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For 1933-1934 Sessions

SEATTLE, WASHINGTON

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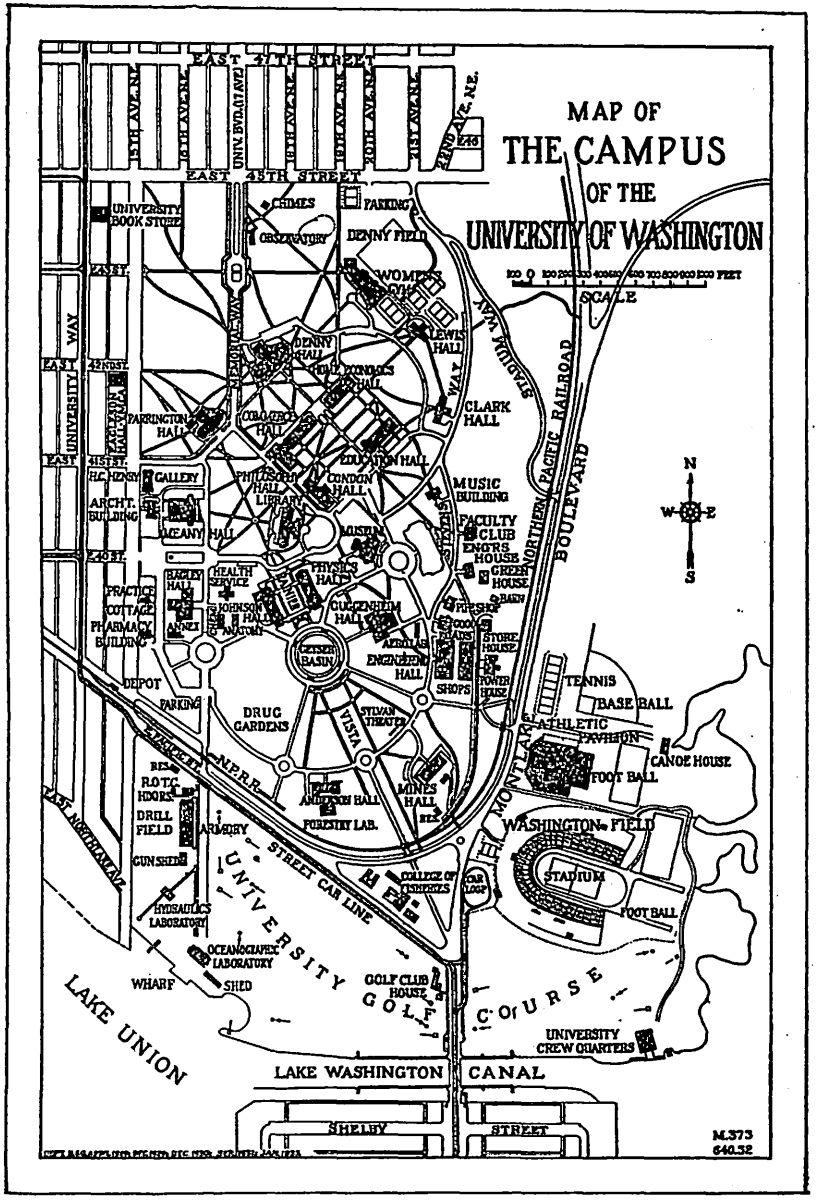

The University campus, comprising 582 acres, lies between Fifteenth Avenue Northeast and Lake Washington, and East Forty-fifth Street and Lake Union. Ravenna and Cowen Park cars run one block west of the campus. The offices of administration are located in Education Hall and are best reached by leaving the car at East Forty-second Street and University Way.

CATALOGUE NUMBER

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UNIVERSITY OF WASHINGTON

SEATTLE, WASHINGTON
June, 1933

Seattle
University of Washington Press
1933

NOTICE

The University and its various colleges and schools reserve the right to change the rules regulating admission to, instruction in and graduation from the University and its various divisions, and any other regulations affecting the student body. Such regulations shall go into force whenever the proper authorities may determine, and shall apply not only to prospective students but also to those who may, at such time, be matriculated in the University. The University also reserves the right to withdraw courses, or change fees at any time.

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THE UNIVERSITY CALENDAR

1933-1934

AUTUMN QUARTER

Pre-registration dates.....May 8 to June 2; June 26 to Aug. 25.
Latest day for payment of fees for students who pre-register.....Thursday, Sept. 14.
Registration dates for students who do not pre-register....September 25 to 28, inclusive.
Last registration day before beginning of instruction.....Thursday, September 28.
Freshman Week..Begins Friday, September 29, 8:30 a.m., ends Saturday, September 30.
Instruction begins.....Monday, October 2.
Last day for registration with late fee, and to add a course..Saturday, October 7, 12 m.
President's annual address.....Friday, October 6, 11 a.m.
Regular meeting of faculty.....Tuesday, October 24, 4 p.m.
Latest day to withdraw and receive a "W" without grade...Saturday, October 28, 12 m.
Thanksgiving recess begins.....Wednesday, November 29, 6 p.m.
Thanksgiving recess ends.....Monday, December 4, 8 a.m.
Regular meeting of faculty.....Tuesday, December 12, 4 p.m.
Instruction ends.....Wednesday, December 20, 6 p.m.

WINTER QUARTER

Pre-registration dates.....November 1 to December 20.
Latest day for securing reserved sections by payment of fees for students who pre-register.....Wednesday, December 20.
Registration dates for students who do not pre-register..December 21 to January 6, 12 m.
Last registration date before beginning of instruction.....Saturday, January 6, 12 m.
Instruction begins.....Monday, January 8, 8 a.m.
Last day for registration with late fee and to add a course..Saturday, January 13, 12 m.
Regular meeting of faculty.....Tuesday, January 30, 4 p.m.
Latest day to withdraw and receive a "W" without grade...Saturday, February 3, 12 m.
Washington's birthday (Founders' Day).....Thursday, February 22.
Regular meeting of faculty.....Tuesday, March 13, 4 p.m.
Instruction ends.....Friday, March 23, 6 p.m.

SPRING QUARTER

Pre-registration dates.....February 7 to March 23.
Latest day for securing reserved sections by payment of fees for students who pre-register.....Friday, March 23, 4:30 p.m.
Registration dates for students who do not pre-register....March 24 to March 31, 12 m.
Last registration day before beginning of instruction.....Saturday, March 31, 12 m.
Instruction begins.....Monday, April 2, 8 a.m.
Last day for registration with late fee, and to add a course....Saturday, April 7, 12 m.
Regular meeting of faculty.....Tuesday, April 24, 4 p.m.
Latest day to withdraw and receive a "W" without grade.....Saturday, April 28, 12 m.
Campus Day.....Wednesday, April 18.
Memorial Day (holiday).....Wednesday, May 30.
Regular meeting of faculty.....Tuesday, June 5, 4 p.m.
Instruction ends.....Friday, June 15, 6 p.m.
Class Day and Alumni Day.....Saturday, June 16.
Baccalaureate Sunday.....Sunday, June 17.
Commencement.....Monday, June 18.

SUMMER QUARTER, 1934

Pre-registration dates.....April 30 to June 16, 12 m.
Latest day for securing reserved sections by payment of fees for students who pre-register (1st term).....Saturday, June 16, 12 m.
Last registration day before beginning of instruction.....Tuesday, June 19.
Instruction begins.....Wednesday, June 20.
Last day to add a course (1st term).....Friday, June 22, 4:30 p.m.
Last day to add a course (full quarter).....Tuesday, June 26, 4:30 p.m.
Latest day to withdraw and receive a "W" without grade (1st term).....Tuesday, July 3, 4:30 p.m.
Independence Day (holiday).....Wednesday, July 4.
Latest day to withdraw and receive a "W" without grade (full quarter).....Tuesday, July 17, 4:30 p.m.
First term ends.....Friday, July 27, 6 p.m.
Latest day for securing reserved sections by payment of fees (2nd term).....Friday, July 27, 4:30 p.m.
Last registration day before beginning of instruction (2nd term)..Saturday, July 28, 12 m.
Second term begins.....Monday, July 30, 8 a.m.
Last day to add a course (2nd term).....Wednesday, August 1, 4:30 p.m.
Latest day to withdraw and receive a "W" without grade (2nd term).....Saturday, August 11, 12 m.
Instruction ends.....Thursday, August 30, 6 p.m.

BOARD OF REGENTS

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Term ends March, 1939

EDWARD P. RYAN, Vice-President.....Spokane
Term ends March, 1939

PHILIP D. MACBRIDE.....Seattle
Term ends March, 1939

WINLOCK W. MILLER.....Seattle
Term ends March, 1939

ROBERT MONTGOMERY.....Puyallup
Term ends March, 1939

WERNER A. RUPP.....Aberdeen
Term ends March, 1939

ALFRED SHEMANSKI.....Seattle
Term ends March, 1939

HERBERT T. CONDON, Secretary.

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Executive.....Schwellenbach, Macbride, Miller

Finance.....Macbride, Miller, Shemanski

University Lands.....Rupp, Miller, Ryan

University Welfare.....Shemanski, Montgomery, Macbride

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President.....Judge Robert S. Macfarlane, '22

First Vice-President.....Ray Ryan, '20

Second Vice-President.....Mrs. Donald A. McDonald, '03

Treasurer.....Dwight Paulhamus, '27

Secretary and Business Manager.....David Pollock, '29

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EDWIN BICKNELL STEVENS, M.A.....Registrar
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DWIGHT S. JEFFERS, M.F.....Acting Dean of the College of Forestry
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HENRY LANDES, M.A.....Dean of the College of Science

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WENTWORTH, LOIS I., B.A.....Assistant to the Dean of the Graduate School
WESTMORELAND, HARRIETT.....Publications Editor

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Swain, Olive, B.S., B.S. (L.S.).....*Senior Assistant, Catalogue Division*
Todd, John Ronald, B.A., B.S. (L.S.).....*Senior Assistant, Reference Division*
Tucker, Lena Lucile, M.A., B.S. (L.S.)....*Senior Assistant, Catalogue Division*

Law Library

Beardsley, Arthur Sidney, LL.B., B.S. (L.S.), Ph.D.....*Law Librarian*
Hoard, Mary B.A., LL.M., B.S. (L.S.).....*Catalogue Librarian*

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Milner, Fred C.....*Captain, Infantry*
Crim, Lemuel P.....*Captain, Ordnance*
Priest, Harold R.....*Captain, Infantry*

Stiley, Joseph F.....*Captain, C.A.C.*
Cooper, James G., Jr.....*Captain, Infantry*
Wiltamuth, Ralph.....*Captain, Infantry*
Gregory, Edgar M.....*First Lieutenant, C.A.C.*
Dean, Fred L.....*Warrant Officer, U.S.A.*
Compton, William F.....*Staff Sergeant, D.E.M.L.*
Bailey, Ray A.....*Staff Sergeant, D.E.M.L.*
Hogwood, Joseph L.....*Sergeant, D.E.M.L.*
Collins, Floyd.....*Sergeant, D.E.M.L.*
Freeman, Charles E.....*Private First Class, D.E.M.L.*
Whitchurch, Roy B.....*Private First Class, D.E.M.L.*
Roberts, John O.....*Private First Class, D.E.M.L.*

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Moran, Edward J.....*Lieutenant Commander, U.S. Navy*
Hall, George T.....*Captain, U.S. Marine Corps*
Galpin, Gerard F.....*Lieutenant, U.S. Navy*
Emory, Campbell D.....*Lieutenant, U.S. Navy*
Skahill, Bernard J.....*Lieutenant, U.S. Navy*
Hamilton, Malcolm.....*Chief Gunner's Mate, U.S.N.R.*
Littell, Roland B.....*Chief Yeoman, U.S.N.R.*
King, Joseph C.....*Chief Turret Captain, U.S.N.R.*
Dunlap, Clarence E.....*Chief Signalman, U.S.N.R.*

OFFICE OF THE COMPTROLLER

Allen, Henry Coburn.....*Comptroller*
Hoffman, Paul.....*Auditor*
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Hipkoe, Max.....*Purchasing Agent*
Terrell, Margaret E., M.A.....*Director of Dormitories and Dining Halls*
Thomas, Irene E., B.A.....*Manager of the Mimeographing Department*
Kennedy, Fred W.....*Manager of the University Press*

OFFICE OF THE REGISTRAR

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Ollis, Alice M.....*Assistant to the Registrar*
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Whicker, Meta, B.A.....*Registration Assistant*
Brugger, Minnie Kraus, B.A.....*Graduation Assistant*
Pepper, Leah H.....*Recording Assistant*

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Gunther, Erna, Ph.D.....*Director*
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Flahaut, Martha Reekie, B.A.....*Assistant in Biology*

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Savery, Halley.....*Curator*

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Benson, Henry Kreitzer, Ph.D.....*Chemical Engineering*
Harris, Charles William, B.S., C.E.....*Civil Engineering*
Loew, Edgar Allen, B.S., E.E.....*Electrical Engineering*
Grondal, Bror Leonard, B.A., M.S.F.....*Forest Products*
Wilson, George Samuel, B.S.....*Mechanical Engineering*
Roberts, Milnor, B.A.....*Mining and Metallurgy*
Osborn, Frederick Arthur, Ph.D.....*Physics Standards and Tests*

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STATE CHEMIST

Johnson, Charles Willis, Ph.C., Ph.D.....*Director*

NORTHWEST EXPERIMENT STATION, UNITED STATES BUREAU OF MINES

Yancey, Harry Fagan, Ph.D.....*Acting Supervising Engineer*
Johnson, Kenneth Alexander, B.S.....*Junior Chemist*
O'Connell, C.....*Senior Foreman Miner, Mine Safety Station*
Keating, Henry T.....*Principal Clerk*
Towle, Harriett E.....*Clerk*
Lance, William E.....*Mill Mechanic*

UNIVERSITY HEALTH SERVICE

Hall, David Connolly, M.D.....*University Health Officer*
Mitchell, Thomas G., M.D.....*Assistant Health Officer*
Houston, Frances, M.D.....*Assistant Health Officer*
Reeder, Maude, R.N.....*Superintendent, Infirmary*

*BOARDS AND COMMITTEES

1933-1934

Administrative Boards

Admissions.....*Dean of the College or School Concerned, and Registrar*

Board of Deans—Thomson, Bash, Condon, Coon, Griffith, Johnson, Landes, Padelford, Shepherd, Tyler, Uhl, Ward, Winkenwerder, and Registrar.

Schedule and Registration—Stevens, S. D. Brown, Carpenter, Dickey, Sidey, G. S. Wilson.

Student Discipline.....W. R. Wilson, Ayer, Groth, Soule, Williams.

Committees of the Faculty

Athletics...McIntyre, Dehn, O. E. Draper, Frankland, Griffith, May, O'Bryan.

Curriculum—Loew, and the chairmen of the college curriculum committees, together with a representative from each college or school having no curriculum committee.

Graduation.....Goodspeed, Cornu, Lynn, J. W. Miller, Rhodes, Skinner.

Honors—Winger, Beuschlein, Burd, Gunther, H. K. Moritz, Nottelmann, Puymbroeck.

Library—C. W. Smith, Beardsley, Coon, Guberlet, J. P. Harris, Jeffers, Padelford, Powell, Thomson.

Public Exercises.....Daniels, A. L. Miller, Powers, Welke.

Relations with Secondary Schools and Colleges—T. R. Cole, Barnes, Bolton, Foster, Frein, Jerbert, Sperlin, Stevens, Uhl, Utterback, Warner, Wilcox.

Rhodes Scholarships.....Densmore, K. C. Cole, Harrison, Quainton.

Rules.....Shepherd, Corbally, W. E. Cox, Rowntree, Spear.

Student Affairs..Condon, Bash, Butterbaugh, E. M. Draper, Dresslar, McMinn.

Student Welfare.....Gould, Davidson, D. C. Hall, Lawson, Steiner, Ward.

Director of Publications.....Padelford
Director of Publicity.....Rosenthal
Traffic Judge.....Richards

*The President is ex-officio a member of all University boards and committees.

ALPHABETICAL LIST OF THE UNIVERSITY FACULTY
1933-1934

Winkenwerder, Hugo.....Acting President of the University
M.F., Yale.

Adams, Henrietta.....Assistant Professor of Nursing Education; Director of Nursing Education at Harborview Hospital
R.N., Seattle General Hospital; B.S., Washington.

Alden, Charles.....Lecturer in Architecture
B.S., Massachusetts Institute of Technology

Alexander, James Lindsay.....Assistant Professor of Forestry
B.Sc.F., Toronto

Alfonso, Marie.....Assistant Professor of Librarianship
B.A., B.L.S., Washington.

Anderson, Andrew W.....Lecturer in Fisheries
B.S., Washington.

Anderson, Iris Canfield.....Instructor in Music
B.A., Washington.

Andrews, Siri.....Instructor in Librarianship
B.S. (L.S.) Washington.

Ankele, Felice Charlotte.....Associate in Germanic Languages
M.A., Washington.

Auernheimer, August A.....Instructor in Physical Education for Men
M.A., Columbia

Ayer, Leslie James.....Professor of Law
B.S., Upper Iowa; J.D., Chicago.

Ballaine, Genevieve Knight.....Associate in Latin
B.A., Olivet College.

Ballantine, John Perry.....Associate Professor of Mathematics
Ph.D., Chicago.

Ballard, Arthur C.....Research Associate in Anthropology
B.A., Washington.

Barnes, Donald G.....Professor of History
Ph.D., Harvard.

Bash, Mary Iola.....Associate Dean of Women
B.A., Washington.

Beal, Maude L.....Associate in English
M.A., Washington.

Beardsley, Arthur Sydney.....Law Librarian; Associate Professor of Law
LL.B., Ph.D., Washington.

Beck, Eleanor N.....Associate in Music
Pupil of Marcel Grandjany, Harpist, American School at Fontainebleau, Paris.

Bell, F. Heward.....Lecturer in Fisheries
B.A., British Columbia.

Belshaw, Roland.....Assistant Professor of Physical Education for Men
M.A., Columbia.

Benham, Allen Rogers.....Professor of English
Ph.D., Yale

Benson, Edna.....Assistant Professor of Design
M.A., Columbia.

Benson, Henry Kreitzer.....Professor of Chemical Engineering
Ph.D., Columbia.

Benson, Merritt E.....Assistant Professor of Journalism
LL.B., Minnesota.

Best, Charles L., Commander, U.S.N...Professor of Naval Science and Tactics
Graduate, U.S. Naval Academy

Beuschlein, Warren Lord.....Associate Professor of Chemical Engineering
M.S. (Ch.E.), Washington.

Bird, Winifred Wylam.....Instructor in English
M.A., Washington

Blackburn, Jessie O'Keefe.....Instructor in Home Economics
M.S., Washington.

*Bishop, Eugene A.....Professor of Education
Ph.D., Columbia.

Blankenship, Russell.....Associate in English
B.A., Washington

Bliss, Addie Jeanette.....Assistant Professor of Home Economics
M.A., Columbia.

Bolton, Frederick Elmer.....Professor of Education; Dean Emeritus of the School of Education
Ph.D., Clark

Bostwick, Irene Neilson.....Instructor in Music
B.M., Washington.

Bowers, James M...Lecturer in Gastro-Intestinal Diseases, Harborview Hospital
M.D.

Brakel, Henry Louis.....Associate Professor of Engineering Physics
Ph.D., Cornell.

Brown, Lois Eula.....Associate in English
M.A., Washington.

Brown, Robert Quixote.....Assistant Professor of General Engineering
B.S. (E.E.), Washington

Brown, Stephen Darden.....Assistant Professor of Business Administration
LL.B., Washington

Buck, Mildred E.....Associate in Sociology
M.A., Chicago.

Buckner, H. T.....Lecturer in Orthopedics, Harborview Hospital
M.D., Jefferson.

Burd, Henry Alfred.....Professor of Business Administration
Ph.D., Illinois.

Butterbaugh, Grant I.....Assistant Professor of Business Administration
M.B.A., Washington.

Butterworth, Joseph.....Associate in English
M.A., Brown.

Byers, Maryhelen.....Instructor in Painting
M.A., Columbia.

Cain, Russell.....Instructor in Pharmacy
M.S. in Phar., Washington.

Carlson, John A.....Associate in Mathematics
M.S., Washington.

Carpenter, Allen Fuller.....Professor of Mathematics
Ph.D., Chicago.

*Cheadle, J. Kennard.....Assistant Professor of Law
LL.M., Harvard.

Chessex, Jean Charles William.....Assistant Professor of Romanic Languages
M.A., Lausanne (Switzerland).

*On leave, 1933-34.

Chittenden, Hiram Martin.....Instructor in Civil Engineering
B.S., (C.E.), Washington

Christian, Byron Hunter.....Assistant Professor of Journalism
M.A., Washington.

Cohen, Joseph.....Associate in Sociology
M.A., Washington.

Cole, Kenneth C.....Associate Professor of Political Science
Ph.D., Harvard.

Cole, Thomas Raymond.....Professor of Education
Ph.B., DePauw; LL.D., Upper Iowa.

Collier, Ira Leonard.....Assistant Professor of Civil Engineering
C.E., Washington.

Condon, Herbert T.....Dean of Men
B.A., Oregon; LL.B., Michigan.

Conway, John Ashby.....Assistant Professor of Dramatic Art
B.A., Carnegie Institute of Technology.

Coon, Shirley Jay.....Professor of Economics and Business; Dean of the College of Economics and Business
Ph.D., Chicago.

Cooper, James G., Jr., Captain, Infantry.....Assistant Professor of Military Science and Tactics

Corbally, John E.....Assistant Professor of Education
Ph.D., Washington.

Corey, Clarence Raymond.....Associate Professor of Mining Engineering and Metallurgy
E.M., Montana State School of Mines; M.A., Columbia.

Cornu, Donald.....Assistant Professor of English
LL.B., Ph.D., Washington.

Cory, Herbert Ellsworth.....Professor of Liberal Arts
Ph.D., Harvard.

Cox, Edward Godfrey.....Professor of English
Ph.D., Cornell.

Cox, William Edward.....Professor of Economics
M.A., Texas.

Craig, Joseph A.....Lecturer in Fisheries
M.A., Stanford.

Cramlet, Clyde Myron.....Assistant Professor of Mathematics
Ph.D., Washington.

Creer, Leland Hargrave.....Assistant Professor of History
Ph.D., California.

Crim, Lemuel P., Captain, Ordnance.....Assistant Professor of Military Science and Tactics
B.S., Washington.

Cross, Harriet.....Instructor in Out-Patient Nursing, Harborview Hospital
R.N., Columbia Hospital; B.S., Minnesota.

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Cutts, Elmer H.....Associate in Oriental Studies
M.A., Washington.

Gillette, Alletta Maria.....Instructor in English
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Glover, Harriet F.....Instructor in Physical Education for Women
M.S. in Physical Education, Washington.

Goggio, Charles.....Associate Professor of Romanic Languages
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Goodrich, Forest Jackson.....Associate Professor of Pharmacy and Materia Medica
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Goodsell, Julia.....Associate in Physiology
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Gould, James Edward.....Professor of Maritime Commerce
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*Gowen, Herbert Henry.....Professor of Oriental Studies
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Gowen, Lancelot.....Associate Professor of Architecture
M.A. (Arch.),California.

Graves, Dorsett.....Associate in Physical Education for Men

Gregory, Edgar M., First Lieutenant C.A.C....Assistant Professor of Military Science and Tactics
Graduate, U.S. Military Academy.

Gregory, Homer Ewart.....Professor of Business Administration
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Griffith, Dudley David.....Professor of English; Dean of the College of Liberal Arts
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Grondal, Bror Leonard.....Professor of Forestry
B.A., Bethany; M.S.F., Washington.

Gross Mary, E.....Associate Professor and Director of Physical Education for Women
M.A., Columbia.

Groth, John Henry.....Associate Professor of German
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Guberlet, John Earl.....Professor of Zoology
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Gundlach, Ralph.....Assistant Professor of Psychology
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Gunther, Erna..Assistant Professor of Anthropology; Director of the Museum
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Guthrie, Edwin Ray.....Professor of Psychology
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Guthrie, Elton.....Instructor in Sociology
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Hall, Amy Violet.....Instructor in English
M.A., Washington.

Hall, David Connolly.....Professor of Hygiene; University Health Officer
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*On leave, 1933-34.

Hall, George T., Captain, U.S. Marine Corps.....Assistant Professor of Naval Science and Tactics
LL.B., Washington.

Hall, Helen.....Instructor in Music
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Hall, James Kendall.....Associate Professor of Business Administration
Ph.D., Stanford.

Hall, John F.....Lecturer in Sociology

Hamack, Frank Hartmond...Associate and Adviser in Business Administration
LL.B., Georgetown.

Hamilton, Malcolm.....Instructor in Naval Science and Tactics

Hamilton, Rachel Elizabeth .....Associate in French
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Harrar, Elwood S.....Instructor in Forestry
M.S., Syracuse

Harris, Charles William.....Professor of Hydraulic Engineering
C.E., Cornell.

Harris, Joseph Pratt.....Professor of Political Science
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Harrison, Joseph Barlow.....Professor of English
B.A., Oxford.

Harrison, Roger W.....Lecturer in Fisheries
M.S. in Chemistry, George Washington

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B.A., LL.B., Washington.

Hatch, Melville H.....Assistant Professor of Zoology
Ph.D., Michigan.

Hauan, Merlin James.....Lecturer in Civil Engineering
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Hawthorn, George Edward.....Assistant Professor of Civil Engineering
C.E., Washington.

*Hayner, Norman Sylvester.....Associate Professor of Sociology
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Heeremans, Harold.....Associate in Music

Helmlingé, Charles Louis.....Associate Professor of Romanic Languages
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Henderson, Joseph E.....Assistant Professor of Physics
Ph.D., Yale.

Henry, Bernard S.....Instructor in Bacteriology
Ph.D., California.

Henry, Dora Priaulx.....Research Associate in Oceanography and Zoology
Ph.D., California.

Henry, William Elmer.....Librarian Emeritus
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Herman, Saul D.....Lecturer in Business Administration
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*On leave autumn quarter, 1933-34.

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Hill, Raymond L.....Assistant Professor of Painting
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Hoard, George Lisle.....Associate Professor of Electrical Engineering
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Hoffstadt, Rachel Emilie.....Associate Professor of Bacteriology
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Holmes, Harlan B.....Lecturer in Fisheries
M.A., Stanford.

Hotson, John William.....Associate Professor of Botany
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Houston, Frances.....Assistant Health Officer
B.S., Chicago; M.D., Rush Medical College.

Hughes, Glenn.....Professor of English
M.A., Washington.

Isaacs, Walter F.....Professor of Fine Arts
B.S. (F.A.), James Millikin.

Jacobs, Melville.....Instructor in Anthropology
Ph.D., Columbia.

Jacobsen, Philip A.....Instructor in General Engineering
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Jacobsen, Theodore Siegumteldt.....Assistant Professor of Astronomy and Mathematics
Ph.D., California.

