, QMETH 201, PSYCH 213, PSYCH 218, STAT 220, STAT 301, STAT 311, or STAT 390.

OPMGT 402 Introduction to Logistics (4) Logistics studies of the efficient delivery of goods and services. A total-cost approach recognizes this involves not only the obvious vehicle-routing issues but also shipment size and mix, warehouse location, product design, and customer services. Includes study of real companies' logistics problems. Prerequisite: OPMGT 301.

OPMGT 443 Inventory and Supply Chain Management (4) Use of material and supply chain management in manufacturing and service organizations to reduce inventory levels while providing adequate service to customers. Specific topics include forecasting, Just-in-Time production, deterministic and stochastic inventory models, and material requirements planning (MRP). Prerequisite: OPMGT 301.

OPMGT 450 Introduction to Project Management (4) Focuses on the management of complex projects and the tools and techniques which have been developed in the past 25 years to assist managers with such projects. The course covers all elements of project planning, scheduling and control as well as implementation and organizational issues. Prerequisite: OPMGT 301.

OPMGT 490 Special Topics in Operations Management (1-6, max. 20) Operations management topics of current concern to faculty and students. Potential topics are: logistics management, project scheduling, manufacturing strategy, site and location analysis, management of service operations. Prerequisite: OPMGT 301.

OPMGT 499 Undergraduate Research (1-6, max. 9)

Organization and Environment

O E 200 Introduction to Law (5) I&S Legal institutions and processes; law as a system of social thought and behavior and a frame of order within which rival claims are resolved and compromised; legal reasoning; law as a process of protecting and facilitating voluntary arrangements in a business society.

O E 302 Organization and Environment (4) Political, social, and legal environment of business. Critical managerial issues from historical, theoretical, ethical perspectives; their impact on organization. Corporate political power, boards of directors, capitalism, industrial policy, business ethics and social responsibility, alternative corporate roles in society.

O E 310 Political and Regulatory Environment of Business (5) Managerial implications of restrictions imposed by government on corporations from legal point of view. Constitutional law impacting business managers; antitrust, administrative, and regulatory issues; environmental law, product liability law, and securities law. Not a business or commercial law course.

O E 314 Historical Development of the Business-Government Relationship (3) Business-government relationships in American history, with aim of defining and explaining patterns in attitudes and behavior rather than detailing events. Discussions organized in terms of policy areas (e.g., national banking, transportation, agriculture, energy, industry in wartime, trade, and research).

O E 316 Business Ethics and Corporate Social Responsibility (3) Philosophical and pragmatic perspectives, including values and social/ethical premises in organizational decision making. Several issues covered in depth; investments abroad, hazardous products, bribery, industry practices, and others.

O E 403 Commercial Law (5) Principles of the law of contracts, agency, property, sales, negotiable instruments, and security transactions. Prerequisite: O E 200.

O E 440 Organization Structure (3) Concepts of formal organization structures, power, authority, and influence; delegation and decentralization, strategic planning, decision making; philosophy and values in management, the organization in the context of the environment and its impact on the organization's subsystems. Recommended: HRMOB 300.

O E 490 Special Topics and Issues in Organization and Environment (1-6, max. 6) Topics and issues of business organization and a changing environment. Content reflects interests of faculty members and students not otherwise covered in the curriculum.

O E 499 Undergraduate Research (1-6, max. 9) Selected problem areas or issues in consultation among faculty members and students. Prerequisite: permission of the undergraduate office.

Quantitative Methods

QMETH 201 Introduction to Statistical Methods (4) NW/QSR Survey of principles of data analysis and their applications for management problems. Elementary techniques of classification, summarization, and visual display of data. Applications of probability models for inference and decision making are illustrated through examples. Prerequisite: either MATH 112, MATH 124, MATH 127, MATH 134, or MATH 145.

QMETH 302 Statistical Methods for Quality Management (4) Philosophies and statistical methods for quality management with applications to both manufacturing and service sectors. Topics include definition and measures of quality, seven QC tools, process capability, design of control charts, design of experiments, and multiple regression. Prerequisite: either ECON 311, QMETH 201, PSYCH 213, PSYCH 218, STAT 220, STAT 301, STAT 311, or STAT 390.

QMETH 450 Spreadsheet Models for Managerial Decision Making (4) Formulation and solution of business problems using operations research techniques in a spreadsheet environment. Techniques of linear and integer programming, dynamic programming, network optimization, queuing, and simulation. Applications from marketing, finance, and operations. Prerequisite: I S 300.

QMETH 490 Special Problems in Quantitative Analysis (1-6, max. 20) Specialized quantitative techniques useful for solving business problems. Topics from operation research, statistics, computer methods. Emphasis on application. Prerequisite: either ECON 311, QMETH 201, PSYCH 213, PSYCH 218, STAT 220, STAT 301, STAT 311, or STAT 390.

QMETH 499 Undergraduate Research (1-6, max. 9) Research in selected problems in business statistics, operations research, decision theory, and computer applications.

School of Dentistry

Dean

Paul B. Robertson

D322 Health Sciences



General Catalog Web page:
www.washington.edu/students/gencat/academic/School_Dentistry.html



School Web page:
www.dental.washington.edu

Established in 1945, the University of Washington School of Dentistry offers courses leading to a Doctor of Dental Surgery (D.D.S.) degree, and advanced education leading to a Master of Science in Dentistry degree and/or a certificate of proficiency in endodontics, oral medicine, orthodontics, pediatric dentistry, periodontics, and prosthodontics. Residency training is available in oral and maxillofacial surgery and general practice. The Department of Oral Biology offers a Master of Science (M.S.), an M.S. non-thesis degree for dental hygiene educators, and a doctoral degree (Ph.D.). Postdoctoral study is available in various disciplines. The School also offers a baccalaureate degree completion program in dental hygiene.

Opportunities to earn other degrees concurrently (M.S. or Ph.D. in the School of Dentistry's Department of Oral Biology and other schools) may be arranged on an individual basis.

These educational programs are enriched by the School's strong commitment to research and the presence of a Regional Clinical Dental Research Center, a Comprehensive Center for Oral Health Research, a Dentist-Scientist program, and a fellowship research training program for predoctoral students. The mission of the Regional Clinical Dental Research Center is to foster clinically relevant research that will advance dentistry's knowledge base, improve patient care, and promote oral health. The Comprehensive Center for Oral Health Research is focused on children's dental health and is one of only six such programs to be funded nationally by the National Institute of Dental and Craniofacial Research. State-of-the-art clinical research facilities are available for faculty and student use.

School of Dentistry Mission Statement: "The School of Dentistry shares the University's overall mission to generate, disseminate, and preserve knowledge and serve the community. The School is an integral part of the Health Sciences Center and is an oral health-care center of excellence serving the people of the state of Washington and the Pacific Northwest. Through its exemplary educational, research, and service programs, the School prepares students to be competent oral health-care professionals. Its research programs fundamentally contribute to the understanding of basic biologic processes and behavioral, biomedical, and clinical aspects of oral health. The School values and seeks diversity in its students, staff, faculty, and patient populations. It fosters an environment of mutual respect where objectivity, imaginative inquiry, and the free exchange of ideas can flourish to facilitate personal development, professionalism, and a strong sense of self-worth." (July 1994)

The following departments participate in the curriculum for the School's programs: *Dental Public Health Sciences* is concerned with the social, legal, political, economic, and psychological aspects of dental health-care delivery as well as the epidemiology of oral diseases and the application of biostatistical methods in

studying them. *Endodontics* offers training in the diagnosis and treatment of diseases and injuries of the tooth pulp and periradicular tissues. *Oral and Maxillofacial Surgery* trains students in the procedures used for all types of operations in the oral cavity and all phases of dental pain control. *Oral Biology* encompasses the study of basic biological mechanisms in normal and diseased oral tissues and structures. *Oral Medicine* provides training in diagnostic techniques and nonsurgical treatments of oral disease. *Orthodontics* provides training in the prevention and correction of malocclusion of the teeth. *Pediatric Dentistry* provides students with a broad understanding of prevention, diagnosis, and treatment of most dental needs from infancy through adolescence with emphasis on the psychological and educational requirements of the patient and parent. *Periodontics* offers training relative to the periodontium and dental implants, with emphasis placed on diagnosis, prevention, treatment, and maintenance. *Prosthodontics* provides instruction in the fabrication and maintenance of removable, complete, and partial dentures, and dental implants. *Restorative Dentistry* offers training in the restoration or replacement of tooth structure and study of the form and function of the masticatory structures.

Undergraduate Program

Dental hygiene seeks to understand why some people get preventable oral diseases, and why others do not. Risk factors, such as poverty, ethnicity, and education, as well as environment, contribute to perpetuation of these diseases. The dental hygienist observes and defines dental diseases, assesses potential outcomes of interventions, and manages conditions that compromise oral health. As an applied discipline, dental hygiene links its theoretical foundation to behavioral and natural sciences. Using evidence-based science, the discipline seeks to facilitate holistic assessments of individuals and communities and to find solutions to oral health problems. Students in the discipline learn to transfer learning from clinical to community contexts as a means of improving the oral health status among people.

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Department Web Page:
www.depts.washington.edu/dhyg

Bachelor of Science

The Dental Hygiene Degree Completion Program offers a Bachelor of Science degree for majors in dental hygiene. It emphasizes the oral health of populations rather than individuals. Dental hygienists conduct community assessments; develop networks that engage community partners; set priorities; obtain baseline measures; set targets; and measure progress toward solutions to real oral health problems. Dental hygiene core skills include the ability to search and retrieve information from the Internet; use census, geographic, and interpret demographic data; critically assess scientific literature; analyze and interpret data; and apply new scientific knowledge to solutions of real health problems. In addition to the core knowledge set, dental hygienists may select from four paths of study: education and care of special populations, oral health promotion, biological and behavior science foundation, and administration and management. Depending upon area of interest, graduates pursue careers as business managers, marketing specialists, clinic administrators, hospital and nursing home dental hygienists, public health planners, program managers, research assistants, and teachers of dental hygiene.

The UW has *no preclicensure program in dental hygiene*. However, students desiring entry into the dental hygiene profession may take their first year general studies prerequisite courses in chemistry, psychology, sociology, public speaking, English language composition, mathematics, nutrition, microbiology, and liberal studies at the UW. Having successfully completed a preclicensure dental hygiene program and obtained a license to practice dental hygiene, students are eligible to return to the UW to complete the Bachelor of Science degree with a major in dental hygiene.

Student Associations: American Dental Hygienists' Association; Washington State Dental Hygienists' Association and its component societies; International Association of Dental Research, Oral Health/Oral Hygiene Section; American Association of Dental Schools, Auxiliary Section; American Public Health Association, Oral Health Section.

Internship or Co-operative Exchange Program Opportunities: University of Lisbon Oral Hygiene Program, Portugal; Yakima Valley Farm Workers Clinics, Central Washington; Snohomish Health District Oral Health Program; Bremerton-Kitsap County Health District Oral Health Program; SmileQuest, Warden, WA; Dental Hygiene Health Services, Seattle, WA; Seattle-King County Public Health, Oral Health Program; Yakima Valley Community College Dental Hygiene Program; Lake Washington Technical College Dental Hygiene Program; Shoreline Community College Dental Hygiene Program; Pierce College Dental Hygiene Program; Heritage College Partnership in Science and Education; Neighborhood House Oral Health Program, Seattle.

Admission Requirements

This bachelor of science degree program is a postlicensure degree completion program. This means that the applicant must hold a certificate or diploma in dental hygiene as well as a license to practice clinical dental hygiene.

Admission for U.S. or Canadian Applicants

1. Completion of an associate degree or certificate/diploma in dental hygiene from a program accredited by the Commission on Dental Accreditation of the American Dental Association and current Cardiopulmonary Resuscitation (CPR) credential.
2. Possession of a license to practice dental hygiene in at least one state or Canadian province and current Cardiopulmonary Resuscitation (CPR) credential.

Admission for Other Applicants

1. Possession of a certificate or diploma in dental hygiene granted by an officially recognized institution.
2. Verification that the practice of dental hygiene is authorized by the government of the home country.
3. University admission requires that students whose native language is not English submit a score of 580 or higher on the Test of English as a Foreign Language (TOEFL).

Departmental Application Deadline: Transfer and postbaccalaureate students are admitted into the program summer and autumn quarters. The deadlines are the same for both quarters: April 15 for citizens and permanent residents, January 15 for international students.

Major Requirements

To qualify for the Bachelor of Science degree with a major in dental hygiene, students must complete University requirements as well as dental hygiene major requirements. The University requirements include a 45-credit senior residency, English, writing, and quantitative reasoning proficiencies, and Areas of Knowledge. The dental hygiene major requirements include

a sequence of three dental-hygiene core courses and a minimum of one path. Majors may be eligible, following the completion of prerequisite courses, to participate in study-abroad programs that focus on oral health promotion or dental disease prevention. The University and its affiliated sites provide the settings for fieldwork, research activities, and interdisciplinary learning experiences.

Completion of the required major and University requirements takes one to two years. Students planning to graduate in one year must have a faculty-approved plan of study within the first quarter of enrollment. Students planning a two-year program must have a faculty-approved plan of study within the first two quarters of enrollment. All students must meet with a program adviser yearly and are encouraged to meet with a program adviser quarterly. The completion of courses that fulfill graduation requirements is the responsibility of the student.

Core Requirement

Students complete a year-long core requirement founded on significant oral health problems and probable solutions within the context of specific communities. Behavioral change, community development, health education models, and scientific literature provide a theoretical foundation for study in the core courses. The core curriculum focuses on real problems in real places. Using a people-places-problems approach, students use Internet and library resources to research, analyze, discuss, and make evidence-based decisions relevant to oral health promotion and dental disease prevention. Further, they explore core values, ethics, laws, and issues related to care access, health promotion/disease prevention approaches, and healthcare delivery models. Included are field activities linked to education, government, business, and health resources. Additionally, dental hygiene majors complete requirements in at least one path and may take electives of their choice to complete the senior residency requirement. All students must complete the three core courses (3 credits each, total 9) in the prescribed order. These courses are: D HYG 465, D HYG 492, and D HYG 493 or approved substitutes.

Path Requirement

Students must select at least one of four pathways to fulfill the path requirement. The options are:

Dental Hygiene Care and Education. This path is for dental hygienists who desire clinical teaching positions at a community or technical college or who desire to work as clinicians in hospitals, clinics, long-term care facilities or other healthcare services that require advanced clinical and management skills. Students take courses in principles and evaluation of learning, along with courses that focus on dental hygiene care and management of persons with physical, mental, developmental, and complex medical disabilities. Elective courses in educational issues augment this path. Major requirements include a minimum of 11 or 12 credits beyond the core: at least 7 in education, of which 2 must be in teaching methods (D HYG 494 or MED ED 520), 3 in evaluation of learning (MED ED 521), and 2 in educational internship (D HYG 595). Also required are 6 credits in care of special clients, of which 2 must be in ORALM 404 and the remaining in at least one section of D HYG 404 or approved substitutes.

Oral Health Promotion. This path is for dental hygienists who desire to work in multicultural and multidisciplinary settings at the local, state, national, or international levels and who require skills beyond clinical expertise. Students learn about the framework within which societies organize and manage their healthcare services and learn to link health with the environment, people's beliefs, ways of life, and kinship. They learn about differences between Western, Eastern and Shamanistic philosophies of health as prerequisites to developing educational strategies for oral health promotion and dental disease prevention. As students build skills

essential for working with health agencies, they participate in community health projects as educators, advocates, or researchers. Activities focus on the health of children and families in rural and remote areas of Washington State. Major requirements for this path include a minimum of 12 credits beyond the core: 2 in educational methods (D HYG 494 or MEDE D 520), 3 in healthcare delivery systems (D HYG 402), 3 in health promotion strategies (D HYG 403) or approved substitute, and a minimum of 4 credits in at least 2 sections of D HYG 404 or approved substitutes.

Oral Health Administration. This path is for dental hygienists who desire to learn about entrepreneurship, create a business, differentiate between various kinds of organizations, and learn the differences between publicly held profit-seeking corporations to not-for-profit organizations. Through a Certificate Program in Administration and Management, students complete a market feasibility analysis and develop a marketing plan. They develop corporate mission, vision, and value statements, evaluate a company's financial position, apply basic accounting principles, determine appropriate legal structure for new venture, conduct a strategic business analysis, and acquire understanding of basic business law through an intensive integrative administration and management course. This path requires a minimum of 17 credits beyond the core: 15 in ADMIN 510 and a minimum of 2 in an oral-health administration-related internship (D HYG 595 or approved substitute).

Biological and Behavioral Sciences. This path is for dental hygienists who desire preparation for graduate or professional school or who need to make a career change stemming from a clinical practice-related medical disability. Students who choose this path must present to an advisor the prerequisite courses and skills required of the graduate or professional school, or new career. Upon completion of this path, students are expected to make application for further study in a professional or graduate school program or seek employment in new career. Students in this path may require more than the 45-credit residency to complete the Bachelor of Science degree and ought to consider either a double major or a major and a minor. Major requirements for this path include the core plus 6 credits in technical writing (T C 333 or T C 400 and T C 401 or T C 498); and a sufficient number of credits for admission eligibility to a graduate-, professional-, or new career program or employment.

Academic Standards

The School of Dentistry requires that a minimum numerical grade of 2.5 be earned in dental hygiene courses which are to be counted toward satisfaction of graduation requirements with a dental hygiene major. Graduation with a dental hygiene major also requires a minimum cumulative GPA of 2.00 for all work done in residence at the University. A student whose cumulative GPA falls below 2.00 in any quarter will be placed on academic probation. The status of academic probation shall be removed when the cumulative GPA is 2.00 or above. While on probation, the student must attain at least a 2.50 GPA for each succeeding quarter's work until the cumulative GPA is raised to 2.00.

Professional and Graduate Programs

For information on the School of Dentistry's graduate and professional programs, see the graduate and professional volume of the *General Catalog* or visit the *General Catalog* online at www.washington.edu/students/gencat/.

Course Descriptions

See page 48 for an explanation of course numbers, symbols, and abbreviations.

For graduate-level course descriptions, see the graduate and professional study volume of the *General Catalog* or visit the online course catalog at www.washington.edu/students/crscat/.

D HYG 402 Global Perspectives in Oral Health (3)

Disease patterns and their impact on oral health care delivery systems. Cultural, demographic, economic, and political factors affecting the effectiveness of various systems. Offered: A.

D HYG 403 Oral Health Educational Strategies (3)

Planning, preparing, and evaluating educational strategies for oral health promotion. Assessment of needs, development of objectives, creation of communication messages, review of behavioral and educational theories, mechanisms of evaluation. Offered: W.

D HYG 404 Field Experience in Delivery of Oral Health Care (2-12, max. 12)

Focuses on healthcare delivery issues: environmental, social, educational, economic, or cultural. Students participate at approved health agencies to learn about societal, ethical, cultural, and client oral healthcare needs and demands. The 2-credit minimum includes 30 hours on-site, end-of-quarter seminar, written assignment, and weekly e-mail communication with faculty. Offered: A/W/SpS.

D HYG 465 Theoretical and Scientific Basis for Dental Hygiene Practice (3)

Lecture-discussion on science, theory, and dental hygiene practice. Focuses on clinical-decision making processes and evidence-based learning in management of oral health problems. Includes experience at selected sites. UW library system and computer resources used to search and retrieve information for reports. Offered: A.

D HYG 482 Local Anesthesia for Dental Hygienists (2)

Techniques of local anesthesia and initial management of emergencies in the dental office.

D HYG 491 Issues in Professional Education (3)

Seminar and discussions on topics influencing dental education. Academic freedom, accreditation, interdisciplinary relationships, legislation, licensure, tenure.

D HYG 492 Principles of Scientific Investigation for Oral Health Professionals (3) QSR

Introduction to principles of scientific investigation, biostatistics and their application to relevant literature. Offered: W.

D HYG 493 Review of Literature for Oral Health Professionals (3) QSR

Application of modern methods of library search and critical analysis of relevant literature. Includes technical writing and oral reporting as a means of integrating knowledge and skills acquired in 465 and 492. Offered: Sp.

D HYG 494 Principles of Teaching for Oral Health Professionals (3)

Application of principles of learning to teaching methods and techniques used in education, with opportunity for course planning, demonstration, and practice teaching. Offered: A.

D HYG 497 Directed Studies for Oral Health Professionals (* max. 14)

Based on student interest in special areas. Independent study and tutorial student-faculty relationships. Credit/no credit only. Prerequisite: permission of instructor. Offered: A/W/SpS.

College of Engineering

Dean

Denise D. Denton
371 Loew

Associate Deans

Mary E. Lidstrom
Chen Ching-Liu



General Catalog Web page:
www.washington.edu/students/gencat/academic/College_Engineering.html



College Web page:
www.engr.washington.edu

Engineering is an increasingly critical societal enterprise. More than ever before, the engineer is challenged both to design products whose value is high by social and economic measures and to provide for efficient manufacture of such products within the constraints of environmental protection and diminishing raw-material resources. Requirements imposed on the transportation system and other elements of society's physical infrastructure pose analogous challenges. At the same time, reductions in computer costs and increases in sophistication are dramatically influencing both the products and processes designed by the engineer and the actual practice of engineering.

The primary goal of the College of Engineering educational programs is to prepare students for a professional career in engineering by providing the technical foundation required for success in industry, government, or academia. Other goals of the College are to instill within its students the highest ethical standards, the capability for lifelong learning, and a curiosity about the world. Excellence in undergraduate and graduate academic programs remains the College's highest priority.

For undergraduates, the College of Engineering offers a flexible curriculum that not only accommodates varied student needs, both in established departmental programs and interdisciplinary studies, but also culminates in a major and meaningful design experience. (See Interdisciplinary Engineering Studies Program for interdisciplinary undergraduate and graduate programs.)

The College of Engineering has been a major unit of the University since 1899. The first engineering degrees were authorized in mining engineering and metallurgical engineering in 1898. Degrees were added for civil engineering (1901), electrical engineering (1902), mechanical engineering (1906), chemical engineering (1907), ceramic engineering (1919), aeronautical engineering (1929), bioengineering (1983), industrial engineering (1986), and computer engineering (1987). A degree program in technical communication was implemented in 1991. In 1999, 1,566 upper-division undergraduate majors and 1,407 graduate students were enrolled in engineering programs taught by a faculty of 195 members.

College Facilities

Teaching and research activities of the College are conducted in thirteen major campus buildings (and portions of others), which contain the College's offices, classrooms, and research and teaching laboratories. The Engineering Library, a branch of the University Libraries, provides outstanding collections of books, periodicals, technical reports, and patents of interest to engineers. Computers and terminals are available in all departments and at the University's Academic Computer Center.

Student Organizations and Activities

All of the major professional engineering societies have student chapters on campus, and all engineering students are encouraged to join the chapter that represents his or her field of interest. The College also has student chapters of the Society of Women Engineers, American Indian Science and Engineering Society, National Society of Black Engineers, and the Society of Hispanic Professional Engineers. The Pre-Engineering Student Association (PESA) is the major College-wide organization for all students enrolled in a pre-engineering course of study but not yet admitted to a department. The Engineering Student Council, comprising student representatives from all departments and professional societies, is the major College-wide student organization and participates actively in College affairs. Honor societies open to engineering students are Tau Beta Pi and Sigma Xi.

Students serve with faculty members on engineering policy committees which make recommendations concerning instructor evaluation, curriculum revisions, advising, grading systems, and other matters of interest to students and faculty.

Undergraduate Program

Engineering Adviser
356 Loew, Box 352180
(206) 543-1770
engradv@engr.washington.edu



www.engr.washington.edu/advising/

The College of Engineering provides curricula that offer a variety of educational experiences to its students. The curricula also facilitate transfer from community colleges and from other four-year colleges and universities.

Engineering Advising Center

356 Loew

Students are highly encouraged to contact the Engineering Advising Center for program, course, or career information and discussion. The center assists any student interested in planning the initial portion of an engineering degree program, and distributes information about prerequisites for application for admission to all the departments in the College. A student who is interested in engineering is recommended to identify engineering as the intended major while still in the College of Arts and Sciences and to seek advice in the center.

Financial Aid

The College offers financial assistance to undergraduates through industrial scholarships and loan funds. Scholarship information is available at the College of Engineering Advising Center (356 Loew), and at the Office of Student Financial Aid, 105 Schmitz. Most scholarships are given after a year or more in residence by the student.

Honors Program

356 Loew

The College of Engineering Honors Program offers students of outstanding performance and achievement a course of study designed to provide intellectual challenge in a stimulating learning atmosphere which draws on the resources of a large, diversified university. Students entering the Honors Program become candidates for the degree "With College Honors" or "With Distinction."

The College Honors Degree

Students who complete this program receive a degree "With College Honors."

The College honors degree requires that students participate in the University Honors Program while taking engineering prerequisites in the College of Arts and Sciences. When these students are admitted to engineering departments, they may be nominated to enroll in the Engineering Honors Program. Completion of the College Honors degree involves both an honors general-education component and advanced honors work completed after students have been admitted to the College of Engineering.

Admission Requirements: Minimum cumulative GPA of 3.30, minimum departmental GPA, and participation in the University Honors Program as a pre-engineer.

Graduation Requirements: The College honors curriculum consists of two parts: a general-education component and a component in the student's major department. The general-education component is completed while the student is in the College of Arts and Sciences prior to application to the College of Engineering. Students select three sequences, each three quarters long, from honors A&S courses, the Natural World, and Mathematics (selecting at least one from each).

The second component begins when a student is admitted to an engineering department. Students then select a total of 9 credits of College honors courses with a minimum of 3 credits of departmental 499H Special Projects (or ENGR 499H). The additional honors credits can be fulfilled with either special projects or ad hoc courses.

The Departmental Honors Degree

Students who complete this program receive a degree "With Distinction."

Admission Requirements: Minimum cumulative GPA of 3.30, minimum departmental GPA (varies from department to department).

Graduation Requirements: Students are nominated for the Departmental Honors Program when they have been in their department for a minimum of one quarter. Students select a total of 9 credits of college honors courses with a minimum of 3 credits of departmental 499H Special Projects (or ENGR 499H). The additional honors credits can be fulfilled with either special projects or ad hoc courses.

At present, departmental honors degrees are offered in the following degree programs: Aeronautics and Astronautics, Bioengineering, Chemical Engineering, Civil and Environmental Engineering, Computer Engineering, Electrical Engineering, Industrial Engineering, Materials Science and Engineering, Mechanical Engineering, and Technical Communication.

International Study

Given the increased likelihood that engineering students will have overseas work experiences or will do business with international clients and competitors, the College encourages students to study foreign languages in addition to their engineering course work and to take advantage of opportunities for study at foreign universities either at the undergraduate or graduate level. The College has active exchange agreements with approximately thirty universities in twenty countries. Foreign-language courses at the third-quarter level or above (e.g., GERMAN 103) may be applied toward VLP distribution. Students may contact the Office of Organizational Infrastructure, 356 Loew, for information about opportunities for international study. Engineering students can also participate in the Global Engineering Education Program (through the Women in Science and Engineering Program) for opportunities to study abroad.

Recommended High School Preparation

Substantial high school preparation in mathematics, physical science, and communication is essential for entrance to engineering studies. Required and recommended courses may be determined from the Engineering Advising Center (356 Loew).

Admission

Students who indicate an interest in engineering on their University admission application are assigned pre-engineering status. Students without pre-engineering status who wish to pursue an engineering degree may have their coding changed to pre-engineering upon request at the College of Engineering Advising Center (356 Loew) or the Undergraduate Advising Center (9 Communications). As a pre-engineering major, a student will take courses in mathematics, chemistry, physics, English composition, and all other prerequisite courses for admission to the desired engineering departmental program. In addition, courses in the Visual, Literary, & Performing Arts and Individuals & Societies will be taken.

Admission requirements vary for departments or programs within the College of Engineering. Some departments or programs offer early admission, while others do not. For specific, up-to-date information regarding the admission requirements for a department or program, the applicant should contact the College of Engineering Advising Center (356 Loew) or the undergraduate adviser for the specific department or program of interest. In addition, all departments and programs within the College provide up-to-date course and admission information on the World Wide Web.

For general upper-division admission, students must apply to the engineering department or program after completion of the prerequisite courses for the program, with at least 64 credits applicable to the degree program. In general, the prerequisite courses include one year of calculus, differential equations, one or two quarters of inorganic chemistry, two to three quarters of physics, English composition, and several engineering fundamentals. The Engineering Advising Center or the individual department or program may be consulted for a listing of specific entrance requirements.

Types of Programs

The College offers three basic programs leading to Bachelor of Science degrees:

Departmental Major: This program leads to a Bachelor of Science degree in a designated field of engineering (e.g., Bachelor of Science in Civil Engineering). It is designed for students who intend to practice as professional engineers in a standard branch of engineering or who plan to undertake graduate study in that field. The curricula for these degrees are accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology (ABET), the principal engineering accrediting agency in the United States. Accreditation requirements stipulate certain course-distribution requirements for the undergraduate degree. A description of how each of the accredited baccalaureate programs meets the ABET requirements is available from the department office and from the College office. Accredited four-year curricula leading to baccalaureate degrees are offered in aeronautics and astronautics, and in ceramic, chemical, civil, computer, electrical, industrial, mechanical, and metallurgical engineering.

Application to a department or program at the upper-division level is made at the time that lower-division requirements are satisfied. Currently, enrollment limits imposed by faculty size and available laboratory/classroom space are such that entry into a specific department or program may be competitive. In general, a student applicant must demonstrate scholastic aptitude, as evidenced by the attainment of grades whose average is a minimum of 2.50 or above (depending upon the program) in mathematics, the Natural World,

English composition, and other courses. The student is urged to plan ahead by learning the intended department or program requirements and particularly noting which requirements must be fulfilled by the time the application is made.

Nondepartmental Professional Program: This program leads to a Bachelor of Science in Engineering degree and is designed for students who have well-defined, special educational objectives that departmental programs do not satisfy. Graduates can practice as professional engineers in newly developing fields, or they may embark on graduate study in these or allied fields (see Interdisciplinary Engineering Studies Program).

Nonprofessional Program: Leading to a Bachelor of Science degree, this program is intended for students who wish to have significant exposure to science and engineering courses, but do not plan to engage in professional engineering practice (see Interdisciplinary Engineering Studies Program).

Graduation Requirements

To graduate, students must meet or exceed the requirements of the University, the College, and their particular program or department. College requirements are listed in this section, and program or departmental requirements are given in the specific section that describes that program or department.

All departments of the College have continuation policies that specify a minimum rate of progress as well as minimum academic-performance levels. These policies may be more restrictive than those generally applied by the University and may change with time. Information on current policy is available at the departmental offices.

Selecting courses that fulfill graduation requirements is the responsibility of each student. Students are urged to check carefully the course and credit requirements of the program in which they are enrolled.

The College requires a minimum number of credits within certain areas of study and some specific courses within certain areas. All programs require the following:

General Education Requirements: 85 Credits

Areas of Knowledge: 49 Credits

Visual, Literary, & Performing Arts and Individuals & Societies: 24 credits minimum. Some programs within the College require 30 credits. Visual, Literary, & Performing Arts (VLPA) includes courses in literature, art, music, and drama which stress the essential qualities of individual forms of expression. First- and second-quarter language courses may not be counted toward the VLPA requirement. Individuals & Societies includes courses in history, economics, psychology, and sociology which stress the social nature of mankind, and the development and analysis of societies and social institutions. Courses that count toward these requirements are identified as VLPA or I&S in the *General Catalog* and in the quarterly *Time Schedule*. A minimum of 10 credits is required in each area. One in-depth sequence consisting of two or more related courses is required as part of the VLPA/I&S requirement.

Natural World: 20-25 credits. Most departments within the College require chemistry (10 credits): CHEM 142, 152 (some departments do not require CHEM 152); and physics (15 credits): PHYS 121/131, 122/132, 123/133. Please consult an adviser in the Engineering Advising Center (356 Loew) or the departmental adviser.

Mathematics: 24 Credits

Specifically required are MATH 124, 125, 126, 307, and 308. The remaining 3 credits are specified or recommended by the department or program.

Written and Oral Communication: 12 Credits

One 5-credit English composition course from the approved University list. T C 231, Introduction to Technical Writing (3 credits), and T C 333, Advanced Technical Writing and Oral Presentations (4 credits, or department-approved alternative).

Engineering Departmental Course of Study: 95 Credits

Major departments or specific programs require at least 95 credits in their curricula. These course sequences were developed to culminate in a major, meaningful design experience.

Special Programs

Engineering Co-op Program (three to six month internships)

Director, Lorena McLaren
353 Loew, Box 352180
coop@engr.washington.edu



www.engr.washington.edu/~coopweb/

The Co-op Program provides an opportunity for pre-engineering students and departmental students to combine practical, full-time, on-the-job engineering experience with full-time academic study. Students typically take a break from their studies for six months to work full-time and return to full-time academic status upon completion of the co-op assignment. In addition, students receive academic credit for the co-op experience. Advantages to participation include assistance in deciding which field of engineering to follow, additional income to help defray college expenses, relevance and motivation for study based on real engineering work, and work experience and employment contacts that may result in regular employment after graduation.

Information may be obtained from the Co-op Program Office, College of Engineering, Box 352180.

Educational Outreach



Engineering Professional Programs:
www.engr.washington.edu/~uw-epp/



Education at a Distance for Growth and Excellence: www.engr.washington.edu/edge/

Fulfilling a commitment to lifelong learning, the College of Engineering offers courses, workshops, and conferences to respond to the professional development needs of practicing engineers and related technical professionals worldwide. Through Engineering Professional Programs (EPP) and Education at a Distance for Growth and Excellence (EDGE) thousands of practicing engineers update their technical knowledge or pursue advanced degrees each year. For more information contact Engineering Professional Programs at (206) 543-5539, or Education at a Distance for Growth and Excellence at (206) 685-2242.

Special Facilities

Office of Engineering Research
Coordinator, Mary Heusner
372 Loew, Box 352180



www.engr.washington.edu/research/

The Office of Engineering Research promotes, stimulates, and coordinates research in all fields of engineering. Its primary role is to coordinate interdisciplinary research programs and national research initiatives. The Office of Research also reviews grant and contract proposals, tracks awards, and provides information on funding opportunities. This office allocates limited matching funds to College units to increase the quality of research in the College of Engineering.

Interdisciplinary Engineering Studies Program

356 Loew

The College of Engineering directly administers non-departmental undergraduate and graduate degree programs. Some engineering fundamentals and writing courses required for admission to the departments are managed by specific engineering departments.

Undergraduate Programs

356 Loew

The Interdisciplinary Engineering Studies (IES) Program is intended for students whose desired course of study does not fall within one of the traditional engineering departments. An interdisciplinary program combines course work from at least one engineering department as well as other department(s) on campus (Engineering or other) to allow students to create a program of study not available through the existing undergraduate degree programs. Students wishing to study an undergraduate program with emphasis in bioengineering also apply through this degree program. Although course work may involve departments outside the College of Engineering, the major thrust must be in engineering.

The IES Program offers a nonprofessional degree program leading to the Bachelor of Science (B.S.) and a professional degree program for the Bachelor of Science in Engineering (B.S.E.).

Due to the uniqueness of each interdisciplinary student's program of studies, the B.S. and B.S.E. degrees are not accredited by the Accreditation Board for Engineering and Technology (ABET). The experience requirement to obtain a professional engineering license is two years longer for a B.S.E. graduate, except in surveying, than for a graduate of an accredited program. A B.S. graduate is not eligible for a professional engineering license.

Interdisciplinary students develop personal programs of study approved by a faculty adviser with similar interests. Programs are reviewed and approved by the Interdisciplinary Committee, which oversees all undergraduate interdisciplinary-study programs. Contact the Office of Organizational Infrastructure, (206) 543-8590, for information on established procedures and applications for entry into the B.S.E. and B.S. programs. Entrance requirements and the continuation policy for participation in these programs are consistent with those of other departments in the College.

Bachelor of Science in Engineering

Admission to this program (usually after completion of 90 credits) is competitive with a minimum GPA of 2.80 in technical courses required for entry. A minimum of 75 credits must be completed after entering the program before a B.S.E. degree is awarded. Detailed information regarding the B.S.E. degree can be obtained from an adviser in the College of Engineering Advising Center (356 Loew).

Bachelor of Science

The nonprofessional Bachelor of Science degree provides greater flexibility than does the Bachelor of Science in Engineering degree. It can be an excellent base for subsequent professional studies in law, medicine, or business. It may also be the primary educational objective in such fields as technical writing, engineering sales, or environmental studies. Detailed requirements are available from the adviser in the Engineering Advising Center (356 Loew).

Course Descriptions

See page 48 for an explanation of course numbers, symbols, and abbreviations.

For graduate-level course descriptions, see the graduate and professional study volume of the *General Catalog* or visit the online course catalog at www.washington.edu/students/crscat/.

ENGR 100 Introduction to Engineering Design (5 I&S) Introduction to design and communication principles through engineering project approach, stressing teamwork, design process, specialties and tools of engineering, creative and analytical thinking, professionalism and ethics, social, economic and political context, open-ended problems. Grading based on quality of engineering projects and presentation of design through written, oral, and graphical communication. Offered: AWSp.

ENGR 197 Engineering Problem Solving (1, max. 12) Lectures and problem sessions in mathematics, chemistry, and physics with engineering applications. Enrollment restricted to Minority Science and Engineering Program (MSEP) students. Credit/no credit only. Offered: AWSp.

ENGR 199 Special Projects (1-3, max. 3) Students propose problems to solve to an engineering faculty member. The problems may be selected from the student's own experiences and interests, from the interest of the faculty member, or from other sources such as faculty or graduate students doing research projects, or from personnel in the physical medicine area, occupational therapy, hospital, industry, government. Corroboration by an engineering faculty member is required. Project suggestions are available. Offered: AWSpS.

ENGR 202 Special Projects (1-3, max. 3) Projects on topics of current interest in engineering. Offered: A.

ENGR 321- Engineering Cooperative Education ([1-2]-, max. 16) Engineering practicum; integration of classroom theory with on-the-job training. Periods of full-time work alternate with periods of full-time study. Open only to students who have been admitted to the Engineering Cooperative Education Program. Requires subsequent completion of ENGR 322 to obtain credit. Credit/no credit only. Offered: AWSpS.

ENGR -322 Engineering Cooperative Education Postwork Seminar (-0) Reporting and evaluation of co-op work experience, and discussion of current topics in engineering. To be taken during the first quarter in school following each work session. Offered: AWSpS.

ENGR 498 Special Topics in Engineering (1-5, max. 6) Offered: AWSpS.

ENGR 499 Special Projects in Engineering (1-3, max. 6) Offered: AWSpS.

Aeronautics and Astronautics

206 Guggenheim



General Catalog Web page:
www.washington.edu/students/gencat/academic/Aeronautics_Astro.html



Department Web page:
www.aa.washington.edu

Aeronautics and Astronautics deals with the design and analysis of air and space vehicles and a broad spectrum of related engineering science, such as aerodynamics, structural mechanics, automatic controls, flight mechanics, space dynamics, propulsion, plasma dynamics, and related topics. Established in 1930, the department is the only one of its kind in the Pacific Northwest, a region whose vast aerospace industry is a major contributor to the technological development, economic vitality, and security of the United States. Educators and researchers in the department have contributed profusely to all major areas of aerospace engineering. Graduates at all degree levels have been successful and valued at local, national, and international industries, as well as at government organizations and institutions of higher learning. The department is unique at the University of Washington, in terms of its specific technological applications, its capacity for multidisciplinary integration of complex systems, and its long-term interaction with local industry.

Undergraduate Program

Undergraduate Program Coordinator
206 Guggenheim, Box 352400
(206) 543-1950
ugadvising@aa.washington.edu

The department offers the Bachelor of Science in Aeronautical and Astronautical Engineering degree, based on a program of study of engineering science with emphasis on the design and development of vehicles operating within the atmosphere or space. The goals and objectives of the undergraduate program are to provide a challenging and comprehensive education, to develop necessary functional skills and an understanding of the societal context in which engineering is practiced, to provide a solid foundation in the engineering sciences related to aerospace engineering, to develop engineering creativity through design experience, and to prepare graduates to succeed in engineering careers and lifelong learning. The program is accredited by the Accreditation Board for Engineering and Technology (ABET) and all graduates must meet certain specific distribution requirements.

Bachelor of Science in Aeronautical and Astronautical Engineering

Admission Requirements

Both regular admission and early admission are offered. Entrance-requirement details, application deadlines, application forms, and advising literature may be obtained from the department office.

Admission to the department is competitive. Completion of the requirements specified below does not guarantee admission.

A diverse student body adds an important element to the education of all students in the program. All students who meet the minimum admission requirements will be considered for admission.

All applicants have the right to petition and appeal the decision of the department.

The application deadline is July 1 for autumn quarter.

1. **Regular Admissions:** Students must have completed the following courses prior to admission: MATH 124, 125, 126, 307, 308, PHYS 121/131, 122/132, 123/133, CHEM 142, CSE/ENGR 142, A A/ENGR 210, M E/ENGR 230, CHEM E/ENGR 260, and 5 credits of English composition.

The following courses must also be completed no later than the autumn quarter of admission; however, it is recommended that no more than one be left for completion that quarter because of the required credit load in the department and the need to complete the mathematics requirement by taking MATH 324. Careful planning is strongly recommended: E E/ENGR 215 or A A 320 (offered only to those formally admitted), CEE/ENGR 220, T C/ENGR 231.

At least 75 credits must be completed, with a minimum overall GPA of 2.50 and a minimum grade of 2.0 in the courses specified as required for admission.

2. **Early Admission:** Early admission is available for academically gifted students. Applications are accepted for autumn quarter only and the deadline is July 1. A limited number of students is admitted each year.

Applicants must be currently enrolled at the UW and must have a minimum of 15 credits taken in residency at the UW. Prior to admission, applicants must have completed MATH 124, 125, 126; 10 credits of physical science courses plus accompanying laboratory at the level of PHYS 121/131, 122/132, 123/133, or CHEM 142 or above; and 5 credits of English composition.

Early admission students may start the autumn-quarter, junior-year program after meeting the requirements and standards for upper-division admission.

Graduation Requirements

Students must complete a minimum of 180 credits distributed as follows:

General-Education Requirements:

Areas of Knowledge: 49 credits as follows: Visual, Literary, and Performing Arts, and Individuals and Society: 24 credits. Natural World: 25 credits, to include CHEM 142 (5) and PHYS 121/131, 122/132, 123/133 (15 credits). An additional 5 credits of natural-world courses are required. See department for a list of approved courses.

Mathematics: 24 credits to include MATH 124, 125, 126, 307, 308, and 324 (which must be completed no later than autumn quarter of admission to the department).

Written and Oral Communications: 12 credits, to include one 5-credit English composition course from the University list; T C/ENGR 231, which must be completed no later than the autumn quarter of admission to the department; and T C/ENGR 333 (or department-approved alternative).

Engineering Fundamentals: 23-24 credits, to include CSE/ENGR 142, A A/ENGR 210, M E/ENGR 230, and CHEM E/ENGR 260, all of which must be completed prior to admission; E E/ENGR 215 or A A 320; and CIVE/ENGR 220, which must be completed no later than the autumn quarter of admission to the department.

Professional Courses: 68 credits. The department program begins in the autumn quarter of the junior year. Junior-year professional program courses are all required. The senior year consists of A A 409, 410-411 or 420-421, 450, 498, and 15 credits of senior technical electives. With approval, 3 credits of the latter may be chosen from another area of engineering.

Electives: 3-4 credits of free electives, which may be used to meet the 180 credits required for graduation.

Graduate Program

For information on the Department of Aeronautics and Astronautics' graduate program, see the graduate and professional volume of the *General Catalog* or visit the *General Catalog* online at www.washington.edu/students/gencat/.

Faculty

Chair

Adam Bruckner

Professors

Bollard, R. John * 1961, (Emeritus); PhD, 1954, Purdue University; mechanics of materials, structural mechanics, aeroelasticity, design and crashworthiness of aircraft.

Breidenthal, Robert E. * 1980; PhD, 1979, California Institute of Technology; turbulence, mixing, combustion, vorticity, bluff body flows.

Bruckner, Adam * 1972; PhD, 1972, Princeton University; space systems, propulsion, mission design, resource utilizations; hypervelocity accelerators.

Christiansen, Walter H. * 1967; PhD, 1961, California Institute of Technology; gas dynamics and gas physics, high-power gas lasers, energy conversion.

Clark, Robert N. * 1957, (Emeritus); PhD, 1969, Stanford University; automatic control systems, fault detection in dynamic systems.

Decher, Reiner * 1973; PhD, 1968, Massachusetts Institute of Technology; aircraft propulsion, fluid mechanics, energy conversion.

Eastman, Fred 1974, (Emeritus); MS, 1929, Massachusetts Institute of Technology; aeronautics and astronautics.

Fyfe, Ian M. * 1959, (Emeritus); PhD, 1957, Stanford University; dynamics, fracture mechanics.

Hertzberg, Abraham * 1966, (Emeritus); MAEE, 1949, Cornell University; high-power lasers, fusion research, solar energy, space systems, energy systems, heat transfer.

Hoffman, Alan Lowell * 1989; PhD, 1967, California Institute of Technology; plasma physics and magnetic confinement fusion.

Holsapple, Keith A. * 1965; PhD, 1965, University of Washington; solid mechanics, continuum mechanics, structures, waves, finite element methods.

Jarboe, Thomas R. * 1989; PhD, 1974, University of California (Berkeley); plasma physics and controlled fusion, magnetic reconnection and relaxation.

Joppa, Robert G. * 1947, (Emeritus); PhD, 1972, Princeton University; aircraft flight mechanics, stability and control.

Kevorkian, Jirair * 1964; PhD, 1961, California Institute of Technology; partial differential equations, perturbation theory.

Kurosaka, Mitsuru * 1987; PhD, 1968, California Institute of Technology; propulsion, turbo machinery, thermo-fluid mechanics, heat transfer and acoustics.

Lin, Kuen-Yuan * 1984; PhD, 1977, Massachusetts Institute of Technology; composite materials, structural mechanics, finite element methods.

Parmerter, R. Reid * 1963, (Emeritus); PhD, 1963, California Institute of Technology; structures, solid mechanics, fracture mechanics.

Pearson, Carl E. * 1967, (Emeritus); PhD, 1949, Brown University; wave propagation, fluid dynamics, numerical analysis, optimization.

Russell, David A. * 1967; PhD, 1961, California Institute of Technology; fluid mechanics and gas physics, aerodynamics, shock processes and nonequilibrium flow.

Street, Robert E. 1948, (Emeritus); PhD, 1939, Harvard University; aeronautics and astronautics.

Vagners, Juris * 1967; PhD, 1967, Stanford University; dynamics, controls and optimization.

Associate Professors

Eberhardt, David Scott * 1986; PhD, 1985, Stanford University; computational fluid dynamics, flight mechanics.

Livne, Eli * 1990; PhD, 1990, University of California (Los Angeles); aeroelasticity, aeroservoelasticity, multidisciplinary design optimization, structural dynamics.

Ly, Uy-Loi * 1988; PhD, 1983, Stanford University; flight mechanics, flight control, multivariable control, optimization.

Mattick, Arthur T. * 1975; PhD, 1975, Massachusetts Institute of Technology; gas physics, gas lasers, energy conversion, heat transfer, space power systems.

Slough, John T. * 1992, (Research); PhD, 1981, Columbia University; plasma physics, magnetic fusion, space propulsion.

Assistant Professors

Campbell, Mark E. * 1997; PhD, 1996, Massachusetts Institute of Technology; precision-controlled structures, autonomous aerospace vehicles, smart materials.

Shumlak, Uri 1994; PhD, 1992, University of California (Berkeley); computational fluid dynamics, plasma science, plasma propulsion.

Course Descriptions

See page 48 for an explanation of course numbers, symbols, and abbreviations.

For graduate-level course descriptions, see the graduate and professional study volume of the *General Catalog* or visit the online course catalog at www.washington.edu/students/crscat/.

A A 101 Air and Space Vehicles (5) NW Introduction to aircraft and spacecraft; how airplanes fly, how airplanes and rockets are made, how they are controlled, and how space missions are designed. Laboratory and computer simulations used as illustrations. Emphasis on conceptual, rather than mathematical, comprehension. Not recommended for upper division students in physical sciences and engineering. Offered: A.

A A 210 Engineering Statics (4) NW Vector analysis applied to equilibrium of rigid body systems and subsystems. Force and moment resultants, free body diagrams, internal forces, and friction. Analysis of basic structural and machine systems and components. Prerequisite: either MATH 126, MATH 129, or MATH 136; PHYS 121; recommended: graphics background. Offered: AWSpS.

A A 280 Introduction to System Engineering (4) Concepts of system approach, system hierarchies, functional analysis, requirements, trade studies, and other concepts used to define and integrate complex engineering systems. Prerequisite: CSE 142. Offered: jointly with IND E 280.

A A 300 Aerodynamics I (4) *Breidenthal, Eberhardt, Russell* Aerodynamics as applied to the problems of performance of flight vehicles in the atmosphere. Kinematics and dynamics of flow fields; incompressible flow about bodies. Thin airfoil theory; finite wing theory. Compressible fluids; one-dimensional compressible flow; two-dimensional supersonic flow. Prerequisite: PHYS 123; MATH 307. Offered: A.

A A 301 Aerodynamics II (4) *Breidenthal, Eberhardt, Russell* Aerodynamics as applied to the problems of performance of flight vehicles in the atmosphere. Kinematics and dynamics of flow fields; incompressible flow about bodies. Thin airfoil theory; finite wing theory. Compressible fluids; one-dimensional compressible flow; two-dimensional supersonic flow. Prerequisite: CHEM E 260; A A 300. Offered: W.

A A 309 Computer Tools for Aerospace Engineers II (1) Embedded programming in spreadsheets. Using symbolic math software to find polynomial properties, to perform matrix operations, and to solve equations. Numerical and symbolic differentiation and integration. Numerical solution of Laplace's equations, 1st order ODE/s using Runge-Kutta. Computer data acquisition. Offered: Sp.

A A 310 Orbital and Space Flight Mechanics (4) *Bruckner, Campbell, Vagners* Newton's law of gravitation. Two-body problem, central force motion, Kepler's laws. Trajectories and conic sections. Position and velocity as functions of time. Orbit determination and coordinate transformations. Rocket dynamics, orbital maneuvers, Hohmann transfer. Interplanetary trajectories, patched conics. Planetary escape and capture. Gravity assist maneuvers. Prerequisite: M E 230. Offered: A.

A A 311 Atmospheric Flight Mechanics (4) *Livne, Ly, Russell* Applied Aerodynamics, aircraft flight "envelope," minimum and maximum speeds, climb and glide performance. Range and endurance, take-off and landing performance, using both jet and propeller power plants. Longitudinal and dynamic stability and control, wing downwash, stabilizer and elevator effectiveness, power effects. Lateral and directional stability and control. Prerequisite: A A 300. Offered: Sp.

A A 312 Structural Vibrations (4) *Campbell, Ly, Vagners* Vibration theory. Characteristics of single and multidegree-of-freedom linear systems with forced inputs. Approximate methods for determining principal frequencies and mode shapes. Application to simple aeroelastic problems. Prerequisite: M E 230. Offered: W.

A A 320 Aerospace Instrumentation (3) Hands-on laboratory experience in aerospace instrumentation. Students build sensors, power supplies, and circuits. Application of signal conditioning to wind tunnel data. Digital systems, A/D conversion, D/A conversion, and actuator control. Introduction to instrumentation requirements for space vehicles.

A A 321 Junior Laboratory II (2) *Christiansen, Livne* The design and conduct of experimental inquiry with consequent introduction to experimental equipment and techniques relative to the general field of mechanics with emphasis in the applied fields of aeronautics and astronautics. Offered: W.

A A 322 Junior Laboratory III (2) *Christiansen, Livne* The design and conduct of experimental inquiry with consequent introduction to experimental equipment and techniques relative to the general field of mechanics with emphasis in the applied fields of aeronautics and astronautics. Offered: Sp.

A A 331 Structural Analysis II (4) *Holsapple, Livne* Analysis and design of aerospace structures. Review of concepts of stress, deformation, strain, and displacement and of the equations of elasticity. Applications to aerospace structural elements, including beams, torsion, plane stress and strain, thin walled structures, plates, buckling; energy principles: introduction to finite element analysis. Fatigue, yielding, and fracture. Prerequisite: CEE 220. Offered: W.

A A 332 Structural Analysis III (4) *Holsapple, Livne* Analysis and design of aerospace structures. Review of concepts of stress, deformation, strain, and displacement and of the equations of elasticity. Applications to aerospace structural elements, including beams, torsion, plane stress and strain, thin walled

structures, plates, buckling; energy principles: introduction to finite element analysis. Fatigue, yielding, and fracture. Prerequisite: A A 331. Offered: Sp.

A A 360 Propulsion I (4) *Breidenthal, Bruckner, Kurosaka* Study of the aero- and thermodynamics of jet and rocket engines. Air-breathing engines as propulsion systems. Turbojets, turbofans, turboprops, ramjets, hybrid engines. Aerodynamics of gas-turbine engine components. Rocket vehicle performance. Introduction to space propulsion. Prerequisite: A A 301. Offered: Sp.

A A 400 Gas Dynamics (3) *Christiansen, Eberhardt, Russell* Introduction to kinetic theory and free molecule flows. Review of thermodynamics. One-dimensional gas dynamics: one-dimensional wave motion, waves in supersonic flow, flow in ducts and wind tunnels. Prerequisite: PHYS 123; CHEM E 260. Offered: W.

A A 402 Fluid Mechanics (3) *Christiansen, Russell* Inviscid equations of motion, incompressible potential flows, small perturbation flows, bodies of revolution, viscous equations, exact solutions, laminar boundary-layer equations, similar solutions, integral methods. Compressibility, instability, turbulent boundary layers. Prerequisite: MATH 324; A A 300. Offered: Sp.

A A 405 Introduction to Aerospace Plasmas (3) *Hoffman, Jarboe, Shumlak* Review of vector analysis. Development of introductory electromagnetic theory including Lorentz force and Maxwell's equations. Plasma description. Single particle motions and drifts in magnetic and electric fields. Derivation of plasma fluid model. Introduction to plasma waves. Applications to electric propulsion, magnetic confinement, and plasmas in space and Earth's outer atmosphere. Prerequisite: PHYS 123; MATH 324. Offered: W.

A A 406 Gas Discharges for Plasma Processing and Other Applications (3) *Jarboe, Nelson, Shumlak* Lectures and demonstrations on direct-current and radio-frequency electrical discharges for sputtering, plasma etching and other plasma processing applications. Prerequisite: either MATH 136 or MATH 307; PHYS 122.

A A 409 Computer Tools for Aerospace III (2) Computer-aided drawing basics, three-dimensional drawing, projections, views. Computer-aided design and analysis tools for stress and heat transfer calculations. Offered: A.

A A 410- Aircraft Design I (4-) *Livne* Conceptual design of a modern airplane to satisfy a given set of requirements. Estimation of size, selection of configuration, weight and balance, and performance. Satisfaction of stability, control, and handling qualities requirements. Offered: W.

A A -411 Aircraft Design II (-4) *Livne* Preliminary design of a modern airplane to satisfy a given set of requirements. Estimation of size, selection of configuration, weight and balance, and performance. Satisfaction of stability, control, and handling qualities requirements. Prerequisite: A A 410. Offered: Sp.

A A 419 Aerospace Heat Transfer (3) *Bruckner, Jarboe, Mattick* Fundamentals of conductive, convective, and radiative heat transfer with emphasis on applications to atmospheric space flight. Prerequisite: PHYS 123; MATH 307. Offered: A.

A A 420- Spacecraft and Space Systems Design I (4-) *Bruckner, Campbell* Design of space systems and spacecraft for advanced near-Earth and interplanetary missions. Astrodynamics, space environment, space systems engineering. Mission design and analysis, space vehicle propulsion, flight mechanics, atmospheric entry, aerobraking, configuration, structural design, power systems. thermal management, systems integration. Design topics vary. Offered: W.

A A -421 Spacecraft and Space System Design II (-4) *Bruckner, Campbell* A continuation of 420. Course content varies from year to year and is dependent on the design topic chosen for 420. Prerequisite: A A 420. Offered: Sp.

A A 430 Finite Element Structural Analysis (3) *Holsapple, Lin* Introduction to the finite element method and application. One- and two-dimensional problems including trusses, beams, box beams, plane stress and plane strain analysis, and heat transfer. Use of finite element software. Prerequisite: CEE 220. Offered: A.

A A 432 Composite Materials for Aerospace Structures (3) *Lin* Introduction to analysis and design of aerospace structures utilizing filamentary composite materials. Basic elastic properties and constitutive relations of composite laminates. Failure criteria, buckling analysis, durability, and damage tolerance of composite structures. Aerospace structure design philosophy and practices. Prerequisite: A A 332. Offered: W.

A A 441 Flight Mechanics (3) *Eberhardt* Determination in flight of performance, stability, and control characteristics of aircraft; and comparison with predicted and wind tunnel results. Prerequisite: A A 311. Offered: Sp.

A A 448 Control Systems Sensors and Actuators (3) Study of control systems components and mathematical models. Amplifiers, DC servomotors, reaction mass actuators. Accelerometers, potentiometers, shaft encoders and resolvers, proximity sensors, force transducers, piezoceramic materials, gyroscopes. Experimental determination of component models and model parameters. Two 3-hour laboratories per week. Prerequisite: either A A 450 or E E 446. Offered: jointly with E E 448; W.

A A 449 Design of Automatic Control Systems (4) Design problems for aerospace vehicles, systems with unstable dynamics, lightly damped modes, nonminimum phase, nonlinear dynamics. Computer-aided analysis, design and simulation, with laboratory hardware-in-the-loop testing. Team design reviews, oral presentations. Prerequisite: either A A 450, E E 446, or M E 471. Offered: jointly with E E 449; Sp.

A A 450 Control in Aerospace Systems (4) *Campbell, Ly, Vagners* Overview of feedback control. Linearization of nonlinear models. Model properties: stability, controllability, observability. Dynamic response: time and frequency domain techniques. Frequency response design techniques. Design of aerospace control systems via case studies. Prerequisite: M E 230; MATH 308. Offered: A.

A A 461 Propulsion II (3) *Bruckner, Kurosaka, Mattick* Physical characteristics and components of rockets. Nozzle gas dynamics and non-ideal flow effects. Solid and liquid propulsion systems, components, and design. Electric propulsion fundamentals and applications. Aerodynamics of airbreathing engine components: inlets, compressors, turbines, afterburners, nozzles. Engine design methodology. Prerequisite: A A 360. Offered: A.

A A 480 Systems Dynamics (3) *Campbell, Livne* Equations of motion and solutions for selected problems; natural frequencies and mode shapes; response of simple systems to applied loads. Prerequisite: A A 312. Offered: Sp.

A A 498 Special Topics in Aeronautics and Astronautics (0-1, max. 10) Lectures and discussions on topics of current interest in aviation and space engineering. Three quarters required for credit. Offered: AWSp.

A A 499 Special Projects (1-5, max. 10) Investigation on a special project by the student under the supervision of a faculty member. A maximum of 6 credits may be applied toward senior technical electives. Offered: AWSpS.

Bioengineering

309 Harris Hydraulics Laboratory

The Center for Bioengineering provides a comprehensive, multidisciplinary program of education and research. The concepts and techniques of engineering are applied to the challenges in biology and medicine. Major areas of current bioengineering research include distributed diagnostics and home health care, molecular bioengineering and nanotechnology, engineered biomaterials, biomedical imaging and image-guided therapy, and computational bioengineering. Detailed information on Bioengineering, its faculty, and courses appears in the Interschool or Intercollege Programs section of this catalog.

Chemical Engineering

105 Benson



General Catalog Web page:
www.washington.edu/students/genocat/academic/Chemical_Eng.html



Department Web page:
depts.washington.edu/chemeng/

Chemical engineering is concerned with processes for transforming raw materials into energy and into a great variety of consumer products, such as gasoline, electronic materials, pulp and paper, fertilizers, rubber, polymers and composites, and pharmaceuticals. Chemical engineers work on research and development of these materials and on the processes for making them, as well as on the design and operation of chemical plants and equipment by which production is achieved. This must be done with efficiency, economy, and concern for society and the environment. Some chemical engineers are employed by government agencies. Few other professions can match the diversity of job opportunities available to graduates in chemical engineering.

Chemical engineers employ the skills of mathematics, physics, chemistry, and, increasingly, biology, along with oral and written communication skills. The chemical engineer develops competence in the use of fundamental tools for engineering analysis and design: thermodynamics, chemical kinetics and reactor design, fluid mechanics, heat and mass transfer, process control, and economics. At the University, students study intensively in these fields and work in teams, often to solve real-life problems, to acquire knowledge and skills applicable in a variety of specialized fields and industries. Flexibility, in fact, is the hallmark of the chemical engineer.

Undergraduate Program

Adviser
Devota Madrano
105 Benson, Box 351750
(206) 543-2252
advising@cheme.washington.edu

The Bachelor of Science in Chemical Engineering degree offered by the department is an accredited, professional program. Its completion should enable the graduate either to find employment in industry or to continue on to graduate school.

Student Associations: The undergraduates in the department run a dynamic chapter of the American Institute of Chemical Engineers.

Bachelor of Science in Chemical Engineering

Advising

All students, including freshmen and sophomores, who are considering chemical engineering as a major are encouraged to be advised in the department.

Admission Requirements

Admission to the department is competitive, and completion of the requirements does not guarantee admission.

A diverse student body adds an important element to the education of all students in the program. All students who meet the minimum admission requirements will be considered for admission. Students with special circumstances (i.e., economically or educationally disadvantaged, or other circumstances) are encouraged to make these known in their application essay.

All applicants have the right to petition and appeal the decision of the department.

Requirements are subject to change. Students should consult an adviser about current requirements.

Application Deadlines: July 1 for autumn quarter. Application is made by filling out an application form available in the department office.

1. Early Admission Group (EAG):
 - a. Open to students enrolled at the UW.
 - b. Completion of the following courses prior to application: MATH 124, 125, 126; CHEM 142, 152, 162; PHYS 121/131; and 5 credits of English composition.
 - c. A minimum grade of 2.0 in each prerequisite course and a minimum GPA of 2.50. At least 15 of the credits must have been taken at the UW.
2. Upper-Division Group (UAG):
 - a. Completion of the following courses: MATH 124, 125, 126, 307 (18 credits); CHEM 142, 152, 162, 223 or 237 (20); PHYS 121/131, 122/132, 123/133 (15), CSE/ENGR 142, CHEM E 260 (8); and one 5-credit English composition course. In addition, it is strongly recommended that students complete CHEM 224 or 238.
 - b. Students with a GPA lower than 2.50 for these specified courses or an overall GPA lower than 2.50 for all courses applicable to the B.S.Ch.E. degree seldom succeed in the department. Historically, a minimum GPA of 2.80 in these categories is required for admission to and success in the department.
 - c. Factors included in the admissions decision include the course record as indicated above and qualitative considerations such as difficulty of completed courses, frequency of incomplete or withdrawal grades, number of repeated courses, applicable work experience and maturity of attitude, record of honors, a demonstrated ability to take at least 12 credits per quarter, and special circumstances disclosed by the applicant.

Entrance to Chemical Engineering Courses

Entrance into most chemical engineering courses is ordinarily limited to majors in chemical engineering, paper science, and the B.S.E. program. Other students who wish to take departmental courses must meet the prerequisites and obtain instructor approval (except for CHEM E 485 and 486, which are open to majors only).

Graduation Requirements

Information on degree requirements is available in detail from the department office or at its Web site. In brief, the required 180 credits include the College of Engineering general-education requirements as specified above, 12 credits of engineering electives, 45 credits of chemical engineering, and 5 credits of electives. Many engineers design new equipment and processes or design modifications to them. The design experience is integrated throughout the curriculum, with open-ended problems (sometimes involving economic constraints) in several courses: design of heat exchangers (CHEM E 340) and distillation towers (CHEM E 435), design by piping and pumping systems (CHEM E 330), design of packed-bed and fluidized-bed reactors (CHEM E 465). The design experience culminates in two capstone design courses (CHEM E 485 and 486) which involve the design of a chemical plant. An optional 9-credit specialty area allows each student to develop special competence in a selected subject by taking a minimum of three courses in that area. Engineering and free electives may be used for this purpose. The areas are biotechnology; polymers, composites, colloids, and interfaces; computers applied to chemical engineering; electronic materials; environmental engineering; and nuclear engineering. A minimum GPA of 2.00 in chemical engineering courses, based on the first time each course is taken, is required for graduation.

Continuation Policy

The department policy on continuation is consistent with the continuation policy of the College. Details may be obtained from the department office or its Web site.

Graduate Program

For information on the Department of Chemical Engineering's graduate program, see the graduate and professional volume of the *General Catalog* or visit the *General Catalog* online at www.washington.edu/students/genocat/.

Faculty

Chair

Eric M. Stuve

Professors

Allan, G. Graham * 1966; PhD, 1956, University of Glasgow (UK); DSc, 1971, University of Strathclyde (UK); fiber and polymer science, creativity and innovation.

Babb, Albert L. * 1956, (Emeritus); MS, 1949, PhD, 1951, University of Illinois; nuclear reactor engineering, bioengineering.

Berg, John C. * 1964; PhD, 1964, University of California (Berkeley); interfacial phenomena, surface and colloid science.

Bowen, J. Ray * 1981; PhD, 1963, University of California (Berkeley); combustion.

David, Morton 1983, (Emeritus); DEng, 1950, Yale University; chemical engineering.

Davis, E. James * 1983; PhD, 1960, University of Washington; transport in porous media, microparticle physics and chemistry, surface and colloid science.

Finlayson, Bruce A. * 1967; MS, 1963, Rice University; PhD, 1965, University of Minnesota; modeling of chemical engineering problems.

Garlid, Kermit L. * 1960, (Emeritus); PhD, 1961, University of Minnesota; nuclear fuel cycles, radioactive waste management.

Gustafson, Richard Roy * 1986, (Adjunct); PhD, 1982, University of Washington; process modeling and optimization, fiber composites.

Heideger, William J. * 1957, (Emeritus); PhD, 1959, Princeton University; biomedical transport phenomena.

Hoffman, Allan S. * 1970; DSc, 1957, Massachusetts Institute of Technology; polymer materials science and engineering.

Horbett, Thomas A. * 1973; PhD, 1970, University of Washington; interfacial proteins, cell interactions, insulin delivery systems.

Johanson, Lennart N. * 1951, (Emeritus); PhD, 1948, University of Wisconsin; chemical engineering.

Lidstrom, Mary E. * 1990; MS, 1975, PhD, 1977, University of Wisconsin; biomolecular engineering, metabolic engineering, bioremediation.

McCarthy, Joseph L. * 1941, (Emeritus); PhD, 1938, McGill University (Canada); thermodynamics, lignin and cellulose, chemistry, pulp and paper science, biochemical engineering.

McKean, William T. * 1979; PhD, 1968, University of Washington; pulp and paper science, chemical engineering.

Moulton, R. Wells 1941, (Emeritus); MS, 1934, PhD, 1938, University of Washington; chemical engineering.

Pilat, Michael J. * 1967, (Adjunct); PhD, 1967, University of Washington; air resources engineering (design of air-pollution-control equipment).

Ratner, Buddy D. * 1972; PhD, 1972, Polytechnic Institute of Brooklyn; synthesis and characterization of polymeric biomaterials.

Ricker, Neil L. * 1978; MS, 1972, PhD, 1978, University of California (Berkeley); process control and optimization.

Schwartz, Daniel T. * 1991; MS, 1985, PhD, 1989, University of California (Davis); electrochemical and environmental engineering.

Seferis, James C. * 1977; PhD, 1977, University of Delaware; polymers and their composites, manufacturing, scaling, and teaming concepts.

Sleicher, Charles A. * 1960, (Emeritus); PhD, 1955, University of Michigan; fluid mechanics, heat transfer.

Stuve, Eric M. * 1985; MS, 1979, PhD, 1983, Stanford University; electrochemical surface science, fuel cell engineering.

Woodruff, Gene L. * 1965, (Emeritus); PhD, 1965, Massachusetts Institute of Technology; reactor physics, fusion engineering, neutron spectroscopy, energy studies.

Yager, Paul * 1987, (Adjunct); PhD, 1980, University of Oregon; physical chemistry and applications of biomembranes.

Associate Professors

Baneyx, Francois * 1992; PhD, 1991, University of Texas (Austin); biotechnology, protein technology, biochemical engineering.

Castner, David G. * 1986, (Research); PhD, 1979, University of California (Berkeley); polymer surfaces, metal-organic interfaces, catalytic materials.

Chang, Michael Wei * 1992, (Adjunct); MD, 1988, University of Texas (Galveston); physical medicine and rehabilitation, electrophysiology biomechanics.

Hodgson, Kevin T. * 1991, (Adjunct); PhD, 1986, University of Washington; surface and colloid science, papermaking chemistry, secondary fiber recycling.

Holt, Bradley R. * 1984; PhD, 1984, University of Wisconsin; process design and control.

Krieger-Brockett, Barbara * 1975; MS, 1972, PhD, 1976, Wayne State University; reaction engineering, chemical kinetics and catalysis simulation.

Assistant Professors

Chistoserdova, Ludmila 1996, (Research); PhD, 1988, Nizhni Novgorod State University (Russia); biochemical pathways in methylotrophs, genomics of methylotrophs.

Hayes, Brian * 1992, (Research); PhD, 1997, University of Washington; polymers and fiber-reinforced composites in aerospace and sporting goods industries.

Jiang, Shaoyi * 1999; PhD, 1993, Cornell University; molecular simulation, statistical mechanics, and scanning microscopy.

Overney, Rene M. * 1996; MS, 1989, PhD, 1992, University of Basel (Switzerland); nanoscale surface science and polymer rheology.

Senior Lecturer

Baratuci, William B. 1998; PhD, 1990, Case Western Reserve University.

Course Descriptions

See page 48 for an explanation of course numbers, symbols, and abbreviations.

For graduate-level course descriptions, see the graduate and professional study volume of the *General Catalog* or visit the online course catalog at www.washington.edu/students/crscat/.

CHEM E 260 Thermodynamics (4) NW Introduction to the basic principles of thermodynamics from a macroscopic point of view. Emphasis on the First and Second Laws and the State Principle, problem solving methodology. Prerequisite: either CHEM 140, CHEM 142, or CHEM 145; either MATH 126, MATH 129, or MATH 136; PHYS 121. Offered: AWSpS.

CHEM E 309 Creativity and Innovation (2) VLPA Allan Understanding creativity and creative thinking; its challenges and dynamics through knowledge, judgment, planning, and observation. Techniques of creative thinking. Design and development of creative games. Computer-aided creative thinking. Creation, protection, and exploitation of a useful idea, including bargaining and negotiations. Offered: jointly with PSE 309; Sp.

CHEM E 310 Material and Energy Balances (4) Chemical and physical process calculations: steady- and unsteady-state material and energy balances with specific examples in vapor-liquid contact operations and multiphase extraction, and introductory thermochemistry. Prerequisite: either CHEM E 260 or ENGR 260 with either ENGR 142 or CSE 142. Offered: Asp.

CHEM E 326 Chemical Engineering Thermodynamics (4) Phase equilibria and chemical equilibria in multicomponent systems; theories of solution; chemical reaction analysis. Prerequisite: CHEM E 310 with either CHEM E 260, CHEM 456, or ENGR 260. Offered: W.

CHEM E 330 Transport Processes I (4) Diffusive transport of momentum, heat and mass; general aspects of fluid flow; the Navier-Stokes equations; one-dimensional flow with engineering applications. Prerequisite: CHEM E 310; either MATH 136 or MATH 307. Offered: W.

CHEM E 340 Transport Processes II (4) Heat transfer, basic principles, and applications. Conduction, convection, and radiation. Prerequisite: CHEM E 330. Offered: Sp.

CHEM E 341 Energy and Environment I (3) NW Kramlich, Malte Energy consumption, U.S. and world. Fossil energy: energy conversion systems; oil, gas and coal resources; air pollution and environmental

impacts. Nuclear energy use, principles, fission reactors, fuel cycle. Offered: jointly with M E 341, PHYS 341, ENVIR 341 A.

CHEM E 342 Energy and Environment II (3) NW Kramlich, Malte Introduction to renewable energy. Principles, practices, and trends of solar, wind, hydro, and biomass (including fuel cell) energy conversion. Reductions in the environmental impact of energy conversion. Offered: jointly with M E 342, PHYS 342, ENVIR 342 W.

CHEM E 435 Transport Processes III (4) Mass transfer, basic principles, and applications to equipment design. Physical separation processes. Prerequisite: CHEM E 326; CHEM E 340. Offered: A.

CHEM E 436 Chemical Engineering Laboratory I (3) Lectures on experimental design, instrumentation, laboratory safety, and report writing; laboratory experiments on fluid mechanics and heat transfer. Emphasis on experimental planning, procedures, and report writing. Prerequisite: CHEM E 326; CHEM E 340 which may be taken concurrently; T C 231; recommended: T C 333. Offered: Asp.

CHEM E 437 Chemical Engineering Laboratory II (3) Continuation of 436. Laboratory investigation of chemical engineering principles applied to equipment design with emphasis on mass transfer operations and chemical reactors. Prerequisite: CHEM E 435; CHEM E 436; CHEM E 465. Offered: W.

CHEM E 450 Solid State Materials and Chemical Processes (3) Seferis Fundamentals of solid state including process analysis, mechanical properties; heterogeneity; anisotropy; liquid/solid transformations; rate processes; thermal analysis; viscoelasticity; microscopy; molecular characterization techniques. Application of fundamentals in examining polymers, metals and ceramics as used in the electronics and aviation industries. Prerequisite: CHEM E 340; CHEM E 465. Offered: W.

CHEM E 455 Surface and Colloid Science Laboratory (1/3, max. 3) Berg Laboratory techniques, equipment, and underlying fundamentals in surface and colloid science. Experiments in the measurement of surface tension, adsorption, wetting and spreading, colloid properties, emulsion preparation and stability, electrophoresis, and interfacial hydrodynamics. Recommended: CHEM E 326; CHEM E 330; CHEM 461. Offered: Sp.

CHEM E 458 Surface Analysis (3) Understanding of solid surfaces for research and development in microelectronics, catalysis, adhesion, biomaterials science, wear, and corrosion science. Newer methods available to study surfaces of materials. Electron emission spectroscopies (ESCA, Auger): ion scattering, ion spectroscopic, photon spectroscopic, and thermodynamic methods. Offered: jointly with BIOEN 492; W.

CHEM E 461 Electrochemical Engineering (3) Schwartz Explores role of thermodynamics, charge transfer kinetics, and mass transfer on behavior of electrochemical systems. Includes cell thermodynamics, faradaic and non-faradaic rate processes, ionic transport, nucleation and growth theories. Applications to chemical sensors, batteries, corrosion, thin film deposition. In-class demonstrations to illustrate concepts. Offered: W.

CHEM E 462 Application of Chemical Engineering Principles to Environmental Problems (3) Environmental problems in chemical engineering. Team taught; topics vary from year to year. Includes: geomechanics, flow and dispersion through porous media water flow in dry soils, chemistry of radioactive waste, in situ site cleanup, ex situ site cleanup, colloid and surface science. Prerequisite: CHEM E 330. Offered: Sp.

CHEM E 465 Reactor Design (3) Application of principles of chemical kinetics to the design of commercial-scale chemical reactors; characterization of batch and flow reactors in homogeneous and heterogeneous systems. Prerequisite: CHEM E 326; CHEM E 340. Offered: A.

CHEM E 467 Biochemical Engineering (3) *Baneyx* Application of basic chemical engineering principles to biochemical and biological process industries such as fermentation, enzyme technology, and biological waste treatment. Rapid overview of relevant microbiology, biochemistry, and molecular genetics. Design and analysis of biological reactors and product recovery operations. Prerequisite: CHEM E 340; either CHEM 223, CHEM 237, or CHEM 335; recommended: CHEM E 465. Offered: jointly with BIOEN 467; W.

CHEM E 468 Air-Pollution Control Equipment Design (3) Designs to control air pollutants from stationary sources. Procedures for calculating design and operating parameters. Fundamental mechanisms and processes of gaseous and particulate control equipment for absorption and adsorption of gaseous pollutants; electrostatic precipitation and filtration of particular pollutants. Actual case studies. Offered: jointly with CEE 494/M E 468; W.

CHEM E 470 Chemistry of Wood (3) Chemical and physical properties of cellulose, lignin, hemicellulose, and extractives; wood as a raw material for the chemical industry. Prerequisite: either CHEM 220, CHEM 238, or CHEM 336. Offered: A.

CHEM E 471 Pulping and Bleaching Processes (3) Conversion of wood to mechanical and chemical pulps. Kraft, sulfite, and semichemical pulping processes. Chemical recovery systems. Bleaching of mechanical and chemical pulps. Offered: jointly with PSE 476; W.

CHEM E 472 Papermaking Processes (3) Fiber sources and properties. Secondary fibers. Stock preparation, sheet forming, water removal, finishing. Coating, lamination, and printing. Paper products. Offered: jointly with PSE 477; A.

CHEM E 473 Pulp and Paper Laboratory (2) Laboratory experiments in chemical and semichemical pulping of wood. Bleaching of chemical and high-yield pulps. Physical and chemical characteristics of pulp fibers. Prerequisite: PSE 476. Offered: jointly with PSE 478; Sp.

CHEM E 475 Computer Analysis in Chemical Engineering (3) Model building/simulation of chemical engineering processes: reactor design, fiber spinning, electrochemistry, biotech processes. Numerical methods include integrating ordinary differential equations as initial and boundary-value problems; finite difference, collocation, Galerkin methods. For each model the appropriate tool is developed. Offered: A.

CHEM E 477 Prokaryotic Molecular Biology Applications to Engineering (3) *Lidstrom* For engineers with no prior experience in the biological sciences. Covers fundamentals and concepts of molecular biology and directed genetic modification strategies using prokaryotic microorganisms as examples. Focus on approaches, techniques, and relevance to engineered systems. Prerequisite: either CHEM 223, CHEM 237, or CHEM 335; recommended: either CHEM E 467 or BIOEN 450.

CHEM E 480 Process Dynamics and Control (4) Analysis of the dynamics of simple chemical process units and systems; applications to stability, control, and instrumentation of such processes. Weekly two-hour laboratory included. Majors only. Prerequisite: CHEM E 435; CHEM E 465. Offered: W.

CHEM E 481 Process Optimization (3) Concepts and techniques of optimizing chemical engineering processes and systems, including classical and

direct methods of search, linear and nonlinear programming, dynamic programming, statistical experimental design, and evolutionary operation. Offered: Sp.

CHEM E 482 Advanced Topics in Process Control (3) *Holt, Ricker* Current topics in process control design and analysis. Possible topics include robustness analysis and design, time delay compensation, modern frequency response techniques, discrete control, adaptive control, model-based control, and nonlinear control. Prerequisite: CHEM E 480.

CHEM E 485 Process Design I (3) Applied economics in chemical engineering design and operations; market survey and plant location; introduction to plant and process design. Prerequisite: CHEM E 480 which may be taken concurrently. Offered: W.

CHEM E 486 Process Design II (5) Comprehensive design of a specific process, including economic feasibility studies, utilization of market survey and plant location studies, process equipment design and optimization, and overall plant integration and layout. Prerequisite: CHEM E 485. Offered: Sp.

CHEM E 490 Engineering Materials for Biomedical Applications (3) *Hoffman* Combined application of the principles of physical chemistry, biochemistry, materials engineering, mass transfer, and fluid mechanics to biomedical problems. Case studies include considerations of the selection of materials, the design and the operation of instruments, components of, or entire, artificial organs (heart, kidney, lung) and artificial structural elements (bone, teeth, skin), all for use in contact with body fluids. Offered: jointly with BIOEN 490; odd years; W.

CHEM E 491 Controlled Release Systems-Principles and Applications (3) *Hoffman* Mechanisms or controlled release of active agents and the development of useful systems for this purpose. Release mechanisms include diffusive, convective, or erosive driving forces. Applications to the biomedical, agricultural, forestry, and oceanography fields. Some special case studies covered in detail. Offered: jointly with BIOEN 491; even years; W.

CHEM E 497- Special Projects in Chemical Engineering Design ([1-6]- max. 12) Chemical engineering design instruction and experience in special projects, such as industrially motivated, timely, or interdisciplinary projects. Project subject and content varies. Majors only. Prerequisite: CHEM E 340.

CHEM E 498 Special Topics in Chemical Engineering (1-4, max. 12) Topics of current interest in the field. Subject matter changes from year to year.

CHEM E 499- Undergraduate Research ([1-6]- max. 12) Independent research projects in chemical engineering. Offered: AWSpS.

Civil and Environmental Engineering

201 More



General Catalog Web page:
www.washington.edu/students/genocat/academic/Civil_Engineering.html



Department Web page:
www.ce.washington.edu

Civil and environmental engineering is a profession which interfaces closely with society in the planning, design, construction, and management of facilities serving the needs of people. These activities include all transportation modes: highways, aerospace, rivers,

and harbors; water resources, hydraulics, and coastal engineering; structures, mechanics, and geotechnical engineering; surveying, mapping, and photogrammetry; urban planning and development; water supply, wastewater treatment, and water-quality management; solid- and hazardous-waste disposal; and quality control and management of the air resources.

A civil engineer may specialize in one or several of these activities and may further specialize in a particular function, such as design or management. The work frequently provides close associations with the legal profession, urban and regional planners, economists, public officials, biologists, chemists, financial consultants, architects, and system analysts. Education and practice require a consideration not only of the technological-science aspects of a particular problem but also of its relationship to social, economic, political, and environmental constraints.

To accommodate these wide interests, the department is organized into six academic areas: construction management; transportation engineering; geotechnical engineering; structural engineering and mechanics; environmental engineering; and water resources, hydrology, and hydraulic systems.

Undergraduate Program

Adviser
Lynn Girardeau
121 More, Box 352700
(206) 685-2611
ceadvice@u.washington.edu

The Department of Civil and Environmental Engineering offers a program of study leading to the Bachelor of Science in Civil Engineering degree.