James, Florence B.....Assistant Professor of English
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Jensen, Alfred.....Instructor in General Engineering
B.S. in C.E., Washington.

Jerbert, Arthur Rudolph.....Assistant Professor of Mathematics
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Jessup, John H.....Associate Professor of Education
M.A., Iowa.

Johnson, Arlien.....Lecturer in Sociology
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Johnson, Charles Willis.....Professor of Pharmaceutical Chemistry; Dean of the College of Pharmacy
Ph.C., Ph.D., Michigan.

Johnson, Martin.....Research Associate in Oceanography
Ph.D., Washington.

Jones, Robert William.....Associate Professor of Journalism
LL.B., Missouri; M.A., South Dakota.

Kahin, Helen.....Associate in English
M.A., Indiana.

Karshner, Warner Melvin.....Associate Professor of Pathology
M.S., Washington; M.D., Northwestern Medical.

Kennedy, Fred Washington.....Director of Journalism Laboratories

Kennedy, Roy J.....Research Professor in Physics
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Kenworthy, Ray W.....Instructor in Physics
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Kerrigan, Sylvia Finlay.....Associate in English
M.A., Washington.

Kimmel, Edward, Colonel, C.A.C.....Professor of Military Science and Tactics
B.S.. M.A., State College of Washington.

Kincaid, Trevor.....Professor of Zoology
M.A., Washington.

King, Brien T.....Lecturer in Surgery of the Thyroid, Harborview Hospital
M.D.

King, Joseph C.....Instructor in Naval Science and Tactics

Kirchner, George.....Instructor in Music
Leipzig.

Kirsten, Friedrich Kurt.....Professor of Aeronautical Engineering
B.S., E.E., Washington.

Kobe, Kenneth Albert.....Instructor in Chemical Engineering
B.S. in C.E.; Ph.D., Minnesota.

Kunde, Norman Frederich.....Instructor in Physical Education for Men
M.A., Washington.

Lamson, Joseph Voris.....Instructor in General Engineering
B.S. in E.E., Washington.

Landes, Henry.....Professor of Geology and Mineralogy; Dean of the College of Science
M.A., Harvard.

Langenhan, Henry August.....Professor of Pharmacy
Ph.C., Illinois; Ph.D., Wisconsin.

Larsen, Margaret A.....Instructor in Pediatric Nursing, Harborview Hospital
R.N., Women's Hospital, Philadelphia; B.S., Texas.

Lawrence, Charles Wilson.....Assistant Professor of Music
M.A. (Music), Washington.

Lawson, Jane Sorrie.....Assistant Professor of English
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Leach, Katherine.....Instructor in Operating Rooms, Harborview Hospital
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Lindblom, Roy Eric.....Assistant Professor of Electrical Engineering
M.S. (E.E.), Washington.

Listman, Grace.....Instructor in Supervising at Harborview Hospital
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Littell, Roland B.....Instructor in Naval Science and Tactics

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Lucas, Henry Stephen.....Associate Professor of History
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Lynch, James E.....Associate Professor of Fisheries
Ph.D., California.

Lynn, Eldin Verne.....Professor of Pharmacology and Chemistry
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McConahey, James.....Lecturer in Business Administration
M.S., LL.B., Northwestern; C.P.A.

McCreery, Ruth Allen.....Instructor in Music
B.M., Washington.

McFarlan, Lee Horace.....Assistant Professor of Mathematics
Ph.D., Missouri.

McGownd, Matilda Jane.....Assistant Professor of Physical Education for Women
M.A., Columbia.

McIntyre, Harry John.....Associate Professor of Mechanical Engineering
B.S. (M.E.); M.B.A., Washington.

McKay, George F.....Assistant Professor of Music
B.Mus., Rochester.

McKenzie, Vernon.....Professor of Journalism
M.A., Harvard.

McMahon, Edward.....Professor of American History
M.A., Wisconsin.

McMahon, Theresa Schmid.....Professor of Economics
Ph.D., Wisconsin.

McMinn, Bryan Towne.....Associate Professor of Mechanical Engineering
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Mackenzie, Donald H.....Assistant Professor of Business Administration
M.B.A., Washington.

Magnusson, Carl Edward.....Professor of Electrical Engineering; Director of Engineering Experiment Station
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Mander, Linden A.....Associate Professor of Political Science
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Mansfield, Robert S.....Instructor in Journalism
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Martin, Charles Emanuel.....Professor of Political Science
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Martin, Howard Hanna.....Associate Professor of Geography
Ph.D., George Washington.

Martin, John K.....Lecturer in Acute Communicable Disease, Harborview Hospital
M.D.

Martin, Robert.....Associate in Sociology
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May, Charles Culbertson.....Professor of Civil Engineering and Architecture; Superintendent of Buildings and Grounds
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M.S., Washington; M.L., Wisconsin; LL.D., College of Puget Sound.

Mechem, Frank Lawrence.....Professor of Law
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Meisnest, Frederick William.....Lecturer in German
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Miller, John William.....Associate Professor of Aeronautical Engineering
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Miller, Robert Cunningham.....Associate Professor of Zoology
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Milliman, Loren Douglas.....Associate Professor of English
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Mills, Russell.....Associate Professor of Forestry
B.S. in Forestry, Washington.

Milner, Fred C., Captain, Infantry.....Assistant Professor of Military Science and Tactics

Mitchell, Thomas G.....Assistant Health Officer
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Moran, Edward J., Lieutenant Commander, U.S.N.....Associate Professor of Naval Science and Tactics
Graduate, U.S. Naval Academy.

More, Charles Church.....Professor of Structural Engineering
M.S.; C.E., Lafayette; M.C.E., Cornell.

Moritz, Harold Kennedy.....Assistant Professor of Civil Engineering
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Moritz, Robert Edouard.....Professor of Mathematics
Ph.D., Nebraska; Ph.N.D., Strassburg.

Mullemeister, Hermance.....Assistant Professor of Mathematics
Ph.D., Royal University of Utrecht, Holland.

Mund, Vernon A.....Assistant Professor of Economics and Business Administration
Ph.D., Princeton.

Munro, Kathleen.....Assistant Professor of Music
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Nelson, Everett.....Assistant Professor of Philosophy
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M.D.

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Olcott, Virginia.....Instructor in Clinical Practice for Harborview Hospital
M.S., Washington.

Oliver, Louise Benton.....Instructor in Music
B.M., Washington.

Olschewsky, Henry.....Instructor in Architecture
B.Arch., Washington.

Orr, Frederick Wesley.....Professor of English
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Osborn, Frederick Arthur.....Professor of Physics
Ph.D., Michigan.

Padelford, Frederick Morgan.....Professor of English; Dean of the Graduate School
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Patterson, Ambrose.....Assistant Professor of Painting
Melbourne National Gallery, Victoria, Australia; Julien, Colorossi and Delocluse Academies, Europe.

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Pellegrini, Angelo.....Associate in English
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Powell, Sargent.....Assistant Professor of Chemistry
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Powers, Francis Fountain.....Assistant Professor of Education
Ph.D., Washington.

Pratt, Dudley.....Assistant Professor of Sculpture
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Preston, Howard Hall.....Professor of Business Administration
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Pries, Lionel Henry.....Assistant Professor of Architecture
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Priest, Harold Ragan, Captain, Infantry.....Assistant Professor of Military Science and Tactics

Proctor, Oscar S.....Lecturer in Surgery of Respiratory Tract and Chest, Harborview Hospital
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Quainton, Cecil Eden.....Assistant Professor of History
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Radford, Anne.....Instructor in Surgical Nursing, Harborview Hospital
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Rahskopf, Horace G.....Assistant Professor of English
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Raitt, Effie Isabel.....Professor of Home Economics
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Ray, Verne F.....Associate in Anthropology
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Read, William Merritt.....Assistant Professor of Classical Languages
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Reed, Florence.....Instructor in Physical Education for Women
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Rhodes, Fred H., Jr.....Instructor in Civil Engineering
B.S. (M.E.), B.S. (C.E.), Washington.

Rhodes, Helen Neilson.....Assistant Professor of Design
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Richards, John W.....Assistant Professor of Law
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Richardson, Oliver Huntington.....Professor Emeritus of European History
Ph.D., Heidelberg.

Rigg, George Burton.....Professor of Botany
B.Di., Iowa; Ph.D., Chicago.

Ritchie, John III.....Assistant Professor of Law
B.S., Virginia; J.S.D., Yale.

Roberts, Milnor.....Professor of Mining and Metallurgy
B.A., Stanford.

Robinson, Rex J.....Instructor in Analytical Chemistry
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Robson, James Wesley.....Instructor in Philosophy
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Rosen, Moritz.....Professor of Music
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Rowntree, Jennie Irene.....Professor of Home Economics
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Rulifson, Leone Helmich.....Associate in Physical Education for Women
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Sanderman, Llewellyn Arthur.....Associate in Physics
M.S., Washington.

Savery, William.....Professor of Philosophy
Ph.D., Harvard.

Schaller, Gilbert Simon.....Associate Professor of Shop Engineering
B.S., Illinois; M.B.A., Washington.

Schertel, Max.....Associate in German
M.A., Washington.

Schultz, Leonard Peter.....Assistant Professor of Fisheries
Ph.D., Washington.

Seagrave, Mabel.....Lecturer in Gynecology, Harborview Hospital
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Sears, Katherine.....Instructor in Principles and Practice of Nursing in Communicable Disease, Harborview Hospital
R.N., B.S.

Seeman, Albert L.....Assistant Professor of Geography
Ph.D., Washington.

Sergev, Sergius I.....Assistant Professor of Civil Engineering
M.E., Washington.

Shaw, Joseph W.....Lecturer in Dermatology and Syphilology, Harborview Hospital
M.A.,; M.D., Michigan.

Shefelman, S. Harold.....Lecturer in Law
Ph.B., Brown; LL.B., Yale.

Shepherd, Harold.....Professor of Law; Dean of the School of Law
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Sholley, John Burrill.....Assistant Professor of Law
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Shuck, Gordon Russell.....Associate Professor of Electrical Engineering
E.E., Minnesota.

Sidey, Thomas Kay.....Professor of Latin and Greek
Ph.D., Chicago.

Simpson, Lurline Violet.....Instructor in French
Ph.D., Washington.

Sivertz, Victorian.....Instructor in Chemistry
Ph.D., McGill.

Skahill, Bernard J., Lieutenant, U.S.N.....Assistant Professor of Naval Science and Tactics
Graduate, U.S. Naval Academy.

Slyfield, Frederick.....Lecturer in Tuberculosis, Harborview Hospital
M.D., Iowa.

Skinner, Macy Milmore.....Professor of Business Administration
Ph.D., Harvard.

Smith, Charles Wesley.....Librarian; Professor of Librarianship
B.A.; B.L.S., Illinois.

Smith, Eli Victor.....Associate Professor of Physiology
Ph.D., Northwestern.

Smith, Frederick Charnley.....Assistant Professor of Civil Engineering
C.E., Washington.

Smith, George McPhail.....Professor of Inorganic Chemistry
Ph.D., Freiburg (Germany)

Smith, George Sherman.....Associate Professor of Electrical Engineering
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Smith, Harriett.....Assistant Professor of Nursing Education, Harborview Hospital
R.N., Seattle General Hospital; B.A., Mount Holyoke.

Smith, Harry Edwin.....Professor of Business Administration; Director of the Extension Service
Ph.D., Cornell.

Smith, Stevenson.....Professor of Psychology; Director of the Gatzert Foundation
Ph.D., Pennsylvania.

Soule, Elizabeth.....Associate Professor of Nursing Education
R.N., Malden Hospital, Massachusetts; M.A., Washington.

Spear, Sidney.....Assistant Dean of Men
B.A., Washington.

Spector, Ivar.....Instructor in Oriental Studies
Ph.D., Chicago.

Sperlin, Ottis Bedney.....Lecturer in English
Ph.M., Chicago.

Steiner, Jesse Frederick.....Professor of Sociology
Ph.D., Chicago.

Stevens, Belle.....Research Associate in Oceanography and Zoology
Ph.D., Washington.

Stiley, Joseph F., Captain, C.A.C.....Assistant Professor of Military Science and Tactics

Stirling, Brents.....Associate in English
B.A., LL.B., Washington.

Stone, Edward Noble.....Associate Professor of Classical Languages
M.A., Olivet.

Strother, Charles.....Associate in English
B.A., Washington.

Tartar, Herman Vance.....Professor of Chemistry
Ph.D., Chicago.

Taylor, Edward Ayres.....Professor of English
Ph.D., Chicago.

Terrell, Margaret Elma.....Instructor in Home Economics; Director of Dining Halls and Dormitories
M.A., Chicago.

Terry, Miriam.....Instructor in Music
B.M., Washington.

Terzieff, Ottilie.....Associate in German
M.A., Washington.

Thomas, Bertram D.....Research Associate in Oceanography
Ph.D., Washington.

Thomas, Harlan.....Professor of Architecture
B.S., State Agricultural College of Colorado.

Thompson, Helen.....Lecturer in Sociology
B.A., Washington.

Thompson, Thomas Gordon.....Professor of Chemistry; Director of Oceanographic Laboratories
Ph.D., Washington.

Thompson, William F.....Professor of Fisheries
Ph.D., Stanford.

Thomson, David.....Professor of Latin; Vice-President
B.A., Toronto.

Torney, John F.....Instructor in Physical Education for Men
M.A., Columbia.

Truax, Arthur.....Lecturer in Business Administration

Trueblood, Donald V.....Lecturer in Plastic and Breast Surgery, Harborview Hospital
M.D.

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R.N., Presbyterian Hospital, Chicago; B.S., Washington.

Tyler, Richard G.....Professor of Sanitary Engineering; Dean of the College of Engineering
C.E., Texas.

Tymstra, Sybren Ruurd.....Instructor in General Engineering
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Uhl, Willis Lemon...Professor of Education; Dean of the School of Education
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Utterback, Clinton Louis.....Associate Professor of Physics
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Van de Walker, Frank Chester.....Instructor in Business Administration
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C.E., Washington.

Van Ogle, Louise.....Associate Professor of Music
Theoretical work, with Dr. Bridge, Chester, England; Richter, Leipzig; Piano, Godowsky, Berlin; Lhevinne, Berlin; Harold Bauer, Paris.

Venino, Albert Franz.....Professor of Music
New York Conservatory of Music; Pupil of Leschetizky.

Vickner, Bertha Almen.....Associate in English
M.A., Washington.

Vickner, Edwin John.....Professor of Scandinavian Languages
Ph.D., Minnesota.

Wade, Arthur E.....Lecturer in Home Economics
B.S., Cornell College; M.D., Sioux City College of Medicine.

Wagenknecht, Edward Charles.....Assistant Professor of English
B.T., Union Theological College; Ph.D., Washington.

Walters, Margaret C.....Associate in English
M.A., Yale.

Ward, May Dunn.....Acting Dean of Women
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Warner, Frank Melville.....Associate Professor of Engineering Drawing
B.S. (M.E.), Wisconsin.

Watts, Charles E.....Lecturer in Heart and Circulatory Diseases, Harborview Hospital
M.D.

Weaver, Charles Edwin.....Professor of Paleontology
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Weinzirl, John.....Professor of Bacteriology
Ph.D.; Dr.P.H., Harvard.

Welch, Ralph.....Associate in Physical Education for Men

Welke, Walter.....Instructor in Music
B.M. (Edu.), Michigan.

Werner, August.....Professor of Music
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Wesner, Elenora.....Associate in German
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West, Ossian J.....Lecturer in Anatomy, Harborview Hospital
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Whittlesey, Walter Bell.....Assistant Professor of French
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Wilcox, Chester.....Associate in Physical Education for Men
B.S. (C.E.), Purdue.

Wilcox, Elgin Roscoe.....Associate Professor of General Engineering
B.S.; Met.E., Washington.

Williams, Curtis Talmadge.....Associate Professor of Education
Ph.D., Clark.

Wilson, Florence Bergh.....Assistant Professor of Music
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Wilson, Francis Graham.....Associate Professor of Political Science
Ph.D., Stanford.

Wilson, George Samuel.... Professor of Mechanical Engineering; Consulting Engineer
B.S., Nebraska.

Wilson, Hewitt.....Professor of Ceramics
Cer.Engr., Ohio State University.

Wilson, William Charles Eade.....Assistant Professor of Spanish
Ph.D., Washington.

Wilson, William R.....Professor of Psychology
Ph.D., Washington.

Wiltamuth, Ralph, Captain, Infantry.....Assistant Professor of Military Science and Tactics

Winger, Roy Martin.....Professor of Mathematics
Ph.D., Johns Hopkins.

Winkenwerder, Hugo.....Professor of Forestry; Dean of the College of Forestry; Acting President
M.F., Yale.

Winslow, Arthur Melvin.....Professor of Mechanical Engineering
Ph.B., Brown; B.S., Massachusetts Institute of Technology.

Winther, Sophus Keith.....Assistant Professor of English
Ph.D., Washington.

Wood, Carl Paige.....Professor of Music
M.A., Harvard.

Woodcock, Edith.....Assistant Professor of Music
B.M., Rochester.

Woolston, Howard B.....Professor of Sociology
Ph.D., Columbia.

Worcester, John Locke.....Professor of Anatomy
M.D., Birmingham School of Medicine, Alabama.

Worden, Ruth.....Associate Professor of Librarianship
B.A., Wellesley.

Worman, Eugenie.....Associate in Design
B.A. (Education), Washington.

Zillman, Lawrence J.....Associate in English
B.A., Washington.

THE UNIVERSITY

History

The University was established at Seattle by the territorial legislature in January, 1861, and classes were opened on November 4 of that year in a building erected on a ten-acre tract which now lies in the heart of Seattle's metropolitan district. The University was moved to its present location on the shores of Lakes Washington and Union in 1895.

Government

Under the constitution and laws of the State, the government of the University is vested in a Board of Regents, consisting of seven members appointed by the Governor by and with the advice and consent of the Senate. Each regent is appointed for a term of six years.

Endowment and Support

The University derives its support from legislative appropriation, student fees, and the income from real estate owned by the University.

EQUIPMENT

Grounds

The campus contains 582 acres, 109 of which are open water. The land is all within the city limits of Seattle and lies between Lakes Washington and Union, with a shore line of more than one mile on Lake Washington and about a quarter mile on Lake Union.

Buildings

The buildings now in use on the campus include the Aerodynamical Laboratory, Anderson Hall, Anatomical Laboratory, Architecture Building, Bagley Hall and Annex, Central Store House, Commerce Hall, Condon Hall, Denny Hall, Dormitories (Lewis and Clark), Education Hall, Engineering Hall, Fisheries Building, Forest Products Laboratory, Foundry and Shop Building, Good Roads Building, Green House, Guggenheim Hall, Men's and Women's Gymnasiums, Health Service Building, Henry Art Gallery, Home Economics Hall, Hydraulics Laboratory, Johnson Biological Laboratory, Library, Meany Hall, Mines Laboratory, Museum, Music Building, Observatory, Oceanographic Laboratory, Parrington Hall, Pharmacy Building, Philosophy Hall, Physics Hall, Power House, Practice Cottage, R.O.T.C. Armory and Headquarters Buildings.

Libraries

The University Library contains 269,274 bound volumes. A stock of publications needed in advance research is rapidly accumulating and special collections are being formed in a few fields. The Law School Library, with 62,762 volumes, is separately administered by the Law School. In addition to the libraries on the campus, the Seattle Public Library, with 510,404 volumes, is available to students.

Museum

The museum of the University of Washington was created the State Museum by law in 1899. It aims to have its collections representative of the history, ethnology, geology and natural history of the state and adjacent regions, and of those countries with which the state has special relations.

Horace C. Henry Gallery

The Horace C. Henry Gallery, with its collection representing the work of about 200 representative nineteenth century painters, is the gift of the late Horace C. Henry of Seattle. To supplement the permanent collection, travelling exhibitions are shown during the college year.

Laboratories

The University has laboratories fully equipped for work in all fields of study included in the curriculum.

United States Bureau of Mines Northwest Experiment Station

The Department of Commerce maintains at the College of Mines its Northwest Experiment Station, which serves the Pacific Northwest and the coast regions of Alaska. The Mine Safety Station of the United States Bureau of Mines is also located on the campus.

Engineering Experiment Station

The Engineering Experiment Station was organized in 1917 to co-ordinate the engineering investigations in progress and to facilitate development of industrial research in the University.

Bailey and Babette Gatzert Foundation for Child Welfare

This foundation was established in 1910 by means of a gift from Sigmund Schwabacher and the executor of the will of Abraham Schwabacher and is under the administrative control of the Department of Child Welfare.

GENERAL INFORMATION

THE UNIVERSITY ORGANIZATION

The University of Washington is one of five institutions of higher education which complete the state's system of public education, the others being the state college and the three normal schools. To the University is given exclusive authority to instruct in the following major lines: aeronautical engineering, architecture, commerce, fisheries, forestry, journalism, law, library science, marine engineering and medicine.

The University has concurrent authority with the state college to instruct in the following major lines: chemical engineering, civil engineering, electrical engineering, home economics, liberal arts, mechanical engineering, mining, pharmacy, professional training of high school teachers, school supervisors and school superintendents, and pure science.

Schools and Colleges and Their Fields. The University is organized in the following schools and colleges:

(a) *The Colleges of Liberal Arts and Science,* which provide a liberal education in arts and pure science, in a course normally requiring 12 quarters [illegible] leading to the degrees of bachelor of arts and bachelor of science. [illegible] architecture leading to the degree of bachelor of

[illegible] schools and colleges, including:

[illegible] *and Business,* covering the funda-

8. *The Department of Mines* offers curricula of 12 quarters leading to the degree of bachelor of science in mining and metallurgy, mining and geology, and ceramic engineering. The fields open to graduates of this college are indicated by these divisions. The college also offers a curriculum in ceramics (clay, glass and cement products). The degree of master of science, with a major in one of these lines, may be obtained in the Graduate School.

9. *The College of Pharmacy* offers a four-year course providing a well-rounded scientific training in this field, and leading to the degree of bachelor of science in pharmacy. A fifth year in the Graduate School offers an opportunity for graduate research work leading to the degree of master of science in pharmacy. Students may continue graduate work leading to the degree of doctor of philosophy with major in pharmacy.

(c) *The Graduate School* offers work leading to the degrees of master of arts, master of science, master of arts or master of science in technical subjects, certain technical or professional master's degrees (as, for example, master of business administration), and doctor of philosophy. A master's degree presupposes at least one year of resident work [illegible] character, and a doctor's degree at least three

Definitions and Explanations. In a[illegible] the word *course* refers to a single [illegible] which credit may be given toward [illegible] accordance with the [illegible]

case the winter quarter shall begin on Tuesday, January 3. The winter quarter shall end on Friday falling between March 15 and March 22, inclusive, except when January 8 falls on Monday, in which case the winter quarter shall end on March 23.

The spring quarter shall begin on the Monday falling between March 26 and April 1, inclusive, except when June 15 falls on Friday, in which case the spring quarter shall begin on April 2. The spring quarter shall end on the Friday falling between June 9 and June 15, inclusive.

The summer quarter shall begin on the Wednesday following Commencement, and shall end on the eleventh Thursday after the opening of the quarter. Students may enter at the beginning of any quarter. The quarter system permits them to do a full quarter of university work in the summer in most curricula; to complete a university course in three years if health and resources permit; or otherwise to adjust their university residence to meet personal conditions.

ADMISSION TO THE UNIVERSITY

General Statement

All correspondence regarding admission of students to the resident courses of the University and requirements for graduation, should be addressed to the registrar.

Students are admitted to the resident work of the University by certificate or by examination. Only recommended graduates of fully accredited four-year secondary schools are admitted on certificate. The University reserves the right to reject any application for cause. Students are classified as graduates and undergraduates. Undergraduates are classified as regular students (freshmen, sophomores, juniors and seniors), unclassified students, and special students.

Admission by Certificate

A graduate of a four-year accredited secondary school, whose course has covered the requirements for entrance and who meets the scholarship requirement outlined below, will be admitted upon presentation of satisfactory credentials. Since school diplomas do not give the necessary information, they cannot be accepted for this purpose. Principals of all accredited high schools in the state are furnished with official blanks, which also may be obtained from the registrar's office. Credentials accepted toward admission to the University are kept on permanent file.

Credentials for students expecting to enter the University in the autumn quarter, 1933, *should be filed in the registrar's office not later than August* 15. *Owing to the congestion of correspondence during the two weeks prior to the opening of each quarter, it is impossible to reply at once to letters and applications sent in during these periods.*

It is obligatory to submit at entrance records from all schools previously attended.

No student may be accepted for admission who would not be recommended to the university of his home state.

A student graduating from a school system which provides for less than 12 years of instruction may be held for additional high school work.

Entrance Requirements

1. Graduation from an accredited high school or secondary school in the state of Washington.
2. Certification by the principal of the secondary work completed.
3. Graduates of a public accredited secondary school from outside of Washington will be admitted on the same terms as graduates of the accredited secondary schools of this state, except that (a) no such graduate shall be admitted who would not be recommended to the university of his own state, and (b) no such graduate shall be admitted who is not eligible to enter the University as a regular student.

4. The subject requirements are those determined by the college into which the student seeks entrance except that two units* of English, and four additional units of academic subjects, studied during the last three years before graduation from the high school or secondary school, are required of all students entering the University.

5. Students entering with a grade point average of 2.00 during the last three years of high school enter as regular students. All other graduates of high schools satisfying the subject requirements of the University and its respective colleges will be admitted on freshman probation for one year. A student on freshman probation is excluded from student activities and from any other non-academic work which, in the judgment of the dean, may interfere with his study program. Freshman probation also requires that the student confer with his dean from time to time in regard to his progress in his studies.

6. *Admission to one of the Colleges of the University.* For admission to one of the colleges of the University, satisfactory credentials covering minimum requirements of the particular college must be presented. As part of the 12-unit requirement, the academic subjects (English, mathematics, natural science, social science, and foreign language) must total at least six units. Less than one unit will not be counted in a foreign language.

GENERAL INFORMATION

Requirements of the various departments are shown in the following table:

Curricula	English	Mathematics	For. Lang.	Lab. Sci.	Other Academic Subjects	Free Electives[2]
1. Liberal Arts[4]	2	1 (Pl. Geom.)	2nd unit of one[1]	1	1	6
a. Economics and Business	2	1 (Pl. Geom.)	‡	1	4 to 2	4 to 6
b. Fine Arts (music, art, and arch.)	2	1 (Pl. Geom.)	2nd unit	1	1	6
2. Pharmacy	2	1 (Pl. Geom.)	0	**	3	6
3. Science (fisheries)	2	1 (Pl. Geom.)	2nd unit of one*	1	1	6
4. Engineering and Mines	2	2 (Pl. & Sol. Geom.) Adv. Alg.	0	1(Physics)[5]	1	6
5. Forestry	2	1½(Pl. Geom.) Adv. Alg.	2nd unit[3] of mod. for. language	***	1½	6

[1]The first unit may be completed in the ninth grade as a regular part of the junior high school curriculum. As such it does not carry entrance credit. If taken in the senior high school, it will count as a part of the 12 units required.

[2]Units in non-academic subjects may not exceed the number indicated in this column. Non-academic subjects are not required for admission.

[3]In effect beginning with the autumn quarter of 1934.

[4]The College of Liberal Arts has arranged substitutions in the University for all entrance requirements except English, provided the student has not had an opportunity to take them in high school. If the student presents eight academic units on his senior high school records, he receives college credit for such substitutions. If he presents fewer than eight academic units, he removes his deficiencies in the University without college credit. One unit of United States history and civics is also required. Since this subject is a graduation requirement of the high schools of Washington, it has not been included in this chart.

[5]Beginning with the autumn quarter of 1935 both physics and chemistry will be required.

‡To be excused from foreign language, the student must present at least two units in the commercial field or in additional academic electives.

*To count as a unit, a subject must be taught five times a week, in periods of not less than 45 minutes, for a high school year of 36 weeks. In satisfying entrance requirements with college courses, a minimum of ten quarter credits is counted as the equivalent of the entrance unit.

**It is recommended that at least one unit of a laboratory science be taken.

***Physics is recommended.

Students in any college electing work in the Naval Reserve Officers' Training Corps are required to present plane geometry and plane trigonometry. For the naval course in aviation flight training (entered at the beginning of the senior year), in addition to the above, the student must have had elementary physics, solid geometry, and college algebra. In most cases plane trigonometry and college algebra may be taken during the freshman year, but the student who is planning to apply for admission to the Naval R.O.T.C. should take physics, plane and solid geometry, and advanced algebra while in high school.

A student is advised not to attempt to enter the University until he is able to register without deficiencies in his chosen college. Under certain circumstances, and with the approval of the dean of the college concerned, certain specific college requirements may be removed after entrance in the University.

7. *Comprehensive Admission Requirements to all Colleges.* If a student is uncertain as to the college he desires to enter, satisfactory completion of the following requirements will make him eligible to any college in the University, although all of the subjects are not required in every college:

English	2	units
Foreign language (second year)[1]	1	unit
Plane and solid geometry	1½	units
Advanced algebra	½	unit
Physics	1	unit
Other subjects	6	units
Total	12	units

Accredited Schools

The University of Washington depends on the State Board of Education for lists of accredited public and private high schools for the state of Washington.

Schools outside of Washington

Graduates of accredited high schools outside of Washington will be admitted as regular students on the same terms as graduates of the accredited high schools of Washington except that no such graduate shall be admitted who would not be accepted by the university of his own state. The University will accept no students on probation from outside the state of Washington. The University reserves the right to refuse admission to students from any school whose graduates have consistently failed to make satisfactory records in the University.

Admission by Examination

1. Certificates of successful examinations before the College Entrance Examination Board will be accepted. Students planning to enter the University by examination shall arrange their selection of subjects so that they will have no deficiencies for the college they elect, i. e., Liberal Arts, Science, Engineering, Pharmacy, etc.

2. Students who have not graduated from high school and do not plan to do so must enter by examination. All examinations will be given by the College Entrance Examination Board.

3. Definite information regarding the necessary examinations may be obtained from the registrar of the University.

4. Descriptions of the various examinations offered, together with applications and pamphlets may be obtained by writing to the secretary of the College Entrance Examination Board, 431 West 117th St., New York, N. Y.

[1]To count as a unit, a subject must be taught five times a week, in periods of not less than 45 minutes, for a high school year of 36 weeks. In satisfying entrance requirements with college courses, a minimum of ten quarter credits is counted as the equivalent of the entrance unit.

Admission to Advanced Standing

Applicants for advanced standing are required to furnish a complete certified statement of both preparatory and college credits, together with a letter of honorable dismissal from the institution last attended.

Advanced Undergraduate Standing. Students who present complete transcripts and letters of honorable dismissal from other colleges of recognized rank, may be admitted to the advanced standing for which their training seems to fit them. For admission, however, the student must present a scholarship record equivalent to that required of resident students of the University of Washington. Definite advanced standing will not be given until the student has been in residence at least one quarter. No advanced credit will be given for work done in institutions whose standing is unknown, except upon examination.

A student applying to transfer having been in college attendance less than a year shall be required to furnish the following information:

(a) His complete high school credentials.

(b) His status and his detailed record at the end of his period of attendance in college.

In the event that the student's high school record was not such as to have admitted him to regular standing in the University of Washington, the student shall not be admitted until at least one year of college work shall have been completed with satisfactory grades. In general, the University will not accept a student who is in scholastic difficulty at his former school.

Admission of Normal School Graduates to Advanced Standing. Graduates of the two-year curriculum of approved normal schools may receive junior standing provided their credits meet the requirements of the University for entrance, scholarship standards, and credit-hour load.

For graduation with a bachelor's degree, a student admitted with advanced credit from a normal school must earn in the University a sufficient number of credits to bring the total up to a minimum of 180 quarter credits (exclusive of required physical education or military or naval science). He must satisfy such specific requirements of the degree as have not been fairly satisfied by previous work.

In fulfilling the requirements of university curricula that allow a large number of elective credits, such as that of the School of Education, normal school credits can usually be fairly well applied. As a rule, a student cannot count much more than two years of normal school work toward completion of curricula that require a major of 35 or more credits of consecutive and coordinated work in one department. In many set technical or professional courses only a very limited amount of normal school credit can be used.

School of Law. Admission to the School of Law is on a selective basis. In passing upon applications for admission, the following factors are taken into account: amount of pre-legal work, scholarship in pre-legal work, special aptitude and fitness as evidenced by legal aptitude examination and personal interview with the dean of the Law School.

The following are the minimum requirements for admission:

Candidates for the degree of juris doctor must have received the bachelor of arts degree or its equivalent from this university or an approved college.

Candidates for the bachelor's degree in arts, science, or business administration, and the bachelor of law degree under the combined curricula must have completed three years of college work, including the group requirements of the college concerned, and must, in addition, have maintained a scholarship average of 2.25 grade points over their entire college work.

Candidates for the bachelor of law degree only, who enter the Law School prior to the autumn quarter of 1934, must have completed two years of college work, representing one-half of the work acceptable for a bachelor's degree,

granted on the basis of a four-year period of study, in this university or an approved college and, in addition, must have a scholarship average of 2.25 grade points over the two years of college work.

Beginning with the autumn quarter of 1934, a minimum of three years' college work (135 quarter credits), together with a scholarship average of 2.25 grade points, will be required.

Department of Journalism. Requirements for admission to the department of Journalism are: clear entrance to the College of Liberal Arts; 90 credits (two years) of advanced credits in freshman and sophomore courses, covering all prescriptions for admission to upper division standing in the College of Liberal Arts, and the required credits of military or naval science or physical education.

School of Education. Requirements for admission to the School of Education are: clear entrance to any college of the University; 90 credits of college work in courses approved by the faculty of the School of Education and the faculty of the college concerned and the required credits of military or naval science or physical education.

Admission to Graduate Standing

A bachelor's degree from a college or university of good standing is required for admission to the Graduate School. For further details, see the Graduate School bulletin.

Admission to the general course in librarianship is granted as follows:

1. To graduate students who hold the baccalaureate degree from any college or university of good standing, and whose undergraduate work in either or both high school and college has included at least 20 college credits each in German and French. Other modern languages may be substituted with the consent of the executive officer of the department, provided the Romanic group and the Germanic group are represented.

Admission to the advanced course in library work with children, is granted as follows:

To graduates of the University of Washington department of Librarianship, or schools of equal standard. The number admitted will be limited, so credentials must be taken up at an early date with the executive officer.

Foreign Students

Students from schools in foreign countries and non-English speaking communities will be admitted under the same general conditions as those from American schools, provided they have a sufficient working knowledge of English, acquaintance with American methods of instruction, and plans of study, to enable them to carry regular college work successfully.

In April of each year the College Entrance Examination Board offers an examination in foreign countries to test competence in the use of the English language on the part of students whose native tongue is not English. The University of Washington requires that its prospective students make a satisfactory rating in this test. The purpose is to dissuade from a long, expensive and fruitless journey those students who are certain to be unsuccessful because of an inadequate knowledge of English. Candidates for admission may obtain the preliminary announcement of this examination from the secretary of the College Entrance Examination Board, 431 West 117th Street, New York City, U. S. A.

Applicants from schools in the Philippine Islands should first have their papers examined and their knowledge of English tested by the Examining Board of the Philippine Islands. Arrangements may be made with Mr. Walter G. M. Buckisch, Commissioner of Private Education, Ayuntamiento, Manilla, Philippine Islands.

Students from foreign schools whose standing is not known to be the equivalent of accredited American schools may be required to pass College Entrance Board examinations in representative subjects.

Admission of Special Students

Special students are students of mature years who have not had the opportunity to complete a satisfactory high school course but who by reason of special preparation and attainments, may be qualified to undertake certain courses, though not as candidates for degrees.

No person less than 21 years of age will be admitted to the status of special student, but it is specifically emphasized that mere attainment of any given age does not constitute adequate qualification for admission to this status.

In general, a student from an accredited high school will not be admitted to this classification if he has been in attendance in the high school during the previous year.

The graduates of an accredited high school are not admitted as special students, but are expected to qualify for regular undergraduate standing in accordance with the general rules.

The University has no "special courses"; all courses are organized for regular students—that is, students who have had the equivalent of a good high school education and have been fully matriculated. Special students are admitted to those regular courses for which, in the judgment of the instructor, they have satisfactory preparation.

Entrance examinations in the subjects of fundamental importance for the work proposed will be assigned in all cases in which the Committee on Special Students deems such examinations advisable.

All available certified records for previous school work must be submitted to the registrar at least a month before the beginning of the quarter which the student desires to attend. Such a student must file an application for admission showing the kind of work he desires, the reasons for desiring such work, and if no credits can be presented, a detailed statement of any previous educational work and practical experience with a list of subjects in which the candidate is prepared to take entrance examinations. Special blanks for this information are provided.

By virtue of his classification, a special student is not eligible for any degree. He may ultimately become a candidate for a degree, however, by completing the admission requirements of the college in which he is enrolled.

Special students are not eligible to take part in student activities or to be initiated into a fraternity or a sorority.

Persons desiring to be admitted as special students will apply to the registrar for the necessary application and credential blanks.

Advanced Credit by Examination

With the approval of the dean of the college or school concerned, a student may be examined for advanced credit in work that he has not followed in a college class in an accredited institution. Credits and grades so obtained must be certified by the examiner and the dean concerned. In no case shall the addition of these credits result in a total for any quarter above the number of credits for which the student involved would have been allowed to enroll in regular courses.

Persons who, while registered in the University, have attended courses as auditors, shall in no case be permitted to take the examination in such courses or obtain credit therefor.

A student desiring to take an examination for advanced credit must first file an application and obtain a permit at the registrar's office.

Special claims for advanced credit based on credentials are passed on by a committee consisting of the registrar and the dean of the college concerned.

Advanced credit by course examination may not cover more than half of the requirement for graduation. At least one-half of the student's work for a degree must be under the supervision of this or some other accredited university. Work under supervision here includes residence class work, extension class work and home study work.

A fee of $1 per course number will be charged for all special examinations.

Auditors

Rule 1. (a) Any mature person, with the consent of the dean and instructor concerned, and upon payment of the auditor's tuition fee, may enroll in any quarter at the registrar's office as auditor in any number of non-laboratory courses or the lecture parts of any number of laboratory courses.

(b) Persons who, while registered in the University, have attended courses as auditors, shall, in no case, be permitted to take the examination in such courses or obtain credit therefor.

No person may regularly attend any course in which he has not been registered as a student or enrolled as an auditor.

The Extension Service

Following are certain rules of the faculty and administrative decisions which should be noted by those who wish to obtain credit toward a University degree for their home study work:

(a) Correspondence students in the Extension Service who have had the required preparation for admission to the University, and whose program has been approved, will upon satisfactory completion of their correspondence work receive a certificate of credit in the University, but the maximum credit for work done by correspondence may not exceed one-half of the credits required of resident students for graduation. Records of credits for correspondence study are filed separately until the student has satisfactorily completed one year in residence, when they become part of the University record.

(b) The work of the senior year (a minimum of 36 credits earned in 36 weeks) must be done in residence.

Note: Senior standing is attained when 135 credits and the required credits in military or naval or physical education have been earned.

(c) No student may take an extension course, either correspondence or class, while enrolled as a resident student in the University, without the consent of his dean approved by the registrar and by the director of the Extension Service. This permission, on forms furnished for the purpose, must be filed in the registrar's office.

Registration

Autumn Quarter. Students enrolled in the University spring quarter are encouraged to pre-register during the preceding quarter for the autumn quarter. All new students whose credentials have been accepted by the registrar should register in early summer. There will be a four-day registration period before Freshman Week for all students who are not able to complete their registration earlier. Classes are reserved only for students whose fees are paid.

Winter and Spring Quarters. During each quarter there is a period for pre-registration for the following quarter. Every student in residence should take advantage of the opportunity to arrange his schedule in advance and avoid the difficulties arising in delayed registration. Students not in residence may register at any time before the beginning of instruction. Classes are reserved only for students whose fees are paid.

Summer Quarter. Students may register for the summer quarter from May to the beginning of instruction.

Registration is complete when the election blank has been signed by all required registering officers, when approved by sections, and all required fees have been paid. Classes are reserved only for students whose fees are paid. Registration by proxy is not permitted.

Late Registration. All students are expected to complete their registration, including payment of all required fees, prior to the dates given in the University calendar for fee payment. Students failing to do this will be charged an additional fee of $2 for the first day's delay, and a further cumulative fee of $1 for each day thereafter. After the first week no student will be permitted to register.

Changes in Registration. A change of registration is the addition to or the withdrawal from any course that appears on the election blank.

Upon presenting his receipt for fees, a student desiring to change his registration shall satisfy his dean as to the reason for the change and secure a change of registration card from his registering officer. He shall secure the signature of the instructor from whose class he wishes to withdraw, and of the instructor whose class he wishes to enter. He shall present the change of registration card at the sections window in the registrar's office for approval. He shall pay a fee of $1 at the cashier's office for each course change including the withdrawal from or the addition of one course at one time.

No change in registration involving entrance into a new course shall be permitted after the first week (seven days) following the beginning of instruction. No withdrawal from a course will be accepted during the last two weeks of the quarter.

Deficiencies

Rule 2. Unsatisfied prerequisites take precedence over other subjects. Any student having an unsatisfied entrance prerequisite must register for the work each quarter until the deficiency is removed. In special cases, permission to postpone the removal may be granted by the dean of the proper college.

In satisfying entrance requirements by college courses, a minimum of ten college credits is the equivalent of one entrance unit.

Rule 3. Except with the consent of his dean:

(a) No student shall be registered for less than 12 credits of work.

(b) No student shall be registered for more than 16 credits of work (exclusive of military or naval science or physical education), or the number for the respective quarters in the prescribed curricula.

Rule 4. With the consent of his dean, a junior or senior whose previous scholastic record has been exceptionally good, may be registered for a maximum of 20 credits (exclusive of military or naval science or physical education).

Rule 5. No student may be registered for more than 20 credits (exclusive of military or naval science or physical education).

Rule 6. Work taken in non-credit courses or to remove entrance deficiencies shall count as a part of the schedule allowed.

Rule 7. A student who is obliged to do outside work must enter on his registration blank a statement of the nature of the work and the number of hours per week so used.

Medical Examinations

All regular undergraduate students entering the University for the first time are required to pass a medical examination as a part of the registration requirements. Men will report to the pavilion and women to the gymnasium on the date and hour designated when registering. This appointment takes precedence over all others scheduled for that hour. Students failing to appear for the medical examination at the appointed time will be excluded from classes on notice to the registrar. For a second appointment, and to compensate the University for the additional expense thereby necessitated, a special fee of $5 must be paid.

Aptitude Test

A college aptitude test is required of all undergraduate students, who have not taken it previously, at a time to be announced each quarter. A student, who, for cause, is unable to attend the first test, may take a make-up test to be given later. The fee for the make-up test is $1 as prescribed for delayed examination in Rule 27.

EXPENSES

NOTICE: *The right is reserved to change the following fees without notice to present or future students.*

REGULAR TUITION FEES

FOR

AUTUMN, WINTER, AND SPRING QUARTERS

NOTE: Fees listed on page 48 under "Special Fees and Deposits" should be added to the following when applicable.

Resident Tuition Fee. A general tuition fee of ten dollars ($10) each quarter is charged each regular student (except as noted below under *Exemptions*) who has been domiciled in this state or the Territory of Alaska for a period of one year prior to registration. Children of persons engaged in the military, naval, lighthouse, or national park service of the United States within the State of Washington are considered as domiciled within the meaning of this section and are not subject to the time limit of such domicile.

Deserving resident students who, after a quarter in school have shown a marked capacity for the work done by them, in lieu of paying the resident tuition fee, may give their promissory note bearing satisfactory indorsements, with interest at the rate of four per cent per annum. Applications for this concession must be presented to the comptroller's office not later than the tenth day previous to the beginning of a quarter.

Non-Resident Tuition Fee. A general tuition fee of fifty dollars ($50) each quarter is charged each regular student (except as noted below under *Exemptions*) who has not been domiciled in the state of Washington or the Territory of Alaska for a period of one year immediately prior to registration or who is not the child of a person engaged in the military, naval, lighthouse, or national park service within the state.

Prospective students are advised that when credentials for entrance are presented from a high school or other educational institution without the state the student will in the first instance be classified as a non-resident. Upon being so advised by the registrar he should, if he believes himself domiciled within the state, file a petition with the non-resident office for a change of classification to resident status.

Certain rules govern the determination of the legal domicile of a student, and, accordingly, the payment of resident or non-resident tuition, should be borne in mind:

(a) The legal words *domicile* and *residence* are not equivalent terms; domicile requires more than mere residence.

(b) No one can acquire a domicile by residence in the state of Washington when such residence is merely for the purpose of attending the University.

(c) The domicile of a minor is that of his father; in the event of the death of his father, that of his mother; in the event of the death of both parents, that of the last deceased parent. Letters of guardianship are not conclusive but will be recognized when consistent with other facts showing a bona fide domicile.

Exemptions. Employees of the University, teachers in the public schools of the state to whom Cadet Teacher Exemption Certificates are issued, and all honorably discharged citizens (men or women) of the United States who served in the Military or Naval forces of the United States, or of any of the governments associated with the United States during the World War, and who are classified as residents, are exempted from the payment of the general tuition fee. Ex-

Examples of
Autumn, Winter and Spring Quarter Fees for Various Types of Registration

Note: Fees listed under "Special Fees and Deposits" on pages 48 and 49 should be added to the following, when applicable.

RESIDENT STUDENTS

Types of Registration For Resident Students	Tuition Fee	Incidental Fee	Law Library Fee	A.S.U.W. Fee			Total Fees		
				Autumn Quarter	Winter Quarter	Spring Quarter	Autumn Quarter	Winter Quarter	Spring Quarter
Undergraduate.....	$10	$11		$5	$2.50	$2.50	$26	$23.50	$23.50
Graduate.....	10	11		*Optional	*Optional	*Optional	21	21	21
Law School.....	10	11	10	5	2.50	2.50	36	33.50	33.50
Auditors.....	12			*Optional	*Optional	*Optional	12	12	12
Employees of the University.....		11		*Optional	*Optional	*Optional	11	11	11
Ex-service men or women.....		11		5	2.50	2.50	16	13.50	13.50
Undergraduate nurses while in residence in a hospital.....	5			**	**	**	5	5	5
Graduate nurses in residence in hospital....	10			**	**	**	10	10	10
Part time Under-Grad.	10			5	2.50	2.50	15	12.50	12.50
Part time Graduate....	10			*Optional	*Optional	*Optional	10	10	10

*If membership in A.S.U.W. is desired, the A.S.U.W. fee should be added to the total fees as shown for this type of registration.
**Privilege of A.S.U.W. membership not extended to off-campus students.

Examples of
Autumn, Winter and Spring Quarter Fees for Various Types of Registration

Note: Fees listed under "Special Fees and Deposits" on pages 48 and 49 should be added to the following, when applicable.

NON-RESIDENT STUDENTS

Types of Registration For Non-Resident Students	Tuition Fee	Incidental Fee	Law Library Fee	A.S.U.W. Fee			Total Fees		
				Autumn Quarter	Winter Quarter	Spring Quarter	Autumn Quarter	Winter Quarter	Spring Quarter
Undergraduate.....	$50	$11		$5	$2.50	$2.50	$66	$63.50	$63.50
Graduate.....	50	11		*Optional	*Optional	*Optional	61	61	61
Law School.....	50	11	10	5	2.50	2.50	76	73.50	73.50
Auditors.....	12			*Optional	*Optional	*Optional	12	12	12
Employees of the University.....		11		*Optional	*Optional	*Optional	11	11	11
Ex-service men or women.....	25	11		5	2.50	2.50	41	38.50	38.50
Undergraduate nurses while in residence in a hospital.....	5			**	**	**	5	5	5
Graduate nurses in residence in hospital....	10			**	**	**	10	10	10
Part time Under-Grad.	50			5	2.50	2.50	55	52.50	52.50
Part time Graduate....	50			*Optional	*Optional	*Optional	50	50	50

*If membership in A.S.U.W. is desired, the A.S.U.W. fee should be added to the total fees as shown for this type of registration.
**Privilege of A.S.U.W. membership not extended to off-campus students.

service men and women who are classified as non-residents, are exempted from the payment of one-half of the general non-resident tuition fee.

SUMMER QUARTER FEES

NOTE: Fees listed below under "Special Fees and Deposits" should be added to the following, when applicable.

At Seattle:

Regular Students. Tuition fee, thirty dollars ($30); A.S.U.W. fee, one dollar ($1).

Law Students. Tuition fee, thirty dollars ($30); Law Library fee, ten dollars ($10); A.S.U.W. membership fee, one dollar ($1).

Employees of the University. No tuition fee; A.S.U.W. membership optional.

Auditors. Tuition fee, twelve dollars ($12); A.S.U.W. membership optional. (See pages 43 and 46 for rules pertaining to auditors.)

At Friday Farbor:

Graduate Students. Tuition fee, thirty-two dollars ($32); A.S.U.W. membership optional.

Employees of the University. No tuition fee; A.S.U.W. membership optional.

SPECIAL FEES AND DEPOSITS

Incidental Fee. Eleven dollars ($11) each quarter, except the summer quarter, is charged all regular students who *complete* registration on or before the seventh day previous to the last day for payment of pre-registration fees. If registration is not then *complete,* the incidental fee is twelve dollars ($12), except in the case of properly exempted graduate students.

Associated Students Fee. A fee for membership in the Associated Students of the University of Washington (A.S.U.W.) is collected from all regularly enrolled undergraduate students, as follows: autumn quarter, five dollars ($5); winter quarter, two dollars and fifty cents ($2.50); spring quarter, two dollars and fifty cents ($2.50); summer quarter, one dollar ($1). A.S.U.W. membership is optional for graduate students, except during the summer. It is optional for employees of the University and auditors during all quarters. Extension students are not extended the privilege of A.S.U.W. membership. (See page 56 for information relative to the Associated Students.)

Part-Time Fee. The regular tuition fee (resident or non-resident) is charged all students registering for six hours or less. Undergraduate students are also charged the A.S.U.W. fee. Part-time students are not required to pay the incidental fee.

Auditor's Fee. Twelve dollars ($12) each quarter; A.S.U.W. membership optional. (See pages 43 and 46 for rules pertaining to auditors.)

Law Library Fee..... $10.00 each quarter

Certain Course Fees

Instruction in vocal or instrumental music:	
Individual instruction—one lesson each week....	25.00 each quarter
Group instruction	10.00 each quarter
Piano practice room—one hour a day.....	3.00 each quarter
Violin practice room—one hour a day.....	1.50 each quarter
Organ practice room—one hour a day.....	12.50 each quarter
Riding instruction fee (payable to riding academy)	12.00 each quarter
Golf instruction fee (payable to golf club).....	3.00 each quarter

Special Fees for Nurses

(Applicable to nurses in residence at approved hospitals)

Undergraduates	5.00 each quarter
Graduates	10.00 each quarter

Change of Registration Fee. A fee of one dollar ($1) is charged for each course changed. Not subject to refund. (See page 44.)

Late Registration Fine. Unless delay in registering is occasioned by officials of the University, students registering during the first week of instruction will be required to pay a fine of two dollars ($2) for the first day and one dollar ($1) additional for each day thereafter up to a total of seven dollars ($7), except in the case of properly exempted graduate students. This fine is imposed also for re-establishing sections during the first week. Not subject to refund. (See page 43.)

Special Examination Fee. A fee of one dollar ($1) will be charged for each examination outside the regular schedule. This also applies to the examination for foreign language reading required of all liberal arts students before graduation.

Grade Book Fee. One grade book is furnished without charge; a fee of fifty cents ($.50) is charged for each additional book. Not subject to refund.

Graduation Fee. Each graduate receiving a baccalaureate or higher degree is required to pay a graduation fee of five dollars ($5). The fee for a five-year normal or life diploma is two dollars and fifty cents ($2.50). The fee for other professional certificates is one dollar ($1). The five-year normal or life diploma fee does not include the legal registration fee of one dollar ($1) which must be paid to the county school superintendent who first registers a teacher's diploma.

Transcript Fee. One transcript of a student's record is furnished without charge. A fee of one dollar ($1) is charged for each additional transcript. Not subject to refund.

Locker Fee (Men). A fee of one dollar ($1) per quarter is required of all men taking physical education courses requiring lockers. Lockers may be obtained by faculty members and students not registering for physical education at one dollar ($1) per quarter. Locker tickets may be obtained at the office of the Associated Students.

Breakage Ticket Deposit. In certain laboratory courses a breakage ticket is required. This is used by the student to pay for laboratory supplies and breakage of equipment. The price ranges from three dollars ($3) to five dollars ($5). Tickets may be purchased at the comptroller's office.

Military and Naval Uniforms. (See page 62.)

Payment of Fees

Fees may be paid by mail or in person, but must reach the comptroller's office not later than the date indicated on the fee statement. Fees paid by mail are considered paid as of the date received. If fees are paid by mail, put fee statement number on remittance, make remittance for exact amount of statement payable to the University of Washington, and mail to the comptroller's office.

Refund of Fees

Autumn, Winter, and Spring Quarters

Certain fees may be refunded in full if complete withdrawal is made during the first three days of instruction.

Half of certain fees may be refunded within the first 30 days after the first day of instruction if withdrawal is caused by conditions beyond the control of the student.

Applications for refund must be made during the quarter to which the fees apply.

If refund of A.S.U.W. fee is desired, students withdrawing must turn in their A.S.U.W. cards to the A.S.U.W. office.

Summer Quarter

Students who withdraw from the summer quarter for satisfactory reasons may, on application made at the time of withdrawal, receive a refund of four-fifths of their fees during the first week of instruction or three-fifths during the second week. No refunds will be made thereafter.