The department's objectives are to provide a quality, broad-based education with breadth and depth in major areas of civil and environmental engineering; to prepare students for entry into professional engineering practice and lifelong learning; to prepare well-qualified students for graduate studies in specialty fields within civil and environmental engineering, leading to careers in professional practice, research, or academics; and to maintain a tradition of excellence in classroom teaching, encourage innovation, and use evaluation by students and faculty to improve continually. The department meets these objectives by providing a curriculum that includes introduction to major areas of civil and environmental engineering, development of engineering analysis in each area (drawing on mathematics and basic sciences), and utilization of modern methodologies, theories, and tools.

The curriculum integrates engineering design throughout, incorporating key elements of the design process in a wide range of courses. Each student is required to take a design seminar and at least one major, comprehensive design course in the senior year, building on fundamentals from mathematics, sciences, major areas of civil and environmental engineering, and communication skills. Additionally, students may take independent-study or research courses, working one-on-one with faculty and advanced graduate students.

Bachelor of Science in Civil Engineering

Admission Requirements:

1. Admission to the department is usually at the junior level.
2. Enrollment in the department is limited; students who desire admission must formally apply to, and be accepted by, the departmental admissions committee.
3. The primary admission criterion is degree of qualification for probable success in the engineering degree program as evidenced by academic performance, work experience, and other factors.

4. Completion of the following courses with a minimum grade of 2.0 in each course and a minimum cumulative GPA of 2.50: MATH 124, 125, 126, 308; CHEM 142; PHYS 121/131, 122/132; CSE/ENGR 142; A A 210; CEE 220; M E 230; and 5 credits of English composition.
5. Prospective students should obtain a copy of the departmental undergraduate advising guide and the departmental application form, both of which are available in 121 More.
6. Departmental Application Deadline: July 1 for autumn quarter only.

Graduation Requirements: The minimum number of credits required for graduation with the Bachelor of Science in Civil Engineering degree is 180, of which 75 credits are Civil Engineering departmental requirements and 105 are College of Engineering and general-education requirements. Upper-division requirements in civil and environmental engineering include a common core of specified courses taken in the junior year.

Graduate Program

For information on the Department of Civil and Environmental Engineering's graduate program, see the graduate and professional volume of the *General Catalog* or visit the *General Catalog* online at www.washington.edu/students/gencat/.

Faculty

Chair

Fred L. Mannering

Professors

Ang, Alfredo H. S. 1997, (Affiliate); PhD, 1959, University of Illinois; structural engineering.

Benjamin, Mark M. * 1977; MS, 1973, MS, 1975, PhD, 1979, Stanford University; chemistry of natural waters, chemical and biological treatment of water and wastewater.

Bogan, Richard H. * 1954, (Emeritus); DSc, 1954, Massachusetts Institute of Technology; environmental engineering.

Brown, Colin B. * 1969, (Emeritus); PhD, 1962, University of Minnesota; structural engineering and systems.

Burges, Stephen J. * 1970; PhD, 1970, Stanford University; surface and ground water hydrology, water resource systems analysis and design.

Carlson, Dale A. * 1955, (Emeritus); PhD, 1960, University of Wisconsin; water resources and solid-waste management.

Colcord, J. E. * 1949, (Emeritus); MSCE, 1949, University of Minnesota; surveying engineering.

Covert, David S. * 1975, (Adjunct Research); MS, 1971, PhD, 1974, University of Washington; atmospheric chemistry, aerosol instrumentation, aerosol physics, chemistry, optics.

Decher, Reiner * 1973, (Adjunct); PhD, 1968, Massachusetts Institute of Technology; aircraft propulsion, fluid mechanics, energy conversion.

Eikum, Arild 1982, (Affiliate); PhD, 1973, University of Washington; environmental engineering.

Elias, Ziad * 1969; DSc, 1963, Massachusetts Institute of Technology; engineering mechanics.

Evans, Roger J. * 1966, (Emeritus); PhD, 1965, University of California (Berkeley); engineering mechanics, structural engineering.

Ferguson, John F. * 1974; PhD, 1970, Stanford University; chemical and biological processes in water and waste treatment and in natural water systems.

Hammer, Vernon B. 1947, (Emeritus); MS, 1941, Harvard University; solid-waste management.

Hartz, Billy J. * 1955, (Emeritus); PhD, 1955, University of California (Berkeley); engineering mechanics, structural mechanics.

Hodge, David C. * 1975, (Adjunct); MS, 1973, PhD, 1975, Pennsylvania State University; urban geography, urban transportation geography, equity, gender.

Holtz, Robert Dean * 1988; PhD, 1970, Northwestern University; geotechnical engineering.

Hou, Michael C. Y. 1995, (Affiliate); PhD, 1973, University of Washington; transportation engineering.

Karr, James * 1991, (Adjunct); PhD, 1970, University of Illinois; ecology and conservation biology, water resources, environmental sciences, natural resources.

Kramer, Steven * 1984; PhD, 1984, University of California (Berkeley); soil mechanics, foundation engineering, geotechnical earthquake engineering.

Kulp, John Laurence 1990, (Affiliate); PhD, 1945, Princeton University; environmental engineering.

Larson, Timothy * 1970; PhD, 1976, University of Washington; airborne particles, air quality modeling, and instrument development.

Lettenmaier, Dennis P. * 1973; PhD, 1975, University of Washington; systems analysis and water resources planning.

Lindell, L. Tommy 1983, (Affiliate); PhD, 1974, University of Uppsala (Sweden); environmental engineering.

Mahoney, Joseph P. * 1978; PhD, 1979, Texas A&M University; construction materials, pavement systems.

Mannering, Fred L. * 1986; PhD, 1983, Massachusetts Institute of Technology; traffic flow theory, networks, econometric methods, equilibration in transportation markets.

Mar, Brian W. * 1967, (Emeritus); PhD, 1958, University of Washington; system engineering, environmental management, interdisciplinary management.

Mattock, Alan * 1964, (Emeritus); PhD, 1955, University of London (UK); structural behavior and design.

Meese, Richard H. 1975, (Emeritus); MS, 1941, Harvard University; soil mechanics and foundations.

Miller, Gregory * 1983; PhD, 1984, Northwestern University; structural materials, solid mechanics, nonlinear dynamics.

Morgan, Michael S. * 1974, (Adjunct); DSc, 1972, Massachusetts Institute of Technology; applied respiratory, physiology and inhalation toxicology.

Nece, Ronald E. * 1959, (Emeritus); DSc, 1958, Massachusetts Institute of Technology; hydraulic and coastal engineering.

Nihan, Nancy L. * 1973; PhD, 1970, Northwestern University; transportation planning and systems analysis.

Palmer, Richard * 1979; PhD, 1979, Johns Hopkins University; civil engineering systems, computer methods, water resources planning and management.

Peterson, Spencer Alan 1988; PhD, 1971, University of North Dakota

Pilat, Michael J. * 1967; PhD, 1967, University of Washington; air resources engineering (design of air-pollution-control equipment).

Reed, Dorothy * 1983; MSE, 1977, PhD, 1980, Princeton University; structural and wind engineering, and expert systems.

Richey, Eugene 1954, (Emeritus); MS, 1947, MSCE, 1948, California Institute of Technology; PhD, 1955, Stanford University; hydraulic engineering.

Roeder, Charles W. * 1977; PhD, 1977, University of California (Berkeley); structures and materials.

Rossano, August T. 1963, (Emeritus); MS, 1941, ScD, 1954, Harvard University; air resources.

Rutherford, G. Scott * 1981; PhD, 1974, Northwestern University; transportation planning and engineering.

Sawhill, Roy 1952, (Emeritus); MEng, 1952, University of California (Berkeley).

Schneider, Jerry * 1967, (Emeritus); PhD, 1966, University of Pennsylvania; metropolitan area and regional planning, transportation and other urban models.

Seabloom, Robert * 1954, (Emeritus); MSCE, 1956, University of Washington; water-quality and solid-waste management.

Stanton, John F. * 1978; PhD, 1978, University of California (Berkeley); structural engineering, analysis and design.

Stensel, H. David * 1983; PhD, 1971, Cornell University; biological wastewater treatment, fixed film reactors, mass transfer mechanics, modeling.

Strand, Stuart E. * 1982, (Adjunct Research); PhD, 1982, Pennsylvania State University; forest biotechnology, environmental pollution control.

Sylvester, Robert O. 1941, (Emeritus); MS, 1941, Harvard University; water resources.

Terrel, Ronald L. 1967, (Emeritus); MSCE, 1961, Purdue University; PhD, 1967, University of California (Berkeley).

Walters, Roy A. 1997, (Affiliate); PhD, 1976, University of Washington; environmental engineering.

Welch, Eugene B. * 1968, (Emeritus); PhD, 1967, University of Washington; water resources and aquatic biology.

Wenk, Edward 1970, (Emeritus); MS, 1947, Harvard University; PhD, 1950, Johns Hopkins University.

Wood, Eric F. 1993, (Affiliate); ScD, 1974, Massachusetts Institute of Technology; environmental engineering.

Yeh, Harry H. * 1983; PhD, 1983, University of California (Berkeley); fluid mechanics, water wave motions, coastal and hydraulic engineering.

Zabinsky, Zelda * 1985, (Adjunct); PhD, 1985, University of Michigan; operations research, applications in industrial engineering, optimization with stochastic elements.

Associate Professors

Booth, Derek B. * 1980, (Research); PhD, 1984, University of Washington; geomorphology, environmental geology.

Chenoweth, Harry H. 1946, (Emeritus); MSCE, 1957, University of Washington; engineering mechanics and hydraulic engineering.

Dailey, Daniel J. * 1982, (Adjunct Research); MS, 1982, PhD, 1988, University of Washington; time series modeling of physical phenomena, optimization, distributed computing, networking.

Eberhard, Marc O. * 1989; PhD, 1989, University of Illinois; structural analysis and design, reinforced concrete, earthquake engineering, nondestructive testing.

Goldblatt, Steven M. 1982, (Adjunct); JD, 1977, Golden Gate University; construction law, labor relations, and accounting.

Horner, Richard R. * 1981, (Adjunct Research); PhD, 1978, University of Washington; wetland and stream conservation and storm water management.

Jacoby, Jean M. * 1994, (Affiliate); PhD, 1986, University of Washington; applied aquatic ecology and restoration, water quality management.

Janssen, Donald J. * 1985; PhD, 1985, University of Illinois; construction materials, pavements.

Kent, Joseph C. * 1952, (Emeritus); PhD, 1952, University of California (Berkeley); hydraulic engineering.

Massmann, Joel W. * 1991; PhD, 1987, University of British Columbia (Canada); groundwater hydrology, subsurface contaminant transport, site remediation, applied decision analysis.

Miller, William * 1951, (Emeritus); MSCE, 1952, University of Washington; materials.

Nemati, Kamran M. 1998, (Adjunct); PhD, 1994, University of California (Berkeley); civil engineering materials, concrete technology, mechanical behavior of concrete, fracture mechanics.

Ongert, Jerry E. 1999, (Affiliate); PhD, 1973, University of Michigan; public water supply, solid waste and water quality management; waterborne pathogens.

Snyder, Mark B. 1996, (Affiliate); PhD, 1989, University of Illinois; construction engineering.

Spyridakis, Dimitris * 1970, (Emeritus); PhD, 1965, University of Wisconsin; soil and water chemistry.

Strausser, Howard * 1955, (Emeritus); MEng, 1950, Johns Hopkins University; hydraulic engineering.

Tangborn, Wendell V. 1982, (Affiliate); BS, 1958, University of Minnesota; environmental engineering.

Tawressey, John G. 1985, (Affiliate); MS, 1968, Cornell University; MBA, 1975, University of Washington; structural engineering.

Turkiyyah, George * 1991; PhD, 1990, Carnegie Mellon University; computer-aided engineering, finite element modeling.

Waddell, Paul A. * 1997, (Adjunct); PhD, 1989, University of Texas (Dallas); urban policy, land use and transportation, growth management, geographic information systems.

Assistant Professors

Arduino, Pedro * 1997; PhD, 1996, Georgia Institute of Technology; mechanics of porous media, constitutive modeling of soils, numerical methods of geomechanics.

Brett, Michael T. * 1997; PhD, 1990, University of Uppsala (Sweden); eutrophication, food web and nutrient regulation of algal biomass and secondary production in lakes.

Chandler, Robert Douglas 1997, (Affiliate); PhD, 1995, University of Washington; environmental engineering.

Chang, Yu-Jung 1999, (Affiliate); PhD, 1996, University of Washington; environmental engineering.

Dunston, Phillip S. * 1994; MS, 1992, PhD, 1994, North Carolina State University; construction engineering process, quality, productivity, and management, emphasizing automation.

Jessup, Andrew T. * 1990, (Affiliate); PhD, 1990, Massachusetts Institute of Technology; applications of remote sensing to air-sea interaction.

Korshin, Gregory * 1991, (Research); PhD, 1983, Chemical Engineering Institute (Russia); chemical processes in water treatment.

MacRae, Gregory Anthony * 1994; PhD, 1990, University of Canterbury (New Zealand); design of structures to withstand earthquakes.

Petroff, Catherine * 1993; PhD, 1993, California Institute of Technology; sediment transport, coastal engineering, and environmental fluid mechanics.

Reiber, Steve H. 1992, (Affiliate); PhD, 1983, University of Utah; environmental engineering.

Shankar, Venkataraman * 1999; PhD, 1997, University of Washington; modeling of transportation infrastructure and civil engineering systems.

Zeiler, Teresa Taylor * 1992, (Affiliate); PhD, 1988, Washington State University; geotechnical/geological engineering, physical modeling, centrifuge modeling.

Instructor

Schultz, Michael 1990, (Affiliate); MSCE, 1972, University of Washington; construction engineering.

Senior Lecturer

Bucknam, Ronald E. 1985; PhD, 1964, University of Illinois; Professional Engineering Practice Liaison (PEPL).

Course Descriptions

See page 48 for an explanation of course numbers, symbols, and abbreviations.

For graduate-level course descriptions, see the graduate and professional study volume of the *General Catalog* or visit the online course catalog at www.washington.edu/students/crscat/.

CEE 220 Introduction to Mechanics of Materials

(4) NW Introduction to the concepts of stress, deformation, and strain in solid materials. Development of basic relationships between loads, stresses, and deflections of structural and machine elements such as rods, shafts, and beams. Load-carrying capacity of these elements under tension, compression, torsion, bending, and shear forces. Prerequisite: A A 210. Offered: AWSpS.

CEE 306 Construction Engineering I (3) Introduction to construction engineering, planning, scheduling, methods, contracts, and specifications. Production estimates; equipment selection; ownership and operating costs; role of the engineer in construction and cost estimating. Offered: Sp.

CEE 316 Surveying Engineering (4) Application of geodesy to engineering surveys. Modern measurement and mapping techniques. Computer adjustment of measurements and analysis of error. Plane coordinate systems and transformation. Horizontal and vertical curve computations and layout. Leveling and datum considerations. Introduction to photogrammetry, cadastral surveys and construction surveys. Prerequisite: CSE 142; recommended: statistics. Offered: A.

CEE 320 Transportation Engineering I (3) Review of operating characteristics of vehicles and methods used to predict travel demand and capacity supply. Study of basic geometric fundamentals and their relationship to design with emphasis on highways, and management of transportation systems. Prerequisite: CEE 316 which may be taken concurrently. Offered: W.

CEE 342 Fluid Mechanics (4) Elementary mechanics of incompressible fluids. Hydrostatics. Continuity, energy, and momentum equations. Introduction to potential flow. Resistance phenomena for laminar and turbulent flows. Dynamic similitude. Prerequisite: A A 210; M E 230. Offered: A.

CEE 345 Hydraulic Engineering (4) Extension and application of fluid mechanics principles to hydraulic engineering problems. Open channel flow, pipeline systems, turbomachinery, unsteady flow in pipes, diffusion and mixing processes, groundwater, surface water hydrology. Prerequisite: CEE 342. Offered: W.

CEE 350 Environmental Engineering-Water and Air Quality (4) Description of water and air resources and parameters that characterize their quality, how their use alters their properties. Mass and energy balances as they apply to environmental systems. Global environment change. Basics of aquatic chemistry and microbiology applied to municipal water and wastewater treatment operations. Offered: Sp.

CEE 363 Constructional Materials (4) General treatment of physical and mechanical properties and engineering behavior of metallic and nonmetallic materials. Steel, aluminum, concrete, wood. Laboratory testing, instrumentation, and investigation into macrobehavior. Correlation with microstructure and various aspects of materials science. Prerequisite: CEE 220. Offered: W.

CEE 366 Basic Soil Mechanics (4) Introduction to basic soil properties, soil classification, volumetric relationships, compaction, consolidation, soil rheology, shear strength, bearing capacity, and lateral stresses against retaining structures. Prerequisite: CEE 220. Offered: Sp.

CEE 379 Elementary Structures I (3) Review of engineering theory of beams, combined stresses, beam deflections, indeterminate beams, principle of virtual work, application to beams, unsymmetrical bending, shear center, torsion of open and thin-walled sections, composite beams, inelastic bending of beams, elastic stability, beam-columns, column design formulas. Prerequisite: CEE 220. Offered: ASP.

CEE 380 Elementary Structures II (3) Classification and idealization of structures. Theorem of virtual work. Unit load method for beams, frames, and trusses. Matrix formulation of theorem of virtual work. Force method for statically determinate and indeterminate method. Moment distribution for beams and frames including sway analysis. Prerequisite: CEE 379. Offered: Sp.

CEE 390 Civil Engineering Systems (3) Introduction to civil engineering system processes. Decision methods, economic considerations, and optimization. Examples illustrating quantitative and subjective aspects of civil engineering practice. Offered: A.

CEE 405 Construction Planning and Scheduling (3) Principles of construction planning and scheduling, including network analysis of construction activities, examination of arrow and precedence diagrams, time-cost tradeoffs, resource leveling, resource allocation, PERT, integrated cost/schedule systems, computer applications, and a CPM project.

CEE 406 Construction Engineering II (3) Heavy construction equipment. Equipment economics, contractor equipment policies, equipment specifications, selection and performance of equipment, estimating productivity for construction equipment, and engineering support for construction operating. Prerequisite: CEE 306.

CEE 407 Contracts and Specifications (3) Construction industry, forms of organizations, real property laws, and bidding procedures. Basic elements of contracts, types of specifications, general conditions of standard construction contracts, legal disputes related to construction contract provisions, surety bonds and construction insurance. Prerequisite: CEE 306.

CEE 410 Traffic Engineering Fundamentals and Surveys (3) General review of the fundamentals of traffic engineering, including their relationship to transportation operations management and planning, with special emphasis on traffic engineering field surveys and data analysis. Prerequisite: CEE 320. Offered: A.

CEE 416 Urban Transportation Planning and Design (3) Brief review of major issues in urban transportation planning. Planning process discussed and transportation models introduced. Uses a systems framework, including goals and objectives, evaluation, implementation, and monitoring. A design term project, individual or small groups, utilizes material presented on a contemporary problem. Prerequisite: CEE 320. Offered: A.

CEE 418 Computer-Aided Planning of Urban Systems (3) Survey of on-line planning applications; use of various on-line systems to solve urban systems design problems; investigations of hardware/software tradeoffs; human factors in man-computer systems design theory as it relates to problem-solving activity. Offered: jointly with URBPD 429.

CEE 421 Pavement Design (3) Current and developing procedures for the structural thickness design of pavements. Bituminous and concrete pavements for highways, airports, and special heavy loading. Elastic layered systems, slab theory. Performance evaluation for maintenance and overlay design. Offered: ASP.

CEE 422 Construction Materials II (4) Types, sources, uses, performance behavior from construction point of view of aggregates; asphalt products and mixtures; Portland cement, concrete, and other materials the civil engineer is responsible for selecting and manufacturing on job site. Includes laboratory work. Prerequisite: CEE 363. Offered: A.

CEE 423 Heritage of Civil Engineering (3/4) I&S Contribution of civil engineering to civilization based on the lives and projects of prominent engineers and cultures. Incidents and individuals from prehistory to the nineteenth century give the student an awareness of the profession and its influence on society. Industrial archaeology and historic sites are considered. An additional 1 credit may be earned by participating in a special project. Emphasis on the control of elements and the methodology, planning, objectives, and reasons for the project. May be used as social science distribution. Offered: W.

CEE 431 Seismology and Earthquake Engineering (3) NW Presents an overview of earthquake processes and details of the characteristics of destructive ground motion; illustrates the effects of such motion on engineering structures; reviews current practice in estimating earthquake hazards for important structures such as nuclear power plants. Prerequisite: either MATH 136 or both MATH 307 and MATH 308. Offered: jointly with GPHYS 431.

CEE 436 Foundation Design (3) Design considerations for foundations and retaining structures. Sub-surface investigations and determination of soil properties for design. Design of shallow and deep foundations and retaining structures. Foundations and soil considerations for waterfront structures.

CEE 437 Engineering Geology I (3) General overview of engineering geology and its importance to civil engineers. Topics include geologic processes, hazards, origin and classification of geologic materials, data synthesis, and natural construction materials.

CEE 440 Design Seminar (2) Fundamentals of integrated civil engineering design, professional services marketing, project management, team dynamics, total quality management, value engineering, professional liability, and applied ethics in engineering practice. Emphasis on written and oral communications and on ethical, social, and economic factors.

CEE 441 Highway and Traffic Engineering-Geometric Design (4) Factors and elements in geometric design of arterials, intersections, freeways, interchanges, including problem solution. Prerequisite: CEE 320; CEE 440 which may be taken concurrently.

CEE 442 Structural Geotechnical Design Project (4) Comprehensive team design project focusing on structural and geotechnical engineering. Requires design drawings, written reports, and oral presentations interfacing with related fields such as aesthetics and architecture, mechanical systems, traffic, environmental planning. Prerequisite: CEE 440; two courses from CEE 436, CEE 451, CEE 452, CEE 453, CEE 454, or CEE 457.

CEE 443 Design of Subsurface Remediation Activities (4) Technologies for cleaning sites with subsurface contamination, including groundwater extraction, vapor extraction, groundwater containment, and in-situ treatment. Analytical tools and methods for making design calculations are emphasized. Comprehensive design project involving design and evaluation of site remediation activities required. Prerequisite: CEE 440.

CEE 444 Water Resources and Hydraulic Engineering Design (4) Opportunity to effect design solutions for projects or major project components in such representative areas as reservoirs and associated systems for flood control, water supply, irrigation, and hydroelectric power, surface water control systems, fisheries related projects, small harbors, and coastal engineering problems. Prerequisite: CEE 440.

CEE 445 Environmental Engineering Design Studies (4) Individual and group design studies addressing environmental engineering problems such as stormwater management, water and wastewater treatment facilities, and residual processing. Prepare proposals, engineering reports, and alternative evaluations; process equipment design, present reports on selected design problems. Prerequisite: CEE 345; CEE 482; CEE 440 which may be taken concurrently.

CEE 451 Design of Metal Structures (3) Introduction to the design and behavior of metal structures using LRFD concepts. Application of design methods and codes to columns, beams, frames, connections, and tension members. Prerequisite: CEE 380; recommended: CEE 457, CEE 458.

CEE 452 Design of Reinforced Concrete Structures (3) Fundamentals of design of buildings in reinforced concrete in accordance with current codes and practices. Prerequisite: CEE 380.

CEE 453 Prestressed Concrete Design (3) Analysis, design, and construction of prestressed concrete structures. Prerequisite: CEE 452.

CEE 454 Design of Timber Structures (3) The design and construction of timber structures, using elements made of sawn wood, glued-laminated wood, and plywood. Prerequisite: CEE 381.

CEE 455 Structural Unit Masonry (3) Structural behavior and design of reinforced brick, tile, and unit concrete masonry structures. Prerequisite: CEE 380. Offered: jointly with ARCH 426.

CEE 457 Advanced Structures I (3) The displacement method in matrix form with programming applications. Fundamentals of modeling of various types of structures. Prerequisite: CEE 380.

CEE 458 Advanced Structures II (3) Introduction to stability, including a consideration of elastic and inelastic buckling with applications to beam-columns and plates. Introduction to plastic analysis. Prerequisite: CEE 379.

CEE 459 Advanced Structural Mechanics (3) Formulation and solution of the basic equations of elasticity. Applications in 2-D stress analysis, torsion, thermal stresses, and beams on elastic foundation. Plate theory optional. Prerequisite: CEE 379.

CEE 461 Biological Problems in Water Pollution (3/5) NW Ecological risk assessment of toxic chemicals and problems associated with electrical power production. Considers safety and toxicity and effects on individuals, populations, and communities. Laboratory covers simulation models of chemical exposure and community effects. Recommended: senior or graduate standing in fisheries, engineering, or related field. Offered: jointly with FISH 430.

CEE 462 Ecological Effects of Water (3/5) NW Principles of aquatic ecology that relate to causes and effects of water quality problems in lakes

and streams. Population growth kinetics, nutrient cycling, eutrophication; acidification, oxygen/temperature requirements, and effects of various wastes on aquatic animals. Offered: jointly with FISH 434.

CEE 464 Subsurface Contaminant Transport (3) Principles of transport through porous media used to study fate and movement of subsurface contamination. Processes include aqueous phase transport, flow of immiscible fluids, vapor transport, solid-liquid-vapor interactions. Techniques for simulating transport processes presented. Effects of subsurface heterogeneities and uncertainties are emphasized. Prerequisite: CEE 342.

CEE 472 Introduction to Hydraulics in Water Resources (3) Physics of water movements in natural freshwater bodies and inshore marine waters. Brief review of some essential fluid mechanics. Flow in rivers and streams; motions in lakes, reservoirs, and estuaries. Some aspects of diffusion.

CEE 473 Coastal Engineering I (3) Linear theory of water waves, wave transformations due to boundary conditions, sediment motion, elementary tidal theory; applications illustrated by laboratory experiments and selected case histories. Prerequisite: CEE 342.

CEE 474 Hydraulics of Sediment Transport (3) Introduction to sediment transport in steady flows with emphasis on physical principles governing the motion of sediment particles. Topics include sediment characteristics, initiation of particle motion, particle suspension, bedforms, streambed roughness analysis, sediment discharge formulae, and modeling of scour and deposition in rivers and channels. Prerequisite: CEE 345.

CEE 475 Analysis Techniques for Groundwater Flow (3) Development of appropriate equations to describe saturated groundwater flow, and application of numerical methods for solving groundwater flow problems and flow to wells. Participants required to solve specific problems using numerical techniques developed during the course. Prerequisite: CEE 342.

CEE 476 Physical Hydrology (3) Global water picture, data sources and data homogeneity, precipitation, evapotranspiration, hydrographs. Hydrologic data frequency analysis. Hydrologic design: flood mitigation, drainage. Introduction to deterministic and stochastic models.

CEE 477 Open-Channel Engineering (3) Water flow in natural and constructed channels. Analysis and design of canals, transitions, energy dissipators, and similar structures. Analysis of surface profiles and effect of nonlinear alignment on flow. Introduction to river mechanics. Design-oriented problems. Prerequisite: CEE 345.

CEE 480 Air-Quality Modeling (3) Evaluation of air-quality models relating air pollution emissions to environmental concentrations. Topics include meteorological dispersion models and various "receptor" models based on chemical "fingerprinting" of sources. Emphasizes current problems. Prerequisite: either CEE 490, ATM S 458, or CHEM 458. Offered: jointly with ATM S 480.

CEE 481 Environmental Engineering Design (3) Introduction to the theory and the practice of planning and design of urban water supply, sewerage, solid wastes, and drainage collection systems. Evaluation of service areas and service requirements and their relationships to urban and regional planning activities. Engineering methods and computer programs for designing basic system elements. Prerequisite: CEE 351.

CEE 482 Water and Wastewater Treatment (3) Fundamental mechanisms, basic design models, and applications of engineered treatment processes for water treatment, water reuse, nutrient removal, and protection of public health and the environment. Prerequisite: CEE 350.

CEE 484 On-Site Wastewater Disposal (3) Latest information on design, construction, operation, maintenance of individual and small community wastewater disposal systems. Conventional water carriage septic tank soil absorption systems considered with new alternatives, such as mounds, evapotranspiration systems, anaerobic filters, pressure drainfields, sand filters. Nonwater carriage methods studied. Pressure and vacuum sewers introduced.

CEE 485 Aquatic Chemistry (3) Principles of chemical equilibrium relevant to natural water systems; the nature and effect of chemical interactions of domestic and industrial waste effluents on natural water systems; chemical principles involved in the treatment of water and wastewaters.

CEE 486 Water-Quality Analysis (3) Laboratory evaluation of chemical quality of natural and wastewaters. Theory and application of instrumentation used in water-quality measurement.

CEE 487 Solid-Waste Disposal (3) Describes sources and handling of municipal and industrial solid waste, with examination of collection, processing, recycling and resource recovery, and disposal alternatives. Public policy issues, local agencies and solid waste facilities, the legal and regulatory framework are all addressed in context of solid waste engineering.

CEE 488 Hazardous Wastes Engineering (3) Classification of hazardous wastes; resource conservation, Recovery Act regulations; characteristics and behavior of toxic organics; superfund; groundwater contamination, solutions. Hazardous waste site remedial action; case histories; sampling; landfill design. Stabilization and processing technologies, including incineration, carbon adsorption, emerging techniques. Prerequisite: CEE 351.

CEE 489 Water and Air Quality Sampling (2) Samples collected from lakes, streams, precipitation, and air and resulting (and supplemental) data interpreted for cause-effect and statistical inference. Design for water and air quality monitoring programs. Prerequisite: CEE 462.

CEE 490 Air-Pollution Control (4) Fundamental concepts of air pollution. Emission sources, atmospheric dispersion, ambient concentrations, adverse effects, governmental regulations, emission standards, air-quality standards, processes and equipment for controlling emissions. Offered: jointly with ENV H 461.

CEE 491 Deterministic Systems (3) Development of quantitative methods for mathematical problem solving with emphasis on computer applications. Linear programming, mathematics of the simplex algorithm, sensitivity analysis, dynamic programming, systems simulation, and goal programming. Class project required. Prerequisite: CEE 390.

CEE 492 Stochastic Systems (3) Introduction to probability distributions and statistics useful in systems analysis, conditional distributions, queuing theory and applications, Monte Carlo simulation, chance-constrained mathematical programming, and stochastic dynamic programming. Emphasis on application of the techniques to civil engineering systems problems, including transportation, water resources, and structures. Prerequisite: CEE 491.

CEE 493 Air-Pollution Source Testing and Equipment Evaluation (3) Engineering evaluation of air pollutant sources and air control equipment. Air-pollutant source testing and stack sampling. Analysis of equiforce and source emissions in the field and in the laboratory.

CEE 494 Air-Pollution Control Equipment Design (3) Designs to control air pollutants from stationary sources. Procedures for calculating design and operating parameters. Fundamental mechanisms and processes of gaseous and particulate control

equipment for absorption and adsorption of gaseous pollutants; electrostatic precipitation and filtration of particulate pollutants. Actual case studies. Offered: jointly with CHEM E/M E 468.

CEE 498 Special Topics (1-5, max. 5) Special topics in civil engineering offered as course with lecture and/or laboratory. Maximum of 6 credits in combination of 498 and 499 may be applied toward an undergraduate degree.

CEE 499 Special Projects (1-5, max. 5) Individual undergraduate research projects. Maximum of 6 credits in combination of 498 and 499 may be applied toward an undergraduate degree. Recommended: 400-level CEE course.

Computer Science and Engineering

114 Sieg



General Catalog Web page:
www.washington.edu/students/gencat/academic/Computer_Sci_Eng.html



Department Web page:
www.cs.washington.edu

Computer science and computer engineering are fields of unparalleled excitement and opportunity, now and for the future—fields where the smartest young men and women are choosing to study and to work. Whether your goal is graduate study and research, employment in the Northwest's vibrant information technology industry, business leadership, or public service, the UW Department of Computer Science and Engineering should be on your "short list." Ranked among the top ten research programs in the nation (along with MIT, Stanford, Berkeley and Princeton), UW CSE's focus on educational excellence was recognized in 1999 by the Brotman Award for Instructional Excellence.

Computer science is the study of information and algorithms within the context of real and abstract computing devices. Computer scientists are interested in such topics as the representation and storage of information; algorithms to access, display, edit, and transform information; programming languages to express algorithms; and hardware and software processors to execute algorithms. These concerns lead to practical developments in computer systems software, such as operating systems and compilers; in application areas, such as artificial intelligence, computer graphics, and computational biology; and also lead to theoretical investigations of computers, algorithms, and data.

Computer engineering is a closely related field that is concerned with the design and practical application of computer hardware and software systems to the solution of technological, economic, and societal problems. The computer engineer analyzes a problem and selects from a variety of tools and technologies those most appropriate for its solution. A computer engineer can expect to be involved in hardware design, software creation, and systems integration. The program provides an in-depth education in computer engineering while retaining strong foundations in traditional electrical engineering and computer science. The computer engineering program involves digital hardware, software, and architecture. Mathematics, engineering design, laboratory work, and communication-skills development are emphasized. A capstone design course is used to apply the knowledge and skills collected during the program to a major team project that must be completed during the senior year. The objective of undergraduate education in computer engineering is to develop broadly educated and competent graduates for professional careers or graduate studies. Especially important is a foundation that will endure as technology advances and changes.

Instructional and Special Research Facilities

The Computer Science Laboratory provides extensive, efficient, and powerful state-of-the-art facilities for undergraduate, graduate, and faculty instruction and research. The equipment base is upgraded frequently; for an up-to-date description please see the descriptions in the online undergraduate and graduate brochures, which can be accessed through the department's Web page. The same is true for the department's software base, where there are several modern operating systems including Windows NT, Unix, Solaris, and Linux, as well as extensive collections of software applications and development tools for each. Students have access to these resources in several laboratories in Sieg Hall and through direct modem access administered by the department. All the department's workstations provide users with full Internet access and almost all the department's courses make extensive use of the World Wide Web. In addition to general computing laboratories, the department also supports specialized laboratories for computer graphics, hardware, and embedded system design that also support more-advanced computing platforms and software.

Undergraduate Programs

A Bachelor of Science in Computer Engineering degree is offered by the Department of Computer Science and Engineering, and is administered through the College of Engineering. The department also offers a Bachelor of Science degree in computer science administered through the College of Arts and Sciences. Information concerning the B.S. degree in computer science can be found under the Computer Science program description. The department's Web page should be consulted for the most current information.

The departmental core requirements of the two undergraduate majors are identical. The computer engineering major may be more appropriate for students who are interested in creating and building systems that include both hardware and software components and that must be engineered to meet a variety of cost and performance constraints. The program includes a general foundation in engineering fundamentals to enable interdisciplinary work with other departments in the College of Engineering and the University as a whole.

The computer science major may be more appropriate for students who want to have a double major with another College of Arts and Sciences program (for example, mathematics or economics), who want the additional flexibility of the computer science requirements (the computer engineering major has more required courses and fewer electives), or who may be more interested in the theory, design, and implementation of software systems and applications (for example, the techniques of modern compilers or the algorithms behind computer graphics and animation).

The core and many senior-level courses are shared between the two programs. The department has options for a wide variety of interests and offers a wide range of senior electives that allow students to tailor their program to their interests.

Bachelor of Science in Computer Science

See the Computer Science program description in the College of Arts and Sciences.

Bachelor of Science in Computer Engineering

Adviser

114 Sieg, Box 352350

(206) 543-1695

ugrad-cs-advisor@cs.washington.edu

Admission Requirements: Because resources are limited, students must apply for admission to the computer science program. The application is available online (rdbsrvl.cs.washington.edu/uapp/). The *Computer Science & Engineering Handbook for Undergraduates* may be obtained from the main office, 114 Sieg Hall. The Handbook is also available via the department's Web page. The department classifies applicants by admission group. The requirements for each group are described below:

1. **Early Decision Group:** The Department of Computer Science and Engineering enrolls up to 10 percent of its incoming class directly out of high school, prior to the completion of university-level prerequisites. Freshman applicants to the University listing Computer Science or Computer Engineering as their intended major, and who are Washington state residents, are automatically considered. Competitive applicants will have taken calculus and at least one year of laboratory science (preferably physics) upon entering the University. Admission is for autumn quarter only.
2. **Early Admission Group (EAG):** Open to students enrolled at the University. Applicants must have completed 15 credits of mathematics at the level of MATH 124, 125, 126, or equivalent; 10 credits of laboratory physical sciences at the level of PHYS 121/131, 122/132, 123/133, or CHEM 142 or equivalent; and 5 credits of English composition. At least 15 of these 30 credits must be completed at the University prior to application. In addition to the College of Engineering requirements above, the department requires the completion of CSE/ENGR 142. Admission is for autumn quarter only. The application deadline is given in the departmental handbook.
3. **Upper-Division Admission Group (UAG):** Students must have completed 64 credits applicable to the degree, including MATH 124, 125, 126, 307, PHYS 121/131, 122/132, 123/133, CHEM 142, CSE/ENGR 142, and at least 5 credits of English composition. Admission is for autumn or spring quarter. Application deadlines are given in the departmental handbook.

Graduation Requirements (including College of Engineering general-education requirements of 85 credits):

1. **Visual, Literary, & Performing Arts and Individuals & Societies (30 credits):** as per the list prescribed by the College of Engineering.
2. **Science (20 credits):** PHYS 121/131, 122/132, 123/133; CHEM 142.
3. **Mathematics (25 credits):** MATH 124, 125, 126; 307, 308; STAT 390.
4. **Written and Oral Communication (12 credits):** 5-credit course in English Composition from the University-approved list; T C 231, 333.
5. **Computer Engineering Common Requirements (49 credits):** CSE 142; CSE 143; CSE 321, 322, 326, 341, 370, 378; CSE 451, 461; E E 215, 233.
6. **Computer Engineering Option Requirements (17-18 credits):** Students choose an option prior to their senior year: (a) *Hardware Option (18 credits):* CSE 467, 471; E E 331; CSE 477 or 468; (b) *Software Option (17 credits):* CSE 403, 466; one of CSE 401, 457, or 471; CSE 476 or 481.
7. **Computer Engineering Elective Component (13 credits):** selected from the approved list of computer engineering electives in the undergraduate handbook.

8. **Free Electives (13-14 credits):** may include up to 4 credits of cooperative education (ENGR 321).

To graduate, a student must earn a total of 180 credits with a grade of at least 2.0 in each required or elective computer engineering course used to satisfy major requirements. For a more complete description of the current requirements, please consult the undergraduate programs handbook, available from the department or on the Web at www.cs.washington.edu.

Graduate Program

For information on the Department of Computer Science and Engineering's graduate program, see the graduate and professional volume of the *General Catalog* or visit the *General Catalog* online at www.washington.edu/students/gencat/.

Faculty

Chair

Edward D. Lazowska

Professors

Anderson, Richard J. * 1986; PhD, 1985, Stanford University; parallel algorithms, computational geometry, combinatorial optimization.

Atlas, Les Eugene * 1983, (Adjunct); MS, 1978, PhD, 1984, Stanford University; time-frequency representations, nonstationary signal and time-varying system analysis.

Baer, Jean-Loup * 1969; MS, 1963, Grenoble (France); PhD, 1968, University of California (Los Angeles); computer architecture and performance evaluation.

Beame, Paul W. * 1987; PhD, 1987, University of Toronto (Canada); computational complexity, proof complexity.

Bernstein, Philip Alan 1996, (Affiliate); PhD, 1975, University of Toronto (Canada).

Borning, Alan H. * 1980; MS, 1974, PhD, 1979, Stanford University; human-computer interaction, constraint-based languages and systems; land use/transportation modeling.

Borriello, Gaetano * 1988; MS, 1981, Stanford University; PhD, 1988, University of California (Berkeley); invisible and ubiquitous computing, embedded network systems.

De Rose, Anthony David * 1985, (Affiliate); PhD, 1985, University of California (Berkeley).

Duchamp, Thomas E. * 1984, (Adjunct); PhD, 1976, University of Illinois; differential geometry, computer graphics.

Ebeling, William H. C. * 1986; MS, 1976, Southern Illinois University; PhD, 1986, Carnegie Mellon University; VLSI architectures, configurable computing, computer-aided design.

Eggers, Susan Jane * 1989; PhD, 1989, University of California (Berkeley); uniprocessor and parallel architectures and program behavior, back-end compiler optimizations.

Golde, Hellmut * 1959, (Emeritus); PhD, 1959, Stanford University; computer networks, compilers.

Haralick, Robert M. * 1986, (Adjunct); MS, 1967, PhD, 1969, University of Kansas; computer vision, artificial intelligence, pattern recognition, image processing.

Hood, Leroy E. * 1992, (Adjunct); PhD, 1968, California Institute of Technology; molecular immunology, large-scale DNA mapping and sequencing, molecular evolution.

Hunt, Earl B. * 1966, (Adjunct); PhD, 1960, Yale University; individual differences in cognition, cognition in education and the workplace.

Kalonji, Gretchen * 1990, (Adjunct); PhD, 1982, Massachusetts Institute of Technology; crystalline defects, computer simulation, rapid solidification of ceramics.

Karlin, Anna R. * 1994; PhD, 1987, Stanford University; online algorithms, probabilistic algorithms and probabilistic analysis.

Kehl, Theodore 1963, (Emeritus); PhD, 1961, University of Wisconsin; real-time hardware and software systems, computer design, VLSI.

Kim, Yongmin * 1982, (Adjunct); MS, 1979, PhD, 1982, University of Wisconsin; computer architecture, media processors, imaging and video systems, medical imaging modeling.

Ladner, Richard E. * 1971; PhD, 1971, University of California (Berkeley); design and analysis of algorithms, cache performance, data compression, network algorithms.

Lazowska, Edward D. * 1977; MS, 1974, PhD, 1977, University of Toronto (Canada); computer systems: modeling and analysis, design and implementation, distributed and parallel systems.

Leach, Paul Jay 1992, (Affiliate).

Levy, Henry M. * 1983; MS, 1981, University of Washington; operating systems, distributed parallel systems, computer architecture.

Lewis, John 1994, (Affiliate); PhD, 1977, Stanford University.

Noe, Jerre D. * 1968, (Emeritus); PhD, 1948, Stanford University; distributed computer systems, computer measurement and evaluation, simulation.

Notkin, David S. * 1984; PhD, 1984, Carnegie Mellon University; software engineering, software evolution, software tools and environments, software model checking.

Olson, Maynard V. 1992, (Adjunct); PhD, 1970, Stanford University; large-scale genome mapping and sequencing.

Ruzzo, Walter L. * 1977; PhD, 1978, University of California (Berkeley); computational complexity, parallel computation, computational biology.

Shapiro, Linda G. * 1986; PhD, 1974, University of Iowa; computer vision, multimedia information systems, medical informatics, pattern recognition.

Shaw, Alan Cary * 1971; PhD, 1968, Stanford University; operating systems, software specifications, real-time systems.

Snyder, Lawrence * 1983; PhD, 1973, Carnegie Mellon University; the theory, algorithms, languages, architecture, and VLSI issues of parallel computation.

Stuetzle, Werner * 1984, (Adjunct); PhD, 1977, Swiss Federal Institute of Technology; nonparametric methods in multivariate analysis, statistical applications of computer graphics.

Tanimoto, Steven L. * 1977; MA, 1974, PhD, 1975, Princeton University; visual languages, image analysis, computer graphics, artificial intelligence, educational technology.

Tomba, Martin * 1986; MS, 1975, PhD, 1978, University of Toronto (Canada); computational complexity, computational biology.

Weld, Daniel Sabey * 1988; MS, 1984, PhD, 1988, Massachusetts Institute of Technology; artificial intelligence, planning, software agents, data integration.

Zahorjan, John * 1980; MS, 1976, PhD, 1980, University of Toronto (Canada); computer systems, performance analysis, parallel programming models, scheduling and runtime support.

Zick, Gregory L. * 1974, (Adjunct); MS, 1972, PhD, 1974, University of Michigan; image and multimedia databases, medical imaging.

Associate Professors

Adams, Loyce M. * 1985, (Adjunct); PhD, 1983, University of Virginia; numerical algorithms for parallel computers.

Anderson, Thomas E. * 1987; MS, 1990, PhD, 1991, University of Washington; internetworking local and wide-area distributed systems, operating systems, computer architecture.

Benaloh, Josh 1999, (Affiliate); PhD, 1987, Yale University.

Bershad, Brian * 1986; MS, 1989, PhD, 1990, University of Washington; operating systems, architecture, distributed systems, parallel systems.

Brinkley, James F. III * 1988, (Adjunct Research); MD, 1974, University of Washington; PhD, 1984, Stanford University; computer applications in medicine and biology.

Burns, Steven M. * 1991, (Affiliate); PhD, 1991, California Institute of Technology; VLSI, asynchronous circuit design, CAD, concurrent computation.

Chambers, Craig D. * 1991; PhD, 1992, Stanford University; object-oriented language design and implementation.

Cohen, Michael F. 1998, (Affiliate); PhD, 1992, University of Utah.

Dekker, David B. 1948, (Emeritus); PhD, 1948, University of California (Berkeley); numerical analysis, curve fitting, numerical solutions of differential equations.

Etzioni, Oren * 1991; MS, 1988, PhD, 1990, Carnegie Mellon University; artificial intelligence and information retrieval, intelligent webware, software agents, Web search.

Friedman, Batya * 1999, (Adjunct); PhD, 1988, University of California (Berkeley); value-sensitive design, social-cognitive and cultural aspects of information systems.

Green, Philip * 1994, (Adjunct); PhD, 1976, University of California (Berkeley); mathematical and computer methods for genome analysis.

Kalet, Ira J. * 1980, (Adjunct); PhD, 1968, Princeton University; computer simulation of radiation therapy, artificial intelligence, computer graphics.

Kimura, Gary D. 1999, (Affiliate); PhD, 1984, University of Washington.

Larus, James R. 1999, (Affiliate); PhD, 1989, University of California (Berkeley).

Salesin, David Henry * 1992; PhD, 1991, Stanford University; computer graphics.

Szeliski, Richard Stephen 1998, (Affiliate); PhD, 1988, Carnegie Mellon University.

Assistant Professors

Arnstein, Lawrence 1999, (Affiliate); PhD, 1993, Carnegie Mellon University.

Bohringer, Karl F. * 1998, (Adjunct); PhD, 1997, Cornell University; microelectromechanical systems, applied microtechnology, micro spacecraft.

Curless, Brian L. * 1998; MSEE, 1991, PhD, 1997, Stanford University; computer graphics, active machine vision.

Diorio, Christopher J. * 1997; MS, 1984, PhD, 1997, California Institute of Technology; silicon learning chips, neural networks and learning algorithms, implantable microcontrollers.

Domingos, Pedro 1999; MS, 1992, University of Lisbon (Portugal); MS, 1994, PhD, 1997, University of California (Irvine); artificial intelligence, machine learning, data mining.

Hauck, Scott * 1990, (Adjunct); MS, 1992, PhD, 1995, University of Washington; FPGAs, reconfigurable computing, VLSI/CAD, digital logic, adaptive computing.

Levy, Alon Y. * 1998; PhD, 1993, Stanford University; database systems, artificial intelligence, query optimization.

Sengupta, Rimli 1999, (Research); PhD, 1995, Georgia Institute of Technology.

Wetherall, David James 1999; MS, 1994, PhD, 1998, Massachusetts Institute of Technology; networks, distributed systems, programming languages and operating systems.

Senior Lecturer

Mones-Hattal, Barbara 1999; MFA, 1989, Rhode Island School of Design; computer graphics, character animation.

Lecturers

Dickey, Martin 1996; PhD, 1992, Arizona State University; computer science education, computational linguistics.

Perkins, John H. Jr. 1998; MS, 1982, Cornell University; computer science education, programming languages and compilers.

Course Descriptions

See page 48 for an explanation of course numbers, symbols, and abbreviations.

For graduate-level course descriptions, see the graduate and professional study volume of the *General Catalog* or visit the online course catalog at www.washington.edu/students/crscat/.

CSE 100 Fluency in Information Technology (5)

QSR Introduces the skills, concepts, and capabilities necessary to effectively use information technology. Includes logical reasoning, managing complexity through the operation of computers and networks, and contemporary applications such as email and word processing. Not available for credit to students who have completed CSE 142 or ENGR 142. Offered: jointly with IMT 100; AWSp.

CSE 142 Computer Programming for Engineers and Scientists I (4) NW/QSR

Basic programming-in-the-small abilities and concepts. Highlights include procedural and functional abstraction with simple built-in data type manipulation. Basic abilities of writing, executing, and debugging programs. Not available for credit to students who have completed CSE 210 or ENGR 141. Offered: AWSpS.

CSE 143 Computer Programming for Engineers and Scientists II (5) NW, QSR

Continuation of 142. Concepts of modularity and encapsulation, focusing on modules and abstract data types. Covers some basic data structures. Not available for credit to students who have completed CSE 211. Offered: AWSpS.

CSE 321 Discrete Structures (4)

Fundamentals of set theory, graph theory, enumeration, and algebraic structures, with applications in computing. Prerequisite: CSE 143; either MATH 126, MATH 129, or MATH 136. Offered: AWSp.

CSE 322 Introduction to Formal Models in Computer Science (3)

Finite automata and regular expressions; context-free grammars and pushdown automata; nondeterminism; Turing machines and the halting problem. Emphasis on understanding models and their applications and on rigorous use of basic techniques of analysis. Induction proofs, simulation, diagonalization, and reduction arguments. Prerequisite: CSE 321. Offered: AW.

CSE 326 Data Structures (4)

Data types, abstract data types, and data structures. Efficiency of algorithms. Sequential and linked implementation of lists.

Binary tree representations and traversals. Searching: dictionaries, priority queues, hashing. Directed graphs, depth-first algorithms. Garbage collection. Dynamic storage allocation. Internal and external sorting. No credit to students who have completed CSE 373, CSE 374, or E E 374. Prerequisite: CSE 321. Offered: AWSp.

CSE 341 Programming Languages (4)

Basic concepts of programming languages, including abstraction mechanisms, types, and scoping. Detailed study of several different programming paradigms, such as functional, object-oriented, and logic programming. No credit if CSE 413 has been taken. Prerequisite: CSE 143. Offered: AWSp.

CSE 370 Introduction to Digital Design (4)

Introductory course in digital logic and its specification and simulation. Boolean algebra, combinational circuits including arithmetic circuits and regular structures, sequential circuits including finite-state machines, use of programmable logic devices. Simulation and high-level specification techniques are emphasized. Offered: AWSp.

CSE 373 Data Structures and Algorithms (3)

Fundamental algorithms and data structures for implementation. Techniques for solving problems by programming. Linked lists, stacks, queues, directed graphs. Trees: representations, traversals. Searching (hashing, binary search trees, multiway trees). Garbage collection, memory management. Internal and external sorting. No credit to students who have completed 326, 374, or E E 374. Prerequisite: CSE 143.

CSE 378 Machine Organization and Assembly Language (4)

Differences and similarities in machine organization; central processors; fundamentals of machine language and addressing; assembly language programming, including macros; operating system interfaces. No credit to students who have completed 410. Prerequisite: CSE 143. Offered: AWSp.

CSE 401 Introduction to Compiler Construction (3)

Fundamentals of compilers and interpreters for symbol tables; lexical analysis, syntax analysis, semantic analysis, code generation, and optimizations for general purpose programming languages. No credit to students who have taken 413. Prerequisite: CSE 322; CSE 326; CSE 341; CSE 378.

CSE 403 Software Engineering (4)

Fundamentals of software engineering using a group project as the basic vehicle. Topics covered include the software crisis, managing complexity, requirements specification, architectural and detailed design, testing and analysis, software process, and tools and environments. Prerequisite: CSE 321; CSE 341; CSE 378; recommended: CSE 401; CSE 451.

CSE 410 Computer Systems (3)

Structure and components of hardware and software systems. Machine organization, including central processor and input-output architectures; assembly language programming; operating systems, including process, storage, and file management. No credit to students who have completed 378 or 451. Prerequisite: CSE 373.

CSE 413 Programming Languages and Their Implementation (3)

Concepts and implementation strategies for ALGOL-class languages, including Pascal, Modula, ALGOL 60, Ada. Compilers for ALGOL-class languages. Languages with late binding times, including LISP, APL, Smalltalk. No credit to students who have completed 341 or 401. Prerequisite: CSE 373.

CSE 415 Introduction to Artificial Intelligence (5)

NW Principles and programming techniques of artificial intelligence: LISP, symbol manipulation, knowledge representation, logical and probabilistic reasoning, learning, language understanding, vision, expert systems, and social issues. Not open for credit to students who have completed 473. Prerequisite: CSE 373.

CSE 417 Algorithms and Computational Complexity (3) Design and analysis of algorithms and data structures. Efficient algorithms for manipulating graphs and strings. Fast Fourier Transform. Models of computation, including Turing machines. Time and space complexity. NP-complete problems and undecidable problems. Prerequisite: CSE 373. Offered: W.

CSE 421 Introduction to Algorithms (3) Techniques for design of efficient algorithms. Methods for showing lower bounds on computational complexity. Particular algorithms for sorting, searching, set manipulation, arithmetic, graph problems, pattern matching. Prerequisite: CSE 322; CSE 326.

CSE 431 Introduction to Theory of Computation (3) Models of computation, computable and noncomputable functions, space and time complexity, tractable and intractable functions. Prerequisite: CSE 322.

CSE 444 Introduction to Database Systems (3) Fundamental concepts, system organization, and implementation of database systems. Relational, hierarchical, and network data models; file organizations and data structures; query languages; query optimization; database design; concurrency control; security; issues involving distributed database systems. Prerequisite: CSE 326.

CSE 451 Introduction to Operating Systems (4) Principles of operating systems. Process management, memory management, auxiliary storage management, resource allocation. No credit to students who have completed 410 or E E 474. Prerequisite: CSE 326; CSE 378.

CSE 457 Computer Graphics (4) Introduction to computer image synthesis and interactive computer graphics applications. Topics include computer graphics hardware, color image display, event-driven programming, line drawing, polygon scan conversion, texture mapping, image morphing, image compositing, curves and surfaces, hidden surface algorithms, local illumination models, ray tracing, and photorealistic image synthesis. Prerequisite: CSE 326.

CSE 458 Computer Animation (5) Introduction to basic principles of computer generated animation. Focus on the modeling and lighting of animated characters. Students from Art, CSE, and Music team up on projects to be built on commercially-available modeling and lighting packages. Prerequisite: either CSE 457 or ART 380 or MUSIC 403.

CSE 461 Introduction to Computer-Communication Networks (4) Computer network architectures, protocol layers. Transmission media, encoding systems, error detection, multiplexing, switching. Data link, multiple access channel protocols. Methods for network routing, congestion control, flow control. End-to-end transport services, protocols. Network security, privacy. Applications including electronic mail, virtual terminals, distributed operating systems. Network programming. Prerequisite: CSE 143. Offered: jointly with E E 461.

CSE 466 Software for Embedded Systems (4) Software issues in the design of embedded systems. Microcontroller architectures and peripherals, embedded operating systems and device drivers, compilers and debuggers, timer and interrupt systems, interfacing of devices, communications and networking. Emphasis on practical application of development platforms. Prerequisite: CSE 326; CSE 370; CSE 378.

CSE 467 Advanced Digital Design (4) Advanced techniques in the design of digital systems. Hardware description languages, combinational and sequential logic synthesis and optimization methods, partitioning, mapping to regular structures. Emphasis on reconfigurable logic as an implementation medium. Memory system design. Digital communication including serial/parallel and synchronous/asynchronous methods. Prerequisite: CSE 326; CSE 370.

CSE 468 Very Large Scale Integration (5) Introduction to CMOS technology and circuit design; implementation of combinational and sequential logic; VLSI design methodologies; CAD tools for layout, simulation, and validation. Students design a VLSI chip using modern CAD tools. Prerequisite: CSE 370.

CSE 471 Computer Design and Organization (4) CPU instruction addressing models, CPU structure and functions, computer arithmetic and logic unit, register transfer level design, hardware and microprogram control, memory hierarchy design and organization, I/O and system components interconnection. Laboratory project involves design and simulation of an instruction set processor. Prerequisite: CSE 370; CSE 378.

CSE 472 Introduction to Computational Linguistics (3) VLPA Introduction to computer applications of linguistic theory, including syntactic processing, semantic, and pragmatic interpretation and natural language generation. Prerequisite: either ANTH 461 or LING 461. Offered: jointly with LING 472.

CSE 473 Introduction to Artificial Intelligence (3) Principal ideas and developments in artificial intelligence: theorem proving, problem-solving methods, representation of knowledge, natural language analysis and synthesis, programming languages for artificial intelligence. Not open for credit to students who have completed 415. Prerequisite: CSE 326; recommended: CSE 341.

CSE 476 Embedded System Design (5) System building course to provide students with a complete experience in embedded system design. Students will design, simulate, construct, debug, and document a substantial project of their choosing. Lectures will focus on case studies and emerging components and platforms. Prerequisite: CSE 451; CSE 466.

CSE 477 Digital System Design (5) Students use laboratory to design, simulate, construct, and debug a substantial project that includes hardware, software, and communication components. Lectures focus on use of embedded processors in digital system design and interfacing techniques. Writing and debugging of real-time reactive software emphasized. Prerequisite: CSE 378; CSE 467.

CSE 481 Capstone Software Design (5) Students work in teams to design and implement a software project involving multiple areas of the CSE curriculum. Emphasis is placed on the development process itself, rather than on the product. Prerequisite: CSE major; CSE 326; CSE 341; CSE 378 and substantial programming experience, such as in CSE 451 or 457.

CSE 490 Special Topics in Computer Science and Engineering (1-5, max 15) Lectures, discussions, and possibly labs on topics of current interest in computer science and engineering not covered by other CSE undergraduate courses. Offered: AWSpS.

CSE 498- Senior Project ([1-9]-, max. 9) A report (and perhaps demonstration) describing a development, survey, or small research project in computer science or an application to another field. Objectives are: (1) integrating material from several courses, (2) introducing the professional literature, (3) gaining experience in writing a technical document, and (4) showing evidence of independent work. Work normally extends over more than one quarter, for a maximum of 6 credits for 498; 9 credits are required for 498H. Offered: AWSpS.

CSE 499 Reading and Research (1-24, max. 24) Available in special situations for advanced computer science majors to do reading and research in field, subject to approval of undergraduate adviser and CSE faculty member. Free elective, but does not replace core course or computer science elective. Credit/no credit only. Offered: AWSpS.

Electrical Engineering

253 Electrical Engineering



General Catalog Web page:
www.washington.edu/students/gencat/academic/Electrical_Eng.html



Department Web page:
www.ee.washington.edu

Electrical engineering is concerned with the understanding and utilization of electricity and with providing society useful, efficient, and economic products and services. Electrical engineering is an amazingly broad-based and rapidly growing discipline. It encompasses everything from batteries and power supplies to crystal fabrication, autonomous robots, and devices that can recognize human speech. Electrical engineers design, produce, study, and operate all manners of devices and systems that use electric and electromagnetic energy. Electrical engineers work on systems at the macro scale of electric power grids and at the micro scale of nanotechnology.

Contemporary society is in the midst of an information revolution, created in large part from the fruits of electrical engineering. Rapid improvements in communication technologies, computer visualization, and information access continue to have a significant impact on manufacturing, medicine, transportation, and environmental monitoring. Dramatic advances in personal communication services, digital imaging, and network hardware and software are changing the texture of everyday life for an increasing portion of the world's population.

Graduates with a degree in electrical engineering find employment in industries such as aerospace, communications, computer manufacturing, power distribution, consumer electronics, and biomedical engineering. Positions can be found focusing on the research, design, and testing of new products; in technical sales and marketing; business consulting; and even growing areas such as intellectual property. Students who pursue graduate studies are quite successful in highly competitive programs nationally and internationally.

Undergraduate Program

Undergraduate Adviser
253 EE/CSE Building, Box 352500
(206) 543-2142
undergrad@ee.washington.edu

The Department of Electrical Engineering offers a program of study leading to the Bachelor of Science in Electrical Engineering degree.

The mission of the undergraduate program in electrical engineering is excellence in undergraduate education. The department strives to be among the best in the quality of our undergraduate program, preparing our graduates for successful careers in engineering, postgraduate education, and life-long learning.

The electrical engineering program has been carefully designed to provide its students with excellent classroom and laboratory instruction. Graduates learn the fundamentals of electrical engineering through a broad set of required core courses that apply science and mathematics to engineering and require effective oral and written communications so that they may apply engineering fundamentals to a selected specialty of electrical engineering, culminating in a significant design experience; apply a variety of modern software tools and laboratory equipment to engineering design and analysis in an environment that emphasizes teamwork; explore the opportunity for significant extra-curricular undergraduate experience through

participation in research projects, industrial co-op experience, student organizations, and engineering service to the community to better understand the societal impact of engineering activities; and exhibit the creativity and innovation needed for life-long learning in the rapidly changing field of electrical engineering.

Bachelor of Science in Electrical Engineering

Admission Requirements: Because resources are limited, students must apply for admission to the electrical engineering program. Application forms and a comprehensive booklet, *The Electrical Engineering Handbook for Undergraduates*, can be obtained from the undergraduate adviser for electrical engineering. The department classifies applicants by admission group; the specific requirements for each are described below. Admission to the department is competitive and completion of the requirements does not guarantee admission. All applicants have the right to petition and appeal the admissions decision of the department. Please see the undergraduate adviser for more information.

1. Early Admission Group (EAG):

- Open to students enrolled at the UW.
- Completion of the following courses prior to application: MATH 124, 125, 126; 10 credits of physical-science courses plus accompanying laboratory, at the level of PHYS 121/131, 122/132, 123/133, or CHEM 142, 152 or equivalent; and 5 credits of English composition. In addition to the College of Engineering requirements above, the department requires the completion of CSE 142.
- A minimum GPA of 2.50 in the required prerequisites, and a minimum overall GPA of 2.50. At least 15 credits must have been taken at the UW.
- Early Admission is available for autumn quarter only; the application deadline is July 1.

2. Upper-Division Admission Group (UAG):

- Completion of at least 64 credits applicable to the degree, to include: MATH 124, 125, 126, 307; PHYS 121/131, 122/132, 123/133; CHEM 142; CSE 142; and at least 5 credits of English composition.
- A minimum GPA of 2.50 in the required prerequisites, and a minimum overall GPA of 2.50.
- Application deadlines are July 1 for autumn quarter and February 1 for spring quarter.

Graduation Requirements: In addition to the College of Engineering requirements in general education and engineering fundamentals listed below, the following courses are required for the B.S.E.E. degree: a core of 35 credits of specified electrical engineering courses normally taken in the junior year and 25 credits of electrical engineering electives. To graduate, a student must earn a total of 180 credits with a minimum cumulative GPA of 2.00 in all electrical engineering courses, with no grade below 1.0 in any of these courses. The requirements are discussed in more detail in the *Electrical Engineering Undergraduate Handbook*. Additional graduation requirements include:

Natural World: 25 credits to include CHEM 142 (5); PHYS 121/131 (5), 122/132 (5), and 123/133 (5).

Mathematics: 24 credits to include MATH 124 (5), 125 (5), 126 (5), 307 (3), 308 (3), and 324 (3).

Written and Oral Communication: 12 credits to include one 5-credit English composition course from the approved University list; T C 231 (3) and T C 333 (4).

Engineering Fundamentals: 17 credits to include CSE 142 (4), CSE 143 (5), E E 215 (4), and E E 235 (4).

Approved Non-Electrical Engineering Electives: 10 credits selected from courses listed in the departmental handbook.

Statistics: 4 credits of STAT/MATH 390.

Areas of Knowledge (Visual, Literary, & Performing Arts and Individuals & Societies): 25 credits to include a minimum of 10 credits in each area. Courses that count toward these requirements are identified as VLPA or I&S in the *General Catalog* and in the quarterly *Time Schedule*. Also required is one in-depth sequence (minimum 8 credits) consisting of two or more related courses.

Free Electives: 8 credits.

The departmental policy on continuation is consistent with the continuation policy of the College but also includes supplementary requirements specific to the department. Details may be obtained from the department advising office.

Many scholarships specifically for electrical engineering majors and based on merit and financial need are awarded each year. Students interested in applying for these and other College of Engineering scholarships may obtain information from the Department of Electrical Engineering Scholarship Award Committee Chair.

Graduate Program

For information on the Department of Electrical Engineering's graduate program, see the graduate and professional volume of the *General Catalog* or visit the *General Catalog* online at www.washington.edu/students/gencat/.

Faculty

Chair

Howard Jay Chizeck

Professors

Afromowitz, Martin * 1975; MS, 1966, PhD, 1969, Columbia University; microtechnology, solid-state and fiber-optics sensors, biomedical instrumentation.

Albrecht, Robert W. * 1961; MS, 1958, PhD, 1961, University of Michigan; robotics, stochastic analysis, nuclear reactor theory.

Alexandro, Frank J. * 1964; MSEE, 1959, DSc, 1964, New York University; control systems.

Allstot, David James * 1999; PhD, 1979, University of California (Berkeley); design and simulation of RF and mixed-signal integrated circuits.

Andersen, Jonny * 1967; MS, 1962, PhD, 1965, Massachusetts Institute of Technology; analog circuit design, modeling and CAD.

Atlas, Les Eugene * 1983; MS, 1978, PhD, 1984, Stanford University; time-frequency representations, nonstationary signal and time-varying system analysis.

Baer, Jean-Loup * 1969, (Adjunct); MS, 1963, Grenoble (France); PhD, 1968, University of California (Los Angeles); computer architecture and performance evaluation.

Beach, Kirk Watson * 1976, (Adjunct Research); MSChE, 1968, PhD, 1971, University of California (Berkeley); MD, 1976, University of Washington; arterial disease in diabetes, blood flow studies with ultrasonic Doppler.

Bergseth, F. Robert 1947, (Emeritus); MSEE, 1938, Massachusetts Institute of Technology; electric power systems.

Bernard, Gary D. * 1989, (Affiliate); PhD, 1964, University of Washington; advanced sensors for manufactur-

ing, time-frequency classification, visual information processing.

Chizeck, Howard Jay * 1998; ScD, 1982, Massachusetts Institute of Technology; biologically inspired control systems for autonomous robotics, prosthetics, and rehabilitation.

Clark, Robert N. * 1957, (Emeritus); PhD, 1969, Stanford University; automatic control systems, fault detection in dynamic systems.

Crum, Lawrence A. * 1992, (Research); PhD, 1967, Ohio University.

Damborg, Mark J. * 1969; MSEE, 1963, PhD, 1969, University of Michigan; control systems theory, power system dynamics, expert systems and database applications.

Daniels, Patricia D. 1996, (Affiliate); PhD, 1974, University of California (Berkeley).

Darling, Robert B. * 1985; MS, 1982, PhD, 1985, Georgia Institute of Technology; semiconductor devices, microelectronics, optoelectronics, sensors, microfabrication.

Denton, Denice D. 1996; MS, 1982, PhD, 1987, Massachusetts Institute of Technology; micromachining for the design and fabrication of microelectronic systems.

Dow, Daniel G. * 1968, (Emeritus); PhD, 1958, Stanford University; microwaves, physical electronics, semiconductor devices, sensors.

Ehrenberg, John E. * 1970, (Affiliate); PhD, 1973, University of Washington; communications, signal processing, underwater acoustics.

El-Sharkawi, Mohamed A. * 1980; MS, 1977, PhD, 1980, University of British Columbia (Canada); intelligent systems applications; analysis and control of power electronics and systems.

Furness, Thomas A. * 1989, (Adjunct); PhD, 1981, University of Southampton (UK); display systems engineering, human factors, computer graphics.

Guilford, Edward C. * 1959, (Emeritus); PhD, 1959, University of California (Berkeley); electronics, computers.

Hannaford, Blake * 1989; MS, 1982, PhD, 1985, University of California (Berkeley); human and robotic movement control, bioengineering, controls, human-machine interaction.

Haralick, Robert M. * 1986; MS, 1967, PhD, 1969, University of Kansas; computer vision, artificial intelligence, pattern recognition, image processing.

Hsu, Chih-Chi * 1958, (Emeritus); PhD, 1951, Ohio State University; control systems and cybernetics.

Hwang, Jenq-Neng * 1989; PhD, 1988, University of Southern California; signal and image processing, neural networks, pattern recognition.

Ishimaru, Akira * 1953, (Emeritus); PhD, 1958, University of Washington; electromagnetics, optics, acoustics, applied mathematics, scattering theory.

Jackson, Darrell R. * 1976, (Research); PhD, 1966, University of Washington; PhD, 1977, California Institute of Technology; signal processing, underwater acoustics, wave scattering.

Johnson, David L. 1955, (Emeritus); PhD, 1955, Purdue University; digital design, artificial intelligence, models of learning systems.

Kuga, Yasuo * 1991; MS, 1979, PhD, 1983, University of Washington; microwave and millimeter-wave remote sensing, optics, and electromagnetics.

Ladner, Richard E. * 1971, (Adjunct); PhD, 1971, University of California (Berkeley); design and analysis of algorithms, cache performance, data compression, network algorithms.

Lauritzen, Peter O. * 1968, (Emeritus); MS, 1958, PhD, 1961, Stanford University; power electronics, device modeling for circuit simulation, electronic devices.

Lewellen, Thomas * 1967, (Adjunct); PhD, 1972, University of Washington; bioengineering, electrical engineering.

Liu, Chen-Ching * 1983; MS, 1978, National Taiwan University; PhD, 1983, University of California (Berkeley); power system analysis/computing, intelligent system methodologies/applications, power electronics.

Malvar, Henrique S. 1999, (Affiliate); PhD, 1986, Massachusetts Institute of Technology.

Marks, Robert * 1977; MS, 1973, Rose Hulman Institute of Technology; PhD, 1977, Texas Technological University; neural networks, computational intelligence, fuzzy systems, statistical communication theory.

Meditch, James S. * 1977, (Emeritus); MS, 1957, Massachusetts Institute of Technology; PhD, 1961, Purdue University; broadband communication networks, video and multimedia systems.

Mitchell, Gordon Lynn 1993, (Affiliate); PhD, 1978, University of Washington.

Moritz, William E. * 1973, (Emeritus); PhD, 1969, Stanford University; human-powered transportation.

Noges, Endrik * 1958, (Emeritus); PhD, 1959, Northwestern University; automatic control systems, nonlinear and discontinuous control.

Ostendorf, Mari * 1999; PhD, 1985, Stanford University; speech synthesis and understanding, spoken document retrieval, statistical pattern recognition.

Pearsall, Thomas P. * 1989; PhD, 1973, Cornell University; physics of semiconductors and the technology of semiconductor devices.

Peden, Irene Carswell * 1961, (Emeritus); PhD, 1962, Stanford University; subsurface remote sensing and applied electromagnetics.

Pinter, Robert B. * 1967, (Emeritus); MS, 1960, PhD, 1964, Northwestern University; cybernetics, robotics, biophysics.

Porter, Robert P. * 1985, (Emeritus); PhD, 1970, Northeastern University; acoustics, electromagnetics, signal processing.

Ritcey, James A. * 1985; MS, 1979, Syracuse University; PhD, 1985, University of California (San Diego); communications, signal processing, radar/sonar.

Sechen, Carl M. * 1992; PhD, 1987, University of California (Berkeley); design and computer-aided design of digital integrated circuits and systems.

Shapiro, Linda G. * 1986; PhD, 1974, University of Iowa; computer vision, multimedia information systems, medical informatics, pattern recognition.

Sigelmann, Rubens A. * 1959, (Emeritus); PhD, 1963, University of Washington; bioengineering, ultrasonics, propagation, acoustics.

Soma, Mani * 1982; MS, 1977, PhD, 1980, Stanford University; IC design and testing, mixed signal testing, bioengineering.

Spelman, Francis A. * 1961, (Adjunct); PhD, 1975, University of Washington; biophysics of implanted cochlea, bioinstrumentation for primate research.

Spindel, Robert C. 1987; MS, 1966, PhD, 1971, Yale University; ocean acoustics, signal processing, acoustic navigation systems, acoustic tomography.

Szabaly, John F. * 1984, (Affiliate); PhD, 1948, Josef Nador University (Hungary).

Tanimoto, Steven L. * 1977, (Adjunct); MA, 1974, PhD, 1975, Princeton University; visual languages, image analysis, computer graphics, artificial intelligence, educational technology.

Tsang, Leung * 1983; MS, 1973, PhD, 1976, Massachusetts Institute of Technology; electromagnetics, propagation and scattering, remote sensing, and optics.

Uscinski, Barry Joseph 1999, (Affiliate); .PhD, 1998, University of Cambridge (UK).

Vagners, Juris * 1967, (Adjunct); PhD, 1967, Stanford University; dynamics, controls and optimization.

Venkata, Subrahmanyam S. 1979, (Affiliate); MS, 1965, Indian Institute of Technology (India); PhD, 1971, University of South Carolina; computer applications to power systems, AI applications, transmission and distribution.

Yee, Sinclair S. * 1966; MS, 1961, PhD, 1965, University of California (Berkeley); physical electronics, semiconductor devices, optical sensors.

Zick, Gregory L. * 1974; MS, 1972, PhD, 1974, University of Michigan; image and multimedia databases, medical imaging.

Associate Professors

Aggoune, Mohamed E. 1987, (Affiliate); MS, 1984, PhD, 1988, University of Washington.

Azizoglu, Murat * 1994; MS, 1987, Ohio State University; PhD, 1991, Massachusetts Institute of Technology; communication networks, optical networks, communication theory, information theory.

Babbitt, William R. * 1993, (Affiliate); MAE, 1986, PhD, 1987, Harvard University; optical memories, processors, optical interconnects and nonlinear optics.

Borriello, Gaetano * 1988, (Adjunct); MS, 1981, Stanford University; PhD, 1988, University of California (Berkeley); invisible and ubiquitous computing, embedded network systems.

Chang, Kou-Chuan * 1997, (Affiliate); PhD, 1986, University of Minnesota; digital-systems design, design automation algorithms, hardware description languages.

Chen, Qinglun 1999, (Affiliate); PhD, 1990, University of Houston.

Chou, Philip A. * 1998, (Affiliate); PhD, 1998, Stanford University.

Christie, Richard Dunstan Jr. * 1989; MSEE, 1974, Rensselaer Polytechnic Institute; PhD, 1989, Carnegie Mellon University; power systems analysis, distribution system reliability, user interfaces.

Cwik, Thomas A. 1997, (Affiliate); PhD, 1986, University of Illinois.

Dailey, Daniel J. * 1982, (Research); MS, 1982, PhD, 1988, University of Washington; time series modeling of physical phenomena, optimization, distributed computing, networking.

Dunham, Scott T. * 1999; PhD, 1985, Stanford University; modeling of VLSI fabrication and device operation, microtechnology modeling, computational materials.

Falk, Robert Aaron 1995, (Affiliate); MS, 1974, PhD, 1979, University of Washington.

Giri, Jay * 1990, (Affiliate); MS, 1971, State University of New York (Stony Brook); PhD, 1977, Clarkson University; power system analysis, software development and user interfaces for real-time power system control.

Healy, Michael J. * 1995, (Affiliate); MS, 1967, University of Idaho; formal semantics, mathematical semantic analysis and design of systems.

Helms, Ward J. * 1964; PhD, 1968, University of Washington; VLSI analog and digital circuit design, integrated circuits, acoustics and audio.

Ly, Uy-Loi * 1988, (Adjunct); PhD, 1983, Stanford University; robust controls, parameter optimization, model reduction, digital control, design integration.

Meldrum, Deirdre R. * 1992; MS, 1985, Rensselaer Polytechnic Institute; PhD, 1992, Stanford University; laboratory automation systems, genome analysis, modeling and control of dynamic systems, robots.

Nelson, Brian A. * 1987, (Research); PhD, 1987, University of Wisconsin; fusion plasma physics, plasma processing of materials, data acquisition software.

Phillips, Hsin Tsai-Yun * 1988, (Affiliate); PhD, 1984, University of Maryland; computer vision, document image understanding, image database, software engineering.

Redeker, Charles C. 1963, (Emeritus); MS, 1964, University of Washington.

Riskin, Eve A. * 1990; MS, 1985, PhD, 1990, Stanford University; image compression and processing, and signal processing.

Roy, Sumit * 1998; MA, 1985, MSEE, 1985, PhD, 1988, University of California (Santa Barbara); performance analysis of communications networks, statistical and numerical computing.

Sahr, John D. * 1991; PhD, 1990, Cornell University; radar remote sensing, ionospheric physics; signal processing; wireless communications.

Sinanan, Mika N. * 1980, (Adjunct); MD, 1980, Johns Hopkins University; PhD, 1986, University of British Columbia (Canada); general and laparoscopic surgery.

Sun, Ming-Ting * 1996; MS, 1981, University of Texas (Arlington); PhD, 1985, University of California (Los Angeles); multimedia, video processing, networking, VLSI.

Thorsos, Eric I. * 1980, (Research); PhD, 1972, Massachusetts Institute of Technology; rough surface scattering, numerical simulation and theory, underwater acoustics.

Vivekanandan, J. 1994, (Affiliate); PhD, 1986, Colorado State University.

Winebrenner, Dale P. * 1986, (Research); PhD, 1985, University of Washington; wave propagation and scattering and remote sensing of planetary surfaces.

Yuan, Chun 1991, (Adjunct); PhD, 1988, University of Utah; medical biophysics, MRI.

Assistant Professors

Alilovic-Curgus, Jadranka 1997, (Affiliate); PhD, 1993, University of British Columbia (Canada).

Belcher, Edward O. * 1982, (Affiliate); MA, 1970, Stanford University; MSEE, 1973, Purdue University; signal processing, artificial intelligence, underwater acoustics.

Benson, Daniel C. 1991, (Affiliate); PhD, 1992, University of Washington.

Bilmes, Jeffrey A. * 1999; PhD, 1999, University of California (Berkeley); speech and pattern recognition, learning, audio processing, high-performance computing, interfaces.

Bohringer, Karl F. * 1998; PhD, 1997, Cornell University; microelectromechanical systems, applied microtechnology, micro spacecraft.

Campbell, Mark E. * 1997, (Adjunct); PhD, 1996, Massachusetts Institute of Technology; precision-controlled structures, autonomous aerospace vehicles, smart materials.

Chalana, Vikram 1991, (Affiliate); MS, 1993, PhD, 1996, University of Washington.

Choi, Jai Joon * 1988, (Affiliate); PhD, 1990, University of Washington; adaptive signal processing, neural networks, and fuzzy logic.

Diorio, Christopher J. * 1997, (Adjunct); MS, 1984, PhD, 1997, California Institute of Technology; silicon learning chips, neural networks and learning algorithms, implantable microcontrollers.

Goldschneider, Jill * 1989, (Affiliate); PhD, 1997, University of Washington; data compression, image processing and clustering.

Gu, Chuang * 1999, (Affiliate); PhD, 1995, Swiss Federal Institute of Technology; video processing, video analysis, and video coding.

Hauck, Scott * 1990; MS, 1992, PhD, 1995, University of Washington; FPGAs, reconfigurable computing, VLSI/CAD, digital logic, adaptive computing.

Jandhyala, Vikram 2000; MS, 1995, PhD, 1998, University of Illinois; computational electromagnetics and applications.

Li, Ming 1999, (Affiliate); PhD, 1987, University of Washington.

Liu, Hui * 1998; PhD, 1995, University of Texas (Austin); wireless system and network design, DSP and VLSI for communications, numerical computing.

Luby, James C. * 1979, (Affiliate); PhD, 1984, University of Washington; signal processing, underwater acoustics, computer simulation, adaptive array processing, tracking.

Mamishhev, Alexander V. * 1999; PhD, 1999, Massachusetts Institute of Technology; sensors, non-destructive testing, power, MEMS, inverse problems, optimization.

Matula, Thomas J. * 1993, (Affiliate); PhD, 1993, Washington State University.

Melendez, Jose L. 1997, (Affiliate); MS, 1991, Massachusetts Institute of Technology; PhD, 1994, Stanford University.

Navarro, Julio A. 1999, (Affiliate); PhD, 1995, Texas A&M University.

Oh, Seho * 1987, (Affiliate); PhD, 1989, University of Washington; neural networks and fuzzy systems.

Padmanabhan, Venkata N. Z. * 1999, (Affiliate); PhD, 1998, University of California (Berkeley); Internet performance analysis, wireless networking, and mobile computing.

Ryu, Bong K. 1999, (Affiliate); MS, 1993, PhD, 1996, Columbia University.

Shi, Chuan Jin * 1998; PhD, 1994, University of Waterloo (Canada); VLSI and VLSI-CAD, optimization.

Wilson, Denise M. * 1999; PhD, 1995, Georgia Institute of Technology; distributed sensing systems design with emphasis on electronics interface.

Senior Lecturers

Peckol, James 1994; PhD, 1985, University of Washington; real-time embedded systems, hardware/software co-design, computer architecture, digital fuzzy logic.

Yee, Hsian-Pei 1985; MS, 1989, PhD, 1992, University of Washington.

Course Descriptions

See page 48 for an explanation of course numbers, symbols, and abbreviations.

For graduate-level course descriptions, see the graduate and professional study volume of the *General Catalog* or visit the online course catalog at www.washington.edu/students/crscat/.

E E 215 Fundamentals of Electrical Engineering (4) NW Introduction to electrical engineering. Basic circuit and systems concepts. Mathematical models of components. Kirchhoff's laws. Resistors, sources, capacitors, inductors, and operational amplifiers. Solution of first and second order linear differential equations associated with basic circuit forms. Steady state sinusoidal excitation and phasors. Prerequisite: either MATH 126, MATH 129, or MATH 136; PHYS 122. Offered: AWSp.

E E 233 Circuit Theory (5) Electric circuit theory. Analysis of circuits with sinusoidal signals. Phasors, system functions, and complex frequency. Frequency response. Computer analysis of electrical circuits. Power and energy. Two port network theory. Laboratory in basic electrical engineering topics. Prerequisite: 1.0 in E E 215. Offered: AWSp.

E E 235 Continuous Time Linear Systems (4) Introduction to continuous time signal analysis. Basic signals including impulses, pulses, and unit steps. Periodic signals. Convolution of signals. Fourier series and transforms in discrete and continuous time. Computer laboratory. Prerequisite: either 1.0 in MATH 136 or 1.0 in MATH 307 either of which may be taken concurrently; 1.0 in PHYS 122; 1.0 in PHYS 132. Offered: AWSp.