If refund of A.S.U.W. fee is desired, students withdrawing must turn in their A.S.U.W. cards to the A.S.U.W. office.

Financial Delinquencies

Promptness on the part of students in adjustment of financial obligations to the University is insisted upon. Students failing to pay amounts due the University may be excluded from classes and their credits withheld.

The comptroller and the registrar are instructed not to record the credits of a student who, in their joint judgment, has been delinquent in meeting his financial obligations to the University.

When checks given for payment of fees are not paid on presentation at the bank, the student will be excluded from classes and receipts given considered null and void. A penalty of five dollars ($5) will be assessed for re-entry in addition to the other penalties.

Board and Room

The University dormitories consist of Lewis Hall and Clark Hall for women. During the ensuing year, $32 a month will be charged for room and board at Lewis Hall and Clark Hall. The rooms are furnished with necessary articles of plain furniture, but the student is expected to supply his own bed linen, bedding, towels and rugs.

In all residence halls, room and board must be paid in advance. The payment of one month's account in advance is necessary to reserve a room; this payment applies on the first month's account.

All remittances should be made in favor of the University of Washington and addressed to the comptroller of the University of Washington, Seattlee.

The University also operates The Commons on the campus, where students so desiring may secure the best food at reasonable rates, cafeteria style.

Off the campus, board and room may be secured at rates ranging from $35 to $40 a month.

University Health Service

The University maintains a health service which functions primarily in guarding against infectious diseases and incipient ill health due to remedial causes. The work is carried on in three main divisions; viz., a dispensary, an infirmary and an out-patient department.

The service is housed exclusively in one building, with necessary offices for doctors and nurses, forty-three beds with essential accessories, diet kitchen, nurses' quarters, etc. A corps of three physicians, seven nurses and a laboratory technician, all on full time, constitutes the permanent staff. This is augmented temporarily whenever an increased number of patients makes added assistance necessary.

The dispensary is available to all students during the span of class hours. From the results of the entrance physical examinations the students are classified. Those found to be below standard are re-examined at a later date for

evidences of incipient tuberculosis, heart disease or other chronic disabilities. A complete stereoscopic X-ray and fluoroscopic apparatus has been installed for this purpose. Ordinary medicines are dispensed in small quantities without cost to the student. Close cooperation is maintained with the family physician when one is retained; in no way is the idea of supplanting the family physician contemplated.

The Infirmary cares for all cases of illness (including physician's attendance, nursing and medicines) for a period of one week free of charge. For a period longer than one week a charge of $2 a day is made. Students confined to the infirmary are permitted to ask for the services of any licensed medical practitioner at their own expense.

Out-patient students are not permitted to remain in an abode where proper care cannot be taken of them, or where they may prove to be a source of danger to other students.

After absence from classes due to illness, a student is not re-admitted without a clearance certificate obtained from the Health Service. This certificate is issued only to those students who have been under the observation of the Service. Those students who receive care at home or afield from the campus, must, to secure a certificate, report for approval to the Health Service on the first day of their absence. In this manner a record of all student sickness is kept, which is used as a guide for health supervision. (See Rule 22, page 58.)

DEGREES

It is not the policy of the University to grant honorary degrees.

General Rules

Rule 9. The work of the senior year (a minimum of 36 credits earned in three quarters) must be done in residence.

Senior standing is attained when 135 credits and the required credits in military or naval science or physical education have been earned.

Rule 10. Each senior shall, before registering for the first quarter of his senior year, file with the registrar a written application for his degree. Each application shall be checked by the Committee on Graduation at least six months before the date at which the student expects to be graduated and notice shall be sent to the student by the registrar of the acceptance or rejection of his application. The accepted list shall be submitted at the last regular meeting of the faculty for the quarter in which the checking is done and, if approved by the faculty, with or without modification, shall constitute the list of candidates to be recommended for graduation upon the completion of the work requisite for their respective degrees. No change shall be made in this list unless ordered by a two-thirds vote of the members of the faculty present.

Note: Applicants who are late in filing their applications cannot be assured of recommendations to the faculty, or of consideration of petitions for modification of requirements.

Rule 11. All students shall have the option of being held to the entrance and graduation requirements of the catalogue under which they enter, or those of the catalogue under which they expect to graduate. All responsibility for fulfilling the requirements for graduation from the various schools and colleges of the University shall be thrown upon the student concerned.

Rule 12. The degrees of B.A. and M.A., B.S. and M.S., or two different bachelor's degrees, may be granted at the same time in all cases in which a minimum of fifteen quarters shall have been occupied in the work for two degrees.

Rule 13. In determining the fitness of a candidate for a degree, his attitude toward his financial obligations to the University shall be taken into consideration.

RULE 14. *Theses.* At least two weeks before the end of the quarter in which the candidate expects to take his degree, two typewritten copies of his thesis shall be deposited in the Library. The thesis must meet the approval of the librarian as to form. Printed "Instructions for the Preparation of Theses" should be obtained at the thesis desk in the Library.

LIBRARY RULES—See Handbook.

FELLOWSHIPS, SCHOLARSHIPS, PRIZES

FELLOWSHIPS

Loretta Denny Fellowships. Three fellowships, of $500 each, open to graduate students in any department of the University. Awarded by the faculty on the basis of scholastic excellence and general merit, but only to those who need financial assistance. Application for these fellowships should be made on blanks supplied by the dean of the Graduate School, and must be in his hands on or before February 15 preceding the academic year for which the fellowships are to be granted.

Arthur A. Denny Fellowships. Six fellowships of $500 each, open to graduate students in the departments of civil engineering, education, English, history, mining engineering, and pharmacy, respectively. Awarded by the departments concerned on the basis of scholastic excellence and general merit, but only to those who need financial assistance. Applicants must be residents of the state of Washington. Applications for these fellowships should be made to the heads of the departments concerned on blanks supplied by the dean of the Graduate School, and must be in their hands on or before February 15 preceding the academic year for which the fellowships are to be granted.

National Research Fellowships. Fellowships in physics and chemistry offered by the National Research Council, are open to promising research students, who have already taken the doctor's degree or have equivalent qualifications. A successful candidate can pursue his research at any university or research institute chosen by him which is acceptable to the appointing board. The salary will ordinarily be $1800 for the first year. Fellows are eligible for successive reappointments ordinarily with increase in salary. For details address the dean of the Graduate School or the heads of the departments.

University Honorary Fellowships. Three honorary fellowships have been established by the University. These, like the Loretta Denny fellowships, are open to students in any department of the University. They carry no stipend, and are designed to furnish recognition of exceptional scholastic excellence in the case of graduate students who are not eligible for the Loretta Denny or the Arthur A. Denny fellowships, either because they do not need financial assistance or because they are not giving their entire time to their work in the University.

Research Fellowships. The department of Mines offers four fellowships for research in coal and clay in co-operative work with the U. S. Bureau of Mines. The fellowships are open to graduates of universities and technical colleges who are properly qualified to undertake research investigations. The value of each fellowship is $720 to the holder, for the 12 months beginning July 1. Fellowship holders pay tuition and laboratory fees, but are reimbursed for the amounts so expended; they register as graduate students and become candidates for the degree of master of science in the proper subject, unless an equivalent degree has previously been earned.

Each applicant should send a copy of his collegiate record from the registrar of the college where he has graduated, or will graduate in June. He should also send a photograph and a detailed statement of his professional experience, if any, and give the names and addresses of at least three persons who are

familiar with his character, training and ability. Applications should be submitted if possible by April 20 in order to allow ample time for consideration, and should be addressed to the dean, department of Mines, University of Washington, Seattle, Washington.

Du Pont Fellowship. Through its chemical department, Du Pont de Nemours & Co. offers an annual fellowship of $750 in chemitsry, known as the "Du Pont Fellowship," open to a senior student or graduate student in chemistry or chemical engineering.

The Bon Marche Industrial Fellowship. The Bon Marche of Seattle offers an annual fellowship of $600 to a graduate student in home economics for research work in textiles. The recipient of this fellowship is required to give one-fourth of her time for 11 months to the testing of textiles for the Bon Marche.

The Standard Brands Fellowship. The Fleischman fellowship of $900 is offered annually by Standard Brands to a graduate student in biochemistry.

The Agnes Healy Anderson Research Fellowships in Forestry. The income from the Agnes Healy Anderson Research Fellowship Fund is available for graduate research fellowships to be awarded on a competitive basis. The terms of the fund allow some leeway in the number of fellowships and the amount of each.

University Teaching Fellowships. The University each year provides a number of teaching fellowships in various departments. The graduate student receiving such a fellowship divides his time equally between his studies and assistance in the teaching work of the departments in which he is enrolled. These fellowships range from $540 to $720.

Scholarships

Graduate Scholarships. A number of graduate scholarships are open to students who perform service as laboratory assistants, assistants in charge of quiz sections, or readers. The remuneration is proportioned to the service, and ranges from $180 to $360.

The Rhodes Scholarship. A scholarship of £400 a year is granted by Oxford University to a student between 18 and 25 years of age who has at least junior standing.

Isabella Austin Scholarship. The Isabella Austin scholarship of $100 for freshmen women is awarded annually at the end of the fall quarter, to a young woman of promise, on the basis of scholarship and financial need.

The P.E.O. Scholarship. Chapter A.C. of P.E.O. offers an award of $100 annually to a young woman entering the sophomore class, this award being made on the basis of scholarship, character and need.

The Gamma Phi Beta Scholarship. The Seattle Alumnae of Gamma Phi Beta offer an annual scholarship of $100 to that woman among the English major students who most nearly fulfills the following conditions: partial or complete financial self-dependence, high scholarship, strength of personality, wholesomeness of influence and promise.

The A. F. Venino Scholarship. Professor A. F. Venino offers an annual scholarship to the candidate showing the greatest proficiency and promise in piano playing at the end of his junior year. The benefit of this scholarship will apply to the work of the student during his senior year.

Beecher Kiefer Memorial Scholarship. This scholarship is awarded annually to the most talented man student of violin. This award is subject to competition before a committee from the department of Music. Application should be made before June 1.

Mu Phi Epsilon Scholarship. Mu Phi Epsilon, national honorary musical sorority, offers to a woman student a scholarship of one lesson a week for a school year, in either voice, violin, cello or organ. (See department of Music.)

The Fontainebleau Scholarship. A scholarship of $1000 awarded to a junior in the department of Architecture for study at the Fontainebleau School of Fine Arts, and travel in Europe.

The Paul Karshner Memorial Scholarships. Scholarships of $100 each, given by W. M. Karshner, M. D., and Ella H. Karshner, and awarded to a boy and to a girl who are graduates of the Puyallup high school.

The William Mackay Scholarship in Mining. From William Mackay of Roslyn, Washington, a scholarship of $250 in the department of Mines is to be awarded to a junior or senior student on the basis of character, scholarship, and need of assistance. Applications to the dean of the department of Mines are due in March.

Honor Awards and Senior Scholars

Rule 15. (a) Students who are intellectually mature, who have 132 or more credits, and who have shown exceptional ability and capacity for independent work in some group of studies, shall be eligible for senior scholarships.

(b) The work of the senior scholars shall be in not less than two nor more than four, allied subjects which shall be so correlated as to bear upon some common field, the aim of the scholarships being breadth of knowledge and culture, rather than minute research. Except in the case of unfinished prescribed work or of courses in which the major professor deems attendance essential, scholars are to be relieved from attendance at regular lectures and recitations and their work shall be done under the personal direction of the instructors with whom they are registered. The instructors in charge shall submit senior scholars at the end of the year to searching final examinations by which the grade of honor, if any, to be recommended to the Committee on Honors, shall be determined.

Degrees with honors may be conferred upon recommendation of the Committee on Honors on not to exceed ten per cent of the students ranking highest in scholarship in each school or college.

(c) Senior scholars shall be granted the library privileges accorded to members of the faculty and such monetary awards, if any, as may be available.

Prizes

The Judge Alfred Battle Prize in Public Speaking and Debate. Judge Alfred Battle offers an annual cash prize of $50 to the Washington debating team chosen to meet representative debaters from the University of Oregon.

Philo Sherman Bennett Prize. The Philo Sherman Bennett prize of $25 annually is "for the best essay discussing the principles of free government."

The Carkeek Prize. Mr. Vivian Carkeek of Seattle offers an annual cash prize of $25 for the best student contribution to the *Washington Law Review* by a member of the senior class on a point of Washington law, or any point of peculiar interest to Washington attorneys.

The Jaggard Prize. In memory of the Hon. Edwin A. Jaggard, late justice of the supreme court of Minnesota, Miss Anna Wright Jaggard offers an annual cash prize of $50 for the best essay on a topic connected with courses in history of law or jurisprudence.

The Charles H. Bebb Prize in Architecture. Mr. Charles H. Bebb offers a prize of $50 in the department of Architecture to the sophomore, junior or senior student who submits the best design in the terra cotta treatment.

The Italian Commercial Club Prize. The Italian Commercial Club of Seattle offers a gold medal to the student in the University who attains distinction in Italian.

The Circolo Italiano Universitario Prize. The Circolo Italiano offers annually a silver medal to the best student in elementary Italian.

Military Science Prize. The members of the Non-commissioned Officers' Training School have established a fund of $400, the income of which shall be utilized as a prize to be awarded to the student completing his junior year with the highest honors in military science.

The Ruth Nettleton Award. In memory of Ruth Nettleton, who died while a senior at the University of Washington, a few of her friends have established the Ruth Nettleton Memorial Fund, the interest from which in the amount of $50 is offered each year as a prize in sculpturing.

The Charles Lathrop Pack Prize. Charles Lathrop Pack, president of the American Tree Association, offers an annual prize of $50 for the best essay by a student majoring in forestry. The subject shall be chosen with reference to interesting the general public in forestry matters.

The Omicron Nu Prize. Omicron Nu, national home economics honor society, offers an annual cash prize to the freshman student in home economics who attains the highest scholastic standing.

The Washington Mutual Savings Bank Prizes. The Washington Mutual Savings Bank offers three prizes, of $100, $50 and $25 respectively, to undergraduate students in the University for the best essays on selected topics in business finance

The Lehn and Fink Medal. Lehn and Fink, of New York, offers a gold medal each year to the student in the graduating class who prepares the best essay on some scientific topic of pharmaceutical importance.

The American Pharmaceutical Association Medal. The American Pharmaceutical Association offers a gold medal each year to a student who attains distinction in pharmacy.

Student Loan Funds

Several loan funds are available to assist through financial emergencies, students, who have been in residence at the University of Washington. See the dean of men or the dean of women for full information.

Due to the unusual demand for financial assistance, it has become necessary to limit loans to juniors and seniors and generally to an amount sufficient to cover the cost of tuition only.

Applications for loans must be made not later than the tenth day previous to the first day of instruction.

Student Welfare and Vocational Guidance

The offices of the dean of men and the dean of women are concerned with the welfare of the students of the University. Conferences with students for the discussion of questions of personal or group interests are encouraged. Every effort is made by these officers to aid students in their selection of schedules, and in all matters pertaining to part-time employment and vocational guidance. A list of approved boarding houses is on file to assist students in securing comfortable living quarters.

Student Employment

Although the dean of men, the dean of women and the employment bureau of the University Y.M.C.A. render assistance to students desiring employment, the University can give no assurance that employment will be found. During periods of business depression, it is especially difficult to obtain part-time work. It is not advisable for anyone to enroll unless provided with sufficient funds for maintenance for a quarter. Students expecting to earn a portion of their support should not register for a full-time schedule.

The Alumni Office undertakes employment assistance for former students and for members of the graduating class each year.

ASSOCIATIONS AND CLUBS

Alumni Association. All graduates of the University of Washington, and all persons who have completed satisfactorily one year of collegiate work and shall have been in attendance at the University for at least a year, are eligible for membership in the association. Only dues-paying members are entitled to vote in any election of the association and are granted certain other preferences as provided by the constitution and by-laws. The executive committee is the governing body of the association. Membership fee, $2. Annual renewal of dues, $1, including a subscription to the official publication of the association, *The Washington Alumnus.*

Associated Students. The Associated Students of the University of Washington (A.S.U.W.) is the central organization which conducts the activities of the student body. Membership is required of all regularly enrolled undergraduate students. The fees are as follows: autumn quarter $5, winter quarter $2.50, spring quarter $2.50, summer quarter $1.

This fee gives each student a membership in the corporation, including a free subscription to the University of Washington Daily and free or reduced admission to such football, basketball, baseball games, tennis, track and wrestling meets, crew regattas, debates, oratorical contests, musical concerts as may be designated by the Board of Control.

The management of the Associated Students is vested in an annually elected Board of Control, composed of ten students, three faculty and three alumni. The Board meets monthly and has all the usual powers vested in the directorate of any corporation.

GENERAL SCHOLASTIC REGULATIONS

At the beginning of each quarter, the student arranges his schedule of studies with the advice and assistance of his college registration officer or adviser. A regular course consists of 15 or 16 credits of recitation per week.

Rule 16. No person may regularly attend any course in which he has not been registered as a student or enrolled as an auditor.

Requirements in Military or Naval Science and Physical Education

WOMEN

The physical education requirement for graduation consists of the health education lecture course and physical education activity courses. For specific courses, see department of Physical Education announcement in the general catalogue.

The requirement of physical education for women does not apply to students entering as juniors or seniors.

MEN

The requirement of physical education or military or naval science shall not apply to students entering as juniors or seniors.

Two years of military or naval science are required of all able-bodied male students with exceptions as hereinafter provided.

The military science requirement may be satisfied by naval science. In case the student enters naval science he is required to continue for four years.

RULE 17. Two years of military or naval science, except as in these rules otherwise provided, are required of all male students under 24 years of age at the time of original entry into the University. This requirement must normally be met during the first six quarters of residence.

Students under 24 years of age of whom military or naval science is not required must take the prescribed amount of work in physical education unless excused therefrom.

The responsibility of complying with the regulations regarding military or naval science rests entirely with the student. Delay in completion of full registration will not excuse a student from attendance upon the classes in these departments. If a student wishes to be exempt from military or naval science or physical education, he must nevertheless register for the proper course and attend class until his request for exemption has been allowed.

RULE 18. The requirement of military or naval science does not apply to the following male students:

(a) One entering as a junior or senior.

(b) A special student, or one registered for six credits or less.

(c) Men who, because of physical condition, should not be required to take work in military or naval science.

(d) Men who are not citizens of the United States and who do not intend to become citizens.

(e) Men who are active members in the army, navy or marine corps of the United States, or commissioned officers of the National Guard or naval militia, or reserve officers of the military or naval forces of the United States, or members of the Naval Reserve.

RULE 19. Entering students presenting credits for military science received prior to matriculation shall be allowed an exemption from military science up to the value of said credits, if they so request, but shall be held for physical education if under 24 years of age.

No exemption from military or naval science for any other reasons than those listed in Rule 18 will be considered until a petition accompanied by satisfactory corroborating evidence is presented to the department of Military Science and Tactics.

Authority for exemption under sub-section (c), Rule 18, rests solely with the University health officer.

Students who elect naval science must be citizens of the United States.

While the various classes of men mentioned in sub-section (e), Rule 18, are not eligible to membership in the Military or Naval Reserve Officers' Training Corps they will be registered in military science and upon presentation of proper credentials to the department of Military Science will be certified to the registrar for exemption or transfer.

Departments of Military and Naval Science and Tactics.

For additional information see page 61.

EXAMINATIONS

RULE 24. *Final Examinations* shall be held in all undergraduate courses at the end of the course, provided, however, that instructors giving work which does not lend itself to a final examination, and for which an examination is not an appropriate test of the work covered, may dispense with an examination in

such course by registering with the vice-president and securing the consent of the vice-president and the department concerned to dispense with the examination in that course. All students are required to take the final examination in all courses in which the instructor has not secured permission to dispense with examination as provided above.

RULE 25. Examinations shall be held in each course at the last scheduled class-hour of the quarter, and also at the next preceding class-hour, if desired; except in laboratory courses, when the last laboratory period may be used as a substitute or in addition.

Provided, however, that these rules (24 and 25) shall not be applicable to professional schools where it is possible otherwise to schedule examinations without conflicting with other classes. The professional schools may make their own examination schedules, subject only to requirements that all grades be in the registrar's office on the dates set by that office.

In case an instructor wishes to give an examination at other than the scheduled time, he must obtain permission of the dean of the school or college.

In certain courses running through two or more quarters, the examination on the work of the first quarter is provisional, final credit not being given until the examination for the entire course has been passed. Under "Departments of Instruction" such courses are indicated by course-numbers connected by hyphens.

RULE 26. A student desiring to be absent from scheduled examinations must before leaving college, present to the instructors concerned permission from his dean to be absent.

RULE 27. A student, absent from a scheduled examination, either by permission of his dean or through sickness or other unavoidable cause, may take another examination under the following conditions:

(a) He shall satisfy his dean as to his reasons for absence;

(b) He shall pay a fee of $1 at the cashier's office and get a receipt for same, providing, however, that this fee need be paid only in the event that a special examination is given.

(c) He shall present this receipt to the registrar, who shall issue a card entitling student to examinations;

(d) He shall present this card to the instructor concerned and take the delayed examination at a time approved by his dean and instructor. No instructor need give more than one special examination in any one subject in any quarter.

RULE 28. Reports of all examinations of seniors must be in the registrar's office by 12 o'clock of the second Saturday preceding commencement day. If necessary to meet the terms of this rule the instructor is under obligation to deliver the grades in person. Examination for all candidates for graduation at the end of the autumn, winter, and summer quarters shall conform to the regular examination schedule.

REGULATIONS FOR WITHDRAWAL

To be entitled to honorable dismissal, a student must voluntarily withdraw from the University with the consent of his instructors. Such consent shall be given, provided that at the time of withdrawal the student's work is of at least passing grade. Application for honorable dismissal shall be made at the registrar's office.

LEAVE OF ABSENCE

RULE 22. A leave of absence from the University, involving excuses from classes, may be granted by the dean concerned except as hereinafter provided.

(a) Excuses for absence on account of sickness involving more than one day shall be granted by the University Health Service, and shall be taken personally to the instructors concerned. Students absent on account of sickness shall not be readmitted to classes without this written excuse.

(b) Excuses from one class period only may be granted by instructors at their discretion.

(c) Leave of absence from the University for recognized student activities (music, debate, etc.), for student conferences, elections and athletic meets on the campus, shall be passed on by the dean of men and the dean of women respectively.

(d) Leaves of absence for illness issued by the health officer during the third week from the end of the quarter must be approved by the dean of the college concerned, if grades of incomplete are desired.

Scholarship Standing

GRADE POINTS

A value in "points" is assigned to the several grades as follows: For each hour of grade A, 4 points; for each hour of grade B, 3 points; for each hour of grade C, 2 points; for each hour of grade D, 1 point; and for each hour of E, no points. An I (Incomplete) and a W (Withdrew) count neither as registered hours nor as grade points.

MIDQUARTER WARNINGS

Rule 23. (a) Any student who, at any time in a quarter, is reported to the registrar as doing work below passing grade in any subject shall be so advised.

LOW SCHOLARSHIP REPORT

(b) At the end of any quarter of residence any student who fails to earn 1.5 times as many grade points as registered hours in that quarter shall be reported to his dean for appropriate action. Appropriate action may involve dismissal from the University for one or more quarters or permission to remain in the University upon probationary status.

REINSTATEMENT OF STUDENTS DISMISSED ON ACCOUNT OF LOW SCHOLARSHIP

(c) Reinstatement of a student disqualified under the provisions of Rule 23 shall be allowed only on permission of the dean of his college. In general, a student who has been dismissed shall not be permitted to return to residence study until one or more quarters have elapsed, during which time the student shall have been successfully engaged in work or study preferably related to his educational objective.

PROBATION

(d) Probation is the status of the student who has been reported to his dean in conformity with (b) and allowed to remain in or return to the University. Such a student shall remain on probation until his grade points in any subsequent quarter are twice as many as his registered hours.

(e) In the administration of these rules military science, naval science, and physical education shall be on the same basis as so-called "academic" subjects.

GRADUATING SENIORS

(f) Any senior who has completed the required number of credits for graduation but who has been dropped for low scholarship at the end of his last quarter of residence, or who is on probation, shall not receive his degree until restored to good standing. In general, he will not receive his degree until one or more quarters have elapsed. (For reinstatement and probation, see (c) and (d) above.)

System of Grades

1. The following is the system of grades: A, honor; B, C, intermediate; D, low pass; E, failed; I, incomplete; N, satisfactory without grade; W, withdrawn.

Although D is a low passing grade, it represents such a poor quality of scholarship that only a limited number of such grades are allowed.

The grade E is final and a student receiving a grade of E in a course can obtain credit for that course only by re-registering for and repeating it.

N is given in hyphenated courses where the grade is dependent upon the work of a final quarter, and represents that work has been completed to that point but gives no credit or grade until the entire course is completed (The use of this symbol is optional.)

Leaves of absence granted by the health officer for illness covering a period of three weeks before the end of the quarter may permit incompletes if the work has been satisfactory up to the time the leave was granted and if approved by the dean of the college concerned.

An incomplete in a course shall be converted into a passing grade either in the next quarter in which the student is in residence, or, at the option of the school or college concerned, in the next quarter in which the course is again regularly given; provided, however, that in any case where the course is not repeated before the student's graduation, he shall have the right to remove the incomplete prior to graduation.

A grade of W can be given only in case of regular withdrawal in good standing.

2. In order to be graduated from the University of Washington with the bachelor's degree the candidate must have received over his entire work two times as many grade points as registered hours.

3. The passing grades for advanced degrees are *A* and *B*, *S* being used to indicate satisfactory work in a hyphenated course so far as the course has progressed, such work not to be counted toward a major or a minor until the final examination.

Rule 29. Except in cases of clerical error, no instructor shall be allowed to change a grade which has once been turned in to the registrar.

Miscellaneous Regulations

Rule 54. (a) Any person whose registration in the University is not complete shall not be pledged to any fraternity or sorority (a receipt for the payment of fees is evidence that registration is completed). Nor shall any person admitted to the University on freshman probation be pledged to any fraternity or sorority during the period of probation.

(b) No student having less than junior standing shall be initiated into a fraternity or sorority until he or she shall have carried successfully 18 registered hours in two quarters or 15 in one quarter, at this University, in addition to the required credits in physical education activity or military science.

Rule 33. (a) Women students under twenty-one years of age not living in their homes, with immediate relatives, in nurses' training school homes, or in homes where they are earning their board or room or both, are required to live in some type of organized group house, i. e., university residence halls, sorority houses, or independent organized houses sponsored by the University. If circumstances warrant, exceptions shall be made by the dean of women's office upon request of the parents.

(b) Failure to comply with this regulation will make the student subject to discipline to the extent of cancellation of registration.

In order to be eligible to represent the University in any student activity, a student must:

1. Be registered in the University.
2. Have presented 15 Carnegie units for entrance requirements.

3. Be registered for at least 12 credits' work in a regular or special course as defined in the curriculum of his school or college.
4. Have passed ten credits of the curriculum in which he is registered for the quarter of residence previous to participation, entering freshmen excepted.
5. Not have a total of failures on his previous record, in this or any other institution, exceeding one-fifth of his total credits earned.
6. Keep off probation.
7. Secure a written leave of absence, if his absence from classes is required by participation. (Rule 39, a.) For additional information see student hand book.

DEPARTMENT OF MILITARY SCIENCE AND TACTICS

History

Military training has been given in the University of Washington since 1875 with the exception of a brief interval in the present century.

The department of Military Science and Tactics has been established not only for the purpose of teaching the fundamentals of military science but also certain essentials of organization and leadership which are indispensable to a young man's industrial or professional career.

The Reserve Officers' Training Corps

Under the provisions of the National Defense Act of 1916, as amended in 1920, any university or college may, upon its own application and the approval of the War Department, maintain a Reserve Officers' Training Corps. The University of Washington made its application for a unit in the autumn of 1916. This was approved by the War Department, at which time an Infantry Unit was organized. In the fall of 1919, the Coast Artillery Unit was added and in 1929, the Ordnance Unit.

Under the provisions of the National Defense Act, the Federal Government details to educational institutions where R.O.T.C. units have been established, officers of the regular army to act as instructors in the department, and loans the institution the necessary equipment for the use of these students, without cost to the institution. The War Department approves the course of study, leaving the requirements as to attendance and exemptions, whether the course shall be voluntary or compulsory, to the administration of the institutions concerned.

Objects of the Reserve Officers' Training Corps

The general object of the courses of instruction of the Reserve Officers' Training Corps is primarily to qualify students for positions of leadership in time of national emergency, and secondarily to provide the nation with an electorate informed of the purpose and necessity for a sane policy of national defense.

The complete course of instruction comprises four years: a basic course of two years and an advanced course of two years.

The object of the basic course is to give the student knowledge of the fundamental training requirements of the arm or service in which he is enrolled and to develop his initiative, confidence and ability, thus qualifying him, in case of emergency, to instruct untrained civilians in the duties of a soldier.

The object of the advanced course is to qualify for a commission in the Officers' Reserve Corps a limited number of selected students who have completed the basic course and who have demonstrated exceptional qualities of leadership.

The applicatory method will be employed throughout the four years for the purpose of developing the qualities of command and leadership.

The training outlined is progressive and is designed to cover the maximum amount of ground in the limited time available. As many of the trainees do

not take the advanced course, every effort is made to offer in the basic course those phases of military training which will qualify the college graduate for effective military service in case of an emergency and, at the same time, offer instruction which will be of educational value in preparation for civil life.

Uniforms and Allowances

The University having adopted a distinctive uniform for all students in the department of Military Science and Tactics, each student who has been accepted for enrollment and training in this department will be charged a uniform fee to cover actual cost. This cost varies slightly from year to year; for the year 1933-1934, the cost will be $18.25. This uniform will be worn at such times as the professor of military science and tactics may direct, and will become the personal property of the student.

The student will be reimbursed by the University in the amount allowed by the federal government which currently is $18.00 for the two years, payable in part at the close of each academic year.

Upon the approval of the professor of military science and tactics, students who are proved to be self-supporting may, if they so desire, be permitted to purchase and wear second-hand uniforms. All such uniforms, however, must be previously inspected and officially accepted as suitable by him.

The uniform prescribed for advanced students is the regulation army officer's uniform with appropriate R.O.T.C. insignia.

The federal government makes the following allowances to advanced course students: uniform—$35; commutation of rations—20 cents per day for two years, less time spent in summer camp; pay while in summer camp—70 cents per day. This total approximates $175 for the two-year course.

The summer camp is held annually, for a period of six weeks, commencing about the middle of June. The student attends camp after the completion of his first year in the advanced course. During the time he is in attendance at camp he is allowed food, clothing, shelter, medical and hospital attendance and 70 cents per day, in addition transportation to and from camp.

DEPARTMENT OF NAVAL SCIENCE AND TACTICS

All male students in the University who are American citizens, and are not physically disqualified, are required to take military training throughout the first two years of residence. The four-year course in naval science and tactics, prescribed by the department of Navy for units of the Naval Reserve Officers' Training Corps, may be substituted by the student for military training. Enrollment in this course is limited by the department of Navy, and students will be selected for enrollment by the professor of naval science and tactics from those applying.

Requirements for Admission to Course

Applicants for this course must be citizens of the United States and must pass a very rigid physical examination given by a board of naval medical officers.

Opportunity for Aviation Training

A student who successfully completes the four-year course in naval science and desires to specialize in aviation will be given, at his own request, the regular naval flight physical examination. If he successfully passes this examination he will be eligible for selection for preliminary flight training. If selected, and if he passes his preliminary flight training, he will be eligible for advanced flight training at the Naval Air Station, Pensacola, Florida. Successful completion of the course at Pensacola leads to a commission in the Naval Aviation Reserve.

Graduates Commissioned in Naval Reserve

Students who have successfully completed the course in naval science will be given a certificate showing such completion. Those who have successfully completed the course will, if recommended by the president of the University and the professor of naval science and tactics, be given a commission in the Volunteer Naval Reserve.

Summer Cruises

Provided funds and ships are available, the Bureau plans to cruise Naval R.O.T.C. students annually as follows:

(a) Advanced course students in destroyers.

(b) Basic course students in battleships or cruisers. Where feasible, those ships having planes aboard should retain planes and personnel during cruise for instructional purposes.

Fees and Expenses

Outside of the regular University tuition fees there is no extra expense to the students enrolled in the Naval R.O.T.C. On enrollment, an outfit of uniforms is furnished the students by the department of Navy.

Advanced course students are paid $.25 a day, as subsistence allowance, while taking that course. This amounts to about $90 per year. In addition, advanced course students are paid the pay of apprentice seamen ($21 per month) during the summer cruise. All students are given subsistence while cruising and are allowed transportation and subsistence between the University and the port of embarking for the cruise.

Obligations Incurred

Entering freshmen making application for enrollment in the course of naval science must agree to fulfill the following obligations and agree to accept a commission in the Naval Reserve at the end of the four years course in the Naval R.O.T.C.

1. Elect naval science as one of their courses in the University.
2. Submit evidence of citizenship.
3. Submit to physical examination prior to enrollment, and yearly thereafter.
4. Agree to be vaccinated for small-pox and given typhoid prophylaxis during freshman year.
5. Devote five hours per week in attendance of the course in naval science and such other times as may be necessary to properly prepare their lessons.
6. Wear uniforms as required for drills and class room work, and to submit to naval discipline while under instruction in naval subjects and during the summer practice cruise.
7. Take the necessary courses in mathematics as part of their regular university program.
8. Make one advanced summer cruise prior to receiving commission in the Naval Reserve.

Naval Aviation Ground School

The department of Naval Science conducts an evening class without university credit for seniors or graduates who desire flight training for qualification as naval aviation pilots. Enrollment in Naval R.O.T.C. is not necessary to take this course. For particulars apply to professor of naval science and tactics, Good Roads Building.

SCHOOL OF EDUCATION

General Statement

The School of Education bases its work on two years of college or normal school work. The degrees awarded are bachelor of arts in education or bachelor of science in education, according to the character of the academic work chosen.

The preparation in education is strictly professional and seeks to provide special training and technique for the various types of teachers and educational specialists. Emphasis is placed on graduate work. A probationary teaching certificate, the five-year normal diploma, is granted after three quarters, 45 credits of residence work beyond graduation for a minimum amount of professional study, but all wishing to secure the life diploma are required to spend at least four quarters, 57 credits, in residence after graduation and complete a total of 36 credits (including the undergraduate work) in education.

Scope and Aims. The curriculum in education assumes that teachers should have a broad and liberal education, supplemented by professional training, by knowledge of the pupils to be taught, and by the problems to be met. An attempt is made to give new meaning to the subjects of instruction and the fundamental principles of teaching. Prospective teachers should be masters of the subjects which they expect to teach.

General Academic Work. Owing to the variety of work which every teacher is likely to be required to do on beginning to teach and the requirements for state certificates, elementary college courses should be taken in not less than four subjects taught in the high schools.

Specialized Academic Work. Each teacher must have thorough preparation in one subject and reasonable preparation in at least two additional subjects. Experience has shown that the following combinations are most frequently demanded: Latin, French; Latin, Greek; English, French; English, history, civics; English, Latin, history; Spanish, French; mathematics, physics, chemistry; botany, zoology, physiology, physiography; home economics alone or in connection with one or two other subjects; manual and industrial arts alone or in connection with one or two other subjects; commercial subjects alone or with other subjects; athletics, music or drawing in combination with other work. One teacher is frequently required to teach all the sciences. Public speaking is desirable as part of the preparation for teaching English. Library science is also needed by many teachers.

Professional Work. The requirements for the academic major and minors assure a proper distribution of the academic subjects. The professional work consists of (a) the courses in education and (b) the teachers' courses in the various academic departments.

Special Teachers' Courses. Many academic departments have teachers' courses covering the problems of teaching their subjects in high schools. Work in special methods relating to particular subjects is given by instructors dealing directly with the subject matter. Foundation principles of general methods based on the laws of learning and teaching are developed in education. In some instances this work is given in connection with the course in general methods.

Observation and Directed Teaching. By an arrangement between the University and the schools of Seattle, students may observe the regular work in certain schools (at present 24 are used) and do directed teaching under the direction of the regular teachers of the school and university professors

in charge of that work. Thus students have an opportunity to gain valuable experience under exceptionally favorable conditions.

Industrial Arts. Owing to the excellent industrial arts work in the Seattle public schools, students have unusual facilities for observing the superior organization and equipment. Many industrial centers and pre-vocational classes are maintained in various parts of the city.

Athletics and Playground Activities. At present there is a demand for teachers, both men and women, who can direct various forms of athletics and playground activities in high school and the grammar grades.

Public School Music. Not only is there a demand for specially trained supervisors of music in the schools, but every school needs also teachers who can assist in the general musical activities of the school and community. Students who have musical ability should participate in University musical organizations.

Debating, Dramatics, Public Speaking. Every teacher will be called on to assist in the incidental work of the school. Small towns cannot afford special teachers of public speaking and debate, and consequently the teacher who prepares to assist in these activities increases his usefulness. Every student should participate in some of these activities throughout his college course and should take definite courses in these subjects.

Librarianship. Many schools that cannot afford trained librarians have libraries that must be administered by some member of the teaching staff. A summer course in librarianship is offered to provide teacher-librarians. Those who pursue this work should have not only a good knowledge of books but also human interest and sympathy and an intelligent desire to stimulate the reading of young people.

Journalism in High Schools. Newspaper writing is offered in some of the best high schools as part of the English course. The teacher who undertakes this work needs to be especially well trained professionally as well as in English and journalism. For a proper combination of courses the student should consult the adviser in education, English, and journalism.

Commercial Subjects. To prepare for this work the student should include courses in bookkeeping, typewriting, stenography, commercial law, commercial policies, commercial geography, and economics, besides the professional training in education.

College Teaching. Many advanced students plan to teach in colleges, universities, or technical schools. Such students need professional training in education as part of their preparation. In addition to regularly organized courses, a study group devoted to college teaching meets weekly.

The Study of Education and Citizenship. Courses in education are valuable both for those who expect to teach and for those who expect to become useful citizens of any community. Many courses in education, therefore, are rightly pursued by students not expecting to become teachers.

Saturday and Evening Classes. To accommodate teachers of Seattle and vicinity, several classes in education are scheduled on Saturday and during the late afternoon and evening.

School Service. The University maintains a division of school service to assist school executives who seek teachers and administrators.

Honorary Educational Societies. Chapters of Phi Delta Kappa, men's national honorary educational fraternity, and Pi Lambda Theta, women's national honorary educational sorority, have been established for several years.

Admission

The admission requirements are completion of 90 academic credits of college work earned in the University of Washington or in an accredited institution of equal rank. In addition the usual undergraduate requirements in physical education or military or naval science must be completed.

Students admitted in education from the Colleges of Liberal Arts and Science must satisfy the lower division requirements.

Admission of Normal School Graduates to Advanced Standing. Advanced credit for work taken in approved normal schools by students previously graduated from an accredited four-year secondary school, will be allowed at the rate of 45 credits for each full year's work completed in the normal school, the minimum amount accepted as a year's work being 36 weeks of attendance with at least 45 quarter credits, not more than 19 of which shall have been earned in one quarter.

For graduation with the bachelor's degree a normal school graduate with such advanced credit must earn in the University a sufficient number of credits to bring the total up to 180 credits plus the required courses in physical education or military or naval science, and including all specific requirements for the degree not fully covered by previous work. Claims for exemption from specific requirements, based on work in normal school, are passed on by the registrar and the dean of the college concerned.

A minimum of three full quarters in residence is required for any degree granted by the University.

The work of the senior year (a minimum of 36 credits earned in three quarters) must be done in residence. Senior standing is attained when 135 academic credits have been earned.

It should be noted that a student whose work in high school and normal school has not included a sufficient number of special requirements in education may find it necessary to offer more than the usual 180 credits for the bachelor's degree.

Graduation

For graduation there shall be completed 90 credits beyond requirements for entrance in education, at least 48 credits of which shall be in upper division subjects. In the total of 180 academic credits required for graduation the following must be included:

Academic major—36 to 60 credits. (See departmental requirements.)
Education, including 2 credits in special teachers' courses, 26 credits.

The education courses required for the bachelor's degree shall include the following:

		Credits
60.	Principles of Secondary Education	3
90.	Measurement in Secondary Education	2
9.	Psychology of Secondary Education	3
70.	General Methods	5
75.	Special Methods	2
71.	Practice Teaching	8
120.	Educational Sociology	3
		26

The degrees awarded are bachelor of arts or bachelor of science, according to the character of the academic major work.

Normal school graduates who are candidates for the bachelor's degree

must earn at least nine credits in education at the University of Washington. The courses to be taken will be selected after consultation according to the student's previous training and his vocational needs.

State normal school graduates who become candidates for the University five-year normal diploma must earn in the University at least nine credits in education. These students must arrange for a conference with the departmental adviser before registering. The remaining courses to be taken in education will be arranged during this conference.

An academic major consists of a minimum of 36 credits in some subject other than education. An academic minor consists of a minimum of 20 credits in some subject other than education. The academic major and minor should be begun before courses in education.

Students in other departments, colleges, or schools of the University may elect courses in education according to conditions fixed by those colleges and not inconsistent with regulations in education.

Courses in Education at the University of Washington

Before registering in their first courses in education, students must consult the designated adviser for students who are about to begin their first courses in education.

Courses in education in the University of Washington are divided into three classes. Courses numbered from 1 to 99 are open only to juniors and seniors. Courses numbered from 100 to 199 are open to juniors, seniors, and graduate students. Courses numbered from 200 to 300 are open to graduate students only.

The courses in education are divided also as to content and function into nine divisions which are as follows:

1. Educational psychology.
2. Educational sociology.
3. Educational administration and supervision.
4. Elementary education.
5. Secondary education.
6. Classroom techniques.
7. History and philosophy of education and comparative education.
8. Educational measurements and scientific techniques.
9. Curriculum making.

Students should select courses from these divisions according to their interests, abilities, and the activities in which they expect to be engaged. Students who are preparing for a master's degree must specialize in at least two of these divisions, while students who are working toward the doctorate must prepare themselves thoroughly in at least three divisions.

Graduate students should plan a generous sampling of courses numbered above 200.

Before completing their registrations, graduate students must consult either the executive officer in education or a designated adviser. This consultation is imperative and is for the purpose of enabling candidates to select the proper divisions of education and the necessary courses in those divisions.

Requirements for Normal and Life Diplomas

State normal school graduates who become candidates for the University five-year normal diploma must comply with the above requirements for graduation.

Normal school graduates must qualify for the University normal diploma to be eligible to teach in high schools and for the life diploma must earn a total of 18 credits in education in this University. Diplomas from the normal schools qualify the holders for elementary schools only.

Graduates from other institutions must receive a degree from this institution and will normally be required to satisfy our major and minor departments by earning at least ten credits in their major and five credits in their minor subjects at the University of Washington, in addition to at least nine credits in education.

Persons who have received the master's or doctor's degrees from this University are eligible to the University five-year diploma provided they have fulfilled the specific normal diploma requirements.

Normal diplomas or life diplomas shall not be granted to aliens who have not completed their naturalization.

Normal diplomas or life diplomas shall be granted only to persons who have received degrees from the University of Washington.

Teaching Majors and Minors for Normal and Life Diplomas

To be eligible for a normal diploma or a life diploma a candidate shall present (a) as a teaching major a subject now included in the curriculum of at least two of the larger public high schools of the state, and (b) as a teaching minor either (1) a second teaching subject included in the curriculum of at least two of the larger public high schools of the state, or, (2) a minor definitely reinforcing the major. In unusual cases exception to this rule may be made by a faculty committee.

Bacteriology
Botany
Chemistry
Civics
Commercial teaching
Drama
Economics
English
French
Geography
Geology
German
History
Home Economics
Industrial arts
Journalism
Latin
Mathematics
Physical Education for men
Physical education for women
Physics
Physiology
Political science
Public school art
Public school music
Sociology
Spanish
Speech
Zoology

Major students in one field of music may also minor in another field of music. Library science will be accepted in lieu of a second academic minor.

The University is authorized by law to issue diplomas valid in the State of Washington as teachers' certificates to teach in any high school or to superintend or supervise in any public school of the State as described below:

The University five-year diploma, valid for a period of five calendar years from date of issue, is granted on the following conditions:

(a) Graduation from the University plus 45 additional credits in approved courses; (b) evidence of good health, such general scholarship and personal and moral qualities as give promise of success and credit in the teaching profession (active professional interest in teaching is an important factor,

and the education faculty may refuse to recommend candidates for the normal diploma who fail to measure up to the foregoing standards); and (c) completion of courses in education, see page 6; (d) Economics 1, Philosophy 1 or 2, or 3 or 5, Political Science 1, Psychology 1, and Sociology 1.

All candidates for the five-year normal diploma, unless exempted by a satisfactory voice test, must take Speech 191 or its equivalent.

Life Diplomas

The University life diploma is granted to candidates who possess the five-year normal diploma and who comply with the following requirements:

1. Earn in residence 57 credits above the requirements for the bachelor's degree.

2. Complete at least one quarter of residence study of 12 credits subsequent to receiving the five-year normal diploma.

3. Earn during the undergraduate and graduate work a minimum total of 36 quarter credits in education which must include educational psychology (course 101 or course 201 or their equivalents) and may include a maximum of five credits in teachers' courses in special subjects.

4. Furnish satisfactory evidence of having taught successfully for at least 24 months.

5. The candidate's entire record as to scholarship, teaching experience, and moral and personal qualities must appear to be satisfactory upon review by the normal diploma committee.

6. The life diploma is not granted until candidates have taught at least one school year subsequent to receiving the normal diploma even though they have had 24 months of teaching experience.

7. No person is eligible to receive the degree, the normal diploma or the life diploma who has not been in residence at this University at least three quarters.

8. The service requirement of 24 months may not be satisfied by college or university service.

9. If the time which elapses between receiving the five-year normal diploma and the application for the life diploma exceeds five years, two quarters of residence work, of at least 12 credits each, subsequent to receiving the five-year normal diploma shall be required to secure an extension.

10. The education courses shall be specified by the executive officer in education with a view to supplementing the student's professional equipment.

11. The academic courses shall be specified by the academic departments concerned.

12. Candidates for the life diploma shall include from two to six quarter credits in education courses numbered 200 or over.

13. Grades required for the five-year normal diploma and life diploma:

(a) C average in all university courses.

(b) C average in education courses, with C or better in Educ. 71, *Cadet*

Teaching.

(c) C average in the minor teaching subject with no grades below C in required courses

(d) In the major teaching subject there shall be no grades less than C in required courses and with such general average in individual departments as shall be approved by the general faculty.

REQUIREMENTS MADE FOR ACADEMIC MAJORS AND MINORS, BY THE RESPECTIVE DEPARTMENTS

BACTERIOLOGY

Major	*Credits*
101. General Bacteriology	5
102. Sanitary Bacteriology	5
103. Pub. Hyg. bacteriology	5
104. Serology	5
105. Infectious Diseases	5
106. Clinical Diagnosis	5
Bacteriology Electives	6
Minimum total	36

Minor	*Credits*
101. General Bacteriology	5
102. Sanitary Bacteriology	5
103. Public Hygiene	5
Bacteriology Electives	5
Minimum total	20

BOTANY

Major	*Credits*
1. Elementary Botany	5
3. Elementary Botany	5
92. Ornamental Plants	5
105,106 or 107. Morphology and Evol	10
140,141,142. General Fungi or 143,144,145. Plant Physiology	15
Minimum total	40

Minor	*Credits*
1. Elementary Botany	5
3. Elementary Botany	5
92. Ornamental Plants	5
105,106 or 107. Morphology and Evol	10
Minimum total	25

CHEMISTRY

Major	*Credits*
1-2. Gen. Inorganic Chem. or 21-22. Gen. Inorganic Chem.	10
23. Elem. Qualitative Anal.	5
101. Adv. Qualitative Anal.	5
111. Quantitative Analysis	5
131,132. Organic Chemistry	10
140-141. Elem. Physical Chem.	6
Minimum total	41

Minor	*Credits*
1-2. Gen. Inorganic Chem. or 21-22. Gen. Inorganic Chem.	10
23. Elem. Qualitative Anal.	5
101. Adv. Qualitative Anal. and 111. Quantitative Analysis or 131. Organic Chemistry and 132. Organic Chemistry	10
Minimum total	25

For the minor, students should have had at least high school physics; for the major they should have had a year of college physics. Grades of C or above must be obtained in all required chemistry courses; for a major one-third of the grades in upper division courses must be B or above.

CIVICS

Major	*Credits*
1. Comparative Government	5
1. General Economics	5
1. Introductory Sociology	5
101. Constitutional Govt.	2
152. Political Parties	5
Electives in Political Science	13
Electives in Econ. or Sociol.	5
Minimum total	40

Minor	*Credits*
1. Comparative Government	5
1. General Economics or 1. Introductory Sociology	5
101. Constitutional Govt.	2
Electives in Political Science	13
Minimum total	25

COMMERCIAL TEACHING

The courses in commercial teaching are planned to prepare students for teaching positions in commercial departments of secondary schools.

Students majoring in commercial teaching are:

1. Required to satisfy the general requirements of the University and of Economics and Business as outlined in the Economics and Business bulletin.

2. Required to take 25 credits as follows:

	Credits
B.A. 101. Management of Business Enterprise	5
B.A. 110 or 111. Advanced Accounting	5
B.A. 117. Commercial Education	5
B.A. 118. Commercial Education	5
B.A. 120. Business Organization	5

Students entering Education from normal schools or other departments other than Economics and Business shall be required to take:

	Credits		*Credits*
B.A. 1,2. Gen. Economics	10	B.A. 110 or 111. Adv. Accounting	5
B.A. 107. Econ. Geography	5	B.A. 115. Bus. Correspondence	5
B.A. 54,55,56. Business Law	9	B.A. 117. Commercial Education	5
B.A. 62,63,64. Prin. of Accounting	15	B.A. 118. Commercial Education	5
B.A. 101. Mgmt. of Bus. Enterprise.	5		64

An average grade of B in all major teaching subjects is required.

ECONOMICS

Students choosing economics either as their major or minor should consult with the executive officer of the department of economics or the professor in charge of advanced economics with regard to a proper selection of courses. An academic major or minor in economics must include the following:

Major	*Credits*	*Minor*	*Credits*
B.A. 1,2. General Economics	10	B.A. 1,2. General Economics	10
B.A. 103. Money and Banking	5	B.A. 160. Advanced Economics	5
B.A. 105. Labor in Industry	5	Additional credits chosen from the following list	5
B.A. 124. Public Finance	5		20
B.A. 160. Advanced Economics	5		
B.A. 168. Dev. of Econ. Thought	5		
Additional credits chosen from the following list	15		
	50		

Electives from which to choose additional credits:

	Credits		*Credits*
B.A. 100. Econ. and Ind. Dev. of U.S.	5	B.A. 145. World Trade	5
B.A. 103. Money and Banking	5	B.A. 125. Adv. Money and Banking.	5
B.A. 104. Econ. of Transportation	5	B.A. 129. Taxation	5
B.A. 105. Labor in Industry	5	B.A. 131. Econ. of Public Util.	5
B.A. 106. Econ. of Mktg. and Adv.	5	B.A. 140. The Co-op. Movement	5
B.A. 108. Econ. of Risk and Risk Bearing	5	B.A. 161. Econ. of Labor	5
B.A. 109. Land Economics	5	B.A. 162. Europ. Labor Probs.	5
B.A. 121. Corporation Finance	5	B.A. 168. Dev. of Econ. Thought	5
B.A. 122. Prin. of Investment	5	B.A. 173. Int'l. Commercial Policies	5
B.A. 124. Public Finance	5	B.A. 175. Business Fluctuations	5
		B.A. 181. Econ. of Consumption	5

Minimum total for academic major ..... 50 credits
Minimum total for academic minor ..... 20 credits

ENGLISH

The schedules given below present the courses required in addition to Comp. 1 and 2 or Comp. 1, 16, 17. These are general courses and may not be counted toward a major or minor. It is expected that all majors and minors will register for Comp. 16, 17 concurrently with a course in literature as a substitute for Comp. 2.

For either a major or minor, it is required that a student earn the grade of B in three-fourths of his upper division work.

All English majors are required to take the senior major examination.

Substitutions in the following lists are allowed to fit a student's plan of study if approved in writing by the department of English.

Major Courses

Group I

Lit. 150,151. Old and Middle English
Lit. 153,154. English Literature 1476-1642

Group II

Lit. 170,171. Shakespeare
Lit. 167,168. Seventeenth Century Literature
Lit. 144,145. Eighteenth Century Literature

Group III

Lit. 177,178. Early Nineteenth Century Literature
Lit. 174,175. Late Nineteenth Century Literature
Lit. 161,162. American Literature

Literature

Major	*Credits*
Lit. 64,65,66. Lit. Backgrounds	13
Lit. 75. Technique of Fiction	3
Speech 79. Oral Reading of Lit.	3
Lit. 117. Hist. of the Eng. Language or Adv. Composition	5
One major course	10
One major course in two other major groups	10
Elective	6
	50

Minor	*Credits*
Lit. 64,65,66. Lit. Backgrounds	13
Lit. 75. Technique of Fiction	3
Speech 79. Oral Reading of Lit.	3
Lit. 117. Hist. of the Eng. Language or Adv. Composition	5
One major course	10
	34

Drama

Admission to this division is granted only when the student has a good record and has been accepted by the director of drama and the department of English. Normally supplementary studies in literature are required which should include Lit. 64, 65, 75 and two courses from 170, 171, 177, 178, 174, 175, 161, 162.