E E 299 Special Topics in Electrical Engineering (1-5, max. 5) New and experimental approaches to basic electrical engineering. May include design and construction projects. Offered: AWSp.

E E 331 Devices and Circuits I (5) Physics, characteristics, applications, analysis, and design of circuits using semiconductor diodes and field-effect transistors with an emphasis on large-signal behavior and digital logic circuits. Classroom concepts are reinforced through laboratory experiments and design exercises. Prerequisite: 1.0 in E E 233. Offered: AWSp.

E E 332 Devices and Circuits II (5) Characteristics of bipolar transistors, large- and small- signal models for bipolar and field effect transistors, linear circuit applications, including low and high frequency analysis of differential amplifiers, current sources, gain stages and output stages, internal circuitry of op-amps, op-amp configurations, op-amp stability and compensation. Weekly laboratory. Prerequisite: 1.0 in E E 331. Offered: AWSp.

E E 341 Discrete Time Linear Systems (5) Discrete time signals and systems, impulse response, convolution, Z-transforms, discrete time Fourier analysis. Computer laboratory. Prerequisite: 1.0 in E E 235. Offered: AWSp.

E E 351 Energy Systems (5) Introduction to theory and methods of analysis in the use of typical apparatus to generate, transmit, utilize energy in electrical form. Includes conventions of circuit description, balanced polyphase circuits, complex power concept, transformer, fundamentals of electromechanical energy conversion, practical synchronous induction and commutator machines, an introduction to power electronics circuits. Prerequisite: 1.0 in E E 233. Offered: AWSp.

E E 361 Applied Electromagnetics (5) Introductory electromagnetic field theory and Maxwell's equations in integral and differential forms; uniform plane waves in linear media; boundary conditions and reflection and transmission of waves; guided waves; transmission lines and Smith chart; electrostatics. Prerequisite: 1.0 in E E 233; 1.0 in MATH 324. Offered: AWSp.

E E 371 Digital Circuits and Systems (5) Overview of digital computer systems. Digital logic, Boolean algebra, combinational and sequential circuits and logic design, programmable logic devices, and the design and operation of digital computers, including ALU, memory, and I/O. Four-hour laboratories every other week. Prerequisite: 1.0 in CSE 143. Offered: AWSp.

E E 399 Special Topics in Electrical Engineering (1-5, max. 5) New and experimental approaches to current electrical engineering problems. May include design and construction projects. Offered: AWSp.

E E 400 Advanced Topics in Electrical Engineering (1-4, max. 8) Contemporary topics at the advanced undergraduate elective level. Faculty presents advanced elective topics not included in the established curriculum. Offered: AWSp.

E E 411 Network Synthesis (4) *Andersen* Network representation in the complex frequency domain, realizability criteria for driving-point and singly and doubly terminated transfer function, canonical forms, Butterworth and Bessel Approximation methods, and application of the digital computer in synthesis procedures. Prerequisite: 1.0 in E E 233. Offered: A.

E E 415 Computer-Aided System Analysis and Design (3) Concepts, principles, and techniques concerned with the design, testing, and application of general-purpose problem-oriented computer programs for analyzing large-scale systems. Offered: Sp.

E E 416 Communications I: Random Signals (4) Probability and random processes in communications. Random variables, distributions, and expectation. Statistical filter design for detection and estimation. Prerequisite: 1.0 in E E 341; 1.0 in STAT 390.

E E 417 Communications II: Modulation and Coding (4) Modulation techniques for modern digital communication systems. Signal space, optimum receiver design, error performance. Energy-bandwidth tradeoff in modulation. Error control coding for high reliability, block coding, convolutional coding. Multipath fading and its effects on performance, diversity signaling. Spread spectrum signaling and code division multiple access for wireless communications. Prerequisite: 1.0 in E E 416. Offered: W.

E E 418 Communications III: Multiple Access (3) Issues in communication systems with multiple users. Multiplexing based on time, frequency, and code. Error performance and power control in multiuser communications. Random access in networks, Aloha protocol and carrier sensing. Queuing theory for performance analysis. Delay-throughput tradeoff. Switch architectures and performance. Prerequisite: 1.0 in E E 417. Offered: Sp.

E E 420 Design in Communications (4) Design projects in communications. Frequent projects solved by student teams. Reports and presentations. Prerequisite: 1.0 in E E 417 which may be taken concurrently. Offered: Sp.

E E 433 Analog Circuit Design (5) Design of analog circuits and systems applying modern integrated circuit technology: operational amplifiers, differential amplifiers, active filters, voltage references and regulators. Prerequisite: 1.0 in E E 332. Offered: AW.

E E 436 Medical Instrumentation (4) *Spelman* Introductory course in the application of instrumentation to medicine. Topics include transducers, signal-conditioning amplifiers, electrodes and electrochemistry, ultrasound systems, electrical safety, and the design of clinical electronics. Laboratory included. For upper-division and first-year graduate students who are preparing for careers in bioengineering-both research and industrial. Offered: jointly with BIOEN 436; Sp.

E E 440 Introduction to Digital Imaging Systems (4) *Hwang* Image representation and standards, visual perception and color spaces, spatial domain image filtering and enhancement, image restoration, image transforms, image and video coding, image geometrical transformation and camera modeling. Prerequisite: E E 341. Offered: A.

E E 442 Digital Signals and Filtering (3) Methods and techniques for digital signal processing. Review of sampling theorems, A/D and D/A converters. Demodulation by quadrature sampling. Z-transform methods, system functions, linear shift-invariant systems, difference equations. Signal flow graphs for digital networks, canonical forms. Design of digital filters, practical considerations, IIR and FIR filters. Digital Fourier transforms and FFT techniques. Prerequisite: 1.0 in E E 341. Offered: W.

E E 443 Design and Application of Digital Signal Processing (5) Application of learned theories/algorithms and available computer technologies to modern image and speech processing problems. Two-dimensional signals and systems. Image transform, enhancement, restoration, coding. Characteristics of speech signals, linear predictive coding (LPC) of speech, pitch detection, and LPC speech synthesis, speech recognition, hardware designs for signal processing. Prerequisite: 1.0 in E E 442. Offered: Sp.

E E 445 Nonlinear Systems Analysis (4) Dynamic analysis of nonlinear circuits, neural networks and of other simple systems. Exact methods, graphical methods, approximate methods, including linearization and numerical and analog computer solutions. Stability. Forced oscillations. Prerequisite: 1.0 in E E 235. Offered: A.

E E 446 Control System Analysis I (4) Linear Servomechanism theory and design principles. Pole-zero analysis, stability of feedback systems by root locus and real-frequency response methods. Design methods of Bode and Nichols. Introduction to advanced topics in automatic control theory, state variable methods. Prerequisite: 1.0 in E E 233. Offered: AWSp.

E E 448 Control Systems Sensors and Actuators (3) Study of control systems components and mathematical models. Amplifiers, DC servomotors, reaction mass actuators. Accelerometers, potentiometers, shaft encoders and resolvers, proximity sensors, force transducers, piezoceramic materials, gyroscopes. Experimental determination of component models and model parameters. Two 3-hour laboratories per week. Offered: jointly with A A 448; W.

E E 449 Design of Automatic Control Systems (4) Design problems for aerospace vehicles, systems with unstable dynamics, lightly damped modes, nonminimum phase, nonlinear dynamics. Computer-aided analysis, design, and simulation, with laboratory hardware-in-the-loop testing. Team design reviews, oral presentations. Prerequisite: either 1.0 in A A 450, 1.0 in E E 446, or 1.0 in M E 471. Offered: jointly with A A 449; Sp.

E E 452 Power Electronics Design (5) Electronic conversion and control of electrical power. Includes semiconductor switching devices, power converter circuits, design of magnetics, and control of power converters. Also ac/ac, ac/dc, and dc/dc power converters; circuit simulation; extensive laboratory work a four-week power converter design project. Prerequisite: 1.0 in E E 332; 1.0 in E E 351. Offered: A.

E E 453 Electric Drives (5) Elements of drive systems, speed-torque characteristics of electric motors and industrial loads, solid-state converter. Starting and braking methods of loaded motors. Speed control of electric motors. Solid-state drives. Transient analysis of loaded motors. Special forms of individual- and multimotor drives. Prerequisite: 1.0 in E E 351. Offered: W.

E E 454 Power System Analysis I (4) Introduction to methods of analyzing power systems. Includes symmetrical components, calculation of line parameters, representation of transmission lines and power components, and power flow control. Prerequisite: 1.0 in E E 351. Offered: A.

E E 455 Power System Analysis II (4) Analysis of symmetrical and unsymmetrical power systems' networks, fault analysis, and stability studies. Prerequisite: 1.0 in E E 351. Offered: W.

E E 456 Computer-Aided Design in Power Systems (4) Design-oriented course in power system engineering. Students are assigned a project concerning system operation and planning, steady-state and dynamic behaviors of power systems, or distribution systems. Each involves formulation of design criteria, development of approach, application of existing software. Prerequisite: either 1.0 in E E 454 or 1.0 in E E 455. Offered: Sp.

E E 457 Electric Energy Distribution Systems (4) Introduction to electric utility distribution systems. Primary and secondary network analysis and design, distribution substation problems, distribution transformers, capacitor application, overcurrent and overvoltage protection. System planning and reliability. Prerequisite: 1.0 in E E 351. Offered: Sp.

E E 461 Introduction to Computer-Communication Networks (4) Computer network architectures, protocol layers. Transmission media, encoding systems, error detection, multiplexing, switching. Data link, multiple access channel protocols. Methods for network routing, congestion control, flow control. End-to-end transport services, protocols. Network security, privacy. Applications including electronic mail, virtual terminals, distributed operating systems. Network programming. Prerequisite: CSE 143. Offered: jointly with CSE 461.

E E 462 Principles of Mobile Robotics (4) Principles of autonomous vehicles and their operation environments. Typical configuration of indoor vehicles, sensors, controllers, communications with base stations, systems for planning, cartography, navigation, piloting, and learning to achieve autonomous performances. Laboratory exercises to illustrate real-time expert system development and integration expert system knowledge into robotic system. Offered: A.

E E 463 Simulation of Autonomous Systems (4) Study principles of simulation of and sensory interaction between vehicles and environments. Study of requirements to simulate complex mechatronic devices such as multi-legged mobile robots. Implementation of hexapod simulator. Simulation of computer command structures, motors, controllers, chassis, sensors, and environments. Animation to provide human interface to simulation. Offered: W.

E E 465 Fiber Optics, Devices, and Applications (4) Wave propagation in optical waveguiding structures, signal distortion, coupling of modes, modulation, sources and detectors, fabrication and measurement methods, communication and sensor systems. Prerequisite: 1.0 in E E 332; recommended: E E 361. Offered: W.

E E 466 Design in Electromagnetics, Optics, and Acoustics (4) Design of electromagnetic, optical, and acoustic (EOA) devices and systems. Measurements of material properties and system characteristics. Utilization of software for simulation of propagation, interaction and devices in optics, microwave, millimeter wave, acoustic, and ultrasound. A list of projects available prior to registration. Prerequisite: 1.0 in E E 361. Offered: Sp.

E E 467 Antennas: Analysis and Design (4) *Sahr, Tsang* Fundamentals of antennas, analysis, synthesis and computer-aided design, and applications in communications, remote sensing, and radars. Radiation pattern, directivity, impedance, wire antennas, arrays, numerical methods for analysis, horn antennas, microstrip antennas, and reflector antennas. Prerequisite: 1.0 in E E 235; 1.0 in E E 361. Offered: Sp.

E E 471 Computer Design and Organization (5) Introduction to computer architecture, algorithms, hardware design for various computer subsystems, CPU control unit design, hardwired and microprogrammed control, memory organization, cache design, virtual memory, I/O organization, and I/O hardware design. Prerequisite: 1.0 in E E 371. Offered: ASP.

E E 472 Microcomputer Systems (5) Concepts of multi-level machines and computer systems organization. Utilizing microprocessors, digital computer studied at assembly- and high-language levels with emphasis on concepts of central processor architecture, memory organization, input/output and interrupts. Assembly language programming concepts applied to solution of various laboratory problems including I/O programming. Prerequisite: 1.0 in E E 471. Offered: AW.

E E 476 Digital Integrated Circuit Design (5) *Sechen* Comprehensive view of digital integrated circuit design. Topics to be covered include the design of inverters, static logic circuits, switch logic, and synchronous logic. Students design, simulate, and layout a complete digital IC using modern computer-aided design tools. Prerequisite: 1.0 in E E 331; 1.0 in E E 371. Offered: A.

E E 477 Custom Digital CMOS Circuit Design (4) *Sechen* Design and analysis of custom CMOS digital integrated circuits. Interface circuit design, memory design, datapath design. VLSI design methodologies, scaling properties and design tradeoffs. Prerequisite: E E 476.

E E 478 Design of Computer Subsystems (5) Design of digital computer subsystems and systems, using SSI, MSI, and LSI digital components. Combinational logic, sequential logic, memory hardware designs, I/O hardware and interface design, system design steps, high-speed digital circuit design, noise reduction techniques, and hardware description language. One four-hour laboratory each week and design project. Prerequisite: 1.0 in E E 331; 1.0 in E E 472. Offered: WSp.

E E 480 Microwave Engineering I (4) Analysis and design of transmission lines and matching circuits. Lossy transmission lines. Mode structures in metallic and dielectric waveguides. Microwave resonators and magnetic devices. Smith chart and matching techniques. Prerequisite: 1.0 in E E 361. Offered: A

E E 481 Microwave Electronic Design (4) Design of microwave circuits using S-parameter techniques. Measurement techniques, CAD of microwave systems. Includes design, fabrication, and evaluation of a microwave amplifier. Prerequisite: 1.0 in E E 332; 1.0 in E E 361. Offered: W.

E E 482 Semiconductor Devices (4) Fundamentals of semiconductor theory: carrier diffusion and drift; concept of direct and indirect energy materials, effective mass of mobile carriers; device physics: homo- and heterojunctions, operating principles of bipolar, junction, and MOS field-effect transistors. Prerequisite: 1.0 in E E 332. Offered: A.

E E 484 Sensors and Sensor Systems (4) Introduction to optical and solid-state chemical and physical sensors. Topics include transduction mechanisms, design parameters, fabrication methods and applications. Offered: Sp.

E E 485 Introduction to Photonics (4) *Afromowitz, Darling, Pearsall, Yee* The properties, characterization, and use of photonic devices in the design of electronic circuits are studied in the laboratory through experiments and projects. Laboratory work is supplemented by classroom examination of the principles behind measures device properties. Offered: Sp.

E E 486 Fundamentals of Integrated Circuit Technology (3) *Afromowitz* Processing physics, chemistry, and technology, including evaporation, sputtering, epitaxial growth, diffusion, ion implantation, laser annealing, oxidation, chemical vapor deposition, photoresists. Design considerations for bipolar and MOS devices, material and process characterization. Future trends. Prerequisite: 1.0 in E E 482. Offered: Sp.

E E 488 Laser Electronics (4) Analysis and design of laser systems. Basic resonator design, Gaussian beams, longitudinal and transverse modes, rate equations, oscillation, gain, Q-switching, mode-locking, and important non-linear processes. Design concepts underlying various laser systems discussed. Prerequisite: 1.0 in E E 361. Offered: A.

E E 498 Design of Consumer Electronics (4) NW Design of consumer electronics products. Typical products include conventional audio systems, CD players, VCRs, camcorders, and FAX systems. Choice of products varies from quarter to quarter. Course includes an integrated laboratory and design project. Prerequisite: 1.0 in E E 233; recommended: E E 332. Offered: ASp.

E E 499 Special Projects (2-5, max. 10) Assigned construction or design projects carried out under the supervision of the instructor. Offered: AWSp.

Industrial Engineering

G7 Mechanical Engineering Building



General Catalog Web page:
www.washington.edu/students/genocat/academic/Industrial_Eng.html



Department Web page:
depts.washington.edu/ie/

The formal definition of industrial engineering, as adopted by the Institute of Industrial Engineers, is as follows: industrial engineering is concerned with the design, improvement, and installation of integrated systems of people, materials, information, equipment, and energy. It draws upon specialized knowledge and skill in the mathematical, physical, and social sciences together with principles and methods of engineering analysis and design to specify, predict, and evaluate the results obtained from such systems.

Industrial engineering is set apart from other engineering disciplines by its broader scope. Industrial engineers are, by definition, specialists in designing and operating systems that make optimal use of resources when labor, materials, capital, and technology are constrained. They deal with people as well as things, looking at the "big picture" of what makes society perform best: the right combination of human resources, natural resources, and man-made structures and equipment. Bridging the gap between management and operations, they deal with and motivate people as well as determine what tools should be used and how they should be used.

Industrial engineers are the "productivity people" who must provide leadership and integrate technology. They include the human factor in finding workable, effective solutions to production problems while retaining high standards of quality. Demand for industrial engineers has grown dramatically over the past two decades for one chief reason: the need for organizations to raise their levels of productivity through thoughtful, systematic applications. The profit-making organization must have high productivity in order to compete in the domestic and world market place. The nonprofit organization must have high productivity in order to sustain its position as a useful service unit.

Undergraduate Program

Advising Office
G7 Mechanical Engineering, Box 352650
(206) 543-5041
leadvice@u.washington.edu

The Department of Industrial Engineering offers a program of study leading to the Bachelor of Science in Industrial Engineering degree.

The goal of the undergraduate program is to provide a comprehensive education to prepare students for the profession. The first two years of the curriculum include pre-engineering courses, basic mathematics, natural science, engineering science, and humanities and social science. The industrial engineering curriculum focuses on system integration and methods to analyze, design, and improve manufacturing and service systems. The last two years are devoted to studies in the professional industrial engineering program: operations research including optimization and stochastic models, manufacturing engineering, production planning and plant layout, human factors and human interface technology, statistics and design of experiments, quality and reliability engineering, and a comprehensive senior design experience.

Student Associations: Students are actively involved in the UW student chapter of the Institute of Industrial Engineers (IIE).

Internship or Cooperative Exchange Program Opportunities: Students have the opportunity to pursue cooperative and internship programs at the College level through the College's Engineering Co-op Program (www.engr.washington.edu/~coopweb/).

Bachelor of Science in Industrial Engineering

The Bachelor of Science in Industrial Engineering (B.S.I.E.) degree is accredited by the Accreditation Board for Engineering and Technology (ABET).

Admission Requirements: Students must apply for admission to the Industrial Engineering program. There are two categories of admission groups, as detailed below. UW students are eligible for the Early Admission Group (as early as the end of the freshman year). UW and transfer students may apply to be in the Upper-Division Admission Group.

Admission to the program is competitive, and completion of the requirements does not guarantee admission.

All applicants have the right to petition and appeal the decision of the department.

1. **Early Admission Group (EAG):**
 - a. Open to students enrolled at the UW.
 - b. Completion of the following courses prior to application: MATH 124, 125, 126, or MATH 127, 128, 129; 10 credits of physical-science courses plus accompanying laboratory, at the level of PHYS 121/131, 122/132, 123/133, or CHEM 142, 152; and 5 credits of English composition.
 - c. A minimum grade of 2.0 in each prerequisite course and a minimum GPA of 2.50. At least 15 of the credits must have been taken at the UW.
 - d. Application deadline is July 1 for autumn quarter only.
2. **Upper-Division Admission Group (UAG):**
 - a. Completion of 45 credits applicable to the degree, to include: MATH 124, 125, 126, or MATH 127, 128, 129; PHYS 121/131, 122/132, 123/133; CHEM 142, 152; and at least 5 credits of English composition.
 - b. Application deadlines are July 1 for autumn quarter and February 1 for spring quarter.

Graduation Requirements:

Program Requirements: Courses required for the B.S.I.E. degree include a core of 38 credits of specified industrial engineering courses normally taken after admission to the program, 14 credits of technical electives including at least 6 credits from specified IND E courses, and 44 credits of fundamental courses representing several engineering disciplines. The B.S.I.E. degree also requires 54 credits of specific courses in mathematics, physical sciences, and communications, as well as 30 credits in humanities and social science.

Typical courses in the program include statistics, operations research, engineering economy, human factors, workplace and work design, manufacturing processes, planning and scheduling, reliability engineering, simulation, quality control, and computer-integrated manufacturing.

To graduate, a student must earn a total of 180 credits with a minimum cumulative GPA of 2.00 in all engineering courses, with no grade below 1.0 in any of these courses. Courses counting toward the B.S.I.E. degree may not be taken on a satisfactory/not-satisfactory basis.

Graduate Program

For information on the Department of Industrial Engineering's graduate program, see the graduate and professional volume of the *General Catalog* or visit the *General Catalog* online at www.washington.edu/students/genocat/.

Faculty

Acting Director

Tony C. Woo

Professors

Furness, Thomas A. * 1989; PhD, 1981, University of Southampton (UK); display systems engineering, human factors, computer graphics.

Kapur, Kailash C. * 1992; PhD, 1969, University of California (Berkeley); quality/reliability engineering, system design/optimization, total quality/reliability management.

Klasterin, Theodore * 1974, (Adjunct); PhD, 1973, University of Texas (Austin); operations management, facility location, project management, waiting lines, logistics, inventory.

Moizadeh, Kamran * 1984, (Adjunct); MS, 1982, PhD, 1984, Stanford University; operations management, production management, inventory, quality and supply chain management.

Ramey, Judith A. * 1983, (Adjunct); PhD, 1983, University of Texas (Austin); computer-assisted communication, user-centered design, usability testing.

Ramulu, M. * 1978, (Adjunct); PhD, 1982, University of Washington; manufacturing processes, production engineering, applied mechanics, fatigue and fracture mechanics.

Rockafellar, R. T. * 1966, (Adjunct); PhD, 1963, Harvard University; variational analysis and optimization.

Wilson, William R. D. * 1999, (Adjunct); PhD, 1967, Queen's University of Belfast (Ireland); manufacturing and tribology, particularly friction and lubrication in metal forming.

Woo, Tony C. * 1995; PhD, 1975, University of Illinois; manufacturing systems, computer graphics and computational geometry.

Zabinsky, Zelda * 1985; PhD, 1985, University of Michigan; operations research, applications in industrial engineering, optimization with stochastic elements.

Associate Professors

Atman, Cynthia J. * 1998; PhD, 1990, Carnegie Mellon University; engineering and public policy.

Drui, Albert B. * 1959, (Emeritus); MS, 1957, Washington University; industrial engineering, human factors.

Ganter, Mark * 1986, (Adjunct); PhD, 1985, University of Wisconsin; solid modeling, computer graphics, kinematics and automated manufacturing.

Kumar, Vipin * 1988, (Adjunct); PhD, 1988, Massachusetts Institute of Technology; manufacturing, polymer processing, microcellular plastics, design theory and methodology.

Roberts, Norman H. * 1953, (Emeritus); PhD, 1958, University of Washington; reliability and probability theory.

Storch, Richard L. * 1975; PhD, 1978, University of Washington; ship vessel stability and safety, large scale assembly and manufacturing systems.

Wiker, Steven F. * 1993, (Affiliate); MS, 1981, George Washington University; MS, 1982, PhD, 1986, University of Michigan; ergonomics and human factors engineering.

Assistant Professors

Beamon, Benita M. 1999; PhD, 1994, Georgia Institute of Technology; production/supply chain systems, material flow systems.

Smith, Robert P. * 1993; PhD, 1992, Massachusetts Institute of Technology; design methodology, manufacturing systems, concurrent engineering.

Course Descriptions

See page 48 for an explanation of course numbers, symbols, and abbreviations.

For graduate-level course descriptions, see the graduate and professional study volume of the *General Catalog* or visit the online course catalog at www.washington.edu/students/crsctat/.

IND E 237 Introduction to Manufacturing Systems

(3) *Storch* Description of manufacturing systems. Includes discussion of current trends in manufacturing. Introduces process flow analysis, manufacturing organizations including job-shop, assembly lines, and group technology, manufacturing inventory philosophies (just-in-time, MRP, OPT), work environment, and work simplification. Offered: Sp.

IND E 250 Fundamentals of Engineering Economy

(4) NW Basics of industrial cost analysis and accounting. Application of interest computations to engineering decision making. Analysis of engineering alternatives based on use of interest computations, valuations, depreciation, and cost estimates. Offered: AWSp.

IND E 280 Introduction to System Engineering (4)

Concepts of system approach, system hierarchies, functional analysis, requirements, trade studies, and other concepts used to define and integrate complex engineering systems. Prerequisite: CSE 142. Offered: jointly with A A 280.

IND E 295 Product Dissection (3)

Jorgensen, Kumar Examination of the way products and machines work, their physical operation, the manner in which they are constructed, and the interaction between design, materials, and manufacture. Laboratories involve dissection and assembly of several common industrial and consumer products by student teams. Offered: jointly with M E 295; Sp.

IND E 315 Probability and Statistics for Engineers

(3) NW Application of probability theory and statistics to engineering problems, distribution theory and discussion of particular distributions of interest in engineering, statistical estimation and data analysis. Illustrative statistical applications may include quality control, linear regression, and analysis of engineering data sets. Prerequisite: either MATH 136 or MATH 307. Offered: AWSpS.

IND E 316 Regression Analysis and Design of Experiments (3) NW

Kapur Introduction to the analysis of data from planned experiments. Analysis of variance and regression analysis with applications in engineering. Prerequisite: IND E 315. Offered: jointly with STAT 316; Sp.

IND E 324 Engineering Applications of Linear Programming (3)

Zabinsky Optimization of linear systems, mathematical model design, simplex methods, primal-dual algorithms, parametric programming, network theory, and integer and goal programming. Design aspects of models with applications involving transportation, allocation, and total industrial engineering systems. Prerequisite: either MATH 136 or MATH 308; CSE 142. Offered: A.

IND E 325 Nonlinear Programming and Stochastic Models (3)

Zabinsky Nonlinear optimization and stochastic systems analysis to industrial engineering problems. Topics include: nonlinear programming, dynamic programming, geometric programming, and Markov chains, queuing theory and queuing applications. Prerequisite: IND E 315; IND E 324. Offered: W.

IND E 326 Methodology of Operations Research

(3) Fundamental concepts of mathematical systems theory and decision theory. Application of general systems approach for specification of requirements, analysis, design, implementation of industrial engineering, and information systems. Generalized techniques and applications common to industrial and mechanical engineers. Class project concerning analysis of large-scale systems problem utilizing operational research. Prerequisite: IND E 325. Offered: Sp.

IND E 351 Human Factors in Design (3)

Engineering considerations of the abilities and limitations of the human aspect in the design of operational systems and components. Functional, psychological, physiological, and environmental considerations. Prerequisite: IND E 315. Offered: W.

IND E 421 Statistical Quality Control (3)

Kapur, Storch Design of quality control and assurance systems. Statistical Process Control (SPC) design and implementation. Control charts for attributes and variables. Process capability analysis and process improvement techniques. Statistical tolerance design. Quality management and recent developments. Prerequisite: IND E 315. Offered: A.

IND E 424 Simulation (4)

Beamon Discrete-event simulation methodology emphasizing model formulation and construction with modern simulation languages and environments, statistical basis for evaluating model results, design and management of simulation projects. Application to manufacturing, retail, and service industries. Prerequisite: IND E 237; IND E 325.

IND E 426 Reliability Engineering and System Safety (3)

Kapur Reliability and system safety measures. Life distributions and their applications in reliability. System reliability models. Design by reliability and probabilistic design. Reliability and safety analysis through FMECA and FTA. Reliability estimation and measurement by testing for binomial, exponential, and Weibull distributions. Prerequisite: IND E 315. Offered: Sp.

IND E 430 Manufacturing Scheduling and Inventory (4)

Storch Manufacturing scheduling and inventory control for different work organizations. Cov-

erage of workforce scheduling, job- and flow-shop scheduling and order release, production line balancing, MRP II, Lean Production, and data management. Particular attention to computer-based aspects of management and scheduling for manufacturing and service industries. Prerequisite: IND E 237; IND E 325.

IND E 431 Computer Integrated Manufacturing (4)

Design and control of computer-based production systems. Focus on selection and integration of flexible manufacturing technology, computer hardware, application and operating system software, data communication networks, data management systems. Laboratory assignments concentrate on programming and integration of system components. Current literature and recommended texts used as reference sources. Prerequisite: IND E 237; CSE 142.

IND E 433 Introduction to Computational Manufacturing (3)

Woo Fundamentals in computer aided design/manufacturing. Visualization, 3-D wireframes, curves and surfaces, solid modeling. Numerical control machining, robotics, and assembly. Prerequisite: IND E 237; IND E 324. Offered: W.

IND E 439 Plant Layout and Material Handling (4)

Beamon, Storch Design of new or expanding industrial facilities. Consideration of work organization and layout. Study of basic design of plant systems, including plumbing, electrical, HVAC, illumination, acoustics, and waste handling. In depth coverage of material handling system design and equipment choices.

IND E 455 User Interface Design (3)

Furness Design oriented to cover fundamentals of user interface design; models on human computer interaction, software psychology, input devices, usability, cognitive and perceptual aspects of human-computer interaction, advanced interface, and research methodologies are discussed. Prerequisite: IND E 316. Offered: jointly with T C 455; A.

IND E 494 Design in the Manufacturing Firm (4)

Smith Engineering design in manufacturing firms is presented. Topics include design methodology, concurrent engineering, and project management. Focus on the relationship between product design and manufacturing (design for production and assembly). Prerequisite: IND E 237; T C 333; M E 304. Offered: W.

IND E 495 Industrial Engineering Design (3)

Smith Capstone senior design project involving identification and synthesis of industrial engineering skills. Students apply their knowledge of industrial engineering to actual industrial problems. Prerequisite: IND E 494. Offered: Sp.

IND E 496 Technology-Based Entrepreneurship

(3) Concentrates on hands-on aspects of innovation and entrepreneurial enterprise development. Examines relationships between innovation, iterative prototyping, and marketing testing. Students identify market opportunities, create new technology-based products and services to satisfy customer needs, and construct and test prototypes. Prerequisite: IND E 250. Offered: jointly with M E 496.

IND E 498 Special Topics in Industrial Engineering

(1-5, max. 9) Lecture and/or laboratory.

IND E 499 Special Projects (2-5, max. 9)

Materials Science and Engineering

302 Roberts



General Catalog Web page:
www.washington.edu/students/genocat/academic/Material_Sci.html



Department Web page:
depts.washington.edu/mse/

Materials science and engineering is an interdisciplinary field that addresses the structure, processing, and property relationships in materials for engineering applications. Basic principles of chemistry and physics are applied to provide an understanding of the structure of materials and the manner in which the structure determines the properties. Scientific processing methods are then applied to yield the necessary properties, which then can be integrated with, and designed to accommodate, the needs of modern technology.

The faculty of the Department of Materials Science and Engineering recognizes that a strong graduate program is an essential component of a balanced educational effort in materials. The department's graduate programs in materials science and engineering are designed to build on and enhance the educational experience imparted in its undergraduate programs. Therefore, a related department goal is to provide coordination and balance between the undergraduate and graduate degree programs, and to ensure that each program is allocated the resources necessary to meet its goals.

Within the overall field of materials science and engineering, students are offered both broad core and in-depth options. The broad core provides the needed background and understanding of all types of engineering materials, including metals, ceramics, polymers, electronic materials, and composites.

Ceramic materials are resistant to high temperatures, chemically durable, strong, rigid, and exhibit a broad range of functional and electronic properties. The ceramic engineering program provides students with an understanding of the chemical, electrical, optical, mechanical, and thermal properties of ceramics; of processing methods and their effects on the structure and properties; and of the feasibility and economics of manufacture of ceramic materials for engineering applications.

Metallurgical engineering is concerned with the processing, fabrication, and utilization of metals, alloys, and other engineering materials. Extractive metallurgy relates to the processing and refining of metals and their compounds. Physical metallurgy is concerned with the structure and properties of materials, the development of new materials with improved properties, and the application and performance of materials in modern engineering systems and design.

Electronic and optical materials are utilized in a variety of modern technology, from fiber optic communications to computer technology. Semiconductor and insulating materials are utilized in many applications from computer chips to light emitting diodes; these materials have special properties provided by structural modification, impurity incorporation, and special processing techniques. Conducting materials of high purity are needed for many electronic applications. Fiber optics depend on glass fiber of special composition and are made using specific processes. Optical materials such as those used in lasers are specially modified using crystal growth and doping techniques. The University's materials engineering programs provide students with the background and experience needed for a career in this broad area.

Undergraduate Program

Adviser
302A Roberts, Box 352120
(206) 543-2600
mse@u.washington.edu

The Department of Materials Science and Engineering offers programs of study leading to the Bachelor of Science in Ceramic Engineering and the Bachelor of Science in Metallurgical Engineering degrees. The department also offers a minor in materials science and engineering.

The general goals of the undergraduate programs in the department include the following:

1. To provide educational programs of the highest quality in metallurgical engineering and ceramic engineering; to educate students in the application of basic and engineering sciences to the solution of problems related to the processing, properties, and utilization of materials; to prepare students for entrance into professional careers or into graduate studies in materials science and materials engineering.
2. To expose students to design concepts and societal issues (e.g., ethical, economic, environmental) as part of the curriculum; to instill in students the importance of human values and to develop sensitivity to social problems and ways in which technology can provide a basis for solutions to these problems; to provide industrial experience as part of the educational process.
3. To provide students with a sound basic-science foundation together with educational breadth in subjects outside of their major to help them function as productive members of the engineering profession and society in general.
4. To develop in students the ability to communicate effectively, orally and in writing, the concepts and results of engineering investigations to both technical and non-technical audiences.
5. To promote an awareness of and pride in the professional image of materials engineering, to encourage participation in professional societies, and to develop an awareness of the professional responsibilities of engineers in general.
6. To participate actively in programs designed to attract and retain underrepresented minority students in order to enhance the diversity of the student body.
7. To provide educational services in the materials area for the College of Engineering, the University of Washington, and to the state of Washington, recognizing that materials is a subject area of interest to other engineering disciplines, to industry, and to society in general.

Graduates become professionals in multiple industries, including electronics, automotive, and aerospace. They work in material design and manufacturing, including electronic and optical materials and devices, microelectromechanical systems (MEMS), and system design and materials selection as related to the structure properties, processing, and applications of materials.

Student Associations: Keramos (materials honor society); American Ceramic Society (ACerS); ASM/TMS (the joint student chapter of ASM International and TMS); Society for the Advancement of Materials and Process Engineering (SAMPE).

Internship Opportunities: Material Science and Engineering students that are interested in paid internship experiences should contact the Engineering Co-op Program, 353 Loew Hall, Box 352180, (206) 543-8711, coop@engr.washington.edu.

Bachelor of Science in Ceramic Engineering

Admission Requirements: Application information, forms, and deadlines are available from the department office along with a detailed advising guide for the program. Students are urged to consult with a department adviser early in their University career regarding plans of study in preparation for their major and for assistance in preparing their application for admission to the program.

Admission to the department is competitive, and completion of the requirements does not guarantee admission.

A diverse student body adds an important element to the education of all students in the program. All students who meet the minimum admission requirements will be considered for admission.

All applicants have the right to petition and appeal the decision of the department.

1. Early Admission Group (EAG):

- a. Open to students enrolled at the UW.
- b. Completion of the following courses prior to application: MATH 124, 125, 126; 10 credits of physical science courses plus accompanying laboratory at the level of PHYS 121/131, 122/132, 123/133, or CHEM 142, 152, or above; and 5 credits of English composition.
- c. A minimum grade of 2.0 in each prerequisite course and a minimum cumulative GPA of 2.50. At least 15 of the credits must have been taken at the UW.
- d. Application deadline for early admission is July 1 for autumn quarter only.

2. Upper-Division Admission Group (UAG):

- a. Completion of 64 credits with a minimum cumulative GPA of 2.00 and a minimum grade of 2.0 in each prerequisite course.
- b. Completion of the following courses prior to admission: MATH 124, 125, 126, 307; CHEM 142, 152; PHYS 121/131, 122/132; 5 credits of English composition; CSE 142, MSE 170. Strongly recommended before admission are A A 210, CEE 220, and T C 231.
- c. Applications for admission are accepted autumn, winter, and spring quarters.

Graduation Requirements: Students must complete the College of Engineering general education requirements and the following courses from the engineering fundamentals category: CSE 142, MSE 170, A A 210, CIVE/CEE 220, and two additional courses from the following: M E 123, E E 215, M E 230, IND E 250, CHEM E 260. The upper-division professional program consists of 71 credits of required and elective courses. A total of 180 credits is required for completion of the B.S.Cer.E. degree.

A variety of financial aid is available to students in ceramic engineering. In addition to need-based aid provided through the University's Office of Student Financial Aid, companies and individuals with interest in developing ceramic engineering students have provided scholarships for students at all levels who have been admitted to the program. Specific information and application forms are available in the department office, 302 Roberts.

Bachelor of Science in Metallurgical Engineering

Admission Requirements: Application information, forms, and deadlines are available from the department office along with a detailed advising guide for the program. Students are urged to consult with a department adviser early in their University career regarding

plans of study in preparation for their major and for assistance in preparing their application for admission to the program.

Admission to the department is competitive, and completion of the requirements does not guarantee admission.

A diverse student body adds an important element to the education of all students in the program. All students who meet the minimum admission requirements will be considered for admission.

All applicants have the right to petition and appeal the decision of the department.

1. Early Admission Group (EAG):

- Open to students enrolled at the UW.
- Completion of the following courses prior to application: MATH 124, 125, 126; 10 credits of physical science courses plus accompanying laboratory, at the level of PHYS 121/131, 122/132, 123/133, or CHEM 142, 152, or above; and 5 credits of English composition.
- A minimum grade of 2.0 in each prerequisite course and a minimum cumulative GPA of 2.50 must have been obtained in these courses. At least 15 of the credits must have been taken at the UW.
- Application deadline for early admission is July 1 for autumn quarter only.

2. Upper-Division Admission Group (UAG):

- Completion of 64 credits with a cumulative GPA of 2.00 and a minimum grade of 2.0 in each prerequisite course.
- Completion of the following courses prior to admission: MATH 124, 125, 126, 307; CHEM 142, 152; PHYS 121/131, 122/132; 5 credits of English composition; CSE 142, MSE 170. Strongly recommended before admission are A A210, CEE 220, and T C 231.
- Applications for admission are accepted autumn, winter, and spring quarters.

Graduation Requirements: Students must complete the College of Engineering general education requirements and the following courses from the engineering fundamentals category: CSE 142, MSE 170, A A 210, CIVE 220, and two additional courses from the following: M E 123, E E 215, M E 230, IND E 250, CHEM E 260. The upper-division professional program consists of 71 credits of required and elective courses. A total of 180 credits is required for completion of the B.S.Cer.E. degree.

A variety of financial aid is available to students in metallurgical engineering. In addition to need-based aid provided through the University's Office of Student Financial Aid, companies and individuals with interest in developing metallurgical engineering students have provided scholarships for students at all levels who have been admitted to the program. Specific information and application forms are available in the department office, 302 Roberts.

Minor

Students majoring in other departments at the UW can receive a minor in Materials Science and Engineering.

Minor Requirements: 30 credits to include MSE 305 (4 credits), 314 (4), 315 (4), 317 (1), 318 (1), and an additional 16 credits in an approved course sequence with a minimum grade of 2.0 in each. The minor-program course sequence is offered with specialization in ceramics, composites, electronic materials, metallurgy, or structural materials. The required/recommended courses for each specialization are different. Contact the department for further details.

The following courses serve as prerequisites for the departmental courses in the minor. It is recommended that students take these courses before beginning the minor program in materials science. In addition, although a formal application is not required for the minor program, it is recommended that the student contact the department's Undergraduate Committee for assistance in establishing a minor program to suit the student's needs.

MATH 124, 125, 126, 207, 308; CHEM 140 or 145, 150 or 155, 141 or 151; PHYS 121/131, 122/132, 123/133; MSE 170; University writing requirement.

Graduate Program

For information on the Department of Materials Science and Engineering graduate program, see the graduate and professional volume of the *General Catalog* or visit the *General Catalog* online at www.washington.edu/students/gencat/.

Faculty

Chair

Rajendra Kumar Bordia

Professors

Allan, G. Graham * 1966, (Adjunct); PhD, 1956, University of Glasgow (UK); DSc, 1971, University of Strathclyde (UK); fiber and polymer science, creativity and innovation.

Anderson, Donald 1947, (Emeritus); BS, 1941, University of Illinois; mining and exploration.

Archbold, Thomas F. * 1961, (Emeritus); MS, 1957, PhD, 1961, Purdue University; physical metallurgy corrosion, diffraction, oxidation, metal failures.

Cahn, John Werner 1984, (Affiliate); PhD, 1953, University of California (Berkeley); theoretical condensed-matter physics.

Fischbach, David B. * 1969, (Emeritus); PhD, 1955, Yale University; structure and properties of carbons graphite, other non-oxide ceramics, and composite materials.

Fisher, Robert M. * 1987, (Research); PhD, 1962, Cambridge University (UK); materials characterized by microscopy, spectroscopy, diffraction, fused quartz, polymers.

Ghose, Subrata * 1972, (Adjunct); PhD, 1959, University of Chicago; mineralogy.

Inoue, Kanryu * 1993, (Research); PhD, 1977, Osaka City University (Japan); mechanical and physical properties, phase transformations, smart materials.

Jen, Alex K-Y 1999; PhD, 1984, University of Pennsylvania; organic chemistry, polymer chemistry, DNA imaging, photodynamic therapy for tumors.

Kalonji, Gretchen * 1990; PhD, 1982, Massachusetts Institute of Technology; crystalline defects, computer simulation, rapid solidification of ceramics.

Mayer, George 1998, (Affiliate); PhD, 1967, Massachusetts Institute of Technology; nondestructive evaluation of materials.

Ohuchi, Fumio * 1992; PhD, 1981, University of Florida; nucleation and growth of thin film materials, surface science, glass, device applications.

Polonis, Douglas H. * 1955, (Emeritus); PhD, 1955, University of British Columbia (Canada); physical metallurgy, phase transformations, mechanical properties of materials.

Rao, Y. Krishna * 1976; PhD, 1965, University of Pennsylvania; chemical and extractive metallurgy, ore processing and environmental engineering.

Scott, William D. * 1965, (Emeritus); PhD, 1961, University of California (Berkeley); mechanical properties of ceramics, composites, twinning in alumina, optical microscopy.

Stoebe, Thomas Gaines * 1966; PhD, 1965, Stanford University; physics of solids, optical properties, thermoluminescence, compound semiconductors.

Taya, Minoru * 1986, (Adjunct); PhD, 1977, Northwestern University; composite materials, electronic packaging and materials, intelligent materials.

Whittemore, Osgood J. * 1964, (Emeritus); MS, 1941, University of Washington; PhD, 1950, Iowa State University; ceramic processing, refractories, industrial minerals.

Associate Professors

Bordia, Rajendra Kumar * 1991; PhD, 1986, Cornell University; processing and mechanical properties of ceramics, polymer and ceramic composites.

Brush, Lucien N. * 1990; PhD, 1988, Carnegie Mellon University; computational modeling of solidification, modeling studies of materials processing.

Dunham, Scott T. * 1999, (Adjunct); PhD, 1985, Stanford University; modeling of VLSI fabrication and device operation, microtechnology modeling, computational materials.

Jonsson, Hannes * 1988, (Adjunct); PhD, 1985, University of California (San Diego); theory and simulations of atomic scale structure and dynamics in liquids, glasses, and crystals.

Miller, Alan D. * 1967, (Emeritus); PhD, 1967, University of Washington; instrumental analysis, high-temp equilibria processing, electronic ceramics, cooperative education.

Sarikaya, Mehmet * 1984; PhD, 1982, University of California (Berkeley); nanoscopy (TEM), imaging, diffraction and spectroscopy, phase transformations, biocrystallization.

Stang, Robert George * 1973; PhD, 1972, Stanford University; mechanical behavior, elastic and plastic deformation, and high-temperature creep in materials.

Assistant Professors

Cao, Guozhong * 1996; PhD, 1991, Eindhoven University (Netherlands); inorganic materials (films) by sol-gel processing and chemical vapor deposition.

Dogan, Fatih * 1990, (Research); PhD, 1989, Technische Universität (Germany); ceramic processing: electronic and magnetic materials, crystal growth of high T_c superconductors.

Flinn, Brian D. * 1991, (Research); PhD, 1991, University of California (Santa Barbara); structure-processing-property relationships in structural materials.

Xia, Younan * 1997, (Adjunct); PhD, 1996, Harvard University; materials chemistry and nanotechnology.

Zhang, Miqin 1999; PhD, 1998, University of California (Berkeley); biomaterials, surface/protein/cell interactions, tissue engineering.

Course Descriptions

See page 48 for an explanation of course numbers, symbols, and abbreviations.

For graduate-level course descriptions, see the graduate and professional study volume of the *General Catalog* or visit the online course catalog at www.washington.edu/students/crscat/.

Ceramic Engineering

CER E 401 Equipment and Plant Design (3) The design process and its application in ceramic engineering. Design projects. Offered: Sp.

CER E 411 Vitreous State (4) Chemistry and physics of glass, glazes, and porcelain enamels; structure, properties and processing of vitreous materials. Offered: Sp.

CER E 413 Physical Ceramics: Mechanical Properties (3) Mechanical properties, elasticity, strength, thermal shock, and high temperature effects relative to structural design. Fracture mechanics and notch sensitivity of brittle materials. Environmental effects, plastic flow, and high temperature deformation. Offered: A.

CER E 414 Electrical Properties of Ceramics (3) Ionic and electronic conduction in crystalline and noncrystalline inorganic solids. Dielectric and ferroelectric behavior, magnetic properties of ferrimagnetic materials, optical properties of dielectrics. Undergraduate ceramic engineering majors must take 415 concurrently. Offered: W.

CER E 415 Electrical Properties of Ceramics/Laboratory (1) Ionic and electronic conduction in crystalline and noncrystalline inorganic solids. Dielectric and ferroelectric behavior, magnetic properties of ferrimagnetic materials, optical properties of dielectrics. Offered: W.

CER E 416 Mechanical Properties Laboratory (1) Measurements of the mechanical properties of ceramics: strength, fracture, toughness, thermal shock damage. Use of Weibull statistics to characterize strength and failure. Offered: A.

CER E 421 Ceramic Processing (4) Technology of ceramic fabrication processes. Material characterization at processing stages for control. Laboratory study of all operations in the manufacture of selected ceramic products. Offered: A.

CER E 470 Refractories (3) Chemical and mineralogical composition; processing methods; thermal, physical, and chemical properties and tests; application in high-temperature processes.

Materials Science and Engineering

MSE 170 Fundamentals of Materials Science (4) NW Fundamental principles of structure and properties of materials utilized in practice of engineering. Properties of materials are related to atomic, molecular, crystalline structure. Metals, ceramics, multiphase systems, and polymeric materials. Relationships between structure and electrical, mechanical, thermal, chemical properties. For advanced freshmen and sophomores. Prerequisite: either CHEM 150, CHEM 152, or CHEM 155. Offered: AWSpS.

MSE 300 Introduction to Materials Science and Engineering (2) Introduces the materials field to new department majors. Examples are drawn from ceramics, metals, polymers, electronic materials and composites. Structure/properties/manufacturing/design relationships are emphasized. Offered: A.

MSE 305 Phase Equilibria (4) Phase equilibria in ceramic and metal systems of one, two, and three components. Use and determination of phase equilibrium diagrams. Offered: W.

MSE 314 X-Ray Diffraction and Crystallography (4) Theory and practice of x-ray diffraction with applications to materials systems. Principles of crystal symmetry, reciprocal lattice, and stereographic projections. Offered: A.

MSE 315 Kinetic Processes and Transformations in Materials (4) Applications of thermodynamic and kinetic principles to the study of transformations and reactions in engineering materials. Thermal activation and rate equations; solid state diffusion; nucleation and growth; phase transformations; examples of important reactions including crystal growth, recrystallization, precipitation in solids, sintering, and devitrification. Offered: W.

MSE 316 Mechanical Behavior of Materials (4) Influence of structure on the mechanical properties of ideal and real solids. Mechanical behavior in metallic and ceramic systems. Offered: Sp.

MSE 317 Physical Materials Laboratory (1) Experimental techniques, computer applications elements of optical microscopy. Offered: A.

MSE 318 Physical Materials Laboratory (1) Experimental work to accompany 315, 316. Microstructure development and mechanical behavior of inorganic materials. Offered: W.

MSE 319 Physical Materials Laboratory (1) Experimental work to accompany 315, 316. Microstructure development and mechanical behavior of inorganic materials. Offered: Sp.

MSE 322 Thermodynamics in Materials Systems (4) Quantitative applications of thermodynamics to systems of interest to metallurgical and ceramic engineers. Detailed review of thermodynamic quantities and equations of state. Offered: A.

MSE 330 Processing of Inorganic Materials (4) Fundamental and technological aspects of processing of metals, ceramics and semiconductor materials, transport processes relevant to materials processing; low and high temperature routes for refining materials; liquid state and vapor phase processing inorganic materials. Offered: Sp.

MSE 399 Introduction to Research and Design (1) Research planning and design in materials science and engineering introduced by the faculty to facilitate student selection of senior project topic. Offered: Sp.

MSE 421 Thermodynamics of Solids (3) Applications of thermodynamics to the solid state. Statistical interpretation of entropy. Heterogeneous equilibria. Theories of solutions. Thermodynamics of surfaces and of defects in solids. Offered: W.

MSE 423 Fiber-Reinforced Composite Materials (4) Introduction to composites in polymer, metal, or ceramic matrices. Properties of individual phases and of fiber/matrix interface; micromechanisms of load transfer from matrix to fiber; fabrication and elastic and failure properties. Laboratory studies of processing and properties of composites. Offered: W.

MSE 433 Polymeric Materials (3) Relationship between configuration, conformation, molecular ordering, microstructure and properties of polymeric materials. Application of materials characterization and processing techniques to polymers. Tailoring polymer molecules and microstructures for high-technology applications. Liquid crystalline polymers. Interaction between polymers and their in-service environment. Offered: A.

MSE 442 Seminar in Ethics and Safety (1) Deals with issues of engineering ethics and industrial safety within the context of materials science and engineering. Credit/no credit only. Offered: W.

MSE 466 Physical Properties of Materials (4) Introduction to elementary solid-state concepts in materials. Atom bonding, statistical mechanics, free electron and band theories, thermal properties. Application of principles to conduction in metals, insulators, semiconductors, and to magnetic and optical processes in solids. Offered: W.

MSE 467 Electronic Materials Processing (3) Materials and processes used in the manufacture of electronic components. Basic principles of crystal growth, deposition, doping, diffusion, component delineation, and packaging as they apply to hybrid and integrated circuits and devices. Offered: Sp.

MSE 485 Introduction to Electronic Packaging and Materials (3) Kuga, Pearsall, Taya The governing equations of transport phenomena: mechanical, thermal, and electromagnetic behavior, thermomechanical and electromagnetic properties of packaging materials, electromagnetic characteristics of circuit and transmission lines, thermal management and reliability analysis of packaging, interconnect and material processing technology. Prerequisite: MSE 170. Offered: jointly with M E 485; W.

MSE 487 Laboratory in Electronic Packaging and Materials (1) Taya, Stoebe Laboratory course to accompany ME 485 Experiments related to design, processing and reliability of electronic packaging used in consumer electronics. Corequisite: MSE 485. Offered: jointly with M E 487 W.

MSE 498 Special Topics (1-5, max. 8) Special topics in materials science and engineering offered as a course with lectures, conferences, or laboratory. Offered: AWSpS.

MSE 499- Special Project (*- max. 5) Materials science and engineering field or laboratory investigations in group or individual setting. Offered: AWSpS.

Metallurgical Engineering

MET E 421 Metallurgical Processing (4) Principles and applications of techniques used to process metals and alloys including solidification and casting, heat treating, forming, joining and machining and their effects on microstructure and properties. Offered: A.

MET E 432 Corrosion of Engineering Materials (3) Applications of physical chemical principles to the reaction of materials with their environments. Prevention and control of corrosion and oxidation processes. Corrosion problems in materials applications. Offered: W.

MET E 435 Corrosion (1) Laboratory experiences in application of physical chemical principles to reaction of materials with their environments. To accompany 432. Offered: W.

MET E 461 Engineering Physical Metallurgy (4) Phase transformations and strengthening mechanisms in ferrous and nonferrous alloys; heat treatment and microstructure control; physical metallurgy of carbon and alloy steels, aluminum and titanium alloys; microstructure-property relationships and alloy design. Offered: A.

MET E 462 Mechanical Behavior of Metals (3) Theories of elastic and plastic deformation in materials. Application of these theories in design, stress and strain, tensile and compression loading, yielding and plastic deformation, fracture, introduction to fracture mechanics, creep and fatigue. Offered: W.

MET E 463 Reliability and Design in Metallurgical Systems (4) Metallurgical design problems and failure analysis. Properties of commercially important engineering alloys. Offered: Sp.

MET E 464 Extractive Process Analysis (3) Extractive processes analyzed by the methods of material and energy balances, computational thermodynamics, process kinetics and reactor theory. Introduction to process optimization. Offered: Sp.

MET E 465 Mechanical Behavior Laboratory (1) Laboratory experience in mechanical behavior of metals. To accompany 462. Offered: W.

Mechanical Engineering

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General Catalog Web page:
www.washington.edu/students/gencat/academic/Mechanical_Eng.html



Department Web page:
www.me.washington.edu

The Department of Mechanical Engineering focuses on increased productivity through modern design methods, automated manufacturing, and introduction of new materials. It also continues its strong history of involvement with conversion and management of energy. The department offers instruction and research in four principal areas: materials and manufacturing, systems and dynamics, energy and fluids, and design.

The department offers undergraduate and graduate degree programs, with courses in design, analysis, and fabrication of mechanical devices; analysis of vibration and failure; automated manufacturing; combustion and energy systems; fluid mechanics; computer-aided design; robotics; and applications of mechanical engineering to interdisciplinary fields.

Undergraduate Program

Adviser

Dina Meske
143B Mechanical Engineering, Box 352600
(206) 685-0908
meadvise@u.washington.edu

The Department of Mechanical Engineering offers a program of study leading to the Bachelor of Science in Mechanical Engineering degree.

Bachelor of Science in Mechanical Engineering

The general goal of the undergraduate program is to provide high-quality, baccalaureate-level preparation for professional practice by graduating students with the knowledge of the basic disciplines in mechanical engineering and with proficiency to solve and to communicate their solutions of open-ended problems.

A student's success in achieving this goal is measured by success in specific technical courses (both required and optional) and particularly in the capstone design courses (M E 395 and 495). These capstone courses especially provide an assessment of the student's ability to integrate basic technical knowledge to achieve analysis and design goals in solving a wide range of open-ended problems and communicating the results effectively.

The undergraduate program in mechanical engineering provides the sound educational basis in the mathematical, chemical, and physical sciences, and in computational, graphical, and written communication skills that is needed for professional work in the field.

Prospective students should obtain a copy of the *Mechanical Engineering Admission Guide* that contains more details regarding admission, and the *Mechanical*

Engineering Undergraduate Advising Guide that contains a curriculum flow chart and information on scholarships, scheduling, and the continuation policy.

Admission Requirements: Admission to the department is by application. Details of admission requirements, application deadlines, application forms, and advising literature may be obtained from the departmental office or the department's Web site (www.me.washington.edu).

A diverse student body adds an important element to the education of all students in the program. All students who meet the minimum admission requirements will be considered for admission. Admission to the department is competitive, and completion of the requirements does not guarantee admission.

All applicants have the right to petition and appeal the decision of the department.

Both regular admission and early admission are offered. Application for early admission is suggested for honor program students and those on the Dean's List. Both regular admission and early admission require a minimum grade of 2.0 in each prerequisite course as well as an overall minimum GPA of 2.50 in the prerequisite classes.

1. **Regular Admission:** Students must have completed the following 62 credits: MATH 124, 125, 126, 307; PHYS 121/131, 122/132; CHEM 142, 152; ENGR 142, 210, 220, 230, 231; and 5 credits of English composition. The application deadlines are July 1 for autumn quarter and February 1 for spring quarter admission.
2. **Early Admission** is open to students enrolled at the UW who, prior to admission, have completed MATH 124, 125, 126; 10 credits of physical-science courses plus accompanying laboratory, at the level of PHYS 121/131, 122/132, 123/133, or CHEM 142, 152, or above; and 5 credits of English composition. At least 15 of the credits must have been taken at the UW. The application deadline is July 1 for autumn quarter admission only. ENGR 231 must be taken no later than the academic year of admission.

Graduation Requirements: The student must satisfactorily complete a minimum of 180 credits, with 100 credits in general education and engineering fundamentals, as well as 62 credits of department-required courses and 18 credits of mechanical-engineering option courses (400 level). A minimum cumulative GPA of 2.00, including a minimum GPA of 2.00 in all professional courses, is required.

Department-required courses include system dynamics, mechanics of materials laboratory, manufacturing processes, thermodynamics, fluid mechanics, heat transfer, machine design analysis, and mechanical engineering design.

Graduate Program

For information on the Department of Mechanical Engineering's graduate program, see the graduate and professional volume of the *General Catalog* or visit the *General Catalog* online at www.washington.edu/students/gencat/.

Faculty

Chair

William R. D. Wilson

Professors

Alexander, Daniel 1960, (Emeritus); MS, 1954, University of Washington; PhD, 1977, Washington State University; engineering design.

Balise, Peter * 1950, (Emeritus); MS, 1950, Massachusetts Institute of Technology; systems analysis and control.

Chalupnik, James * 1964, (Emeritus); PhD, 1964, University of Texas (Austin); sound and vibration, wave propagation.

Corlett, Richard * 1964, (Emeritus); PhD, 1963, Harvard University; heat transfer, fire and explosions, combustion systems and energy management.

Daly, Colin H. * 1967; PhD, 1966, University of Strathclyde (UK); bioengineering, materials, high energy physics.

Day, Emmett E. * 1947, (Emeritus); PhD, 1962, University of California (Berkeley); materials, experimental stress analysis.

Depew, Creighton A. * 1960, (Emeritus); PhD, 1960, University of California (Berkeley); heat transfer, fluid mechanics.

Emery, Ashley F. * 1961; MS, 1958, PhD, 1961, University of California (Berkeley); energy and buildings, HVAC, thermal stresses, experimental design, stochastic finite elements.

Firey, Joseph C. 1983, (Emeritus); MSME, 1941, University of Wisconsin; combustion, lubrication.

Fridley, James * 1988; PhD, 1984, University of Washington; precision forestry, forest engineering systems design, interactive computer simulation.

Galle, Kurt R. * 1960, (Emeritus); PhD, 1951, Purdue University; instrumentation, controls, bioengineering.

Garbini, Joseph * 1979; PhD, 1977, University of Washington; systems and controls analysis, instrumentation, manufacturing automation.

Gessner, Frederick B. * 1967; PhD, 1964, Purdue University; fluid mechanics, turbulence.

Hyman, Barry * 1975; PhD, 1965, Virginia Polytechnic Institute and State University; mechanical design, energy systems and policy.

Jorgensen, Jens E. * 1973; DSc, 1969, Massachusetts Institute of Technology; systems analysis, automation, design, manufacturing, forest engineering.

Kapur, Kailash C. * 1992, (Adjunct); PhD, 1969, University of California (Berkeley); quality/reliability engineering, system design/optimization, total quality/reliability management.

Kippenhan, Charles J. * 1963, (Emeritus); PhD, 1948, University of Iowa; heat transfer, energy management.

Kobayashi, Albert S. * 1958, (Emeritus); PhD, 1958, Illinois Institute of Technology; fracture mechanics; experimental, computational and structural mechanics.

Kosaly, George * 1980; PhD, 1974, Eotvos Lorand University (Hungary); DSc, 1979, Hungarian Academy of Sciences; applications of stochastic processes in engineering, reacting turbulent flows.

Kramlich, John C. * 1991; PhD, 1980, Washington State University; heterogeneous combustion, pollutant formation and control from thermal systems, waste remediation.

Love, William J. * 1970, (Emeritus); PhD, 1952, University of Illinois; design, mechanics, power systems.

Malte, Philip C. * 1979; PhD, 1971, University of Michigan; combustion and energy conversion, including environmental control and environmental consequences.

McCormick, Norman J. * 1966; PhD, 1965, University of Michigan; thermal and optical radiative transfer, optical oceanography, reliability and risk analysis.

McFeron, Dean E. * 1958, (Emeritus); PhD, 1956, University of Illinois; heat transfer and thermal power processes.

Morrison, James B. * 1946, (Emeritus); MS, 1954, University of Washington; design, dynamics.

Murphy, Stanley R. 1952, (Emeritus); PhD, 1959, University of Washington.

Pratt, David T. * 1981, (Emeritus); PhD, 1968, University of California (Berkeley); turbulent combustion, computer simulation.

Ramulu, M. * 1978; PhD, 1982, University of Washington; manufacturing processes, production engineering, applied mechanics, fatigue and fracture mechanics.

Riley, James J. * 1983; PhD, 1971, Johns Hopkins University; fluid mechanics, especially turbulent flows.

Sidles, John Arthur 1984, (Adjunct); PhD, 1983, University of Washington.

Taggart, Raymond * 1959, (Emeritus); PhD, 1956, Queen's University (UK); mechanical metallurgy.

Taya, Minoru * 1986; PhD, 1977, Northwestern University; composite materials, electronic packaging and materials, intelligent materials.

Tencer, Allan Fred * 1988, (Adjunct); PhD, 1981, McGill University (Canada).

Tuttle, Mark E. * 1985; PhD, 1984, Virginia Polytechnic Institute and State University; experimental stress analysis, composite materials, adhesion mechanics.

Vesper, Karl H. * 1969; PhD, 1969, Stanford University; business policy, mechanical engineering, marine studies.

Wilson, William R. D. * 1999; PhD, 1967, Queen's University of Belfast (Ireland); manufacturing and tribology, particularly friction and lubrication in metal forming.

Wolak, Jan * 1965, (Emeritus); PhD, 1965, University of California (Berkeley); mechanics of materials, manufacturing processes.

Woo, Tony C. * 1995, (Adjunct); MSEE, 1974, PhD, 1975, University of Illinois; manufacturing systems, computer graphics and computational geometry.

Zabinsky, Zelda * 1985, (Adjunct); PhD, 1985, University of Michigan; operations research, applications in industrial engineering, optimization with stochastic elements.

Associate Professors

Adee, Bruce H. * 1970; MS, 1968, PhD, 1972, University of California (Berkeley); vessel safety and stability, floating structures, waves, ship resistance, model testing.

Berg, Martin C. * 1986; PhD, 1986, Stanford University; digital control system design, control of structurally flexible electromechanical systems.

Bodoia, John R. * 1964, (Emeritus); PhD, 1959, Carnegie Mellon University; fluid mechanics, heat transfer, solar energy.

Chalk, William 1957, (Emeritus); MSME, 1961, University of Washington; design graphics.

Dahl, Peter H. * 1989, (Research); PhD, 1989, Massachusetts Institute of Technology; underwater acoustics; sound scattering from the sea surface, bubbles, marine life.

Fabien, Brian C. * 1993; PhD, 1990, Columbia University; kinematics, dynamics, modeling and simulation of physical systems, optimal control.

Ford, Paul W. * 1957, (Emeritus); MEng, 1959, University of Washington; manufacturing processes, metal casting.

Forster, Fred * 1977; PhD, 1972, Stanford University; fluid mechanics, acoustics, micro-fluidics, biomedical applications.

Ganter, Mark * 1986; PhD, 1985, University of Wisconsin; solid modeling, computer graphics, kinematics and automated manufacturing.

Holt, Richard * 1947, (Emeritus); MSME, 1957, University of Washington; manufacturing processes, welding.

Jenkins, Michael G. * 1992; PhD, 1987, University of Washington; thermo-mechanical behavior of monolithic/composite ceramics, standards and design code development.

Kieling, William C. * 1956, (Emeritus); MSME, 1959, University of Washington; design, dynamics, and kinematics.

Kumar, Vipin * 1988; PhD, 1988, Massachusetts Institute of Technology; manufacturing, polymer processing, microcellular plastics, design theory and methodology.

Reinhall, Per G. * 1982; PhD, 1982, California Institute of Technology; nonlinear dynamics, vibrations.

Sanders, Joan Elizabeth * 1985, (Adjunct); PhD, 1991, University of Washington; soft tissue biomechanics and tissue adaptation to mechanical stress.

Sandwith, Colin J. * 1966, (Research); PhD, 1966, Oregon State University; corrosion, material science, design, manufacturing.

Shen, I-Yeu (Steve) * 1993; PhD, 1991, University of California (Berkeley); linear and nonlinear vibrations; disk, spindle, and machine dynamics; damping and vibration control.

Sherrer, Robert E. * 1960, (Emeritus); PhD, 1958, University of Wisconsin; solid mechanics.

Storti, Duane W. * 1983; PhD, 1983, Cornell University; nonlinear dynamics and vibrations, dynamical systems, perturbations and bifurcations.

Assistant Professors

Campbell, Mark E. * 1997, (Adjunct); PhD, 1996, Massachusetts Institute of Technology; precision-controlled structures, autonomous aerospace vehicles, smart materials.

Cooper, Joyce S. * 1998; PhD, 1996, Duke University; design for environment and industrial ecology methodologies and models.

Mescher, Ann M. * 1996; PhD, 1995, Ohio State University; materials processing, thermo-fluids sciences.

Smith, Robert P. * 1993, (Adjunct); PhD, 1992, Massachusetts Institute of Technology; design methodology, manufacturing systems, concurrent engineering.

Course Descriptions

See page 48 for an explanation of course numbers, symbols, and abbreviations.

For graduate-level course descriptions, see the graduate and professional study volume of the *General Catalog* or visit the online course catalog at www.washington.edu/students/crscat/.

M E 123 Introduction to Visualization and Computer-Aided Design (4) NW Methods of depicting three-dimensional objects and communicating design information. Development of three-dimensional skills through freehand sketching and computer-aided design using parametric solid modeling. Offered: AWSp.

M E 230 Kinematics and Dynamics (4) NW Kinematics of particles, systems of particles, and rigid bodies; moving reference frames; kinetics of particles, systems of particles, and rigid bodies; equilibrium, energy, linear momentum, angular momentum. Prerequisite: A A 210. Offered: AWSpS.

M E 295 Product Dissection (3) Kumar Examination of the way products and machines work, their physical operation, the manner in which they are constructed, and the interaction between design, materials, and manufacture. Laboratories involve dissection and assembly of several common industrial and consumer products by student teams. Offered: jointly with IND E 295; Sp.

M E 320 Thermodynamics I (3) Emery, Gessner, Kosály, Kramlich, Malte, McCormick, Mescher, Riley Introduction to classical macroscopic thermodynamics, including basic laws underlying energy conversion and management with emphasis on engineering design applications. Prerequisite: either CHEM 140 or CHEM 142; either MATH 126 or MATH 129; PHYS 121. Offered: AWSp.

M E 323 Thermodynamics II (4) Emery, Gessner, Kosály, Kramlich, Malte, McCormick, Mescher Applications of thermodynamic principles: properties of pure substances from an advanced point of view, nonreactive gas mixtures, energy analysis of reactive mixtures, chemical equilibria, combustion, power, and refrigeration cycle analysis. Prerequisite: either M E 320 or ENGR 260. Offered: AWSp.

M E 331 Introduction to Heat Transfer (4) Emery, Forster, Kramlich, McCormick, Mescher, Riley Study of heat transfer by conduction, radiation, and convection; elementary heat-exchanger design. Prerequisite: either M E 333 or CEE 342. Offered: AWSp.

M E 333 Introduction to Fluid Mechanics (4) Forster, Gessner, Kosály, Mescher, Riley Introduction to the basic fluid laws and their application. Conservation equations, dynamic similarity, potential flow, boundary-layer concepts, effects of friction, compressible flow, fluid machinery, measurement techniques. Prerequisite: either M E 320 or ENGR 260; either MATH 307 or AMATH 351. Offered: AWSpS.

M E 354 Mechanics of Materials Laboratory (5) Jenkins Properties and behavior of engineering materials including stress-strain relations, strength, deformation mechanisms, strength, deformation, fracture, creep, and cyclic fatigue. Introduces experimental techniques common to structural engineering, interpretation of experimental data, comparison of measurements to numerical/analytical predictions, and formal, engineering report writing. Lecture and laboratory. Prerequisite: MSE 170, CEE 220. Offered: AWSp.

M E 355 Introduction to Manufacturing Processes (4) Ramulu Study of manufacturing processes, including interrelationships between the properties of the material, the manufacturing process and the design of components. Interpretation of experimental data, comparison of measurements to numerical/analytical predictions, and formal, engineering report writing. Prerequisite: M E 354. Offered: AWSpS.

M E 356 Machine Design Analysis (4) Kumar Analysis, design, and selection of mechanical subsystems and elements, such as gears, linkages, cams, and bearings. Lecture and laboratory. Prerequisite: M E 354. Offered: AWSpS.

M E 373 Introduction to System Dynamics (5) Garbini Mathematical modeling, analysis, and design of physical dynamic systems involving energy storage and transfer by lumped-parameter linear elements. Time-domain response by analytical methods and numeric simulation. Laboratory experiments. Prerequisite: either AMATH 351 or MATH 307; either AMATH 352 or MATH 308; E E 215; M E 230. Offered: AW.

M E 374 Systems Dynamic Analysis and Design (5) Garbini Extension of 373. Frequency response analysis, generalized impedance concepts and applications, Fourier series analysis and Laplace transform techniques. Modeling and analysis of electro-mechanical actuators and rotating machinery. Laboratory experiments and design projects. Prerequisite: M E 373. Offered: WSp.

M E 395 Introduction to Mechanical Design (4) Calkins Design process and methodology; decision making; optimization techniques; project planning; engineering economics; probabilistic and statistical aspects of mechanical design; ethical and legal

issues. Lecture and laboratory. Prerequisite: ENGR 123; either ENGR 260 or M E 320; IND E 315; M E 373. Offered: AWSpS.

M E 403 Material-Removal Processes (3) *Ramulu* Cutting and noncutting processes for material removal in the shaping of manufactured products. Study of forces and of power consumption and relative costs in the various processes. Prerequisite: M E 304 which may be taken concurrently. Offered: A.

M E 406 Corrosion and Surface Treatment of Materials (3) *Sandwith* Corrosion fundamentals and forms (galvanic, crevice, pitting, stress corrosion, erosion, hydrogen and leaching). Principles of design, materials selection, cathodic protection and surface treatments (coatings, carburizing, nitriding and plating) applied to reduce corrosion. Failure analysis applied to case studies. Offered: W.

M E 409 Introduction to Numerical Control and Computer-Aided Manufacturing (3) *Ramulu* Control system fundamentals, numerical control (NC) machine control systems, and the design aspect of NC machine tools, programming methods of NC machines, computer-aided manufacturing, CNC, DNC, and process optimization. Prerequisite: M E 304 which may be taken concurrently. Offered: Sp.

M E 424 Combustion Systems and Pollutant Formation (4) *Kramlich, Malte* Combustion theory, including chemical thermodynamics, chemical kinetics, mixing and diffusion, and flame structure. Combustion chamber design concepts and performance. Pollutant formation and combustion methods for minimizing pollutant formation. Weekly laboratory. Prerequisite: M E 323. Offered: even years; Sp.

M E 425 HVAC Engineering (4) *Elder, Emery* Heating, ventilating, and air conditioning of built environment. Human comfort, psychometric processes, load computations, fluid distribution, and controls. Design analysis of HVAC system is taught in the lectures and applied in the class project. Prerequisite: M E 323; M E 331. Offered: Sp.

M E 426 Sustainable Energy Design (4) *Kramlich, Malte* Renewable energy systems design; solar, wind, hydro; bio-fueled energy conversion systems of high efficiency and low emissions. Project-based learning: analysis, systems engineering, design, component characteristics, and environmental considerations. Prerequisite: CHEM E/ENVR/M E/PHYS 342 or M E 430. Offered: Sp.

M E 430 Advanced Energy Conversion Systems (4) *Emery, Kramlich, Malte* Advanced and renewable energy conversion systems and technologies are treated. Included are high efficiency combined cycles; renewable energy conversion involving solar, wind, and biomass; direct energy conversion and fuel cells; and nuclear energy. Environmental consequences of energy conversion and environmental control are discussed. Prerequisite: M E 323. Offered: W.

M E 431 Advanced Fluid Mechanics (4) *Forster, Riley* Advanced topics in fluid mechanics, including kinematics, potential theory and vortex dynamics, viscous flow, turbulence, experimental and numerical methods, and design. Prerequisite: M E 333. Offered: A.

M E 433 Turbomachinery (4) *Gessner, Malte* Thermodynamics, gas dynamics, and fluid mechanics of axial and centrifugal compressors, pumps, and turbines. Selection of components for engineering applications. Design problems and/or laboratory experiments to illustrate operating characteristics of turbomachines. Offered: Sp.

M E 440 Advanced Mechanics of Materials and Solids (3) *Daly, Jenkins, Ramulu, Taya, Tuttle* Study of mechanics of deformable bodies, including three-dimensional stress and strain tensors and their transformations. Equations of compatibility, continuity and

equilibrium. Elastic constants. Failure criteria including fracture, yield and instability. Deflection relations for complex loading and shapes. Indeterminate problems. Design applications and numerical methods. Prerequisite: ME 354.

M E 445 Science in Biomechanics (3) *Sanders* Introduction to biomechanics research. Discusses scientific analysis tools including problem definition, hypothesis generation and evaluation, methodology development, and data analysis methods. Participation in research projects, that are direct extensions from biomechanics research in the professor's laboratory. Two lectures and project meeting with professor per week. Offered: jointly with BIOEN 445; Sp.

M E 450 Introduction to Composite Materials and Design (3) *Taya, Tuttle* Stress and strain analysis of continuous fiber composite materials. Orthotropic elasticity, lamination theory, failure criterion, and design philosophies, as applied to structural polymeric composites. recommended: MSE 423. Offered: W.

M E 459 Introduction to Fracture Mechanics (3) *Ramulu* Deformation processes leading to fracture, and the linear elastic fracture mechanics. Fatigue crack propagation. Fracture control and failure analysis. Prerequisite: M E 356. Offered: A.

M E 460 Kinematics and Linkage Design (3) *Ganter* Synthesis of linkage-type mechanisms using graphical and computer methods. Offered: W.

M E 468 Air-Pollution Control Equipment Design (3) *Pilat* Designs to control air pollutants from stationary sources. Procedures for calculating design and operating parameters. Fundamental mechanisms and processes of gaseous and particulate control equipment for absorption and adsorption of gaseous pollutants; electrostatic precipitation and filtration of particular pollutants. Actual case studies. Offered: jointly with CHEM E 468/CEE 494; W.

M E 469 Applications of Dynamics in Engineering (4) *Reinhall, Shen, Storti* Application of the principles of dynamics to selected engineering problems, such as suspension systems, gyroscopes, electromechanical devices. Includes introduction to energy methods, Hamilton's principle and Lagrange equations and the design of dynamic system. Prerequisite: M E 374. Offered: A.

M E 470 Mechanical Vibrations (3) *Reinhall, Shen, Storti* Single-degree-of-freedom linear systems techniques. Matrix techniques for multi-degree-of-freedom linear systems. Applications in vibration isolation, transmission, and absorption problems and instrumentation. Prerequisite: M E 373. Offered: W.

M E 471 Automatic Control (4) *Berg, Garbini* Dynamic system modeling; control system stability and performance analysis; compensator design by Bode and root-locus methods. Prerequisite: M E 374. Offered: A.

M E 473 Instrumentation (4) *Garbini* Principles and practice of industrial and laboratory measurement. Dynamics of instrument response; generalized performance analysis of sensor systems; theory of transducers for motion, force, pressure, flow, and other measurements. Lecture and laboratory. Prerequisite: M E 374. Offered: A.

M E 474 Systems Modeling and Simulation (3) *Fabien* Unified approach to modeling of systems, and computer simulation of systems behavior. Selecting system variables; writing state, loop, and node equations; modal response and state transition response; system functions and convolution; analogs. Applications to control, vibrations, and other problems. Prerequisite: M E 374. Offered: W.

M E 477 Embedded Computing in Mechanical Systems (4) *Garbini* Analysis of electromechanical systems employing microcomputers for control or

data acquisition. Microcomputer architecture, memory organization, assembly language programming, interfaces, and communications. Particular emphasis on design of hardware and software interfaces for real-time interaction with mechanical systems. Weekly laboratory. Prerequisite: M E 374. Offered: W.

M E 478 Finite Element Analysis (4) *Reinhall* Development of theory and concepts of finite element analysis. Applications in all areas of mechanical engineering, including mechanics of solids, heat transfer, and design of dynamical systems. Weekly computer exercises. Prerequisite: M E 374; either MATH 308 or AMATH 352. Offered: Asp.

M E 480 Introduction to Computer-Aided Technology (4) Principles of computer-aided technology. Computer-aided design, engineering, drafting, and manufacturing; computer-aided design systems, geometry, computer graphics, hardware, computer-aided vehicle/system design synthesis. System demonstrations, laboratories, and site visits. Prerequisite: ENGR 123; CSE 142. Offered: Asp.

M E 481 Combustion Engines and Alternatives (5) *Kramlich, Malte* Thermodynamics, fuels, performance, combustion, and exhaust emissions control for spark ignition and compression ignition piston engines. New technologies, including hybrid combustion-electric fuel cell engines. Principles and practice. Lectures and laboratory. Prerequisite: M E 323. Recommended: M E 333. Offered: Asp..

M E 485 Introduction to Electronic Packaging and Materials (3) *Kuga, Pearsall, Taya* The governing equations of transport phenomena: mechanical, thermal, and electromagnetic behavior, thermomechanical and electromagnetic properties of packaging materials, electromagnetic characteristics of circuit and transmission lines, thermal management and reliability analysis of packaging, interconnect and material processing technology. Prerequisite: MSE 170. Offered: jointly with MSE 485; W.

M E 487 Laboratory in Electronic Packaging and Materials (1) *Taya, Stoebe* Laboratory course to accompany ME 485 Experiments related to design, processing and reliability of electronic packaging used in consumer electronics. Corequisite: M E 485. Offered: jointly with MSE 487 W.

M E 490 Naval Architecture (3) *Adee* Theory of naval architecture; ship's lines, hydrostatic curves, intact and damaged stability, launching. Offered: A.

M E 491 Naval Architecture (3) *Adee* Theory of naval architecture; strength, ABS rules, water waves, ship and platform motions. Offered: W.

M E 492 Naval Architecture (3) *Adee* Theory of naval architecture; dimensional analysis, resistance, model testing, propellers, steering. Offered: Sp.

M E 495 Mechanical Engineering Design (4) *Hyman* Design laboratory involving the identification and synthesis of engineering factors to plan and achieve specific project goals. Current literature and prerequisite texts are used as reference sources. Lecture and laboratory. Prerequisite: M E 395. Offered: AWSp.

M E 498 Special Topics in Mechanical Engineering (1-5, max. 6) Lecture and/or laboratory. Maximum of 6 credits may be applied toward an undergraduate degree.

M E 499 Special Projects (2-5, max. 9) Written report required. Offered: AWSpS.

Technical Communication

14 Loew



General Catalog Web page:
www.washington.edu/students/genocat/academic/Tech_Communication.html



Department Web page:
www.uwtc.washington.edu

Technical communicators use their language, visual, and analytical skills, as well as training and research in electronic and other media, to create and enhance communication in scientific and technical environments. The Department of Technical Communication prepares students to design, create, edit, and evaluate technical and scientific materials. The department also provides course work in the development of online help systems and in the design of general-audience content for delivery by means of advanced communication technologies such as the Web.

Other major interests of the department are the human-computer interface, hypermedia, communications technology, the rhetoric of technical discourse, publications and communications management, policy analysis of technological systems, and research and testing.

Undergraduate Program

Advisers

Kate Long
 Carolyn Plumb
 14G Loew, Box 352195
 (206) 543-7108 or (206) 543-7611
tc@uwtc.washington.edu

The Department of Technical Communication offers a program of study leading to the Bachelor of Science in Technical Communication degree, as well as a minor. Students must take a core set of courses that cover style, editing, project management, computer documentation, visuals, a senior study, and an internship. Additionally, students must develop a coherent and relevant area of specialization and propose 24 credits of upper-division electives relevant to this area. The specialization might be from engineering or the natural sciences. Other possible areas of specialization are computer science, human factors, psychology of technical communication, science writing, or instructional design.

Students with a degree in technical communication can pursue graduate education in the same or related fields or can secure employment in high-tech, scientific, or general business organizations.

Student Associations: Students in the Technical Communication degree program often participate in the Student Chapter of the Society for Technical Communication (STC), the Minority Science and Engineering Program (MSE), and the Society for Women in Engineering (SWE).

Internship Opportunities: All Technical Communication undergraduates are required to complete at least one 3-credit internship. The supervised internship in a publications organization must be approved by the faculty adviser. As an internship substitution, students may elect to take part in a six-month co-op, sponsored by the Engineering Co-op program.

Bachelor of Science in Technical Communication

The Department of Technical Communication offers a Bachelor of Science in Technical Communication (B.S.T.C.).

Admission Requirements: The department classifies applicants by admission group; the specific requirements for each are described below.

Admission to the department is competitive, and completion of the requirements does not guarantee admission.

All applicants have the right to petition and appeal the decision of the department.

1. Early Admission Group (EAG):

- Open to students enrolled at the UW.
- Completion of 38 credits to include 10 credits of approved mathematics or statistics; 15 credits of approved natural science; and 13 credits of approved written and oral communications (including T C 231).
- Applicants must have a minimum GPA of 3.00 in the written and oral communications courses and a minimum overall GPA of 2.00.
- The application deadline is July 1 for autumn quarter only.

2. Upper-Division Admission Group (UAG):

- Completion of 60 credits to include 10 credits of approved mathematics and statistics; 15 credits of approved natural science; and 13 credits of approved written and oral communications (including T C 231).
- Applicants must have a minimum GPA of 3.00 in the written and oral communications courses and a minimum overall GPA of 2.00.
- Students applying for admission in their senior year will be expected to spend a minimum of four quarters in the degree program, which allows students time to grow, to develop the necessary skills, and to integrate the knowledge necessary to enter the profession.
- The application deadlines are July 1 for autumn quarter and February 1 for spring quarter.

Graduation Requirements: The B.S.T.C. degree requires 180 credits, distributed according to the following minimum number of credits in each component: 50 credits in mathematics and natural science (with a minimum of 15 credits in mathematics or statistics, and 15 credits in natural science); 13 credits of written and oral communications (including T C 231); 12 credits of technical/analytical course work (including either CSE/ENGR 142 or PHIL 120); 35 credits of VLP and I&S (with one in-depth sequence); 34 credits of required T C courses; 24 credits of approved electives that demonstrate a coherent and relevant area of specialization; and 12 credits of free electives.

Minor

Minor Requirements: Minimum of 25 credits to include T C 231 (3), T C 400 (3), T C 401 (3), T C 402 (3), T C 411 (4), and either T C 412 (3) or T C 437 (3). Plus at least 6 credits selected from the departmental list of approved upper-division electives.

Graduate Programs

For information on the Department of Technical Communication's graduate program, see the graduate and professional volume of the *General Catalog* or visit the *General Catalog* online at www.washington.edu/students/genocat/.

Faculty

Chair

Judith A. Ramey

Professors

Bereano, Philip L. * 1975; JD, 1965, Columbia University; MRP, 1971, Cornell University; technology assessment, biotech policies, policy and technology, social values, citizen participation.

Coney, Mary B. * 1976; PhD, 1973, University of Washington; writing style and theories of technical communication, rhetoric, reader response theory.

Farkas, David K. * 1983; PhD, 1976, University of Minnesota; Web site design, hypertext and cyberculture, online help systems.

Furness, Thomas A. * 1989, (Adjunct); PhD, 1981, University of Southampton (UK); display systems engineering, human factors, computer graphics.

Haselkorn, Mark P. * 1985; PhD, 1977, University of Michigan; information system design, human/machine interaction, managing system vulnerability.

Ramey, Judith A. * 1983; PhD, 1983, University of Texas (Austin); computer-assisted communication, user-centered design, usability testing.

Skeels, Dell R. 1949, (Emeritus); MA, 1942, University of Idaho; PhD, 1949, University of Washington; folklore, myth, and folktale.

Spyridakis, Jan * 1982; PhD, 1986, University of Washington; comprehension and usability, document and screen design, research methods.

Warnick, Barbara P. * 1980, (Adjunct); PhD, 1977, University of Michigan; rhetorical theory and criticism.

White, Myron 1943, (Emeritus); PhD, 1958, University of Washington; technical editing, publications management, bibliography for document design.

Winn, William David * 1985, (Adjunct); PhD, 1972, Indiana University; educational technology, instructional design, instructional design, visual information processing.

Associate Professors

Bowes, John E. * 1974, (Adjunct); PhD, 1971, Michigan State University; man-machine communication, public opinion, international communication.

Dailey, Daniel J. * 1982, (Adjunct Research); MS, 1982, PhD, 1988, University of Washington; time series modeling of physical phenomena, optimization, distributed computing, networking.

McClintock, Marshall 1997, (Affiliate); MA, 1977, PhD, 1980, State University of New York (Binghamton); MA, 1990, George Mason University; philosophy of science, human factors.

Tsutsui, Michio * 1990; PhD, 1984, University of Illinois; computer-aided instruction, international communication, Japanese linguistics, technical Japanese.

Williams, Thomas R. * 1976; MCP, 1981, PhD, 1988, University of Washington; visual media, document design, interactive multimedia.

Assistant Professors

Ceccarelli, Leah M. * 1996, (Adjunct); MA, 1992, PhD, 1995, Northwestern University; rhetoric of science, rhetorical criticism.

Illman, Deborah L. 1982; PhD, 1981, Universidad Estadual de Campinas (Brazil); science/engineering news reporting, public understanding of science and technology.

Senior Lecturer

Plumb, Carolyn Sue * 1986; PhD, 1991, University of Washington; cognitive dimensions of writing, reading, and the human/computer interface.

Lecturer

Kato, Masashi 1988; MA, 1980, University of Washington; technology-enhanced instruction, distance learning, research methods, international communication.

Course Descriptions

See page 48 for an explanation of course numbers, symbols, and abbreviations.

For graduate-level course descriptions, see the graduate and professional study volume of the *General Catalog* or visit the online course catalog at www.washington.edu/students/crscat/.

T C 231 Introduction to Technical Writing (3) Principles of organizing, developing, and writing technical information. Report forms and rhetorical patterns common to scientific and technical disciplines. Technical writing conventions such as headings, illustrations, style, and tone. Numerous written assignments required. Required for all engineering majors. Prerequisite: either C LIT 240, both ENGL 104 and ENGL 105, ENGL 111, ENGL 121, ENGL 131, ENGL 182, ENGL 197, ENGL 198, ENGL 199, or ENGL 281. Offered: A/W/Sp.

T C 300 Practice in Technical Reporting (1-2, max. 2) Application of the fundamentals of technical reporting to the specific reporting activity of students who are enrolled in a jointly designated engineering, scientific, or technical course. Offered: A.

T C 310 The Computer in Technical Communication (4) Functions of, and relationships among, computer applications, systems software, and computer hardware in technical publications and communication. Required of technical communication majors. Offered: ASp.

T C 333 Advanced Technical Writing and Oral Presentation (4) Emphasis on the presentation of technical information to various audiences. Style of writing required for proposals, reports, and journal articles. Oral presentation principles, including use of visuals, as well as organizing and presenting an effective talk. For engineering majors. Prerequisite: T C 231. Offered: A/W/Sp.

T C 400 Scientific and Technical Communication (3) *Coney, Spyridakis* Principles and practices of writing to communicate scientific and technical information to a variety of readers, including the expert, general scientific and technical reader, manager, and general public. Required of technical communication majors. Prerequisite: T C 231. Offered: ASp.

T C 401 Style in Scientific and Technical Writing (3) *Coney, Spyridakis* Grammatical structures and stylistic strategies within specific professional contexts. Achieving clarity and conciseness through word choice and placement, using a variety of sentence structures for appropriate emphasis, handling details, establishing effective tone. Required of technical communication majors. Offered: ASp.

T C 402 Scientific and Technical Editing (3) *Farkas, Williams* Editorial responsibilities and practice in the communication of scientific and technical information; the editor's role both as editor and as supervisor of publication groups. Required of technical communication majors. Prerequisite: T C 401. Offered: AW.

T C 403 Publication Project Management (3) *Plumb* Responsibilities and practice in managing publication projects in scientific and technical organizations. Project design, coordination, production, and evaluation, including planning, organizing, staffing, and directing. Required of technical communication majors. Prerequisite: T C 402. Offered: WSp.

T C 406 Understanding Research in Technical Communication (3) *Spyridakis* Provides a basis for integrating knowledge acquired in other technical communication courses. Students examine the research literature of various disciplines that impact technical writing. Structured around theoretical and empirical literature as it relates to different textual issues in technical writing. Offered: W.

T C 407 Computer Documentation (3) *Farkas, Ramey* Concepts and skills for preparing online help systems, performance-support systems, print manuals, and other forms of computer documentation. Analysis of users, their tasks, and the product's interface. Usability testing of documentation. Relationship between documentation process and product development cycles. Recommended: T C 310. Offered: ASp.

T C 408 Public Documents: Proposals, EISs, Assessments (3) *Bereano* Analyzing special documents of public character: proposals, EISs, questionnaires, technology assessments. Understanding socio-political milieu in which they are planned, organized, written; the specialized audiences (e.g., agencies with their missions, guidelines, constituencies; citizen groups; commercial interests) they serve. Documents, the decision-making process. Offered: odd years; Sp.

T C 409 Writing for Publication (3) *Coney* Writing for professional and trade periodicals in science, engineering, and technology; examination of the publication process, including the roles of author, editor, and reviewer; selecting the appropriate periodical; organizing and writing the article. Prerequisite: T C 400; T C 401. Offered: W.

T C 411 Visual Media in Technical Communication (3) VLPA/I&S *Williams* Use of visuals in print and electronic communication. Topics include vision, perception, comparison of text and visual media principles for the selection and use of visual media, information graphics icons, page and screen design typography, and color. Offered: ASp.

T C 412 Print Production (3) *Williams* Introduction to print production for technical communicators. Topics include digital pre-press, printing, binding, and finishing. Prerequisite: T C 411. Offered: W.

T C 415 Production Editing (4) *Williams* The editorial role in the preparation of text and visual materials for production. The editor's responsibilities and prerogatives as they relate to those of other professionals in the production phase of the publications field. Offered: Sp.

T C 420 Introduction to Technology as a Social and Political Phenomenon (5) I&S *Bereano* Introductory survey presenting some of the issues pertaining to technology and social change, technology and values. Emphasis on the social, political, and economic aspects of current problems that have important technological components. Prior technical background not required; readings from diverse sources. Offered: A.

T C 425 Technology Assessment (5) I&S *Bereano* In-depth analysis of the concept, practice, and methods of technology assessment (policy analysis that concentrates on social consequences of technological development): social, political, economic, and environmental impacts of new technologies; options for channeling these developments; and relevant decision-making institutions and processes. Offered: W.

T C 428 Policy Dimensions of Genetic Engineering (3) I&S *Bereano* Explores technological discourse in public policy formation and decision-making regarding genetic engineering, analyzing a variety of media and formats to explore the contending ideological paradigms, imagery, and argumentation used by the major policy actors. No prerequisite, although prior work in biology, communication, or policy sciences is useful. Offered: W.

T C 436 Design and Authoring of CAI (3) *Winn* Introduction to the design of computer-assisted-instructional programs. Types of learning, characteristics of effective instruction. Students design and produce CAI programs using authoring systems for computers. Offered: jointly with EDC&I 436; A.

T C 437 Interactive Multimedia (3) VLPA/I&S *Farkas* Study of concepts and design principles with an emphasis on communicating technical and workplace information. Includes hypertext theory, interface design principles for content computing, and societal issues. Implementation of designs is encouraged but not required. Prerequisite: T C 411. Offered: Sp.

T C 440 Science and Engineering News Writing (3) *Illman* Explores the science news publishing process, from researching topics and interviewing sources to the structure of news articles and production. Writing assignments address the press release, news brief, and news articles. Offered: A.

T C 454 Alternative Technology (3) I&S *Bereano* Exploration of the evolution of technological forms that are small-scaled, decentralized, emphasizing the public policy aspects of these developments. Topics include the relationship between alternative technologies and worker-controlled enterprises, community planning, the politics of technological change, the Third World, and decentralized development. Background in engineering or technical design is not required. Offered: A.

T C 455 User Interface Design (3) *Furness* Design oriented to cover fundamentals of user interface design; models on human computer interaction, software psychology, input devices, usability, cognitive and perceptual aspects of human-computer interaction, advanced interfaces, and research methodologies are discussed. Offered: jointly with IND E 455; A.

T C 461 Reading in Technical Japanese I (3) VLPA *Kato* Students review and strengthen their basic knowledge of grammar, vocabulary, and kanji and apply this in reading authentic materials on technology related topics. Skills to analyze sentence structures for accurate interpretation are taught. Prerequisite: JAPAN 423. Offered: A.

T C 462 Reading in Technical Japanese II (3) VLPA *Kato* Students improve skills for analyzing complex sentence structures, and learn skills (such as predictions) for more effective reading. Additional grammar, vocabulary, and kanji necessary for reading technology-related materials are introduced. Prerequisite: T C 461. Offered: W.

T C 463 Reading in Technical Japanese III (3) VLPA *Kato* Students further improve skills introduced in previous courses. Covers the skills for understanding inter-sentential and paragraph structure. Additional grammar, vocabulary, and kanji necessary for reading technology-related materials are introduced. Prerequisite: T C 462. Offered: Sp.

T C 471 Oral Communication in Japanese in Technical and Business Settings I (3) VLPA *Kato* Students review and strengthen their knowledge of grammar, vocabulary and apply this to basic technical and business communication situations. Covers the cultural concepts underlying these situations. Lab work is required for conversation practice and listening comprehension. Prerequisite: JAPAN 423. Offered: A.

T C 472 Oral Communication in Japanese in Technical and Business Settings II (3) VLPA Kato Students learn the functional and situational skills necessary to communicate in technical and business settings. Covers the cultural concepts underlying these situations. Lab work is required for conversation practice and listening comprehension. Prerequisite: T C 471. Offered: W.

T C 473 Oral Communication in Japanese in Technical and Business Settings III (3) VLPA Kato Students learn the functional and situational skills necessary to communicate in more complex technical and business settings. Covers the cultural concepts underlying these situations. Lab work is required for conversation practice and listening comprehension. Prerequisite: T C 472. Offered: Sp.

T C 493 Senior Study (5) Integration of knowledge and skills acquired during major program into one paper or project. Offered: AWSpS.

T C 495 Professional Practice (3-5, max. 10) Williams Supervised internship in a publications organization approved by the faculty adviser. A minimum of one internship is required of students majoring in technical communication. Credit/no credit only. Offered: AWSpS.

T C 498 Special Topics (1-5, max. 10) Special topics in technical communication to be offered occasionally by permanent or visiting faculty members.

T C 499 Special Projects (1-5, max. 10) Individual undergraduate projects in technical communication. Offered: AWSpS.



College of Forest Resources

Dean

David B. Thorud
107 Anderson

Associate Dean for Academic Affairs

Gordon A. Bradley
123G Anderson

Associate Dean for External Initiatives

Bruce R. Lippke
123J Anderson



General Catalog Web page:
www.washington.edu/students/genocat/academic/College_Forest_Res.html



College Web page: www.cfr.washington.edu

Founded in 1907, when professional forestry education was in its infancy, the College holds a position of national and international leadership in both instruction and research. Its location in one of the world's largest forest regions provides unique opportunities for field classes and research, experience in the management of forested lands for multiple uses, exposure to wood-based industries, and awareness of resource-use issues. Enrolled in the College are approximately 300 undergraduate and 180 graduate students, taught by more than 50 faculty members. Thus, students enjoy small classes and close association with faculty, as well as the diversity and superior facilities of a large research university.

The College of Forest Resources is dedicated to generating and disseminating knowledge for the stewardship of natural and managed environments and the use of their products and services through teaching, research, and professional and public outreach. Its vision is to be pre-eminent in teaching and advancing the frontiers of knowledge in integrated resource stewardship and utilization in natural and managed environments.

The College's goals are (1) to provide students with a premier educational and training experience in integrated natural resource management, utilization, environmental sciences, and stewardship; and (2) in a timely and efficient manner, to develop and deliver the following to the public and the professions throughout the state, region, and world:

- educational information related to the College's mission, and
- findings from the College's applied and basic research programs.

College Facilities

The College occupies three central campus buildings: Alfred H. Anderson Hall, the Hugo Winkenwerder Forest Sciences Laboratory, and Julius H. Bloedel Hall. In addition, the Center for Urban Horticulture is located in an east campus building complex. Overall, the College has excellent areas and equipment on the Seattle campus for scientific laboratories, classrooms, seminar rooms, special collections, and administrative offices.

The Forest Resources Library, a separate branch of the University of Washington Libraries, contains more than 50,000 books, reports, conference proceedings, and

bound journal volumes, and subscribes to more than 1,100 active journals. Disciplines covered by the collection support the programs of the College, including forestry and silviculture, forest products, forest engineering, soils, wildlife, wildland conservation, paper sciences, and urban forestry. The Forest Resources Library provides a gateway to the larger University Libraries collection of more than five-million volumes through the systemwide electronic catalog, and provides access to numerous electronic and print indices as well as Internet resources. The library is located in Bloedel Hall.

The Center for Urban Horticulture also maintains a library that serves students, faculty, landscape professionals, and the public. The Center's herbarium supports forest resources students' fieldwork in urban horticulture, restoration ecology, and dendrology. Containing representative plant material from all parts of the United States, the collection includes dried, mounted specimens of shrubs, hardwood trees, and conifers. Another herbarium, complete in plants native to the Pacific Northwest and maintained by the Department of Botany, is available for use by forest resources students.

The laboratory facilities of the College represent an extensive array of modern equipment for research. The many available research tools include optical equipment, electronic instrumentation for a wide variety of uses, gas chromatographs, spectrophotometers, and physical-test equipment. Specific laboratories are designed to study soil chemistry and soil physics, hydrology, polymer chemistry, tree physiology, genetics, wood and extractives chemistry, physics of fibrous composites, applied mechanics, wood process technology, silviculture, ecology, paleoecology, pathology, entomology, wildlife, horticultural physiology, and horticultural plant materials.

The College computing facilities include microcomputer systems dedicated to specific research areas, a microcomputer student laboratory, a geographical information systems (GIS) laboratory, and several servers offering access to the Internet and shared printers.

Office of Student Services

Manager, Student Services
Michelle M. Trudeau
130 Anderson
cfradv@u.washington.edu

The Office of Student Services in the College of Forest Resources assists prospective undergraduate and graduate students with admission to the College and advises current students, including interpretation of College and University requirements and assistance in course registration to meet graduation requirements. Faculty advisers are available to assist students in choosing elective courses to help them build an appropriate academic background for their chosen professional specialty.

The Office of Student Services keeps job listings and employer resources to help students obtain summer employment and internships while in school, and permanent employment upon graduation. The office also sponsors a career fair every year. Summer work may be available through federal and state agencies and in the numerous private companies associated with the wood-using industry of the region. Although field experience is not required for graduation, students are strongly urged to seek summer employment or field experience relevant to their major and career goals.

The College has a strong scholarship and financial assistance program. Through the generous donations of alumni and friends, the College has established scholarships, fellowships, and loan programs to assist students in paying for their tuition. The Washington Pulp and Paper Foundation provides scholarships for students enrolled in the Paper Science and Engineering curriculum. The foundation is supported by companies of the pulp and paper industry and by supplier

companies. Information about paper science and engineering scholarships may be obtained from Professor William McKean, 318 Bloedel. Information on all College scholarships is available through the Office of Student Services, 116 Anderson.

Students seeking information about financial aid offered outside the College should contact the Office of Student Financial Aid, 105 Schmitz.

Institute of Forest Resources

Director

David B. Thorud
107 Anderson

Associate Director

Gordon A. Bradley
123G Anderson

The overall research program of the College is administered by the Institute of Forest Resources. Because of the size and complexity of this program, the institute assumes a broad scope of responsibility and provides vital support to the College administration, faculty, staff, and students. Major functions include administering all research projects funded by federal, state, and private agencies, monitoring the McIntire-Stennis research program, ensuring College compliance with federal reporting requirements, and producing College publications and special research reports.

Institute staff coordinate and facilitate the submission of research proposals for the faculty with the University administration and numerous funding agencies. Students earn research and thesis credit toward advanced degrees by working on major forest resources problems supported by grants or contracts.

Areas of current and future research cover a broad array of topics including forest policy analysis, stand management, streamside and riparian zone management, forest ecosystem analysis, international trade in forest products, forest-products marketing, forest biotechnology, wildlife science, forest soils, urban horticulture, forest engineering, hydrology, and paper science and engineering. Research projects include studies by individual faculty, as well as interdisciplinary programs, which combine the interests of College faculty with those from other academic units of the University and other institutions.

The College also collaborates with Cooperative Extension of Washington State University to undertake and promote continuing education for citizens of the state, particularly in the nonindustrial forestry area.

The Institute Publications Office provides a wide range of services in producing College research publications: technical editing, desktop-publishing systems, format and layout design, computer graphics, printing/publishing coordination, and distribution. College publications are distributed to national and international institutions and libraries, as well as to forestry professionals, to organizations in the private sector, and to the general public.

Field Research Areas and Facilities

The College field facilities include two major forested areas covering more than 4,000 acres, an arboretum, a reserve, and several cooperative research centers and stations. These lands offer a wide variety of terrestrial and aquatic characteristics favorable to a full range of scientific investigations. They also provide a general natural-science laboratory for the many disciplines in the College specifically related to, or concerned with, the research and teaching of natural resources behavioral patterns and management.

The Charles Lathrop Pack Experimental Forest of approximately 4,200 acres is located 65 miles south of the University, near Eatonville. This forested property is the focal point for on-the-ground academic work in forest management, resource science, and forest engineering, both at the undergraduate and graduate levels. Broad forest and soil diversity has led to extensive biological, management, and engineering research, much of which may be characterized as a pioneering effort. A full-time resident staff manages this facility, harmonizing its public-education objectives with academic and research objectives. Rustic but comfortable facilities which provide housing and support to academic and research programs are also used extensively for conferences both within and outside the University.

The Olympic Natural Resources Center (ONRC) is a 19,000-square-foot research and education facility located on the west side of the Olympic Peninsula. The mission of the Center is to conduct research and education on natural-resources management practices which integrate ecological and economic values. Innovative management methods that integrate environmental and economic interests into pragmatic management of forest and ocean resources are demonstrated. A forest management program as well as a marine program are in place to study the relationship between the terrestrial and marine environment.

The Lee Memorial Forest, approximately 160 acres, is located about 22 miles northeast of the University, near Maltby. This forested property provides valuable academic and research opportunities near the campus. Characterized by forest types and soils common to western Washington lowlands, Lee Forest is used extensively for part-day trips and for long-term research and demonstration projects especially related to changing land uses.

The Allan H. Thompson Research Center and the Joe E. Monahan Findley Lake Reserve and Research Area in the Cedar River watershed are utilized by the College in cooperation with Seattle Public Utilities for studies in forest physiology and mineral cycling in the forest ecosystem.

The Center for Urban Horticulture has offices, laboratories, public-education resources, and field sites for teaching and experimentation along the shore of Union Bay. Its 10-acre Union Bay Gardens, for research, teaching, and display, currently emphasize unusual ornamental and native woody landscape plants. The 60-acre Union Bay Natural Area, a former dumpsite now a naturalized habitat, is used by classes in four different colleges and the public to study principles and practices of restoration ecology. The Douglas Research Conservatory is a modern plant-growing facility with greenhouses, growth chambers, nursery, and classrooms. The Otis Douglas Hyde Hortorium is an herbarium dedicated to plants of urban horticultural significance. The Elisabeth C. Miller Horticultural Library is the Northwest's foremost public horticultural library, with books, journals, and other materials available to the gardening public, students, and professional horticulturists. The Center also conducts courses, lectures, and special events for the public and professionals as part of the College's Continuing and Public Education program. Cooperative programs are in place with Washington State University/King County Cooperative Extension, whose horticulture program is housed at the Center.

The Center's largest facility is the Washington Park Arboretum, a 230-acre collection of trees and shrubs growing in a naturalistic setting on the south shore of Lake Washington. Managed in cooperation with the City of Seattle Department of Parks and Recreation and the Arboretum Foundation, the arboretum contains some 5,200 different kinds of woody plants that are available for research and academic study, making it the third most diverse arboretum in the United States. Displays and programs educate students and visitors about woody plants' diversity, natural ecology, and urban landscape use, as well as conserving endan-

gered natural and cultivated plants. Classes in botany, dendrology, horticulture, wildlife, and landscape architecture make use of the collections, while the grounds are used for studies in soil science, ecology, and various research projects, including many independent student projects. The arboretum, established in 1934, also serves as an important public-service area to the University, offering numerous formal and informal classes for the general public and, in addition, serving the community as a public park and open space.

Summer Opportunities

During summer quarter, there are many internships and independent study courses in which a student may get credit for summer work.

In late summer, there is a four-week intensive program that combines work and study in Pacific Northwest forests with the study of English as an international language for forestry. The College and the Department of English As A Second Language schedule the program.

For more information, contact Aaron Bidelsbach, UW Educational Outreach, (206) 543-2300.

Ecosystem Sciences Division

Chair

Thomas M. Hinckley
204 Winkenwerder

Courses included in the Ecosystem Sciences Division cover basic and applied subject matters in forest biology, wildlife science, and urban horticulture. Urban horticulture is concerned with the selection, management, and role of plants and ecosystems in urban environments. Subjects covered include plant and animal ecology, wildlife biology and conservation, dendrology and autecology, soils, ecosystem analysis, environmental horticulture, public horticulture, and urban forestry.

The Division of Ecosystem Sciences offers three undergraduate majors leading to the Bachelor of Science in Forest Resources: Conservation of Wildland Resources, Environmental Horticulture and Urban Forestry, and Wildlife Science. Specific paths allow students to design coursework for individualized professional or educational objectives.

Conservation of Wildland Resources provides an understanding of terrestrial ecosystems and their stewardship. Students select one advanced coursework option related to different career goals: Conservation Principles, Conservation Practices, Conservation Learning, and an individualized option.

Environmental Horticulture and Urban Forestry combines applied horticulture with management of disturbed ecosystems, arboreta, and urban forests. Program options are Environmental Horticulture, Public Horticulture, Urban Forestry, and an individualized option.

Wildlife Science focuses on the application of ecological knowledge to wildlife biology and management, with the intent of preparing students for graduate education in wildlife science or natural resources management.

Graduate programs leading to the Master of Science and Doctor of Philosophy degrees include ecosystem analysis (ecology, tree physiology and genetics, and soils and mineral cycling), wildlife science, and urban horticulture. A Master of Forest Resources degree in urban horticulture is also available.

Management and Engineering Division

Chair

Richard R. Gustafson
332 Bloedel

Courses for which the Management and Engineering Division is responsible deal with all the facets of the forest resources arena, from management of forests to the production and recycling of paper products. Multiple uses of forests including timber, water, wildlife habitat, and recreation are embraced in the forest management curriculum. Courses in the forest engineering curriculum emphasize the scientific and engineering design principles that enable graduates to find technical solutions to problems facing forest-related enterprises and rural communities. Paper science and engineering courses provide students with the skills to work as technical and management professionals in the paper and allied industries.

The Division of Management and Engineering offers three undergraduate majors leading to the Bachelor of Science in Forest Resources: forest management, forest engineering (which is offered jointly with the College of Engineering), and paper science and engineering. The goal of the forest management curriculum, which is accredited by the Society of American Foresters, is to educate undergraduate students to perform as professional forest land managers. Forest lands range from public bioreerves, wilderness, and parks where preservation issues are paramount, to extensively managed private tracts, watersheds, and commercial tree farms where utilization is the guiding paradigm. Courses emphasize intensive management as well as multiple use of forest resources and forest lands.

The four curriculum objectives for forest management are to (1) educate and train students for entry-level employment, (2) educate students to be effective managers in both the private and public sectors, (3) prepare students to learn how to be future leaders of the profession and community, and (4) prepare students for a lifetime of learning. The curriculum provides a firm grounding in the physical, natural, and social sciences at the lower-division level along with an introduction to forest resources management. At the upper division, a core of professional forestry courses emphasizes the integration of forest-resources biological sciences with the social and management sciences. Restricted electives are also required to enhance the understanding of business-management and economic principles.

Students in forest management spend the spring quarter of their junior year at the College's Pack Forest where specialized field instruction is provided.

Forest engineering is a profession in which knowledge of the mathematical and natural sciences gained by study and experience is applied with judgment to design systems and processes to meet society's many demands from forested landscapes. Forest engineers design timber harvest, road construction, watershed protection, and resource enhancement activities over a wide variety of space and time scales. The overall goal of the forest engineering curriculum is to provide the highest quality education in engineering principles as well as forest ecosystems in an undergraduate degree program. An admissions application, including specific course and grade-point prerequisites, is required.

The objectives of the curriculum are (1) to provide a broad education, including a strong liberal arts background emphasizing critical thinking and life-long learning, which will enable students to be informed, responsible, and effective professionals in society; (2) to develop students' written and oral communications skills so that they can organize and express information and ideas logically and convincingly; (3) to develop students' understanding of fundamental scientific principles, including forest science and ecology, which

serve as a sound basis for the synthesis of knowledge leading to rational problem-solving; (4) to develop students' knowledge and ability to employ engineering methods including analysis, computation, modeling, experimental techniques, and design to solve forest engineering problems; and (5) to develop students' understanding of their legal, ethical, and professional relationships with society to prepare them for the professional practice of forest engineering.

While the first two years of the forest engineering curriculum are consistent with pre-engineering status within the University, and the core forest engineering courses begin in the junior year, design is a theme that is emphasized throughout the program. The design theme culminates in the senior year when all forest engineering students participate in a real-world, team-oriented design project combining most, if not all, aspects of their studies. This capstone course is held at Pack Forest. Students also generally sit for the Fundamentals of Engineering Exam, Engineer in Training (EIT), during their senior year as a first step toward eventual licensure as professional engineers.

The paper and allied industries need technically trained professionals to resolve challenges faced by the industries. Students in the paper science and engineering program are instructed in chemistry, chemical engineering, wood chemistry, and pulp and paper processing. The goal of the paper science and engineering curriculum is to provide the highest quality education in engineering principles as well as pulp and paper fundamentals in an undergraduate program. Course subjects in this curriculum include wood chemistry, pulping and bleaching, recycling, paper physics, papermaking, process control, and process design.

The objectives of the paper science and engineering undergraduate program are (1) to provide students with a strong foundation in mathematics, natural and physical sciences, and engineering fundamentals. In addition, students are trained in the techniques, skills, and modern engineering tools necessary for engineering practice; (2) to provide students with a thorough knowledge of the technology used in the modern pulp and paper mill and to provide a complete understanding of the underlying phenomena that govern the unit operations of that technology; (3) to provide students with relevant laboratory experiences that demonstrate basic principles and teach students to conduct experiments as well as analyze and interpret data; (4) to provide students with a capstone design experience that integrates the knowledge and skills acquired in previous courses; design problems are solved by multidisciplinary teams and demonstrate the students' capabilities in identifying, formulating, and then solving engineering problems; (5) to provide students with a broad range of skills that they need to function as professionals in an engineering career. These include analytical and design skills, communication techniques, ethical principles and values, and knowledge of contemporary issues. The students are also provided an education in the humanities and social sciences to understand the impact of engineering solutions in a global and societal context.

The first two years of the paper science and engineering curriculum are similar to other pre-engineering curricula, especially chemical engineering. The core paper science and engineering courses begin in the junior year and continue through the senior year. A fifth-year option is available for qualified students who want to pursue a bachelor's degree in chemical engineering. Admission to the Paper Science and Engineering program is required.

Graduate programs leading to the Master of Science and Doctor of Philosophy degrees are offered by this division and include social sciences, forest economics, forest engineering/hydrology, forest products marketing, silviculture and forest protection, quantitative resources management, and paper sciences and engineering. A practice-oriented degree leading to the Master of Forest Resources in the area of silviculture is also available.

Undergraduate Program

Information may be requested by contacting the faculty adviser listed with each program or through the Office of Student Services, cfradv@u.washington.edu.

The College of Forest Resources offers six undergraduate majors leading to a Bachelor of Science in Forest Resources degree: forest management, wildlife science, conservation of wildland resources, forest engineering, paper science and engineering, and environmental horticulture and urban forestry.

The first two years of study emphasize general preparation, followed by an upper-division professional program. Each curriculum contains a number of elective credits selected by the student with the assistance of faculty advisers. Students are encouraged to take a number of these credits outside the College to broaden their preparation.

In addition to University regulations concerning requirements and grading, College regulations state that no required course may be taken on a satisfactory/not-satisfactory basis. Some classes include field trips, laboratory supplies, or material duplication at extra expense to the students.

The College also offers six minors: conservation of wildland resources, forest management, international forestry, urban forestry, streamside studies, and wildlife science. Four of these minors provide exposure for students to the knowledge of the majors of the same name.

The minor in streamside studies is designed to provide an understanding of streamside issues for the proper management of watersheds. The core classes provide an interdisciplinary understanding of critical processes in streamside areas: geomorphology, plant ecology, hydrology, and fisheries ecology.

Three thematic areas—physical, ecological, and social processes—allow students majoring in geology, engineering, forestry, or fisheries to meet requirements of the minor with a minimum of extra hours and acquire in-depth knowledge in a particular area. Other majors are welcome.

High School Preparation

In addition to the University's general admission requirements, students who plan to enter the College of Forest Resources should have a strong science background.

Admission

UW students in good academic standing may declare a major in the College at any time with the exceptions of Forest Engineering and Paper Science and Engineering which require an application for admission. More information and applications can be obtained, and a specific major can be declared during a meeting with an adviser in the Office of Student Services, 116 Anderson.

Transfer students, upon admission to the University, are accepted directly into many of the College majors. However, transfer students must complete an application for admission for acceptance into the Forest Engineering and Paper Science and Engineering majors.

Applicants for the Forest Engineering and Paper Science and Engineering majors may refer to the admissions criteria listed with the major requirements.

Advising

Student advising is the joint responsibility of the College's Office of Student Services, 116 Anderson, and the divisions. Student files are centrally located in the Office of Student Services. Degree applications are

completed with advisers in the Office of Student Services. Faculty serve as advisers for curriculum and career planning.

Pack Forest Residential Field Classes

Students enrolled in the forest management and forest engineering curricula must attend the Pack Forest program. This program is typically completed during the spring of the junior year for forest management students and during the spring of the senior year for forest engineering students. Courses are conducted as part of the field residential program at the Charles Lathrop Pack Experimental Forest near Eatonville, 65 miles from Seattle.

Students in other majors such as Conservation of Wildland Resources may also attend Pack Forest, but it is not required.

Students taking course work at Pack Forest must live at the field residential station, paying room-and-board charges in addition to regular tuition. Information is available from the Office of Student Services, 116 Anderson.

Accreditation

The curriculum in forest management is accredited by the Society of American Foresters (SAF). Other curricula include electives that may be used toward qualifications for SAF and the Forester rating for the United States Civil Service.

The curriculum in forest engineering is accredited by the Accreditation Board for Engineering and Technology (ABET).

SAF and ABET are recognized by the Council on Postsecondary Accreditation and the U.S. Department of Education as the accrediting agencies for forestry and engineering, respectively, in the United States.

Students should consult with faculty advisers when planning their schedules to include the specific class requirements for SAF and civil-service qualifications.

To meet civil-service and certified wildlife-biologist requirements, students in wildlife sciences should consult with the faculty adviser.

Bachelor of Science in Forest Resources

For information concerning the general-education, lower-division, and upper-division (major) requirements, see a College adviser in the Forest Resources Office of Student Services, 116 Anderson.

Conservation of Wildland Resources

Faculty Adviser
Thomas M. Hinckley
(206) 543-1588

Course Work for New Students: BIOL 101-102 or 201, 203; CHEM 120, 220; ECON 200 or 201; ENGL 131 or an equivalent composition course; one of ATM S 101, 211, ESC 110, GEOG 205, GEOL 101, 313, or OCEAN 101; PHYS 114, 117; Q SCI 291 or MATH 124; POL S 202 or 100- to 200-level POL S course; SP CMU 220 or SP CMU 203 or SP CMU 301; Q SCI 381.

General Education Requirements: English composition—5 credits from the University list (ENGL 131 is preferred); writing-intensive courses—10 credits minimum to include ESC 495 (5) and 5 credits of ENGL 111 or other University composition or writing-intensive (W) course; Visual, Literary, & Performing Arts—10 credits to include SP CMU 220 (5) or SP CMU 203 (5) or SP CMU 301 (5), plus 5 additional credits from University VLP A list; Individuals & Societies—18 credits to include ECON 200 (5) or 201 (5); POL S 202 (5) or a 100- to 200-level POL S course; F M 271 (3) or 371 (3), and CFR 400 (3) or F M 470 (5).

Requirements Expected to Be Taken During the First Two Years: CFR 101 (5 credits) or ESC 101 (1); one of ATM S 101 (5), 211 (5), ESC 110 (5), GEOG 205 (5), GEOL 101 (5), 313 (5), or OCEAN 101 (5); Q SCI 291, 292 (5, 5), or MATH 124, 125 (5, 5); BIOL 101, 102 (5, 5) or BIOL 201, 203 (5, 5); CHEM 120 (5); CHEM 220 (5); PHYS 114 (4); PHYS 117 (1); Q SCI 381 (5); free electives (18).

Additional Major Requirements: ESC 210 (4 credits); ESC 221 (6); ESC 322 (5); ESC 350 (4); BIOL 476 (5) or ESC 450 (5); ESC 490 (5) or 495 (5); F M 271 (3) or 371 (3); CFR 400 (3) or 470 (5); path electives (45).

Minor

Minor Requirements: Minimum 35 credits with a minimum grade of 2.0 in each course, to include CFR 101 (5 credits) or a similar College-approved course; ESC 200 (5) or 221 (6); ESC 202 (5) or F M 324 (5); ESC 210 (4); ESC 320 (5); ESC 322 (5); F M 328 (4); ESC 350 (4). Recommended additional courses include ESC 411 (4), 421 (4), and 441 (5).

Environmental Horticulture and Urban Forestry

Faculty Adviser
Linda Chalker-Scott
(206) 685-2595

Course Work for New Students: BIOL 101-102; CHEM 120 or 142; ENGL 131; ATM S 101, GEOG 205, or GEOL 313; Q SCI 291 or MATH 124; F M 470, POL S 202, POL S 303, or POL S 383; PSYCH 101 or 102; SP CMU 220 or equivalent; introductory statistics course such as Q SCI 381.

General Education Requirements: English composition—5 credits from the University list (ENGL 131 is preferred); writing-intensive courses—7 credits minimum to include EHUF 495 (5 credits) and 2 credits of additional writing-intensive course work; Visual, Literary, & Performing Arts—10 credits to include SP CMU 220 (5) or other similar College-approved course from the University VLPA list and 5 additional credits from the University VLPA list; Individuals & Societies—10 credits to include F M 470 (5), POL S 202 (5), POL S 303 (5), or POL S 383 (5), EHUF 201 (3) and CFR 400 (3); Natural World—20 credits to include BIOL 101 (5) and 102 (5), CHEM 120 (5) or 142 (5), and either ATM S 101 (5), GEOG 205 (5), or GEOL 313 (5).

Requirements Expected to Be Taken During the First Two Years: Q SCI 291 (5 credits) or MATH 124 (5); Q SCI 381 (5); EHUF 201 (3); BIOL 101 (5); BIOL 102 (5); PSYCH 101 (5) or 102 (5); CHEM 120 (5) or 142 (5); ATM S 101 (5), GEOG 205 (5), or GEOL 313 (5); free electives (8).

Upper-Division (Major) Requirements: EHUF 411 (3); EHUF 431 (5); EHUF 445 (5); EHUF 451 (5); EHUF 473 (5); EHUF 478 (3); EHUF 495 (5); ESC 210 (4) or 311 (3); BOTANY 371 (3); BOTANY 354 (5) or BIOL 472 (5) or ESC 221 (6) or ESC 322 (5), T C 231 (3) or T C 400 (3); CFR 250 (5); CFR 400 (3).

Environmental Horticulture Option

Required Courses: BIOL 454 (4 credits); BIOL 476 (6); BOTANY 113 (5).

Directed Electives: Minimum of 16 credits chosen from the following: BOTANY 350 (4 credits) or ZOOL 475 (3); BOTANY 455 (5); BOTANY 456 (5); CIVE 250 (5); ESC 410 (5) or 411 (5); F E 368 (4); F M 470; F M 485; GENET 371 (5); HRMOB 450 (4); L ARCH 341 (3); L ARCH 498 (2); ESC 350 (4); EHUF 202 (3); EHUF 331 (3); EHUF 401 (3); EHUF 470 (5); EHUF 475 (5).

Public Horticulture Option

Required Courses: HRMOB 450 (4 credits); MUSEUM 480 (3); EHUF 331 (3); and two of the following: L ARCH 341 (3), L ARCH 352 (3), or URBDP 300 (5); EHUF 402 (3).

Directed Electives: Choose sufficient credits from the following courses so that total option credits are at least 30 credits: BIOL 454 (4 credits); BIOL 476 (5); BOTANY 113 (3); BOTANY 350 (4) or ZOOL 475 (3); BOTANY 455 (5); BOTANY 456 (5); ECON 200 (5); ESC 350 (4); ESC 410 (5) or 411 (5); F E 368 (4); F M 371 (3); F M 485 (5); GENET 371 (5); L ARCH 361 (3); LAW 442 (3); MUSEUM 483 (3, max. 9); SOC 430 (5); T C 408 (3); EHUF 202 (3); EHUF 401 (3); EHUF 470 (5); EHUF 475 (5).

Urban Forestry Option

Required Courses: ECON 200 (5 credits); F M 271 (3); F M 371 (3); F M 470 (5); BOTANY 113 (5); EHUF 331 (3); EHUF 401 (3); EHUF 470 (5).

Directed Electives: Choose sufficient credits from the following courses so that total option credits are at least 30 credits: Either F M 323 (5), F M 362 (5), and F E 345 (5), or F E 368 (4), F M 424 (3), and 8 credits from the following: F M 360 (5), ESC 326 (3), L ARCH 363 (3), L ARCH 498 (2), and URBDP 465 (3). Another option is 7 to 17 credits of HRMOB 450 (4), EHUF 202 (3); EHUF 475 (5), and URBDP 300 (5).

Individualized Option

The additional 30 credits above those required for the major is met from classes determined by the student and faculty members during the first two years of study.

Minor

Minor Requirements: Minimum 30 credits with a minimum grade of 2.0 in each course, to include EHUF 201 (3 credits), 445 (5), and 473 (5), plus at least 17 credits from the following: CFR 250 (5); CFR 400 (3); EHUF 411 (3); EHUF 431 (5); EHUF 451 (5); EHUF 470 (5); EHUF 478 (3); EHUF 495 (5); one of BOTANY 354 (5), BIOL 472 (5), ESC 221 (6), or ESC 322 (5); either BOTANY 113 (5) or EHUF 331 (3); one of ESC 210 (4) or ESC 311 (3). No substitutions are permitted.

Forest Engineering

Faculty Adviser
Peter Schiess
(206) 543-1583

Admission

Students may apply for Early Admission or Upper-Division Admission. Applications are available in Student Services, 116 Anderson, or through the College of Engineering, 356 Loew. Departmental deadlines are July 1 for autumn quarter, October 15 for winter quarter, and January 15 for spring quarter.

For Early Admission, a student may apply after completing the following courses at the UW with a cumulative GPA of 3.60 or higher: MATH 124, 125, 126; PHYS 121, 122, 123, or CHEM 142 and 152; and one English composition course.

For Upper-Division Admission:

1. Minimum cumulative GPA of 2.50.
2. Completion of the following courses with a minimum grade of 2.0 in each course: CHEM 142, 152; CSE 142; A A 210; CIVE 220; M E 230; MATH 124, 125, 126, 307; PHYS 121/131, 122/132, 123/133; a 5-credit English composition course (ENGL 131 is preferred).
3. Admission is competitive.
4. Transfer students are accepted directly into the College as premajors and, after admission to the College, become Forest Engineering majors.

General Education Requirements: English Composition—5 credits from the University list (ENGL 131 is preferred); writing-intensive courses—7 credits minimum to include T C 231 (3 credits) and T C 333 (4) or other writing courses as approved by the College of Engineering and the College of Forest Resources; 30

credits total from the Visual, Literary, & Performing Arts list and from the Individuals & Societies list including a minimum of 10 credits from each of these two Areas of Knowledge.

Requirements Expected to Be Taken During the First Two Years: MATH 124, 125, 126 (5, 5, 5); MATH 307 (3); MATH 308 (3); PHYS 121/131 (4/1); PHYS 122/132 (4/1); PHYS 123/133 (4/1); CHEM 142 (5), 152 (5); CSE 142 (4); ENGR 123 (4); A A 210 (4); CIVE 220 (4); M E 230 (4); IND E 250 (4); IND E 315 (3).

Upper-Division (Major) Requirements: F E 330 (4 credits); F E 332 (4); F E 340 (4); F E 341 (5); F E 346 (5); F E 368 (4); F E 425 (4); F E 444 (4); F E 450 (15); F E 470 (3); F E 480 (3); CIVE 342 (4); CIVE 366 (4); restricted Forest Engineering electives (14).

Forest Management

Faculty Adviser
B. Bruce Bare
(206) 685-0878

Course Work for Prospective Students: BIOL 101-102; CHEM 120, 220; ECON 200, 201; ENGL 131; GEOL 101; MATH 124 or Q SCI 291-292; POL S 202; SP CMU 220; introductory statistics course such as Q SCI 381.

General Education Requirements: English composition—5 credits from the University list (ENGL 131 is preferred); writing-intensive courses—7 credits minimum to include F M 495 (5 credits) or 496 (5), and 2 credits of additional writing-intensive course work; Visual, Literary, & Performing Arts—10 credits to include SP CMU 220 (5) or other similar College-approved course from the University VLPA list and 5 additional credits from the University VLPA list; Individuals & Societies—20 credits to include ECON 200 (5); ECON 201 (5); POL S 202 (5); F M 271 (3), and F M 470 (5).

Requirements Expected to Be Taken During the First Two Years: CFR 101 (5 credits); BIOL 101 (5); BIOL 102 (5); MATH 124 (5) or Q SCI 291-292 (10); CHEM 120 (5); CHEM 220 (5); GEOL 101 (5); ESC 210 (4); ESC 221 (6); ESC 322 (5); free electives (10).

Upper-Division (Major) Requirements: CFR 250 (5); F M 323 (5 credits); F M 324 (5); F M 328 (4); F M 360 (5); F M 362 (5); F M 271 (5); F M 371 (3); F M 425 (3); F M 470 (5); F M 481 (3); F E 345 (5); ESC 350 (4); Q SCI 381 (5); restricted business/management electives (15); free electives (12).

Minor

Minor Requirements: Minimum 35 credits with a grade of at least 2.0 in each course, to include the following: Biology—minimum 9 credits from ESC 200 (5 credits), ESC 210 (4), ESC 322 (5), F M 328 (4), ESC 350 (4); Social Sciences—minimum 9 credits from F M 271 (3), F M 320 (3), F M 360 (5), F M 371 (3), F M 421 (3); F M 422 (3), F M 423 (3), F M 470 (5); Forest Management—minimum 9 credits from CFR 101 (5), CFR 250 (5), F M 323 (5), F M 324 (5), F M 328 (4), F M 362 (5), F M 377 (3), F M 425 (3), F M 481 (3), F E 345 (5); Electives—minimum 8 credits from any F M course at the 300 level or above.

International Forestry

Minor

Minor Requirements: A total of 30 credits to include the following: (1) Core courses (18 credits)—I BUS 300 or SIS 330; GEOG/SIS 335, F M 423, and F M 492. (2) Upper-division electives (12 credits)—For students majoring in forest management, wildland conservation, forest engineering, wildlife sciences, or environmental horticulture and urban forestry: SIS 375, 401, 430, SISCA 308, and GEOG/SISA 372; or any I BUS, SIS, SISEA, SISLA, SISRE, SISSA, or SISSE course. For students majoring in other programs: ESC 322, ESC 410, F E 368, F M 320, 360, 371, 470, or any F M, ESC, or F E course. See faculty adviser for other options. Minimum grade of 2.0 required in each course.

Paper Science and Engineering

Faculty Adviser
William T. McKean
(206) 543-1626

Course Work for Prospective Students: CHEM 142, 152, 162, 237, 238; ECON 200; ENGL 131; CHEM E 260; MATH 124, 125, 126; PHYS 121/131, 122/132, 123/133; Q SCI 381.

General Education Requirements: English Composition—5 credits from the University list (ENGL 131 is preferred); writing-intensive courses—7 credits minimum; Visual, Literary, & Performing Arts—10 credits from University VLPA list; Individuals & Societies—10 credits to be satisfied with PSE 400 (4), PSE 482 (3), and ECON 200 (5).

Requirements Expected to Be Taken During the First Two Years: MATH 124, 125, 126 (5, 5, 5); MATH 307 (3); CHEM 142 (5), 152 (5), 162 (6); CHEM 237 (4), 238 (4); Q SCI 381 (5); PHYS 121/131 (4/1); PHYS 122/132 (4/1); PHYS 123/133 (4/1); CSE 142 (4); CHEM E 260 (4); PSE 302 (4); PSE 306 (3).

Upper-Division (Major) Requirements: CHEM 455 (3 credits); CHEM E 310 (4); CHEM E 330 (4); CHEM E 340 (4); CHEM E 436 (3); PSE 400 (3); PSE 401 (2); PSE 402 (4); PSE 406 (3); PSE 407 (2); PSE 476 (3); PSE 477 (3); PSE 478 (2); PSE 479 (3); PSE 480 (3); PSE 481 (3); PSE 482 (3); PSE 485- (1-1-1); PSE 483 (3) or PSE 488 (3); PSE 487 (5); PSE 497 (1-2); technical electives (13) or the business option (12 to 14 credits).

All required PSE courses must be completed with at least a 2.0 grade for graduation.

Streamside Studies

Minor

Minor Requirements: Minimum 28-32 credits with a grade of at least 2.0 in each course, including four core courses—GEOL 411 (5 credits), ESC 322 (5) or BIOL/BOTANY 333 (5); F E 425 (4) or CIVE 476 (3); and FISH 312 (5) or FISH 450 (4)—plus 3 credits of CFR/FISH 429 (1); and 10 credits from one of the following thematic areas.

Physical Processes: ATM S 301 (5), ATM S 321 (3), CIVE 366 (4), CIVE 462 (3/5), CIVE 474 (3), CIVE 485 (3), ESC 210 (4), ESC 311 (3), GEOL 313 (4), and GEOL 412 (5).

Ecological Processes: BIOL 472 (5), BIOL 473 (3), BIOL 475 (2), CIVE/FISH 461 (3/5), CIVE/FISH 462 (3/5), ESC/BIOL/BOTANY 333 (5), ESC/FISH 454 (3), F M/FISH 328 (4), FISH 311 (5), FISH 312 (4), FISH 323 (3), FISH 367 (4), FISH 428 (5), FISH 450 (4), FISH/Q SCI 456 (4), FISH/BIOL 438 (5), EHUF 473 (5), and EHUF 475 (5).

Social Processes: ANTH 457 (4), CFR 400 (3), ECON 435 (5), F E 330 (4), F M 271 (3), F M 377 (3), F M 470 (5), GEOG 370 (5), and SOC 330 (5).

Sustainable Resource Sciences

Faculty Adviser
Charles L. Henry
(206) 685-1915

Suggested Introductory Course Work: English composition, mathematics, chemistry, biology, physics, environmental studies. (See specific course numbers below.)

Major Requirements:

Background Requirements: 71 credits to include ESC 110, 111 (5 credits, 2 credits); ENVIR 201 or 203 (5); one of the following 10-credit sequences: Q SCI 291, 292 (5, 5), MATH 124, 125 (5, 5), MATH 134, 135 (5, 5); MATH 144, 145 (5, 5); Q SCI 381 (5); CHEM 120, 220 (5, 5); PHYS 114, 114 (4, 1); either BIOL 101-102 (5-5) or BIOL 201, 202, 203 (5, 5, 5); English composition (5); speech with SP CMU 220 (5) preferred; T C 231 (5); IND E 250 (4).

Core Requirements: 69 to 81 credits to include CFR 400 (3); SRS science matrix electives (30); natural science/design matrix electives (20); social science matrix electives (6 to 10); law/policy/management matrix elective (1 to 5); ethics/values/culture matrix elective (1 to 5); ENVIR 490, 491, 492 (1, 5, 2). See adviser for matrix course options.

General Education: Course requirements noted above automatically fulfill minimum College of Forest Resources requirements for English composition, quantitative and symbolic reasoning, and the Natural World section of the Areas of Knowledge requirements. Students must also fulfill the following requirements: (1) 10 credits in each of the remaining two Areas of Knowledge (Visual, Literary, & Performing Arts, and Individuals & Society); (2) 10 credits of writing intensive (W) courses or additional composition courses. Some courses in the background and core areas noted above apply to these requirements.

Wildlife Science

Faculty Adviser
David A. Manuwal
(206) 543-1585

Course Work for New Students: BIOL 101-102; BOTANY 113; CHEM 120, 220; ECON 200; ENGL 131; PHYS 114, 117; Q SCI 291, 292 or MATH 124, 125; SP CMU 220; introductory statistics course such as Q SCI 381.

General Education Requirements: English composition—5 credits from the University list (ENGL 131 is preferred); writing-intensive courses—8 credits minimum to include ESC 494 (3 credits) and ESC 496 (5); Visual, Literary, & Performing Arts—10 credits to include SP CMU 220 (5) or other similar College-approved course from the University VLPA list and 5 additional credits from the University VLPA list; Individuals & Societies—10 credits minimum to include ECON 200 (5) or other similar College-approved course from the University I&S list and 5 additional credits from the University I&S list.

Requirements Expected to Be Taken During the First Two Years: ESC 101 (1 credit); ESC 221 (6); Q SCI 291, 292 (5, 5) or MATH 124, 125 (5, 5); Q SCI 381 (5); PHYS 114 (4); PHYS 117 (1); CHEM 120 (5); CHEM 220 (5); BIOL 101 (5); BIOL 102 (5); BOTANY 113 (5); GENET 371 (5) or College-approved substitute; free electives (3).

Upper-Division (Major) Requirements: ESC 210 (4); ESC 322 (5 credits); ESC 326 (3); F M 271 (3); ESC 350 (4); ESC 351 (5); ESC 450 (5); ESC 455 (1, 1), to be taken twice; Q SCI 477 (5); Q SCI 482, 483 (5, 5); restricted electives (41).

Minor

Minor Requirements: Minimum 25 credits with a grade of at least 2.0 in each course, to include ESC 101 (1 credit), ESC 322 (5) or another ecology course approved by the faculty adviser, ESC 326 (3), ESC 350 (4), ESC 450 (5), ESC 455 (1, 1) to be taken twice, 7 credits selected from ESC 452 (3), ESC 453 (5), ESC 454 (3), ESC 456 (3), F M 328 (4), FISH 475 (3), FISH 476 (2), ZOOL 362 (5), ZOOL 451 (5).

Graduate Programs

For information on the College of Forest Resources' graduate program, see the graduate and professional volume of the *General Catalog* or visit the *General Catalog* online at www.washington.edu/students/genocat/.

Teaching and Research Centers

Center for Quantitative Science in Forestry, Fisheries, and Wildlife

Director

B. Bruce Bare
123D Anderson Hall

The Center for Quantitative Science in Forestry, Fisheries, and Wildlife is an intercollege academic unit sponsored by the Office of Undergraduate Education, the School of Fisheries of the College of Ocean and Fishery Sciences, and the College of Forest Resources. The Center offers a comprehensive program of study in mathematics and statistical methods as applied to problems in biology, ecology, the environment, and renewable-resource management for undergraduate students. The faculty of the Center include members of the College of Forest Resources and the School of Fisheries, as well as other units. The Center offers a minor program designed to give undergraduates majoring in biology, ecology, the environment, and renewable-resource management programs a thorough grounding in relevant statistical and mathematical modeling methodology.

Minor

Minor Requirements: Minimum 26 credits with a grade of at least 2.0 in each course, to include Q SCI 291 (5 credits), Q SCI 292 (5), Q SCI 381 (5), Q SCI 482 (5), and 6-10 credits from two 300- or 400-level Q SCI courses to include one course from Q SCI 480 (3), Q SCI 483 (5), or Q SCI 486 (3). MATH 124 and 125 may be substituted for Q SCI 291 and 292.

Center for International Trade in Forest Products

The Center for International Trade in Forest Products (CINTRAFOR) was established in 1984 to respond to opportunities and problems relating to the export and import of wood products. Through programs of research, education, and outreach, CINTRAFOR works to improve knowledge of export trade and to train professionals competent in the analysis and interpretation of trade problems, issues, and policies. The Center serves as a focal point for dissemination of information on world trade in forest products by means of seminars, conferences, workshops, and publications.

CINTRAFOR activities involve the cooperative effort of the forest-products industry, state and federal organizations, and other organizations at the University such as the School of Business Administration and the Northwest Policy Center. The research undertaken by CINTRAFOR includes country-market analyses; a global competitive-trade model; new product and market opportunities; and studies of the linkage between forest-products trade and environmental impacts, regional socioeconomic stability, and policy impact analyses.

Students interested in participating in specific research activities sponsored by CINTRAFOR may enroll for study in graduate programs in one of the College's two academic divisions or in programs offered by other academic divisions on campus.

Center for Streamside Studies

Director

Susan M. Bolton
244 Bloedel

The Center for Streamside Studies (CSS) was established in 1987 as a joint effort of the College of Forest Resources, the College of Ocean and Fishery Sciences, and the Center for Quantitative Science in Forestry, Fisheries, and Wildlife. CSS provides information

for the resolution of management issues related to the production and protection of forest, fish, wildlife, and water resources associated with the streams and rivers in the Pacific Northwest.

The Center conducts research activities related to the understanding of ecological and physical processes and their relation to governmental regulations. Projects are solution-oriented, centering around biological, physical, and social aspects of management issues. Cooperative projects are undertaken with state and federal agencies, tribes, private industry, and national and international research institutions, and involve faculty and students of the College of Forest Resources, the College of Ocean and Fishery Sciences, the College of Engineering, and the College of Arts and Sciences.

To provide interdisciplinary training necessary to deal with the management of interacting resources, CSS conducts symposia, workshops, conferences, and seminar series as forums for resource-conflict discussion and resolution. Students interested in participating in specific research activities sponsored by CSS may enroll for study in graduate programs in one of the College of Forest Resources' two academic divisions or in programs offered by other academic units on campus.

Olympic Natural Resources Center

Director

John M. Calhoun

The mission of the Olympic Natural Resources Center (ONRC) is to conduct research and education on natural-resource-management practices that integrate ecological and economic values. Created by the Washington State Legislature in 1989, the Center conducts biological, physical, economic, and social-science research in both terrestrial and coastal/marine systems, focusing on its strategic priorities. The Center's programs aimed at pragmatic management solutions span a spectrum from developing new knowledge through applied research to education and outreach.

Much of the Center's work is conducted cooperatively with other research institutions, state and federal agencies, resource owners, and interest groups. The Center is housed in facilities at Forks, Washington, on the Olympic Peninsula. It is well suited for education, research, and conference activities. The natural resources of the area are a major focus of the work of the Center. The Center is jointly administered by the College of Forest Resources and the College of Ocean and Fishery Sciences.

Center for Urban Horticulture

Acting Director

Thomas Hinckley
204 Winkenwerder

The Center for Urban Horticulture is dedicated to research, teaching, and public service concerning the selection, management, and role of plants and of ecosystems in urban landscapes. Urban landscapes—landscapes that are subject to direct impacts of human activity—include city streets, urban parks, public gardens, residential areas, and natural (and naturalized) areas bounded by commercial and residential development. Urban horticulture concerns those landscapes as they are used for aesthetic amenity, for amelioration and control of the physical environment, for public and professional education, for conservation of biodiversity and of natural resources, and for public recreation.

Faculty in four colleges—Forest Resources, Arts and Sciences, Architecture and Urban Planning, and Engineering—are affiliated formally and informally with the Center, participating in urban horticultural research, teaching, and collections curation. The Center serves

as a primary focus of the UW's curricula in urban environmental studies, which comprise the most comprehensive program in the United States.

Faculty

Professors

Agee, James K. * 1982; PhD, 1973, University of California (Berkeley); management of natural systems, forest ecology, fire ecology.

Allan, G. Graham * 1966; PhD, 1956, University of Glasgow (UK); DSc, 1971, University of Strathclyde (UK); fiber and polymer science, creativity and innovation.

Ammirati, Joseph F. * 1979, (Adjunct); MA, 1967, San Francisco State; PhD, 1972, University of Michigan; mycology, taxonomy and ecology of fungi.

Bare, B. Bruce * 1969; MS, 1965, University of Minnesota; PhD, 1969, Purdue University; forest land management, valuation, taxation, management science.

Bradley, Gordon A. * 1972; PhD, 1986, University of Michigan; forest land use planning, conservation area planning, urban forestry.

Briggs, David G. * 1973; PhD, 1980, University of Washington; operations research, forest products and wood science, wood quality, life-cycle analysis.

Brubaker, Linda B. * 1973; PhD, 1973, University of Michigan; dendrochronology, forest ecology, quaternary paleoecology.

Bryant, Benjamin S. * 1949, (Emeritus); DF, 1951, Yale University; wood utilization technology, wood gluing, plywood and board technology.

Cole, Dale W. * 1958, (Emeritus); MS, 1957, University of Wisconsin; PhD, 1963, University of Washington; mineral cycling in forest ecosystems, forest soils.

Conquest, Loveday L. * 1976, (Adjunct); PhD, 1975, University of Washington; statistics in forestry, fisheries, and environmental pollution monitoring.

Dowdle, Barney * 1962, (Emeritus); PhD, 1962, Yale University; markets for timber and forest products, public forest land management.

Driver, Charles H. * 1965, (Emeritus); PhD, 1954, Louisiana State University; processes of wood decay, forest diseases, range ecology.

Edmonds, Robert L. * 1973; PhD, 1971, University of Washington; forest soil microbiology, biology of forest diseases, aerobiology.

Edwards, John S. * 1967, (Adjunct); PhD, 1960, Cambridge University (UK); arthropod neurobiology, insect physiology and development, tundra and alpine biology.

Erickson, Harvey D. 1947, (Emeritus); PhD, 1937, University of Minnesota; wood science and technology.

Ford, E. David * 1985; PhD, 1968, University College, London (UK); forest ecology and ecophysiology, crop growth, quantitative methods, philosophy of science.

Franklin, Jerry F. * 1986; PhD, 1966, Washington State University; forest ecosystem analysis, vegetation patterns, tree mortality in natural landscapes.

Fridley, James * 1988; PhD, 1984, University of Washington; precision forestry, forest engineering systems design, interactive computer simulation.

Fritschen, Leo J. * 1966, (Emeritus); PhD, 1960, Iowa State University; biometeorology, micrometeorology, measurement and instrumentation of the environment.

Gara, Robert I. * 1968; PhD, 1964, Oregon State University; bark beetle ecology, forest insect behavior, international forestry.

Gordon, Milton * 1959; PhD, 1953, University of Illinois; molecular basis of plant tumors, control of gene expression in plants, sequence of agrobacteria.

Greulich, Francis E. * 1977; PhD, 1976, University of California (Berkeley); management science, statistics, operations research.

Gustafson, Richard Roy * 1986; PhD, 1982, University of Washington; process modeling and optimization, fiber composites.

Hanley, Donald P. * 1983; PhD, 1981, University of Idaho; extension forestry, small-forest management, forestry continuing education.

Hatheway, William H. * 1969, (Emeritus); PhD, 1956, Harvard University; quantitative ecology, physiological ecology, tropical forestry.

Hinckley, Thomas M. * 1980; PhD, 1971, University of Washington; forest tree physiology and autecology, subalpine ecosystems, water stress problems.

Hrutford, Bjorn F. * 1959, (Emeritus); PhD, 1959, University of North Carolina; wood extractive chemicals, air and water quality in forest products industries.

Johnson, Jay A. * 1983; PhD, 1973, University of Washington; mechanical and physical properties of wood and wood composite materials, wood quality.

Jorgensen, Jens E. * 1973, (Adjunct); DSc, 1969, Massachusetts Institute of Technology; systems analysis, automation, design, manufacturing, forest engineering.

Lee, Robert G. * 1978; PhD, 1973, University of California (Berkeley); natural resource sociology, forestry institutions, forest stewardship, environmental ethics.

Leney, Lawrence * 1960, (Emeritus); PhD, 1960, State College of Forestry at Syracuse; wood anatomy, microtechniques, machining wood, photomicrography, seasoning and preservation of wood.

Leopold, Estella B. * 1976, (Adjunct); PhD, 1955, Yale University; paleoecology, pollen and seed analysis, late Cenozoic environment.

Lettenmaier, Dennis P. * 1973, (Adjunct); PhD, 1975, University of Washington; systems analysis and water resources planning.

Lippke, Bruce R. * 1990; MSEE, 1959, New Mexico State University; MSIE, 1966, University of California (Berkeley); international trade and environmental linkages, investment analysis, economics of forest industry.

Manuwal, David * 1972; PhD, 1962, University of California (Los Angeles); avian ecology, effects of forest management on birds.

McCarthy, Joseph L. * 1941, (Emeritus); PhD, 1938, McGill University (Canada); thermodynamics, lignin and cellulose, chemistry, pulp and paper science, biochemical engineering.

McKean, William T. * 1979; PhD, 1968, University of Washington; pulp and paper science, chemical engineering.

Naiman, Robert J. * 1988; PhD, 1974, Arizona State University; forest stream ecosystems, aquatic landscape dynamics.

Oliver, Chadwick D. * 1975; PhD, 1975, Yale University; silviculture and forest ecology, culture of single- and mixed-species forest stands.

Peterson, David L. * 1989; PhD, 1980, University of Illinois; mountain ecology, climatic change, environmental stress on tree growth and forest ecosystems.

Pickford, Stewart G. * 1976; PhD, 1972, University of Washington; forest fire science, wildland fire management.

Richey, Jeffrey E. * 1973; PhD, 1973, University of California (Davis); quantitative problems of aquatic ecosystems, primary Amazon River, limnology.

Ricker, Neil L. * 1978, (Adjunct); MS, 1972, PhD, 1978, University of California (Berkeley); process control and optimization.

Schiess, Peter * 1975; PhD, 1975, University of Washington; forest engineering, mechanical harvest operations, forest road design and construction.

Schreuder, Gerard Fritz * 1971; PhD, 1968, Yale University; statistical analysis in resource economics, international forestry, trade, aerial photos.

Scott, David R. M. * 1955, (Emeritus); PhD, 1950, Yale University; silviculture, forest ecology.

Sharpe, Grant William * 1966, (Emeritus); PhD, 1956, University of Washington; wildland recreation, interpretation and management of recreation areas.

Skalski, John R. * 1987, (Adjunct); PhD, 1985, Cornell University; environmental sampling and effects assessment on wild populations, parameter estimation.

Sprugel, Douglas George * 1984; PhD, 1974, Yale University; community and ecosystem ecology, tree ecophysiology, disturbance ecology, paleoecology.

Stenzel, George 1949, (Emeritus); MF, 1939, Yale University; forest resources.

Stettler, Reinhard F. * 1963, (Emeritus); PhD, 1963, University of California (Berkeley); genetics of forest tree populations, biotechnology, biomass production.

Strand, Stuart E. * 1982, (Research); PhD, 1982, Pennsylvania State University; forest biotechnology, environmental pollution control.

Taber, Richard D. * 1968, (Emeritus); PhD, 1951, University of California (Berkeley); wildlife science.

Thorud, David B. * 1981; MS, 1960, PhD, 1964, University of Minnesota; watershed management, international forest policy and development.

Tukey, Harold B. * 1980, (Emeritus); PhD, 1958, Michigan State University; urban horticulture, horticultural physiology.

Wagar, John Alan * 1988, (Research); PhD, 1961, University of Michigan; urban forestry, urban forest inventory and cost-effective management.

Waggener, Thomas R. * 1969; PhD, 1966, University of Washington; policy and economics, regional impact analysis, marketing and international trade in forest products.

Wissmar, Robert C. * 1972; PhD, 1972, University of Idaho; ecology.

Wott, John A. * 1981; PhD, 1968, Cornell University; urban horticulture, public programs in horticulture, public gardens, arboreta.

Associate Professors

Bolton, Susan M. * 1992; PhD, 1991, New Mexico State University; hydrology, watershed management.

Booth, Derek B. * 1980, (Adjunct Research); PhD, 1984, University of Washington; geomorphology, environmental geology.

Bradshaw, Harvey D. * 1984, (Research); PhD, 1984, Louisiana State University; plant molecular biology and genetic modification of poplars.

Chalker-Scott, Linda * 1997; PhD, 1988, Oregon State University; plant selection, plant management, urban ecology, plant stress physiology.

Eastin, Ivan * 1987; PhD, 1992, University of Washington; marketing strategies, international trade, material substitution, lesser-used tropical hardwoods.

Ewing, Kern * 1990; PhD, 1982, University of Washington; wetland plant ecology, urban ecology, ecosystem management.

Ganter, Mark * 1986, (Adjunct); PhD, 1985, University of Wisconsin; solid modeling, computer graphics, kinematics and automated manufacturing.

Grue, Christian E. * 1989, (Adjunct); PhD, 1977, Texas A&M University; wildlife toxicology, wildlife and fisheries science.

Halpern, Charles * 1991, (Research); PhD, 1987, Oregon State University; plant community ecology, plant succession, montane/subalpine meadow ecology.

Hamilton, Clement Wilson * 1985, (Affiliate); PhD, 1985, Washington University; landscape plant selection, taxonomy of horticultural and tropical plants.

Harrison, Robert B. * 1987; PhD, 1985, Auburn University; forest soil chemistry and fertility, long-term productivity, carbon sequestration.

Henry, Charles L. * 1982, (Research); PhD, 1989, University of Washington; sustainable resource sciences, recycling organic wastes as soil amendments.

Hodgson, Kevin T. * 1991; PhD, 1986, University of Washington; surface and colloid science, papermaking chemistry, secondary fiber recycling.

Horner, Richard R. * 1981, (Adjunct Research); PhD, 1978, University of Washington; wetland and stream conservation and storm water management.

Marzluff, John M. * 1997; PhD, 1987, Northern Arizona University; behavior, ecology, and conservation of birds and mammals.

Paun, Dorothy Ann * 1993; PhD, 1993, University of Oregon; paper industry financial analysis, product bundling, international marketing, small diameter timber.

Perez-Garcia, John * 1990; MS, 1982, Mayaguez (Puerto Rico); DF, 1991, Yale University; forest/natural resource economics, trade modeling and policy analyses, global climate change.

Raedeke, Kenneth J. * 1981, (Research); PhD, 1979, University of Washington; wildlife biology and conservation, population dynamics.

Robertson, Iain M. * 1982, (Adjunct); MLA, 1975, University of Pennsylvania; planting design, planning and design of arboreta/botanical gardens, assessment of design education.

Rustagi, Krishna P. * 1973, (Emeritus); PhD, 1973, Yale University; operations research and statistical applications in resource management, forest inventory.

Vanblaricom, Glenn R. * 1993, (Adjunct); PhD, 1978, University of California (San Diego); aquatic wildlife, ecology of marine communities, wildlife-fisheries interactions.

West, Stephen D. * 1979; PhD, 1979, University of California (Berkeley); vertebrate ecology and conservation, mammalogy.

Zabowski, Darlene * 1992; PhD, 1988, University of Washington; forest soils and their productivity, soil genesis, biogeochemical cycling of soils.

Assistant Professors

Edwards, Richard T. * 1993, (Research); PhD, 1985, University of Georgia; aquatic ecology, biogeochemistry.

Jacobs-Young, Chavonda J. * 1995; MS, 1992, PhD, 1998, North Carolina State University; integrating biotechnology and pulp processing to improve paper-making efficiency.

Newman, Lee A. * 1993, (Research); MS, 1989, PhD, 1993, Rutgers University and Robert Wood Johnson Medical School.

Northey, Robert A. * 1998; PhD, 1985, University of Washington; wood and pulping chemistry.

Ryan, Clare * 1997; PhD, 1996, University of Michigan; natural resource management, policy, and law; environmental conflict management; water policy.

Turnblom, Eric * 1994; MSc, 1986, University of British Columbia (Canada); PhD, 1994, University of Minnesota; forest biometrics, growth and yield modeling, quantitative stand dynamics, inventory and sampling.

Wasser, Samuel K. * 1982, (Adjunct); PhD, 1981, University of Washington; behavioral ecology, endocrinology, conservation genetics and reproductive biology.

Course Descriptions

See page 48 for an explanation of course numbers, symbols, and abbreviations.

For graduate-level course descriptions, see the graduate and professional study volume of the *General Catalog* or visit the online course catalog at www.washington.edu/students/crscat/.

Students taking undergraduate and graduate courses, structured or unstructured, that require field trips, special laboratory supplies, or special material duplications are required to pay appropriate amounts to cover such expenses. If a student fails to pay, the transcript may be withheld and the degree may not be conferred.

CFR 101 Forests and Society (5) NW Bare, Edmonds, Gara Survey course covering forest ecosystems of the world, history of forestry and forest conservation, how forest ecosystems function, wildlife in forests, environmental issues in forestry, forest management, economics and products, and new approaches to forest management. Open to majors and nonmajors. Offered: AWSpS.

CFR 250 Introduction to Geographic Information Systems in Forest Resources (5) NW, QSR Hurvitz Applications of GIS technology to forest science and management. Fundamentals of GIS systems: data sources, preprocessing, map analysis, output; remote sensing as a source of GIS data, image analysis, and classification. Emphasis on GIS as a source of management and technical information requests. Offered: AW.

CFR 400 Natural Resource Conflict Management (3) I&S/NW Ryan Introduction to the causes, dynamics, and consequences of natural resource conflicts as well as the range of procedural interventions used to manage conflict. Specific cases of environmental conflict and alternative dispute resolution procedures are examined. Emphasis on developing skills to effectively analyze, manage, and resolve natural resource conflicts. Offered: W.

CFR 425 Principles of Life Cycle Analysis (3) I&S, NW Briggs Provides students with the basic understanding of the methods and issues associated with measuring the environmental performance of products and processes, with basic understanding of the principles of life cycle analysis methodology. Offered: Sp.

CFR 429 Seminar in Streamside Studies (1, max. 6) Bolton, Sibley Discussion by invited speakers on current research and issues related to streamside studies. Speakers are a mix of on-campus and off-campus experts. Credit/ no credit grading only. Offered: jointly with FISH 429 AWSp.

CFR 450 Senior Planning Project (3) Ford How to choose a topic, develop a written plan, prepare for field or laboratory work, and write the senior project. Projects may be related to resource management, conservation, urban forestry, or scientific research. Assistance provided in selection of faculty project coordinator. Offered: A.

CFR 480 Field Studies in Wood Utilization (1) Briggs Students choose 3 of 5 full day field trips offered on alternate Fridays, beginning with the second Friday of the quarter. Visits include sawmills, plywood mills, pulp mills, wood preservers, door/window manufacturers, pallet producers, modular home producers. Field trip fee for transportation expenses. Students are required to bring hard hats and suitable field clothing. Offered: S.

Ecosystem Science and Conservation

ESC 101 Introduction to Wildlife Science (1) NW *Manuwal* Survey of historical development, present status and future of professional field of wildlife science and how it interacts with other disciplines. Natural resource agency speakers discuss how their agencies work and administer wildlife conservation programs. Students discuss wildlife science with faculty and graduate students. Credit/no credit only. Offered: A.

ESC 110 Introduction to Environmental Science (5) NW *Harrison* Covers the importance of the environment in society with particular emphasis on worldwide distribution and uses of resources, the role of natural and man-made environments, and causes of environmental degradation. Introduces ethics of conservation and recycling. Offered: A.

ESC 111 Introduction to Sustainable Resource Sciences (2) I&S/NW *Henry* Introduces Sustainable Resource Sciences: ecology, soil remediation, life cycle analysis, renewable energy, sustainable building, soil amendments, and recycling. Faculty and guest speakers will present current challenges and career opportunities. Includes a Saturday field trip to a typical environmental activity. Offered: W.

ESC 200 Trees in Our Environment (5) NW *Brubaker* Students learn form and function of fifty to sixty tree species as well as the principles and concepts of biology. Students also develop an awareness of trees as integral to the human environment through lectures, laboratory demonstrations, and field studies in the Arboretum. Offered: Sp.

ESC 202 Global Changes and Forest Biology (3/5) NW *Hinckley* Ecological and biological effects of atmospheric pollutants, acid precipitation, and climate change on forest trees and ecosystems. Potential climate changes are compared to current and historical climates. Students taking this course for five credits must enroll in optional laboratory which introduces major tree species, old-growth forests, small group problem analysis. Offered: W.

ESC 210 Introductory Soils (4) NW *Harrison, Zabowski* Physical, chemical, and biological properties that affect distribution and use patterns of this important ecosystem component. Includes soil morphology and genesis, plant nutrition and nutrient cycling, soil water, microbiology, and application of soil properties to environmental concerns. One Saturday field trip. Offered: ASp.

ESC 221 Dendrology and Autecology (6) NW *Brubaker, Hinckley* Introduction to the systematics, identification, life histories, genetics, and physiological ecology of forest trees and shrubs. Field trips to regional forest ecosystems. Includes one hour of technical writing instruction per week. Offered: A.

ESC 250 Wildlife and Society (5) I&S/NW *Manuwal* Covers ecological processes, wildlife habitats, conservation theory, and historical as well as contemporary issues in wildlife conservation. Offered: W.

ESC 300 Internship in Ecosystem Science and Conservation (3-5, max. 8) Internship experience with a public agency or private company. Preparation of professional report and presentation of oral report. Offered: AWSpS.

ESC 311 Soils and Land Use (3) NW *Harrison* Intended for students concerned with environmental problems in the Puget Sound basin; also for those who intend to become professionally involved in land-planning decisions. Focus is on the significance of soils in understanding environmental problems and in promoting intelligent land-use decisions. Basic

concepts of soil systems are presented, stressing those aspects important in making land-planning decisions. Offered: W.

ESC 320 Natural Resource Issues: Old-Growth and Forest Management (5) I&S/NW *Franklin* Biological and social elements of current conflicts, especially those associated with old-growth and its disposition. Ecology of Pacific Northwest forests and landscapes, history of forest practices, application of emerging science, proposed alternative practices and policies, including analysis of current proposal and its predecessors and successors. Open to majors and nonmajors. Offered: Sp.

ESC 322 Forest Ecosystems (5) NW *Agee, Edmonds, Gara* Introduction to forest ecosystems, principles of forest ecology, vegetation classification, history of development of Pacific Northwest vegetation, succession, competition, nutrient cycling, ecology and classification of decomposers and insects, use of ecological information in forest management. Field trips to regional forest ecosystems. Recommended: to be taken concurrently with ESC 221. Offered: A.

ESC 326 Wildlife Habitat and Silviculture (3) NW *Agee* Principles of wildlife habitat in forest and range ecosystems. Silvicultural principles applicable to wildlife conservation and management. Prerequisite: ESC 322; ESC 350. Offered: Sp.

ESC 333 Plant Communities: Resilience and Restoration (5) NW *Leopold* Biological and ecological effects of human impact on native plant communities. Effects of grazing, timber removal, habitat draining and filling, fire control, and application of chemicals. Potential for ecological restoration of plant communities. Field trips. Prerequisite: either BIOL 102 or BIOL 203; BOTANY 113. Offered: jointly with BIOL/BOTANY 333; Sp.

ESC 350 Wildlife Biology and Conservation (4) NW *Marzluff* Wildlife ecology and population biology, and interrelationships between wild animals and humans, including encouragement of wildlife population growth and productivity, control of pest populations, and preservation of endangered species with emphasis on forest environments and forest faunas. Open to nonmajors. Prerequisite: either BIOL 102, BIOL 202, or BIOL 203, any of which may be taken concurrently. Offered: W.

ESC 351 Wildlife Research Techniques (3) NW *Agee, Manuwal, West* Scientific approaches to the field study of wildlife populations and habitat, including basic considerations in experimental design and development of scientific papers. Emphasis is on direct experience with current field techniques used in the study of vertebrate populations and habitat. Prerequisite: ESC 326 which may be taken concurrently. Offered: Sp.

ESC 402 Forest Conservation Biology (5) NW *Hinckley, Peterson* Management strategies for conserving natural resources are examined in forest ecosystems of the Pacific Northwest and other North American bioregions. Alternative approaches to producing and restoring sustainable flows of wildlife habitat, water, fiber, and other resources are examined in the context of forest productivity, biophysical environment, disturbance, and public policy. Offered: Sp.

ESC 410 Forest Soils and Site Productivity (5) NW *Harrison* Considers unique properties and processes occurring in forest soils throughout the world with emphasis on soils of Pacific Northwest and aspects of forest soils that affect productivity. Two all-day Saturday field trips and one Saturday-Sunday field trip required. Recommended: ESC 210. Offered: A; odd years.

ESC 411 Forest Soil Microbiology (4) NW *Edmonds* Soil organisms in forest ecosystems, decomposition, nutrient cycling. N transformation, mycorrhizae, effects of forest management. Recommended: ESC 210. Offered: even years; A.

ESC 412 Field Survey of Wildland Soils (3) NW *Harrison, Henry, Zabowski* Study of soils in remote sites about which little information is available. Focus is field trip in Cascade Mountains just north of Glacier Peak with prior study of hiking area, soil and ecosystem changes, and wilderness use. Offered: S.

ESC 413 Soil Genesis and Classification (5) NW *Zabowski* Soil formation, morphology, classification, and relationship to the environment. Labs and weekend field trip illustrate properties and processes of forest and grassland soils in Washington. Recommended: ESC 210. Offered: Sp.

ESC 414 Forest Soil Fertility and Chemistry (3) NW *Harrison* Tree growth depends, in part, on the interaction between chemical and biological activities within a given soil: the biological and chemical parameters that influence the growth; soil solution chemistry and surface reactions; reactions and processes that control essential plant nutrient levels and forms in soil solutions. Recommended: ESC 210. Offered: Sp; even years.

ESC 416 Introduction to Bioremediation (3) NW *Brown* Introduces bioremediation as a remediation strategy for contaminated soils and sediments, including in situ remediation with organic residuals, microbial degradation, and phytoremediation. Sources and fate of soil contaminants, conventional remediation strategies, and applications of strategies will be presented. Offered: W.

ESC 417 Recycling: Ethics, Opportunities, and Realities (3) NW *Henry* Introductory course on recycling as a current and future way of life in terms of waste management. Introduction to the ways waste is currently managed and discussion of public attitudes and perceptions of waste management and recycling, current and future opportunities for waste management, and true costs of recycling. Offered: W.

ESC 418 The Science of Composting (3) NW *Henry* Introduction to composting as a timely tool for waste management. Designed to give an understanding of the science of composting, an overview of the processes from large-scale composting, an understanding of what acceptable contaminant levels are, and an evaluation of the benefits of compost. Offered: W.

ESC 421 Dendrochronology (4) NW *Brubaker, Peterson* Analysis of important physiological and environmental factors controlling annual tree-ring growth and a critical review of the applications of tree-ring analysis to study forest productivity, watershed hydrology, forest fires, insect epidemics in relation to yearly weather conditions. Laboratory and field exercises construct tree-ring chronologies to study environmental histories of selected forest stands. Prerequisite: BOTANY 113. Offered: odd years; W.

ESC 432 Forest Pathology (4) NW *Edmonds* Ecology and management of forest diseases. Abiotic diseases caused by air pollution, adverse weather, and biotic diseases caused by bacteria, fungi, viruses, parasitic plants, and nematodes. Forest health. Disease management including silvicultural, chemical, and biological control. Disease modeling. Offered: odd years; A.