Major	*Credits*
Speech 43. The Speaking Voice	3
Speech 47,48. Theatre Speech	4
Drama 51,52,53. Acting	6
Drama 104,105,106. Workshop	9
Drama 121,122,123. Advanced Acting and Directing	9
Drama 127,128,129. Hist. Theatre Art	6
Drama 151,152,153. Rep. Plays	9
Drama 191,192,193. Major Conference	3
	49

Minor	*Credits*
Speech 43. The Speaking Voice	3
Speech 47,48. Theatre Speech	4
Drama 51,52,53. Acting (2 quarters)	4
Drama 104,105,106. Workshop (2 qrs.)	6
Drama 127,128,129. Hist. Theatre Art or	
Drama 151,152,153. Rep. Plays	6 or 9
Electives	11 or 8
	34

Speech

Admission to this division is granted only when the student has a good record and has been accepted by the director of speech and the department of English. Normally supplementary studies in literature are required which

should include Lit. 64, 65 and ten credits from major courses. For a recommendation to teach speaking or debate the student must have credit for Educ. 75X.

Major	*Credits*
Speech 40. Essentials of Speaking...	5
Speech 41. Advanced Speaking	3
Speech 38. Argumentation	5
Speech 43. The Speaking Voice.....	3
Speech 79. Oral Reading of Lit.....	3
Speech 186. Mind and Speech.....	3
Speech 187. Adv. Voice Problems...	3
Speech 188. Adv. Prob. in Speaking.	3
Speech 191. Speech Correction	3
Speech 138. Rhetoric of Pub. Spkg. or Speech 139. Forms of Pub. Address.	3
Approved electives	11
	45

Minor	*Credits*
Speech 40. Essentials of Speaking...	5
Speech 41. Advanced Speaking	3
Speech 43. The Speaking Voice.....	3
Speech 79. Oral Reading of Lit. or Speech 38. Argumentation . . . ...3 or	5
Speech 187. Adv. Voice Problems...	3
Speech 188. Adv. Probs. in Speaking	3
Approved electives .....14 or	12
	34

GEOGRAPHY

Major	*Credits*
1. Elements of Geog. or 101. Principles of Geog. or B.A. 107. Economic Geog.....	5
11. Weather and Climate, or 111. Climatology	5
70. Conservation	5
102. North America	5
155. Influ. Geog. Environment.....	5
Approved Electives 11	
Minimum total.....36	

Minor	*Credits*
1. Elements of Geog. or 101. Principles of Geog. or B.A. 107. Economic Geog.....	5
11. Weather and Climate, or 111. Climatology, or	
70. Conservation	5
102. North America	5
Approved Electives	5
Minimum total.....20	

GEOLOGY (PHYSIOGRAPHY)

Major	*Credits*
5 or 105. Rocks and Minerals.....	5
6 or 106. Physiography.....	5
7 or 107. Historical Geology.....	5
11 or 111. Weather and Climate....	5
Approved Electives 16	
Minimum total.....36	

Minor	*Credits*
1. Intro. to Earth Science.....	5
6 or 106. Physiography.....	5
11 or 111. Weather and Climate....	5
Approved Electives	5
Minimum total.....20	

GERMAN

For the academic major or minor students should have had two or three years of high school German. The equivalent, if taken in college, is at present German 1, 2, 3, 5. In addition to their high school preparation, they are advised to take their major subject during their entire four-year college course. The minimum requirements are as follows:

Major	*Credits*
6 to 12; 50 to 52a, b. Second Year Work, about.....	7
100. Schiller ..... 101 to 105. Recent Writers, summer school equivalents of all courses included . . . . 118 to 120. German Prose Read.. 133 to 135. Modern Novels..... 136 to 138. Modern Drama..... 139,140. Studies in German Lit... 141. Survey of German Lit..... 142. Lyrics and Ballads..... 150 to 153. Lessing, Goethe..... 180 to 185. Nineteenth Cent. Lit..	about 21
109,110,111. Adv. Composition.....	6
121. Phonetics	2
Minimum total.....36	

Minor	*Credits*
6 to 12. Second Year Work, about...	7
100. Schiller ..... 101 to 105. Recent Writers, summer school equivalent included..... 118 to 120. German Prose Read.. 133 to 135. Modern Novels..... 136 to 138. Modern Drama..... 139,140. Studies in German Lit.. 141. Survey of German Lit..... 142. Lyrics and Ballads..... 150 to 153. Lessing, Goethe..... 180 to 185. Nineteenth Cent. Lit..	6
109,110,111. Adv. Composition.....	6
121. Phonetics	2
Minimum total.....20	

Grades of C or above must be obtained in all required German courses; for a major one-third of the grades in upper division courses must be B or above.

All students who wish a major or a minor recommendation in German must present Educ. 75L, the teacher's course.

HISTORY

Academic Major. Minimum 48 credits, including course 1-2, of which 48 credits 50 per cent must be in upper division courses. Electives on advice of the head of the department.

Academic Minor. Minimum 20 credits, including course 1-2. Electives on advice of the head of the department.

Prospective teachers of history as a major subject in high schools who desire the recommendation of the department of history must become acquainted with the elementary facts requisite for the teaching of courses in history, civil government, economics and sociology taught in the high schools of the State and have specialized knowledge in their chosen fields. Courses in history, government, economics, and sociology should be selected with this aim in view.

Prospective high school teachers of history should bear in mind that since Oriental history is not yet offered in the high schools, such courses should be treated as electives rather than as major courses in preparation for the normal diploma or positions as teachers.

Joint requirements of history and education with respect to the attainment of recommendations for teaching positions and of teaching certificates are to be satisfied as follows:

(a) Attainment of standards of scholarship required as specified on page 69.

(b) Fulfillment of following major or minor requirements:

Major	*Credits*
1. Required: a total of 48 credits.	
1-2. Medieval and Modern	10
5-6. English History	10
72-73. Ancient History	10
57-58-59. United States or 139,140,141. United States or 143,144,145. United States or 147,148,149. United States	9 to 11
2. Preferential group: 10 additional credits, of which 5 are to be selected from upper division courses in European, English, or ancient history courses; and the remainder from upper division courses in American history.	
Minimum total	49 or 51

Minor

1-2. Medieval and Modern European History (or its eqivalent), 10 credits required.

Choice between 139,140,141, 143,144,145, or 147,148,149. Advanced American History, 9 to 11 credits; or 72-73, Ancient History, 10 credits; or upper division European History, including English, 10 credits; also additional electives, 1 to 5 credits.

Minimum total.....20 credits

Courses 1-2 and 57-58-59 carry lower division credit only; courses 5-6 and 72-73 may carry upper division credit by performance of special work under direction of the instructor. Since majors in history are required to select at least 50 per cent of their total work from courses carrying upper division credit, they will usually find it necessary to take one or both of the two last mentioned courses for upper division credit.

MAJOR IN ALL FIELDS IN HOME ECONOMICS

Students in home economics may satisfy the requirement for both a major and a minor recommendation by work in home economics only.

	Credits
25-26. Textiles	6
45,46. Household Management	6
47. Home Furnishing	3
107-108. Nutrition	10
112,113,114. Costume Design and Construction	9 or 11
115,116,117. Food Preparation	11 or 13
144-145. Household Economics	4
148. Home Management House	2
190. Child Nutrition and Care	5
	56 or 60

Prerequisites: Art 9; Chem. 1 and 2; Chem. 135-136; Physiology 7.

Related courses that should be included: Physics 89-90; Architecture 1-2; Bact. 101; Nursing 5.

Major must include Educ. 75NA, 75NB.

MAJOR AND MINOR IN TEXTILES AND CLOTHING

Major	*Credits*
25-26. Textiles	6
109. Elem. of Home Economics	5
47. Home Furnishing	3
112,113,114. Costume Design and Construction	9 or 11
160,161. Adv. Costume Design	6
133. Costume Design	5
148. Home Management House	2
	36 or 38

Minor	*Credits*
25-26. Textiles	6
112,113,114. Costume Design and Construction	9 or 11
47. Home Furnishing	3
H.E. Electives	2 or 0
Minimum total	20

Prerequisites for either major or minor:

Art 9. Art Structure	3
Art 169-170. Costume Design	4

Art 9. Art Structure	3

Students should have had at least one year of high school clothing. The above shall be considered as comprising a teaching major or a minor.

INDUSTRIAL ARTS

Students who wish to major or minor in industrial arts will normally need to supplement such specialized training as they can receive at the University of Washington by courses which can be taken at the normal schools or at other institutions. Such courses are offered also at the University of Washington during the summer session. Twenty credits are required for a minor and 36 for a major.

JOURNALISM

Major students in education who have had Jour. 1, 2, 3, and 51 as prerequisites may obtain a major in journalism by completing the work in Jour. 147-148-149. An average class grade of B or better must be earned in all journalism subjects by education students majoring in journalism.

Minor in Journalism. Students wishing to minor in journalism must include the following courses in their minor: Jour. 1, 2, 51, 150, plus a minimum of ten hours of electives to be selected from the sophomore and senior courses in the department of Journalism.

LATIN

Major	*Credits*
Greek 1-2-3. Elementary Greek	15
Thirty-five credits selected from the following or equivalent courses (at least 18 credits in upper division courses.	
Latin 21. Cicero: De Senectute; Latin Literature (MacKail)	5
22. Catullus; Latin Lit. (MacKail)	5
23. Virgil: Georgics and Bucolics; Latin Lit. (MacKail)	5
24. Sallust: Catiline and Jugurtha; Latin Lit. (MacKail)	5
25. Ovid: Metamorphoses	5
100. Livy	5
101. Horace	5
102. Tacitus	5
103. Plautus and Terence	5
106. Syntax and Prose Comp	3
107. Cicero's Letters	3
109. Pliny's Letters	3
113. Roman Home Life and Religion	3
Senior Examination	
Minimum total	50

Minor	*Credits*
Twenty credits selected from the following or equivalent courses, but 106 must be included:	
Latin 21. Cicero: De Senectute; Latin Literature (MacKail)	5
22. Catullus; Latin Lit. (MacKail)	5
23. Virgil: Georgics and Bucolics; Latin Lit. (MacKail)	5
24. Sallust: Catiline and Jugurtha; Latin Lit. (MacKail)	5
25. Ovid: Metamorphoses	5
100. Livy	5
101. Horace	5
102. Tacitus	5
103. Plautus and Terence	5
106. Syntax and Prose Comp	3
107. Cicero's Letters	3
109. Pliny's Letters	3
113. Roman Home Life and Religion	3
An examination planned to test the student's knowledge of the Latin ordinarily taught in a standard four-year high school.	
Minimum total	20

The prerequisite for any work toward either a major or a minor in Latin is three and one-half years of high school Latin or its equivalent.

Latin courses 1-2, 3, 4, 5, 6, 11, 13, do not count toward a major or minor.

MATHEMATICS

Major	*Credits*
4. Plane Trigonometry	5
5. College Algebra	5
6. Analytical Geometry	5
107,108,109. Diff. and Integral Calc.	15
U.D. Electives in Math	6
Minimum total	36

Minor	*Credits*
4. Plane Trigonometry	5
5. College Algebra	5
6. Analytical Geometry	5
U.D. Electives in Math	10
Minimum total	25

The above schedule is based upon the assumption that the student has had one and one-half years of algebra, and one year of plane geometry, or one year of plane and one-half year of solid geometry before entering the University. If a student has not had the third one-half year of algebra in high school, Math. 1 must be elected during the freshman year in addition to the above schedule. If the student has not had solid geometry he should take Math. 2 in addition to the above schedule.

Grades of C or higher must be earned in mathematics classes by all students who select mathematics as their academic major or minor subject.

MUSIC

1. All education students majoring in music must:
   (a) Satisfy the requirements of Music 4, 5, 6, 15, 16.
   (b) Satisfy the music department as to their proficiency in piano and voice.
   (c) Take Educ. 71, *Cadet Teaching in Music.*

2. Education students majoring or minoring in music who are working for the *degree only,* must:
   (a) Consult the music department at an early date concerning any deviation from the requirements as outlined below.
   (b) Elect Educ. 71, *Cadet Teaching in Music.*

Major	*Credits*
51. Elementary Harmony	4
53. Intermediate Harmony	5
40,41,42. Elem. Orch. Instr.	9
101. Advanced Harmony	5
113. Elem. School Music	4
114. Intermed. School Music	2
115. Tech. of Conducting	2
116. Junior H.S. Music	2
127,128. Choral Forms	4
154. Senior H.S. Music	3
155. Music Supervision	5
180. Orch. Conducting	2
Vocal and Instrumental Music	12
Minimum total	59

Minor	*Credits*
(For non-music majors)	
51,53. Harmony	9
113. Elem. School Music	4
114. Intermed. School Music	2
115. Tech. of Conducting	2
116. Junior H.S. Music	2
127. Choral Forms	2
40 or 41, 42. Orch. Instr.	6
180. Orch. Conducting	2
Minimum total	29
(For majors in music)	
109. Counterpoint	5
112. Musical Forms	5
117. Composition	5
151,152,153. Modern Music	6
Minimum total	21

PHYSICAL EDUCATION FOR MEN

Major	*Credits*
90. Personal and Gen. Hygiene	2
113. Playgrounds and Comm. Rec.	3
115. Physiol. of Musc. Exercise	3
122. Kinesiology	3
135. Individual Gymnastics	3
141,142,143. Physical Educ. Methods	9
145. Prin. of Physical Educ.	3
150. Physical Educ. Administration.	5
153. Prin. of Health Education	2
Athletic Coaching Methods	6
Minimum total	39

Minor	*Credits*
90. Personal and Gen. Hygiene	2
113. Playgrounds and Comm. Rec.	3
141,142,143. Physical Educ. Methods	9
145. Prin. of Physical Educ.	3
Athletic Coaching Methods	6
Minimum total	23

Required foundation courses:

Biological Sciences:
Zool. 1-2.
Physiol. 50.
Anat. 101, 110, 111, 112.
Bact. 103 or the equivalent.

Social Sciences:
Fifteen credits in sociology and psychology.

Required supplementary courses:

Educ. 120, Home Econ. 104, or the equivalent.

PHYSICAL EDUCATION FOR WOMEN

Major	*Credits*
100. Survey of Phys. Educ.	2
101. Survey of Gymnastics	3
111. Rhythms and Dramatic Games	3
112. Elem. Athletic Games	3
113. Org. and Admin. of Playgr.	3
115. Physiology of Exercise	3
122. Kinesiology	3
131-132-133. Adapted Activities	9
145. Principles of Phys. Educ.	3
152. Admin. of Phys. Educ.	2
153. Principles in Health Educ.	2
162,163,164. Meth. in Phys. Educ.	15
181. Org. and Admin. of Camp Programs	3
Minimum total	54

Minor	*Credits*
111. Rhythms and Dramatic Games.	3
112. Elem. Athletic Games	3
145. Principles of Phys. Educ.	3
162,163,164. Meth. in Phys. Educ.	15
Minimum total	24

Required supplementary courses:

Anat. 101, 110, 111, 112	6
Physiol. 50	6
Zool. 1-2	10
Zool. 17	2
Bacteriology 103	5
Education 145G	3

Required supplementary courses: 10 credits to be selected from sociology and English.

Anatomy, physiology, and zoology may be counted as an academic minor.

Educ. 71, *Cadet Teaching,* additional in all cases except by exemption by the executive officer in education and head of the department of Physical Education.

For recommendation of the normal diploma with physical education as a major, the requirement is a C average in required major courses. No grade less than C in a required major may count toward a normal diploma.

PHYSICS

Major	*Credits*
1,2,3, 101. General Physics or 4,5,6, 101. General Physics	20
105. Elec. and Magnetism	5
160. Optics	5
Physics Electives	10
Minimum total	40

Minor	*Credits*
1,2,3. General Physics or 4,5,6. General Physics	15
101. Introd. to Mod. Theories	5
105. Elec. and Magnetism	5
160. Optics	5
Minimum total	30

A teaching major or minor in physics should be supported by 15 credits of college mathematics.

For recommendation for a normal diploma a major or a minor is required with an average grade better than C.

POLITICAL SCIENCE

Major	*Credits*
1. Comparative Government	5
54. International Relations	5
61. Municipal Government	5
101. Constitutional Government	2
112. American Political Theory	3
151. American National Govt.	5
Electives in Political Science	15
Minimum total	40

Minor	*Credits*
1. Comparative Government	5
101. Constitutional Government	2
Electives in Political Science	18
Minimum total	25

PUBLIC SCHOOL ART

The following art courses are required for the degree of bachelor of arts in the School of Education, using art as the major.

Students will be required to satisfy the requirements in Art 5,6,7; 9,10,11, before taking the following courses:

	Credits
53,54,55. Art Structure	9
56,57,58. Drawing and Painting	9
20. Sculpture Appreciation	2
100. Methods	2
101. Elem. Interior Design	2
102. Industrial Art	2
103,104. Pottery, or 157,158. Metal Work, Jewelry	6
105,106. Lettering, Poster	6
126. History of Painting	2
129. Design Appreciation	2
120,151. Illustration	6
Life	3
166. Stage Design	3
	54

Special group of art courses for Home Economics majors in textiles and clothing:

	Credits
Art 5,6. Drawing	6
Art 9,10,11. Art Structure	9
Art 53,54,55. Art Structure	9
Art 105. Lettering	3
Art 169,170. Costume Illustration	4
	31

Samples of art work must be presented to the head of the art department if advanced credit or substitution is desired.

For a recommendation to teach public school art or textiles and clothing, a student must have an average of B or better in art courses.

Both the major and minor are required.

Major	*Credits*
5,6,7, Drawing	9
9,10,11. Art Structure	9
53. Art Structure	3
56,57,58. Drawing and Painting	9
Life	3
150. Illustration	3
100. Methods	2
101. Elem. Interior Design	2
102. Industrial Art	2
126. History of Art	2
20. Sculpture Appreciation	2
Minimum total	46

Minor	*Credits*
Applied Arts for majors in public school art only.	
54,55. Art Structure	6
151. Illustration	3
166. Stage Design	3
105,106. Art Structure (lettering, posters)	6
103,104. Pottery or	
157,158. Metal Work, Jewelry	6
129. Design Appreciation	2
	26
Special minor open to majors in home economics, group V.	
5,6. Drawing	6
9,10,11. Art Structure	9
53,54,55. Art Structure	9
105. Lettering	3
169,170. Costume Design	4
Minimum total	31

For a recommendation in teaching a student majoring or minoring in public school art must have an average of B or over.

ROMANIC LANGUAGES AND LITERATURE

The number of credits required for a major or a minor will depend upon the high school preparation of the student. For this reason the requirements for a major, based upon a preparation of two years in college, or three in high school, amount to less than 36 credits, while for a minor they amount to more than 20 credits.

French

Major	*Credits*
41. Phonetics	3
101,102,103. Composition and Conver.	9
158,159. Advanced Syntax	4
Edu. 75K. Teach. Course in French	2
Nine or ten credits from any of the following:	
34,35,36 or 134,135,136. Comparative Lit., French, Italian, Spanish	9
118,119,120. Survey of French Lit.	9
*121,122,123. French Novel	9
*124,125,126. The Short Story	9
*131,132,133. Lyric Poetry	6
*141,142,143. The French Drama	9
*151,152,153. Hist. of the French Lit. of the 19th Century.	9
154,155,156. Contemp. French Lit.	9
*161,162,163. 18th Century Lit.	6
*171,172,173. 17th Century Lit.	6
Minimum total	27

Minor	*Credits*
41. Phonetics	3
101,102,103. Composition and Conver.	9
158,159. Advanced Syntax	4
Edu. 75K. Teach. Course in French	2
Nine or ten credits from any of the following:	
34,35,36 or 134,135,136. Comparative Lit., French, Italian, Spanish	9
118,119,120. Survey of French Lit.	9
*121,122,123. French Novel	9
*124,125,126. The Short Story	9
*131,132,133. Lyric Poetry	6
*141,142,143. The French Drama	9
*151,152,153. Hist. of the French Lit. of the 19th Century.	9
154,155,156. Contemp. French Lit.	9
*161,162,163. 18th Century Lit.	6
*171,172,173. 17th Century Lit.	6
Minimum total	27

*Conducted in French.

A total of not more than five credits may be elected from courses which are conducted in English; at least four of the nine credits must be elected from any of the courses conducted in French.

Spanish

Major	*Credits*
101,102,103. Adv. Composition	9
159. Advanced Syntax	3
Educ. 75Y. Teach. Crse. in Spanish.	2
Nine credits from any of the following:	
34,35,36 or 134,135,136. Comparative Lit., French, Italian, Spanish	9
118,119,120. Survey of Spanish Lit.	6
121,122,123. The Novel	9
131,132,133. Spanish Lyrics	9
141,142,143. Spanish Drama	9
171,172,173. 17th Century Lit.	6
184,185,186. Spanish American Lit.	9
Minimum total	23

Minor	*Credits*
101,102,103. Adv. Composition	9
159. Advanced Syntax	3
Educ. 75Y. Teach. Crse. in Spanish.	2
Nine credits from any of the following:	
34,35,36 or 134,135,136. Comparative Lit., French, Italian, Spanish	9
118,119,120. Survey of Spanish Lit.	6
121,122,123. The Novel	9
141,142,143. Spanish Drama	9
184,185,186. Spanish American Lit.	9
Minimum total	23

SOCIOLOGY

Major	*Credits*
1. Introductory Sociology or 150. General Sociology	5
55. Human Ecol. or approved equiv.	5
66. Group Behaviour or approved equiv.	5
131. Social Statistics	5
164. Social Education	2
Electives from courses offered in the department after consultation regarding the special field of interest	14
Minimum total	36

Minor	*Credits*
1. Introductory Sociology or 150. General Sociology	5
55. Human Ecol. or approved equiv. or 66. Group Behavior or approved equiv.	5
Electives from courses offered in the department after consultation regarding the special field of interest	15
Minimum total	25

ZOOLOGY AND PHYSIOLOGY

Major	*Credits*
1-2. Elements of Zoology or 53-54. Physiology	10
Zoology, Physiology Electives	26
Minimum total	36

Minor	*Credits*
1-2. Elements of Zoology or 53-54. Physiology	10
Zoology, Physiology Electives	10
Minimum total	20

Courses of Study

For a description of courses offered by the School of Education, see Departments of Instruction section.

COLLEGE OF ENGINEERING

General Information

The purpose of the College of Engineering is to give thorough training in engineering fundamentals, so essential to success in all branches of the engineering profession, and to provide instruction for specialization in the main technical fields. For administrative purposes the engineering work of the college is divided into the following departments: aeronautical, chemical, ceramics, civil, commercial, electrical, mechanical, and mining and metallurgical engineering. Four-year curricula (see page 84) leading to the degree of bachelor of science in the respective branches of engineering are offered, but all require the student to take the fundamental subjects on which engineering is based. The curricula consist largely of required courses, but a sufficient number of electives is provided in the junior and senior years to give each student the training that will best serve his case and to permit the inclusion of a limited number of cultural courses in his schedule.

GENERAL ENGINEERING

The freshman work is identical for all the curricula in the departments of Engineering and is given by the department of general engineering. The aim is to give the student an early contact with engineering situations in which he can make application of the fundamentals of mathematics and physics, and to assist him in the formation of good habits of work and study so that he may obtain maximum return on his investment in an engineering education. To assist in realizing these ideas individual work is insisted upon in all courses and the student is given much personal coaching by his instructors. As a part of the courses, the various fields of engineering are discussed, enabling the student to make a more intelligent choice of his particular line of work. The choice is made at the beginning of his sophomore year. Engineering problems (G.E. 11, 12) are planned to obtain these results and comprise a distinctive feature of the college.

Another feature of the freshman year is the study given the personal traits and aptitudes of the individual students. This phase of the work is under the direction of the freshman adviser, who is also in charge of all the general engineering courses. His advice and assistance on their personal problems is available to all students in the department.

AERONAUTICAL ENGINEERING

A generous donation for an aeronautical engineering building from the Daniel Guggenheim Fund for the Promotion of Aeronautics has made it possible to establish a complete four-year curriculum leading to the bachelor of science degree in aeronautical engineering. The courses are arranged so as to give the student a thorough knowledge of the principles of aerodynamics as applied to the locomotion of heavier- and lighter-than-air craft, an extensive training in structural analysis and design, an introduction into the operation and design of aeronautical power plants and flying fields, and a knowledge of the economic principles involved in aerial transportation.

Field trips to the local airplane factory, one of the largest in the country, visits to local flying fields and lectures by experienced designers and practising aeronautical engineers serve to familiarize the student with the latest developments in this branch of engineering.

Laboratories equipped with wind tunnels for testing air foils and propellers, with dynamometers for testing aeronautical engines, and with other apparatus for investigating the strength of aeronautical structures are available to support the theoretical work of the student.

CHEMICAL ENGINEERING

Chemical engineering is given under the direction of the department of chemistry and chemical engineering. It deals with the unit processes of the manufacturing industry. Training in this subject includes not only general courses in engineering, but also specific training in analytical, organic and physical chemistry. The application of chemical technique to manufacturing processes is made in specially developed courses in industrial chemistry and chemical engineering.

Chemical engineers are in charge of many important industries such as the manufacture of chemicals, petroleum products, the production of materials used in construction, fuels, paints, explosives and a great variety of organic products. The design of apparatus, chemical research, and the development of control methods play an important part in the career of the chemical engineer.

CIVIL ENGINEERING

Courses leading to the following branches of civil engineering are given:

Surveying, including the making of city and geological surveys, and surveys for engineering constructions.

Highway and railway engineering, which deals with the location, construction and maintenance of city streets, highways and railways.

Hydraulic engineering, which deals with the laws governing the flow of water, and their applications to water supply of communities to water power development, design of hydraulic machinery, river and harbor improvement, and the reclamation of land by drainage and irrigation.

Sanitary engineering, which deals with problems relating to the protection and preservation of the health of communities, including the design of water supply and sewerage systems, sewage disposal works, and the study of methods of garbage collection and disposal.

Structural engineering, which deals with the details of the design and construction of steel, concrete and timber structures, such as bridges, buildings, dams, retaining walls, and their foundations.

Material testing, which deals with the inspection and proper use of the materials of construction including timber, steel and concrete.

COMMERCIAL ENGINEERING

This course consists of a major in engineering, primarily mechanical, with a minor in business administration. Its purpose is to provide basic training in the fundamentals of economics, business law, accounting, management and finance, as well as in engineering. The first two years of its cirriculum are the same as electrical and mechanical engineering. In the third and fourth years, selected subjects in business administration replace some of the more specialized engineering subjects, while enough of the latter are retained to provide a sufficient background in the particular branch of engineering desired. A group of approved electives permits of specialization in the upper years. This curriculum is closely allied to that of mechanical engineering, but is more general in its character.

ELECTRICAL ENGINEERING

Mastery of the basic laws of direct currents, alternating currents and electric transients is essential to progress in any branch of electrical engineering. The foundation for specialization in any field is laid in the required courses of the electrical engineering curriculum. Elective courses are offered in electric communication, telephone, telegraph and radio, in illumination, electric machine design, electric railways, central stations and power transmission. The required and elective courses supplemented by semi-

nars, thesis and research give ample opportunities for every student to follow his bent and secure training best suited to his talents. Special attention is given to the economic generation, transmission and distribution of hydro-electric power and to electric transients.