ESC 440 Theory and Case Studies of Ecosystem Management (5) NW *Franklin* Applying ecological principles in ecosystem management at stand and landscape levels based on observations of problems and practices during a 10-12 day field trip held prior to beginning of quarter. Students observe innovative

forest management programs and experiments and prepare written and oral scientific analyses of specific topics. Offered: A.

ESC 441 Landscape Ecology (5) NW *Franklin* Basic landscape ecology concepts, including patches, corridors, networks, spatial dynamics; island biogeographic principles; landscape analysis methods; landscape models. Applications of landscape ecology in resources management (e.g., cumulative effects, cutting, patterns, anadromous fisheries, management of wildlife populations, and open-space planning). Recommended: ESC 326. Offered: W.

ESC 445 Ecology of Managed Forests (3) Ford Defines patterns of environmental change and habitat development occurring as forests are managed with different objectives. Particular attention is paid to changing microclimates and how they influence the physical environment and biodiversity. Worldwide occurrence of large-scale, man-made forests is described and their ecological significance. Offered: A.

ESC 450 Wildlife Ecology and Conservation (5) NW *West* Covers advanced principles of wildlife ecology such as habitat selection, population viability, and landscape ecology, and illustrates how they apply to wildlife conservation problems with terrestrial, aquatic, and marine wildlife. Students must share costs of field trips. Prerequisite: ESC 350. Offered: W.

ESC 451 Biology and Conservation of Birds (3) NW *Manuwal* Major principles of natural history, avian reproductive biology, population ecology, and national and international conservation strategies for both hunted and unhunted birds. Emphasis on western United States. Prerequisite: either BIOL 102, BIOL 202, or BIOL 203, any of which may be taken concurrently. Offered: odd years; A.

ESC 452 Field Ornithology (3) NW *Manuwal* Students learn field identification skills and are introduced to field methodologies through required indoor labs, field trips, and field exercises. Exercises include study of survey techniques, feeding ecology, and behavior. Students are required to share field trip costs. Prerequisite: either BIOL 102, BIOL 202, or BIOL 203, any of which may be taken concurrently. Offered: odd years; A.

ESC 453 Biology and Conservation of Mammals (5) NW *West* Introduction to mammalian evolution, morphology, reproduction, population biology, ecology, and conservation. Lectures address mammals worldwide. Laboratories and fieldwork focus on mammals of Pacific Northwest. Laboratories and two weekend field trips required. Students share travel costs. Prerequisite: ESC 350. Offered: even years; A.

ESC 454 Aquatic Wildlife Ecology (3) NW *VanBlaricom, West, Manuwal, Grue* Conceptual examination of relationships of aquatic wildlife populations (mammals, birds, reptiles, amphibians) to one another and to the aquatic realm. Application of conceptual background to contemporary high-profile issues in aquatic wildlife ecology, conservation, and management. Included is exposure to primary technical literature in the field. Offered: jointly with FISH 454; even years; Sp.

ESC 455 Wildlife Seminar (1, max. 4) NW *Manuwal, West* Discussion of current research and application in wildlife biology and conservation. Credit/no credit only. Prerequisite: ESC 350. Offered: AW.

ESC 456 Dynamics of Managed Wildlife Populations (3) NW *Raedeke* Advanced principles of managed wildlife populations dynamics. Application of harvest management models and regulations applied to ungulates, upland game birds, waterfowl, furbearers, carnivores. Topics include population models, compensatory mortality, predation role, sustained yield harvest models, measured populations

characteristics, computer simulation models with emphasis on management issues. Prerequisite: ESC 350. Offered: W.

ESC 457 Introduction to Wildlife Toxicology (3) NW Overview of wildlife toxicology: history/development of the field, regulatory framework; methods used to assess risks contaminants pose to wildlife; major classes of contaminants and their direct, sublethal, and indirect effects; and contemporary threats of contaminants to wildlife, their habitats, and prey. Offered: jointly with FISH 455; even years; W.

ESC 458 Management of Endangered, Threatened, and Sensitive Species (5) NW *Marzluff* Biological underpinnings and political realities of endangered species management, including: legal issues, recovery teams, citizen rights, extinction, rarity, proactive management, captive propagation, reintroduction, species endangered in the Pacific Northwest. Students revise endangered species recovery plans. Offered: A.

ESC 459 Wildlife Conservation in Northwest Ecosystems (3) NW *Agee, Manuwal, West* Extended field course offers Wildlife Science students personal interactions with wildlife managers and wildlife populations in strategic public and private lands in the northwestern United States and southern Canada. Students will share costs of trip. Offered when there is sufficient student demand. Prerequisite: ESC 350. Offered: Sp.

ESC 490 Undergraduate Studies (1-5, max. 5) Individual tutorial study of topics for which there is not sufficient demand to warrant the organization of regular classes. Offered: AWSp.

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ESC 494 Wildlife Senior Project Proposal (3) Selection of research topic, literature review, and preparation of a formal research proposal. Students select a faculty advisor or a faculty committee to assist them in the proposal writing process. Prerequisite: ESC 351. Offered: AWSp.

ESC 495 Senior Project in Conservation of Wildland Resources (5) Individual study of an ecosystem science and conservation problem under direction of a faculty member. Generally taken in last year of residence. Offered: AWSp.

ESC 496 Wildlife Senior Thesis (5) Statistical analysis and presentation of research results and discussion of results of the senior research project. Students work with faculty advisors to complete field or laboratory research and then prepare the senior thesis. Prerequisite: ESC 494. Offered: AWSp.

ESC 499 Undergraduate Research (1-5, max. 15) Individual research supervised by a faculty member. For advanced students desiring to extend their educational experience. Credit/no credit only. Offered: AWSp.

Environmental Horticultural and Urban Forestry

EHUF 201 Ecology of Urban Environments (3) I&S/NW Biological, chemical, and physical processes and components of urban environments, plus human impacts. Each urban environment, from city cores to naturalized open space, is discussed for above- and below-ground conditions, key plant and animal species, and biological implications of management practices. Offered: A.

EHUF 202 Plants in Cities: An Introduction to Urban Horticulture (3) I&S/NW *Tukey* Introduction to use of plants in cities for the benefit of people who live there, including plant selection, production, design, utilization, maintenance, and management with implications in society, business, environment, and quality of life in urban areas.

EHUF 331 Landscape Plant Recognition (3) NW *Tsukada* Field recognition of important groups of woody and herbaceous landscape plants, emphasizing diversity at the genus and family levels. Cultivated plant nomenclature. Plant descriptive characters evident in the field with eye and hand lens. Hardiness and landscape applications. Recommended: BOTANY 113. Offered: jointly with BOTANY 331; SpS.

EHUF 401 Urban Forest Management (3) I&S Explores issues of urban forest benefits, planning, administration, public policy, and career opportunities, utilizing Urban Forestry faculty and leaders of city, county, and state agencies. Emphasizes the urban forest's diverse managers and constituents and their varied responsibilities, values, and resources. Offered: W.

EHUF 402 Curation and Education in Public Gardens (3) I&S *Wott* Techniques of curatorial practice relevant to living collections of plants, including documentation, policies, conservation, and display. Aspects of establishing and implementation of a public horticulture program including assessment, program tools and methods, and funding in a public environment. Offered: W.

EHUF 411 Plant Propagation: Principles, and Practice (3) NW *Wott* Science and practice of plant propagation including sexual (seed) and asexual (cutting, layering, grafting) propagation. Includes discussion of physiological effects, methodology and laboratory exercises. Wide variety of plants covered. Intended for majors in urban horticulture and urban forestry and others interested in reproducing landscape plants. Offered: Sp.

EHUF 451 Urban Plant Protection (5) NW *Gara* Working knowledge on insects and diseases of plants growing in the urban environment. Emphasis placed on pest and damage recognition, control methods, and integrated pest management systems. Offered: Sp.

EHUF 470 Urban Forest Landscapes (5) NW *Bradley, Wagar, Wolf* Comprehensive view of urban forest and urban forest landscapes. Includes close examination of factors that differentiate urban forest landscapes along the urban to wildland gradient. Compare legal, social, political, administrative, physical, and biological variations. Offered: SpS.

EHUF 471 Ecological Concepts and Urban Ecosystems (3) NW Ecological concepts introduced in an urban context with emphasis on autecological relationships of plants in an urban environment. General framework for development of urban ecological concepts followed by case studies and exploring applications in new areas. Offered: W.

EHUF 473 Principles of Ecological Restoration (5) NW *Ewing* Philosophy of restoration, structural components of ecosystem degradation, analysis of restoration projects and methods, and an ecosystem by ecosystem review of how systems are restored. An ecology courses that emphasizes applied scientific knowledge of ecosystems. Recommended: BIOL 472 or BOTANY 354 or BOTANY 371. Offered: W.

EHUF 475 Wetland Ecology and Management (5) NW *Ewing, Harrison* Wetland types and functions, global and North American distribution, wetland plant types, soil chemistry. The influence of stresses on wetland composition and form. Autecology of wetland plants; response to and detection of stresses. Impacts of urbanization; management techniques. Recommended: either BIOL 472, BOTANY 354, or BOTANY 371. Offered: A.

EHUF 478 Horticultural Stress Physiology (3) NW *Chalker-Scott* Impact of environmental stresses (e.g., temperature, light, moisture, nutrients, allelopathy, salt, ultraviolet) on the performance of horticulture plant species and their subsequent physiological responses. Particular emphasis is given to problems common in urban and restored environments (e.g., pollution, soil compaction, heat). Group and individual projects. Prerequisite: BOTANY 371. Offered: W.

EHUF 480 Selection and Management of Landscape Plant (5) NW *Chalker-Scott* Principles of plant selection and management in urban and modified environments. Site analysis and preparation; physiological basis for plant selection; techniques for successful plant installation and aftercare; plant performance evaluation; long-term management and plant health care. Group and individual projects. Prerequisite: ESC 210; BOTANY 110. Offered: A.

EHUF 481 Field Practicum in Plant Selection and Management (2) NW *Chalker-Scott* Practical application of plant selection and management in urban and modified environments. Site analysis and preparation; evaluation of nurseries; techniques for successful plant installation and aftercare; plant performance evaluation; plant health care assessment. Group project. Prerequisite: EHUF 480, which may be taken concurrently. Offered: A.

EHUF 482 Field Practicum in Plant Selection and Management (2) NW *Chalker-Scott* Practical application of plant selection and management in urban and modified environments. Site analysis and preparation; evaluation of nurseries; techniques for successful plant installation and aftercare; plant performance evaluation; plant health care assessment. Group project. Prerequisite: EHUF 480, which may be taken concurrently. Offered: Sp.

EHUF 490 Undergraduate Studies (1-5, max. 5) Individual tutorial study of topics for which there is not sufficient demand to warrant the organization of regular classes. Offered: AWSp.

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EHUF 495 Senior Project in Urban Forestry (5) Individual study of an urban forestry problem under direction of a faculty member. Offered: AWSp.

EHUF 499 Undergraduate Research (1-5, max. 15) Individual research supervised by a faculty member. For advanced students desiring to extend their educational experience. Credit/no credit only. Offered: AWSp.

Forest Engineering

F E 300 Timber Harvesting Management (3) Study of timber harvesting methods and planning procedures. Logging and production costs are covered as well as safety and environmental considerations necessary for harvesting methods and practices. Offered: W.

F E 330 Forest Engineering in Society (4) I&S Forest engineering as a profession in a social, political, and regulatory context including: who engineers work for and what they do; professional ethics and leadership responsibilities; psychological issues in engineering work, state and federal regulatory environment affecting engineering practices; relationships to employees, special interest groups, and attentive publics. Offered: Sp.

F E 332 Ecological Basis of Forest Engineering (4) NW *Bolton* The recognition and characteristics of forest and wild land organisms in plant and animal kingdoms; their structure, function, development, site requirements, and role within the forest and wild land communities in which they are found. Ecological and biological basis for environmental regulations affecting forest engineering projects and tasks. Offered: A.

F E 340 Plane Surveying (4) Surveying theory and practice with emphasis on plane surveying. Proper use of survey instruments including engineer's tape, theodolite, level, and rods to measure and establish angles and distances. Appropriate technique for data recording, reduction and written form presentation, drafting using CADD and COGO packages, and incorporation into GIS. Offered: ASpS.

F E 341 Timber Harvesting (4) *Schiess* Timber harvesting methods and planning procedures. Logging cost and production control. Environmental and safety considerations as related to logging and road construction. Prerequisite: F E 346; F E 368. Offered: A.

F E 345 Forest Surveying and Transportation (5) NW *Schiess* Concepts of timber harvesting requirements, road-access planning, and forest land surveying. Basic road design principles, processes, and practical application of field road location. Basic road drainage design review, overview of road construction techniques and maintenance. A concentrated field experience at Pack Forest for non-forest engineering majors. Offered: Sp.

F E 346 Design of Low Volume Roads (4) NW *Schiess* Theory combined with field practice. Engineering activities from pre-reconnaissance, grade-line location through design and construction issues discussed in context of class field project. Topics covered include road geometry, construction costing, vehicle-road and road-stream interactions, road maintenance strategies to minimize environmental impacts, and road de-commissioning. Prerequisite: CEE 316. Offered: W.

F E 368 Natural Resource Measurements (4) NW *Turnblom* Introduction to principles of measurement, basic field measurement skills, measurement of vegetation, including stand examination, timber cruising, size, weight, volume and biomass of trees, and stream flow. Laboratories include field exercises on sampling techniques for trees and lesser vegetation and linear regression modeling to predict quantities from basic measurements. Prerequisite: either IND E 315 or Q SCI 381. Offered: W.

F E 404 Forest Engineering Field Seminar (1, max. 6) *Bolton, Schiess* Forest engineering activities examined and discussed during three all-day site visits. Opportunity for forest engineering practitioners, faculty, and students to interact in an informal, content-rich environment. Offered: AWSp.

F E 423 Watershed Analysis (4) NW *Schiess* Inventory and historical analysis of the interactions between natural resources, climate, and forest management. Development of management objectives and design of forest management activities based on inventory and analysis. Includes the use of modeling and simulation in predicting the influence of forest management activities on other resources. Offered: W.

F E 425 Wildland Hydrology (4) NW *Bolton* Introduction to the hydrologic cycle and basic hydrologic methods as applied to wildlands. Effects of forest management activities on hydrologic processes. Offered: W.

F E 430 Aerial Photos/Remote Sensing Natural Resources (3) NW *Schreuder* Principles of photogrammetry, interpretation, and remote sensing; and their application to management of natural resources

and wildlands. Uses for watersheds, forest resources, wildlife, point and nonpoint pollution, land-use planning, and outdoor recreation. Offered: ASp.

F E 444 Introduction to Forest Engineering Design (4) *Schiess* Design process and methodology; decision making; creativity; project planning and management; engineering economics; probabilistic and statistical aspects of forest engineering design; ethical and legal issues; presentation of design project results. Lecture, laboratory, and design projects. Offered: W.

F E 445 Management Science in Forest Engineering (5) Management science methods used in data collection, analysis, and decision making examined within a systems framework. Statistical methods of point and interval estimation and regression analysis applied to logging and construction time studies and work sampling. Linear, non-linear, and dynamic programming optimization techniques are applied to forest engineering problems. Offered: W.

F E 450 Advanced Forest Engineering Design (15) *Schiess* Capstone design course emphasizes application of forest engineering design principles. State-of-the-art methods and technology used to craft an implementable natural resource development plan. Prerequisite: either 1.7 in F E 341 or 1.7 in F E 346; 1.7 in F E 444. Offered: Sp.

F E 451 GIS-based Landscape Modeling (5) I&S/ NW *Schiess* Use of GIS to investigate forest operations at the landscape scale. Focus on transportation, land-use, and environmental issues. Problem definition, data collection, and data structuring strategies. As part of a design team, students develop an implementable, natural resources management plan for a client. Offered: Sp. Prerequisite: F E 423 or F M 425.

F E 452 Stream-Road System Interactions (5) I&S/ NW *Schiess* Design and evaluation of road systems and stream impacts. Road locations and decommissioning are addressed meeting management objectives and minimizing sediment delivery. Modeling and field verifications of road impacts. As part of a design team, students develop an implementable, natural resources management strategy for a client. Offered: Sp. Prerequisite: F E 345 or F E 346.

F E 465 Introduction to Photogrammetry (2) Photogrammetric measurements from aerial photos. Aerial cameras and camera calibration. Interior orientation from ground control. Exterior orientation and derivation of ground coordinates. Ground control. Use of analytical equipment for stereoplottling. Offered: W.

F E 470 Wood Science and Forest Products Manufacturing (3) *Breitsprecher* Coverage of the physical and chemical properties of wood and how they relate to its use, followed by a discussion of the major manufacturing processes used to convert wood to products for society. Field trips are taken to representative processing plants. Offered: W.

F E 480 Silvicultural Engineering Systems (3) *Fridley* Engineering design of systems for establishing, nurturing, and culturing trees for eventual harvest and use as industrial feedstock. Lecture/discussion. Prerequisite: CSE 142; CEE 220; M E 230; IND E 250; F E 332; F E 368. Offered: A.

F E 490 Undergraduate Studies (1-5, max. 5) Individual tutorial study of topics for which there is not sufficient demand to warrant the organization of regular classes. Offered: AWSp.

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Individual tutorial study of topics for which there is not sufficient demand to warrant the organization of regular classes. Offered: AWSpS.

F E 499 Undergraduate Research (1-5, max. 15)
Individual research supervised by a faculty member. For advanced students desiring to extend their educational experience. Credit/no credit only. Offered: AWSpS.

Forest Management

F M 271 Human Ecology and Forest Ecosystems (3) I&S/NW *Lee* Examines humans as components of ecosystems, including population dynamics, relationships between production and consumption, resource tenure, social construction of environment and natural resources, and group processes to achieve environmental conservation and protection. Involves students in active learning processes, including scientific method and field projects. Offered: W.

F M 300 Professional Forestry Internship (3-5, max. 8) *Humann* Comprehensive examination of an acceptable experience in professional forestry within a public or private agency, including operational policies and procedures. Preparation of professional assessment report and presentation of seminar based on internship in forest management in broad aspects. Prerequisite: F M 323; F M 362; F E 345. Offered: AWSpS.

F M 320 Fundamentals of Marketing and Management from a Forest Products Perspective (3) I&S/NW *Paun* Overview of business concepts as they relate to the following topics in the context of the forest products industry: launching a business and entrepreneurship; marketing; human resources management; and global business. Offered: A.

F M 321 Fundamentals of Finance and Accounting from a Forest Products Perspective (3) I&S/NW *Paun* Provides an overview of business concepts as they relate to the following topics in the context of the forest products industry: business economics; financial planning and management; securities and insurance; accounting; and operations management. Offered: W.

F M 323 Silviculture (5) NW *Oliver* Silviculture techniques, including nursery practices, clear-cutting, seed trees, shelterwood, selection cutting, site preparation, regeneration methods, thinning, fertilization, chemicals, and regional silviculture in the Northeast, Southeast, Midwest, Rocky Mountains, California, Pacific Northwest, and Alaska. Taught at Pack Forest. Multiple-use field trips. Offered: Sp.

F M 324 Forest Protection (5) NW *Agee, Edmonds, Gara* Effects of fire, diseases, and insects on forest ecosystems, fire ecology and management, abiotic and biotic diseases, disease management, effects of defoliators, bark beetles and wood boring insects, pests of intensive forest management and principles of insect management. Offered: W.

F M 328 Forestry-Fisheries Interactions (4) NW *Bolton* Characteristics of forestry-fisheries interactions in terrestrial and aquatic landscapes. Effects of changes in landforms on forest and aquatic communities. River basin and watershed features. Forest stand dynamics, forest hydrology, fish and wildlife histories and behavior. Resource conflicts and resolution. Offered: jointly with FISH 328; W.

F M 360 Forest Management and Economics I (5) I&S/NW *Greulich* Basic concepts of production theory, accounting, investment analysis, supply and demand, and their application to the management of forested properties. Prerequisite: ECON 200; either MATH 124, MATH 127, or Q SCI 292; recommended: a course in economic principles, college algebra. Offered: AW.

F M 362 Field Measurements (5) NW *Turnblom* Basic field measurement skills, interpretation of aerial photos, measurement of vegetation, including stand examination and timber cruising. Concentrated field experience taught at Pack Forest. Prerequisite: Q SCI 381. Offered: Sp.

F M 371 Forest Land Use Planning (3) I&S/NW *Bradley* Introduction to the theory and practice of forest land use planning. Emphasis on the process of developing, implementing, and monitoring multiple-resource land management plans. Discussion of laws and regulations influencing forest land use planning. Selected forest resource planning case studies along the urban to wildland gradient. Two weekend field trips. Offered: A.

F M 377 Environmental Impact Assessment and Regulation in Forest Resource Management (3) I&S/NW *Bradley* Current environmental, forest resource, and land-use legislation affecting resource management; origin and evolution of federal, state, and local legislation and their relationship to forest resource planning and management; environmental impact assessment and its relationship to forest practices. Selected case studies of prepared forest land use plans and environmental impact statements. Offered: W.

F M 400 Forestry in Washington (5) Lee Examines the components of contemporary forestry practices and issues and their importance to the economy and quality of life in Washington state. For education majors, selected laboratory sessions provide hands-on experience for classrooms K-12 using the Project Learning Tree activity guides. One all-day field trip. Offered: S.

F M 422 Marketing of Forest Products (3) I&S/NW *Eastin* Introduction to forest products marketing in North America. Examines products marketing, industry structure, and strategic management issues utilizing marketing concepts. Topics include product management, distribution channels, strategic industry analysis, and marketing research techniques. Case studies used to understand forest products industry decision making. Offered: W.

F M 423 International Marketing of Forest Products (3) I&S/NW *Eastin* Introduction to international marketing concepts and their application to forest products. Analysis of forest products trade patterns, resource base changes, policy, industrial policies, and environmental concerns. Discussion of market distorting practices including log export bans and tariff and non-tariff barriers. Offered: Sp.

F M 424 Forest Stand Dynamics (3) NW *Oliver* Forest stand development and manipulation response. Forest stand dynamics and stand structure in pure and mixed species forests, response to minor and major disturbances, interactive changes with time, and patterns and response to manipulation. Offered: A.

F M 425 Ecosystem Management (3) NW *Oliver* Advanced concepts and practices in ecosystem management, integrating landscape management principles, inventory, planning, silviculture, objective/tradeoff/policy considerations, stand growth, adaptive management, and systems organization and management. Case study emphasizes integration. Prerequisite: F M 323. Offered: W.

F M 435 Forest Entomology (3) NW *Gara* Introduction to general entomology, characteristics, life histories, ecological relations, prevention, and control of forest insects. Offered: A.

F M 436 Laboratory in Forest Entomology (2) NW *Gara* Introduction to the insect orders; identification of forest insects and their damage. One field trip to study insect problems required. Offered: A.

F M 461 Forest Management and Economics II (4) I&S/NW *Bare* Basic concepts of timber harvest scheduling, sustained-yield models, contemporary analytical techniques, timber supply, and forest product markets. Prerequisite: F M 360. Offered: W.

F M 464 Economics of Conservation (3) I&S/NW Economic principles and their use in the analysis of contemporary conservation problems. Particular emphasis directed toward the conservation of forest resources in the Pacific Northwest and related policy issues.

F M 466 Economics of Timber Production (3) I&S/NW Application of basic economic concepts to the production of timber as a commercial land use. Analysis of timber investments, alternative management programs, and regulation models. Prerequisite: F M 360.

F M 469 Forest Biometry (5) NW *Turnblom* Quantitative techniques commonly used in forecasting future forest conditions and developing volume equations: site quality assessment methods, development of site index equations, measurement of stand density and its effects on growth, growth and yield prediction, and familiarization with current computerized forest growth simulation models. Prerequisite: Q SCI 381. Offered: odd years; A.

F M 470 Natural Resource Policy Processes (5) I&S/NW *Ryan* Introduction to and analysis of environmental policy-making processes, with a focus on forest and land policy and law. Use of policy models to examine the interaction of agencies, interest groups, Congress, and the courts in the legislative process. Policy implementation, evaluation, and change are also addressed. Offered: A.

F M 481 Management of Wildland Recreation and Amenities (3) NW *Lee* Introduction and overview of wildland recreation and amenities management. Agency history and objectives explored along with integration of recreation with other land uses. Water, forestry, wildlife, and wilderness resources for recreational uses discussed along with role of private enterprise in recreation and amenities. Topics of current and local interest. Offered: W.

F M 485 Conservation Area Planning and Design (5) NW *Bradley* Integrated consideration of the resource base, social factors, and management objectives in providing conservation, environmental education, open space, and wildland recreation opportunities. Application of contemporary resource planning processes and technology in the development of ecologically-based, multiple resource plans. Case study approach.

F M 490 Undergraduate Studies (1-5, max. 5)
Individual tutorial study of topics for which there is not sufficient demand to warrant the organization of regular classes. Offered: AWSpS.

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Individual tutorial study of topics for which there is not sufficient demand to warrant the organization of regular classes. Offered: AWSpS.

F M 492 Undergraduate Studies (1-5, max. 5)
Individual tutorial study of topics for which there is not sufficient demand to warrant the organization of regular classes. Offered: AWSpS.

F M 495 Senior Project in Forest Management (5)
Individual study of a forest management problem under the direction of a faculty member. Students utilize knowledge gained in field studies and required course work to present possible solutions to a specific forest management problem. Prerequisite: F E 345; F M 323; F M 362. Offered: AWSpS.

F M 496 Forest Management Case Studies (5)
Focus on preparation and presentation of management plan for forested area. All aspects of multiple use and ecosystem health considered within multi-

plicity of economic, biological, legal, social, and political constraints. Case studies to familiarize students with complexities of modern decision making. Offered: Sp.

F M 499 Undergraduate Research (1-5, max. 15) Individual research supervised by a faculty member. For advanced students desiring to extend their educational experience. Credit/ no credit only. Offered: AWSpS.

Paper Science and Engineering

PSE 102 Paper, Society, and the Environment (5) I&S/NW McKean Types of products and patterns of use. Overview of manufacturing processes in terms of raw material, costs, world trade and consumer requirements. Environmental implications of manufacturing, recycling, and disposal of paper and its byproducts. Societal and environmental costs of substituting petroleum-based or nonwood raw materials in paper products. Offered: A.

PSE 302 Pulp and Paper Technology (4) NW Jacobs-Young Sources of fiber raw material. Mechanical and chemical pulping and bleaching processes. Conversion of pulp to paper. Laboratory study of raw material, mechanical pulping, and paper making. Offered: A.

PSE 306 Pulp and Paper Processes Analysis (3) NW Jacobs-Young Inorganic chemistry of pulping and bleaching inclusive of sulfur, chlorine, and oxygen-based chemicals, reactivities, and chemical analysis. Wood raw material and conversion to mechanical pulps. Computer-aided material balances on mechanical separation processes. Prerequisite: either CHEM 155 or both CHEM 160 and CHEM 161 or CHEM 162. Offered: W.

PSE 309 Creativity and Innovation (2) VLPA Allan Understanding creativity and creative thinking; its challenges and dynamics through knowledge, judgment, planning, and observation. Techniques of creative thinking. Design and development of creative games. Computer-aided creative thinking. Creation, protection, and exploitation of a useful idea, including bargaining and negotiations. Offered: jointly with CHEM E 309; Sp.

PSE 400 Wood Properties and Utilization (4) I&S/NW Breitsprecher, Briggs Relationship of physical and chemical properties of wood to its use. Role of silviculture and genetics in modifying wood products and value of products. Manufacturing processes of major wood products, examining material and energy balances and environmental effects. Comparison of wood with steel, concrete, plastics, and other materials. Offered: A.

PSE 401 Wood and Fiber Identification (2) NW Briggs Laboratory in identification of wood fibers of North American species. Use of microscope and image analyzer in obtaining wood and fiber measurements. Offered: A.

PSE 402 Paper Properties and Additives (4) NW McKean Material science of paper and paperboard. Measurement and characterization of structural, mechanical, and optical properties of paper. Standard testing methods, paper colorants, effect of additives on paper properties, and relationship of fundamental paper properties to end use requirements. Offered: A.

PSE 406 Wood Chemistry I (3) NW Chemistry of cellulose, hemicellulose, and lignin. Pulping and bleaching chemistry of wood. Prerequisite: either CHEM 237 or CHEM 335. Offered: A.

PSE 407 Wood Chemistry I Laboratory (2) NW Proximate analysis of wood. Use of instrumental methods for wood component analyses. Prerequisite: PSE 406. Offered: W.

PSE 409 Wood Extractives Chemistry (2) NW Nature, origin, and occurrence of the extraneous components of wood, their influence on pulp and paper preparation, and their utilization. Prerequisite: either CHEM 237 or CHEM 335. Offered: odd years; Sp.

PSE 450 Paper Science and Engineering Seminar (1) Discussion of current topics in the science and technology of pulp and paper production. Emphasis on employer expectations of students in the paper science industry. Offered: AWSp.

PSE 476 Pulping and Bleaching Processes (3) Gustafson Conversion of wood to mechanical and chemical pulps. Kraft, sulfite, and semi-chemical pulping processes. Chemical recovery systems. Bleaching of mechanical and chemical pulps. Offered: jointly with CHEM E 471; W.

PSE 477 Papermaking Processes (3) McKean Fiber sources and properties. Secondary fibers. Stock preparation, sheet forming, water removal, finishing. Coating, lamination, and printing. Paper products. Offered: jointly with CHEM E 472; A.

PSE 478 Pulp and Paper Laboratory (2) Jacobs-Young Laboratory experiments in chemical and semi-chemical pulping of wood. Bleaching of chemical and high-yield pulps. Physical and chemical characteristics of pulp fibers. Prerequisite: PSE 476. Offered: jointly with CHEM E 473; Sp.

PSE 479 Pulp and Paper Laboratory II (3) McKean Paper testing, paper additives, flocculation, drainage, retention, heat transfer, and fluid dynamics in papermaking from virgin and recycled raw materials. Prerequisite: PSE 402; PSE 477. Offered: W.

PSE 480 Pulp and Paper Process Control (3) Gustafson Control of pulp and paper processes. Sensors, actuators, interface equipment, and computer control strategies common to this industry. Prerequisite: PSE 476; PSE 477. Offered: W.

PSE 481 Pulp and Paper Unit Operation (3) Unit operations of particular interest in the pulp and paper industry in addition to those covered in CHEM E 330 and 340. Prerequisite: CHEM E 340. Offered: W.

PSE 482 Paper Science and Engineering Design I (3) I&S/NW Briggs, Gustafson Basic engineering economics applied to design of pulp and paper facilities. Analysis of engineering alternatives based on use cost analysis and accounting tools. Introduction to process and mill design. Prerequisite: 2.0 in PSE 406; 2.0 in PSE 476; 2.0 in PSE 477. Offered: W.

PSE 483 Paper Coating and Converting (3) Barlow Coatings and their preparation, rheology, process equipment, drying, and product evaluation. Prerequisite: PSE 477. Offered: A.

PSE 484 Secondary Fiber (3) Hodgson Recycling of paper. Sources of secondary fiber. Processing methods for contaminants and ink removal. Properties and uses of recycled fiber. Prerequisite: PSE 406; PSE 476; PSE 477. Offered: Sp.

PSE 485- Undergraduate Research (1-, max. 3) Johnson Undergraduate research or independent study project under the supervision of the faculty; usually one credit per quarter. Offered: AWSp.

PSE 486 Environmental Management (3) I&S/NW Effects of pollution and environmental regulations on industry and community. Sources, regulations, and control of air, water, solid waste emissions as generated by the paper science industry. Offered: W.

PSE 487 Paper Science and Engineering Design II (5) Comprehensive design of pulp and paper processes, including: economic feasibility studies; process equipment design, optimization, and control; and overall process integration and layout. Safety and ethics in the design process. Prerequisite: PSE 482. Offered: Sp.

PSE 488 Polymer Chemistry (3) Allan Fundamental review of synthetic and natural polymers, including kinetics of formation, molecular weight distributions, and solid-state and solution properties. Prerequisite: either CHEM 237 or CHEM 335. Offered: W.

PSE 490 Undergraduate Studies (1-5, max. 5) Individual tutorial study of topics for which there is not sufficient demand to warrant the organization of regular classes. Offered: AWSp.

PSE 491 Undergraduate Studies (1-5, max. 5) Individual tutorial study of topics for which there is not sufficient demand to warrant the organization of regular classes. Offered: AWSp.

PSE 492 Undergraduate Studies (1-5, max. 5) Individual tutorial study of topics for which there is not sufficient demand to warrant the organization of regular classes. Offered: AWSp.

PSE 497 Pulp and Paper Internship (1-2, max. 3) Technical and economic analysis of commercial pulp and paper installations. Structured visits to industrial operations to observe technical aspects of pulp and paper curriculum in practice. Preparation of visitation reports and analysis in seminar setting. Offered: AWSpS.

Interschool or Intercollege Programs

Bioengineering

309 Harris Hydraulics Laboratory



General Catalog Web page:
www.washington.edu/students/gencat/academic/Bioengineering.html



Department Web page:
depts.washington.edu/bioe/

The Department of Bioengineering provides a comprehensive, multidisciplinary program of education and research. The concepts and techniques of engineering are applied to the challenges in biology and medicine. Major areas of current bioengineering research include distributed diagnostics and home health care, molecular bioengineering and nanotechnology, engineered biomaterials, biomedical imaging and image-guided therapy, and computational bioengineering.

Undergraduate Program

Adviser

Isabel Landsberg
309B Harris, Box 357962
(206) 685-2022

The undergraduate bioengineering program at the University of Washington is an honors program tailored for students bound for an M.D.-Ph.D. degree with a Ph.D. component in bioengineering. It is designed to bridge the gap between emphasis and curriculum that has traditionally alienated students in biology and in engineering. The curriculum leads to a B.S.E. and consists of a blend of engineering and biological sciences that provides students with unusual opportunities and qualifications for a future biomedical-bioengineering research career. This program is administered by the Department of Bioengineering via the Interdisciplinary Engineering Studies Program of the College of Engineering. Admission is restricted to a small number of highly motivated individuals with an outstanding record of academic performance. Applicants must have completed at least 50 credits of pre-engineering course work at the UW, with a minimum GPA of 3.60.

Graduate Program

For information on the Bioengineering graduate program, see the graduate and professional volume of the *General Catalog* or visit the *General Catalog* online at www.washington.edu/students/gencat/.

Faculty

Chair

Yongmin Kim

Professors

Afromowitz, Martin * 1975, (Adjunct); MS, 1966, PhD, 1969, Columbia University; microtechnology, solid-state and fiber-optics sensors, biomedical instrumentation.

Auth, David C. * 1969, (Affiliate); PhD, 1969, Georgetown University; lasers and electro-optical system design, electrophysics, medical instrumentation.

Bashein, Gerard * 1974, (Adjunct); PhD, 1969, Carnegie Mellon University; MD, 1974, University of New Mexico.

Bassingthwaight, James * 1975; MD, 1955, University of Toronto (Canada); PhD, 1964, Mayo Medical School/graduate School; computer analysis of transport mechanisms in blood and tissues.

Beach, Kirk Watson * 1976, (Adjunct Research); MSChE, 1968, PhD, 1971, University of California (Berkeley); MD, 1976, University of Washington; arterial disease in diabetes, blood flow studies with ultrasonic Doppler.

Bruckner, Adam * 1972, (Adjunct); PhD, 1972, Princeton University; propulsion, mission design, resource utilizations; hypervelocity accelerators.

Caldwell, James H. 1983, (Adjunct); MD, 1970, University of Missouri; cardiology.

Callis, James B. * 1973, (Adjunct); PhD, 1970, University of Washington; instrumentation development, process analytical chemistry, non-invasive clinical chemistry.

Crum, Lawrence A. * 1992, (Research); PhD, 1967, Ohio University.

Dager, Stephen R. * 1979, (Adjunct); MD, 1978, University of Nebraska; application of functional brain imaging techniques to investigate neuropsychiatric disorders.

Foster, David M. * 1980, (Research); PhD, 1969, University of British Columbia (Canada).

Guy, Arthur W. * 1955, (Emeritus); PhD, 1966, University of Washington; biological effects and medical applications of electromagnetic fields.

Hannaford, Blake * 1989, (Adjunct); MS, 1982, PhD, 1985, University of California (Berkeley); human and robotic movement control, bioengineering, controls, human-machine interaction.

Haralick, Robert M. * 1986, (Adjunct); MS, 1967, PhD, 1969, University of Kansas; computer vision, artificial intelligence, pattern recognition, image processing.

Hlastala, Michael P. * 1972, (Adjunct); PhD, 1969, State University of New York (Buffalo); respiratory physiology, inert gas analysis of respiratory function.

Hoffman, Allan S. * 1970; DSc, 1957, Massachusetts Institute of Technology; polymer materials science and engineering.

Hol, Wilhelmus G. J. * 1992, (Adjunct); PhD, 1971, University of Groningen (Netherlands); protein crystallography, drug design, vaccine development, and protein engineering.

Horbett, Thomas A. * 1973; PhD, 1970, University of Washington; interfacial proteins, cell interactions, insulin delivery systems.

Huntsman, Lee L. * 1968; PhD, 1968, University of Pennsylvania; mechanics of heart and heart muscle, cardiovascular system assessment, new measurement techniques.

Kim, Yongmin * 1982; MS, 1979, PhD, 1982, University of Wisconsin; computer architecture, media processors, imaging and video systems, medical imaging modeling.

Kushmerick, Martin J. * 1988; MD, 1963, PhD, 1966, University of Pennsylvania; muscle contraction, magnetic resonance, metabolic imaging NMR spectroscopy.

Lai, Henry C. 1981, (Research); PhD, 1978, University of Washington; cellular effects of electromagnetic fields.

Martin, Roy W. * 1971, (Research); PhD, 1975, University of Washington; bioinstrumentation, ultrasonic Doppler, echo, tissue characterization, signal processing.

Matsen, Frederick A. III * 1973, (Adjunct); MD, 1968, Baylor University; orthopaedics, bone and joint research, robotics.

Pollack, Gerald H. * 1968; PhD, 1968, University of Pennsylvania; muscular contraction.

Ratner, Buddy D. * 1972; PhD, 1972, Polytechnic Institute of Brooklyn; synthesis and characterization of polymeric biomaterials.

Richards, Todd L. * 1985, (Adjunct); PhD, 1984, University of California (Berkeley); nuclear magnetic resonance imaging, spectroscopy of the brain in demyelinating diseases.

Rushmer, Robert F. * 1947, (Emeritus); MD, 1939, University of Chicago; health care delivery systems, technology transfer.

Schwartz, Stephen Mark * 1974, (Adjunct); MD, 1967, Boston University; PhD, 1973, University of Washington; vascular biology, atherosclerosis, molecular basis of lineage, developmental biology, cell kinetics.

Soma, Mani * 1982, (Adjunct); MS, 1977, PhD, 1980, Stanford University; IC design and testing, mixed signal testing, bioengineering.

Spelman, Francis A. * 1961; PhD, 1975, University of Washington; biophysics of implanted cochlea, bioinstrumentation for primate research.

Stewart, Brent K. * 1993, (Adjunct); PhD, 1988, University of California (Los Angeles); medical physics, informatics.

Trask, Barbara J. * 1992, (Adjunct); PhD, 1985, University of Leiden (Netherlands); molecular cytogenetics, large-scale genome organization and polymorphism, genomics of olfaction.

Van Den Engh, Ger * 1992, (Adjunct); PhD, 1976, University of Leiden (Netherlands); flow cytometry, quantitative cytogenetics, instrument design and development.

Verdugo, Pedro * 1974; MD, 1965, State University of Chile; microrheology, biomechanics, polymer gel physics, laser spectroscopy, cell biology.

Yager, Paul * 1987; PhD, 1980, University of Oregon; physical chemistry and applications of biomembranes.

Associate Professors

Baneyx, Francois * 1992, (Adjunct); PhD, 1991, University of Texas (Austin); biotechnology, protein technology, biochemical engineering.

Barrett, P. Hugh R. * 1988, (Affiliate); PhD, 1989, University of Adelaide (Australia); biomathematics and modeling methodology, simulation analyses, lipid and lipoprotein metabolism.

Castner, David G. * 1986, (Research); PhD, 1979, University of California (Berkeley); polymer surfaces, metal-organic interfaces, catalytic materials.

Conley, Kevin E. * 1988, (Adjunct); PhD, 1983, University of Wisconsin; muscle physiology.

Giachelli, Cecilia * 1982; PhD, 1987, University of Washington; adhesion molecules and vascular biology processes.

Kalet, Ira J. * 1980, (Adjunct); PhD, 1968, Princeton University; computer simulation of radiation therapy, artificial intelligence, computer graphics.

Kunzelman, Karyn S. * 1991, (Affiliate); PhD, 1991, University of Texas (Dallas); biomedical engineering, cardiac; anatomy and physiology.

Linker, David T. 1993, (Adjunct); MD, 1976, Stanford University; cardiology.

Lybrand, Terry Paul * 1990; PhD, 1984, University of California (San Francisco); molecular modeling, computer simulation of biomacromolecules, development of simulation analysis.

Martyn, Donald A. * 1978, (Research); PhD, 1975, University of Southern California; regulation and mechanical properties of contraction in skeletal and cardiac muscle.

Meldrum, Deirdre R. * 1992, (Adjunct); MS, 1985, Rensselaer Polytechnic Institute; PhD, 1992, Stanford University; laboratory automation systems, genome analysis, modeling and control of dynamic systems, robots.

Nelson, Alan C. * 1986, (Affiliate); PhD, 1980, University of California (Berkeley); biomedical imaging using image analysis for tissue and tumor studies.

Nickerson, Deborah A. * 1992, (Adjunct); PhD, 1978, University of Tennessee; automating the analysis of single nucleotide polymorphisms, human genetics, DNA diagnostics.

Sanders, Joan Elizabeth * 1985; PhD, 1991, University of Washington; soft tissue biomechanics and tissue adaptation to mechanical stress.

Stayton, Patrick S. * 1992; PhD, 1989, University of Illinois; engineering proteins for biotechnology, biomaterials, and biomedical therapies/diagnostics.

Vogel, Viola * 1990; Dctr O, 1987, Johann Wolfgang Goethe University (Germany); molecular assemblies and Langmuir-Blodgett films, liquid interfaces, nonlinear optics, microscopy.

Yuan, Chun 1991, (Adjunct); PhD, 1988, University of Utah; medical biophysics, MRI.

Assistant Professors

Baker, David * 1993, (Adjunct); PhD, 1989, University of California (Berkeley); protein folding.

Ching, Randal Preston * 1986, (Adjunct); PhD, 1992, University of Washington; orthopaedic biomechanics.

Folch, Robert 2000; PhD, 1994, University of Barcelona (Spain); cell-based microfabricated devices, microscale engineering, high-throughput biological measurements.

Li, Zheng 1994, (Research); MS, 1991, PhD, 1995, State University of New York (Buffalo); nonlinear kinetic modeling, cardiac metabolism, PET functional imaging.

Qian, Hong 1997, (Adjunct); PhD, 1989, Washington University; physical biochemistry of biological macromolecule, mathematical and computational biology.

Regnier, Michael * 1995, (Research); PhD, 1991, University of Southern California; mechanics, kinetics and computational modeling of cardiac/skeletal muscle contraction.

Schenkman, Kenneth A. 1990, (Adjunct); MD, 1986, Indiana University; pediatric anesthesia.

Singh, Narendra Pal 1993, (Research); MBBS, 1972, King George's Medical College (India); changes in human DNA with age, adverse effects of drugs and environmental chemicals on DNA.

Vaezy, Shahram * 1983, (Research); PhD, 1991, University of Washington; therapeutic ultrasound, image-guided therapy, three-dimensional visualization and computation.

Vicini, Paolo 1996, (Research); PhD, 1996, Polytechnic of Milan (Italy); biomathematics and modeling methodology, mathematical models of biological systems.

Yates, John R. III * 1992, (Adjunct); PhD, 1987, University of Virginia; biological mass spectrometry, protein sequencing, computational methods for data analysis.

Zachariah, Santosh, George 1995, (Research); PhD, 1995, University of Strathclyde (United Kingdom); biomechanics and rehabilitation engineering.

Course Descriptions

See page 48 for an explanation of course numbers, symbols, and abbreviations.

For graduate-level course descriptions, see the graduate and professional study volume of the *General Catalog* or visit the online course catalog at www.washington.edu/students/crscat/.

BIOEN 299 Introduction to Bioengineering (1) *Verdugo* Lectures on the various aspects of bioengineering; orientation in bioengineering studies and practice. Credit/no credit only. Offered: ASP.

BIOEN 436 Medical Instrumentation (4) *Spelman* Introduction to the application of instrumentation to medicine. Topics include transducers, signal-conditioning amplifiers, electrodes and electrochemistry, ultrasound systems, electrical safety, and the design of clinical electronics. Laboratory included. For juniors, seniors, and first-year graduate students who are preparing for careers in bioengineering, both research and industrial. Offered: jointly with E E 436; Sp.

BIOEN 445 Science in Biomechanics (3) *Sanders* Introduction to biomechanics research. Discusses scientific analysis tools including problem definition, hypothesis generation and evaluation, methodology development, and data analysis methods. Participation in research projects, that are direct extensions from biomechanics research in the professor's laboratory. Two lectures and project meeting with professor per week. Offered: jointly with M E 445 Sp.

BIOEN 450 Molecular Biology for Engineers I (4) *Medina* Basic foundation in DNA biochemistry, description of molecular processes within the eukaryotic nucleus, and basic techniques in molecular biology. Offered: A.

BIOEN 451 Molecular Biology for Engineers II (4) *Medina* Utilization of recombinant DNA technology in research disciplines, including medicine, agriculture, forensics, anthropology, and embryology. Discussion of future research directions and increasing role of bioethics in the research community. Offered: W.

BIOEN 467 Biochemical Engineering (3) *Baneyx* Application of basic chemical engineering principles to biochemical and biological process industries such as fermentation, enzyme technology, and biological waste treatment. Rapid overview of relevant microbiology, biochemistry, and molecular genetics. Design and analysis of biological reactors and product recovery operations. Prerequisite: either CHEM 223 with CHEM E 340 or either CHEM 237 or CHEM 335; recommended: CHEM E 465. Offered: jointly with CHEM E 467; W.

BIOEN 490 Engineering Materials for Biomedical Applications (3) *Hoffman* Combined application of principles of physical chemistry and biochemistry, materials engineering, to biomedical problems and products. Applications include implants and medical devices, drug delivery systems, cell culture processes, diagnostics, and bioseparations. Offered: jointly with CHEM E 490; odd years; W.

BIOEN 491 Controlled-Release Systems: Principles and Applications (3) *Hoffman* Mechanisms for controlled release of active agents and the development of useful drug delivery systems for this purpose. Release mechanisms considered include diffusive, convective, and erosive driving forces. Delivery routes include topical, oral and in vivo. Some special case studies covered in detail. Offered: jointly with CHEM E 491; even years; W.

BIOEN 492 Surface Analysis (3) *Ratner* Understanding of solid surfaces for research and development in microelectronics, catalysis, adhesion, biomaterials, science wear, and corrosion science. Newer methods available to study surfaces of materials. Electron emission spectroscopies (ESCA, Auger); ion scattering, ion spectroscopic, photon spectroscopic, and thermodynamic methods. Offered: jointly with CHEM E 458; W.

BIOEN 499 Special Projects (2-6, max. 6) Individual undergraduate bioengineering projects under the supervision of an instructor. In addition, classes on selected topics of current interests as announced. Offered: AWSpS.

Program on the Environment

211 Old Electrical Engineering Building



General Catalog Web page:
www.washington.edu/students/genocat/academic/envir_stud.html



Program Web page:
depts.washington.edu/poeweb/

Undergraduate Program

Adviser
Rachel Vaughn
211 Old Electrical Engineering Building, Box 352515
(206) 616-2461
poe@u.washington.edu

The undergraduate program in Environmental Studies offers both a major and a minor. The major leads to a Bachelor of Arts degree and is offered through General Studies. It offers students a broad-based liberal arts education with an environmental focus. The cross-disciplinary program exposes students to a diversity of expertise and perspectives on environmental issues. Further, the major provides a suitable background for environmentally related jobs that require relatively little technical expertise and for graduate or professional training in fields such as business, law, policy, public affairs, and health.

Students majoring in Environmental Studies may also pursue a complementary Bachelor of Arts degree in a humanities or social science discipline or they may pursue a complementary Bachelor of Science degree in a scientific or engineering discipline, or in Forestry or Fisheries.

The minor in Environmental Studies can serve as a complement to either a Bachelor of Science degree or a Bachelor of Arts degree in the social sciences or the humanities.

The minor, pursued in combination with a Bachelor of Science degree in an environmentally related discipline, is designed to prepare students for environmentally related jobs that require a combination of technical expertise and interdisciplinary breadth.

Bachelor of Arts

Admission Requirements:

1. *Quantitative Reasoning* (15 credits, or 10 credits if student places out of MATH 120): MATH 111 and 112; or MATH 120 and one from MATH 124, 127, 144/145, or Q SCI 291; one from STAT 220, 301, 311, QMETH 201, or Q SCI 381.
2. *Communication Skills* (5 credits): English composition.

3. *Chemistry and Biology* (10 credits minimum): CHEM 120 or 142, and one of the following: BIOL 100, or 101 and 102, or 201 and 203.
4. *Social Science* (5 credits): chosen from the Individuals & Societies list. ANTH 100, GEOG 100, SOC 110, or ECON 200 highly recommended.

Major Requirements:

Completion of admission requirements (30 credits), plus the following: ENVIR 201/202/ 203 (15 credits); ENVIR 490, 491, 492 (10 credits, to include at least 7 credits of 492); courses from a matrix that includes (1) Ecology and Conservation, (2) Population and Health, (3) Resources and Technology options, or (4) an approved individualized curriculum. (40 credits minimum from matrix courses.) Because of the multiple choices available within the options, students must work closely with the program adviser in planning this part of their programs. See adviser for list of courses that may be taken to satisfy the 40-credit matrix requirement.

Minor

Minor Requirements: 30 credits, including ENVIR 201/202/203 (15 credits); an additional 15 credits from capstone experience courses and/or "matrix" courses outside the general area of knowledge ("domain") of the student's major. See adviser for list of matrix courses.

Faculty

Professors

Bodansky, Daniel * 1989; JD, 1984, Yale University; international law, international environmental and human rights law, civil procedure.

Leovy, Conway B. * 1967, (Emeritus); PhD, 1964, Massachusetts Institute of Technology; climatic role of clouds, planetary atmospheres and astrobiology, upper-atmosphere circulation.

Smith, Eric A. * 1980; PhD, 1980, Cornell University; ecology, environmental studies, evolutionary theory, hunter-gatherers, demography, Native Americans.

Associate Professor

Litfin, Karen T. * 1991; PhD, 1992, University of California (Los Angeles); international environmental politics, globalization processes, technology and politics.

Assistant Professor

Parrish, Julia * 1990, (Research); PhD, 1988, Duke University; behavioral ecology, conservation biology, predator-prey interactions.

Senior Lecturer

Treser, Charles D. * 1980; MPH, 1976, University of Michigan; administrative law and process in environmental health; housing; vector control.

Course Descriptions

See page 48 for an explanation of course numbers, symbols, and abbreviations.

For graduate-level course descriptions, see the graduate and professional study volume of the *General Catalog* or visit the online course catalog at www.washington.edu/students/crsca/.

ENVIR 201 Environmental Case Studies: Ecology and Conservation (5, max. 10) I&S/NW Exploration of ecology and conservation case studies from natural science, historical, socioeconomic, legal, political, and ethical perspectives. Involves gathering information, analyzing data, applying mathematical

and statistical reasoning and decision-making schemes, evaluating conflicting views based on cultural and philosophical frames of reference, and developing communications and research skills.

ENVIR 202 Environmental Case Studies: Population and Health (5, max. 10) I&S/NW Exploration of population and health issues or case studies from natural science, historical, socioeconomic, legal, political, and ethical cultural perspectives. Involves gathering information, analyzing data, applying mathematical and statistical reasoning and decision-making schemes, evaluating conflicting views based on cultural and philosophical frames of reference, and developing communications and research skills.

ENVIR 203 Environmental Case Studies: Resources (5, max. 10) I&S/NW Exploration of resource environmental issues from natural science, historical, socioeconomic, legal, political, and ethical perspectives. Involves gathering information, analyzing data, applying mathematical and statistical reasoning and decision-making schemes, evaluating conflicting views based on cultural and philosophical frames of reference, and developing communications and research skills.

ENVIR 313 Environmental Geology (5) NW Swanson Analysis of geologic constraints upon human activity and the environmental consequences of such activity. Topics include hillslope processes, fluvial and groundwater processes, earthquake and volcanic hazards, and environmental aspects of deforestation and atmospheric. Offered: jointly with GEOL 313; A.

ENVIR 341 Energy and Environment I (3) NW Kramlich, Malte Energy consumption, U.S. and world. Fossil energy: energy conversion system; oil gas and coal resources; air pollution and environmental impacts. Nuclear energy use, principles, fission reactors, fuel cycle. Offered: jointly with M E 341, CHEM E 341, PHYS 341; A.

ENVIR 342 Energy and Environment II (3) NW Kramlich, Malte Introduction to renewable energy. Principles, practices, and trends of solar, wind, hydro, and biomass (including fuel cell) energy conversion. Reductions in the environmental impact of energy conversion. Offered: jointly with M E 342, CHEM E 342, PHYS 342; W.

ENVIR 350 Independent Fieldwork (1-3, max. 5) Fieldwork, coursework, or other learning experience conducted off-campus, but supervised by UW faculty. 1 academic credit for 30 hours of environment-related work per quarter. Credit/no credit only.

ENVIR 439 Attaining A Sustainable Society (1/3, max. 3) NW Karr Discusses diverse environmental issues, the importance of all areas of scholarship to evaluating environmental challenges, and the connections between the past and the future, to reveal integrative approaches to protect the long-term interests of human society. Offered: jointly with FISH 439; A.

ENVIR 450 Special Topics in Environmental Studies (1-5, max. 5) Format may range from seminar/discussion to formal lectures to laboratory or modeling work.

ENVIR 451 Comparative Historical and Social Ecology of the Tropics (3) I&S Sivaramakrishnan Historical and social aspects of tropical environmental change. Comparative analysis of resource management, conservation, and environmental regulation issues in Asia, Africa, and Latin America from cultural and political economic perspectives. Special focus on issues of state policy, expert knowledge, social conflict, and international politics. Offered: jointly with ANTH 451. Prerequisite: ANTH 210.

ENVIR 459 Culture, Ecology and Politics (5) I&S Pena Critical studies of class, gender and race differences in environmental politics. The political-eco-

nomie dimensions of ecological change. Contemporary environmental movements including the varieties of bioregionalism, deep ecology, ecofeminism, ecosocialism, environmental justice, and social ecology. Offered: jointly with ANTH 459.

ENVIR 470 Communications and the Environment (5) I&S Examines the role of mass media in the resolution of environmental problems. Topics include strengths and weaknesses of media coverage, use of media by environmental groups and government agencies, media effects on public opinion, and mass communication and social movements. Offered: jointly with CMU 470.

ENVIR 477 Marine Conservation (3) NW Parrish Terrestrially based concepts of conservation biology applied to marine systems: human activities affecting the marine environment including fishing and pollution, influence of legal and cultural frameworks, and ecosystem management. Offered: jointly with BIOL 477; W.

ENVIR 480 Marine Resource Conservation and Management (3) I&S/NW Gallucci, Miller Techniques and philosophy for conservation, management and development of harvested marine populations. Emphasis on integration of ecological, sociological, and economic dimensions of institutional decision making for policy formation in uncertain environments. Offered: jointly with FISH 480 and SMA 480.

ENVIR 490 Capstone Experience I (1) Preparation for ENVIR 491. Students attend presentations and critiques given by students who are taking or have completed 492 and will make arrangements for their own capstone experience (internship, group or individual project). Credit/no credit only. Recommended: 15 credits of ENVIR 201/202/203. Offered: AWSpS.

ENVIR 491 Capstone Experience II (2-8, max. 8) Internship, group project, or individualized project in Environmental Studies. May be taken in a single quarter or distributed over two or three quarters of the student's final year. Recommended: ENVIR 490 and 15 credits ENVIR 201/202/203. Offered: AWSpS.

ENVIR 492 Capstone Experience III (2) Critique and discussion of projects undertaken in 491. May be taken concurrently with the final quarter of 491. Credit/no credit only. Prerequisite: ENVIR 491. Offered: AWSpS.

ENVIR 498 Independent Study (1-3, max. 5) Independent reading and/or research. Limited to majors and minors in Environmental Studies.

Quantitative Science

Director

B. Bruce Bare



General Catalog Web page:
www.washington.edu/students/genca/academic/Quantitative_Sci.html



Program Web page:
depts.washington.edu/cqs/

211B Electrical Engineering Building, Box 352515
(206) 543-1191
cqs@u.washington.edu

The Center for Quantitative Science is an interdisciplinary program administered by the Office of Undergraduate Education. It is dedicated to providing high-quality instruction in mathematical and applied statistical methods for undergraduate students who major in the biological and ecological sciences, renewable resources management, and environmental studies. The philosophy of the center is to provide

instruction in an atmosphere that emphasizes the use of quantitative methods to better understand a variety of scientific phenomena. Faculty represent various applied scientific disciplines within the College of Forest Resources, the Department of Fisheries, and other campus units.

Students in environmental, biological, ecological, and resource management majors may wish to complete a minor in quantitative science to document their understanding of the mathematical and statistical methods used in these competitive and increasingly quantitative fields.

Minor

Minor Requirements: A total of 26-30 credits, as follows: Core courses (20 credits)—Q SCI 291, 292 (or MATH 124, 125); Q SCI 381, 482. Electives (6-10 credits)—Two Q SCI courses at the 300 or 400 level to include one course from Q SCI 480, 483, 486. A minimum grade of 2.0 is required in each course taken as part of the minor.

Faculty

Director

Bruce Bare

Professors

Bare, B. Bruce * 1969, (Adjunct); MS, 1965, University of Minnesota; PhD, 1969, Purdue University; forest land management, valuation, taxation, management science.

Briggs, David G. * 1973; PhD, 1980, University of Washington; operations research, forest products and wood science, wood quality, life-cycle analysis.

Conquest, Loveday L. * 1976; PhD, 1975, University of Washington; statistics in forestry, fisheries, and environmental pollution monitoring.

Ford, E. David * 1985; PhD, 1968, University College, London (UK); forest ecology and ecophysiology, crop growth, quantitative methods, philosophy of science.

Francis, Robert C. * 1983; PhD, 1970, University of Washington; fishery oceanography, effects of climate on marine ecosystems, paleoecology, fisheries management.

Gallucci, Vincent * 1976; PhD, 1971, North Carolina State University; biomathematics and population dynamics.

Greulich, Francis E. * 1977; PhD, 1976, University of California (Berkeley); management science, statistics, operations research.

Gunderson, Donald R. * 1978; PhD, 1975, University of Washington; marine fisheries and stock assessment.

Hilborn, Ray * 1987; PhD, 1974, University of British Columbia (Canada); population dynamics and resource policy.

Johnson, Jay A. * 1983; PhD, 1973, University of Washington; mechanical and physical properties of wood and wood composite materials, wood quality.

Schreuder, Gerard Fritz * 1971; PhD, 1968, Yale University; statistical analysis in resource economics, international forestry, trade, aerial photos.

Skalski, John R. * 1987; PhD, 1985, Cornell University; environmental sampling and effects assessment on wild populations, parameter estimation.

Swartzman, Gordon Leni * 1973, (Research); PhD, 1969, University of Michigan; ecological modeling, quantitative natural resource management.

Associate Professors

Anderson, James J. * 1981; PhD, 1977, University of Washington; fisheries and oceanography.

Perez-Garcia, John * 1990; MS, 1982, Mayaguez (Puerto Rico); DF, 1991, Yale University; forest/natural resource economics, trade modeling and policy analyses, global climate change.

Rustagi, Krishna P. * 1973, (Emeritus); PhD, 1973, Yale University; operations research and statistical applications in resource management, forest inventory.

Assistant Professor

Turnblom, Eric * 1994; MSc, 1986, University of British Columbia (Canada); PhD, 1994, University of Minnesota; forest biometrics, growth and yield modeling, quantitative stand dynamics, inventory and sampling.

Course Descriptions

See page 48 for an explanation of course numbers, symbols, and abbreviations.

For graduate-level course descriptions, see the graduate and professional study volume of the *General Catalog* or visit the online course catalog at www.washington.edu/students/crscat/.

Q SCI 110 Introduction to Systems Modeling (5) NW, QSR *Greulich, Bare, Francis* Introduction to the development and use of system models for studying the dynamics of natural and managed systems. Examines modeling process using natural resource management, environmental science, and biological examples. Uses STELLA software to illustrate systems concepts and to design, build, and explore model behavior.

Q SCI 291 Analysis for Biologists I (5) NW, QSR *Briggs, Greulich, Johnson* Introduction to differential calculus, emphasizing development of basic skills. Examples promote understanding of mathematics and applications to modeling and solving biological problems. Topics include optimization and curve analysis. Prerequisite: either MATH 120, a score of 2 on advanced placement test, or a score of 67% on MATHPC placement test. Offered: AWS.

Q SCI 292 Analysis for Biologists II (5) NW, QSR *Gallucci, Greulich, Johnson* Introduction to integral calculus, emphasizing development of basic skills. Examples promote understanding of mathematics and applications to modeling and solving biological problems. Topics include areas under curves, volumes, and differential equations. Prerequisite: Q SCI 291. Offered: WSpS.

Q SCI 293 Analysis for Biologists III (5) NW, QSR *Gallucci, Johnson* Additional topics in calculus and matrix algebra. Examples promote understanding of mathematics and applications to modeling and solving biological problems. Topics include infinite series, differential equations, vectors, functions of several variables, partial derivatives, and use of computer software. Prerequisite: Q SCI 292. Offered: Sp.

Q SCI 381 Introduction to Probability and Statistics (5) NW, QSR Applications to biological and natural resource problems stressing the formulation and interpretation of statistical tests. Random variables, expectations, variances, binomial, hypergeometric, Poisson, normal, chi-square, "t" and "F" distributions. Prerequisite: either MATH 120, a score of 2 on advanced placement test, or a score of 67% on MATHPC placement test. Offered: AWSpS.

Q SCI 392 Techniques of Applied Mathematics in Biology I (3) NW Ordinary differential equations—linear and nonlinear; systems of differential equations; approximation techniques, numerical solution techniques; applications to biological processes. Prerequisite: Q SCI 292.

Q SCI 456 Fundamentals of Fish Population Dynamics and Management (4) NW Conveys fundamental concepts of fish population dynamics and fishery management within concept of real-world fisheries problems. Lectures discuss notation, terminology, mathematical models, fisheries principles, and case studies. Laboratory time devoted to practical applications, problems. Recommended: either MATH 125, MATH 135, or Q SCI 292; Q SCI 381. Offered: jointly with FISH 456.

Q SCI 457 Methods of Abundance Estimation (4) NW Methods of estimating fish abundance by direct sampling and indirectly from tagging, catch, and effort analysis. Confidence limits and bias adjustments. Design of marine fishery surveys using statistical sampling principles. Laboratory work with real fishery data and data collected during trawl sampling survey. Recommended: Q SCI 292; Q SCI 381; Q SCI 456 or FISH 456. Offered: jointly with FISH 457.

Q SCI 458 Fisheries Stock Assessment (4) NW *Francis* Emphasizes quantitative analysis of fisheries data to determine how the fishery would respond to alternative management actions. Major topics include production models, stocks and recruitment, catch at age analysis, and formulation of harvest strategies. Recommended: either Q SCI 456 or FISH 456. Offered: jointly with FISH 458; Sp.

Q SCI 477 Quantitative Wildlife Assessment (5) NW *Skalski* Focuses on wildlife sampling techniques for estimating animal abundance, home range, and survival rates in terrestrial populations. The design of wildlife investigations for the purposes of impact assessment, research, and resource management is integrated with estimation schemes and demographic models in a quantitative framework. Prerequisite: Q SCI 292; Q SCI 482.

Q SCI 480 Sampling Theory for Biologists (3) NW *Gallucci, Rustagi* Theory and applications of sampling finite populations including: simple random sampling, stratified random sampling, ratio estimates, regression estimates, systematic sampling, cluster sampling, sample size determinations, applications in fisheries and forestry. Other topics include sampling plant and animal populations, sampling distributions, estimation of parameters and statistical treatment of data. Prerequisite: Q SCI 482; recommended: Q SCI 483. Offered: jointly with STAT 480; even years.

Q SCI 482 Statistical Inference in Applied Research (5) NW Analysis of variance and covariance; chi square tests; nonparametric procedures multiple and curvilinear regression; experimental design and power of tests. Application to biological problems. Use of computer programs in standard statistical problems. Prerequisite: either STAT 311 or Q SCI 381. Offered: AWS.

Q SCI 483 Statistical Inference in Applied Research (5) NW Analysis of variance and covariance; chi square tests; nonparametric procedures multiple and curvilinear regression; experimental design and power of tests. Application to biological problems. Use of computer programs in standard statistical problems. Prerequisite: either Q SCI 381 or Q SCI 482. Offered: WSp.

Q SCI 486 Experimental Design (3) NW Topics in analysis of variance and experimental designs: choice of designs, comparison of efficiency, power, sample size, pseudoreplication, factor structure. Prerequisite: Q SCI 482; recommended: Q SCI 483. Offered: jointly with STAT 486.

Q SCI 499 Undergraduate Research (1-5, max. 5) Special studies in quantitative ecology and resource management for which there is not sufficient demand to warrant the organization of regular courses. Credit/no credit only.

University Conjoint Courses

See page 48 for an explanation of course numbers, symbols, and abbreviations.

For graduate-level course descriptions, see the graduate and professional study volume of the *General Catalog* or visit the online course catalog at www.washington.edu/students/crscat/.

Each of the following courses is administered by two or more schools or colleges within the University. No degree program is offered.

UCONJ 100 Introduction to Health Professions (1) *Garcia* Opportunities in health professions. Information on educational requirements, professional/patient interaction, licensing, registering for practice in profession, salaries, and career opportunities.

UCONJ 290 Diversity Issues in the Health Care Environment (1-2, max. 2) I&S Introduction to the complexity of the issues surrounding culture and health, the interrelatedness of ethic and cultural characteristics and health care access, health and health care concerns of specific communities, traditional and alternative health care practices, and community-based promotion and disease prevention programs.

UCONJ 411 Psychology of Aging (3) *Kiyak* Focuses on developing the skills necessary for critically evaluating current psychological theories of aging, research findings in this area, and the implications of findings on the aging person. Special consideration given to the effects of socioeconomic, sex, and ethnic differences in the psychology of aging. Open to upper-division undergraduates and beginning graduate students interested in the field of gerontology.

UCONJ 420 Biological Safety Practices (1) *Kenny* General introduction to appropriate laboratory procedures used for handling potentially hazardous biological agents. Particular focus on laboratory safety and appropriate protocols that should be employed by those engaged in infectious disease and recombinant DNA research. Credit/no credit only.

UCONJ 422 Sexually Transmitted Diseases: An Overview (2) *Gardner* Clinically oriented course designed to provide a knowledge base for upper division health science students to participate effectively in community outreach programs for the prevention of sexually-transmitted diseases. Offered cooperatively by the departments of Pharmacy and Medicine. Credit/no credit only.

UCONJ 440 Biological Aspects of Aging (3) Introductory course on aspects of the biology of human aging and of functional changes associated with normal aging and with those illnesses that may be present in the elderly. Focus on the relationship between changes in physical function, environment, and quality of life. Includes theoretical perspective on aging as well as the aging process in specific physiological systems. Designed for upper-level undergraduate students with an interest in aging.

UCONJ 442 Social and Cultural Aspects of Aging (3) Involves faculty members from the various social science fields examining the range and variation of relationships among age-linked attitudes and cultural values related to aging; the social and economic factors that influence the elderly in contemporary society; the effects of ethnic and sex differences in sociocultural aging. Open to upper-division undergraduates and beginning graduate students interested in gerontology.

UCONJ 443 Interdisciplinary Seminar on Aging (1-6, max. 15) *Borgatta* Interdisciplinary examination of the contemporary theoretical literature on gerontology and long-term care. For upper-level undergraduate and graduate students with an interest in aging. Quarterly offerings available from the Institute on Aging.

UCONJ 444 Interdisciplinary Collaborative Teams in Health Care (1-5, max. 10) Course open to students in UW Health Sciences schools. Students function as an interdisciplinary learning group within a problem based learning framework. The primary goal of the course is to promote the development of interdisciplinary practice in the care of urban and rural underserved patient populations. Credit/no credit only.

UCONJ 490 Social Sensitivity in Health Care (3) I&S Multidisciplinary course for health professions students. Health professionals' roles in dealing with social, cultural, and physical barriers to health care of low-income groups and ethnic people of color. Personal involvement through field experiences and faculty drawn from affected communities as well as health sciences, social work schools. Credit/no credit only.

School of Library and Information Science

Director

Michael Eisenberg
3rd Floor, Mary Gates Hall



General Catalog Web page:
www.washington.edu/students/gencat/academic/Grad_School_Library.html



School Web page:
www.ischool.washington.edu

The vision statement adopted by the School is "People and Knowledge: Building Information Connections. The faculty, staff, students, and alumni of the School of Library and Information Science believe that connecting people with knowledge is of fundamental individual and societal importance; further, we believe access to information is a basic human right. We commit ourselves to sustain this vision."

The School's goal is to provide a curriculum which prepares students to become leaders in the library and information world and which cultivates an integrated understanding of central underlying concepts, theories, processes, models and research with a focus on users and the organization of information; an appreciation of the varied roles, contexts, settings and values in which information work takes place and the interrelationships among these; a principled comprehension of important issues and trends and the ability to learn more about these; and professional skills, experiences, and orientation necessary and appropriate for entry-level positions

Informatics refers to the study of information systems—the people, the information, and the information technology. In the informatics program, students study a range of information systems—from simple systems that support personal information management to complex systems that involve vast databases of distributed information manipulated in real-time by high-speed computer technologies. Informatics analyzes national and global information policy, the management of formal information systems in organizations, and the subtleties of everyday information behavior. The study of informatics leads to the invention of methods for representing, classifying, and retrieving information, as well as designing new information systems that are responsive to people's needs and values.

Undergraduate Program

Adviser
3rd Floor, Mary Gates Hall
Box 352840
informatics@ischool.washington.edu

The School of Library and Information Science offers a Bachelor of Science in informatics. Course work in the informatics program integrates human-centered approaches with a well-balanced technical background. In their senior year, students conduct independent fieldwork oriented toward research in informatics that involves either user-centered research or interactive system design. The undergraduate major in

informatics prepares students for a wide range of endeavors in the information field including information management and technology, research and information services, interactive system design, human-computer interaction, and information science. Upon completion of the degree, students are qualified for jobs in the information and technology industry and in business, public service, and the various professions.

Student Associations: Student chapter of American Society of Information Scientists (ASIS).

Internships: Internship experiences are encouraged but not required. The Student Service Office within the School of Library and Information Science assists students in identifying and applying for internships and co-operative experiences. In some cases, academic credit may be obtained.

Bachelor of Science

Admission Requirements:

1. Completion of IMT 100 (5 credits), CSE 142 (4), either STAT 311 (preferred) or STAT 220 (5); one English composition course selected from the University list (5).
2. Minimum 2.00 cumulative UW GPA.
3. Admission is competitive, based on the following criteria: (a) GPA, with an emphasis on grades earned in courses for the major; (b) other evidence of commitment to the field (e.g., work experience, internships); and (c) personal statement reflecting an interest in and commitment to becoming a major in this field. Meeting the above criteria does not guarantee admission to the department.
4. Application deadline is April 1. Admission is for autumn quarter only. Applicants are notified of admission decisions by the beginning of autumn registration in May. Applications and additional information are available at the main office of the School of Library and Information Science, and online at www.ischool.washington.edu.

Major Requirements

Major requirements, in addition to the courses needed for admission to the program, include the following: *Human-Centered Strand* (27 credits): INFO 300, 310, 311, 320, 370, 380, and 381. *Technical Strand* (23 credits): CSE 142 and 373, INFO 340, 341, 440. *Capstone Course* (5-8 credits): one of INFO 490 or 491. *Electives* (minimum of 12 credits): 12 additional credits from among other INFO 300- and 400-level courses or from the approved major elective list.

Graduate Program

For information on the School of Library and Information Science's graduate program, see the graduate and professional volume of the *General Catalog* or visit the *General Catalog* online at www.washington.edu/students/gencat/.

Faculty

Professors

Bengtson, Betty G. 1988, (Affiliate); MSLS, 1967, Catholic University of America; MSD, 1986, University of Maryland.

Benne, Mae M. * 1971, (Emeritus); MS, 1955, University of Illinois; children's literature, public library services for children.

Eisenberg, Michael B. * 1998; MLS, 1973, State University of New York (Albany); PhD, 1986, Syracuse University; information science and technology.

Fidel, Raya * 1982; MLS, 1976, Hebrew University of Jerusalem (Israel); PhD, 1982, University of Maryland; information retrieval systems, human information behavior, classification research.

Grudin, Jonathan T. 1999, (Affiliate); .PhD, 1981, University of California (San Diego).

Hazelton, Penny A. * 1985, (Adjunct); JD, 1975, Lewis And Clark College; MLL, 1976, University of Washington; law librarianship, legal bibliography, computer-assisted legal research, law, Indian law.

Hiatt, Peter * 1974, (Emeritus); PhD, 1963, Rutgers University; adult services, special populations, management assessment, community analysis, library education.

Shaw, Spencer G. * 1970, (Emeritus); BLS, 1941, University of Wisconsin; librarianship.

Associate Professors

Brooks, Terrence A. * 1986; MLS, 1971, McGill University; PhD, 1981, University of Texas (Austin); information storage and retrieval, Internet scripting and programming.

Bruce, Harry * 1998; MLS, 1993, PhD, 1996, University of New South Wales (Australia); human factors in information and communication technology.

Efthimiadis, Efthimis * 1997; MSc, 1984, PhD, 1992, City University, London (England); information retrieval, evaluation, query expansion, medical informatics, user-system studies.

Friedman, Batya * 1999; PhD, 1988, University of California (Berkeley); value-sensitive design, social-cognitive and cultural aspects of information systems, human-computer interaction.

Fuller, Sherrilynne S. * 1988; MLS, 1968, Indiana University; PhD, 1984, University of Southern California; library and information management, biomedical and health informatics.

Johnson, Ronald A. 1986; MA, 1972, University of Chicago; MS, 1975, University of Southern California; information sciences.

Mignon, Edmond * 1970, (Emeritus); PhD, 1976, University of California (Berkeley); information retrieval and information policy.

Skelley, Grant T. * 1969, (Emeritus); PhD, 1968, University of California (Berkeley); history of the book, preservation, bibliography and reference.

Sutton, Stuart A. * 1999; JD, 1981, Golden Gate University; LLM, 1982, MLS, 1987, PhD, 1991, University of California (Berkeley); law and policy information, metadata and access to distributed resources, legal informatics.

Assistant Professors

Carlyle, Allyson * 1996; MLS, 1986, PhD, 1994, University of California (Los Angeles); online catalog use and design, descriptive cataloging principles and theory.

Green, Maurice W. 1998; PhD, 1999, State University of New York (Albany); chief information officer competencies, IT management.

Janes, Joseph W. * 1998; MLS, 1983, PhD, 1989, Syracuse University; reference: models of practice, incorporation of technology; research methods/statistics, history.

Nelson, Jerold A. * 1971; MA, 1964, University of Minnesota; PhD, 1971, University of California (Berkeley); information access and use, intellectual freedom.

Senior Lecturers

Barker, Scott F. 1999; MS, 1987, Syracuse University; computer networks, Internet applications, information management.

Smith, Sharyl Gay 1999; DLS, 1970, Columbia University; MLS, 1970, University of Washington; materials for children and the field of school library media.

Lecturers

Bruce, Lorraine 1999; GradDipl, 1987 Riverina Murray Institute of Higher Education (Australia); integration of information and technology literacies in schools, user education and school media.

Oyler, Mel 1993; PhD, 1997, University of Washington.

Course Descriptions

See page 48 for an explanation of course numbers, symbols, and abbreviations.

For graduate-level course descriptions, see the graduate and professional study volume of the *General Catalog* or visit the online course catalog at www.washington.edu/students/crscat/.

Informatics

INFO 300 Intellectual Foundations of Informatics (5) Information as an object of study, including theories, concepts, and principles of information, information seeking, cognitive processing, knowledge representation and restructuring, and their relationships to physical and intellectual access to information. Development of information systems for storage, organization, and retrieval. Experience in the application of theories, concepts, and principles.

INFO 310 Individual Perspectives on Information Systems (3) I&S Social, cognitive, behavioral, and contextual aspects of information systems, including human information behavior, interpersonal interaction, and social responses to information technology. Emphasis on human well-being and information exchange as a communicative event. Exposure to experimental and interview methodologies.

INFO 311 Organizational, Societal, and Global Perspectives on Information Systems (5) I&S Social, ethical, economic, political, and cross-cultural implications of current and future information systems. Information transfer and use within groups, organizations, and cultures. Focus on organizations as information processors, the new knowledge economy, and national and international information policy, intellectual property, privacy, censorship, and freedom of information..

INFO 320 Information Needs, Searching, and Presentation (3) Introduction to information needs, database and information organization and structure, web and database searching and browsing, and information presentation. Examination of underlying principles in knowledge representation, indexing, record structures, online search process, search strategies and tactics, assessment of user needs, reference interviewing, post-processing, organization and presentation of information.

INFO 340 Database Management and Information Retrieval (5) NW Theories and models in system-centered approaches to information retrieval and database management. Information retrieval and database management systems include text and multimedia databases, web search engines and digital libraries. Issues in system design, development and evaluation, and tools for searching, retrieval, user interfaces, and usability. Prerequisite: CSE 373.

INFO 341 Computer Networks and Distributed Applications (5) NW Basic concepts of local and wide area computer networking including an overview of services provided by networks, network topologies and hardware, packet switching, client/server architectures, network protocols, and network servers and applications. Also addresses management, security, authentication, and policy issues associated with distributed systems. Prerequisite: CSE 143.

INFO 344 Web Tools and Development (5) Introduction to fundamental web technologies with an emphasis on scripting and programming. Includes both client and server technologies. Examines effective information architecture for Web sites, information presentation on Web pages, privacy policies, and Web security. Prerequisite: CSE 142.

INFO 370 Assessment and Evaluation Techniques (5) Introduction to the research process investigating information needs, creation, organization, flow, retrieval, and use. Stages include: research definition, questions, objectives, data collection and management, data analysis, and data interpretation. Techniques include: observation, interviews, questionnaires, and transaction-log analysis. Prerequisite: either STAT 220 or STAT 311.

INFO 380 Information Management (3) Examines information as a key resource within the context of organizations including the evolution of how information is defined and managed in order to add value to organizations. Information management as a key facilitator in creating or improving relationships, processes, competitiveness, products, and services.

INFO 381 Information Systems Analysis (3) Introduction to systems analysis for information systems design. Principles and processes including understanding organizational style, determining feasibility, process specifications, data flows, data dictionaries, and managing analysis and design activities.

INFO 440 Information System Design (5) NW Theoretical and practical examination of the information systems design process. Techniques for assessing the need for technology, specifying the system design, and involving users in the design process are explored. Design methods include social impact statements, future scenarios, mock-ups, rapid prototyping, field-testing, heuristic evaluation. Prerequisite: CSE 373.

INFO 490 Design and Development of Interactive Systems (5-8) Design and formative evaluation of an interactive information system to solve a real problem. Student-organized team projects are encouraged. Must be taken for a minimum of 5 credits. Prerequisite: INFO 340; INFO 381; INFO 440.

INFO 491 Research in Informatics (5-8) Provides hands-on experience conducting a research project related to information behavior and technology. This project may be carried out in a natural setting or in the laboratory by preparing students to carry out similar research projects in their professional work. Prerequisite: INFO 370.

Information Management and Technology

IMT 100 Fluency in Information Technology (5) QSR Introduces the skills, concepts, and capabilities necessary to effectively use information technology. Includes logical reasoning, managing complexity through the operation of computers and networks, and contemporary applications such as email and word processing. Not available for credit to students who have completed CSE 142 or ENGR 142. Offered: jointly with CSE 100; AWSp.

IMT 220 Information Research Strategies (3) I&S Information research and problem solving in the context of specific subject disciplines. Focuses on identification of the information need, information seeking, evaluation and presentation of information, and selection of the appropriate information sources.

Library and Information Science

LIS 470 History of the Book (3) Development of book from hieroglyphics, clay tablets, to present, emphasizing printed book in Western world since Gutenberg. Book as physical object, processes and materials of its production viewed in context of changing technologies and various cultural, esthetic, economic, trade influences. Aspects of book collecting. Credit/no credit only.

LIS 498 Special Topics (1-5, max. 15) Library service and information science subject matter in seminars, workshops, or other appropriate formats. Topics vary and may be repeated for credit. Credit/no credit only.

School of Medicine

Dean

Paul G. Ramsey
C314 Health Sciences

Associate Deans

Scott Barnhart
John B. Coombs
Daniel M. Dorsa
Robert J. Gust
D. Daniel Hunt
Eric B. Larson
Richard A. Molteni
Thomas E. Norris
Gordon A. Starkebaum
Andrew A. Ziskind

Assistant Deans

Carol F. MacLaren
Susan G. Marshall
Werner E. Samson

WWAMI Coordinators/Assistant Deans

James R. Blackman, Boise, Idaho
Philip D. Cleveland, Spokane, Washington
Michael J. Dimino, University of Alaska
Stephen J. Guggenheim, Montana State University
Michael B. Laskowski,
University of Idaho and Washington State University
Sylvia J. Moore, University of Wyoming



General Catalog Web page:
www.washington.edu/students/gencat/academic/School_Medicine.html



School Web page:
www.washington.edu/medical/som/

Established in 1946, the School of Medicine is the only medical school directly serving the states of Washington, Wyoming, Alaska, Montana, and Idaho (WWAMI). Located in the Warren G. Magnuson Health Sciences Center, the School operates a decentralized program of medical education (WWAMI) via a regional network of teaching affiliates.

The School's basic-science departments provide educational opportunities for students from all schools and colleges within the University. Clinical teaching programs are conducted at the University of Washington Medical Center, Harborview Medical Center, Children's Hospital and Regional Medical Center, and the Veterans Affairs Puget Sound Health Care System, as well as at other clinical affiliates in Seattle and throughout the WWAMI states.

The School admits 176 medical students to its first-year class and has a total enrollment of about 750 students pursuing the Doctor of Medicine degree. The full-time faculty numbers approximately 1,500 members. The affiliated University residency-training network enrolls approximately 900 house officers. Enrollment in the graduate programs in the basic sciences exceeds 400 students, and approximately 800 postdoctoral fellows are enrolled in various advanced training programs. The School has baccalaureate and graduate programs in occupational therapy, physical therapy, prosthetics and orthotics, and medical technology. The School participates in training a broad spectrum of other allied health professionals. The School is also home for the Physician Assistant Training Program known as MEDEX.

Undergraduate Academic Programs

Doctor of Medicine

For information on the program leading to the award of the Doctor of Medicine (M.D.) degree, please see the School of Medicine section in the graduate and professional volume of the *General Catalog*.

Bachelor of Clinical Health Services

Candidates for the Bachelor of Clinical Health Services degree must be admitted to the University of Washington at the junior-year level. They will pursue a seven-quarter sequence of prescribed studies in the MEDEX Northwest Physician Assistant Training Program. Admission to the professional training program is via a competitive process administered by MEDEX Northwest within the School of Medicine. Because of the program's emphasis on prior medical experience, the great majority of applicants are working adults who have completed their pre-professional undergraduate course work at other colleges and universities.

Matriculation in the Bachelor of Clinical Health Services degree option is dependent upon both admission to the University and acceptance by MEDEX Northwest. Students who are accepted by MEDEX Northwest but who are not admissible to the University will be classified as nonmatriculated students. They will earn official University credits and receive a certificate upon completion of the program. The certificate program is described in the graduate and professional volume of the *General Catalog*. For additional information, contact MEDEX Northwest Physician Assistant Program, Box 354725, (206) 598-2600.

Bachelor of Science

Programs leading to a baccalaureate degree with a major in microbiology are offered through the College of Arts and Sciences. Those programs are described in the College of Arts and Sciences section of this catalog.

Bachelor of Science in Medical Technology

A curriculum in medical technology is offered by the Department of Laboratory Medicine. This program provides study in basic laboratory science that includes clinical laboratory training. The program is designed to prepare highly knowledgeable and skilled laboratory scientists for a variety of employment opportunities. Information concerning admission to the medical technology program appears under Laboratory Medicine in this catalog.

Bachelor of Science in Prosthetics and Orthotics

A curriculum in prosthetics and orthotics leading to the degree of Bachelor of Science is offered by the Department of Rehabilitation Medicine. It provides professional training in the basic sciences and the clinical application, design, and fabrication of prostheses and orthoses. Information concerning admission to the curriculum in prosthetics and orthotics may be found under Rehabilitation Medicine in this catalog.

Biochemistry

109 Bagley



General Catalog Web page:
www.washington.edu/students/gencat/academic/biochem.html



Department Web page:
depts.washington.edu/chemugs/

Biochemistry is the study of the living organism at the molecular level. It draws on the techniques of analytical, organic, inorganic, and physical chemistry in determining the molecular basis of vital processes.

Undergraduate Program

The Bachelor of Science in biochemistry is granted by the College of Arts and Sciences. For a description of the undergraduate program in microbiology, see the College of Arts and Sciences section.

Faculty

Acting Chair

Richard D. Palmer

Professors

Adman, Elinor T. * 1967, (Adjunct Research); MA, 1964, PhD, 1967, Brandeis University; molecular structure visualization, macromolecular crystallography, metalloproteins.

Bornstein, Paul * 1967; MD, 1958, New York University; cell-matrix interactions and gene regulation.

Chung, Dominic W. 1977, (Research); PhD, 1976, University of California (Los Angeles); factor XI deficiency, structure and function of fibrinogen.

Cooper, Jonathan A. * 1987, (Affiliate); PhD, 1976, University of Warwick (UK); regulation of cellular metabolism and proliferation by protein phosphorylation.

Dale-Crunk, Beverly A. * 1972, (Adjunct); PhD, 1968, University of Michigan; keratin biochemistry.

Davie, Earl Warren * 1962; PhD, 1954, University of Washington; mechanism of blood clotting, cloning of plasma proteins.

Eisenman, Robert M. * 1982, (Affiliate); PhD, 1971, University of Chicago; transcription, protein-protein interaction, cancer.

Eyre, David R. * 1985, (Adjunct); PhD, 1969, University of Leeds (UK); connective tissue biology, collagen chemistry, bone and cartilage metabolism.

Fujikawa, Kazuo 1970, (Research); PhD, 1965, Kyoto University (Japan); studies of blood coagulation and anionic phospholipids at thrombotic sites.

Gelb, Michael H. * 1985, (Adjunct); PhD, 1982, Yale University; mechanistic enzymology, bioorganic and medicinal chemistry.

Glomset, John A. * 1977; MD, 1960, University of Uppsala (Sweden); membrane structure and function.

Gordon, Milton * 1959; PhD, 1953, University of Illinois; molecular basis of plant tumors, control of gene expression in plants, sequence of agrobacteria.

Hauschka, Stephen D. * 1972; PhD, 1966, Johns Hopkins University; muscle gene regulation, gene therapy, stem cell phenotypic conversion.

Hol, Wilhelmus G. J. * 1992; PhD, 1971, University of Groningen (Netherlands); protein crystallography, drug design, vaccine development, and protein engineering.

Hurley, James Bryant * 1985; PhD, 1979, University of Illinois; molecular basis of vision.

Kaushansky, Kenneth * 1979, (Adjunct); MD, 1979, University of California (Los Angeles); hematology.

Kimelman, David * 1989; PhD, 1985, Harvard University; molecular regulation of early vertebrate development.

Klevit, Rachel E. * 1983; DPhil, 1981, Oxford University (UK); structure/function of breast cancer proteins; protein NMR, mass spectrometry, other spectroscopies.

Loeb, Lawrence A. * 1978; MD, 1961, New York University; PhD, 1967, University of California (Berkeley); DNA replication, cancer and AIDS.

Morris, David R. * 1966; PhD, 1964, University of Illinois; cell growth, gene expression, polyamines.

Palmiter, Richard D. * 1982; PhD, 1968, Stanford University; genetic approaches to neuromodulator function in mammalian nervous system.

Parson, William W. * 1971; PhD, 1965, Case Western Reserve University; spectroscopic and computational studies of energy capture and electron transfer in photosynthesis.

Petra, Philip H. * 1966; PhD, 1966, Tulane University; protein chemistry with emphasis on steroid-protein interaction.

Reid, Brian R. * 1980; PhD, 1965, University of California (Berkeley); biophysical chemistry.

Roberts, James Michael * 1989, (Affiliate); MD, 1984, PhD, 1984, Columbia University; how cyclin-kinase complexes regulate events necessary for chromosomal DNA replication.

Saari, John C. * 1974; PhD, 1970, University of Washington; retinal biochemistry.

Teller, David C. * 1965; PhD, 1965, University of California (Berkeley); physical chemistry of macromolecules, protein crystallography.

Walsh, Kenneth A. * 1958, (Emeritus); PhD, 1959, University of Toronto (Canada); structure and functions of proteins; protein mass spectrometry.

Young, Elton * 1969; PhD, 1967, California Institute of Technology; regulation of gene activity in the yeast *Saccharomyces cerevisiae*.

Associate Professors

Davis, Trisha Nell * 1987; PhD, 1983, Yale University; cell biology, centrosomes, mitosis, cell cycle, genomic instability.

Hahn, Steven M. * 1994, (Affiliate); PhD, 1984, Brandeis University; the mechanism and regulation of eukaryotic transcription.

Muller, Eric D. * 1988, (Research); PhD, 1981, Yale University; fluorescence microscopy and DNA synthesis.

Nagarajan, Venkatraman 1987, (Research); PhD, 1985, University of Notre Dame; electron-transfer aspects of photosynthesis.

Quaife, Carol J. 1981, (Research); PhD, 1984, University of Washington; metallothioneins.

Roth, Mark * 1994, (Affiliate); PhD, 1988, University of Colorado (Boulder); chromosome segregation, growth control.

Stenkamp, Ronald E. * 1978, (Adjunct); PhD, 1975, University of Washington; crystallography, metalloproteins, protein engineering, blood clotting proteins, streptavidin.

Stoddard, Barry L. * 1994, (Affiliate); PhD, 1990, Massachusetts Institute of Technology; structure and function of enzyme catalysts, bacterial signal transduction.

Wiseman, Robert W. * 1989, (Adjunct); PhD, 1988, Florida State University; cellular energetics, NMR spectroscopy, mitochondria, kinetics, gene expression, metabolism.

Assistant Professors

Baker, David * 1993; PhD, 1989, University of California (Berkeley); protein folding.

Beeson, Craig C. * 1996, (Adjunct); PhD, 1993, University of California (Irvine); chemistry and biochemistry of the immune system.

Daum, Guenter 1993, (Research Adjunct); PhD, 1989, University of Konstanz (Germany); vascular smooth muscle cells.

Ferre-D'amare, Adrian Riu 2000, (Affiliate); PhD, 1995, Rockefeller University.

Neugebauer, Karla * 1999, (Adjunct); PhD, 1990, University of California (San Francisco); transcription and splicing regulators studied with high resolution light microscopy.

Ruohola-Baker, Hannele * 1993; PhD, 1989, Helsinki University (Finland); signaling, pattern formation, establishment of polarity in development.

Tsukiyama, Toshio * 1999, (Affiliate); PhD, 1991, Hiroshima University (Japan).

Zhang, Kam * 1995, (Affiliate); PhD, 1990, Massachusetts Institute of Technology; structural studies of proteins involved in apoptosis; protein folding and macromolecular phasing.

Course Descriptions

See page 48 for an explanation of course numbers, symbols, and abbreviations.

For graduate- and professional-level course descriptions, see the graduate and professional study volume of the *General Catalog* or visit the online course catalog at www.washington.edu/students/crscat/.

BIOC 396 Research in Chemistry and the Chemical Sciences (1) NW Presentations by researchers in academia and industry describing the opportunities for research chemistry and biochemistry. Credit does not count toward chemistry major requirements. Credit/no credit only. Prerequisite: CHEM 337. Offered: jointly with CHEM 396; A.

BIOC 405 Introduction to Biochemistry (3) NW Daum, Teller, Wiseman Survey of basic principles of biochemistry and molecular biology, emphasizing broad understanding of chemical events in living systems in terms of metabolism and structure-function relationships of biologically important molecules. Suitable for pre-majors, for students interested in careers in medicine, dentistry, pharmacy, medical technology. Prerequisite: BIOL 201 or both BIOL 101 and GENET 371; either CHEM 223, CHEM 237, or CHEM 335. Offered: A.

BIOC 406 Introduction to Biochemistry (3) NW Hurley, Petra Survey of basic principles of biochemistry and molecular biology, emphasizing broad understanding of chemical events in living systems in terms of metabolism and structure-function relationships of biologically important molecules. Suitable for pre-majors, for students interested in careers in medicine, dentistry, pharmacy, medical technology. Prerequisite: BIOC 405. Offered: W.

BIOC 426 Basic Techniques in Biochemistry (4) NW Chung, Petra Introduction to basic biochemistry experiments. Acquaints students (largely Biochemistry majors) with basic biochemical laboratory techniques. Prerequisite: BIOC 440, which may be taken concurrently. Offered: ASP.

BIOC 440 Biochemistry (4) NW Davis, Klevit Biochemistry and molecular biology (with quiz sections) for undergraduate students in molecular and cellular biology, for biochemistry majors, and graduate students in other science departments. Prerequisite: 2.0 in BIOL 201; either CHEM 224, CHEM 239, or CHEM 337. Offered: A.

BIOC 441 Biochemistry (4) NW Gordon, Young Biochemistry and molecular biology (with quiz sections) for undergraduate students in molecular and cellular biology, for biochemistry majors, and graduate students in other science departments. Prerequisite: 1.7 in BIOC 440. Offered: W.

BIOC 442 Biochemistry (4) NW Kimelman, Palmiter Biochemistry and molecular biology (with quiz sections) for undergraduate students in molecular and cellular biology, for biochemistry majors, and graduate students in other science departments. Prerequisite: either 1.7 in BIOC 406 or 1.7 in BIOC 441. Offered: Sp.

BIOC 496 Research Seminar for Undergraduates (1, max. 2) NW formal presentations of student research. One credit applies to research component of a relevant major. Credit/no credit only. Prerequisite: BIOC 396 or CHEM 396. Offered: jointly with CHEM 496 Sp.

BIOC 498 Undergraduate Thesis (*) For senior medical students. Offered: AWSpS.

BIOC 499 Undergraduate Research (*) Investigative work on enzymes, proteins, lipids, molecular biology, developmental biology, intermediary metabolism, physical biochemistry, and related fields. Credit/no credit only. Prerequisite: permission of instructor. Offered: AWSpS.

Bioengineering

309 Harris Hydraulics Laboratory

The Center for Bioengineering provides a comprehensive, multidisciplinary program of education and research. The concepts and techniques of engineering are applied to the challenges in biology and medicine. Major areas of current bioengineering research include distributed diagnostics and home health care, molecular bioengineering and nanotechnology, engineered biomaterials, biomedical imaging and image-guided therapy, and computational bioengineering. Detailed information on Bioengineering, its faculty, and courses appears in the Interschool or Intercollege Programs section of this catalog.

Laboratory Medicine

NW120 University of Washington Medical Center



General Catalog Web page:
www.washington.edu/students/genecat/academic/Laboratory_Med.html



Department Web page:
www.labmed.washington.edu



Medical Technology Program Web page:
depts.washington.edu/medtech/

The Department of Laboratory Medicine provides service, education, and research. The divisions of the department include clinical chemistry, hematology, microbiology, coagulation, immunology, genetics, molecular diagnostics, virology, and medical informatics. In addition to courses for medical students, the department offers Bachelor of Science in Medical Technology and Master of Science degree programs. The depart-

ment provides residency training in clinical pathology for graduate physicians and postdoctoral training in several subspecialty areas of laboratory medicine.

Undergraduate Program

Adviser
Medical Technology Program Director
NW120 University of Washington Medical Center, Box 357110
(206) 598-6131
medtech@u.washington.edu

The Department of Laboratory Medicine offers a program of study leading to the Bachelor of Science in Medical Technology degree.

Medical technology (MT) is where basic laboratory science meets the practice of medicine. It is a profession of highly knowledgeable and skilled individuals who perform clinical laboratory tests on blood, other body fluids, or tissue samples. This is a critical part of health care, as the results obtained by these laboratory tests are a vital tool for physicians in their diagnosis, treatment, and prevention of disease.

Successful medical technologists are individuals who enjoy studying the biological, chemical, and physical sciences and who find personal satisfaction and intellectual reward in applying scientific methods in the diagnosis and evaluation of disease. A medical technologist may practice as a generalist, using knowledge in several of the scientific disciplines, or may specialize in one scientific area in larger hospitals. People trained as medical technologists may work in a variety of settings. Many work in clinical laboratories in large medical centers, hospitals, and clinics. Others do research in industrial, public health, and medical laboratories, and teach in hospitals, colleges, and universities.

Internship or Cooperative Exchange Programs: In 1999, the Medical Technology program initiated a cooperative exchange program with Gunma University in Maebashi, Japan, giving students the opportunity to compare laboratory medicine in Japan with its practice in the United States. The opportunity exists for graduates of the UW Medical Technology program to visit this comparable Japanese program for at least two weeks, providing an excellent learning experience for students with an interest in international health care.

Bachelor of Science in Medical Technology

The Medical Technology Program is a four-year course of study leading to a Bachelor of Science in Medical Technology degree. The freshman and sophomore years, known as the pre-professional phase (90 credits), are advised by the College of Arts and Sciences. The junior and senior years (seven quarters), known as the professional phase, are in the Department of Laboratory Medicine. Detailed information about program requirements, as well as application material, can be obtained from the Undergraduate Advising Center or the Department of Laboratory Medicine. For additional information, see the Medical Technology Program Web page (depts.washington.edu/medtech/).

Admission Requirements:

- 90 credits to include: BIOL 201, 202; BIOL 203 or ZOOL 118; CHEM 142, 152, 162; CHEM 223, 224; MATH 124, STAT 220, or MATH 144.
- Completion of University writing, reasoning, and general education requirements. Writing and reasoning requirements include 5 credits of English composition, plus two additional writing-intensive courses with a minimum of 7 total credits, and 5 credits of quantitative reasoning. General education requirements from the Areas of Knowledge include Visual, Literary, and Performing Arts—10 credits; Individuals and Societies—10 credits; and the Natural World—37 credits.

- The Allied Health Professions Admissions Test (AHPAT) must be taken and scores received by the department's application deadline. Tests are given in September, November, January, and March or April.
- Departmental application deadline: April 15 for autumn quarter only.

Suggested Introductory Course Work: CHEM 321, MICROM 301, 431, GENET 351, 371, B STR 301, PHIL 115, 241, CLAS 101, 205, PATH 410, UCONJ 420.

Graduation Requirements: Detailed requirements may be obtained from the Medical Technology Program Director, Department of Laboratory Medicine, Box 357110. A minimum of a "C" grade in all laboratory-medicine courses and a GPA of 2.00, both cumulative and in required courses, are required for graduation.

The Medical Technology Program and curriculum are accredited by the National Accrediting Agency for Clinical Laboratory Science (NAACLS). Graduates are eligible to take examinations that lead to nationally recognized certification.

Graduate Program

For information on the Department of Laboratory Medicine's graduate and professional programs, see the graduate and professional volume of the *General Catalog* or visit the *General Catalog* online at www.washington.edu/students/gencat/.

Faculty

Chair

James Fine

Professors

Ashley, Rhoda L. * 1981; PhD, 1977, University of California (Davis); pathogenesis of viral infections, immune response to herpes, rapid diagnosis.

Benjamin, Denis R. * 1982; MBChB, 1968, University of Witwatersrand (S Africa); pediatric pathology, hematopathology, nutrition, circadian rhythms.

Chatrian, Gian E. 1981, (Emeritus); MD, 1951, University of Naples (Italy); electroencephalography and clinical neurophysiology.

Corey, Lawrence * 1977; MD, 1971, University of Michigan; laboratory medicine: diagnosis, therapy, and pathogenesis of viral infections, AIDS virus.

Coyle, Marie B. * 1973; PhD, 1965, Kansas State University; DNA probes and GLC for rapid identification of mycobacteria and corynebacteria.

Detter, James C. * 1970, (Emeritus); MD, 1962, University of Kansas; laboratory diagnosis of genetic disorders, red-cell disorders and laboratory instrumentation.

Gilliland, Bruce C. * 1970; MD, 1960, Northwestern University; rheumatology/immunology.

Kaplan, Alex 1960, (Emeritus); PhD, 1936, University of California (Berkeley); clinical chemistry.

Kenny, Margaret * 1970, (Emeritus); PhD, 1968, University of Illinois; clinical chemistry, new technologies for in vivo clinical biochemical analysis.

Labbe, Robert F. * 1957, (Emeritus); PhD, 1951, Oregon State University; porphyrin disorders, nutritional biochemistry.

Mullins, James I. * 1994, (Adjunct); PhD, 1978, University of Minnesota; cell biology and biochemistry.

Plorde, James J. * 1982, (Emeritus); MD, 1959, University of Minnesota; infectious diseases, antibiotic-resistant nosocomial infections.

Raisys, Vidmantas A. * 1971; PhD, 1969, State University of New York (Buffalo); clinical toxicology, therapeutic drug monitoring.

Schmer, Gottfried * 1970, (Emeritus); MD, 1956, University of Vienna (Austria); tropical medicine and public health, clinical parasitology, preventive medicine.

Strandjord, Paul E. * 1969, (Emeritus); MD, 1959, Stanford University; clinical chemistry, leadership and management.

Associate Professors

Battaglia, David 1980, (Adjunct); MS, 1978, PhD, 1985, University of Washington; gamete biology.

Bauer, Larry * 1980, (Adjunct); PharmD, 1980, University of Kentucky; clinical pharmacokinetics and drug metabolism, drug interactions.

Chandler, Wayne L. * 1982; MD, 1982, St Louis University; clinical chemistry, clinical coagulation, hematology.

Chou, David 1998; MD, 1974, University of Pittsburgh; MS, 1979, University of Minnesota; medical informatics, instrument automation, clinical chemistry.

Clayson, Kathleen J. * 1969, (Emeritus); MS, 1968, University of Minnesota; enzymology in clinical chemistry.

Coombs, Robert W. * 1985; PhD, 1977, MD, 1981, Dalhousie University (Canada); diagnosis and pathogenesis of HIV infection.

Delaney, Collene J. * 1982; PhD, 1972, University of Illinois; clinical chemistry, the study of diabetes and alcoholism.

Fine, James * 1977; MD, 1972, MS, 1977, University of Minnesota; enzymology, medical informatics.

Fligner, Corinne L. 1983, (Adjunct); MD, 1976, University of New Mexico; autopsy and forensic pathology, fetal and perinatal pathology, forensic toxicology.

Frenkel, Lisa M. 1994; MD, 1987, University of Kansas; infectious diseases.

Fritsche, Thomas R. * 1981; MD, 1981, PhD, 1984, University of Minnesota; systematics and ecology of animal parasites; medical microbiology.

Gretch, David R. * 1990; PhD, 1990, MD, 1990, University of Iowa; research and diagnostics related to viral hepatitis.

Hackman, Robert C. 1982; MD, 1971, Stanford University; infectious and pulmonary complications in immunocompromised patients.

Lampe, Mary F. * 1988; MS, 1976, University of Washington; PhD, 1984, University of North Carolina; medical technology education, molecular analysis of Chlamydia trachomatis pathogenesis.

McElrath, Margaret Juliana 1990, (Adjunct); PhD, 1978, MD, 1980, Medical University of South Carolina; infectious diseases.

Opheim, Kent E. * 1977; PhD, 1972, Cornell University; molecular cytogenetics, pediatric clinical chemistry, drug assay development.

Raghu, Ganesh 1981, (Adjunct); MD, 1974, University of Mysore (India); respiratory disease.

Rutledge, Joe C. * 1989; MD, 1976, Vanderbilt University; genetic disease pathology, human embryology, mouse mutagenesis, pediatric chemistry/hematology.

Schiller, Harvey S. * 1982; MD, 1966, Washington University; clinical chemistry, hematology, interpretation of laboratory data.

Stephens, Karen G. * 1989, (Research); PhD, 1982, Indiana University; molecular genetics of human inherited disease; gene mapping, regulation, and imprinting.

Tait, Jonathan F. * 1983; MD, 1983, PhD, 1983, Washington University; biochemistry of blood coagulation, laboratory diagnosis of genetic disorders.

Wener, Mark H. * 1980; MD, 1974, Washington University; diagnostic immunology, immune complex diseases.

Zeh, Judith * 1961, (Adjunct Research); PhD, 1979, University of Washington; estimation of whale population size and dynamics, statistics in infectious disease research.

Assistant Professors

Astion, Michael L. * 1991; PhD, 1989, MD, 1989, University of Pennsylvania; neural networks, multimedia computer-aided tutorials, immunology.

Behrens, Joyce A. 1971; MS, 1971, University of Minnesota; clinical hematology and clinical coagulation methodologies.

Cookson, Brad T. * 1991; MD, 1991, PhD, 1991, Washington University; cellular immune response to intracellular bacteria, microbial pathogenesis, clinical microbiology.

Koelle, David 1988, (Adjunct); MD, 1985, University of Washington; allergy and infectious diseases.

Le Crone, Carol N. * 1967, (Emeritus); MS, 1966, Colorado State University; hematology, hemoglobinopathies.

McGonagle, Lee Anne 1969, (Emeritus); MPH, 1969, University of Michigan; clinical microbiology, procedures for diagnostic bacteriology.

Sabath, Daniel E. * 1989; PhD, 1989, MD, 1989, University of Pennsylvania; regulation of gene expression in hematopoietic cells.

Szabo, La Verne 1970, (Emeritus); MS, 1970, University of Washington; general clinical chemistry, heavy metals in clinical chemistry.

Wald, Anna * 1989, (Adjunct); MD, 1985, Mt Sinai School of Medicine; MPH, 1994, University of Washington; epidemiology, natural history, and therapeutics of HSV and other herpes viruses infections.

Wood, Brent L. 1990; PhD, 1988, MD, 1990, Loma Linda University; clinical laboratory hematology.

Lecturer

Goodyear, Nancy 1997; PhD, The Catholic University of America; clinical microbiology and education.

Course Descriptions

See page 48 for an explanation of course numbers, symbols, and abbreviations.

For graduate- and professional-level course descriptions, see the graduate and professional study volume of the *General Catalog* or visit the online course catalog at www.washington.edu/students/crscat/.

LAB M 321 Medical Technology: Introductory Clinical Hematology (6) *Behrens* Lecture and laboratory coverage of theoretical and practical aspects important in the evaluation of blood cells, to include their production, morphology, and function. Instrumentation used in testing included, as well as quality control and quality assurance issues. Offered: W.

LAB M 322 Medical Technology: Introductory Clinical Chemistry (5) *Raisys* Lecture and laboratory covering the theoretical and practical concepts associated with testing procedures performed in clinical chemistry. Offered: A.

LAB M 418 Topics in Clinical Chemistry (5) *Raisys* Lecture and laboratory exercises covering fundamentals of instrumentation, methodology, and quality control in the clinical chemistry laboratory. Offered: Sp.

LAB M 419 Clinical Coagulation (4) *Behrens* Lecture and laboratory coverage of the theory of the hemostatic system, to include tests used in the diagnosis/monitoring of patients with abnormal bleeding and/or thrombosis. Instrumentation as appropriate for testing included. Quality control and quality assurance discussed. Offered: S.

LAB M 420 Clinical Microscopy (3) *Raisys* Lecture and laboratory covering urinalysis testing procedures and associated disease entities. Analysis of other body fluids. Methods of microscopic examination by use of bright-field, phase, and polarizing microscopy. Offered: S.

LAB M 421 Medical Microbiology (1/6, max. 6) *Goodyear, Lampe* Lecture and laboratory coverage of human infections and diagnostic procedures used for isolation, identification, and antimicrobial susceptibility testing of the microorganisms associated with disease. Offered: S.

LAB M 423- Clinical Chemistry (*-, max. 24) *Raisys* Clinical testing related to protein and amino acid determinations, pancreatic function and intestinal absorption, renal and liver function, enzymes, electrolytes, and acid-base balance, lipids, toxicology, and endocrinology. Offered: AWSp.

LAB M 424- Clinical Microbiology (*-, max. 24) *Goodyear, Lampe* Techniques used in the diagnostic microbiology laboratory, including quality control, specimen evaluation, identification of pathogenic microorganisms, and antimicrobial susceptibility testing. Offered: AWSp.

LAB M 425- Clinical Hematology (*-, max. 24) *Behrens* Clinical study of techniques used in the diagnostic evaluation of blood cells, including production, proliferation, survival, morphologic, and functional features. Assessment of proteins and cells important in hemostasis included. Quality control and quality assurance issues considered. Biomolecular techniques appropriate for evaluation of the hematologic and hemostatic systems discussed. Offered: AWSp.

LAB M 426 Clinical Immunohematology (7) *Behrens* Lecture and laboratory covering theory of transfusion medicine and serological procedures used in the evaluation of cellular antigen systems. Principles of immunology and genetics included as appropriate for the techniques performed; screening of donor units to provide a safe product discussed. Quality control and quality assurance issues considered. Offered: W.

LAB M 427- Selected Studies in Laboratory Medicine (*-, max. 24) *Behrens, Goodyear, Lampe, Raisys* Selected clinical study in the major scientific disciplines of laboratory medicine, to include molecular diagnostics, or pursuance of a clinical research study. Credit/no credit only. Offered: AWSpS.

LAB M 499 Undergraduate Research (*) Specific project in clinical laboratory investigation. Offered: AWSpS.

Medical History and Ethics

A204 Health Sciences Building



General Catalog Web page:
www.washington.edu/students/gencat/academic/Med_History_Ethics.html



Department Web page:
depts.washington.edu/rmhdept/

Adviser

A204 Health Sciences Building, Box 357120
(206) 543-5145
mheinfo@u.washington.edu

Undergraduate Program

The Department of Medical History and Ethics offers a program of study leading to a minor in medical history and ethics. The minor in Medical History and Ethics is particularly useful for students aspiring toward careers in the health professions and is designed to provide an appreciation of the culture of medicine and allied fields.

Minor

Minor Requirements: 25 credits of medical history and ethics and related courses, including MHE 401 or 417; MHE 411; and PHIL 102 or 240; plus an additional 14 credits selected from MHE 413, 422, 424, MHE 440/PHIL 459, MHE 474/PHIL 411, MHE 481, 483, 485, 497, 498, 499, ANTH 375, 475, 476, 477, ENGL 364, GEOG 280, HIST 311, 312, PHIL 102, 160, 342, 344, and 345. Minimum grade of 2.0 required in each course presented for the minor.

Graduate Program

For information on the Department of Medical History and Ethics' graduate and professional programs, see the graduate and professional volume of the *General Catalog* or visit the *General Catalog* online at www.washington.edu/students/gencat/.

Faculty

Acting Chair

Jack W. Berryman

Professors

Benson, Keith R. * 1981; MA, 1973, PhD, 1979, Oregon State University; history of modern American biology, marine biology, and evolutionary biology.

Berryman, Jack W. * 1975; MS, 1971, MA, 1974, University of Massachusetts; PhD, 1976, University of Maryland; history of exercise, sports medicine, and health behavior/philosophy.

Jecker, Nancy A. S. * 1982; MA, 1982, Stanford University; MA, 1984, PhD, 1986, University of Washington; philosophical and ethical aspects of health care delivery and policy.

Jonsen, Albert R. * 1987, (Emeritus); MA, 1956, Gonzaga University; PhD, 1967, Yale University; philosophical, historical values affecting practice and delivery of health care.

Pearlman, Robert A. * 1981, (Adjunct); MD, 1975, Boston University; gerontology.

Whorton, James C. * 1970; PhD, 1969, University of Wisconsin; history of medicine, public health, pharmacy and alternative healing.

Associate Professors

Diekema, Douglas S. 1990, (Adjunct); MD, 1985, University of North Carolina; MPH, 1993, University of Washington; pediatric emergency medicine.

Kuszler, Patricia Carol * 1994, (Adjunct); MD, 1978, Mayo Medical School/graduate School; JD, 1991, Yale University; law and medicine: health-care finance and regulation, medical malpractice, biotechnology and law.

Sullivan, Mark D. 1985, (Adjunct); PhD, 1982, MD, 1984, Vanderbilt University; depression and chronic medical illness, chronic pain, ethics, quality of life.

Assistant Professors

Braddock, Clarence H. * 1993, (Adjunct); MD, 1981, University of Chicago; doctor-patient communication, informed consent, bioethics education.

Durfy, Sharon J. * 1991; PhD, 1990, University of Toronto (Canada); ethical aspects of genetic testing, counseling, research, public policy.

Tonelli, Mark R. 1993, (Adjunct); MD, 1989, University of Colorado (Boulder); pulmonary and critical care medicine.

Senior Lecturer

McCormick, Thomas R. * 1974; BDiv, 1960, Drake University; DMin, 1976, Southern Methodist University; biomedical ethics, particularly relating to neonatology, and problems related to death and dying.

Course Descriptions

See page 48 for an explanation of course numbers, symbols, and abbreviations.

For graduate- and professional-level course descriptions, see the graduate and professional study volume of the *General Catalog* or visit the online course catalog at www.washington.edu/students/crscat/.

MHE 401 History of Modern Medicine (3) I&S *Whorton* Survey of evolution of medical theory, practice, and institutions in European and American society from the late 18th century present. Medical background not required. Recommended: prior courses in sciences and/or history.

MHE 402 Ethical Theory (3) I&S *Jecker* Review of principal theories for normative ethical discourse, such as utilitarianism and deontology, and major metaethical commentary on those theories. Illustrated by classical and modern authors. Recommended: one basic course in ethics.

MHE 404 Metaethical Theory (5) I&S *Jecker* Study of major ethical writings in the twentieth century, with principal emphasis on the Anglo-American tradition. Recommended: one introductory philosophy course.

MHE 411 Introduction to Bioethics (3) I&S Basic concepts, principles, and methods of analysis, with application to some major issues in the field of bioethics. Case studies utilized to illustrate nature of questions arising in bioethics and to provide students with opportunity to develop skills in ethical analysis.

MHE 413 History of Alternative Healing (3) I&S *Whorton* Analysis of historical development of alternative healing in American society over last two centuries. Emphasis on evolution of theory, practice, and professional institutions for major alternative systems and interactions of alternative modalities with conventional medicine. Medical background not required.

MHE 417 Disease in History (3) I&S *Whorton* Study of Western civilization's experience with epidemic disease, the growth of understanding of the causes

of disease, the formation of a philosophy of prevention, and the development of programs to protect the public health. Emphasis on the last two centuries. Medical background not required.

MHE 422 History of Evolution Theory (5) I&S *Benson* Development of evolution theory from its early-nineteenth-century roots through the work of Charles Darwin. Impact of evolution theory on society and the formulation of the theory in the twentieth century.

MHE 424 Modern Biology in Historical Perspective (5) I&S *Benson* Two diverse traditions of biology, natural history, and physiology, in their nineteenth-century development and their subsequent merging after Darwin's evolution theory. Emergence of specialty areas in biology after the beginning of the twentieth century.

MHE 440 Philosophy of Medicine (5) I&S *Jecker* Familiarizes students with central issues in the philosophy of medicine. Focuses on the nature of medical knowledge, the connection between theory and observation, the meaning of medical concepts, and the relationship between theories and the world. Recommended: prior courses in philosophy, history of science, or history of medicine. Offered: jointly with PHIL 459.

MHE 474 Justice in Health Care (5) VLPA/I&S *Jecker* Examination of the ethical problem of allocating scarce medical resources. Emphasis on fundamental principles of justice that support alternative health policies. Recommended: prior courses in philosophy or medical ethics. Offered: jointly with PHIL 411.

MHE 481 The Pursuit of Health in American Society (3) I&S *Berryman, Whorton* Examination of the development of concern for personal health over the past two centuries, and of the evolution of philosophies and practices of health promotion. Emphasis on the influence of both medicine and popular culture on shaping of attitudes towards diet, exercise, dress, sex, and other health behavior.

MHE 483 The Rise and Development of Sports Medicine (3) I&S *Berryman* Evolution of medical thought related to exercise for good health, training for sport participation, and treatment of sport-related injuries. Begins with ancient period, concludes with present. Development of specialization in sports medicine, sport team physicians, preventive medicine, concepts of fitness and wellness as related to exercise prescription, and sports medicine clinics.

MHE 485 Concepts of the Body in Nineteenth- and Twentieth-Century America (3) I&S *Berryman* Investigation of ideas relating to corporeal self in nineteenth- and twentieth-century America. Evolution of physical ideals of manliness/femininity, how ideals related to surrounding culture, how different bodily activities developed to realize ideals. Athleticism, physiognomy, beauty contests, body building, decorations, cosmetics, anthropometry, artificial parts.

MHE 498 Undergraduate Thesis (*)

MHE 499 Undergraduate Research (* max. 5) Investigative work in history of the biomedical sciences.

Microbiology

G315 Health Sciences



General Catalog Web page:
www.washington.edu/students/genecat/academic/MicrobiologyAS.html



Department Web page:
depts.washington.edu/micro/

Microbiology is a natural science that deals with microorganisms such as bacteria, fungi, protozoa, algae, and viruses. It is concerned with the nature and properties of these organisms, their effects on humans and the environment, and how they can be exploited to provide useful products.

Undergraduate Program

The Bachelor of Science in microbiology is granted by the College of Arts and Sciences. For a description of the undergraduate program in microbiology, see the College of Arts and Sciences section.

Faculty

Chair

James I. Mullins

Professors

Champoux, James J. * 1972; PhD, 1970, Stanford University; DNA replication, tumor virology.

Clark, Edward A. * 1984; PhD, 1977, University of California (Los Angeles); lymphocyte surface molecules, lymphocyte activation and cell communication.

Corey, Lawrence * 1977, (Adjunct); MD, 1971, University of Michigan; laboratory medicine: diagnosis, therapy, and pathogenesis of viral infections, AIDS virus.

Coyle, Marie B. * 1973; PhD, 1965, Kansas State University; DNA probes and GLC for rapid identification of mycobacteria and corynebacteria.

Cutler, Jim E. 1995, (Affiliate); PhD, 1972, Tulane University; mycology, host-parasite relationships, molecular biology.

Emmerman, Michael 1994, (Affiliate); PhD, 1986, University of Wisconsin; molecular biology of HIV.

Evans, Charles A. 1946, (Emeritus); MD, 1937, PhD, 1943, University of Minnesota; microbial flora of human skin, medical virology.

Fields, Stanley * 1995, (Adjunct); MA, 1978, PhD, 1981, Cambridge University (UK); molecular genetics.

Floss, Heinz G. * 1987, (Adjunct); PhD, 1961, Technical University of Munich (Germany); bioorganic and natural products chemistry.

Galloway, Denise A. * 1982, (Research); PhD, 1976, City University of New York; viral pathogenesis and neoplasia.

Gilliland, Bruce C. * 1970, (Adjunct); MD, 1960, Northwestern University; rheumatology/immunology.

Gordon, Milton * 1959, (Adjunct); PhD, 1953, University of Illinois; molecular basis of plant tumors, control of gene expression in plants, sequence of agrobacteria.

Greenberg, Philip D. * 1978, (Adjunct); MD, 1971, State University of New York (Downstate Medical Center); molecular, cellular, viral, and tumor immunology.

Groman, Neal B. * 1950, (Emeritus); PhD, 1950, University of Chicago.

Hakomori, Sen-itiroh * 1967; MD, 1951, DMedSc, 1956, Tohoku University (Japan); role of glycosphingolipids in defining antigenicity, cellular interaction, and signal transduction.

Holmes, King K. * 1967, (Adjunct); MD, 1963, Cornell University; PhD, 1967, University of Hawaii; clinical epidemiology and pathogenesis of infectious diseases.

Hu, Shiu-Lok 1988; PhD, 1978, University of Wisconsin; molecular virology, immunology and vaccine research.

Janis, Burton 1996, (Affiliate); MD, 1963, Northwestern University; infectious diseases.

Katze, Michael Gerald * 1987; PhD, 1980, Hahnemann Medical College; regulation of viral gene expression at the translational level.

Kenny, George E. * 1961, (Adjunct); PhD, 1961, University of Minnesota; human immune response to infectious diseases, detection and biology of mycoplasmas.

Klebanoff, Seymour * 1962, (Adjunct); MD, 1951, University of Toronto (Canada); PhD, 1954, University of London (UK); infectious disease.

Lamont, Richard J. * 1988, (Adjunct); PhD, 1985, University of Aberdeen (UK); pathogenic mechanisms and taxonomy of oral bacteria.

Lidstrom, Mary E. * 1990; MS, 1975, PhD, 1977, University of Wisconsin; biomolecular engineering, metabolic engineering, bioremediation.

Linial, Maxine L. * 1982, (Research); PhD, 1970, Tufts University; retroviral replication and genetics, retroviral transformation.

Lory, Stephen * 1984; PhD, 1980, University of California (Los Angeles); biochemistry, genetics of microbial virulence factors.

Lukehart, Sheila A. * 1980, (Adjunct Research); PhD, 1978, University of California (Los Angeles); infectious diseases.

Mannik, Mart * 1966, (Adjunct); MD, 1959, Case Western Reserve University; rheumatology.

Miller, Robert C. 1995; PhD, 1969, University of Pennsylvania; genetics and molecular biology.

Miller, Samuel I. * 1995; MD, 1979, Baylor University; molecular pathogenesis of bacterial diseases.

Mullins, James I. * 1994; PhD, 1978, University of Minnesota; cell biology and biochemistry.

Nester, Eugene W. * 1962; PhD, 1959, Case Western Reserve University; genetics and biochemistry of bacterial-plant cell interactions, tumorigenesis.

Rubens, Craig E. * 1984, (Adjunct); PhD, 1978, Medical University of South Carolina; MD, 1982, University of Washington; molecular pathogenesis of Group B streptococcal infections in newborn infants.

Sherris, John C. * 1959, (Emeritus); MBBS, 1948, MD, 1950, University of London (UK); medical microbiology, antibiotic action and resistance.

Staley, James T. * 1971; PhD, 1967, University of California (Davis); microbial ecology, bacterial systematics, general microbiology.

Stuart, Kenneth Daniel * 1985, (Adjunct); PhD, 1969, University of Iowa; molecular biology of protozoan pathogens.

Tarr, Phillip I. 1983, (Adjunct); MD, 1980, Yale University; gastroenterology/infectious diseases.

Vessella, Robert L. 1989, (Adjunct); PhD, 1974, University of Mississippi; tumor markers and immunology.

Associate Professors

Bundtzen, Robert 1996, (Affiliate); MD, 1975, University of Washington; infectious diseases.

Fritsche, Thomas R. * 1981; MD, 1981, PhD, 1984, University of Minnesota; systematics and ecology of animal parasites; medical microbiology.

Geballe, Adam Philip * 1988, (Adjunct); MD, 1978, Duke University; virology.

Haigwood, Nancy L. * 1994; PhD, 1980, University of North Carolina; host immunity in the control and prevention of AIDS.

Herwig, Russell P. * 1983, (Adjunct Research); PhD, 1989, University of Washington; environmental microbiology, bioremediation, molecular microbial ecology, microbial phylogenetics.

Hill, Walter E. * 1992, (Affiliate); PhD, 1972, University of Washington; genetic methods for detecting and characterizing foodborne microbial pathogens.

Hughes, Kelly T. * 1989; PhD, 1984, University of Utah; genetics, gene regulation, microbial physiology, and metabolism.

Janis, Mary K. 1996, (Affiliate); PhD, 1982, University of Utah; immunology, pathology.

Lampe, Mary F. * 1988, (Adjunct); MS, 1976, University of Washington; PhD, 1984, University of North Carolina; medical technology education, molecular analysis of Chlamydia trachomatis pathogenesis.

Lara, Jimmie Cano * 1972; PhD, 1970, University of California (Riverside); microbial physiology and crytology, sporulation and gas vesicle synthesis and regulation.

Leigh, John A. * 1985; PhD, 1983, University of Illinois; bacterial physiology, biochemistry, genetics.

Moseley, Stephen L. * 1985; PhD, 1981, University of Washington; molecular basis of pathogenesis in E. coli diarrhea.

Overbaugh, Julie Maureen * 1988; PhD, 1983, University of Colorado (Boulder); molecular mechanisms of virus-host cell interactions/retroviral pathogenesis/aids.

Paznokas, John Lawrence 1988, (Affiliate); PhD, 1974, St. Louis University.

Traxler, Beth A. * 1992; PhD, 1987, Carnegie Mellon University; bacterial physiology, genetics, and membrane protein biochemistry.

Assistant Professors

Bohach, Gregory A. 1992, (Affiliate); PhD, 1985, West Virginia University; medical microbiology.

Cookson, Brad T. * 1991; MD, 1991, PhD, 1991, Washington University; cellular immune response to intracellular bacteria, microbial pathogenesis, clinical microbiology.

Law, Che-Leung 1990, (Affiliate); PhD, 1990, University of Minnesota; immunology, B cell activation and development.

Mittler, John E. 1999, (Research); PhD, 1992, University of California (Irvine).

Senior Lecturers

Anderson, Denise G. 1982; MS, 1985, University of Washington; microbiology laboratory teaching.

Bicknell, Mary 1975; MS, 1962, University of Washington; microbiology laboratory teaching.

Fulton, Janis R. 1983; MS, 1977, Montana State University; microbiology laboratory teaching.

Lecturers

Barnes, Glover W. * 1969; MA, 1955, PhD, 1961, State University of New York (Buffalo); tissue, organ immunology.

Chandler, Mark S. 1998; PhD, 1998, University of Illinois; microbiology laboratory teaching.

Course Descriptions

See page 48 for an explanation of course numbers, symbols, and abbreviations.

For graduate- and professional-level course descriptions, see the graduate and professional study volume of the *General Catalog* or visit the online course catalog at www.washington.edu/students/crscat/.

MICROM 301 General Microbiology (3) NW *Anderson, Lara, Nester* Acquaints students with microorganisms and their activities. Topics include microbial cell structure and function, metabolism, microbial genetics, and the role of microorganisms in disease, immunity, and other selected applied areas. Prerequisite: either CHEM 120, CHEM 140, CHEM 142, or CHEM 145; recommended: biology; organic chemistry. Offered: AsPS.

MICROM 302 General Microbiology Laboratory (2) NW *Anderson, Bicknell, Fulton* Laboratory course primarily for students taking 301. Covers a variety of microbiological techniques, with experiments designed to illustrate major concepts of bacteriology, virology, and immunology. No auditors. Recommended: MICROM 301 which may be taken concurrently. Offered: AsPS.

MICROM 322 Applied Clinical Microbiology (5) NW *Cookson, Fritsche* Practical experience in a clinical or public health laboratory; fifteen hours per week. For students majoring in medical microbiology. Three quarters advance sign-up in G315 Health Sciences recommended. Applicants are selected by interview. Credit/no credit only. Prerequisite: MICROM 443. Offered: AWP.

MICROM 402 Fundamentals of General Microbiology Laboratory (3) NW *Bicknell, Fulton* Isolation of a broad range of nonpathogenic bacteria from natural sources, using selective and enrichment techniques, with microscopic and biochemical identification. Related exercises include genetics, quantitation, and growth kinetics. Prerequisite: BIOL 201; recommended: MICROM 410 which may be taken concurrently. Offered: ASP.

MICROM 410 Fundamentals of General Microbiology I (3) NW *Lara, Traxler* Survey of the microbial world, metabolism, biosynthesis, regulation, growth, structure, and function. Required for students majoring in microbiology; recommended for students majoring in biology. Prerequisite: BIOL 201; either CHEM 223, CHEM 237, or CHEM 335. Offered: A.

MICROM 411 Gene Action (5) NW *Hughes, Manoil* Molecular genetics: description of fundamental genetic processes such as mutation, repair, genetic exchange, recombination, and gene expression. Use of genetic strategies to analyze complex biological processes. Focuses on prokaryotic organisms. Prerequisite: BIOL 201; either CHEM 223, CHEM 237, or CHEM 335. Offered: jointly with GENET 411; W.

MICROM 412 Fundamentals of General Microbiology III (3) NW *Leigh* Structure, biochemical properties, and genetics of the major groups of prokaryotes. Prerequisite: either BIOL 201 or BIOL 203; recommended: either CHEM 223, CHEM 237, or CHEM 335; MICROM 410. Offered: Sp.

MICROM 431 Prokaryotic Recombinant DNA Techniques (3) NW *Anderson* Laboratory course emphasizing concepts and techniques/methodologies in recombinant DNA research employing bacteria and their viruses. Topics and experiments/demonstrations include genomic and plasmid DNA isolation, restriction mapping, cloning, transposon mutagenesis, sequencing, and Western and Southern blotting. No auditors. Prerequisite: either BIOL 201 or MICROM 301. Offered: W.

MICROM 435 Microbial Ecology (3) NW *Staley* Consideration of the various roles that microorganisms, particularly bacteria and cyanobacteria, play in environmental processes. The interrelationships among microorganisms and the effects of the physical, chemical, and biological properties of their environment are discussed and assessed. Prerequisite: BIOL 203. Offered: even years; Sp.

MICROM 440 Introductory Bacteriology for Medical Technologists (1) NW *Anderson* Limited introduction to basic microbiology, with focus on structure, metabolism, and genetics of medically important organisms. Open only to medical technology students. Credit/no credit only. Offered: A.

MICROM 441 Introduction to Immunology (4) NW General properties of immune responses; cells and tissues of immune system; lymphocyte activation and specificity; effector mechanisms; immunity to microbes; immunodeficiency and AIDS; autoimmune diseases; transplantation. Prerequisite: BIOL 202; recommended: either GENET 371, GENET 372, BIOC 405, or BIOC 440. Offered: jointly with IMMUN 441; A.

MICROM 442 Medical Bacteriology (3) NW *Cookson, Lampe* Medically important bacterial pathogens are discussed in terms of the clinical, therapeutic, and epidemiological aspects of diseases caused by them, molecular mechanisms of pathogenesis and their identification in the clinical laboratory. Laboratory course 443 coordinates. Prerequisite: BIOL 202; recommended: MICROM 410; MICROM 441. Offered: W.

MICROM 443 Medical Microbiology Laboratory (3) NW *Anderson, Coyle, Fritsche, Fulton* Required for medical technology students, microbiology majors; elective for medical students. Procedures for isolation and identification of pathogenic bacteria, testing their susceptibility to antibiotics. No auditors. Prerequisite: BIOL 201; recommended: MICROM 410. Offered: AW.

MICROM 444 Medical Mycology and Parasitology (4) NW *Anderson, Coyle, Fritsche, Fulton* Consideration of medically important fungi and parasites, with emphasis on their biology in relation to disease and its laboratory diagnosis. For medical technology students, microbiology majors, and medical students as an elective. Prerequisite: BIOL 202; recommended: immunology. Offered: Sp.

MICROM 445 Medical Virology (2) NW *Mullirus, Thouless* An introductory course emphasizing basic understanding of medical virology and viral pathogenesis. The biochemical, replication, host-parasite relationships and pathogenesis of animal viruses are examined. Prerequisite: BIOL 201; recommended: MICROM 441. Offered: jointly with PABIO 445; Sp.

MICROM 450 Molecular Biology of Viruses (3) NW *Champoux* Introduction to the molecular biology of viruses and virus-host relationships. Designed for advanced undergraduates and graduate students in the biological sciences. Coverage includes bacterial and animal viruses, with an emphasis on the molecular mechanisms of viral gene expression and regulation. Prerequisite: BIOL 201; recommended: MICROM 410, MICROM 411, GENET 371, or GENET 372. Offered: Sp.

MICROM 495- Honors Undergraduate Research (*) *Leigh* Specific problems in microbiology or immunology. Offered: AWSpS.

MICROM 496 Undergraduate Library Research (2) *Leigh* Introduction to library research and to the microbiological literature. Topics are assigned and supervised by staff members. Credit/no credit only. Offered: AWSpS.

MICROM 499- Undergraduate Laboratory Research (*) *Leigh* Specific problems in microbiology or immunology. Credit/no credit only. Offered: AWSpS.

Rehabilitation Medicine

BB919 Health Sciences



General Catalog Web page:
www.washington.edu/students/gencat/academic/Rehab_Medicine.html



Department Web page:
depts.washington.edu/rehab/

The Department of Rehabilitation Medicine provides education for medical students, interns, residents, and allied health students in occupational therapy, physical therapy, and prosthetics and orthotics in a comprehensive approach to rehabilitation problems. This includes special diagnostic and evaluative procedures; methods and rationale in the application of principles of occupational therapy, physical therapy, prosthetics and orthotics, and other health professions; and advanced investigation of special problems encountered in the field. In addition, the department conducts a residency training program for the specialty of physical medicine and rehabilitation.

The department offers graduate curricula leading to the following degrees: Master of Occupational Therapy, Master of Physical Therapy, and a Bachelor of Science in the field of prosthetics and orthotics. The department also offers a Master of Science degree in rehabilitation medicine with options for occupational therapists, physical therapists, and residents in physical medicine and rehabilitation who wish to pursue academic or research careers.

Occupational Therapy

Head

Elizabeth M. Kannay

Occupational therapists provide services related to occupational performance in everyday life in the areas of self-care, work and productive activities, and play/leisure. Occupational therapists work with people who have physical illness or injury, social or emotional difficulties, congenital or developmental problems, or who are in need of preventive strategies that promote well being. They work with people in all age groups from diverse cultural and ethnic groups and socioeconomic levels.

Occupational therapists help people with impairments or limitations to live as productive a life as possible. They work with people to increase independent function in life activities, enhance development, and to minimize or prevent disability. They use a variety of therapeutic methods including training in self-care activities; design, fabrication, and application of splints; sensorimotor activities; therapeutic group activities; selection and use of adaptive equipment; adaptation of physical environments in the home, school, work, or community; activities to enhance functional performance in everyday life; and work evaluation, work hardening, and workplace adaptations.

Today's occupational therapists work in clinical and community practice, administration, education, and research. Work settings include rehabilitation centers and hospitals; public and private schools; home health agencies; mental health centers and psychiatric hospitals; private practice; vocational rehabilitation centers and industrial clinics; private industry, wellness and prevention programs; and hospices.

For more information on the Occupational Therapy graduate program, see the graduate and professional volume of the *General Catalog* or visit the *General Catalog* online at www.washington.edu/students/gencat/.

Physical Therapy

Head

Mark Guthrie

Physical therapy is a direct form of professional patient care that can be applied in most disciplines of medicine. The principal objective in physical therapy is to restore or improve motor function in individuals with musculoskeletal or neuromuscular problems.

Management of problems related to motor function is only part of the work of physical therapy. Equally important is a rebuilding of self-confidence and the creation of a desire to return to a normal, active life. Other primary objectives of physical therapy are prevention of disability and pain, and training in mobility skills for those who must adapt to permanent disability.

As a consequence of the scope of the profession, physical therapists function in a variety of settings, the most familiar being the hospital. Physical therapists also plan, provide, and supervise evaluation and direct patient care in outpatient clinics, rehabilitation centers, health maintenance organizations, developmental centers, home-health agencies, schools, extended-care facilities, voluntary health programs, industry, and private practices. The physical therapist may be found anywhere that quality health care is needed. Increasingly, physical therapists are becoming involved in basic and clinical research, such as the academic community, either as full-time faculty members or as supervisors of clinical education, and as consultants in local, state, and federal health-planning activities.

For more information on the Physical Therapy graduate program, see the graduate and professional volume of the *General Catalog* or visit the *General Catalog* online at www.washington.edu/students/gencat/.

Prosthetics and Orthotics

Head

John Ferguson

Upon successful completion of the prosthetics and orthotics program, the student will have learned the skills necessary to function as an entry level resident in prosthetics-orthotics. The degree in prosthetics-orthotics gives the student eligibility to enter a one-year clinical residency for each discipline at a National Commission on Orthotics and Prosthetics Education (NCOPE) approved site. This residency requirement must be completed for eligibility to apply for the National Certification Boards administered by the American Board for Certification in Orthotics and Prosthetics, Inc.

The prosthetist-orthotist is a member of the rehabilitation health care team working together with disabled or physically challenged individuals to enhance their daily life and increase their functional abilities. The three groups of prosthetic-orthotic devices which can potentially enter into the rehabilitation of an individual are: (1) prosthetic devices, which replace or substitute for a missing limb or part of a limb; (2) orthotic devices, which help with the control of motion and the support of a weakened body segment; and (3) adaptive devices, which enable the person to perform specific activities. Practitioners design and fabricate the appropriate device and evaluate the fit and functional use for each patient. To evaluate function, the prosthetist-orthotist must have a detailed knowledge of anatomy and kinesiology, joint range of motion, muscle strength, and human locomotion.

Upon successful completion of the program, the student is awarded a Bachelor of Science degree by the University of Washington School of Medicine. The practitioner program is accredited through the Commission on Accreditation of Allied Health Education Programs (CAAHEP).

Admission Requirements

1. Minimum 2.70 cumulative GPA.
2. Prior to admission to the program, students must complete the following prerequisites with a minimum GPA of 2.70: B STR 301; BIOL 101-1-2 or MICROM 301,302, (note that CHEM 220 is a prerequisite for microbiology); CHEM 120; PHYS 114, 115 117, 118; PSYCH 101; ZOOL 118.
3. Completion of the University writing and reasoning requirements (5 credits of English composition and 5 credits of quantitative and symbolic reasoning with a minimum grade of 2.0; two additional writing courses totaling a minimum of 10 credits with a minimum grade of 0.7) and the College of Arts and Sciences Areas of Knowledge requirements (20 credits in Visual, Literary, & Performing Arts; 20 credits in Individuals & Societies; 20 credits in the Natural World). Prerequisite courses fulfill the 5-credit quantitative and symbolic reasoning requirement, 5 credits of the Individuals & Societies requirement and all 20 credits of the Natural World requirement. Postbaccalaureate (fifth-year) students are exempt from the writing and reasoning requirements but not from the Areas of Knowledge requirements.
4. Admission to the program is competitive, based on GPA, and other measures of academic success. High GPA alone, however, does not guarantee admission. Other factors, such as character, interpersonal skills, organizational ability, and recommendations, are also assessed. Volunteer or paid experience in health related areas is very important.
5. Departmental Application Deadline: February 15 for autumn quarter only.

Suggested Introductory Course Work: SOC 110, SP CMU 103 or 220; STAT 220; courses with practical applications of computers.

Graduation Requirements: The following courses must be taken in the scheduled sequence, beginning autumn quarter only, at the UW: REHAB 320, 321, 322, 332, 340,341, 342, 343, 414, 420, 421, 423, 424, 427,428,429, 430, 442, 444-445, 448, 451, 452, 504,506, 580.

Student Evaluation: The university grade-point system is used in student evaluation. A student must maintain a minimum cumulative program GPA of 2.50 and "credit" grades in all courses that are graded credit/no credit to maintain good standing in the program and be eligible for graduation. A minimum grade of 2.0 is required in each course. A grade below 2.0 in a required course must be repeated at the next offering with a minimum grade of 2.0 received in the repeated course.

If at any point, the cumulative grade point in the curriculum courses falls below 2.50, the student is placed on academic probation. In order to be taken off probation, the student must achieve a curriculum grade point average of 2.50 by the end of two consecutive quarters, or within a time frame designated by the Advisory and Evaluation Committee. If a student is unable to remove his/her probation status he/she is subject to dismissal from the program.

Faculty

Acting Chair

Marjorie E. Anderson

Professors

Anderson, Marjorie E. * 1971; PhD, 1969, University of Washington; physiology of basal ganglia and cerebellum.

Cardenas, Diana D. * 1981; MD, 1973, University of Texas (Dallas); physiologic mechanisms following spinal cord injury, rehabilitation in renal disease.

Deitz, Jean L. * 1979; PhD, 1976, University of Florida; occupational therapy.

Dikmen, Sureyya S. * 1974; PhD, 1973, University of Washington; clinical neuropsychology, neuropsychological and psychosocial outcomes in traumatic head injury.

Fordyce, Wilbert E. * 1956, (Emeritus); PhD, 1953, University of Washington; psychology.

Fraser, Robert T. * 1976; PhD, 1976, University of Wisconsin; psychology.

Halar, Eugen M. * 1968, (Emeritus); MD, 1959, University of Zagreb (Yugoslavia); psychiatry, cardiovascular rehabilitation.

Jaffe, Kenneth M. * 1981; MD, 1975, Harvard University; pediatric rehabilitation, brain injury, neuromuscular diseases, congenital defects, electromyography.

Jensen, Mark * 1987; PhD, 1989, Arizona State University; assessment and treatment of chronic pain, coping with medical illness, treatment outcome.

Kraft, George Howard * 1969; MD, 1963, Ohio State University; electromyography, rehabilitation of central nervous system diseases, multiple sclerosis.

Lehmann, Justus F. * 1957, (Emeritus); DrMed, 1945, Johann Wolfgang Goethe University (Germany); psychiatry.

Patterson, David R. * 1984; PhD, 1982, Florida State University; treatment of acute pain, psychology of burn patients, psychological outcome of physical trauma.

Robinson, Lawrence R. * 1989; MD, 1982, Baylor University; clinical neurophysiology and pain after amputation.

Stolov, Walter C. * 1960, (Emeritus); MD, 1956, University of Minnesota; physical medicine and rehabilitation and electrodiagnostic medicine.

Turner, Judith A. 1980; MA, 1975, PhD, 1979, University of California (Los Angeles); psychology.

Yorkston, Kathryn * 1975; PhD, 1975, University of Oregon; neurogenic communication disorders in adults.

Associate Professors

Bell, Kathleen * 1981; MD, 1981, Temple University; brain injury - prognosis, pharmacologic intervention, imaging, medical education.

Benditt, Joshua O. 1994, (Adjunct); MD, 1982, University of Washington; pulmonary and critical care medicine.

Berni, Rosemarian * 1962, (Emeritus); MN, 1973, University of Washington; rehabilitation nursing.

Bombardier, Charles H. * 1989; PhD, 1987, Washington State University; spinal cord injury adjustment, decubitus ulcers, brain injury, alcohol abuse after injury.

Chang, Michael Wei * 1992; MD, 1988, University of Texas (Galveston); physical medicine and rehabilitation, electrophysiology biomechanics.

Czerniecki, Joseph M. * 1982; MD, 1981, University of British Columbia (Canada); MS, 1985, University of Washington; amputation rehabilitation, biomechanics and gait analysis.

Egan, Kelly J. 1980, (Adjunct); MA, 1968, Texas Technological University; PhD, 1980, University of Washington; clinical psychology.

Engel Knowles, Joyce M. * 1993; PhD, 1988, University of Kansas; use of occupational therapy in pain management, especially with children.

Esselman, Peter C. * 1986; MD, 1986, University of Washington; exercise in the elderly; treatment of traumatic brain injury and burn rehabilitation.

Gardner, Gregory C. 1989, (Adjunct); MD, 1984, Baylor University; rheumatology.

Goldstein, Barry * 1987; PhD, 1981, MD, 1986, University of California (Los Angeles); skin adaption to mechanical stress, pressure ulcers, overuse injuries of the upper extremity.

Guthrie, Mark R. * 1983; PhD, 1990, University of Washington; functional assessment, physical therapy efficacy.

Hammond, Margaret C. * 1979; MD, 1979, Medical College of Wisconsin; medical consequences of longstanding spinal cord injury.

Haselkorn, Jodie K. * 1985; MD, 1985, Louisiana State University; health services for the disabled: diagnostic accuracy of tests, effectiveness of interventions.

Hays, Ross M. * 1983; MD, 1978, University of Washington; pediatric rehabilitation, brain injury, neuromuscular diseases, congenital defects, electromyography.

Hicks, Ramona R. * 1999; PhD, 1993, University of Connecticut; cellular and molecular mechanisms of traumatic brain injury and repair.

Hillel, Allen D. * 1983, (Adjunct); MD, 1976, Stanford University; peripheral nerve physiology after injury, swallowing disorders in neuromuscular disease.

Johnson, Kurt Lewis * 1990; PhD, 1984, University of Wisconsin; counseling psychology; psychological, social vocational aspects of disability and chronic illness.

Kanny, Elizabeth M. * 1978; MA, 1977, Seattle University; PhD, 1996, University of Washington; education of allied health practitioners, ethical reasoning and ethics education.

Little, James Wendell * 1984; PhD, 1976, MD, 1977, University of Chicago; psychiatry, rehabilitation medicine, clinical neurophysiology.

Massagli, Teresa L. * 1985; MD, 1982, Yale University; medical and rehabilitation outcome after spinal cord injury in children.

McMillan, Jo Ann * 1958, (Emeritus); MEd, 1968, University of Southern California; physical therapy.

Odderson, Ib R. * 1985; PhD, 1978, Indiana University; MD, 1985, Vanderbilt University; stroke rehabilitation.

Pepping, Mary * 1999; PhD, 1981, Washington State University; long-term psychosocial follow-up of brain injury patients.

Rodriguez, Arthur A. * 1999; MD, 1972, University of Wisconsin; neurology and biomedical engineering.

Sanders, Joan Elizabeth * 1985, (Adjunct); PhD, 1991, University of Washington; soft tissue biomechanics and tissue adaptation to mechanical stress.

Shumway-Cook, Anne * 1999; MS, 1973, PhD, 1983, University of Oregon; physiologic basis for balance problems following neurological injury; clinical applications.

Slimp, Jefferson C. * 1979; PhD, 1976, University of Wisconsin; neurophysiology, cerebral cortex, spinal cord, clinical somatosensory evoked potentials.

Stiens, Steve A. 1993; MD, 1986, University of Cincinnati; MS, 1991, University of Washington; spinal cord injury, disability, architecture, spasticity, neurogenic bowel function, wheelchairs.

Assistant Professors

Bowen, James D. 1982, (Adjunct); MD, 1982, Johns Hopkins University; multiple sclerosis.

Chan, Leighton * 1994; MD, 1990, University of California (Los Angeles); rehabilitation and public policy.

Doctor, Jason N. * 1995; PhD, 1995, University of California (San Diego); cost and outcomes with rehabilitation treatment, medical decision making.

Ehde, Dawn * 1991; PhD, 1992, University of North Dakota; traumatic brain injury, treatment adherence.

Kartin, Deborah * 1998; MS, 1988, PhD, 1996, University of Washington; pediatric developmental disabilities, prenatal drug exposure, high-risk infancy.

Reilly, Dominic F. 1991, (Adjunct); MD, 1988, University of Washington; general internal medicine.

Washington, Kathleen A. * 1982, (Clinical); MS, 1980, University of Wisconsin.

Senior Lecturers

Greenberg, Sharon L. 1979; MOT, 1978, University of Washington; occupational therapy.

Hertling, Darlene 1964; BS, 1956, University of California (Berkeley); physical therapy and manual therapy techniques.

Lecturers

Dudgeon, Brian J. 1989; MS, 1983, University of Washington; occupational therapy.

Ferguson, John R. 1996; BA, 1985, California State University, Fresno; post-operative amputation care.

Okumura, Ramona M. 1990; BS, 1981, University of Washington; prosthetics and orthotics.

Yamane, Ann 1982; BS, 1976, University of Washington; prosthetics and orthotics.

Course Descriptions

See page 48 for an explanation of course numbers, symbols, and abbreviations.

For graduate- and professional-level course descriptions, see the graduate and professional study volume of the *General Catalog* or visit the online course catalog at www.washington.edu/students/crscat/.

REHAB 340 Spinal Orthotics (5) *Yamane* Instruction and review of anatomy and biomechanics of the spine, patient evaluation, and prescription considerations as related to spinal orthotics. Lectures provide background knowledge of orthotic treatment principles for spinal pathologies. Laboratory experience includes patient evaluation, impression and measurement techniques, fabrication methods, and fitting criteria. Required for prosthetics and orthotics majors.

REHAB 341 Upper Extremity Prosthetics I (4) *Okumura* Principles of upper extremity prosthetic management and prescription considerations: functional evaluation, preprosthetic care, use of prosthetic components and materials, fabrication, harnessing, prosthetic training, documentation, and billing. Incorporates anatomy, biomechanics, and pathomechanics with clinical experience as they pertain to upper extremity prosthetics. Required for prosthetics and orthotics majors.

REHAB 342 Upper Extremity Prosthetics II (4) *Okumura* Principles of upper extremity prosthetic management and prescription considerations: functional evaluation, preprosthetic care, use of prosthetic components and materials, fabrication, harnessing, prosthetic training, documentation, and billing. Incorporates anatomy, biomechanics, and

pathomechanics as they pertain to upper extremity prosthetics. Required for prosthetics and orthotics majors. Prerequisite: REHAB 341.

REHAB 343 Upper Extremity Orthotics (4) *Okumura, Yamane* Lecture and laboratory instruction in patient evaluation, prescription considerations, componentry, and fabrication procedures for upper extremity orthoses. Required for prosthetics and orthotics majors.

REHAB 400 Medical Science (4) Lectures in fields related to: general surgery, obstetrics and gynecology, internal medicine, neurology, rehabilitation medicine, orthopaedics, psychiatry and behavioral sciences, rheumatology, and pediatrics. Required for occupational therapy, prosthetics and orthotics, and physical therapy students. Credit/no credit only.

REHAB 401 Medical Science (4) Lectures in fields related to: general surgery, obstetrics and gynecology, internal medicine, neurology, rehabilitation medicine, orthopaedics, psychiatry and behavioral sciences, rheumatology, and pediatrics. Required for occupational therapy, prosthetics and orthotics, and physical therapy students. Credit/no credit only.

REHAB 402 Medical Science Laboratory (1, max. 2) To introduce students to the role of allied health professionals in the treatment of pathologies presented in 320, 321 lectures. Credit/no credit only.

REHAB 403 Pathologic Physiology for Rehabilitation Professionals (5) *Anderson, Slimp* Emphasis on normal and pathologic physiology of the circulatory, respiratory, central nervous, and musculoskeletal systems as basis for treatment in occupational therapy, physical therapy, and prosthetics-orthotics. Required for students in these fields. Others by permission.

REHAB 413 Special Studies in Physical Therapy (1-15, max. 24) Theory and practice in specialized areas of physical therapy. Credit/no credit only.

REHAB 414 Psychological Aspects of Rehabilitation (2) *Patterson* Psychological processes underlying adjustment to disability; application of behavioral/analysis systems in patient therapy management; effects of cognitive or personality deficits on patient performance and treatment strategies. Credit/no credit only.

REHAB 416 Principles of Physical Therapy Administration (2, max. 4) *McMillan* The nature of administration, economic trends, operational policy, aspects of supervision, ethical and legal influences applicable to a physical therapy department. Required for physical therapy students. Credit/no credit only.

REHAB 420 Lower Extremity Prosthetics I (8) *Ferguson* Instruction in patient evaluation, casting, cast modification, socket fabrication, static and dynamic alignment, alignment duplication, suspension systems, and documentation for below-knee amputation. Required for prosthetics and orthotics majors; others by permission of instructor.

REHAB 421 Lower Extremity Prosthetics II (11) *Ferguson* Instruction in above-knee patient evaluation, casting, cast modification, socket fabrication, static and dynamic alignment, alignment duplication, suspension systems, and documentation. Methods of fitting through knee and hip disarticulation levels demonstrated. Required for prosthetics and orthotics majors; others by permission of instructor.

REHAB 423 Lower Extremity Orthotics I (6) *Yamane* Patient evaluation and prescription considerations for orthotic management of the lower extremity. Lectures provide instruction in the biomechanics of the lower extremity during ambulation, clinical indications and fitting criteria for a variety of orthotic devices. Laboratory sessions provide experience in

fabrication principles, and impression and measurement techniques. Required for prosthetics and orthotics majors.

REHAB 424 Lower Extremity Orthotics II (8) *Yamane* Orthotic treatment of pathological conditions that affect the knee and hip addressed. Focus is placed on development of prescription recommendation, fabrication, fitting, and follow-up of orthoses that support, assist, or stabilize the knee and hip. Required for prosthetics and orthotics majors; others by permission of instructor. Offered: Sp.

REHAB 427- Applied Prosthetics and Orthotics I (1-, max. 4) Presentation and discussion of current clinical practice using research and journal articles and case presentations. Required for prosthetics and orthotics majors; others by permission of instructor.

REHAB 428 Applied Prosthetics and Orthotics II (1-4, max. 13) Experience in patient management under the preceptorship of certified practitioners at clinical affiliation sites. Required for prosthetics and orthotics majors.

REHAB 429 Immediate Post-Operative and Early Fitting (2) *Ferguson* Lecture and laboratory designed to introduce the student to the principles of immediate postsurgical prosthetic fitting, including patient management. Required for prosthetic and orthotic majors; others by permission of instructor.

REHAB 430 Engineering Concepts (2) Principles of mechanics and strength of materials, force analysis, and hydraulic control in relationship to orthotics and prosthetics design. Required for prosthetics and orthotics majors. Offered: S.

REHAB 442 Kinesiology (4) *Guthrie, Shumway-Cook* Study of joint motion and muscle function in relation to both the normal and abnormal state. Specific techniques employed in the field of rehabilitation medicine are analyzed. Required for Department of Rehabilitation Medicine students; others by permission.

REHAB 444- Function of the Locomotor System (4-) *Guthrie* Functions of musculoskeletal system as applied to patterns of motion. Anatomy of peripheral-vascular and peripheral-nervous system. Required for occupational therapy students, prosthetics and orthotics students, and physical therapy students; others by permission of instructor.

REHAB -445 Function of the Locomotor System (-4) *Guthrie* Functions of musculoskeletal system as applied to patterns of motion. Anatomy of peripheral-vascular and peripheral-nervous system. Required for occupational therapy students, prosthetics and orthotics students, and physical therapy students; others by permission of instructor.

REHAB 448 Applied Kinesiology Laboratory (1) *Greenberg, Guthrie, Shumway-Cook* Instruction and laboratory focus on practical experience and clinical problem solving in kinesiology. Potential topics include muscle and joint motion testing, sensory/perceptual assessment, prosthetic and orthotic devices, wheelchair use, gait training.

REHAB 451 Functional Anatomy Laboratory (1) Study of musculoskeletal, peripheral-vascular, and peripheral-nervous systems from prosected material. Required for physical therapy, occupational therapy, and prosthetic/orthotic students.

REHAB 452 Functional Anatomy Laboratory (1) Study of musculoskeletal, peripheral-vascular, and peripheral-nervous systems from prosected material. Required for physical therapy, occupational therapy, and prosthetic/orthotic students.

REHAB 458 Augmentative and Alternative Communication: Implementation Strategies (3) NW Communication needs of nonspeaking individuals. Interdisciplinary approaches to the evaluation, selec-

tion, and implementation of aided and unaided communication augmentation systems. Recommended: basic course work in either SPHSC, OT, PT, or ENGR. Offered: jointly with SPHSC 453; irregularly.

REHAB 459 Augmentative and Alternative Communication: Access for Technology (3) NW Communication technology and motor evaluation of augmentative and alternative users. Issues related to hardware, software, switch placement and access, with opportunities for clinical trials. Recommended: SPHSC 453 or REHAB 458. Offered: jointly with SPHSC 454.

REHAB 476 Prosthetic and Orthotic Evaluation and Use (2) *Okumura* Instruction in mechanical component substitution for functional losses. Emphasis is on biomechanical principles, prosthetic-orthotic components, and alignment and fitting techniques. Credit/no credit only. Required for physical therapy students.

REHAB 496 Special Topics in Rehabilitation (1-9, max. 14) Guided opportunity for in-depth study in specific areas of rehabilitation. Topics vary.

REHAB 498 Undergraduate Thesis (*)

REHAB 499 Undergraduate Research (*) Opportunity to design, perform, and analyze research investigation in problem areas in rehabilitation medicine. These include clinical and basic research problems in, for example, head and spinal injury, chronic disease, pain neurophysiology, electrodiagnosis, communication, and bioengineering.



School of Nursing

Dean

Nancy F. Woods
T318 Health Sciences

Associate Deans

Susan L. Woods, Academic Programs
Pamela H. Mitchell, Research and Practice

Assistant Dean for Educational Outreach

Ruth F. Craven



General Catalog Web page:
www.washington.edu/students/genocat/academic/School_Nursing.html



School Web page:
www.son.washington.edu

The School of Nursing offers programs leading to baccalaureate, master's, and doctoral degrees.

Undergraduate Program

Adviser

Dagmar Schmidt
T310 Health Sciences, Box 357260
(206) 221-2461
sonapo@u.washington.edu

The School of Nursing prepares its graduates to function as generalists in professional nursing practice and to collaborate with other health-care providers. The six-quarter undergraduate curriculum emphasizes theory and clinical practice to ensure critical thinking, human caring, and clinical expertise. Clinical experiences are provided in institutional and community settings for preventive and acute care. Completion of the curriculum leads to a Bachelor of Science in Nursing degree and eligibility to take the licensure examination to become a registered nurse.

A four-quarter modification of the basic curriculum is available for the registered nurse who is able to validate selected nursing courses through written examination and who intends to complete a master's degree program. This B.S.N. completion program is available at UW Bothell and UW Tacoma.

Student Associations: Students may join the Professional Organization of Nursing Students (PONS) after admission to the program. PONS' involvement spans all aspects of the undergraduate program: recruitment, orientation, education, fund raising, and social events.

Admission Requirements

- Minimum of 90 credits to include the following courses:
 - Written communication, 10 credits: English composition and W-courses.
 - Problem-solving, 8 credits: one Q/SR course, chosen from MATH 107, 111, 112, 120, 124, 134, or PHIL 115, 120, 470. One statistics course, such as STAT 220, STAT 311, Q METH 201, or EDPSY 490.
 - Visual, Literary, & Performing Arts (VLPA), 15 credits.

- Individuals and Societies (I&S), 15 credits, to include NURS 201 or equivalent.
 - Natural World (NW), 26 credits, to include CHEM 120, 220; ZOOL 118, 119; B STR 301; MICROM 301; NUTR 300 or 301.
 - Electives to complete 90 credits as needed.
- A minimum 2.00 cumulative GPA is required, and a minimum grade of 2.0 must be obtained for each prerequisite course. Because admission is competitive, the GPA for admission is usually significantly higher.
 - Together with the application and transcript(s), applicants are asked to submit a statement discussing their choice of nursing as a professional career, a résumé outlining volunteer/paid health-care experience, community service, cultural awareness, and a recommendation from a health care provider (employer or volunteer coordinator). Applicants are required to write a proctored essay after the application deadline. The proctored essay dates are published in the admissions application form.
 - Admission to the nursing major occurs once a year, in autumn quarter, with an application deadline of January 15. Selection is competitive. For information on admission criteria, specific prerequisites, and deadlines, as well as application forms, contact the Office of Academic Programs Office, School of Nursing, (206) 543-8736 or 1-800-759-NURS. Monthly information sessions are offered in the School of Nursing, Health Sciences Building T310, on the first Tuesday of each month from noon to 1 p.m.

Additional Information

Students may be admitted to the University of Washington as prenursing majors. The Undergraduate Advising Center is the advising center for UW nursing premajors. Contact the Advising Center at (206) 543-2551 for more information.

Graduate Program

For information on the School of Nursing's graduate program, see the graduate and professional volume of the *General Catalog* or visit the *General Catalog* online at www.washington.edu/students/genocat/.

Faculty

Professors

Allen, David G. * 1988; PhD, 1975, University of Iowa; philosophy of science, critical and feminist theory, psychosocial nursing theory.

Barnard, Kathryn E. * 1972; MSN, 1962, Boston University; PhD, 1972, University of Washington; ecological factors of child development.

Batey, Marjorie V. * 1956, (Emeritus); MS, 1956, PhD, 1968, University of Colorado (Boulder); sociological factors in health-care systems.

Beaton, Randal D. * 1976, (Research); PhD, 1972, University of Washington; stress and stress management in emergency workers, occupational health and safety.

Benoliel, Jeanne 1970, (Emeritus); MS, 1961, University of California (Los Angeles); DNS, 1969, University of California (San Francisco).

Berkowitz, Bobbie * 1988; PhD, 1990, Case Western Reserve University; administration, leadership and policy development within public health and nursing.

Blackburn, Susan T. * 1973; PhD, 1979, University of Washington; high-risk infants and their families, infant care-giving interactions and environments.

Booth, Cathryn L. * 1980, (Research); PhD, 1974, Ohio State University; mother-infant interaction, observational methodology, child birth experiences and attachment.

Brandt, Patricia * 1981; PhD, 1981, University of Washington; influence of family functioning on early child development.

Brown, Marie A. * 1983; PhD, 1983, University of Washington; HIV infection, home care, women's health, death.

Budzynski, Helen Kogan * 1968, (Emeritus); PhD, 1968, University of California (Los Angeles); stress response: cognitive/physiologic interface in chronic dysfunctions, self-management teaching.

Budzynski, Thomas H. * 1996, (Affiliate); PhD, 1969, University of Colorado; enhancement of academic performance through physiologic stimuli to decrease anxiety, EEG monitoring.

Carwein, Vicky * 1995, (Adjunct); MS, 1972, University of California (San Francisco); DNS, 1981, Indiana University; nursing and health sciences.

Chrisman, Noel J. * 1973; PhD, 1966, MPH, 1967, University of California (Berkeley); community partnership research, clinical cultural competence, ethnic health beliefs and practices.

Cowan, Marie J. * 1977, (Affiliate); MS, 1972, PhD, 1979, University of Washington; estimation of infarct size by electrocardiography, sudden cardiac death, physiological nursing.

Craven, Ruth F. * 1968; MN, 1968, University of Washington; EdD, 1984, Seattle University; gerontological nursing.

Cunningham, Susanna L. * 1978; MN, 1969, PhD, 1978, University of Washington; risk factors for atherosclerotic cardiovascular disease.

De Tornay, Rheba * 1975, (Emeritus); EdD, 1967, Stanford University; health services, nursing education.

Dimond, Margaret * 1988; MN, 1971, University of Iowa; PhD, 1978, University of Wisconsin; aging, bereavement, family caregiving, Alzheimer's disease, chronic illness, long-term care.

Disbrow, Mildred A. * 1982, (Emeritus); PhD, 1968, University of Washington; maternal-infant interaction, child abuse.

Eggert, Leona * 1978; MA, 1970, PhD, 1984, University of Washington; adolescent health promotion, drug use and youth, suicide prevention, social support processes.

Eyres, Sandra J. * 1974; PhD, 1972, University of North Carolina; environmental resources promoting adaptation and health.

Gallucci, Betty J. * 1973; MS, 1971, PhD, 1973, North Carolina State University; oncology, nutritional assessment, pathophysiology of stomatitis, and graft versus host disease.

Giblin, Elizabeth C. * 1959, (Emeritus); MN, 1954, University of Washington; EdD, 1959, University of Colorado (Boulder); nursing assessment and nursing therapies, pathophysiological bases.

Graham, Katherine J. 1988; MN, 1967, PhD, 1978, University of Washington; quality of life across life, work; health systems.

Haberman, Mel R. 1982, (Affiliate); PhD, 1987, University of Washington; oncology nursing, quality of life.

Hegyvary, Sue T. * 1986; PhD, 1974, Vanderbilt University; administration and productivity of health care and nursing services.

Heitkemper, Margaret M. * 1981; MN, 1975, University of Washington; PhD, 1981, University of Illinois; gastroenterology, enteral nutrition, gerontology.

Horn, Barbara J. * 1977, (Emeritus); PhD, 1971, University of Michigan; effective organization of nursing resources.