MECHANICAL ENGINEERING

The department of mechanical engineering aims to prepare the student to enter the various branches of mechanical engineering, including design, operation and superintendence of machinery; fuel economy; power plants; structural materials; heating and ventilation; gas engineering; refrigeration; and automotive engineering. It affords a thorough training in engineering fundamentals relating to industry, and with the electives allowed in the fourth year, permits specialization to such a degree as is deemed advisable.

MINING, METALLURGICAL AND CERAMIC ENGINEERING

Mining and metallurgical engineering educates engineers for the several divisions of the broad field comprised in the mineral industry. The courses cover the occurrence of the useful mineral substances, and methods of mining and treating them, and the production of final products by the processes of metallurgy.

The location of the University in a mining area makes the mines and works of varied character available for study on one-day trips. The state of Washington not only produces economic minerals in wide variety but is an important center for other operations in the mineral industry, such as the smelting of ores from many parts of the world, other metallurgical operations, and the manufacture of a variety of ceramic products. The adjacent regions of the Pacific Northwest, British Columbia, and Alaska afford a vast and rich field of production.

Ceramic engineering deals with the physical and chemical problems of silicates and allied non-metallic minerals. These fundamental principles are used in the manufacture of: (1) clay structural products; terra cotta, sewer pipe, brick and tile; (2) refractory materials for heating, power and metallurgical furnaces, such as fire clay, silica, magnesia, chrome alumina, silicon carbide, etc.; (3) cements, limes and plasters; (4) enameled metals for structural, sanitary, art and advertising; (5) pottery for chemistry, sanitation, art and tableware; (6) glass for optics, structures, lighting and art; (7) electrical porcelain for insulators and spark plugs; (8) high temperature, thermal insulators of diatomite; (9) abrasives or grinding materials for the machining of metals, and (10) non-metallic mineral fillers and pigments for paper and paint.

The training of the ceramic engineer includes a general engineering foundation with courses in geology, mineralogy, petrology, mining and metallurgy, leading to specialization in ceramic chemistry and research. The curriculum has been designed to meet the ceramic problems of the Pacific coast, since this is the only ceramic engineering school in the Far West.

NOTE: Each major student is required to spend one summer vacation, and preferably two, or equivalent time, in practical contact with the mineral industry, in mining, metallurgy, or geology, and to submit upon his return to college in the autumn a written report of his observations in detail. Work of this nature offers an opportunity to secure data and material for the graduation thesis. The report is due on November 1.

ENGINEERING LABORATORIES

Especially equipped laboratories in aeronautical, chemical, civil, electrical and mechanical engineering are available. For description, see College of Engineering bulletin issued as a separate bulletin.

Requirements for Admission

Correspondence. Credentials and all correspondence relating to admission to any college or school of the University should be addressed to the registrar, University of Washington. For detailed information concerning admission, registration, and general University fees and expenses, applicable to all students, see pages 37, 43, 45.

Special Requirements

The College of Engineering requires that prospective students present for entrance:

Solid geometry, advanced algebra, one unit of physics, and one unit of plane geometry. Those who do not present high school chemistry for entrance will normally be expected to earn fifteen credits instead of twelve credits in chemistry during the freshman year. One unit of chemistry will be required, starting in the autumn of 1936.

Students planning to major in chemical engineering should include two units of German in high school. Also for those taking the structural or hydraulic option of civil engineering, German is very desirable.

Preparation in Algebra

All students entering the College of Engineering will be tested in high school algebra by class work and by an examination given shortly after the beginning of the first quarter. It is essential that students in the engineering courses shall possess a good working knowledge of algebra *at the beginning of their course,* and it is the purpose of the test to secure this by requiring a review of the subject shortly before entering the University. Students failing in the test are not permitted to continue with regular freshman engineering mathematics but are required to take a review of preparatory algebra (Math. 1, College of Science) during the first quarter.

Preparation in English

Exactitude in the mechanics of English should be automatic by the time of graduation from high school. To determine the degree of mastery actually attained, a test in spelling, punctuation, and grammar is given to sophomore student engineers on the third Tuesday of the autumn quarter. For those who fail to make a passing grade in this test, a non-credit make-up course is provided, Composition B, but it may result in troublesome irregularities of schedule. In order then, to clear his entrance into the course in technical writing required of all engineers—either through obtaining a good grade in the test or through exemption because of the consistently high standard of his written work—during the freshman year the student is urged to master the fundamentals of correct English while he is still in high school, and to make accuracy in speech and writing a matter of habit before he enters the College of Engineering.

Curricula and Degrees

The College of Engineering offers four-year curricula in each of the departments of aeronautical, ceramic, chemical, civil, commercial, electrical and mechanical engineering, and in mining and metallurgy, and mining and geology, leading to the degree of bachelor of science in these respective departments.

Degree with Honors. A degree with honors in engineering may be conferred upon any student of the College of Engineering who, upon vote of the engineering faculty and of the honors committee, may be declared worthy of unusual distinction.

Thesis. The graduating thesis when required, will consist of research or design in some branch of engineering, or review of some existing construction. The subject must be approved by the professor in charge of the department under which it is classified.

Advanced Degrees. The degrees of master of science in aeronautical, ceramic, chemical, civil, electrical, mechanical, metallurgical, and mining engineering, respectively, will be conferred upon graduates of this college or of other engineering colleges of recognized standing, who complete in residence one year (45 credits) of prescribed graduate work (including a satisfactory thesis) with a grade of A or B. The candidate must comply with the regulations of the Graduate School and pass a formal examination open to all members of the faculty. The selection of work for this degree must in each case be approved by the head of the department in which the student majors and by the Graduate Council.

The professional degrees, ceramic engineer (Cer.E.), chemical engineer (Ch.E.), civil engineer (C.E.), electrical engineer (E.E.), mechanical engineer (M.E.), metallurgical engineer (Met.E.), and engineer of mines (E.M.), will be conferred on graduates of this college holding the degree of bachelor of science or master of science in their respective departments, who give satisfactory evidence of having been engaged continuously in acceptable engineering work for not less than three years and who present satisfactory theses.

Arthur A. Denny Fellowship. One fellowship of $500 is open to graduate students in the department of civil engineering and one in the department of mining and metallurgy awarded by the departments on the basis of scholastic excellence and general merit, but only to one who needs financial assistance and is a resident of the state of Washington. Application for this fellowship should be made to the head of the department on blanks supplied by the heads of the departments concerned, and must be in their hands on or before March 15 preceding the academic year for which the fellowship is to be granted.

Research Fellowships. The department of Mines offers several fellowships for research in coal and other non-metallic mineral substances, in cooperation with the United States Bureau of Mines. The fellowships are open to graduates of universities and technical colleges who are properly qualified to undertake research investigations. The value of each fellowship is $720 for the 12 months beginning July 1. Fellowship holders pay tuition and laboratory fees, but are reimbursed for the amounts so expended; they register as graduate students and become candidates for the degree of master of science in the proper subject, unless an equivalent degree has previously been earned.

Each applicant should send a copy of his collegiate record from the registrar of the college where he has graduated, or will graduate in June. He should also send a photograph and a detailed statement of his professional experience, if any, and give the names and addresses of at least three persons who are familiar with his character, training and ability. Applications should be submitted by March 15 in order to allow ample time for consideration, and should be addressed to the head of the department of Mines, University of Washington, Seattle, Washington.

Appointees to the fellowship report for duty on July 1, and are required to be on duty for a full year, except that in case of reappointment for a second year, the fellowship holder is given a vacation from June 15 to July 1.

Investigations of Problems. Under certain conditions, the University will permit industries which have special problems for solution, to detail a representative to work on such problems at the University, or to meet the expense of engaging a man to do so. Experiments which can be carried on as readily in commercial laboratories and which do not require direction from the college's experts are not undertaken. The research is done under the direction of

the department, and complete records of all the data obtained are filed with the department, which reserves the right to publish this information for the benefit of the mining, metallurgical and ceramic industries.

Undergraduate Scholarships. A scholarship of $250, given by William Mackay of Roslyn, Washington, is available to junior and senior students in the department of Mines. The award is made on the basis of character, scholarship, and need of assistance. Applications are due in March.

Assistantships. Several assistantships are available in the various departments, open to graduate students who are otherwise unable to attend the University and who are approved by the dean. These assistantships carry an honorarium just sufficient to pay the total fees. Applications for these assistantships should be made to the dean. Award shall be on the basis of need, scholarship, and general ability. The assistantships are primarily for the purpose of aiding unemployed alumni to pursue graduate study.

Loan Funds. There are special engineering and mines *loan* funds available for assisting upper class students. These are not open to freshmen.

Cultural Electives. In order to provide opportunities for greater breadth of education, each engineering curriculum has, in addition to the arts and sciences subjects which a student is required to take, electives provided in the senior year. About fifteen credits of non-technical electives are allowed in each course and the student is advised to select appropriate courses in the Colleges of Arts and Science which will introduce him to intellectual areas other than those included in his engineering curriculum. All electives must be approved in advance by the head of the department in which the student is taking his work.

CURRICULA OF THE COLLEGE OF ENGINEERING

FOR THE FRESHMAN YEAR IN ALL DEPARTMENTS

FRESHMAN

Autumn Quarter	*Credits*	*Winter Quarter*	*Credits*	*Spring Quarter*	*Credits*
Chem. 24. General	4	Chem. 25. General	4	Chem. 26. General	4
G.E. 1. Drawing	3	G.E. 2. Drawing	3	G.E. 3. Drafting Probs.	3
G.E. 11. Engr. Prob.	3	G.E. 12. Engr. Prob.	3	G.E. 21. Surveying	3
Math. 31. Fresh. Engr. Math.	5	Math. 32. Fresh. Engr. Math.	5	Math. 33. Fresh. Engr. Math.	5
Military or Naval Sci. or Phys. Edu.	+	Military or Naval Sci. or Phys. Edu.	+	Military or Naval Sci. or Phys. Edu.	+

AERONAUTICAL ENGINEERING

Leading to the degree of Bachelor of Science in Aeronautical Engineering

FRESHMAN

(The same for all curricula. See above.)

SOPHOMORE

Autumn Quarter	*Credits*	*Winter Quarter*	*Credits*	*Spring Quarter*	*Credits*
Physics 97. Engr.	5	Physics 98. Engr.	5	Physics 99. Engr.	5
Math. 62. Calc.	3	Math. 63. Calc.	3	M.E. 83. Steam Lab.	3
M.E. 81. Mechanism	3	*C.E. 91. Mechanics	3	*C.E. 92. Mechanics	3
M.E. 82. Steam Engr.	3	B.A. 3. Gen. Econ.	3	Comp. 100. Engr.	3
M.E. 53. Mfg. Methods	1	M.E. 54. Mfg. Methods	1	M.E. 55. Mfg. Methods	1
Military or Naval Sci. or Phys. Edu.	+	Military or Naval Sci. or Phys. Edu.	+	Military or Naval Sci. or Phys. Edu.	+

JUNIOR

Autumn Quarter	*Credits*	*Winter Quarter*	*Credits*	*Spring Quarter*	*Credits*
A.E. 101. Aerodynam...	3	A.E. 102. Aerodynam..	3	A.E. 103. Performance.	3
A.E. 171. Aircraft Mech.	3	A.E.172. Aircraft Mech.	3	A.E. 173. Aircr. Const..	3
C.E. 142. Hydr.....	5	E.E. 101-2. Dir. Cur...	6	E.E. 121-2. Alt. Cur...	6
M.E. 111. Mach. Des..	3	M.E. 112. Mach. Des..	3	M.E. 167. Engr. Matls.	3
Comp. 102. Engr.....	3	M.E. 104. Mfg. Methods	1		

SENIOR

A.E. 111. Airpl. Des...	3	A.E. 112. Airpl. Des...	3	M.E. 183. Thermo and Ref.....	5
A.E. 141. Propulsion...	3	M.E. 198. Gas Engines	3	A.E. 121. Airships.....	3
A.E. 161. Aerial Trsp..	3	B.A. 54. Bus. Law....	3	A.E. 181. Adv. Airplane Des.....	3
Electives	7	A.E. 162. Aerial Trsp..	3	Electives	5
		Electives	3		

Electives must in all cases be approved in advance by the head of the department.

*Aeronautical Engineering students who desire to elect structural analysis courses in the civil engineering department should register for C.E. 95 and C.E. 96.

CHEMICAL ENGINEERING

Leading to the Degree of Bachelor of Science in Chemical Engineering

FRESHMAN

(The same for all curricula. See above.)

SOPHOMORE

Autumn Quarter	*Credits*	*Winter Quarter*	*Credits*	*Spring Quarter*	*Credits*
Chem. 51. Chem. Tech..	2	Chem. 52. Chem. Tech.	2	Chem. 53. Chem. Tech.	2
Physics 97. Engr.....	5	Physics 98. Engr.....	5	Physics 99. Engr.....	5
Math. 62. Calc.....	3	Chem. 110. Quant. Anal.	5	Chem. 101. Adv. Qual. Anal.....	5
Chem. 109. Quant. Anal.	5	M.E. 82. Steam Engr..	3	M.E. 83. Steam Lab...	3
Military or Naval Sci. or Phys. Edu.....+		Military or Naval Sci. or Phys. Edu.....+		Military or Naval Sci. or Phys. Edu.....+	

JUNIOR

Chem. 121. Ind.....	5	Chem. 122. Ind.....	5	Chem. 123. Ind.....	5
Chem. 131. Org.....	5	Chem. 132. Org.....	5	C.E. 92. Mechanics....	3
E.E. 101. Dir Cur.....	4	E.E. 121. Alt. Cur....	4	Comp. 100. Engr.....	3
E.E. 102. Dir. Cur. Lab.	2	E.E. 122. Alt. Cur. Lab.	2	M.E. 55. Mfg. Methods	1
				M.E. 54. Mfg. Methods	1
				Elective	3

SENIOR

Chem. 181. Phys. and Theor.....	5	Chem. 182. Phys. and Theor.....	5	Chem. 173. Chem. Engr.	3
Chem. 171. Chem. Engr.	5	Chem. 172. Chem. Engr.	5	Electives	12
Chem. 176. Chem. Engr. Thesis.....	2	Chem. 177. Chem. Engr. Thesis.....	3		
Elective	3	Elective	3		

Electives must in all cases be approved in advance by the head of the department.

CIVIL ENGINEERING

Leading to the Degree of Bachelor of Science in Civil Engineering

FRESHMAN

(The same for all curricula. See above.)

SOPHOMORE

Autumn Quarter	*Credits*	*Winter Quarter*	*Credits*	*Spring Quarter*	*Credits*
Physics 97. Engr.....	5	Physics 98. Engr.....	5	Physics 99. Engr.....	5
Math. 62. Calc.....	3	B.A. 54. Bus. Law....	3	B.A. 3. Gen. Econ.....	3
M.E. 82. Steam Engr..	3	C.E. 58. Transp. Engr..	4	C.E. 59. Adv. Surv....	4
C.E. 57. Transp. Surv..	4	C.E. 95. Mechanics....	3	C.E. 96. Mechanics....	3
Military or Naval Sci. or Phys. Edu.....+		Military or Naval Sci. or Phys. Edu.....+		Military or Naval Sci. or Phys. Edu.....+	

JUNIOR

C.E. 142. Hydraulics...	5	C.E. 143. Hyd. Engr...	5	C.E. 121. Roads. & Pav.	3
C.E. 171. Str. Anal.— R.C.....	3	C.E. 172. Str. Anal— Steel.....	3	C.E. 150. Sanit. Engr..	3
E.E. 103. Dir. Cur....	3	C.E. 163. Matls.—Timber and Steel.....	3	C.E. 173. Str. Anal.— Timber.....	3
E.E. 104. Dir. Cur. Lab.	1	E.E. 123. Alt. Cur.....	3	C.E. 162. Mtls. of Con.	3
Geol. 105. Petrol.....	5	E.E. 124. Alt. Cur. Lab.	1	Comp. 100. Engr.....	3

SENIOR

Hydraulic and Sanitary Option

C.E. 145. Hyd. Mach...	3	C.E. 155. Water Sup...	3	C.E. 147. Hyd. Power..	3
C.E. 157. Reclamation..	3	C.E. 176. Str. Des.— Steel.....	4	C.E. 154. Sanit. Des...	3
C.E. 158. Sewerage....	3	Elective	9	C.E. 177. Str. Des.— Timber.....	3
C.E. 175. Str. Des.— R.C.....	4			C.E. 199. Engr. Rel...	3
Elective	3			Comp. 102 or Spch. 103	3

Structural Option

C.E. 157. Reclamation..	3	C.E. 155. Water Sup...	3	C.E. 177. Str. Des.— Timber.....	3
C.E. 158. Sewerage....	3	C.E. 176. Str. Des.— Steel.....	4	C.E. 185. Adv. Str. Des.	4
C.E. 175. Str. Des.— R.C.....	4	C.E. 182. Adv. Str. Anal.....	3	C.E. 199. Engr. Rel....	3
C.E. 181. Adv. Str. Anal.....	3	Elective	6	Comp. 102 or Spch. 103	3
Elective	3			Elective	3

Highway and Railway Option

C.E. 124. Highway Des.	3	C.E. 123. Highway and Railway Econ.....	3	C.E. 128. Transp. Adm.	3
C.E. 157. Reclamation..	3	C.E. 155. Water Sup...	3	C.E. 177. Str. Des.— Timber.....	3
C.E. 158. Sewerage ...	3	C.E. 176. Str. Des.— Steel.....	4	C.E. 199. Engr. Rel....	3
C.E. 175. Str. Des.— R.C.....	4	Elective	6	Comp. 102 or Spch. 103	3
Elective	3			Elective	3

Electives must in all cases be approved in advance by the head of the department.

COMMERCIAL ENGINEERING

Leading to the Degree of Bachelor of Science in Commercial Engineering

FRESHMAN

(The same for all curricula. See above.)

SOPHOMORE

Autumn Quarter	*Credits*	*Winter Quarter*	*Credits*	*Spring Quarter*	*Credits*
Physics 97. Engr.....	5	Physics 98. Engr.....	5	Physics 99. Engr.....	5
Math. 62. Calc.....	3	Math. 63. Calc.....	3	M.E. 83. Steam Lab...	3
M.E. 81. Mechanism...	3	C.E. 91. Mechanics....	3	Comp. 100. Engr.....	3
M.E. 82. Steam Engr...	3	B.A. 3. Gen. Econ....	3	C.E. 92. Mechanics....	3
M.E. 53. Mfg. Methods	1	M.E. 54. Mfg. Methods	1	M.E. 55. Mfg. Methods	1
Military or Naval Sci. or Phys. Edu.....+		Military or Naval Sci. or Phys. Edu.....+		Military or Naval Sci. or Phys. Edu.....+	

JUNIOR

C.E. 142. Hydraulics...	5	M.E. 111. Mach. Des..	3	E.E. 101. Dir Cur.....	4
B.A. 62. Prin. Acctg...	5	B.A. 55. Bus. Law....	3	E.E. 102. Dir. Cur. Lab.	2
Comp. 102. Adv. Engr.	3	B.A. 163. Cost Acctg...	5	M.E. 112. Mach. Des...	3
B.A. 54. Bus. Law.....	3	M.E. 108. Prod. Man...	3	M.E. 109. Fact. Cost Analy.....	3
		Elective	3	Elective	3

SENIOR

E.E. 121. Alt. Cur....	4	B.A. 171. Corp. Fin...	5	Speech 103. Extemp...	3
E.E. 122. Alt. Cur. Lab.	2	B.A. 160. Ind. Mgmt...	5	M.E. 167. Engr. Matls..	3
B.A. 107. Money and Banking.....	5	Electives	6	Electives	9
Elective	5				

Not less than 16 elective credits shall be technical (engineering).
Electives in all cases must be approved in advance by the head of the department.

ELECTRICAL ENGINEERING

Leading to the Degree of Bachelor of Science in Electrical Engineering

FRESHMAN

(The same for all curricula. See above.)

SOPHOMORE

Autumn Quarter	*Credits*	*Winter Quarter*	*Credits*	*Spring Quarter*	*Credits*
Physics 97. Engr.....	5	Physics 98. Engr.....	5	Physics 99. Engr.....	5
Math. 62. Calc.....	3	Math. 63. Calc.....	3	M.E. 83. Steam Lab....	3
M.E. 81. Mechanism...	3	C.E. 91. Mechanics....	3	Comp. 100. Engr.....	3
M.E. 82. Steam Engr..	3	B.A. 3. Gen. Econ.....	3	C.E. 92. Mechanics....	3
M.E. 53. Mfg. Methods	1	M.E. 54. Mfg. Methods	1	M.E. 55. Mfg. Methods	1
Military or Naval Sci. or Phys. Edu.....+		Military or Naval Sci. or Phys. Edu.....+		Military or Naval Sci. or Phys. Edu.....+	

JUNIOR

E.E. 109. Dir. Cur....	4	E.E. 111. Dir Cur....	4	E.E. 161. Alt. Cur.....	6
E.E. 110. Dir. Cur. Lab.	2	E.E. 112. Dir. Cur. Lab.	4	E.E. 162. Alt. Cur. Lab.	4
Comp. 102. Adv. Engrs'	3	C.E. 142. Hydraulics...	5	E.E. 152. Mach. Des...	3
M.E. 167. Materials....	3	M.E. 112. Mach. Des...	3	Electives	3
M.E. 111. Mach. Des...	3				

SENIOR

E.E. 163. Alt. Cur.....	6	E.E. 195,196. El. Trans.	6	Thesis or electives.....	4
E.E. 164. Alt. Cur. Lab.	4	Electives	10	Electives 12	
Electives	6				

Electives must in all cases be approved in advance by the head of the department.

Four of the following electives, offered in the several divisions of electrical engineering, are required for the bachelor of science in electrical engineering degree:

	Credits
E.E. 141. Illumination	4
E.E. 154. Design of Electrical Apparatus	4
E.E. 171. Electric Railways	4
E.E. 173. Central Stations	4
E.E. 175. Power Transmission	5
E.E. 180, 182, 184. Research (each)	2 to 5
E.E. 181. Vacuum Tubes	5
E.E. 183. Radio	5
E.E. 185. Telephone Transmission	4
E.E. 186, 188. Thesis (each)	2 to 5
E.E. 191. Advanced Circuit Theory	5
E.E. 193. Advanced Circuit Theory	3
E.E. 190, 192. Seminars (each)	4

MECHANICAL ENGINEERING

Leading to the Degree of Bachelor of Science in Mechanical Engineering

Freshman

(The same for all curricula. See above.)

Sophomore

Autumn Quarter	*Credits*	*Winter Quarter*	*Credits*	*Spring Quarter*	*Credits*
Physics 97. Engr.	5	Phys. 98. Engr.	5	Physics 99. Engr.	5
Math. 62. Calc.	3	Math. 63. Calc.	3	M.E. 83. Steam Lab.	3
M.E. 81. Mechanism	3	C.E. 91. Mechanics	3	Comp. 100. Engr.	3
M.E. 82. Steam Engr.	3	B.A. 3. Gen. Econ.	3	C.E. 92. Mechanics	3
M.E. 53. Mfg. Methods	1	M.E. 54. Mfg. Methods	1	M.E. 55. Mfg. Methods	1
Military or Naval Sci. or Phys. Edu.	+	Military or Naval Sci. or Phys. Edu.	+	Military or Naval Sci. or Phys. Edu.	+

Junior

E.E. 101. Dir. Cur.	4	E.E. 121. Alt. Cur.	4	C.E. 142. Hydraulics	5
E.E. 102. Dir. Cur. Lab.	2	E.E. 122. Alt. Cur. Lab.	2	Comp. 102. Adv. Engr.	3
M.E. 123. Eng. & Boil.	3	M.E. 111. Mach. Des.	3	M.E. 112. Mach. Des.	3
M.E. 151. Exp. Eng.	3	M.E. 124. Eng. & Boil.	3	M.E. 153. Exp. Engr.	3
M.E. 105. Adv. Mfg. Methods	1	M.E. 152. Exp. Eng.	3	M.E. 107. Prd. Plan'g.	1
Elective	3	M.E. 106. Adv. Mfg. Methods	1		

Senior

B.A. 54. Bus. Law	3	M.E. 114. Mach. Des.	2	M.E. 115 or 199. Mach Design	3
M.E. 113. Mach. Des.	2	M.E. 167. Engr. Matls.	3		
M.E. 183. Thermo. and Ref.	5	M.E. 182. Heat. & Vent.	3	M.E. 184. Power Plants	5
Electives	5	M.E. 198. Gas Eng.	3	M.E. 195. Thesis	3
		Electives	5	Electives	5

Electives must in all cases be approved in advance by the head of the department. When practicable, it is recommended that thesis be taken in the winter quarter.

Mining, Metallurgical and Ceramic Engineering

MINING AND METALLURGY

Leading to the Degree of Bachelor of Science in Mining and Metallurgy

Freshman

(The same for all curricula. See above.)

Sophomore

Autumn Quarter	*Credits*	*Winter Quarter*	*Credits*	*Spring Quarter*	*Credits*
Min. 51. Elem. of Min.	3	Min. 52. Methods	3	Met. 53. Elem. of Met.	3
Geol. 5. Rocks & Min.	5	Met. 153. Wet Assaying	3	Cer. 90. Cer. Materials.	3
Math. 62. Calc.	3	Comp. 100	3	Geol. 121. Mineralogy	5
Physics 97. Engineers'.	5	Physics 98. Engineers'.	5	Physics 99. Engineers'.	5
Military or Naval Sci. or Phys. Edu.	+	Military or Naval Sci. or Phys. Edu.	+	Military or Naval Sci. or Phys. Edu.	+

JUNIOR

Autumn Quarter	*Credits*	*Winter Quarter*	*Credits*	*Spring Quarter*	*Credits*
Min. 101. Milling.....	3	Met. 103. Fuels	4	Min. 106. Mine Excur..	1
Met. 101. Fire Assaying.	3	E.E. 101-102. Dir. Cur.	6	Met. 102. Met. Lab....	2
Met. 104. Non-Ferrous.	3	Geol. 124. Petrography.	3	E.E. 121-122. Alt. Cur..	6
C.E. 91. Mechanics....	3	C.E. 92. Mechanics....	3	B.A. 3. Gen. Econ.....	3
Geol. 123. Optical Min..	3			Elective	3

Mining or metallurgical practice in summer vacation.

SENIOR

Min. 151. Min. Engr...	3	Min. 103. Mine Res. Tr.	1	Min. 107. Mine Excur.	1
Min. 191. Thesis.....	2	Min. 162. Costs.....	4	Min. 152. Ore Dress...	5
Met. 155. Iron & Steel.	3	Min. 192. Thesis.....	2	Min. 182. Min.Ind.Mgt.	3
Met. 162. Phys. Met...	3	Met. 163. Metallog....	3	Min. 193. Thesis.....	1
Elective	4	Elective	4	Elective	4

Electives must in all cases be approved in advance by the head of the department.