Killien, Marcia G. * 1973; PhD, 1982, University of Washington; women's health, reproductive decision making, work and family.

Kodadek, Sheila M. 1996, (Affiliate); PhD, 1985, University of Illinois; neonatal, family experience of chronic illness and disability during childhood and adolescence.

Lewis, Frances M. * 1978; PhD, 1977, Stanford University; complex organizational analysis, evaluation research, psychosocial factors in chronic illness.

Little, Dolores E. 1951, (Emeritus); MN, 1957, University of Washington; physiological nursing.

Loustau, Anne * 1976, (Adjunct); PhD, 1975, University of Washington; clinical decision making, patient teaching, patient compliance with therapeutic regimens.

Magyary, Diane L. * 1981; PhD, 1981, University of Washington; family centered health care of children at risk, disabled or handicapped.

Mansfield, Louise W. 1951, (Emeritus); MA, 1951, Columbia University; physiological nursing.

Mitchell, Pamela H. * 1971; MS, 1965, University of California (San Francisco); PhD, 1991, University of Washington; neuroscience nursing, diagnostic strategies.

Muecke, Marjorie A. * 1979; PhD, 1976, University of Washington; medical anthropology, women's health, refugee health, Southeast Asia.

Murphy, Shirley Ann * 1985, (Emeritus); PhD, 1981, Portland State University; addictive processes in women, coping with violent death of a child, occupational trauma.

Osborne, Oliver H. * 1969, (Emeritus); PhD, 1968, Michigan State University; ideology, policy and health care systems, transcultural health.

Patrick, Maxine L. * 1973, (Emeritus); DPH, 1970, University of California (Los Angeles); gerontology, geriatrics.

Price Spratlen, Lois * 1976; PhD, 1976, University of Washington; sexual harassment and perceived workplace mistreatment in higher education.

Prinz, Patricia * 1976; PhD, 1969, Stanford University; sleep and circadian physiology.

Siantz, Mary Lou * 1998; MN, 1971, University of California (Los Angeles); PhD, 1984, University of Maryland; child/adolescent psychiatric nursing, risk and adaptation among migrant children and families.

Spieker, Susan J. * 1983, (Research); PhD, 1982, Cornell University; developmental psychology, infant security, mother-infant interaction.

Teri, Linda * 1984; PhD, 1980, University of Vermont; dementia, healthy aging and intervention research, depression and anxiety.

Vitiello, Michael V. * 1982, (Adjunct); PhD, 1980, University of Washington; sleep, sleep disorders and circadian rhythms in aging, age-related neuroendocrine/cognitive change.

Webster-Stratton, Carolyn * 1976; PhD, 1980, University of Washington; parent intervention programs for behaviorally disturbed children.

Wilkie, Diana J. * 1990; MN, 1984, PhD, 1990, University of California (San Francisco); cancer pain assessment and management, pain research.

Wolf-Wilets, Vivian * 1969, (Emeritus); PhD, 1969, University of Chicago; curriculum development, instruction, stress management.

Woods, Nancy * 1978; PhD, 1978, University of North Carolina; women's health.

Woods, Susan L. * 1975; MA, 1975, University of Washington; PhD, 1991, Oregon Health Sciences University; cardiovascular clinical specialist, pulmonary artery catheter measurement.

Associate Professors

Belza, Basia * 1991; MN, 1982, University of Virginia; PhD, 1991, University of California (San Francisco); chronic illness, gerontology, fatigue prevention and management in rheumatic diseases.

Betrus, Patricia * 1978; PhD, 1985, University of Washington; stress, cognitive behavioral therapy, depression, research design.

Bevens, Stella Hay * 1955, (Emeritus); MA, 1951, University of Minnesota; physiological nursing.

Blainey, Carol * 1967; MN, 1967, University of Washington; clinical teaching and problems of patients with diabetes mellitus.

Bond, Eleanor * 1984; MN, 1976, PhD, 1985, University of Washington; critical care nursing, therapeutic effects of exercise.

Boozar, Mary Kathryn * 1960, (Emeritus); MN, 1955, University of Washington; physiological nursing, care of patients.

Brandt, Edna M. 1952, (Emeritus); MN, 1953, University of Washington; physiological nursing.

Burr, Robert L. * 1976, (Research); PhD, 1986, University of Washington; cardiovascular/psychophysiology, autonomic nervous system.

Bush, James P. 1984; MN, 1973, University of Washington; EdD, 1984, University of San Francisco; pain management, power and powerlessness as perceived by professional nurses.

Carnevali, Doris 1982, (Emeritus); MN, 1961, University of Washington.

Catanzaro, Marci-Lee * 1982, (Research Emeritus); PhD, 1980, Union Graduate School; rehabilitation nursing.

Elmore, Shawn K. * 1983; PhD, 1990, University of Washington; psychobiological aspects of women with mood disorders.

Estes, Nada * 1972, (Emeritus); MS, 1958, University of Colorado (Boulder); counseling people with substance-use disorder, depression.

Flagler, Susan B. * 1979; DNS, 1981, University of California (San Francisco); maternal role adjustment and early parent-infant interaction.

Fought, Sharon G. * 1986, (Adjunct); PhD, 1983, University of Texas (Austin); emergency care/critical care nursing; simulation gaming educational strategies.

Hammond, Mary A. * 1972, (Research); PhD, 1971, University of Wisconsin; child development, longitudinal research methods.

Herting, Jerald R. * 1996, (Research); PhD, 1987, University of Washington; adolescent substance abuse and mental health, quantitative methods, social demography.

Hoffman, Agnes * 1979, (Emeritus); PhD, 1977, University of Kansas; substance use disorders, mental health care of the elderly.

Horn, Beverly M. * 1976; PhD, 1975, University of Washington; cross-cultural research in maternal-child nursing.

Jarrett, Monica E. * 1980, (Research); MN, 1981, PhD, 1988, University of Washington; psychobiology of women.

Jordan, Pamela L. * 1984; PhD, 1984, University of Michigan; expectant/new fatherhood, transition to parenthood.

Kang, Rebecca R. * 1981; PhD, 1985, University of Washington; environment of at-risk infants and families, community health, immigrants.

Kelly, Jean F. * 1986, (Research); PhD, 1979, University of Washington; family factors that affect at-risk children.

Kieckhefer, Gail M. * 1987; PhD, 1985, University of Washington; motivation for health promotional and illness management behavior in children.

Lalonde, Bernadette * 1986, (Research Adjunct); PhD, 1980, University of Toronto (Canada); public health program evaluations including process and outcomes, evaluation research.

Landis, Carol A. * 1991; MS, 1973, DNS, 1988, University of California (San Francisco); health consequences of sleep loss, neuroendocrinimmune interactions, methods of inquiry.

Lentz, Martha J. * 1983, (Research); MN, 1975, PhD, 1984, University of Washington; physiological adaption: the influence of sleep and other biological rhythms.

Leppa, Carol J. * 1990, (Adjunct); PhD, 1990, University of Illinois; ethics and comparative health care systems, specifically women's health issues.

Lewis, Linda L. * 1989; MS, 1981, PhD, 1987, University of Illinois; reproductive neuroendocrinology mood changes related to the human menstrual cycle.

Logsdon, Rebecca G. * 1986, (Research); PhD, 1986, Oklahoma State University; geriatric psychology, Alzheimer's disease, caregiving.

Martell, Louise K. * 1992; PhD, 1990, Oregon State University; maternal adaptations to childbearing.

Meyer, Kerry E. * 1992; MN, 1981, Vanderbilt University; PhD, 1990, University of Maryland.

Mitchell, Ellen S. * 1977; MN, 1967, University of Florida; PhD, 1986, University of Washington; women's health; menstrual cycle symptom experience, food cravings and eating control.

Molbo, Doris M. * 1969, (Emeritus); MA, 1968, University of Washington; oncology: prevention and screening, care and rehabilitation.

Munet-Vilaro, Frances * 1997; PhD, 1984, University of Washington; stress and coping of Latina with families, community-based health promotion.

O'Connor, Frederica W. * 1986; PhD, 1986, Northwestern University; psychoeducation in schizophrenia, mental health services, program evaluation.

Olshansky, Ellen F. * 1985, (Affiliate); DNS, 1985, University of California (San Francisco); women's health, infertility, qualitative research (grounded theory), women's depression.

Patterson, Diana * 1989; DNS, 1984, University of Alabama; childbearing family, pediatric primary health care.

Pesznecker, Betty L. 1970, (Emeritus); MN, 1957, University of Washington.

Pittman, Rosemary 1964, (Emeritus); MS, 1947, University of Chicago.

Richardson, Mary L. 1977; MHA, 1978, PhD, 1984, University of Washington; organization, management, and analysis of policy relevant to health services.

Salazar, Mary K. * 1984; MN, 1986, University of Washington; EdD, 1991, Seattle University; behavioral theory applied to health education, cancer control, occupational health.

Schepp, Karen G. * 1988; PhD, 1985, University of Arizona; stress and coping of physically and mentally ill youth and their families.

Schultz, Phyllis R. * 1989; PhD, 1981, University of Denver; nursing systems research, impact of nursing services on population's health.

Simpson, Terri A. * 1991; MN, 1975, University of California (San Francisco); PhD, 1988, University of Washington; critical care patients' physiological and psychological responses to environmental stressors.

Spitzer, Ada 1993, (Affiliate); PhD, 1990, University of Washington; migration, cross-cultural nursing, stress and coping of children with illness, nursing scholarship.

Swanson, Kristen M. * 1985; PhD, 1983, University of Colorado (Boulder); caring therapeutics, responses to miscarriage.

Thomas, Karen A. * 1981; PhD, 1986, University of Washington; preterm infant development, care unit environments, acute care pediatrics, thermoregulation.

Thomas, Mary Durand * 1983; PhD, 1978, University of Hawaii; programs of care for the seriously mentally ill, psychosocial assessment and diagnostic reasoning.

Thompson, Frances Elaine A * 1984, (Research); PhD, 1990, University of Washington; attribution theory, adolescent drug use, suicide, preventive interventions.

Ward, Deborah * 1987; PhD, 1987, Boston University; health policy and politics, women's paid and unpaid caregiving work.

White-Traut, Rosemary 1994, (Affiliate); DSc, 1983, Rush University; preterm infant feeding responses, intervention for premature infants.

Whitney, Joanne D. * 1991; MS, 1979, University of Michigan; PhD, 1991, University of California (San Francisco); wound healing.

Young, Heather M. * 1986, (Research); MN, 1989, PhD, 1991, University of Washington; community-based health care service for older adults.

Assistant Professors

Altman, Gaylene M. * 1983, (Research); PhD, 1992, University of Washington; women's health.

Berry, Donna L. * 1988, (Research); MN, 1981, University of Texas (Houston); PhD, 1992, University of Washington; health care of persons with, and at risk for, cancer.

Carr, Catherine A. * 1998; PhD, 1993, University of Michigan; nurse-midwifery.

Cochrane, Barbara B. * 1985, (Affiliate); PhD, 1992, University of Washington; women's health, breast cancer, health behavior change.

Davis, Shoni Kay * 1993, (Affiliate); DNSc, 1992, University of California (Los Angeles).

Draye, Mary A. 1982; MPH, 1968, University of Michigan; FNP practice, infertility, health promotion.

Ensign, B. Josephine * 1994; MS, 1986, Virginia College of Medicine; MPH, 1992, DPH, 1994, Johns Hopkins University; community-based health service for adolescents.

Gustavson, Norman A. 1996, (Affiliate); PhD, 1980, Washington State University; neural regulation training.

Heerwagen, Judith * 1981, (Affiliate); PhD, 1982, University of Washington; behavioral ecology.

Huebner, Colleen Ellen * 1982, (Adjunct); PhD, 1991, MPH, 1994, University of Washington; social bases of developmental problems in early childhood.

Johnson, Clark * 1994, (Research); MEd, 1973, PhD, 1978, University of Washington; medical informatics.

Jones, Mary C. 1964, (Emeritus); MS, 1962, Boston University.

Kasprzyk, Danuta M. 1984, (Affiliate); PhD, 1984, University of Washington; factors affecting clinician provision of sexual risk assessment and HIV/STD prevention counseling.

Kennedy, Michael 1987, (Research); PhD, 1994, University of Washington; symptom self-management in schizophrenia, mental health of Asian immigrants and refugees.

Kovalesky, Andrea H. 1992, (Adjunct); MSN, 1977, University of California (San Francisco); MA, 1990, Fuller Theological Seminary; PhD, 1997, University of Washington; maternal/child nursing.

Larson, Margaret L. * 1958, (Emeritus); MN, 1967, University of Washington; cross-cultural variables in mental illness, nursing interventions in disturbed behaviors.

Lovell, David Gilbert * 1984, (Research); PhD, 1975, University of Wisconsin; MSW, 1993, University of Washington; policy and program issues in mental health treatment for prisoners.

MacLaren, Aileen * 1994; MSN, 1982, University of Miami (Florida); PhD, 1998, Johns Hopkins University; midwifery.

McCurry, Susan Melancon * 1991; MS, 1977, MS, 1984, PhD, 1991, University of Nevada (Reno); dementia, aging, older adults, depression, sleep, psychotherapy, intervention research.

McGrath, Barbara B. * 1987, (Research); PhD, 1993, University of Washington; medical anthropology, illness knowledge/practice, U.S. Pacific Islanders, HIV/AIDS, genetic science.

Moniz, Donna M. 1986, (Affiliate); MN, 1975, JD, 1982, University of Washington.

Montano, Daniel E. * 1979, (Affiliate); PhD, 1983, University of Washington; attitude-behavior research and behavior change, cancer control, HIV prevention.

Motzer, Sandra Adams * 1976, (Research); MN, 1976, University of Washington; PhD, 1992, Oregon Health Sciences University; chronic health alterations.

Oshio, Sachiko 1985; MS, 1981, Boston University; PhD, 1992, University of Washington; relationship development, particularly between mothers and newborn infants.

Randell, Brooke P. * 1993, (Research); MN, 1969, University of California (Los Angeles); DNSc, 1987, University of California (San Francisco); preventive community-based interventions with high-risk adolescents and their families.

Sales, Anne * 1997, (Adjunct); MSN, 1989, University of North Carolina; PhD, 1998, University of Minnesota; health economics, health care, nursing labor markets.

Schroeder, Carole A. * 1993; MSN, 1985, University of Nevada; PhD, 1993, University of Colorado (Denver); women's health, community health, models of care delivery, health care systems.

Shannon, Sarah E. 1984; MSN, 1992, PhD, 1992, University of Washington; health-care ethics, end-of-life decision making.

Sikma, Suzanne 1979, (Adjunct); MSN, 1979, Loyola University (Chicago); PhD, 1994, University of Washington; caring in organizations, development and evaluation of organizations, care delivery systems.

Strickland, Carolyn J. B. * 1991; MS, 1976, PhD, 1983, University of Washington; health related behavior, complex organizations, American Indian populations.

Ulrich, Yvonne M. 1995, (Research); PhD, 1989, University of Texas (Austin); intervention approaches for abused women across the life span.

Wild, Lorie M. 1984, (Research); MN, 1983, PhD, 1996, University of Washington; clinical pain management.

Venkatraman, Manorama M. 1995, (Research); MSW, 1984, PhD, 1990, University of Michigan; symptom experiences of midlife women, cross-cultural.

Zierler, Brenda * 1988, (Research); PhD, 1996, University of Washington; clinical trials, vein graft, outcomes analysis.

Senior Lecturer

Cornman, Barbara Jane 1997; MN, 1976, University of Oregon; PhD, 1988, University of Washington; holistic nursing; female adolescent response to childhood sexual abuse.

Lecturers

Albert, Marilynn L. 1989; MSN, 1974, Boston University; health promotion in elderly and standardized patients.

Anderheggen-Leif, Lise D. 1988; MN, 1990, University of Washington; complementary therapies for treating illness.

Flanagan, Carol A. 1995; MSN, 1980, Catholic University of America; public health.

Gochmour, Michelle Kom 1997; MN, 1997, University of Washington; occupation health, community health.

Gordon, Patricia E. 1993; MN, 1997, University of Washington; collaborative family health care.

Holye, Christine A. 1985; MN, 1979, University of Washington; women's health, peri and post menopausal years, primary care of pediatric patients, asthma, diabetes.

Jensen, Marilee M. 1990; MSN, 1988, University of Washington; women's primary care nurse practitioner.

Olson, Bevely J. 1994; MA, 1967, University of Washington; psychiatric-mental health nursing.

Sekijima, Margaret, 1999; MN, 1995, University of Washington; stress management and relaxation techniques, post-traumatic stress disorder, culture shock.

Zimmer, Phyllis Arn 1983; MN, 1982, University of Washington; family nursing practitioner role, practice characteristics, education, and political advocacy.

Course Descriptions

See page 48 for an explanation of course numbers, symbols, and abbreviations.

For graduate- and professional-level course descriptions, see the graduate and professional study volume of the *General Catalog* or visit the online course catalog at www.washington.edu/students/crsat/.

Nursing

NURS 201 Growth and Development Through the Life Span (5) Focuses on processes of human growth and development from prenatal life to old age. Emphasizes influence of growth and development on achievement of health, and how awareness of growth and development theory and research helps guide health promotional efforts directed towards persons of various ages and life styles. Open to nonmajors.

NURS 303 Introduction to Professional Nursing (4) Focuses on nature of nursing, development of identity as nursing students and professional practitioners. Students consider their choices to be nurses; nurses' experiences past, present; experience of illness, health-seeking; nursing issues in context of overall American health care system; perspectives on nursing education.

NURS 304 Bases for Understanding Human Responses I (3) This course and its companion, 308, are concerned with commonly occurring psychopathological and pathophysiological human responses to states of health and illness. They identify and describe the major concepts and principles necessary to understand dysregulatory processes at the mind-body interface.

NURS 308 Bases for Understanding Human Responses II (3) Continuation and extension of 304. The two courses introduce and describe commonly occurring psychopathological and pathophysiological human responses to states of health and illness. They identify and describe the major concepts and principles necessary to understand dysregulatory processes at the mind-body interface.

NURS 309- Pharmacotherapeutics in Nursing Practice I (2-) Introduces professional nursing students to the principles of pharmacology and drug therapies, pharmacologic-therapeutic classes of drugs, and important drug information resources.

NURS -310 Pharmacotherapeutics in Nursing Practice II (-2) Introduces professional nursing students to the principles of pharmacology and drug therapies, pharmacologic-therapeutic classes of drugs, and important drug information resources.

NURS 401 Care in Illness I (5) Selected psychopathologic and pathophysiologic health alterations and therapies across life span. Assesses human functioning, pathophysiology, pharmacology, psychosocial, cultural variation, health care resources, and person-environment relationships to select nursing strategies for acutely and chronically ill individuals of all ages.

NURS 404 Interpersonal Therapeutics (3) Nursing care within context of interpersonal relationships. Effective enactment of nursing role requires knowledge of relationship development, maintenance and termination, using skillful interpersonal communication in diverse health-care contexts. Emphasizes application of conceptual models in interpersonal processes and skills between professionals and clients, other professionals, and groups.

NURS 405 Care in Illness II (5) Continuation of 401, further examining selected psychopathologic and pathophysiologic alterations in health of individuals in context of families across life span. Emphasizes assessing functioning in psychosocial, cultural, person-environment relationships, and health care resources to plan nursing strategies for acutely/chronically ill individuals of all ages.

NURS 407 Cultural Variation and Nursing Practice (3) Introduces knowledge and skills for culturally competent health care for all. Compares health related values, beliefs, and customs among major cultural groups. Views family and social network as culturally variable health seeking behavior contexts. Examines Western biomedicine and alternative healing methods within broader environment, including government, other social institutions.

NURS 408 Nursing Care with Families in the Community (3) Application of biopsychosocial and social environmental theories and assessments to diagnose alterations in health/mental health of families, small groups in community settings. Emphasizes interpersonal and clinical therapies; coordination of community resources, evaluating effectiveness of changes; characteristics of nursing care in home visiting.

NURS 410 Legal and Ethical Issues in Clinical Practice (3) Identification of ethical and legal issues and the ensuing dilemmas relevant to the profession of nursing and nurses as health professionals and citizens. Selected problems and dilemmas affecting nurses, nursing, and the delivery of health care analyzed using specific moral-ethical perspectives.

NURS 412 Nursing Care Systems (3) Introduction to analyzing current health care systems and their effectiveness in achieving desired health outcomes for selected client populations from a system perspective. Emphasizes key features of interface between client and health care professionals, and environmental factors and organizational structures which influence the transaction.

NURS 413 Nature of Health, Threats to Health, and Health Promotion (3) Introduction to scientific principles of nursing care to promote health, wellness, prevent disease in clients. Emphasis on understanding multidimensional aspects of health; personal, environmental factors that support healthy functional patterns of individual clients, health promotion interventions. Assessment of health patterns in terms of risk, vulnerability, resilience, protective factors. Corequisite: NCLIN 414. Offered: A.

NURS 445 Topics in Nursing (1-10, max. 10) Guided survey and discussion of current literature on major topics in physiological nursing. Seminar/lecture with analysis and discussion of selected topics and readings. May have clinical component. Implications for nursing practice and health care emphasized.

NURS 450 Connected Learning I (1, max. 6) An opportunity and quarterly requirement for nursing students to participate in a learning community in small groups with a faculty member. Focus is on dialogue, understanding others perspectives, building community, and integration of concurrent learning in other courses.

NURS 451 Connecting to Families in Transition (1-2, max. 6) Focuses on working with families as partners in care for clients who are experiencing personal or family life and health transitions. Begins with family experiences with transitions and the way health issues were learned from the family and widens the lens through discussions with classmates and experiences with other families.

NURS 488 Youth at High Risk for Drug Abuse, Suicide Behaviors, Aggression, and Depression (3) Study of adolescent problem behaviors: causes, connections, and contexts. Two central themes are understanding vulnerability to drug abuse, suicide behaviors, and other related behaviors within social network contexts and exploring implications for prevention and early intervention programming.

NURS 495 Child Rearing, Culture, and Health (3) I&S Cross-cultural study of the child-rearing practices, cultural norms, and health behavior of children and adolescents in different societies. Comparative approaches, diverse theoretical postures, and empirical research findings are used. Offered: jointly with ANTH 440.

Nursing Clinical

NCLIN 302 Practicum: The Nature of Health and Caring (3-5) Emphasizes beginning nursing skills in communication, interviewing, and health assessment and maintenance. Predominant themes include: personal health beliefs, values clarification, basic communication skills, and beginning physical and psychosocial assessment of the individual across the age span. Credit/no credit only.

NCLIN 306 Practicum: Threats to Health (4) Beginning nursing skills in communication, interviewing, health assessment, identification of threats to health in selected community/clinical settings. Predominant themes, skills: risk, vulnerability identification; communication; physical, psychosocial assessment of individuals across life span; nursing care planning, documentation; psychomotor skills development.

NCLIN 402 Practicum: Care in Illness I (4) Provides supervised nursing care to individuals and families with acute and chronic illness. Emphasis on increasing skill in systematic assessment, developing competency in selected nursing therapies, and developing role as care agent for persons of all ages. Credit/no credit only.

NCLIN 406 Practicum: Care in Illness II (4-10, max. 10) Provides supervised nursing care to individuals and families with acute and chronic illness. Emphasis on increasing skill in systematic assessment, developing competency in selected nursing therapies, and developing role as caring agent for persons of all ages. Credit/no credit only.

NCLIN 409 Partnerships in Community Health (6) Analysis, application, and evaluation of nursing process at level of community. Formulation of community health diagnoses as basis for community-level interventions to maintain and promote biopsychosocial health, prevent disease, and enable self care by the community. Analysis of nursing's role in community health/mental health.

NCLIN 411 Transition to Professional Practice (12-20) Intensive field work in a nursing care specialty focusing on critical examination, synthesis, and evaluation of professional nursing care. Client populations include individuals and/or groups reflecting diverse settings, ages, ethnic communities. Emphasizes mastering theoretical concepts, applying research findings, improving skill competency, developing leadership capabilities.

NCLIN 414 Practicum: Health Promotion (4) Provides the opportunity to apply the nursing process to promote health and prevent illness. Integrates the perspectives of the client with the current scientific bases for health promotion. Incorporates analysis of the effect of multiple dimensions on health and wellness. Credit/no credit only. Corequisite: NURS 413. Offered: A.

Nursing Methods

NMETH 403 Introduction to Research in Nursing (3) Organization of the structure of nursing knowledge through research. Concepts and processes of research utilized in the investigation of nursing science.

NMETH 499 Undergraduate Research (1-5, max. 12) Supervised individual scholarly inquiry on a specific nursing problem.

College of Ocean and Fishery Sciences

Dean

Arthur R.M. Nowell
207 Ocean Sciences

Associate Dean

Ken Chew



General Catalog Web page:
www.washington.edu/students/genecat/academic/College_Ocean_Fish.html



College Web page:
www.cofs.washington.edu

The marine environment has been a dominant factor in the history of the Pacific Northwest from the time of the first Native American settlements to the modern days of aquaculture, container ships, and waterfront condominiums. It is not surprising, therefore, that the University of Washington has a long tradition of commitment to teaching, research, and public service in subjects related to marine and freshwater activities.

The College of Ocean and Fishery Sciences comprises five of the major units of the University in the marine and freshwater sciences: the Applied Physics Laboratory; the Schools of Fisheries, Marine Affairs, and Oceanography; and the Office of Marine Environmental and Resource Programs, which includes the Washington Sea Grant Program. Each of the units of the College focuses on a different aspect of the aquatic environment, but there is much overlap of interests.

The College offers both undergraduate and graduate instructional programs in fisheries and oceanography, and graduate programs in marine affairs. For undergraduates, it is easy to pursue joint undergraduate degrees with departments such as Zoology, Chemistry, and Geology in the College of Arts and Sciences. College faculty, staff, and students carry out research in oceans, estuaries, and freshwater lakes and rivers all over the world. Facilities for research and teaching range from ocean-going vessels to well-equipped laboratories and classrooms.

The College also supports career-oriented resources for students to complement traditional course work and research. An annual Career Fair, held each February, brings more than 30 potential employers to campus to meet with students and discuss career possibilities and employment opportunities. A well-equipped Career Center is available for students, providing information about career planning, résumé preparation, and job opportunities in the marine and freshwater sciences. *Northwest Water Work*, a semi-monthly summary of current employment opportunities and internships available in water-related areas, is published by the College and made available free of charge to students. Internships are encouraged as a way to help students bridge the transition from the classroom to employment after graduation. The College also supports educational outreach activities and innovative learning technologies.

In 1999, the College had 200 undergraduate and 250 graduate students enrolled, a faculty of 198 members, and a total budget of \$60 million, making it one of the largest institutions of its kind in the nation.

The School of Fisheries is concerned with wise management of fish and shellfish stocks, ecological relationships between aquatic organisms and their environment, culture of aquatic plants and animals, and impacts of human population pressures on the aquatic environment.

The School of Oceanography carries out research and teaching on the physical, chemical, geological and geophysical, and biological processes in the ocean, and interactions of the ocean with the earth, the biosphere, and the atmosphere. It is concerned with the study of ocean currents and mixing, life in the sea, the chemical composition and properties of seawater, the sediments and rocks beneath the sea, and the geophysics of the sea floor. It offers both undergraduate and graduate degrees.

The School of Marine Affairs is concerned with policy and institutional issues related to the ocean. It combines natural sciences and engineering with law, economics, international affairs, and public administration. Marine affairs, coastal zone management, ports and marine transportation, atmospheric and marine policy, living marine resources, and international law of the sea are all part of the School's teaching and research programs. It offers a Master of Marine Affairs degree.

The Applied Physics Laboratory is a research and development unit with strong capabilities in marine science and technology, acoustic sensors and sound propagation, marine instrumentation, and polar science and technology. No degrees are offered, but a regular seminar series is presented. APL faculty members with joint appointments in other University departments teach courses and advise graduate students on theses. Part-time employment for students, including a program offering four years of support to students who contemplate a career in engineering or science, is also provided.

The Washington Sea Grant Program is a component of the National Sea Grant Program which was created by Congress to enhance the wise use and protection of the nation's marine resources through coordinated efforts in research, education, and public service. The Washington Sea Grant Program is administered as a division of the College but has additional statewide and multi-institutional responsibilities. It funds research and education throughout the state; supports advisory services; presents workshops, short courses, and lectures; and produces publications. The University of Washington was one of the first four universities in the country designated in 1971 as Sea Grant Colleges in recognition of outstanding sustained programs in research, education, and advisory services in the marine area.

Fisheries

116 Fishery Sciences



General Catalog Web page:
www.washington.edu/students/genecat/academic/Fisheries.html



Department Web page:
www.fish.washington.edu

The School of Fisheries, established in 1919, is the largest and most diverse academic fisheries program in the United States. Students benefit from our faculty, whose breadth of expertise includes marine and freshwater ecology, habitat restoration, quantitative fishery management, invertebrate and finfish aquaculture, and a number of disciplines related to physical, biological and societal processes that bear on growing issues of fisheries conservation. Faculty and students in the School draw upon a wide range of disciplines including biology, botany, chemistry, genetics, mathematics, nutrition, oceanography, physics, physiology, and zoology to conduct basic and applied research in the field of fishery science.

Courses

A full spectrum of undergraduate- and graduate-level courses allows students to learn the basic principles of fishery science and to develop expertise in specialized fields such as quantitative fishery management, aquaculture, and aquatic ecology. Among the wide variety of courses open to students are ichthyology, world fisheries and aquaculture, salmonid behavior and life history, fisheries stock assessment, ecology of marine fishes, genetics in fish management and production, and physiological effects of water pollutants.

The School cooperates with other units on campus (Biology, Civil and Environmental Engineering, Forest Resources, Marine Affairs, Quantitative Science, Program on the Environment, and Oceanography) to offer jointly listed courses. Instruction is offered both on the main campus and at the Friday Harbor Laboratories on San Juan Island.

Advising

The Student Services Office is located in 116 Fishery Sciences. Students can receive assistance regarding curriculum, course scheduling, and graduation requirements.

Related Programs

The Center for Quantitative Science is an interdisciplinary program sponsored by the Office of Undergraduate Education, the School of Fisheries, and the College of Forest Resources. It is dedicated to providing high-quality instruction in mathematical and applied statistical methods for undergraduate students who major in the biological and ecological sciences, renewable resources management, and environmental studies. The philosophy of the center is to provide instruction in an atmosphere that emphasizes the use of quantitative methods to better understand a variety of scientific phenomena. Faculty represent various applied scientific disciplines within Forest Resources, Fisheries, and other campus units. Students may wish to complete a minor in quantitative science to document their understanding of the mathematical and statistical methods used in the analysis of data.

Quantitative Ecology and Resource Management: The graduate program offered by the Quantitative Ecology and Resource Management (QERM) interdisciplinary group provides a unique opportunity for students to study the application of statistical, mathematical, and decision sciences to a broad array of terrestrial and marine ecology, natural resource management, and biometrical and mathematical biology problems. The QERM program of study leads to Master of Science and Doctor of Philosophy degrees, and is designed to attract mathematically trained students interested in working on contemporary ecological or resource-management problems from a quantitative perspective. Faculty associated with this interdisciplinary program come from thirteen campus units, including Statistics, Applied Mathematics, Forest Resources, Fisheries, Zoology, Biostatistics, and Marine Affairs. This pool of faculty talent is available to enrich the academic experience of all QERM students. Prospective students interested in QERM should contact the Graduate Program Coordinator at (206) 616-9571 or qerm@cqs.washington.edu.

Joint Curriculum in Fishery Management: This curriculum is offered jointly by the School of Marine Affairs and the School of Fisheries. Parallel two-year master's degree programs in the two departments train the professional fishery manager and others concerned with aquatic resource management in skills needed to participate effectively in the wide range of activities common to contemporary fisheries management. This includes fishery biology, quantitative methods, economics, law, policy analysis, and ocean science. Students generally apply to either the School of Fisheries or the School of Marine Affairs. Once accepted into their first program, students petition to be accepted into the second.

Research

The faculty, staff, and students of the School conduct basic and applied research on regional, national, and international fishery and aquatic resource problems. Research foci are grouped under major disciplines of aquatic biodiversity (e.g., microbiology, marine mammals, fish systematics), aquatic organismal processes (e.g., aquaculture, physiology, pollution/toxicology), and aquatic ecology (marine fisheries, stream/riparian ecology, policy, and management). Examples of research projects include the influence of physical oceanographic factors on recruitment of larval fish and shellfish, stock assessment of marine fishes, mechanisms controlling growth and growth efficiency in fishes, application of molecular biotechnology to the study of phylogeny, behavioral studies of homing and straying in Pacific salmon, contaminant transport through aquatic food chains, effects of forest practices on fish habitat, development of mitigation measures for restoring damaged wetlands, and approaches for reducing pollution caused by aquaculture effluent.

The School continues to coordinate long-term programmatic research on anadromous fishes. The Alaska Salmon Program, the High-Seas Salmon Program, and the Wetland Ecosystem Team, as well as individual projects collectively focus on the origins, abundance, migratory patterns, and ocean distribution of Pacific salmon and steelhead trout; spawning distribution, growth, and abundance of sockeye salmon in Bristol Bay, Alaska; and environmental (physical and biological) factors influencing salmonid productivity.

Researchers in the School collaborate with scientists within the University and with investigators employed by other agencies. The School benefits from the presence in Seattle of laboratories of the National Marine Fisheries Service, the U.S. Geological Service's Biological Resources Division, and the Washington State Departments of Ecology, Fish and Wildlife, and Natural Resources. The headquarters and research staff of the International Pacific Halibut Commission are located on the campus as well. Researchers also collaborate with the scientific staff of private companies located in the Puget Sound region and elsewhere. School of Fisheries researchers frequently participate in inter-institutional projects that involve scientists from other states and countries.

The research program is enhanced through the activities of several institutes and centers with which the School collaborates closely.

The *Washington Cooperative Fish and Wildlife Research Unit* is supported by the U.S. Department of Interior through the U.S. Department of Interior's Biological Resources Division—Cooperative Research Units—the University of Washington, the Washington State Departments of Ecology, Fish and Wildlife, and Natural Resources, and the Wildlife Management Institute. The unit conducts research related to management and conservation of fish and wildlife and their habitats.

The *Center for Streamside Studies* is an interdisciplinary unit of the College of Forest Resources and the College of Ocean and Fishery Sciences. The center conducts research related to management issues that surround the production and protection of forest, fish, wildlife, and water resources associated with streams and rivers in the Pacific Northwest.

The *Western Regional Aquaculture Center* is one of five regional aquaculture centers supported by the U.S. Department of Agriculture. Participating scientists from twelve Western states conduct research directed toward enhancement of commercial aquaculture production.

The *Olympic Natural Resources Center* is an interdisciplinary research and educational program related to the marine and forest resources of the Olympic Peninsula in Washington state.

Facilities and Services

The Fishery Sciences, Fisheries Teaching and Research, Marine Studies, and Fisheries Center buildings are located adjacent to the Lake Washington Ship Canal. The buildings contain classrooms, laboratories, and support facilities. The Fisheries-Oceanography Library, a branch library offering research materials in fisheries, food science, oceanography, and wildlife science, is located nearby in the Oceanography Teaching Building. The School's Fish Collection has served as a resource for teaching and varied scientific investigations for over 50 years. One of five major permanent facilities on the west coast of the United States, the collection is by far the largest in our region in terms of number of specimens, containing in excess of 230,000 juvenile and adult specimens, and well over 3.3 million eggs and larvae. Together the collections represent some 3,778 species in 1,419 genera and 310 families.

An annual run of several thousand salmon has been developed and is maintained at the School by the release of thousands of fingerlings each spring. Returning adults use a fish ladder to enter the School's Teaching and Research Hatchery facility. The run is the basis for both instruction and research on the life cycle of Pacific salmon, as well as the focus for the School's popular outreach programs, which accommodate thousands of school children annually.

The Marine Molecular Biotechnology Laboratory is jointly operated by the Schools of Fisheries and Oceanography. Advanced equipment is available for semi-automated sequencing of DNA as well as other techniques of molecular biology.

Other laboratories provide for the study of the physiology, biochemistry, and behavior of fishes and of the effects of pollutants on fishes. Physiological facilities include equipment for surgical procedures and biochemical analysis of body fluids and tissues from both freshwater and marine fishes.

The School uses various small vessels for instructional and research work, including tow netting, purse seining, and trawling. These vessels, as well as chartered vessels, are used in regular courses or training cruises to introduce students to shipboard operations. Fisheries field stations in Alaska and at Big Beef Creek on Hood Canal provide additional opportunities for field studies and research in stream and estuarine ecology.

Financial Aid

The University of Washington Financial Aid Office administers a variety of government and University funded financial aid programs for which applicants must submit the Free Application for Federal Student Aid form (FAFSA). Please check with the Financial Aid Office, located in 105 Schmitz Hall, for applications and timelines. The FAFSA may also be obtained at any college, university, or high school in the United States.

Through the generous donations of alumni and friends, the School of Fisheries has established a strong scholarship program to assist students. Scholarships are awarded on the basis of academic merit and other factors. The application process commences in spring; please check with the Office of Student Services for applications and deadlines to apply for scholarships.

Employment

Fisheries biologists are employed in three major sectors in the economy: public, private, and nonprofit. Jobs in the public sector are found with federal, state, county, and municipal agencies. The private sector includes fisheries and seafood companies and environmental consulting firms. Nonprofit agencies are involved in research, public policy, and public education. Much of their work is done by volunteers. Paid staff may be involved in field research, grant writing, public relations work and volunteer coordination.

One factor that has expanded the job base in fisheries in recent years has to do with national policies on endangered species, marine mammals, environmental quality, and overharvesting or harvesting of nontarget species. For example, observers are required on all large commercial fishing vessels and much work is done in public agencies regarding the health of fish and shellfish stocks and the environments that support them. Much of the information gathering is done in the field and also might involve becoming familiar with important aspects of public policy and interacting with public groups.

There is a Career Center run through the College of Ocean & Fishery Sciences (COFS) located at 202 Ocean Sciences Building. In addition to collecting and disseminating job announcements, the Career Center also publishes an employment newsletter (Northwest WaterWorks) twice monthly, listing current openings. This publication can be picked up at Student Services. Those who are not members of the UW community may also subscribe to receive either an electronic or print version by calling (206) 543-0719. Also, each winter the College also organizes a Career Fair specifically for COFS students.

Undergraduate Program

Student Services Office
116 Fishery Sciences, Box 355020
(206) 543-7457
instruct@fish.washington.edu

Bachelor of Science in Fisheries

Admission: Students in good academic standing may declare this major at any time, including on the admissions application. After notification of admission and before registration, new students should visit or write to the School for help in planning their course programs. Academic and other counseling of fisheries students is provided through the Student Services Office.

Suggested Introductory Course Work: High school students are urged to take four years of college preparatory mathematics (usually including precalculus or mathematical analysis), because these are prerequisites for the mathematics courses included in all School curricula. Taking high school courses in chemistry, physics, and biology, and training in computer use will prove valuable to the fisheries student.

Major Requirements

The baccalaureate degree requires completion of a core curriculum and no fewer than 43 credits in fisheries. In addition, the program includes the subjects listed below or their equivalents. Each student also must meet the general University requirements for graduation. See the academic adviser for updates of requirements.

The Natural World (minimum of 46 credits): BIOL 201, 202, 203 (5, 5, 5), or BIOL 101-102 and GENET 371 (5-5, 5, 5). *Option A:* CHEM 142 (5), 152 (5), 162 (6), and CHEM 220 (5) or 223 and 224 (4, 4); *Option B:* CHEM 120, 220, 221 (5, 5, 5). PHYS 114 (4), 115 (4). OCEAN 200 (3). BIOL 472 (4).

Mathematics and Statistics (credits beyond MATH 120): Q SCI 291, 292 (5, 5) or MATH 124, 125 (5, 5) or 144, 145 (5, 5). Q SCI 381 (5).

Individuals & Societies (I&S) and Visual, Literary, & Performing Arts (VLPA): Minimum 10 credits in each area.

Writing Proficiency (minimum of 12 credits): 5 credits of English composition drawn from the University list, and at least 7 additional credits of writing-intensive courses.

Fishery Sciences (31 credits required courses): FISH 210 (5), 310 (5), 311 (5), 312 (5), 323 (3), 324 (5), and 495 (3) plus a minimum of three courses totaling at least 12 credits in 400-level fisheries courses. Additional elective courses should be taken to bring the total to 180 credits. Assistance in selection of elective courses can be obtained from the academic adviser in the School.

Minor

Minor Requirements—Fisheries Science: Minimum of 27 credits to include FISH 310 (5) or 311 (5); FISH 312 (5); FISH 323 (3) or 324 (5); Q SCI 381 (5) or 482 (5); a minimum of two 400-level fisheries courses totaling at least 8 credits.

Graduate Program

For information on the School of Fisheries' graduate program, see the graduate and professional volume of the *General Catalog* or visit the *General Catalog* online at www.washington.edu/students/gencat/.

Faculty

Chair

David A. Armstrong

Professors

Armstrong, David A. * 1978; MS, 1974, Oregon State University; PhD, 1978, University of California (Davis); shellfish physiology.

Bare, B. Bruce * 1969, (Adjunct); MS, 1965, University of Minnesota; PhD, 1969, Purdue University; forest land management, valuation, taxation, management science.

Brown, George W. * 1967, (Emeritus); PhD, 1955, University of California (Berkeley); fish biochemistry and biochemical ecology.

Burgner, Robert L. * 1956, (Emeritus); PhD, 1958, University of Washington; salmon ecology and salmon biology.

Chew, Kenneth K. * 1962; PhD, 1962, University of Washington; shellfish biology and aquaculture.

Conquest, Loveday L. * 1976; PhD, 1975, University of Washington; statistics in forestry, fisheries, and environmental pollution monitoring.

Erickson, Albert W. * 1974, (Emeritus); PhD, 1964, Michigan State University; wildlife biology and marine mammals.

Ford, E. David * 1985; PhD, 1968, University College, London (UK); forest ecology and ecophysiology, crop growth, quantitative methods, philosophy of science.

Francis, Robert C. * 1983; PhD, 1970, University of Washington; fishery oceanography, effects of climate on marine ecosystems, paleoecology, fisheries management.

Gallucci, Vincent * 1976; PhD, 1971, North Carolina State University; biomathematics and population dynamics.

Gunderson, Donald R. * 1978; PhD, 1975, University of Washington; marine fisheries and stock assessment.

Halver, John E. * 1975, (Emeritus); PhD, 1953, University of Washington; nutrition, biochemistry, toxicology.

Hilborn, Ray * 1987; PhD, 1974, University of British Columbia (Canada); population dynamics and resource policy.

Karr, James * 1991; PhD, 1970, University of Illinois; ecology and conservation biology, water resources, environmental sciences, natural resources.

Kocan, Richard M. * 1978; PhD, 1967, Michigan State University; aquatic toxicology, fish and wildlife diseases.

Landolt, Marsha L. * 1975; PhD, 1976, George Washington University; fish and shellfish disease.

Liston, John * 1957, (Emeritus); PhD, 1955, University of Aberdeen (UK); food science, marine microbiology.

Mathews, Stephen B. * 1972, (Emeritus); PhD, 1967, University of Washington; quantitative fishery management.

Miles, Edward L. * 1974, (Adjunct); PhD, 1965, University of Denver; international law and organization, science and international relations, marine policy.

Miller, Bruce S. * 1971; PhD, 1969, University of Washington; life history and ecology of marine fishes, especially early life history.

Miller, Marc * 1979, (Adjunct); PhD, 1974, University of California (Irvine); maritime anthropology, cognitive anthropology, tourism, and social/cultural change.

Naiman, Robert J. * 1988; PhD, 1974, Arizona State University; forest stream ecosystems, aquatic landscape dynamics.

Pietsch, Theodore W. * 1978; PhD, 1973, University of Southern California; ichthyology.

Pigott, George M. * 1965, (Emeritus); PhD, 1963, University of Washington; food engineering.

Royce, William F. 1983, (Emeritus); PhD, 1943, Cornell University; applications of fisheries science.

Seymour, Allyn H. 1962, (Emeritus); PhD, 1956, University of Washington; radioecology.

Skalski, John R. * 1987; PhD, 1985, Cornell University; environmental sampling and effects assessment on wild populations, parameter estimation.

Smith, Lynwood S. * 1965, (Emeritus); PhD, 1962, University of Washington; fish physiology.

Swartzman, Gordon Leni * 1973, (Research); PhD, 1969, University of Michigan; ecological modeling, quantitative natural resource management.

Taub, Frieda B. * 1959; PhD, 1959, Rutgers University; aquatic ecology, ecotoxicology, ecological risk assessment, harmful algae, closed ecological systems.

Wissmar, Robert C. * 1972; PhD, 1972, University of Idaho; ecology.

Wooster, Warren S. * 1976, (Emeritus); PhD, 1953, University of California (San Diego); effects of climate change on marine ecosystems, use of scientific information in marine management.

Associate Professors

Anderson, James J. * 1981; PhD, 1977, University of Washington; fisheries and oceanography.

Bentzen, Paul * 1993; PhD, 1989, McGill University (Canada); molecular population/evolution genetics of fishes and other aquatic organisms.

Dong, Faye M. * 1982; PhD, 1976, University of California (Davis); fish nutrition, seafood quality.

Grue, Christian E. * 1989; PhD, 1977, Texas A&M University; wildlife toxicology, wildlife and fisheries science.

Herwig, Russell P. * 1991, (Research); PhD, 1989, University of Washington; environmental microbiology, bioremediation, molecular microbial ecology, microbial phylogenetics.

Huppert, Daniel D. * 1987, (Adjunct); PhD, 1975, University of Washington; economics and management of natural resources, especially marine fisheries.

Pikitch, Ellen * 1987, (Affiliate); PhD, 1983, Indiana University; marine fisheries population dynamics, assessment and management.

Quinn, Thomas P. * 1986; PhD, 1981, University of Washington; fish ecology, evolution and behavior.

Sibley, Thomas H. * 1978; PhD, 1976, University of California (Davis); freshwater ecology.

Vanblaricom, Glenn R. * 1993; PhD, 1978, University of California (San Diego); aquatic wildlife, ecology of marine communities, wildlife-fisheries interactions.

Assistant Professors

Beauchamp, David A. 1999; PhD, 1987, University of Washington; lake ecology, food web modeling.

Edwards, Richard T. * 1993, (Adjunct Research); PhD, 1985, University of Georgia; aquatic ecology, biogeochemistry.

Course Descriptions

See page 48 for an explanation of course numbers, symbols, and abbreviations.

For graduate-level course descriptions, see the graduate and professional study volume of the *General Catalog* or visit the online course catalog at www.washington.edu/students/crscat/.

FISH 101 Aquatic and Fishery Biology (5) NW Our living aquatic world. Biodiversity, ecosystems, and evolution of aquatic systems. Description and analysis of aquatic resource utilization. Environmental effects of pollution, urbanization, and land use. Role of law, government, and communities in resource conflicts and aquatic system management. Suitable for nonmajors. Offered: ASP.

FISH 210 Fisheries Techniques (5) NW Theory and techniques of field research in fisheries; practical sampling design, collection, and interpretation of data from river, lake, and marine environments. Field trips and laboratory demonstrations.

FISH 297 Special Topics in Fisheries (1-5, max. 5) NW Selected topics in aquatic science and fisheries.

FISH 310 Biology of Shellfishes (5) NW Commercially important mollusks, crustaceans, and other harvested invertebrates highlighted with respect to systematics, anatomy, reproductive strategies, feeding, and growth. Examples of species that demonstrate variability in recruitment and complex life cycles. Laboratories, field trips. Recommended: 10 credits of biological science. Offered: A.

FISH 311 Biology of Fishes (3/5) NW Lecture and laboratory, of the morphological, physiological, behavioral, and ecological diversity of fishes of the world; designed to provide a basic foundation for advanced courses in all areas of finfish fisheries. 3-credit option does not include laboratory. Recommended: 10 credits of biological science. Offered: W.

FISH 312 Fisheries Ecology (3/5) NW Ecological characteristics of fishes and shellfishes in the important freshwater and marine habitats of North America. Relationship between physical aspects of the habitats and community structure. Impacts of human activities on diversity and abundance. Recommended: FISH 210; FISH 311. Offered: Sp.

FISH 323 Fisheries Management and Conservation (3) NW Importance of aquatic living resources; current world fisheries and their future, biological principles of fisheries conservation and management; development and implementation of fisheries policy; case histories of successful and unsuccessful fishery management systems. Offered: Sp.

FISH 324 Sustainable Aquaculture and Food Production (5) NW How aquaculture and food production from aquatic plant and animal species contribute to sustainability of the aquatic environment. Importance of environmental changes and alteration of rearing techniques on product variety, quality, and safety, and conservation of aquatic species. Recommended: 10 credits of biological science. Offered: W.

FISH 328 Forestry-Fisheries Interactions (4) NW Characteristics of forestry-fisheries interactions in terrestrial and aquatic landscapes. Effects of changes in landforms on forest and aquatic communities. River basin and watershed features. Forest stand dynamics, forest hydrology, fish and wildlife histories and behavior. Resource conflicts and resolution. Offered: jointly with F M 328; W.

FISH 401 Systematics, Zoogeography, and Evolution of Fishes (5) NW Advanced course in ichthyology with emphasis on living bony fishes of the world; past and present biodiversity, evolutionary history, classification, comparative morphology, geographic distribution, and historical zoogeography. Recommended: 10 credits of biological science. Offered: odd years; Sp.

FISH 405 Molluscan Aquaculture and Fisheries (5) NW Biology, ecology, management, and economic importance of oysters, clams, scallops, mussels, abalones, cephalopods, and other mollusks. Emphasis on techniques for production through aquaculture as well as harvest strategies for wild stocks. Field trips. Recommended: 10 credits of biological science. Offered: Sp.

FISH 406 Crustacean Fisheries and Aquaculture (4) NW Biology, ecology, management, and economic importance of shellfish, emphasizing crustaceans. Wild populations and aquaculture production of important phyla discussed. Field trips. Recommended: 10 credits of biological science. Offered: W.

FISH 415 Physiology of Aquatic Animals (5) NW Types, occurrences, and roles of inorganic and organic substances in supporting physiological functions, including osmoregulation, respiration, circulation, bioenergetics, digestion, and musculo-skeletal systems. Shows the integration of these processes, including stress and reproductive responses, by neuroendocrine systems. Recommended: 10 credits of biological science. Offered: odd years; W.

FISH 420 Life History of Marine Fishes (5) NW Modes of reproduction, spawning, development, identification and ecology of eggs and larvae. Food and feeding, aging, subpopulation identification, movements, species assemblages/habitat associations of juvenile and adult fishes. Not available for credit to students who have received credit for 425. Recommended: FISH 311.

FISH 428 Restoration of Fish Communities and Habitats in River Ecosystems (5) NW Examines opportunities to encourage recovery through natural developmental processes that enhance the complexity of habitats and connectivity between habitats in the river basin. Class discussion and participation on field trips focuses on current restoration concepts for ecosystems, designs of projects, and case studies. Recommended: fish ecology and hydrology courses. Offered: odd years; Sp.

FISH 429 Seminar in Streamside Studies (1, max. 6) Discussion by invited speakers on current research and issues related to streamside studies. Speakers are a mix of on-campus and off-campus experts. Offered: jointly with CFR 429; AWSp.

FISH 430 Biological Problems in Water Pollution (3/5) NW Ecological risk assessment of toxic chemicals and problems associated with electrical power production. Considers safety and toxicity and effects on individuals, populations, and communities. Laboratory covers simulation models of chemical exposure and community effects. Recommended: senior or graduate standing in fisheries, engineering, or related field. Offered: jointly with CEE 461; W.

FISH 434 Ecological Effects of Waste Water (3/5) NW Principles of aquatic ecology that relate to causes and effects of water quality problems in lakes and streams. Population growth kinetics, nutrient

cycling, eutrophication; acidification, oxygen/temperature requirements, and effects of various wastes on aquatic animals. Offered: jointly with CEE 462; A.

FISH 438 Biological Monitoring and Assessment (5) NW Explores the technical questions (conceptual, sampling, and analytical), the rationale, policy relevance, and legal basis for tools—existing and needed—to assess ecological health. Prepares students to see the biological components of ecological systems in diverse ways. Offered: jointly with BIOL 438.

FISH 439 Attaining a Sustainable Society (1/3, max. 3) NW Karr Discusses diverse environmental issues, the importance of all areas of scholarship to evaluating environmental challenges, and the connections between the past and the future, to reveal integrative approaches to protect the long-term interests of human society. Offered: jointly with ENVIR 439; A.

FISH 444 Aquatic Resource Conservation Genetics (4) NW Genetic concepts and methods in conservation and management of aquatic species. Population, evolutionary and quantitative genetic principles. Use of proteins, mitochondrial DNA, and microsatellite DNA in analyzing genetic variation. Genetic aspects of threatened populations and artificial propagation. Laboratory experience with analytical techniques. Recommended: GENET 371.

FISH 447 Watershed Ecology and Management (3) NW Explores fundamental ecological processes at the watershed scale, identifies human-induced changes to ecological systems, and discusses approaches to improve watershed management. Includes lectures, field trips, and discussions with organizations and agencies about how they are addressing ways to improve watershed management. Offered: W.

FISH 450 Salmonid Behavior and Life History (4) NW Marine distribution, homing migration, and spawning behavior of adult salmon: incubation, emergence, migration, and residence of fry; fingerling distribution and residence with reference to species interaction and population evolution. Recommended: FISH 311. Offered: A.

FISH 451 Reproduction and Early Development of Fishes (4) NW Reproductive development, sexual maturation, spawning and incubation in selected fish species; embryology and developmental traits of different salmonid and non-salmonid species; practical experience in artificial spawning techniques, egg handling and care, incubation techniques and the handling of newly-hatched alevins. Recommended: FISH 310; FISH 311. Offered: A.

FISH 452 Fish and Shellfish Nutrition (5) NW Basic nutritional requirements and interactions of finfish and shellfish in nature and artificial environments. Feed ingredient classification, processing, and nutrient profiles. Fish feed formulation techniques. Experimental design and completion of laboratory nutritional study. Recommended: 10 credits of biological science. Offered: Sp.

FISH 454 Aquatic Wildlife Ecology (3) NW Conceptual examination of relationships of aquatic wildlife populations (mammals, birds, reptiles, amphibians) to one another and to the aquatic realm. Application of conceptual background to contemporary high-profile issues in aquatic wildlife ecology, conservation, and management. Included is exposure to primary technical literature in the field. Offered: jointly with ESC 454; even years; Sp.

FISH 455 Introduction to Wildlife Toxicology (3) NW Overview of wildlife toxicology: history/development of the field, regulatory framework; methods used to assess risks contaminants pose to wildlife; major classes of contaminants and their direct, sub-

lethal, and indirect effects; and contemporary threats of contaminants to wildlife, their habitats, and prey. Offered: jointly with ESC 457; even years; W.

FISH 456 Fundamentals of Fish Population Dynamics and Management (4) NW Conveys fundamental concepts of fish population dynamics and fishery management within context of real-world fisheries problems. Lectures discuss notation, terminology, mathematical models, fisheries principles, and case studies. Laboratory time devoted to practical applications, problems. Recommended: either MATH 125, MATH 135, or Q SCI 292; Q SCI 381. Offered: jointly with Q SCI 456; A.

FISH 457 Methods of Abundance Estimation (4) NW Methods of estimating fish abundance by direct sampling and indirectly from tagging, catch, and effort analysis. Confidence limits and bias adjustments. Design of marine fishery surveys using statistical sampling principles. Laboratory work with real fishery data and data collected during trawl sampling survey. Recommended: Q SCI 292; Q SCI 381; Q SCI 456 or FISH 456. Offered: jointly with Q SCI 457; W.

FISH 458 Fisheries Stock Assessment (4) NW Francis Emphasizes quantitative analysis of fisheries data to determine how the fishery would respond to alternative management actions. Major topics include production models, stock and recruitment, catch at age analysis, and formulation of harvest strategies. Recommended: either Q SCI 456 or FISH 456. Offered: jointly with Q SCI 458; Sp.

FISH 475 Marine Mammalogy (3/5) NW Evolution, taxonomy, physiology, life history, and behavior of marine mammals; the techniques of studying and the management and conservation of them. Recommended: 15 credits of biological science, vertebrate anatomy, and physiology, for laboratory sections. Offered: odd years; Sp.

FISH 480 Marine Resource Conservation and Management (3) I&S/NW Gallucci, Miller Techniques and philosophy for conservation, management and development of harvested marine populations. Emphasis on integration of ecological, sociological, and economic dimensions of institutional decision making for policy formation in uncertain environments. Offered: jointly with ENVIR 480 and SMA 480.

FISH 490 Aquatic Microbiology (5) NW Considers role, identity, and distribution of microorganisms in aquatic environments; in fish, shellfish, and marine mammals. Control and identification of seafood-borne disease. Recommended: either BIOL 102 or BIOL 203; either CHEM 220, CHEM 224, or CHEM 239. Offered: A.

FISH 495 Senior Project (3) Self-directed research project. Applied or basic research in an area relating to fisheries science. Credit/no credit only. Offered: AWSpS.

FISH 497 Special Topics in Fisheries (1-5, max. 5) NW One-time offerings of topics in fisheries by resident or visiting faculty.

FISH 498 Internship/Experiential Learning (1-15, max. 15) Structured, practical training in the fishing industry, government agencies and other areas utilizing fisheries, food science, or quantitative science expertise. Experiences are supervised and evaluated. Written reports required. Credit/no credit only. Offered: AWSpS.

FISH 499 Undergraduate Research (1-15, max. 15) Individual research within the School of Fisheries. Each project supervised by an individual faculty member. Written reports required. Offered: AWSpS.

Oceanography

108 Oceanography Teaching Building



General Catalog Web page:
www.washington.edu/students/gencat/academic/Oceanography.html



School Web page:
www.ocean.washington.edu

Oceanography is the study of the marine environment and its interactions with the earth, the biosphere, and the atmosphere. The study is prompted both by the intellectual desire to understand how the oceans move and how life develops in a salty, cold environment, and the need to use wisely the ocean's resources for the benefit of humanity. It is an interdisciplinary science integrating the basic principles of biology, chemistry, geology, physics, geophysics, mathematics, botany, zoology, meteorology, and geography. Applications of high technology to oceanographic instrumentation and vessels, increasingly sophisticated computers, satellite remote sensing, and innovative methodologies are rapidly opening new possibilities for exploration and study. Oceanography is divided into four areas of emphasis:

Biological Oceanography examines the processes governing the distribution, abundances, and production of plants, animals, and nutrients in the oceanic ecosystem. Emphasis is on investigations of bacteria, phytoplankton, zooplankton, and benthic organisms.

Chemical Oceanography investigates the complex chemistry, distribution and cycling of dissolved substances, nutrients, and gases in seawater, the mechanisms controlling them and their origins and fates.

Marine Geology and Geophysics studies marine sediments (their formation, transport, and deposition); ocean basin formation (plate tectonics); processes governing shoreline formation; and the origin, structure, and history of the oceanic crust and upper mantle.

Physical Oceanography endeavors to understand and predict motions in the sea from millimeters through tidal and current scales to the great ocean gyres, the distribution of physical properties (temperature, salinity, sea ice), and air-sea interaction and its implications for climate.

Undergraduate Program

Advising

The Student Services Office is staffed by an academic counselor, who assists students with curriculum, scheduling, and career counseling.

Undergraduate Adviser
108 Oceanography Teaching Building, Box 357940
(206) 543-5039
student@ocean.washington.edu

Students may earn a Bachelor of Science or a Bachelor of Arts degree with specialization in biological, chemical, or physical oceanography, or marine geology and geophysics. After acquiring basic scientific and mathematical knowledge, students then apply these principles within Oceanography at increasingly complex levels. Students engage in field work and data collection, learn to analyze and interpret that data, and prepare scientific reports. Additionally, students acquire familiarity with the specialized instruments of oceanographic research.

The program is designed to prepare students to enter the profession directly or to pursue graduate studies. Oceanographers seek to produce a new understanding of an ocean system and to explore the potential consequences to the marine environment of human activities. They collect samples and data, analyze and

interpret them, and prepare and disseminate the results. They work at sea, on land, in laboratories, and with computers. Most are employed in education and research institutions and federal, state and local government agencies. Other employers include environmental consulting firms and private companies extracting and harvesting marine products. A degree can also serve as a background for a career in teaching, administration, marine affairs, computing, and environmental studies.

Student Association and Research Program: Special opportunities for Oceanography majors are provided by the School's large research program by involving students in undergraduate research projects and part-time employment. The Undergraduate Forum organizes meetings with faculty and other marine scientists to explore career and graduate-student opportunities.

Admission: Students in good academic standing may declare this major at any time.

Suggested Introductory Course Work: A high school student considering oceanography as a career should be guided by an interest in natural sciences and a good record in high school science courses, and particularly mathematics. One year each of biology, chemistry, and physics is recommended.

At the college level: BIOL 101-102 or 201, 202, 203; CHEM 142, 152; GEOL 205; MATH 124, 125, 126; PHYS 121/131, 122/132, 123/133. It is recommended that students complete the calculus, general chemistry, and either the biology or physics sequences before autumn quarter of the junior year.

Additional Information: OCEAN 101 and other transferable lower-division oceanography courses will count as electives and not as part of the major.

Bachelor of Science

Major Requirements: (1) MATH 124, 125, 126; CHEM 142, 152; PHYS 121/131, 122/132, 123/133; GEOL 205; and BIOL 101-102 or 201, 202, 203; (2) OCEAN 200, W201, 202, 401, 402, 421, 433, 450, W460, 485; (3) 20 credits of upper-division science, mathematics, or engineering to be selected in the student's area of specialization in consultation with a faculty adviser; (4) 20 credits of Visual, Literary, & Performing Arts and 20 credits of Individuals & Societies from the University Areas-of-Knowledge lists; and (5) 5 credits of English composition. 8 of the 10 credits of University-approved W courses (writing) are included within the curriculum.

Bachelor of Arts

Major Requirements: Same as for the Bachelor of Science degree, except only 10 credits of upper-division science, mathematics, or engineering courses are required.

Minor

Minor Requirements: Minimum 27 credits to include OCEAN 200, 202, 401, 402, 421, 433, 450, 485. Prerequisites include MATH 124, 125, 126; PHYS 121/131, 122/132, 123/133; CHEM 142, 152; BIOL 101-102 (or 201, 202, 203); GEOL 205.

Graduate Program

For information on the School of Oceanography's graduate program, see the graduate and professional volume of the *General Catalog* or visit the *General Catalog* online at www.washington.edu/students/gencat/.

Faculty

Chair

Bruce W. Frost

Professors

Aagaard, Knut * 1968; PhD, 1966, University of Washington; physical oceanography, ocean circulation, arctic oceanography.

Ahmed, Saiyed I. * 1973; PhD, 1963, Johann Wolfgang Goethe University (Germany); marine phytoplankton, ecology and nitrogen assimilation, biofouling, anoxic marine environments.

Anderson, George C. * 1972, (Emeritus); PhD, 1954, University of Washington; plankton ecology, biological oceanography.

Baker, Edward T. 1983, (Affiliate); PhD, 1973, University of Washington; distribution, characterization, and impacts of hydrothermal emissions, linkage to tectonic processes.

Banase, Karl * 1960, (Emeritus); Doct, 1955, University of Kiel (Germany); biological oceanography, plankton production and methodology, polychaete systematics.

Baross, John A. * 1984; PhD, 1973, University of Washington; microbial oceanography, bacterial ecology.

Cannon, Glenn A. * 1983, (Affiliate); PhD, 1969, Johns Hopkins University; physical oceanography of coastal waters and deep-sea hydrothermal venting.

Carpenter, Roy * 1968; PhD, 1968, University of California (San Diego); marine geochemistry of metals and hydrocarbons in coastal zones.

Cattolico, Rose A. * 1975, (Adjunct); PhD, 1973, State University of New York (Stony Brook); plastid replication, nucleic acid biochemistry in synchronized unicellular algae.

Creager, Joe S. * 1958, (Emeritus); PhD, 1958, Texas A&M University; geological oceanography, sedimentology.

Criminale, William O. * 1968; PhD, 1960, Johns Hopkins University; fluid dynamics, mathematical physics, nonlinear mechanics, stability theory.

D'asaro, Eric A. * 1980; PhD, 1980, Massachusetts Institute of Technology; physical oceanography, internal waves, turbulence and mixing processes.

Delaney, John R. * 1977; PhD, 1977, University of Arizona; geological oceanography, origin of oceanic crust, igneous petrology.

Deming, Jody W. * 1988; PhD, 1981, University of Maryland; evolution and ecology of marine bacteria in the pressurized ocean.

Devol, Allan H. * 1975; PhD, 1975, University of Washington; biogeochemistry, sediment diagenesis, anoxic systems, carbon fluxes.

Emerson, Steven R. * 1976; PhD, 1974, Columbia University; marine geochemistry, chemical oceanography, sediment diagenesis.

Eriksen, Charles C. * 1986; PhD, 1977, Massachusetts Institute of Technology; experimental physical oceanography; equatorial and upper ocean dynamics, internal waves.

Ewart, Terry E. * 1956, (Emeritus); PhD, 1965, University of Washington; physics, ocean microstructure, diffusion, acoustic transmission.

Francis, Robert C. * 1983, (Adjunct); PhD, 1970, University of Washington; fishery oceanography, effects of climate on marine ecosystems, paleoecology, fisheries management.

Frost, Bruce W. * 1969; PhD, 1969, University of California (San Diego); biological oceanography, marine zoogeography, plankton ecology and systematics.

Gammon, Richard H. * 1985; PhD, 1970, Harvard University; atmospheric, marine, and environmental chemistry; biogeochemical cycles, global climate change.

Gregg, Michael C. * 1974; PhD, 1971, University of California (San Diego); physical oceanography, ocean microstructure.

Harrison, Don Edmunds * 1985, (Affiliate); PhD, 1977, Harvard University; ocean circulation modeling, large-scale atmosphere-ocean interaction, climate diagnostics/dynamics.

Heath, G. Ross * 1984; PhD, 1968, University of California (San Diego); geochemistry of sediments.

Hedges, John I. * 1976; PhD, 1975, University of Texas (Austin); organic geochemistry, sources, transport, fate of organic material in coastal zones.

Hickey, Barbara M. * 1973; PhD, 1975, University of California (San Diego); dynamics of coastal oceanography, estuary-ocean interactions, submarine canyons, buoyant plumes.

Holloway, Gregory * 1983, (Affiliate); PhD, 1976, University of California (San Diego); physical oceanography, turbulence theory, geophysical fluid dynamics.

Holmes, Mark L. 1973, (Research); PhD, 1975, University of Washington; estuarine geologic processes, natural hazards in Puget Sound, crustal evolution at mid-ocean ridges.

Johnson, Harlan Paul * 1976; PhD, 1972, University of Washington; paleomagnetism and marine geophysics.

Jumars, Peter A. * 1975, (Affiliate); PhD, 1974, University of California (San Diego); biological oceanography, benthos, biological sedimentary dynamics and spatial statistics.

Lewin, Joyce C. 1965, (Research Emeritus); PhD, 1953, Yale University; algal physiology, physiology and nutrition of marine diatoms, ecology of marine diatoms.

Lewis, Brian T. R. * 1970; PhD, 1970, University of Wisconsin; marine geophysics, marine seismology, gravity, magnetism, and computer modeling of those processes.

Martin, Seelye * 1969; PhD, 1967, Johns Hopkins University; geophysical fluid dynamics, properties of sea ice.

McCormick, Norman J. * 1966, (Adjunct); PhD, 1965, University of Michigan; thermal and optical radiative transfer, optical oceanography, reliability and risk analysis.

McDuff, Russell E. * 1981; PhD, 1978, University of California (San Diego); marine geochemistry.

McManus, Dean A. * 1959, (Emeritus); PhD, 1959, University of Kansas; geological oceanography, continental shelf sediments.

McPhaden, Michael J. * 1982, (Affiliate); PhD, 1980, Scripps Oceanographic Institution; equatorial ocean dynamics, climate scale air-sea interaction.

Merrill, Ronald T. * 1967, (Adjunct); PhD, 1967, University of California (Berkeley); geomagnetism, geophysics of solids, rock magnetism.

Mobley, Curtis D. 1979, (Affiliate); PhD, 1977, University of Maryland; optical oceanography and radiative transfer, especially numerical modeling.

Moore, Dennis W. 1996, (Affiliate); PhD, 1968, Harvard University; equatorial oceanography, geophysical fluid dynamics, and inertial boundary currents.

Morison, James H. * 1972, (Affiliate); PhD, 1980, University of Washington; upper ocean physical processes in the polar regions.

Murray, James W. * 1973; PhD, 1973, Massachusetts Institute of Technology; marine geochemistry, aquatic chemistry.

Nelson, Bruce K. * 1986, (Adjunct); PhD, 1985, University of California (Los Angeles); isotopic and geochemical investigations.

Nittrouer, Charles * 1998; PhD, 1978, University of Washington; geological oceanography, continental-margin sedimentation.

Nowell, Arthur R. M. * 1978; PhD, 1975, University of British Columbia (Canada); physical oceanography, turbulent boundary layer dynamics, sediment transport.

Perry, Mary J. * 1976, (Affiliate); PhD, 1974, University of California (San Diego); biological oceanography, phytoplankton physiology, nutrient cycling.

Quay, Paul D. * 1977; PhD, 1977, Columbia University; chemical oceanography, stable isotope geochemistry, ocean tracers and mixing.

Ratray, Maurice * 1950, (Emeritus); PhD, 1951, California Institute of Technology; physical oceanography, hydrodynamics, ocean circulation modeling.

Rhines, Peter B. * 1984; PhD, 1967, Cambridge University (UK); the circulation of the oceans and evolution of climate.

Richey, Jeffrey E. * 1973; PhD, 1973, University of California (Davis); quantitative problems of aquatic ecosystems, primary Amazon River, limnology.

Roden, Gunnar I. 1966, (Research Emeritus); MS, 1956, University of California (San Diego); physical oceanography: fronts, topographic effects on oceanic flow, ocean circulation.

Sanford, Thomas B. * 1979; PhD, 1967, Massachusetts Institute of Technology; physical oceanography, dynamics of ocean currents, motional induction, instrumentation.

Sarachik, Edward S. * 1984, (Adjunct); PhD, 1966, Brandeis University; atmospheric dynamics, large scale atmosphere/ocean interactions, equatorial dynamics, climate change.

Spindel, Robert C. 1987, (Adjunct); PhD, 1971, Yale University; ocean acoustics, signal processing, acoustic navigation systems, acoustic tomography.

Sternberg, Richard * 1965, (Emeritus); PhD, 1965, University of Washington; geological oceanography, marine sedimentation processes.

Associate Professors

Balistreri, Laurie S. 1995, (Affiliate); MS, 1977, University of Washington; aqueous and environmental geochemistry, processes controlling trace elements in aquatic systems.

Duxbury, Alyn C. * 1954, (Emeritus); PhD, 1963, Texas A&M University; estuarine processes and the management of human uses of these marine systems.

Feely, Richard A. * 1983, (Affiliate); PhD, 1974, Texas A&M University; chemical oceanography, oceanic sources and sinks for carbon dioxide.

Holcomb, Robin T. 1988, (Affiliate); PhD, 1979, Stanford University; volcanology.

Howe, Bruce M. 1987, (Research); PhD, 1986, University of California (San Diego); physical oceanography, acoustic tomography.

Johnson, Gregory C. * 1990, (Affiliate); PhD, 1991, Massachusetts Institute of Technology; large-scale ocean circulation, dynamics, and variability.

Kawase, Mitsuhiro * 1988; PhD, 1986, Princeton University; geophysical fluid dynamics; oceanic general circulation; tracer oceanography.

Kelly, Kathryn A. * 1996, (Affiliate); PhD, 1983, University of California (San Diego); physical oceanography, combining models with satellite observations.

Kessler, William S. * 1995, (Affiliate); PhD, 1989, University of Washington; equatorial waves and circulation, tropical air-sea interaction and heat balance, climate variability.

Krieger-Brockett, Barbara * 1975, (Adjunct); PhD, 1976, Wayne State University; reaction engineering, chemical kinetics and catalysis simulation.

Kunze, Eric L. * 1987; PhD, 1985, University of Washington; mesoscale phenomena, wave/mean flow interaction double diffusion and mixing.

Lessard, Evelyn J. * 1989; PhD, 1984, University of Rhode Island; microzooplankton ecology and physiology; physical/biological interactions at oceanic fronts.

Lilley, Marvin D. * 1984; PhD, 1983, Oregon State University; chemical oceanography.

Mofjeld, Harold 1970, (Affiliate); PhD, 1970, University of Washington; tsunami dynamics, long waves and currents in the ocean, storm surge inundation.

Nystuen, Jeffrey A. 1999, (Affiliate); PhD, 1985, University of California (San Diego); acoustical oceanography, applied to oceanic rainfall and physics of the air-sea interface.

Riser, Stephen C. * 1981; PhD, 1981, University of Rhode Island; physical oceanography, mesoscale mixing, physics of mesoscale eddies, numerical modeling.

Rothrock, David A. * 1970; PhD, 1969, Cambridge University (UK); physical oceanography, polar oceanography, polar ice remote sensing and modeling.

Shuman, Frank R. 1999, (Affiliate); PhD, 1978, University of Washington; monitoring activities in marine waters: sediment, water, plants and animals, toxic substances.

Warner, Mark J. * 1989; PhD, 1988, University of California (San Diego); physical oceanography, ocean ventilation and mixing processes.

Wilcock, William S. D. * 1993; PhD, 1992, Massachusetts Institute of Technology; marine seismology, dynamics of mid-ocean ridges, geological fluid dynamics.

Williams, Kevin L. 1998, (Affiliate); PhD, 1985, Washington State University; propagation and scattering of sound in the ocean: applied to remote sensing and sediment acoustics.

Assistant Professors

Armbrust, E. Virginia * 1996; PhD, 1990, Massachusetts Institute of Technology; chloroplast inheritance, sexual cycle of unicellular algae.

Bullister, John L. 1991, (Affiliate); PhD, 1984, University of California (San Diego); chemical tracers of large-scale ocean circulation and mixing, gases in the ocean and atmosphere.

Butterfield, David A. 1997, (Affiliate); PhD, 1990, University of Washington; geochemical systematics of hydrothermal fluids, relation to seafloor volcanism and microbial activity.

Cronin, Meghan 1998, (Affiliate); PhD, 1993, University of Rhode Island; upper-ocean heat, salt, and momentum balances, western boundary currents, eddy-mean flow interaction.

Dushaw, Brian D. 1992, (Affiliate); PhD, 1992, University of California (San Diego); acoustic tomography, applications to ocean temperature, tidal dissipation, ocean mixing.

Hautala, Susan L. * 1994; PhD, 1992, University of Washington; physical oceanography, abyssal and paleoabyssal circulation.

Keil, Richard G. * 1991; PhD, 1991, University of Delaware; chemical oceanography, marine organic chemistry.

Kelley, Deborah S. 1992, (Research); PhD, 1990, Dalhousie University (Canada); geo-microbiological processes in hydrothermal systems, volatile flux from mantle to hydrosphere.

Lee, Craig M. 1998, (Affiliate); PhD, 1995, University of Washington; upper-ocean processes, internal waves, fronts, interactions between dynamics and biology.

MacCready, Parker * 1986, (Research); PhD, 1991, University of Washington; ocean circulation in estuaries and the southern ocean.

Napp, Jeffrey M. 1991, (Affiliate); PhD, 1986, University of California (San Diego); biological-physical interactions in the epipelagic zone, zooplankton ecology, fisheries oceanography.

Newton, Jan A. 1998, (Affiliate); PhD, 1989, University of Washington; production and export of organic material, estuarine/coastal dynamics and marine water quality.

Oltman-Shay, Joan M. 1991, (Affiliate); PhD, 1986, University of California (San Diego); nearshore waves and currents: wave climatology, generation and dissipation, sediment dynamics.

Sabine, Christopher L. 1999, (Affiliate); PhD, 1992, University of Hawaii; carbon cycling in the global oceans including air-sea fluxes and estimates of anthropogenic carbon.

Thompson, LuAnne * 1990; PhD, 1990, Massachusetts Institute of Technology; numerical modeling of mesoscale and general circulation of the oceans.

Tynan, Cynthia T. 1999, (Affiliate); PhD, 1993, University of California (San Diego); biological-physical processes, distribution and abundances of plankton and marine mammals.

Senior Lecturer

Emerick, Christina M. 1985; PhD, 1985, Oregon State University; marine geochemistry and tectonics.

Course Descriptions

See page 48 for an explanation of course numbers, symbols, and abbreviations.

For graduate-level course descriptions, see the graduate and professional study volume of the *General Catalog* or visit the online course catalog at www.washington.edu/students/crscat/.

OCEAN 101 Survey of Oceanography (5) NW Origin and extent of the oceans; nature of the sea bottom; causes and effects of currents and tides; animal and plant life in the sea. Intended for nonmajors. Offered: AWSpS.

OCEAN 102 Environmental Oceanography (5) NW Designed to study in detail the benefits and the scientific problems created by human activities impinging on the oceanic environment. Prerequisite: either OCEAN 101 or OCEAN 200. Offered: Sp.

OCEAN 200 Introduction to Oceanography (3) NW Description of the oceans. Emphasis on relations of biology, chemistry, geology, and physics in marine environments. Examination of relationships and interactions at macro-, meso-, and microscales in the ocean. Intended for science majors. Offered: A.

OCEAN 201 Introduction to Field Oceanography (3) NW Methods of oceanographic field study. Instruments and sampling techniques. Writing assignment to teach report-writing skills. Prerequisite: OCEAN 202. Offered: Sp.

OCEAN 202 Ocean Circulation (3) NW The large-scale circulation of the ocean. Topics include temperature-salinity analysis; water mass identification; water, salt, and heat budgets; chemical tracer distributions; advection and diffusion. Recommended: OCEAN 101 or OCEAN 200. Offered: W.

OCEAN 204 Contemporary Issues in Oceanography (1-3, max. 9) NW Selected topics of contemporary interest in oceanography such as hydrothermal vents, planetary volcanism, biogeochemical cycling, the ecology of Puget Sound, and the ocean's role in climate.

OCEAN 401 General Physical Oceanography I (3) NW Physical properties and processes; theories and methods describing ocean currents, waves, and tides. Prerequisite: either MATH 126, MATH 129, or MATH 136; PHYS 123; OCEAN 202. Offered: A.

OCEAN 402 General Physical Oceanography II (3) NW Physical properties and processes; theories and methods describing ocean currents, waves, and tides. Prerequisite: OCEAN 401. Offered: W.

OCEAN 421 Chemical Oceanography (4) NW Physical and chemical properties of seawater and marine products; processes determining the chemical makeup of the oceans. Prerequisite: either CHEM 150, CHEM 152, or CHEM 155; OCEAN 202. Offered: Sp.

OCEAN 433 General Biological Oceanography (4) NW Marine organisms, their quantitative distribution in time and space and their interactions with the ocean. Prerequisite: either BIOL 102 or BIOL 203; OCEAN 401. Offered: W.

OCEAN 450 Marine Geology and Geophysics (4) NW Sedimentological and petrologic processes that determine the geologic record. Prerequisite: either GEOL 101 or GEOL 205. Offered: A.

OCEAN 452 Principles of Sediment Transport by Turbulent Flow (3) NW Theoretical and experimental techniques used in studying erosion, transportation, and deposition of sediment. Initial motion of sediments, bed-load motion, suspension of sediment by turbulent flows, erosion and deposition of sediments, and applications of sediment transport theory to problems of geological interest. Prerequisite: GEOL 455. Offered: jointly with GEOL 452.

OCEAN 460 Oceanic Data Interpretation (5) NW Collection and analysis of marine data. Laboratory analysis of samples, data handling, and modeling of marine problems. Prerequisite: OCEAN 402; OCEAN 433; OCEAN 450. Offered: Sp.

OCEAN 485 Topics in Oceanography (1-5, max. 12) NW Specialized topics in oceanography. Various techniques in solving oceanographic problems. For students with senior standing. Offered: WSp.

OCEAN 499 Undergraduate Research (1-12, max. 24) Research on assigned topics that may involve laboratory work, fieldwork, or literature surveys. Offered: AWSpS.

School of Public Health and Community Medicine

Dean

Patricia W. Wahl
F350 Health Sciences

 *General Catalog Web page:*
www.washington.edu/students/genca/academic/School_Public_Hlth.html

 *School Web page:*
depts.washington.edu/sphcm/

The School of Public Health and Community Medicine is composed of five departments: Biostatistics, Environmental Health, Epidemiology, Health Services, and Pathobiology. The School offers an undergraduate minor in public health and community medicine. A Bachelor of Science degree and an undergraduate minor are offered by the Department of Environmental Health. Admission requirements vary by degree and field and are described in the sections of each department.

The School also offers graduate programs leading to the degrees of Master of Public Health, Master of Science, and Doctor of Philosophy. For information on the School's graduate programs, see the graduate and professional volume of the *General Catalog* or visit the *General Catalog* online at www.washington.edu/students/genca/.

Environmental Health

 *General Catalog Web page:*
www.washington.edu/students/genca/academic/Environmental_Hlth.html

 *Department Web page:*
depts.washington.edu/envhlth/

Environmental health focuses on identifying, evaluating, and controlling environmental conditions that may have an adverse impact on human health. Examples of problem areas requiring environmental health expertise are assuring adequate quality and quantity of food and drinking water, safe treatment and disposal of domestic and industrial waste materials, limiting or reducing air and noise pollution, limiting occupational exposure to hazardous substances and unsafe conditions, assuring safe and healthful housing, controlling the spread of insect- and rodent-borne illness, proper selection and use of pesticides, and understanding the effects of global changes in climate and the atmosphere on human health.

Undergraduate Program

Advisers
Michael S. Morgan
Charles D. Treser
T329 Health Sciences, Box 357234
(206) 543-4207
ehug@u.washington.edu

The Department of Environmental Health offers a program of study leading to the Bachelor of Science degree. Two options are offered. Option 1 emphasizes the evaluation and management of microbiological hazards associated with drinking water, wastewater, food, housing, and insects and rodents. Option 2 emphasizes the evaluation and control of chemical agents and physical hazards present in indoor and outdoor air, water, soil, and the workplace. A minor is also offered.

Student Associations: UW Student Environmental Health Association; UW Student Chapter, American Industrial Hygiene Association

Internship or Cooperative Exchange Programs: The department operates an internship program in cooperation with government agencies and private employers throughout the state. Each student intern works under the supervision of an experienced employee, with guidance from a faculty member. Internship placements are available throughout the year for variable amounts of academic credit.

Bachelor of Science

This curriculum focuses on environmental conditions in the community and workplace that adversely affect the health and well-being of people, and the means by which these conditions may be eliminated or controlled. Public-health topics include drinking-water supply, wastewater disposal, food protection, solid and hazardous waste management, industrial hygiene, housing, vectors, air quality, and epidemiology. Other subject matter covered includes toxicology, environmental health practice, and environmental health regulation. Graduates from this curriculum have career opportunities in public health, occupational health, environmental protection, and environmental consulting.

Admission Requirements:

1. 90 credits with a minimum cumulative GPA of 2.50.
2. Completion of the following courses: 5 credits in English composition; BIOL 201, 202, 203; CHEM 142, 152, 162, 223, 224, 241, 242; MATH 124 or MATH 144; PHYS 114, 115, 116, 117, 118, 119.
3. Applications are accepted for autumn and spring quarters only. Application deadlines are August 15 and January 15, respectively. Applicants will be considered for admission when they are within one quarter of completing the admission requirements.

Suggested Introductory Course Work: ECON 200; POL S 202; SP CMU 220; STAT 220 or 311.

Additional Information: Students are encouraged to apply to the program during their sophomore year so they may begin the upper-division courses in their junior year.

Graduation Requirements:

1. *General Education and Basic Skills:* Completion of 10 credits each in VLP-Designated courses and in I&S-designated courses, plus 7 credits in W-designated courses.
2. *Option 1:* STAT 311 (or 220); T C 333; MICROM 301, 302; EPI 420; ENV H 311, 405, 430, 431, 440, 441, 442, 445, 446, 453, 454, 470, 471; one quarter of internship.

3. *Option 2:* STAT 311; T C 333; MATH 125, 126, or MATH 145, 146; EPI 420; ENV H 311, 405; 15 credits from selected environmental health courses oriented toward physical science, plus 15 credits selected from course lists designed to assure depth and breadth of coverage in at least one of the following areas: human biology/ toxicology, environmental chemistry/physics, sampling/analytical methods, engineering, and hazard communication/management.

Graduate Program

For information on the Department of Environmental Health's graduate program, see the graduate and professional volume of the *General Catalog* or visit the *General Catalog* online at www.washington.edu/students/genca/.

Faculty

Interim Chair

David A. Kalman

Professors

Altman, Leonard * 1974, (Clinical); MD, 1969, Harvard University; mechanisms of tissue injury produced by bacteria, leukocytes, or toxins.

Checkoway, Harvey * 1987; MPH, 1975, Yale University; PhD, 1978, University of North Carolina; occupational and environmental epidemiology.

Costa, Lucio Guido * 1983; PharmD, 1977, University of Milan (Italy); neurotoxicology; developmental and molecular mechanisms/biological markers of neurotoxicity.

Covert, David S. * 1975, (Adjunct Research); MS, 1971, PhD, 1974, University of Washington; atmospheric chemistry, aerosol instrumentation, aerosol physics, chemistry, optics.

De Walle, Foppe B. * 1988, (Affiliate); PhD, 2000, University of Washington; environmental health technology, hazardous waste, drinking water treatment, toxics reduction.

Eaton, David L. * 1979; PhD, 1978, University of Kansas; biochemical and environmental toxicology, aflatoxin carcinogenesis, metabolism of toxic chemicals.

Fantel, Alan G. * 1973, (Adjunct Research); PhD, 1974, University of Washington; embryology, teratology.

Faustman, Elaine M. * 1981; PhD, 1980, Michigan State University; developmental toxicology, risk assessment methodologies, toxicology of N-nitroso compounds.

Fenske, Richard A. * 1990; MA, 1976, MPH, 1978, PhD, 1984, University of California (Berkeley); human exposure and health risk assessment, pesticide exposure.

Franklin, Gary M. * 1988, (Research); MD, 1969, George Washington University; MPH, 1982, University of California (Berkeley); occupational injury, neurological epidemiology, public health nutrition.

Kalman, David A. * 1978; PhD, 1978, University of Washington; environmental chemistry, detection and fate of chemical hazards in natural and manmade environments.

Karr, James * 1991, (Adjunct); PhD, 1970, University of Illinois; ecology and conservation biology, water resources, environmental sciences, natural resources.

Koenig, Jane Q. * 1974; MS, 1961, PhD, 1963, University of Washington; respiratory physiology, health effects of air pollutants, lung response of susceptible groups.

Larson, Timothy * 1970, (Adjunct); PhD, 1976, University of Washington; airborne particles, air quality modeling, and instrument development.

Luchtel, Daniel L. * 1972; PhD, 1969, University of Washington; electron microscopy and cell biology, lung anatomy/pathophysiology, fiber toxicology.

Morgan, Michael S. * 1974; DSc, 1972, Massachusetts Institute of Technology; applied respiratory, physiology and inhalation toxicology.

Omenn, Gilbert S. * 1981, (Affiliate); MD, 1965, Harvard University; PhD, 1972, University of Washington; genetic predisposition to environmental and occupational hazards.

Omiecinski, Curtis J. * 1983; PhD, 1980, University of Washington; molecular toxicology, genetic regulation/ expression of drug/chemical metabolizing enzymes.

Rosenstock, Linda * 1981; MD, 1977, Johns Hopkins University; occupational/general internal medicine.

Sever, Lowell E. * 1991, (Affiliate); PhD, 1973, University of Washington; perinatal epidemiology, particularly reproductive effects of occupational/environmental exposures.

van Belle, Gerald * 1974; MA, 1964, PhD, 1967, University of Toronto (Canada); biostatistics, environmental risk factors for neurodegenerative diseases, risk communication.

Woods, James S. * 1982, (Research); PhD, 1970, University of Washington; MPH, 1978, University of North Carolina; biochemical toxicology of trace metals; biological markers of metal exposure.

Associate Professors

Barnhart, Scott * 1979; MD, 1979, George Washington University; occupationally related lung disease.

Brodin, Carl * 1989; MD, 1983, University of Colorado (Denver); hepatic effects of occupational solvent exposure; ventilatory decline in asbestos-exposed workers.

Burbacher, Thomas M. * 1974; PhD, 1983, University of Washington; neurotoxicology, specializing in the behavioral effects of agents on the central nervous system.

Danielli, William E. * 1984; MD, 1979, Tufts University; MPH, 1986, University of Washington; health effects of occupational chemical exposures, multiple chemical sensitivity syndrome.

Gilbert, Steven G. * 1990, (Affiliate); PhD, 1986, University of Rochester; primate neurobehavioral toxicology and teratology, developmental effects of heavy metals.

Grossmann, Angelika * 1985, (Affiliate); DVM, 1978, PhD, 1982, Freie University of Berlin (Germany); immunosenescence in humans and mice; immunotoxicology; transmembrane signaling in T-lymphocytes.

Guffey, Steven E. * 1987; MSIE, 1973, North Carolina State University; PhD, 1987, University of North Carolina; industrial ventilation design, modeling of pressure and flow relationships, hood design research.

Kaufman, Joel D. * 1988; MD, 1986, University of Michigan; MPH, 1990, University of Washington; epidemiology of occupational/environmental factors in respiratory, skin and cardiovascular disease.

Kavanagh, Terrance J. * 1985; MS, 1980, PhD, 1985, Michigan State University; free radical toxicology, glutathione metabolism, toxicology and aging.

Keifer, Matthew C. * 1982; MD, 1982, University of Illinois; the human health effects of pesticide exposure.

Kissel, John C. * 1990; MS, 1974, Harvard University; PhD, 1985, Stanford University; solid and hazardous waste management practice, human exposure assessment.

Leroux, Brian * 1991, (Adjunct); MSc, 1985, PhD, 1989, University of British Columbia (Canada); biostatistical methodology and its application to clinical trials and epidemiology.

Martin, Thomas G. 1996, (Adjunct); MD, 1977, Pennsylvania State University; general internal medicine.

Seixas, Noah S. * 1992; MS, 1982, Harvard University; PhD, 1990, University of Michigan; exposure assessment methods for occupational/epidemiologic studies; small industrial plants.

Yost, Michael G. * 1993; MS, 1984, PhD, 1989, University of California (Berkeley); worker exposures to physical agents, electromagnetic fields, noise and vibration.

Zarbl, Helmut 1996, (Affiliate); PhD, 1983, McGill University (Canada); toxicology, cancer biology, environmental carcinogenesis.

Assistant Professors

Liu, Lee-Jane Sally * 1998; MS, 1991, ScD, 1994, Harvard University; air pollution, exposure assessment, environmental epidemiology.

Samadpour, Mansour * 1987; MS, 1987, PhD, 1990, University of Washington; molecular epidemiology of microbial pathogens, bacterial population genetics and pathogenesis.

Sheppard, Lianne * 1989, (Research); MSc, 1985, Johns Hopkins University; PhD, 1992, University of Washington; observational study methods, grouping, environmental and occupational exposures.

Xia, Zhengui * 1987; MS, 1985, Wuhan University (China); PhD, 1991, University of Washington; neuronal apoptosis, neuronal gene regulation.

Senior Lecturers

Morris, Sharon L. 1982; BA, 1965, Reed College; occupational safety and health policy, continuing education.

Treser, Charles D. * 1980; MPH, 1976, University of Michigan; administrative law and process in environmental health; housing; vector control.

Lecturer

Camp, Janice E. 1982; MS, 1984, MN, 1984, University of Washington; workplace exposure assessment, evaluation of exposure, controls, program evaluation.

Course Descriptions

See page 48 for an explanation of course numbers, symbols, and abbreviations.

For graduate-level course descriptions, see the graduate and professional study volume of the *General Catalog* or visit the online course catalog at www.washington.edu/students/crscat/.

ENV H 311 Introduction to Environmental Health (3) *Treser* Relationship of people to their environment, how it affects their physical well-being and what they can do to influence the quality of the environment and to enhance the protection of their health. Emphasis on environmental factors involved in transmission of communicable diseases and hazards due to exposure to chemical and physical materials in our environment. Offered: ASP.

ENV H 405 Toxic Chemicals in the Environment (3) *Kavanagh* Basic principles governing the behavior and effects of toxic chemicals released into the environment; sources, distribution, and fate of toxic chemicals in the environment; chemicals and cancer; chemicals and birth defects; government regulation of chemical hazards. Focus on human health impacts of chemicals found in the workplace and general environment. Prerequisite: 2.0 in BIOL 203; either 2.0 in CHEM 242 or 2.0 in CHEM 347. Offered: Sp.

ENV H 415 Nuclear Instruments (3) Principles, measurements, and detection of various types of radiation encountered in nuclear energy systems. Use of Geiger, proportional, and scintillation detectors; ionization chambers; analog-digital data-logging equipment; multichannel analyzers. Offered: W.

ENV H 417 Non-ionizing Radiation and Electrical Safety (2) *Yost* Introduction to health hazards from UV, optical laser hazards, infrared radiation, radio-frequency radiation, heat stress, electrical shock, electric and magnetic fields. Application of current standards for these physical agents. Emphasis on occupational hazards with additional discussion of environmental exposures where appropriate. Offered: odd years; W.

ENV H 430 Methods in Environmental Sampling and Analysis (3) *Samadpour* Field sampling methods studied and selected laboratory analyses of food, drinking water, and waste waters conducted. Official methods for characterizing physical and chemical quality of water and wastes demonstrated. Microbiological criteria emphasized for student participation, including: enumeration of subgroups in populations, selective inhibitor, characteristics of normal flora, rationale of "indicator" organisms. Prerequisite: 2.0 in MICROM 302. Offered: A.

ENV H 431 Environmental Health Sampling and Analysis II (3) *Samadpour* Methods for collection and analyses of environmental samples are examined or demonstrated, including official analytical procedures of FDA, USDA, EPA, and AOAC, as well as cutting edge developments. Criteria for wholesomeness, safety, and inhibition of spoilage of food and food products are examined. Prerequisite: ENV H 430. Offered: W.

ENV H 440 Water and Waste Sanitation (4) *Lenning* Study of health problems associated with drinking water and wastewaters and minimization of problems. Focus on drinking water quality and quantity requirements; water pollutants and impacts on environment; individual drinking water, onsite sewage facilities, related site selection criteria/regulations, regulatory agency activities. Field performance of environmental health specialist emphasized. Prerequisite: 2.0 in BIOL 203. Offered: A.

ENV H 441 Food Protection (3) *Easterberg* Study of identification and characteristics of chemicals and biological agents implicated in foodborne disease outbreaks and conditions or circumstances by which food contamination occurs. Examination of food protection activities conducted by local and state government at the retail level. Prerequisite: either 2.0 in CHEM 155 or 2.0 in both CHEM 160 and CHEM 161, or 2.0 in CHEM 162; 2.0 in MICROM 302. Offered: W.

ENV H 442 Vector Control (3) *Treser* Study of the impact and control of rodents and arthropod vectors of disease, including consideration of economic poisons used, their regulation, and safety measures. Prerequisite: 2.0 in BIOL 203. Offered: Sp.

ENV H 445 Solid Waste Management (3) *Turnberg* Examination of the public health, environmental, economic, and materials conservation aspects of solid wastes management; amounts and sources of solid wastes, waste reduction and recycling, methods of storage, transportation and disposal, integrated waste management, identification of present problems and future needs. Prerequisite: 2.0 in CHEM 155, 2.0 in CHEM 160, or 2.0 in CHEM 162; either 2.0 in MATH 124, 2.0 in MATH 127, 2.0 in MATH 134, or 2.0 in MATH 144; recommended: PHYS 115. Offered: Sp.

ENV H 446 Hazardous Waste Management (3) *Kissel* Characterization of hazardous wastes and introduction to pertinent federal and state regulations. Discussion of exposure pathways and description of management options at pre-generation, pre-

release, and post-release stages. Emphasis on public health significance. Supplemented with case studies. Prerequisite: either 2.0 in CHEM 155, 2.0 in CHEM 160, 2.0 in CHEM 162; either 2.0 in MATH 112, 2.0 in MATH 124, 2.0 in MATH 127, 2.0 in MATH 234, or 2.0 in MATH 144; recommended: MATH 125, CHEM 224, PHYS 115. Offered: W.

ENV H 449 Respiratory Effects of Air Pollution (2) *Koenig* Structure and function of the respiratory system and the changes that may be produced by specific air pollutants, such as ozone, SO₂. Air quality criteria and the economic costs of disease are discussed. Several classroom demonstrations. Offered: odd years; Sp.

ENV H 453 Exposure Assessment for Occupational and Environmental Health (3) *Morgan* Introduction to principles and scientific foundations of human exposure assessment in workplace and community environments. Exposure assessments are essential for determining disease etiology and for characterizing health risks within a risk assessment framework. Special emphasis on workplace hazard evaluation and control. Prerequisite: 2.0 in BIOL 202; either 2.0 in CHEM 224, 2.0 in CHEM 239, or 2.0 in CHEM 337; either 2.0 in PHYS 116 or 2.0 in PHYS 123. Offered: A.

ENV H 454 Industrial Hygiene Measurements (3) *Guffey, Monteith* Series of lectures and laboratory demonstrations illustrate the use of a wide spectrum of industrial hygiene sampling equipment. Included are airflow calibration, chemical calibration, detector tubes, personnel sampling devices, both continuous and direct reading instruments. Instrumentation for noise and electromagnetic radiation. Prerequisite: 2.5 in ENV H 453. Offered: Sp.

ENV H 457 Industrial and Environmental Noise (3) *Yost* Survey of industrial and community noise problems, including sources, effects, measurement, control, and legislation. Prerequisite: 2.0 in PHYS 115. Offered: Sp.

ENV H 461 Air Pollution Control (4) *Morgan, Pilat* Fundamental concepts of air pollution. Emission sources, atmospheric dispersion, ambient concentrations, adverse effects, governmental regulations, emission standards, air-quality standards, processes and equipment for controlling emissions. Offered: jointly with CEE 490; A.

ENV H 470 Environmental Health Practice: Administration and Management (2) *Osaki, Treser* Explores selected aspects of the management of environmental health programs in the community, including organization theory and practice, budgeting, personnel management, program planning and evaluation, and community relations. Prerequisite: ENV H 482. Offered: A.

ENV H 471 Environmental Health Regulation (3) *Treser* Introduction to administrative regulation and process. Authority, jurisdiction, and structure of environmental control programs and agencies; the regulatory process; agency acquisition and retention of information; administrative actions; enforcement of environmental health laws; major statutes and cases affecting programs. Prerequisite: ENV H 482. Offered: W.

ENV H 472 Environmental Risk and Society (3) *Fenske* Examines scientific determinations of environmental risks and explores how such determinations are evaluated by affected communities and society. Employs risk analysis to integrate technical knowledge in hazard identification and exposure assessment to provide a more rational basis for environmental policies. Role of public participation in risk-based decision making discussed. Offered: W.

ENV H 480 Environmental Health Problems (* max. 6) *Treser* Individual projects involving library, laboratory, or field study of a specific environmental health problem. Offered: AWSpS.

ENV H 482 Environmental Health Internship (2-15, max. 15) *Treser* Assignment to an environmental health or environmental protection agency for supervised observation and experience in environmental health technology, program planning and utilization of community resources. Prerequisite: 2.5 in ENV H 311. Credit/no credit only. Offered: AWSpS.

ENV H 497 Environmental Health Special Electives (*) Offered: AWSpS.

ENV H 499 Undergraduate Research (*) Individual research on a specific topic in environmental health upon which specific conclusions, judgments, or evaluation can be made or upon which facts can be presented. Offered: AWSpS.

Health Services



General Catalog Web page:
www.washington.edu/students/gencat/academic/Health_Svcs.html



Department Web page:
depts.washington.edu/mhap/

Undergraduate Program

Health Information Administration Postbaccalaureate Certificate Program

The program in Health Information Administration is designed to prepare individuals for a career in an administrative health-care profession. Course work is enhanced by a field placement during one academic quarter. The program gives students the tools to become involved in a wide variety of health-care arenas upon graduation, including health information management, health information systems analysis supplementation with emphasis on electronic health records, health-care quality improvement, research, health-care financing, and consulting. Program requirements can be completed in three quarters (nine months) on a full-time basis, or over a longer period on a part-time basis.

The program is accredited by the Commission on Accreditation of Allied Health Education Programs (CAAHEP), or its successor, in cooperation with the American Health Information Management Association's (AHIMA) Council on Accreditation.

Special Requirements

Applicants need a baccalaureate degree from an accredited college or university with a minimum GPA of 2.50. They must also have taken courses in, or have the requisite knowledge and skills pertaining to, the following: human anatomy and physiology (laboratory course); pathophysiology; introduction to basic computer applications such as spreadsheets, databases, or word processing, or introductory programming; principles of management; statistics (any discipline); and medical terminology. Applicants who still need to complete any of these requirements may apply and submit a plan for completion of prerequisites.

Graduate Program

For information on the Department of Health Services' graduate program, see the graduate and professional volume of the *General Catalog* or visit the *General Catalog* online at www.washington.edu/students/gencat/.

Reserve Officer Training Corps Programs

Aerospace Studies

204 Clark



General Catalog Web page:
www.washington.edu/students/gencat/academic/airforce.html



Department Web page:
depts.washington.edu/afweb/

The Air Force Reserve Officer Training Corps program (AFROTC) is designed to motivate, educate, and commission highly qualified students for active duty as officers in the U.S. Air Force. The curriculum provides the opportunity for students in any major to gain military knowledge and to become effective Air Force officers and leaders in the aerospace environment.

Adviser
 Unit Admissions Officer
 204 Clark, Box 353830
 (206) 543-2360
afrotc@u.washington.edu

General Program Requirements

The freshman- and sophomore-level general military courses are open to all students attending any two- or four-year college or university full time. Any student may enroll in these 1-credit courses.

Commissioning Requirements

Students who successfully complete the AFROTC program and receive an academic degree from the University are offered commissions as second lieutenants in the Air Force.

General Military Courses

The basic-division courses consist of one classroom hour and 1.5 leadership-laboratory hours per week during the freshman and sophomore years. Uniforms and textbooks are provided. Students may enter the freshman class at the start of autumn, winter, or spring quarter. Sophomore students may enter at the start of autumn or winter quarter and take the freshman- and sophomore-level courses concurrently. A four-week field training course, taken during the summer between the sophomore and junior years, is required for entry into the professional officer courses. Students receive pay and travel costs for field training.

Except for sophomore cadets on AFROTC scholarship, students incur no active-duty service commitment by taking general military courses, and students may drop the courses at any time within the limits of the University course-drop policies.

Professional Officer Courses

Cadets selected for enrollment in professional officer courses are enlisted in the Air Force Reserve and receive tax-free monthly subsistence pay of \$200. They are furnished texts and uniforms. Junior- and senior-level classes consist of three hours of academic classes and three hours of leadership-laboratory per week.

Financial Assistance

The Air Force offers one-, two-, and three-year scholarships to college students. The following is a partial list of fields where most scholarships are granted: engineering, science and technology, medicine, computer science and engineering, meteorology, physics, and mathematics.

AFROTC scholarships pay tuition, certain fees, and textbook reimbursement. In addition, scholarship winners receive a \$200 subsistence allowance per month. To take advantage of these scholarships, students should apply directly to the Department of Aerospace Studies (AFROTC), (206) 543-2360.

Two-Year Program

To provide for those students unable to take the general military courses, a two-year professional officer course is available on a competitive basis. This program is open to graduate students and full-time undergraduate students who will complete a bachelor's degree in two years.

Students in this program are required to attend a five-week field training course at an Air Force base during the summer preceding program entry. The student is paid during the five-week period. Upon return to the campus, students enter the professional officer course. Uniform, texts, and \$200 monthly subsistence are provided.

Two-year scholarships are available for qualified students in any major. Students interested in this program should contact the AFROTC department *by February or May 1 prior to the autumn quarter they desire to enter*, (206) 543-2360.

Faculty

Chair

David A. Reinholz

Professor

Reinholz, David A. 1999; MS, 1983, Air Force Institute of Technology; MS, 1995, National War College.

Assistant Professors

Bailey, Darrin E. 2000; MA, 2000, Chapman University.

Damalas, Kimberly A. 1998; MS, 1997, University of North Dakota.

Kellermann, Gregory M. 1998; MBA, 1997, University of Nebraska.

Marlatt, Madalyn M. 2000; BS, 1995, University of Portland.

Course Descriptions

See page 48 for an explanation of course numbers, symbols, and abbreviations.

For graduate-level course descriptions, see the graduate and professional study volume of the *General Catalog* or visit the online course catalog at www.washington.edu/students/crscat/.

A S 101 Aerospace Studies 100 (1) Focuses on the basic characteristics of air doctrine; US Air Force mission and organization; functions of United States strategic offensive and defensive, general-purpose, and aerospace support forces; officership/professionalism and an introduction to communicative skills. Additional one-hour leadership laboratory is mandatory for cadets, but not special students. Offered: A.

A S 102 Aerospace Studies 100 (1) Focuses on the basic characteristics of air doctrine; US Air Force mission and organization; functions of United States strategic offensive and defensive, general-purpose, and aerospace support forces; officership/professionalism and an introduction to communicative skills. Additional one-hour leadership laboratory is mandatory for cadets, but not special students. Offered: W.

A S 103 Aerospace Studies 100 (1) Focuses on the basic characteristics of air doctrine; US Air Force mission and organization; functions of United States strategic offensive and defensive, general-purpose, and aerospace support forces; officership/professionalism and an introduction to communicative skills. Additional one-hour leadership laboratory is mandatory for cadets, but not special students. Offered: Sp.

A S 211 Aerospace Studies 200 (1) Factors contributing to the development of air power from its beginnings to the present, and the evolution of air power concepts and doctrine. History of air power employment in military and nonmilitary operations in support of national objectives. Assessment of communicative skills. Additional one-hour leadership laboratory is mandatory for cadets, but not special students. Offered: A.

A S 212 Aerospace Studies 200 (1) Factors contributing to the development of air power from its beginnings to the present, and the evolution of air power concepts and doctrine. History of air power employment in military and nonmilitary operations in support of national objectives. Assessment of communicative skills. Additional one-hour leadership laboratory is mandatory for cadets, but not special students. Offered: W.

A S 213 Aerospace Studies 200 (1) Factors contributing to the development of air power from its beginnings to the present, and the evolution of air power concepts and doctrine. History of air power employment in military and nonmilitary operations in support of national objectives. Assessment of communicative skills. Additional one-hour leadership laboratory is mandatory for cadets, but not special students. Offered: Sp.

A S 331 Aerospace Studies 300 (3) Emphasis on leadership and management fundamentals, professional knowledge, leadership ethics, and communicative skills required of an Air Force officer. Case studies used to examine leadership and management situations. An additional leadership laboratory (mandatory for cadets but not special students) provides leadership experiences, giving students the opportunity to apply learned principles. Offered: A.

A S 332 Aerospace Studies 300 (3) Emphasis on leadership and management fundamentals, professional knowledge, leadership ethics, and communicative skills required of an Air Force officer. Case studies used to examine leadership and management situations. An additional leadership laboratory (mandatory for cadets but not special students) provides leadership experiences, giving students the opportunity to apply learned principles. Offered: W.

A S 333 Aerospace Studies 300 (3) Emphasis on leadership and management fundamentals, professional knowledge, leadership ethics, and communicative skills required of an Air Force officer. Case studies used to examine leadership and management situations. An additional leadership laboratory (mandatory for cadets but not special students) provides leadership experiences, giving students the opportunity to apply learned principles. Offered: Sp.

A S 431 Aerospace Studies 400 (3) I&S Needs for national security, evolution of American defense strategy and policy, methods for managing conflict, alliances and regional security to preserve American interests. Arms control and terrorism. The military as

a profession, officership, the military justice system, current military issues; refinement of communicative skills. A one-hour leadership laboratory is also required for cadets, but not special students. Offered: A.

A S 432 Aerospace Studies 400 (3 I&S) Needs for national security, evolution of American defense strategy and policy, methods for managing conflict, alliances and regional security to preserve American interests. Arms control and terrorism. The military as a profession, officership, the military justice system, current military issues; refinement of communicative skills. A one-hour leadership laboratory is also required for cadets, but not special students. Offered: W.

A S 433 Aerospace Studies 400 (3 I&S) Needs for national security, evolution of American defense strategy and policy, methods for managing conflict, alliances and regional security to preserve American interests. Arms control and terrorism. The military as a profession, officership, the military justice system, current military issues; refinement of communicative skills. A one-hour leadership laboratory is also required for cadets, but not special students. Offered: Sp.

Military Science

104 Clark



General Catalog Web page:

www.washington.edu/students/gencat/academic/army.html



Department Web page:

depts.washington.edu/armyrotc/

The ROTC program provides students an opportunity to learn and practice the art of leading people. Recognizing that there is a great difference between cognition and volition, the program is structured in such a way as to give the student practical experience in leading and managing resources.

The Army ROTC (AROTC) program enables the student to learn about the military profession and the role it plays in our democratic system of government. The courses enable such knowledge to be acquired on the campus without having to serve in the military forces.

The Army ROTC electives enrich the student's course of study. Taking these courses also opens up an additional career option, enabling the student to earn a commission and to serve in the Army as an officer, or in the Reserves or National Guard while pursuing a civilian career. Officers serve in a wide variety of career paths, including infantry, human resources, aviation, intelligence, automation, and hospital administration.

Army ROTC provides the student membership in a close-knit fraternal student organization.

ROTC programs on college campuses are the nation's way of ensuring that all the influences of higher education are transported into the military services—a mandatory requirement in a democracy.

Adviser

Daniel B. Hink
105 Clark, Box 353820
(206) 543-9010
pms@milsci.washington.edu

Traditional Four-Year Program

Open to freshman and sophomore men and women. Academic studies include courses in military history, principles of leadership, techniques of instruction, management and staff procedures, logistics, physical conditioning, and military law. Extra curricular activities include such options as Ranger Company, color guard, training exercises, field trips, and related activities. A non-scholarship student incurs no obligation of any kind during the first two years of the four-year AROTC program.

Placement credit toward completion of AROTC courses may be given for prior ROTC or military training. Veterans routinely receive full credit for the first two years of AROTC and may enter the advanced course when they are academic juniors. All military textbooks and uniform items are furnished without charge. Students in the advanced course receive tax-free monthly subsistence of \$150 for a maximum of twenty months. In the advanced course, cadets are required to participate in the leadership-development program, which is a practicum of skills and principles taught during the previous two years. Between their junior and senior years, cadets attend a five-week summer camp during which they receive varied and challenging training and for which they are paid both for the time at camp and for travel expenses to and from the camp location. Upon entering the advanced course, students agree to complete the course, accept a commission upon graduation, and (if selected for active duty) serve on active duty for four years or three to six months' active-duty training followed by service in the Army Reserve or National Guard.

Two-Year Program

This program is open to qualified undergraduate and graduate students who have at least two years remaining in school and who have completed 81 credits. Students may qualify for entrance into the advanced course under this program in two ways.

First, they may participate as qualified veterans who receive placement credit for the first two years of AROTC. Veterans are also eligible to compete for two- and three-year scholarships while receiving their educational benefits. Members of the Reserves and National Guard may also be eligible to participate in AROTC and receive their commission upon graduation.

The second alternative under this program requires attendance at Camp Challenge for five weeks at Fort Knox, Kentucky. Completion of this training also qualifies students for direct entry into the advanced course. While at camp, students receive pay plus travel expenses to and from the camp location, and they may compete for two-year scholarships.

Two- and Three-Year Scholarship Program

This program is open to qualified students on campus. The scholarship provides financial assistance during the remaining years of the student's enrollment. Each scholarship pays for tuition and a flat rate for books and laboratory expenses and provides tax-free subsistence of \$150 per academic month. All other advantages and obligations are the same as those of the four-year scholarship program.

Four-Year Scholarship Program

Application to this program should be made while the student is still in high school. Selection of students is made on a nationwide competitive basis. This program may lead to a commission in the Active Army, the Army Reserve, or the Army National Guard. All tuition, a flat rate for books and laboratory expenses, and uniform items, plus monthly tax-free subsistence of \$150 for a maximum of four years, are provided by the Army. The program requires four years of academic study on campus, as well as a five-week advanced camp training period between the junior and senior years, for which the cadet is paid for both time and travel expense to and from the camp location. Academic studies are identical to those of the traditional four-year program. The student must sign a contract wherein the student agrees to complete this program, along with a chosen academic program, to accept a commission, and to serve on active duty or in the reserve forces after commissioning.

Faculty

Chair

Daniel Brewer Hink

Professor

Hink, Daniel Brewer 1996; MA, 1992, Central Michigan University; criminology, general administration.

Assistant Professors

Bott, Guy W. 1999; MA, 1993, Boston University; education.

Deckard, Robert W. 1998; MS, 1980, Southern Illinois University.

Green, Ransom B. 1997; BS, 1990, New York University; film production, German.

Walworth, Marvin Richard Jr. 1999; MBA, 1980, Embry Riddle Aeronautical University; business.

Wright, Timothy G. 1998; MS, 1995, Troy State University; management.

Course Descriptions

See page 48 for an explanation of course numbers, symbols, and abbreviations.

For graduate-level course descriptions, see the graduate and professional study volume of the *General Catalog* or visit the online course catalog at www.washington.edu/students/crscat/.

M SCI 101 Military Science I: Basic (2) History, organization, and mission of the United States Army and the Reserve Officer Training Corps. Relationship to the citizen's military and civilian obligations. Functions and organization of the United States defense establishment. Fundamentals of leadership and management. Leadership laboratories and two field training exercises conducted during the year encompass training in field craft, survival, and small unit tactics. Offered: AWSp

M SCI 102 Military Science I: Basic (2) History, organization, and mission of the United States Army and the Reserve Officer Training Corps. Relationship to the citizen's military and civilian obligations. Functions and organization of the United States defense establishment. Fundamentals of leadership and management. Leadership laboratories and two field training exercises conducted during the year encompass training in field craft, survival, and small unit tactics. Offered: AWSp.

M SCI 103 Military Science I: Basic (2) History, organization, and mission of the United States Army and the Reserve Officer Training Corps. Relationship to the citizen's military and civilian obligations. Functions and organization of the United States defense establishment. Fundamentals of leadership and management. Leadership laboratories and two field training exercises conducted during the year encompass training in field craft, survival, and small unit tactics. Offered: AWSp.

M SCI 201 Military Science II: Basic (2) Develops proficiency in oral and written communications. Presents a perspective on the world wide military threat; an evaluation of tactical methodologies of the hostile nations to include conventional weapon systems employment. Control, prevention, and treatment of combat or emergency medical situations. Fundamentals of military map reading, compass and field navigation, are taught and applied. Leadership laboratories and two field training exercises during the year. Offered: AWSp.

M SCI 202 Military Science II: Basic (2) Develops proficiency in oral and written communications. Presents a perspective on the world wide military threat; an evaluation of tactical methodologies of the hostile nations to include conventional weapon systems employment. Control, prevention, and treatment of combat or emergency medical situations. Fundamentals of military map reading, compass and field navigation, are taught and applied. Leadership laboratories and two field training exercises during the year. Offered: AWSp.

M SCI 203 Military Science II: Basic (2) Develops proficiency in oral and written communications. Presents a perspective on the world wide military threat; an evaluation of tactical methodologies of the hostile nations to include conventional weapon systems employment. Control, prevention, and treatment of combat or emergency medical situations. Fundamentals of military map reading, compass and field navigation, are taught and applied. Leadership laboratories and two field training exercises during the year. Offered: AWSp.

M SCI 301 Military Science III: Advanced (3) Small-unit tactics, emphasizing the importance of fire-power, movement, and communications. Duties, responsibilities, and methods of employment of basic military units. Leader's role in directing and coordinating individuals and military units from squad to company level. Students are introduced to the planning and conduct of individual and group physical conditioning activities, stressing positive motivation to establish high standards of morale and esprit. Principles and techniques of command, control, military management, and leadership are taught and practiced throughout the academic year. Leadership laboratories and two field training exercises during the year. Offered: AWSp.

M SCI 302 Military Science III: Advanced (3) Small-unit tactics, emphasizing the importance of fire-power, movement, and communications. Duties, responsibilities, and methods of employment of basic military units. Leader's role in directing and coordinating individuals and military units from squad to company level. Students are introduced to the planning and conduct of individual and group physical conditioning activities, stressing positive motivation to establish high standards of morale and esprit. Principles and techniques of command, control, military management, and leadership are taught and practiced throughout the academic year. Leadership laboratories and two field training exercises during the year. Offered: AWSp.

M SCI 303 Military Science III: Advanced (3) Small-unit tactics, emphasizing the importance of fire-power, movement, and communications. Duties, responsibilities, and methods of employment of basic military units. Leader's role in directing and coordinating individuals and military units from squad to company level. Students are introduced to the planning and conduct of individual and group physical conditioning activities, stressing positive motivation to establish high standards of morale and esprit. Principles and techniques of command, control, military management, and leadership are taught and practiced throughout the academic year. Leadership laboratories and two field training exercises during the year. Offered: AWSp.

M SCI 305 Practicum-Techniques of Military Instructions (1-3, max. 3) Analysis, review of techniques used in military training and instructions. Students plan, rehearse, deliver, provide written critique on block of military instruction from the Military Qualification Skills Manual.

M SCI 401 Military Science IV: Advanced (2) The Army officer's position in contemporary world and impact on problems within the military service. Use of a developmental study to provide awareness of personal responsibilities and official relationships of an Army officer. Organization and functions of command and staff positions. Coordination of administra-

tion, logistics, and planning for military operations. Basic concepts of legislative and executive authority for the Uniform Code of Military Justice (to include a study of the officer's authority and responsibility within the military justice system). Problem-solving techniques used by small-unit leaders, emphasizing coordination and planning by the junior officer. Leadership laboratories and two field training exercises during the year. Offered: AWSp.

M SCI 402 Military Science IV: Advanced (3) The Army officer's position in contemporary world and impact on problems within the military service. Use of a developmental study to provide awareness of personal responsibilities and official relationships of an Army officer. Organization and functions of command and staff positions. Coordination of administration, logistics, and planning for military operations. Basic concepts of legislative and executive authority for the Uniform Code of Military Justice (to include a study of the officer's authority and responsibility within the military justice system). Problem-solving techniques used by small-unit leaders, emphasizing coordination and planning by the junior officer. Leadership laboratories and two field training exercises during the year. Offered: AWSp.

M SCI 403 Military Science IV: Advanced (2) The Army officer's position in contemporary world and impact on problems within the military service. Use of a developmental study to provide awareness of personal responsibilities and official relationships of an Army officer. Organization and functions of command and staff positions. Coordination of administration, logistics, and planning for military operations. Basic concepts of legislative and executive authority for the Uniform Code of Military Justice (to include a study of the officer's authority and responsibility within the military justice system). Problem-solving techniques used by small-unit leaders, emphasizing coordination and planning by the junior officer. Leadership laboratories and two field training exercises during the year. Offered: AWSp.

Naval Science

305 Clark



General Catalog Web page:
www.washington.edu/students/genca/academic/navy.html



Department Web page:
depts.washington.edu/uwnrotc/

The Department of Naval Science offers University students an opportunity to engage in study that leads to a commission in the U.S. Navy or Marine Corps while working toward a baccalaureate degree. The Naval Reserve Officer Training Corps (NROTC) Unit functions in conjunction with the Department of Naval Science. An NROTC student may select an academic major within certain limitations (e.g., some programs that normally lead to immediate graduate education, such as architecture, are not consistent with the mission of the NROTC program).

In addition to their University curricula, NROTC students take naval science courses in history and customs, naval engineering/weapons systems, navigation, naval operations, and leadership/management. In addition, each student must attend one naval science laboratory session per week. During the summer, students may have a four-to-six-week training cruise to put into practice their earlier classroom training.

Any University student may take a naval science course without enrolling in the NROTC Program. Two programs are offered.

Adviser
305 Clark, Box 353840
(206) 543-0170
nrotc@u.washington.edu

Navy-Marine Scholarship Program

Each year students are accepted for scholarship status in the four-year, three-year alternate, and two-year NROTC scholarship programs. Eligibility for the three- and four-year programs is based upon nationwide competition and selection by a central selection committee. Application must be made by December 1 of the academic year preceding appointment as midshipman. Those selected are provided educational benefits, including subsidy by the Navy of all tuition, fees, textbooks, and uniforms, plus \$200 per month in subsistence pay.

For the two-year scholarship program, applications from current sophomores, or juniors enrolled in five-year programs of study, must be received by March. Those chosen by a central selection committee attend a six-week course of instruction at the Naval Science Institute (NSI) at Newport, Rhode Island, during the summer prior to their junior year. Successful completion of NSI instruction qualifies these students for enrollment in the advanced courses in the NROTC program. All scholarship students are appointed as midshipmen, USNR-R, and upon graduation are commissioned as officers in the Navy or Marine Corps Reserve, after which they serve on active duty for a minimum of four years.

Navy-Marine College Program

Each year, men and women are accepted for four- and two-year nonscholarship college programs. Applications for the two-year program are accepted from current sophomores in community colleges or four-year colleges and must be received prior to March of their sophomore year (or third year, if in a five-year program).

Those students selected for the two-year program attend a six-week course of instruction at NSI during the summer prior to their junior year. Successful completion of NSI instruction qualifies students for enrollment in the advanced course in the NROTC program. Students in the NROTC college program pay their own college expenses but receive monthly subsistence pay of \$200 during their junior and senior years. The Navy furnishes all uniforms and textbooks used in naval science courses.

All college-program students are eligible for a scholarship after completing one academic term, with scholarship awards based on academic grades and participation within the midshipman battalion. The two-year college-program students also may win a scholarship for superior performance at NSI. Upon graduation, college-program students are commissioned in the Navy Reserve or Marine Corps Reserve and serve on active duty for three years.

Faculty

Chair

Marc A. Helgeson

Professor

Helgeson, Marc A. 1999; MA, 1991, Naval War College; political science, foreign affairs.

Associate Professor

Hovde, Albin L. 1998; MS, 1996, Central Michigan University; economics, administration.

Assistant Professors

Azevedo, Roger S. 1998; BS, 1990, Southern Illinois University; aviation management.

Goepferd, Ian A. 1998; BSE, 1993, Boston University; mechanical engineering.

Wesorick, Robert L. 1998; BSE, 1992, University of Michigan; aerospace engineering.

Course Descriptions

See page 48 for an explanation of course numbers, symbols, and abbreviations.

For graduate-level course descriptions, see the graduate and professional study volume of the *General Catalog* or visit the online course catalog at www.washington.edu/students/crscat/.

N SCI 111 The Naval Service (3) General introduction to the Navy, its organization, missions, roles, tasks, and operating methods. The relationship to the other services within the Department of Defense is emphasized. Offered: A.

N SCI 112 Sea Power Practicum I (2) A comprehensive study of the role of sea power in the history of the United States, the current status of the various elements of the nation's sea power as they influence the development and implementation of national security policy. Offered: W.

N SCI 113 Sea Power Practicum II (2) A comprehensive study of the role of sea power in the history of the United States, the current status of the various elements of the nation's sea power as they influence the development and implementation of national security policy. Offered: Sp.

N SCI 211 Naval Weapon Systems (3) Study of fundamental principles of sensor, tracking, weapon delivery subsystems, and current naval weapons. Includes techniques of linear analysis of ballistics and weapons, and dynamics of basic components of weapon-control systems. Offered: A.

N SCI 212 Naval Ship Systems I (3) Study of fundamental principles of energy transfer and thermodynamics. An introduction to nuclear propulsion, gas turbines, and auxiliary power systems. Offered: W.

N SCI 213 Naval Ship Systems II (3) Study of ship characteristics, ship design, hydrodynamic forces, stability, damage control, and shipboard electrical systems. Includes introduction to engineering documentation, electrical safety, preventative maintenance, and personnel qualifications. Offered: Sp.

N SCI 311 Navigation (3) NW The science and practice of maritime coastal navigation, including visual fixing, dead reckoning, and piloting methods. Computation of tides and currents and nautical rules of the road. Offered: A.

N SCI 312 Navigation II (3) NW Basic theory and practice of celestial and electronic navigation. Relative motion theory and contact coordination practice in a multiple ship environment. Offered: W.

N SCI 313 Naval Operations (3) Introduction to naval operations, the employment of naval forces, naval tactics, formulation of operations plans and orders, employment of detection equipment, and meteorology. Offered: Sp.

N SCI 321 Evolution of Warfare I (3) Introduction to the art of war, the evolution of warfare from the earliest recorded battles to the present day. Offered: A.

N SCI 322 Evolution of Warfare II (3) Introduction to the art of war, the evolution of warfare from the earliest recorded battles to the present day. Prerequisite: N SCI 321. Offered: W.

N SCI 323 USMC Leadership and Administration of Justice I (3) Concepts, objectives, characteristic qualities, and practical techniques of leadership as exercised by the Marine Corps officer. Emphasizes leadership and management role of the junior officer in the Fleet Marine Forces. Intensive physical activities and outdoor projects to test an individual's physical and mental endurance. Offered: Sp.

N SCI 411 Psychology of Leadership (3) I&S Introduction of the theory and techniques of naval leadership based on those principles of behavioral science that are pertinent to understanding individual and group behavior of adults. It introduces the student to the management process and the relationship of management functions to leadership. Acceptance of a traditional deep sense of moral responsibility on the part of the aspiring leader is stressed. Offered: A.

N SCI 412 Naval Organization and Management I (3) I&S Study of organization, systems, and techniques employed in the Navy for management of its human, financial, and material resources. Some of the work relates to the administration of discipline in the Navy under the Uniform Code of Military Justice. Emphasis is placed on the leadership and management role of the junior officer in the fleet. Offered: W.

N SCI 413 Naval Organization and Management II (3) I&S Study of organization, systems, and techniques employed in the Navy for management of its human, financial, and material resources. Some of the work relates to the administration of discipline in the Navy under the Uniform Code of Military Justice. Emphasis is placed on the leadership and management role of the junior officer in the fleet. Offered: Sp.

N SCI 421 Amphibious Warfare I (3) Provide basic knowledge of evolution of amphibious warfare from premodern era to present. Strategic and tactical considerations in planning specific operations and amphibious landings. Offered: A.

N SCI 422 Amphibious Warfare II (3) Provide basic knowledge of evolution of amphibious warfare from premodern era to present. Strategic and tactical considerations in planning specific operations and amphibious landings. Prerequisite: N SCI 421. Offered: W.

N SCI 423 USMC Leadership and Administration of Justice II (3) Concepts, objectives, characteristic qualities, and practical techniques of leadership as exercised by the Marine Corps officer. Emphasizes the leadership and management role of the junior officer in the Fleet Marine Forces. Intensive physical activities and outdoor projects to test an individual's physical and mental endurance. Offered: Sp.

School of Social Work

Dean

Nancy R. Hooyman
210 Social Work/Speech and Hearing Sciences



General Catalog Web page:
www.washington.edu/students/genocat/academic/School_Soc_Work.html



School Web page:
depts.washington.edu/sswweb/

The School of Social Work offers two professional programs, one at the undergraduate level and one at the graduate level, as well as a Ph.D. program. The undergraduate program prepares students for entry-level generalist practice; students earn the Bachelor of Arts in Social Welfare degree. The graduate professional program prepares students for advanced practice within a field of concentration; students earn a Master of Social Work degree. Both professional programs are accredited by the Council on Social Work Education. The School also offers a Doctor of Philosophy degree in social welfare that prepares students for careers in research and education. For the three programs, no credit is granted on the basis of life experience or previous employment. All three programs are housed in the Social Work/Speech and Hearing Sciences Building, 4101 Fifteenth Avenue Northeast, Seattle, WA 98105-6299.

In addition, the School offers a concurrent degree program with the School of Public Health and Community Medicine leading to the M.S.W. and M.P.H. degrees.

Undergraduate Program

Adviser
Michelle Bagshaw
23D Social Work, Box 354900
(206) 543-8617
sswstrsv@u.washington.edu

The School of Social Work offers a program of study leading to the Bachelor of Arts in Social Welfare degree.

Student Associations: Organization of Student Social Workers (OSSW)

Internship or Cooperative Exchange Programs: Community service learning experiences are available for first- and second-year B.A.S.W. students. Please contact the adviser for more information.

Bachelor of Arts in Social Welfare

The undergraduate program leads to a Bachelor of Arts in Social Welfare degree. The program consists primarily of upper-division courses in social welfare, with prerequisites in human biology, economics, psychology, statistics, and sociology. Students enter the major at the start of their junior year after completing most of the liberal arts requirements established by the College of Arts and Sciences. Social welfare courses during a student's junior and senior years include content on social welfare history, policy and services, human behavior and the social environment, social welfare practice, social welfare research, and cultural diversity. These academic courses prepare students

for the senior year's three-quarter practicum experience, which involves a total of 400 hours deliver social services under the supervision of a practicum instructor approved by the School.

Admission

Approximately 65 new juniors are admitted to the social welfare major each academic year for autumn quarter only. Admission to this program is competitive and completion of the requirements listed below does not guarantee admission. May 1 is the application deadline for the major. To be considered for admission to the program applicants must meet the following criteria:

1. Completion of a minimum of 65 credits.
2. Completion of the following: PSYCH 101; SOC 110; ECON 100, 200, or 201; and BIOL 100, 101, 103, or ZOOL 118. STAT 200 or Q METH 201 are also required prior to the second year of the program.
3. A minimum 2.00 cumulative GPA.
4. Have some volunteer social service experience.
5. Applicants must submit a completed application to the program, personal statement, and provide copies of their college transcripts.

Application forms and a more-detailed description of the social welfare major are available at the School's admissions office located in 23C Social Work/Speech and Hearing Sciences (SWS). Admission application forms also can be mailed upon request, (206) 543-5676. A student who wishes to discuss the program in person may contact the Director of Admissions, (206) 543-5676, sswadm@u.washington.edu. Such inquiries are welcome. Students accepted to the major are asked to complete a change-of-college form and transfer their academic file to the School's Student Services Office, 23 SWS. Social Welfare majors are advised by the academic adviser, located in the Student Services Office, 23E SWS. Students not accepted to the program may contact the Director of Admissions, 23A SWS, to discuss alternatives to the social welfare major, or the appeal process.

Major Requirements: The requirements and curriculum of the social welfare program may be summarized as follows:

Junior year—SOC WF 300 (3), 320 (3); 310, 311, 312 (3, 3, 3); 402 (3), 403 (3), and 404 (5).

Senior year—SOC WF 390 (5), 415 (12), 405 (9); social work electives (15).

Financial Aid

A limited number of financial-aid opportunities are available to students. Applicants are urged to apply for assistance through the Office of Student Financial Aid by February 15. Completion of the Free Application for Federal Student Aid (FAFSA) is required for consideration for any departmental funding. Departmental funding is limited to a few resident tuition scholarships which cover only one or two quarters of tuition. Inquiries may be directed to the Chair of the Scholarship Committee, School of Social Work.

Graduate Program

For information on the School of Social Work's graduate program, see the graduate and professional volume of the *General Catalog* or visit the *General Catalog* online at www.washington.edu/students/genocat/.

Faculty

Professors

Catalano, Richard F. * 1979; PhD, 1982, University of Washington; crime and drug abuse prevention and treatment, research methods and statistics.

Conte, Jon * 1990; PhD, 1979, University of Washington; effects of sexual abuse on children and adult survivors, prevention of sexual abuse.

Gilchrist, Lewayne D. * 1981; PhD, 1981, University of Washington; health promotion and disease prevention in community settings, women's health, research methods.

Gillmore, Mary Louise 1977; MS, 1970, University of Michigan; MA, 1977, PhD, 1983, University of Washington; adolescent sexuality and substance abuse.

Hawkins, John D. * 1976; PhD, 1975, Northwestern University; crime and delinquency, substance abuse, social development, research, prevention.

Hooyman, Nancy * 1979; PhD, 1974, University of Michigan; aging, caregivers of dependents, feminist practice, community organization development.

Jaffee, Ben-Joshua * 1967, (Emeritus); DSW, 1972, Columbia University; loss, grief, mourning and social work practice; ethnic minority perspectives on loss and grief.

Lazzari, Marceline * 1998, (Adjunct); PhD, 1990, University of Denver; women, human diversities, and teaching/learning collaboration.

Levy, Rona L. * 1975; PhD, 1974, University of Michigan; research methodology, single-case evaluation, health care, behavioral medicine, biofeedback.

Longres, John F. * 1993; PhD, 1970, University of Michigan; race and ethnicity; children, youth, and families.

Maier, Henry W. * 1959, (Emeritus); PhD, 1959, University of Minnesota; child development, group child care; direct practice with individuals, families, and groups.

Morrison, Diane M. * 1980, (Research); PhD, 1982, University of Washington; sexual decision-making, attitudes and behavior, teen pregnancy.

Nurius, Paula S. * 1984; PhD, 1984, University of Michigan; social cognition, violence against women, research/computer supports for practice, critical thinking.

Parsons, Jack R. 1978, (Emeritus); MA, 1940, University of the Pacific; MS, 1943, Columbia University; PhD, 1958, University of Chicago; social work.

Pecora, Peter * 1990; PhD, 1982, University of Washington; child welfare practice, foster care, family preservation services, personnel management.

Plotnick, Robert D. * 1984, (Adjunct); MA, 1973, PhD, 1976, University of California (Berkeley); poverty, labor and social welfare policy, economic policy analysis.

Resnick, Herman * 1967, (Emeritus); PhD, 1970, Bryn Mawr College; group process, organizational development, mediation, multimedia practice, international social work.

Richey, Cheryl A. * 1973; DSW, 1974, University of California (Berkeley); cultural and gender issues, intervention design and research.

Roffman, Roger Alan * 1972; DSW, 1983, University of California (Berkeley); alcoholism and drug abuse, AIDS prevention, domestic violence, research methodology.

Stier, Florence E. * 1964, (Emeritus); MS, 1941, University of Pittsburgh; social welfare planning and program development.

Tagaki, Calvin Y. 1961, (Emeritus); MSW, 1952, PhD, 1958, University of Minnesota; mental health services, child development, services to minority populations.

Weatherley, Richard A. * 1975; PhD, 1975, Massachusetts Institute of Technology; social welfare policy and administration, poverty and inequality.

Whittaker, James * 1970; PhD, 1970, University of Minnesota; child welfare, in-home foster family care and residential services, social support networks.

Associate Professors

Anderson, James R. * 1968, (Emeritus); MA, 1954, Indiana University; social work and health care; growth and development, particularly Black Americans.

Arthur, Michael * 1991, (Research); PhD, 1990, University of Virginia; Project Director—Community Youth Activity, Six State Prevention Needs and Assessment.

Balassone, Mary Lou * 1986; DSW, 1987, University of California (Berkeley); health care policy and delivery systems, maternal and child health.

Berleman, William C. * 1965, (Emeritus); MSW, 1960, University of Washington; undergraduate social welfare, social welfare policy.

Dear, Ronald Bruce * 1970; DSW, 1972, Columbia University; American social welfare policy and services, poverty and inequality, legislative advocacy.

Duplica, Moya M. * 1963; MSW, 1956, St Louis University; social welfare policy and history, women and social policy, values/ethics in social work practice.

Ellis, Jack A. N. * 1966, (Emeritus); MSW, 1955, University of British Columbia (Canada); social welfare administration and planning, social work and the social justice system.

Erera, Pauline * 1993; PhD, 1983, Cornell University; step-families, remarriage, foster families, supervision, divorce and single-parent families.

Fredriksen, Karen Ilene * 1993; PhD, 1993, University of California (Berkeley); gerontology, work and family dependent care, non-traditional families, social policy.

Hanneman, Carl F. 1967, (Emeritus); MA, 1951, Indiana University; aging, alcoholism, human services practice.

Harachi, Tracy * 1987, (Research); PhD, 1991, University of Washington; child development, interventions for children and families, cultural adaptation and ethnic identity.

Herrick, James E. * 1966, (Emeritus); DSW, 1966, University of Southern California; social policy, social work and the justice system, research methodology, social and cultural change.

Icard, Larry * 1993; DSW, 1992, Columbia University; AIDS prevention intervention design and research, administration, race/ethnic minority group issues.

Ishisaka, Anthony H. * 1971; DSW, 1978, University of California (Berkeley); social work practice, mental health services, services to minority communities, human development.

Kelley, Jerry Lee * 1961, (Emeritus); MA, 1949, University of Chicago; social workers in schools, interviewing and counseling in human services.

Kruzich, Jean * 1991; PhD, 1982, University of Washington; maternal depression and child abuse, organizational impacts on residents of long-term care agencies.

Leigh, James William * 1967, (Emeritus); MSW, 1954, Wayne State University; social work practice with families, multiethnic and multicultural concerns, family life education.

Marcenko, Maureen * 1997; PhD, 1988, McGill University (Canada); developing and testing interventions for families at risk.

Miller, Sidney * 1962, (Emeritus); MS, 1953, Columbia University; children, adolescents, and their families; interviewing, crisis intervention, marital counseling.

Mundt, Lenora B. 1985, (Emeritus); MSW, 1950, University of Washington; family treatment.

Ryan, Rosemary * 1991, (Research); PhD, 1987, University of Washington; behavioral HIV prevention research; AIDS services policy, planning and evaluation.

Semke, Jeanette * 1988, (Research); PhD, 1991, University of Washington; mental health services research, older adults with neuropsychiatric disorders.

Sohng, Sue * 1990; PhD, 1989, University of Pittsburgh; action research and chronic mental illness, cross-cultural social work practice.

Teather, Edward Charles * 1966, (Emeritus); MSW, 1962, University of British Columbia (Canada); family-centered practice, group work, program development.

Uehara, Edwina * 1990; PhD, 1987, University of Chicago; qualitative/quantitative research methods, cross-cultural mental health, human services organization.

Wells, Elizabeth A. 1982, (Research); PhD, 1984, University of Washington; clinical psychology, alcohol and drug use among adolescents.

Assistant Professors

Ai, Amy 1999; PhD, 1996, University of Michigan; women mental health.

Allen, Allethia Lee * 1966, (Emeritus); MSW, 1950, Boston University; PhD, 1986, Walden University; social welfare policy, multiculturalism, women's issues, social work practice.

Almgren, Gunnar R. 1986; MSW, 1979, Portland State University; PhD, 1990, University of Washington; health care policy and practice.

Cherin, David * 1999; PhD, 1996, University of Southern California; policy issues relating to mental health.

Cook, Douglas * 1990, (Clinical); PhD, 1990, University of Washington; parenting, health promotion and quality of life for people with mental retardation.

Emlet, Charles 1999; MSW, 1979, California State University, Fresno; PhD, 1998, Case Western Reserve University; social work, aging and aids social support.

Farwell, Nancy 1998; PhD, 1998, University of California (Berkeley); mental health policy.

Herrenkohl, Todd 1995; PhD, 1998, University of Washington; youth violence.

Kemp, Susan 1994; MA, 1981, University of Auckland (New Zealand); PhD, 1994, Columbia University.

Laakso, Janice 1999, (Adjunct); PhD, 1999, University of Texas (Austin); social work; child welfare.

Nagda, Biren A. * 1996; PhD, 1996, University of Michigan.

Scanlon, Edward * 1998; PhD, 1998, Washington University; home ownership, low-income housing, social policy and social welfare advocacy.

Seyfried, Sherri * 1994; MSW, 1979, Norfolk State; PhD, 1994, University of Illinois; social and academic development of minority youth.

Tajima, Emiko A. 1999; PhD, 1999, Bryn Mawr College; social policy and child welfare policy.

Tangenberg, Kathleen 1994, (Adjunct); PhD, 1998, University of Washington; women studies.

Senior Lecturers

Amidei, Nancy 1992; MSW, 1968, University of Michigan; poverty, public policy, advocacy.

Roberts, Elizabeth A. 1982; MSW, 1975, University of Washington; Practicum Coordinator.

Lecturers

Cahn, Katharine C. 1985; MSW, 1989, University of Washington; Director—Northwest Resource Center for Children, Youth, and Families.

De Mello, Stan 1996; MSW, 1982, MPA, 1983, Dalhousie University (Canada); cross-cultural social work practice.

Delong, James B. 1985; MSW, 1979, University of Washington; Director of Extended Degree Programs; aging, men's issues.

Haggerty, Kevin P. 1985; MSW, 1989, University of Washington; Project Director—Focus on Families, Raising Healthy Children.

Rivara, J'may B. 1985; MSS, 1975, Bryn Mawr College.

Course Descriptions

See page 48 for an explanation of course numbers, symbols, and abbreviations.

For graduate-level course descriptions, see the graduate and professional study volume of the *General Catalog* or visit the online course catalog at www.washington.edu/students/crscat/.

SOC WF 200 Introduction to Social Work Practice (5) I&S Introduction to the practice of social work including the theoretical concepts and institutional framework that guide practice and the conceptual organization of the discipline. Three weekly lectures and two hours per week in field observation sessions. Lectures supplemented by audiovisual aids and by special guest practitioners. Offered: A.

SOC WF 300 Historical Approaches to Social Welfare (3) I&S *Duplica* Stresses the origins and development of social welfare policy and programs, starting with the Elizabethan Poor Law (1601) and ending with the Social Security Act of 1935. The issue of poverty and the development of publicly funded income maintenance programs are central concerns. Required of social welfare majors. Open to nonmajors. Offered: AW.

SOC WF 310 Social Welfare Practice I (3) *Whittaker* Provides an introduction to the roles, tasks, and functions of the social welfare practitioner and to theories and methods of intervention; a conceptual framework for social work practice with individuals, families, and small groups; and an opportunity to develop skills in problem assessment, intervention, termination, and evaluation. Offered: A.

SOC WF 311 Social Welfare Practice II (3) *Whittaker* Provides an introduction to the roles, tasks, and functions of the social welfare practitioner and to theories and methods of intervention; a conceptual framework for social work practice with individuals, families, and small groups; and an opportunity to develop skills in problem assessment, intervention, termination, and evaluation. Prerequisite: SOC WF 310. Offered: W.

SOC WF 312 Social Welfare Practice III (3) *Duplica, Whittaker* Focus on macro systems in a diverse society using the generalist perspective. The implications of system resources and configurations for meeting human needs are considered. The role and function of generalist social workers to understand and advocate for system development and change is emphasized. Prerequisite: SOC WF 311. Offered: Sp.

SOC WF 320 Contemporary Approaches to Social Welfare (3) I&S *Duplica* Policy and program developments in the social welfare field since 1935. Typical topics include current income maintenance proposals, the emergence of programs to treat spe-

cific social dysfunctioning (mental health services) and the growth of a service-oriented society. Required of social welfare majors. Open to nonmajors. Prerequisite: SOC WF 300. Offered: WSp.

SOC WF 390 Introduction to Social Welfare Research (5) *Balassone, Roffman* Introduction to the logic of the scientific method as applied to social work and social welfare practice, to the design and conduct of a research study, and to data collection and summarization. Skill development in critical consumption of social welfare research. Prerequisite: either STAT 220 or Q METH 201. Offered: A.

SOC WF 402 Human Behavior and Social Environment I (3) I&S Focuses on person-in-the-environment for individuals and family development across the life span. Utilizes developmental and social systems perspectives in seeking to understand and influence human behavior across diverse backgrounds. Addresses dynamics and processes of families, small groups, organizations, and community systems.

SOC WF 403 Human Behavior and Social Environment II (3) I&S Focuses on person-in-the-environment for small groups, organizations, community, and society as systems. Utilizes developmental and social systems perspectives in seeking to understand and influence human behavior across diverse backgrounds. Prerequisite: SOC WF 402.

SOC WF 404 Cultural Diversity and Justice (5) I&S *Duplica, Sohng* History and culture of disadvantaged and oppressed groups served by Social Welfare generalist practitioners. Offered: Sp

SOC WF 405 Fieldwork Seminar (2-4, max. 9) *Balassone* Integrates social work practicum experiences with prior and concurrent course work in social sciences, social work, and research. Includes discussion of class presentations and simulations or practice situations that combine knowledge and skill utilization. Student logs provide a basis for individual goal identification and achievement. Required of social welfare seniors. Prerequisite: SOC WF 312. Offered: AWSp.

SOC WF 409 Readings in Social Welfare (1-5, max. 15)

SOC WF 415 Beginning Field Instruction (4-6, max. 12) Students are placed in selected social service agencies and accept beginning social service assignments under the supervision of competent agency personnel. Credit/no credit only. Prerequisite: SOC WF 312. Offered: AWSp.

SOC WF 419 Adult Development and Aging (3) I&S Introduces the field of adult development. Interdisciplinary perspective stressing the interaction of psychological, social, and physiological factors affecting the aging process. Goals are to help the student understand the processes and diversity in the aging process that can assist one's own aging and help the learner work with older adults. Offered: Sp.

SOC WF 430 Child Care Work Practice (3) *Whittaker* Specialized practice with emotionally disturbed and delinquent children in group-care settings with focus on providing child-care staff with specific tools for teaching alternative behavior. Major topics include: etiology and diagnosis, observing and recording children's behavior, special problems of group living, life-space interviewing, token economies, activity programming, group interventions, parental involvement, organizational requisites and community linkages. Offered: alternate years; A.

SOC WF 442 Building Competencies for Intergroup Dialogue Facilitation (3) Focuses on both knowledge and skills development for peer facilitators. Topics include philosophy and principles of dialogic education and dialogic communication; intergroup communication; social identity development; principles of working with conflict; group dynamics, observation, and facilitation; team building among co-facilitators; and creating a support system among instructors and facilitators. Credit/no credit only.

SOC WF 443 Practicum in Intergroup Dialogue Facilitation (2) Practicum seminar providing instruction, consultation, and supervision of peer group facilitators. Focuses on comparison of facilitation experiences and consultations, trouble-shooting with other facilitators, co-facilitator team building, and planning for dialogues. Exploration of specific, current intergroup issues, such as affirmative action and immigration. Continuation of team-building work begun in 452. Credit/no credit only.

SOC WF 490 Research in Social Welfare (1-3, max. 10) Individual work with faculty member to assist with current research project (s). Students trained and supervised in some or all of the following research tasks: literature review, data analysis, record-keeping, interviewing, report writing, data entry and coding, data collection, and other tasks commonly found in research problems in social welfare. Credit/no credit only.

SOC WF 495 Special Topics in Generalist Social Welfare (5) Readings, lectures, and discussions pertaining to significant topics of special and current interest to social workers.

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ENVIR PROGRAM ON THE ENV.

ARCHITECTURE AND URBAN PLANNING, COLLEGE OF

ARCH ARCHITECTURE
CEP COMMUNITY & ENVIRONMENTAL PLANNING
CM CONSTRUCTION MANAGEMENT
L ARCH LANDSCAPE ARCHITECTURE
URBDP URBAN DESIGN & PLANNING

ARTS AND SCIENCES, COLLEGE OF

AAS ASIAN AMERICAN STUDIES
AES AMERICAN ETHNIC STUDIES
AFRAM AFRO-AMERICAN STUDIES
AIS AMERICAN INDIAN STUDIES
AKKAD AKKADIAN
AMATH APPLIED MATHEMATICS
ANTH ANTHROPOLOGY
ARAB ARABIC
ARAMIC ARAMAIC
ARCHY ARCHAEOLOGY
ART H ART HISTORY
ART ART
ASIAN ASIAN LANG & LITERATURE
ASTR ASTRONOMY
ATM S ATMOSPHERIC SCIENCES
BIO A BIOCULTURAL ANTHROPOLOGY
BIOL BIOLOGY
BOTANY BOTANY
BULGR BULGARIAN
C LIT COMPARATIVE LITERATURE
CHEM CHEMISTRY
CHID COMPARATIVE HIST OF IDEAS
CHIN CHINESE
CHSTU CHICANO STUDIES
CL AR CLASSICAL ARCHAEOLOGY
CL LI CLASSICAL LINGUISTICS
CLAS CLASSICS
CMU COMMUNICATIONS
CR SB CROATIAN-SERBIAN
CZECH CZECH
DANCE DANCE
DANISH DANISH
DRAMA DRAMA
ECON ECONOMICS
EGYPT EGYPTIAN
ENGL ENGLISH
ESTO ESTONIAN
EURO INT ST: EUROPEAN
FINN FINNISH
FRENCH FRENCH
FRLING FRENCH LINGUISTICS
GEN ST GENERAL STUDIES
GENET GENETICS
GEOG GEOGRAPHY
GEOL GEOLOGY
GERMAN GERMAN
GPHYS GEOPHYSICS
GREEK GREEK
H A&S HONORS - ARTS & SCIENCES
HEBR HEBREW
HINDI HINDI
HIST HISTORY
HSTAA HISTORY OF THE AMERICAS
HSTAM ANCIENT & MEDIEVAL HISTORY
HSTAS HISTORY OF ASIA
HSTEU MODERN EUROPEAN HISTORY
HUM CENTER FOR THE HUMANITIES
INDN INDIAN
INDON INDONESIAN

ITAL ITALIAN
JAPAN JAPANESE
KOREAN KOREAN
LATIN LATIN
LATV LATVIAN
LING LINGUISTICS
LITH LITHUANIAN
MATH MATHEMATICS
MICRO MICROBIOLOGY
MUHST MUSIC HISTORY
MUSAP APPLIED MUSIC
MUSED MUSIC EDUCATION
MUSEN MUSIC ENSEMBLE
MUSIC MUSIC
NBIO NEUROBIOLOGY
NEAR E NEAR EASTERN LANG & CIVILT
NORW NORWEGIAN
PHIL PHILOSOPHY
PHYS PHYSICS
POL S POLITICAL SCIENCE
POLSH POLISH
PORT PORTUGUESE
PRSAN PERSIAN
PSYCH PSYCHOLOGY
RELIG INT ST: COMPARATIVE RELIGION
RMN ROMANIAN
ROLING ROMANCE LINGUISTICS
ROMAN ROMANCE LANGUAGES & LIT
ROMN ROMANIAN
RUSS RUSSIAN
SCAND SCANDINAVIAN
SCAND SCANDINAVIAN STUDIES
SIS INTERNATIONAL STUDIES
SISA INT ST: ASIAN
SISAF INT ST: AFRICAN
SISCA INT ST: CANADA
SISEA INT ST: EAST ASIAN
SISJE INT ST: JEWISH STUDIES
SISLA INT ST: LATIN AMERICAN
SISME INT ST: MIDDLE EAST
SISRE INT ST: RUSSIA, EAST EUROPE, AND CENTRAL ASIA
SISSA INT ST: SOUTH ASIA
SISSE INT ST: SOUTHEAST ASIA
SLAV SLAVIC
SLAVIC SLAVIC LANG & LITERATURES
SNKRT SANSKRIT
SO JU SOCIETY & JUSTICE
SOC SOCIOLOGY
SP CMU SPEECH COMMUNICATIONS
SPAN SPANISH
SPHSC SPEECH & HEARING SCIENCE
SPLING SPANISH LINGUISTICS
STAT STATISTICS
SWED SWEDISH
THAI THAI
TIB TIBETAN
TKIC TURKIC
TKISH TURKISH
UKR UKRAINIAN
VIET VIETNAMESE
WOMEN WOMEN STUDIES
ZOO ZOOLOGY

BUSINESS ADMINISTRATION, SCHOOL OF

ACCTG ACCOUNTING
ADMIN ADMINISTRATION
B A BUSINESS ADMINISTRATION
B CMU BUSINESS COMMUNICATIONS
B ECON BUSINESS ECONOMICS
B POL BUSINESS POLICY
BA RM BUSINESS ADMIN RSRCH MTHOD
FIN FINANCE
HRMOB HUMAN RES MNGT & ORGANIZATIONAL BE-HAVIOR
I BUS INTERNATIONAL BUSINESS
I S INFORMATION SYSTEMS
MKTG MARKETING
O E ORGANIZATION & ENVIRONMENT
OPMGT OPERATIONS MANAGEMENT
QMETH QUANTITATIVE METHODS
ST MGT STRATEGIC MANAGEMENT

DENTISTRY, SCHOOL OF

D HYG DENTAL HYGIENE
DENT DENTISTRY

ENGINEERING, COLLEGE OF

A A AERONAUTICS & ASTRONAUTICS
CEE CIVIL AND ENVIRONMENTAL ENGINEERING
CER E CERAMIC ENGINEERING
CHEM E CHEMICAL ENGINEERING
CIVE CIVIL ENGR CORE COURSES
CSE COMPUTER SCIENCE & ENGR
E E ELECTRICAL ENGINEERING
ENGR ENGINEERING
IND E INDUSTRIAL ENGINEERING
M E MECHANICAL ENGINEERING
MET E METALLURGICAL ENGR
MSE MATERIALS SCIENCE & ENGR
T C TECHNICAL COMMUNICATION

FOREST RESOURCES, COLLEGE OF

CFR COLLEGE OF FOR RES
EHUF ENVIRONMENTAL HORTICULTURE & URBAN FORESTRY
ESC ECOSYSTEM SCI & CONSERVATION
F E FOREST ENGINEERING
F M FOREST MANAGEMENT
PSE PAPER SCIENCE & ENGR

INTER SCHOOL OR INTERCOLLEGE PROGRAMS

BIOEN BIOENGINEERING
Q SCI QUANTITATIVE SCIENCE
UCONJ UNIVERSITY CONJOINT

LIBRARY AND INFORMATION SCIENCE, SCHOOL OF

IMT INFORMATION MANAGEMENT & TECHNOLOGY
INFO INFORMATICS
LIS LIBRARY & INFOSCIENCE

MEDICINE, SCHOOL OF

BIOC BIOCHEMISTRY
LAB M LABORATORY MEDICINE
MHE MEDICAL HISTORY & ETHICS
MICROM MICROBIOLOGY (MEDICINE)
REHAB REHABILITATION MEDICINE

NURSING, SCHOOL OF

NCLIN NURSING CLINICAL
NMETH NURSING METHODS
NURS NURSING

OCEAN AND FISHERY SCIENCES, COLLEGE OF

FISH FISHERIES SCIENCE
OCEAN OCEANOGRAPHY

PUBLIC HEALTH AND COMMUNITY MEDICINE, SCHOOL OF

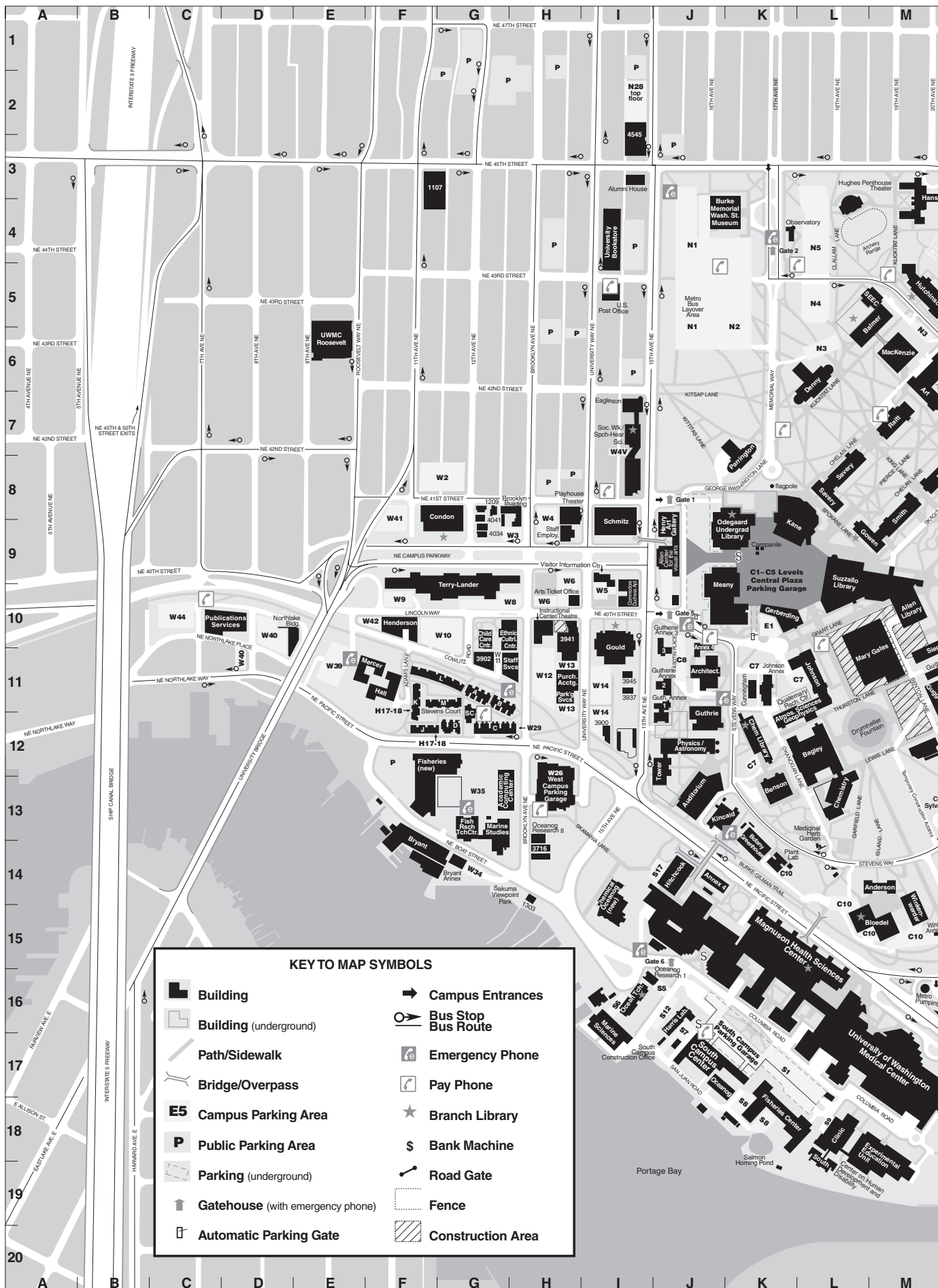
ENV H ENVIRONMENTAL HEALTH

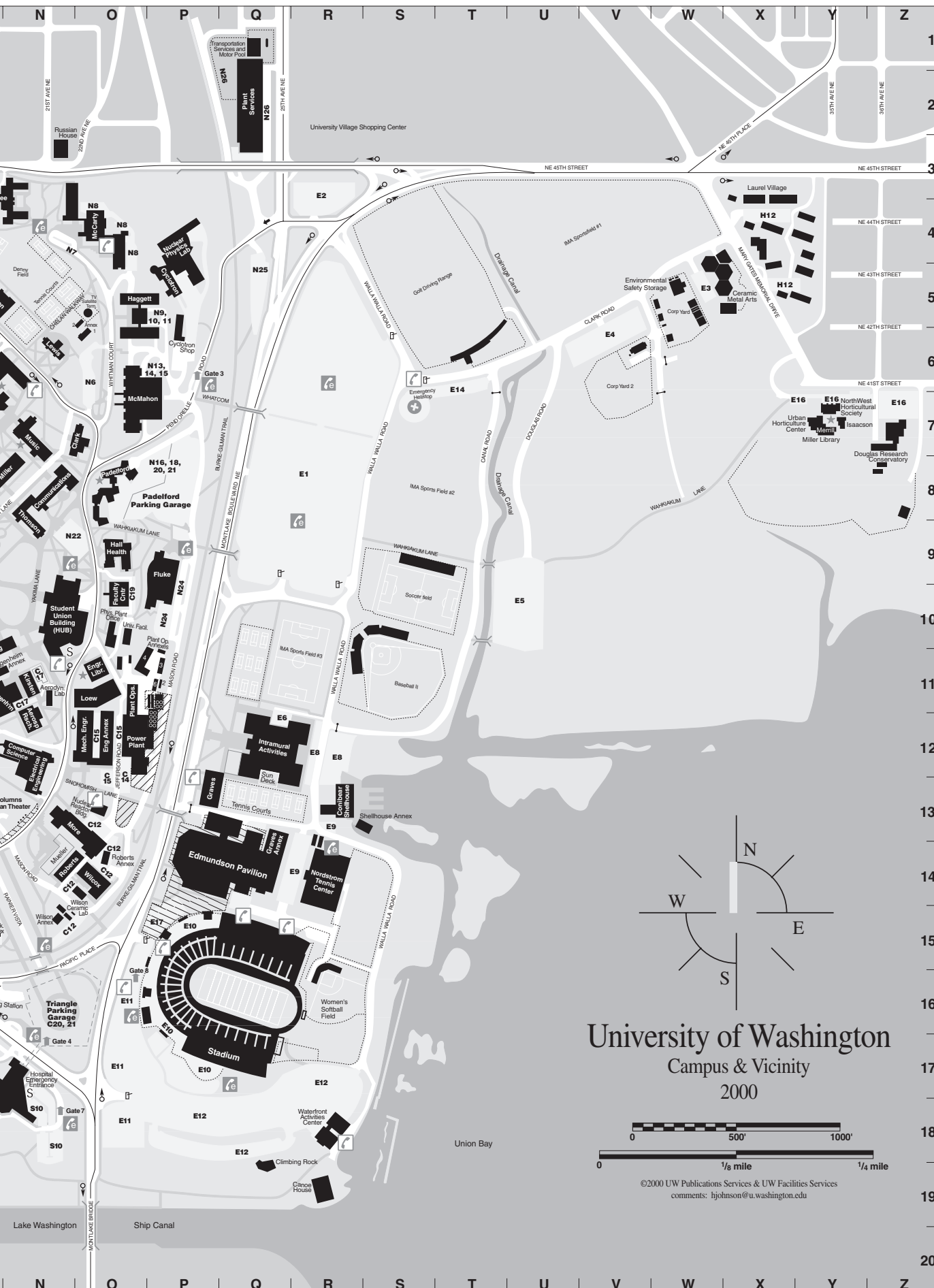
SOCIAL WORK, SCHOOL OF

SOC WF SOCIAL WELFARE (UNDERGRAD)

ROTC PROGRAMS

A S AEROSPACE STUDIES
M SCI MILITARY SCIENCE
N SCI NAVAL SCIENCE





UNIVERSITY OF WASHINGTON BUILDINGS, DEPARTMENTS, OFFICES, AND POINTS OF INTEREST

POLICE DEPARTMENT TELEPHONE 543-9331 any time

Academic and Professional Programs , 5001 - 25th Ave. N.E.	off map	Drama , Hutchinson Hall	5-M
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		Fisheries-Oceanography Library	
		Oceanography Teaching Building	16-I
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Bryants Building , 1101 N.E. Boat St.	14-F	Geological Sciences , Johnson Hall	11-L
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115 Balmer Hall	5-M	Oceanography Teaching Building, #251	16-I
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235 Condon Hall	8-G	Intramural Activities Building , 3924 Montlake Blvd.	12-Q
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A206 and E220 Health Sciences	15-K		
122 Lewis Hall	6-N		
127 Odegaard Library	9-K	Johnson Annex A (JHA)	11-K
B18 Schmitz Hall	9-I	Johnson Hall (JHN)	11-L
560 Suzzallo Library	10-L		
BB381 University Hospital	17-L	Kane Hall (KNE)	9-L
EE104 University Hospital	17-M	Keep Washington Green Association , Anderson Hall	14-M
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Cyclotron Shop , Nuclear Physics Laboratory	5-P		
		Lander-Terry Halls , 1201 N.E. Campus Parkway (LTH)	10-G
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		Law Library , Condon Hall	8-F

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Magnuson Health Sciences Center Annex 4	15-K
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Parking:	
C-Areas	central campus
E-Areas	east campus
N-Areas	north campus
S-Areas	south campus
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Emergency Numbers	
Police/Fire/Medical Emergency	Telephone 911 (or 9-911)
University Police (Non-emergency)	543-9331
Campus Emergency News and Information	547-INFO (or KIRO 710 AM radio)
Emergency Procedures	
Fire/FireAlarm	
Evacuate building via stairs and assemble with others. Do not use elevators.	
Earthquake	
Inside: Stay inside, drop, cover, & hold.	
Outside: Stay outside & move to open area.	

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(ACC) indicates building abbreviation used on official programs. Rev. 7/96

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