MINING AND GEOLOGY

Leading to the Degree of Bachelor of Science in Mining and Geology

FRESHMAN

(The same for all curricula. See above.)

SOPHOMORE

Autumn Quarter	*Credits*	*Winter Quarter*	*Credits*	*Spring Quarter*	*Credits*
Min. 51. Elem. of Min.	3	Min. 52. Methods.....	3	Met. 53. Elem. of Met..	3
Geol. 5. Rocks & Min..	5	Met. 153. Wet Assaying	3	Cer. 90. Cer. Materials.	3
Math. 62. Calc.....	3	Comp. 100	3	Geol. 121. Mineralogy..	5
Physics 97. Engineers'.	5	Physics 98. Engineers'.	5	Physics 99. Engineers'.	5
Military or Naval Sci. or Phys. Edu.....+		Military or Naval Sci. or Phys. Edu.....+		Military or Naval Sci. or Phys. Edu.....+	

JUNIOR

Min. 101. Milling.....	3	Met. 103. Fuels.....	4	Min. 106. Mine Excur.	1
Met. 101. Fire Assaying.	3	Geol. 106. Physiog.....	5	Met. 102. Met. Lab....	2
Met. 104. Non-Ferrous.	3	Geol. 124. Petrography.	3	Geol. 107. Hist. Geol...	5
Geol. 123. Optical Min.	3	C.E. 92. Mechanics....	3	Geol. 125. Petrology...	3
C.E. 91. Mechanics....	3			B.A. 3. Gen. Econ.....	3
				Elective	2

Mining or geology practice in summer vacation.

SENIOR

Min. 151. Min. Engr...	3	Min. 103. Mine Res. Tr.	1	Min. 107. Mine Excur.	1
Min. 191. Thesis.....	2	Min. 162. Costs.....	4	Min. 152. Ore Dress...	5
Met. 162. Phys. Met...	3	Min. 192. Thesis.....	2	Min. 182. Min.Ind.Mgt.	3
Elective	6	Geol. 127. Econ Geol. Met.....	5	Min. 193. Thesis.....	1
		Elective	3	Elective	4

Electives must in all cases be approved in advance by the head of the department.

CERAMICS

FRESHMAN

(The same for all curricula. See above.)

SOPHOMORE

Autumn Quarter	*Credits*	*Winter Quarter*	*Credits*	*Spring Quarter*	*Credits*
Min. 51. Elem. of Min.	3	Min. 52. Methods.....	3	Met. 53. Elem. of Met.	3
Geol. 5. Rocks & Min..	5	Met. 153. Wet Assaying.	3	Cer. 90. Cer. Materials.	3
Math. 62. Calc.....	3	Comp. 100. Composition	3	Geol. 121. Mineralogy..	5
Physics 97. Engineers..	5	Physics 98. Engineers..	5	Physics 99. Engineers..	5
Military or Naval Sci. or Phys. Edu.....+		Military or Naval Sci. or Phys. Edu.....+		Military or Naval Sci. or Phys. Edu.....+	

Mining or geology or metallurgy or ceramics practice in summer vacation.

JUNIOR

Autumn Quarter	*Credits*	*Winter Quarter*	*Credits*	*Spring Quarter*	*Credits*
Min. 101. Milling.....	3	Met. 103. Fuels.....	4	Min. 106. Mine Excur.	1
Cer. 100. Plas., Susp. & Drying.....	3	Cer. 101. Firing.....	3	Met. 102. Met. Lab....	2
Cer. 104. Calc. for Bodies & Glazes....	3	Cer. 105. Calc. for Dry & Firing.....	3	Cer. 102. Cer. Des....	3
C.E. 91. Mechanics....	3	C.E. 92. Mechanics....	3	Cer. 110. Cer. Meas....	3
Geol. 123. Optical Min..	3	Elective	3	B.A. 3	3
				Elective	3

Ceramics practice in summer vacation.

SENIOR

Min. 191. Thesis.....	3	Min. 103. Mine Res.Tr.	1	Min. 107. Mine Excur.	1
Met. 162. Phys. Met...	3	Min. 192. Thesis.....	3	Min. 193. Thesis.....	2
Cer. 121. Cer.Prod.Lab.	5	Cer. 122. Cer.Prod.Lab.	5	Cer. 123. Cer.Prod.Lab.	5
Chem. 181. Phys.&Theor.	3	Chem. 182. Phys.&Theor.	3	Elective	6
		Elective	3		

Suggested electives for students especially interested in
Mining Engineering: Min. 171, M.E. 81, 82, 83.
Coal Mining: Min. 122, 171, 176; M.E. 81, 82, 83.
Metallurgy: Met. 165, 166.
Mining and Geology: Cer. 90, Geol. 106, 107.
Ceramics: Cer. 131, 132, 133; Min. 152; Geol. 124, 125, 128; Physics 109.
General electives: Comp. 102, Speech 103, modern foreign language, B.A. 54.
Electives must in all cases be approved in advance by the head of the department.

COURSES OF STUDY

For a description of courses, offered by the College of Engineering, see Departments of Instruction section.

COLLEGE OF FORESTRY

General Information

A College of Forestry was established in 1907. Its location has exceptional advantages, offering splendid opportunities for field work in silviculture and forest measurements on the 582 acres which comprise the University campus. Other excellent forests are within walking distance of the campus. The University owns large forest tracts in various parts of the state, where students may conduct extensive research work. The immense national forests within a few hours' ride of Seattle afford practical object lessons in forest management. Washington is the largest lumber producing state in the country, and Seattle is in the center of the timber industry of Washington and the Northwest. In its many sawmills and wood-working industries, the student has unrivaled opportunities for studying wood utilization.

Buildings

The main forestry building, Alfred H. Anderson Hall, was completed in the spring of 1925 at a cost of $260,000. It contains the lecture rooms, student laboratories, exhibition rooms, library, reading and Forest Club rooms and an assembly hall seating 250. Covering a ground area of 7,500 feet, it has three full floors and a large draughting room on the fourth floor. The appointments are unusually complete. This building was presented to the University by Mrs. Agnes H. Anderson to promote the cause of forestry in the State of Washington. The Forest Products Laboratory, which was erected by the University in 1921 at a cost of $85,000, is a modern two-story building designed for research work in forest products. A covered arcade connects this building with Alfred H. Anderson Hall.

Demonstration Forest

A tract of approximately 2,000 acres located at LaGrande, Washington, and adjoining the Rainier National Park Highway, is a gift of the Charles Lathrop Pack Forestry Trust. The tract contains approximately 25,000,000 feet of timber and is most admirable for experimental and demonstration purposes.

Forest Club

All forestry students are eligible to membership in the Forest Club. It aims to promote acquaintance and good fellowship among students and instructors; to keep in touch with every day problems in forestry and lumbering, and the leaders in these industries; to interest the public in the college and in the forestry and lumbering problems of the state. A magnificent room has been provided in the new building for the use of the Forest Club.

The club has issued the *Forest Club Annual* regularly since 1913. This publication has been devoted to articles and illustrations of the department; to scientific and popular articles about forestry and to a complete roster of students and alumni. In April, 1922, the annual was superseded by an illustrated magazine known as the *University of Washington Forest Club Quarterly*. The subscription price is $1 a year. It is devoted largely to Western forestry and lumbering problems.

Field Instruction and Summer Work

Much of the instruction in forestry is given in the field, in nearby forests, logging camps, saw mills, woodworking plants, and plants that manufacture equipment. The spring quarter of the sophomore year is spent at the Pack Demonstration Forest, where a completely equipped camp has been provided. This work enables the student to correlate theoretical class room instruction with its application in the field.

Students in forestry are urged to spend their summer vacations in some line of practical work connected with the forestry industry. The University is situated in the heart of a great lumbering section and near extensive national forests which offer ample opportunity for summer employment. Students not only acquire valuable experience in this way, but earn a considerable portion of their university expenses. The department co-operates with the industries in placing students and graduates in the positions for which they are best fitted.

Laboratories

Especially equipped laboratories in dendrology, mensuration, timber physics, wood technology, wood preservation, kiln drying, paper and pulp, and plywood are available. Laboratory work in logging engineering, milling and silviculture are largely conducted in the field and at local commercial operations.

Requirements for Admission

Correspondence. Credentials and all correspondence relating to admission to any college or school of the University should be addressed to the Registrar, University of Washington. For detailed information concerning admission, registration and general University fees and expenses, applicable to all students, see pages 37, 43, 45.

Special Requirements of the College of Forestry

1. Forestry requires for entrance:

Advanced algebra	½ unit.
Plane geometry	1 unit.

2. Recommends that prospective students include in their preparatory courses a year of physics.

3. *Foreign Language.* Beginning in the autumn of 1934 two units in modern foreign language will be required for entrance, one of which may be taken in the 9th grade. German is preferred, though not required.

Qualifying examinations are required in advanced high school algebra and elementary composition. Applicants who fail in these examinations must register in Math. 1 and Comp. A without credit.

In satisfying entrance requirements with college courses, a minimum of ten credits is counted as the equivalent of the entrance unit.

Degrees

Undergraduate Work. For the degree of bachelor of science in forestry the student must complete, in addition to required subjects outlined in the curriculum, enough electives to make a total of 180 credits. Electives may be selected from forestry, lumbering, engineering or the botanical, chemical, zoological, geological or economic sciences, the subjects to be approved by

the student's class adviser. Ordinarily not more than 25 elective credits in any department other than forestry will be accepted for graduation. Exclusive of the basic military or naval science or physical education, 180 credits are required for graduation.

Five-Year Course. In order to enable students to obtain a broader choice of electives in the cultural subjects as well as to secure a better opportunity for a minor in one of the pure sciences or in economics, provision has been made for a five-year undergraduate course. Students completing this course also will be awarded the degree of bachelor of science in forestry.

Graduate Work. Two advanced degrees are offered to students who have received the bachelor's degree at this University or other institutions of equal rank, and have a satisfactory knowledge of the fundamental sciences. The candidate for the degree of master of forestry (M.F.) must earn 225 credits at this University, of which at least 78 are in approved technical forestry subjects. The candidate for the degree of master of science in forestry (M.S.F.) must present a minor in one or two subjects in the College of Science. In addition to these requirements, the candidate for either degree must present a thesis embodying results of independent research and pass an oral examination open to all members of the faculty. Only grades of A and B can be counted in graduate work.

For more detailed information on graduate work, see page 99.

Special Opportunities for Advanced Work

The location of the University and the excellent physical equipment of the department afford special advantages to graduate students in forestry. The advanced courses include forest geography, silviculture, management, wood technology, timber physics, wood preservation, advanced forest products, the business of lumbering, and research. A graduate from a college of forestry giving work equal in rank to that given at this University may complete the requirements for the advanced degree in one year. Graduates from other institutions of equal rank which give no courses in technical forestry may complete the required work in two years, providing they have training in the fundamental sciences, mathematics and surveying.

Scholarships and Prizes

(See page 52.)

ORGANIZATION OF THE CURRICULUM

The curriculum of the College of Forestry is organized to give the student a broad general training in his first two years' attendance with opportunity for specialization in the two final years. Enough elementary technical work is included in the lower division to give the student definite preparation for some practical field of work by the end of his sophomore year.

A fair degree of specialization can be had in the four-year undergraduate course, but a year of graduate work is advised for more thorough specialization. Work is offered for thorough specialization in (1) forest management, from the standpoint of both public and private forest holdings; (2) forest engineering; (3) lumber manufacturing; (4) forest products; (5) forestry sciences.

Upon beginning work in the upper division students must elect to follow one of these specialties.

Specialization in forest pathology, forest entomology, recreation, or any other lines into which a broad training in forestry enters, is provided under the head of forest sciences.

Choice of Electives. In election of studies students should follow the sequence of subjects as outlined in the curriculum. Deviations from the prescribed order will not be allowed by class advisers unless such deviation is imperative.

Students should decide by the end of their sophomore year in which field they desire to specialize. They should be especially careful to register for the electives required for their advanced specialized courses, as ordinarily no one will be admitted to advanced subjects who has not had the necessary prerequisites indicated in the time schedule.

Lower Division

First Year

Autumn Quarter	*Credits*	*Winter Quarter*	*Credits*	*Spring Quarter*	*Credits*
Bot. 11. Foresters'	4	Bot. 1. Foresters'	4	For. 1a. Dendrology	3
For. 2. Intro	2	For. 3. Intro	2	For. 4. Protection	3
Math. 31. Trig	5	Comp. 1. Composition	5	Math. 13. Stat. Meth	5
Physics 1. General	5	Physics 2. General	5	Physics 3. Electric	5
Military or Naval Sci. or Phys. Edu.	+	Military or Naval Sci. or Phys. Edu.	+	Military or Naval Sci. or Phys. Edu.	+

Second Year

For. 1b. Dendrology	3	For. 60. Mensuration	4	*Soph. Field Trip*	
For. 15. Gen. Lumb	5	G.E. 7. Engr. Draw	3	For. 40. Silvicul	3
Chem. 1 or 21. General.	5	Chem. 2 or 22. General.	5	For. 62. Mensuration	6
For. 140. Construction	3	For. 121. Silvics	3	C.E. 55. For. Surv	2
Military or Naval Sci. or Phys. Edu.	+	Military or Naval Sci. or Phys. Edu.	+	C.E. 56. For. Surv	5
				Military or Naval Sci. or Phys. Edu.	+

Upper Division

Beginning with the upper division the student will, with the approval of his faculty adviser, elect to follow one of the specialties in forestry. In registering for upper division courses he must include all electives required as prerequisites for the advanced specialized courses. (See prerequisite list under description of courses, For. 153, 184, 187.)

GENERAL FORESTRY CURRICULUM

Third Year

Autumn Quarter	*Credits*	*Winter Quarter*	*Credits*	*Spring Quarter*	*Credits*
For. 10. Wood Technol.	3	For. 11. Wood Struc	3	B.A. 3. Gen. Econ	3
For. 115. Protection	3	For. 104. Tim. Physics.	5	For. 105. Wood Pres	3
For. 122. Silv. Methods	5	For. 158. Utilization	5	Bot. 111. For. Pathol	5
Elective	5	Elective	3-5	Elective	5

Fourth Year

For. 119. For Admin	3	For. 126. For. Econ	4	Senior Field Trip	16
For. 151. For Finance	4	For. 152. For. Organ	4		
For. 185. For. Engr	4	For. 171. For. Geog	4		
Elective	3-5	Elective	3-5		

FOREST PRODUCTS CURRICULUM

Third Year

Autumn Quarter	*Credits*	*Winter Quarter*	*Credits*	*Spring Quarter*	*Credits*
For. 10. Wood Tech	3	For. 11. Wood Struc	3	B.A. 3. Gen. Econ	3
B.A. 65. Acct. Surv	5	For. 104. Tim. Physics.	5	Bot. 111. For. Pathol	5
M.E. 82. Steam Engr	3	For. 158. For. Util	5	For. 105. Wood Pres	3
Elective	3-5	Elective	3-5	For. 106. Wood Pr. Lab	2
				Elective	3

Fourth Year

For. 183. Milling	5	For. 126. For. Econ	4	For. 184. Mfg. Prob	5
B.A. 57	5	For. 171. For. Geog	4	For. 189. Wood Pulp	5
Elective	6	For. 188. Kiln Drying	3	Elective	5
		Elective	5		

Graduate Year

The following subjects are primarily for graduate students. Seniors will be allowed to elect them only upon recommendation of the dean and the instructor concerned. With the exception of the thesis, none of the subjects, strictly speaking, is required, but the student will elect all those belonging to one specialty as determined on consultation with his faculty adviser. A sufficient number will have to be taken to fulfill the requirements for the master's degree. Nine credits only will be allowed for total thesis credit.

Autumn Quarter	*Credits*	*Winter Quarter*	*Credits*	*Spring Quarter*	*Credits*
For. 202. Thesis	3-6	For. 202. Thesis	3-6	For. 202. Thesis	3-6
For. 204. Work. Plans	3	For. 211. Grad. Studies	3-6	For. 203. Adv. Preserv.	3
For. 210. Grad. Studies	3-6	For. 214. Research	1-5	For. 212. Grad. Studies	3-6
For. 213. Research	1-5	For. 220. Adv. For. Eng.	5	For. 215. Research	1-3
		For. 221. Hist. & Policy	3		

FIVE-YEAR COURSE

Students are advised to look forward to a five-year course in preparation for the degree of bachelor of science in forestry. Progress in forestry is rapid, and competition for the higher places is becoming keen. Practically all of the better forestry colleges are looking forward to a five-year requirement. Five years will allow ample provision for a minor in one of the sciences, in engineering, or in economics, and a broader selection of the more purely cultural subjects. A limited amount of browsing is advised, but the student should elect at least 20 credits in a field basic to his specialty so as to fulfill the requirements of a minor in one of the non-forestry groups. Five groups for undergraduate election are advised as follows:

1. Engineering: continuation of mathematics; B.A. 57 and 65; M.E. 82 and 85; G.E. 1 and 2; C.E. 58.
2. Pathology: Bot. 140, 141, 142.
3. Physiology: Bot. 143, 144, 145.
4. Entomology: Zool. 1, 2, 111, 112.
5. Economics: B.A. 1, 2, 7, 57, 100.

Courses of Study

For a description of courses offered by the College of Forestry, see Departments of Instruction section.

GRADUATE SCHOOL

General Statement

Special Note: The bulletin of the Graduate School gives courses and specific department requirements for advanced degrees.

The Aims of Graduate Study. The principal aims of graduate study are the development of intellectual independence through cultivation of the scientific, critical and appreciative attitude of mind, and promotion of the spirit of research. The graduate student is therefore thrown more largely upon his own resources than the undergraduate, and must measure up to a more severe standard. The University is consistently increasing the emphasis on graduate work in order that it may be a strong center for advanced study.

Organization. The Graduate School was formally organized in May, 1911. The graduate faculty consists of men offering courses primarily designed for graduate students.

FEES

Graduation Fee. Each recipient of a higher degree pays a graduation fee of five dollars ($5).

Thesis Fee. Each such recipient pays a fee of two dollars ($2) for the binding of one copy of his thesis.

Publishing Fund. Each recipient of the degree of doctor of philosophy contributes fifty dollars ($50) to the publishing fund.

For detailed information concerning general fees, see page 45.

LIBRARY FACILITIES

The University general library contains about 268,000 volumes, and receives virtually all of the publications of learned societies. The law library contains approximately 60,000 volumes. The Seattle public library, containing about 503,000 volumes, is open to students without charge.

Collections of special significance are mentioned in the departmental announcements.

SPECIAL FACILITIES

Bailey and Babette Gatzert Foundation for Child Welfare. On December 21, 1910, this foundation was established by a gift to the University of $30,000. The purpose of the foundation is (1) to conduct a laboratory for the mental and physical examination of children to determine their individual defects and aptitudes and, in accordance with the results of the examination, to suggest the best means of education and treatment; (2) to assist in establishing the child welfare agencies and child study laboratories throughout the state, and (3) to carry on research in child psychology.

The Alice McDermott Memorial Fund. The late Mrs. Josephine P. McDermott made provision in her will for the establishment of the Alice McDermott Memorial Fund at the University of Washington. The amount of this bequest is $100,000, available for one or both of the following purposes:

1. Research work in or in connection with the University of Washington tending to promote the prevention of tuberculosis.
2. The purchase of radium for research work in connection with disease or for actual treatment thereof.

Engineering Experiment Station. The purpose of the station is to aid in the industrial development of the state and nation by scientific research and by furnishing information for the solution of engineering problems.

The scope of the work is two-fold.

1. To investigate and to publish information concerning engineering problems of a more or less general nature that would be helpful in municipal, rural and industrial affairs.

2. To undertake extended research and to publish reports on engineering and scientific problems.

Every effort will be made to co-operate effectively with professional engineers and the industrial organizations in the state. Investigations of primary interest to the individual or corporation proposing them, as well as those of general interest, will be undertaken through the establishment of fellowships.

For administrative purposes, the work of the station is organized into eight divisions: (1) Forest products, (2) mining, metallurgy and ceramics, (3) aeronautical engineering, (4) chemical engineering and industrial chemistry, (5) civil engineering, (6) electrical engineering, (7) mechanical engineering, (8) physics standards and tests.

The University of Washington Oceanographic Laboratories. The University of Washington Oceanographic Laboratories are well situated for the study of many of the problems of the sea, biological, physical and chemical. In this region the marine flora and fauna are very extensive and diversified, and extreme physical and chemical conditions may be found over a relatively small area.

Research and seminars conducted by members of the staff are open to properly qualified graduate students.

LABORATORIES

The University has well-equipped laboratories for advanced work in anatomy, botany, ceramics, chemistry, civil, chemical, electrical, mechanical and mining engineering, fisheries, forestry, geology, metallurgy, pharmacy, physics, psychology and zoology.

GRADUATE FELLOWSHIPS AND SCHOLARSHIPS

(See page 52.)

ADMISSION

Three classes of students are recognized in the Graduate School:

1. Candidates for the master's degree.
2. Candidates for the doctor's degree.
3. Students not candidates for a degree.

Admission. A graduate of the University or of any other institution of good standing will be admitted to the Graduate School. Before being recognized as a candidate for a degree, however, a student must be approved by a committee appointed by the dean of the Graduate School, which shall also constitute the advisory committee to oversee the student's subsequent work. Unless the committee is already sufficiently acquainted with the candidate's capacity and attainments, there shall be a conference of the committee and the candidate, the purpose of which is two-fold:

(a) To determine whether the student has the quality of mind and the attitude toward advanced work which would justify his going on for an advanced degree.

(b) To satisfy the major and minor departments and the graduate council that the student has the necessary foundation in his proposed major and minor subjects. If he lacks this foundation, he will be required to establish it through undergraduate courses or supervised reading.

If the student is from a college or university which falls below a satisfactory standard in curriculum, efficiency of instruction, equipment or requirements for graduation, he may be required to take other undergraduate courses in addition to those required as a foundation in the major and minor subjects.

As soon after matriculation as feasible, a candidate for an advanced degree must file with the dean of the Graduate School an outline of his proposed work, on a blank provided for that purpose. This blank is submitted to the advisory committee for acceptance or modification. When it has received approval and the student has been notified, he will be regarded as a candidate for a degree.

Scholarship. A student shall be dropped from the Graduate School when, in the opinion of the dean and the departments concerned in his training, his work does not justify his continuance.

Students on the Staff. Assistants, associates, or others in the employ of the University are normally permitted to carry a maximum of six hours of graduate work if full-time employees, and a maximum of eleven hours if half-time employees. The same regulation applies to teachers in the public schools.

Graduate Study in the Summer. Many departments offer graduate courses during the summer quarter, but these are addressed primarily to candidates for the master's degree. Candidates for the doctorate are in general encouraged to devote the summer to work upon the thesis.

Degrees

The Doctor's Degree

Doctor of Philosophy. Graduate students will be received as candidates for the degree of doctor of philosophy in such departments as are adequately equipped to furnish the requisite training. This degree is conferred only on those who have attained proficiency in a chosen field and who have demonstrated their mastery by preparing a thesis which is a positive contribution to knowledge.

The requirements for the degree of doctor of philosophy are as follows:

1. At least three years of graduate work, of which not less than one year must be spent in residence at the University of Washington. If a candidate is otherwise engaged in any regular employment, a correspondingly longer period of study will be required. Before being recognized as a candidate for the degree, a student must be approved by a committee as provided above.

2. Completion of courses of study in a major and one or two minor subjects. This requirement as to the number of minors, however, may in exceptional cases be modified by action of the Graduate Council, making it possible for the candidate to offer more than two minors, or no minor at all. What subjects may be offered as minors shall be determined by the major department with approval of the Graduate Council. The passing grades for advanced degrees are *A* and *B*, *S* being used to indicate satisfactory work in a hyphenated course so far as the course has progressed, such work not to be counted toward a major or minor until the final examination.

These courses of study cover at least two years of work. The work of the first year is virtually identical with that for the master's degree; the work of the second year is of still more advanced character. Not earlier than the end of the second year and at least a year before the time when the student expects to take the degree, the major and minor departments, supplemented by a representative from the Graduate Council, shall submit the student to a careful oral and written examination (see *The Qualifying Examination* below).

3. The preparation of a thesis, as stated above, embodying the results of independent research. The thesis may properly be initiated in the second year, and should occupy the greater part of the third year. If the thesis is of such a character, or falls in such a department, that it requires library or laboratory facilities beyond the resources of the University, the student will be required to carry on his investigation at some other university, at some large library, or in some special laboratory. This thesis must be approved by a committee appointed by the major department of which the instructor in charge of the thesis shall be a member.

4. Examinations as follows:

The Qualifying Examination. An oral, or written, or oral and written examination, covering the general fields and the specific courses in the major and minor fields. In so far as the examination is oral, it shall be before a committee appointed by the dean of not less than three representatives of the major department, not less than one representative of each minor department, and a representative of the Graduate Council. The qualifying examination will normally be taken no less than two quarters before the final examination.

The Final Examination. An oral, or oral and written examination, before the same committee as above. If the qualifying examination was in all respects satisfactory, the final examination shall be on the field of the thesis and such courses, as were taken subsequent to the qualifying examination. If the qualifying examination did not meet with the clear approval of the committee, the candidate's entire program, or such parts thereof as may have been designated by the committee, shall be subject to review.

If there is division of opinion in the committee in charge of either examination, the case shall be decided by the Graduate Council, with right of appeal to the Graduate Faculty.

5. Evidence of a reading knowledge of scientific French and German and of such other languages as individual departments may require. Certificates of proficiency in these languages, based upon examinations given at the University of Washington, must be filed with the dean not less than three months before the qualifying examination. Only in rare cases shall the requirement of a reading knowledge of scientific French and German be waived, and then only when, in the judgment of the council, substitutions for either or both of these languages will be to the advantage of the student's training.

6. Two copies of the thesis in typewritten form (or library hand) shall be deposited with the librarian for permanent preservation in the University archives, at least two weeks before the date on which the candidate expects to take the degree. Printed instructions for the preparation of thesis manuscripts are available at the library. One copy shall be bound at the expense of the candidate. At the same time a digest of the thesis, not to exceed 3000 words, must be filed in the office of the Graduate School.

The thesis, or such parts thereof, or such a digest as may be designated by the council, shall be printed. The candidate shall contribute $50 to the publishing fund for theses, for which he shall receive 50 copies of his thesis if it is printed entire or 50 copies of a digest of his thesis. From this fund the library is provided with 400 copies.

7. A statement certifying that all courses and examinations have been passed and that the thesis has been accepted and properly filed in the library, shall be presented to the dean at least one week before graduation. This statement must bear the signatures of all major and minor instructors in charge of the student's work, and of the committee appointed by the major department to pass on the thesis.

THE MASTER'S DEGREE

Master of Arts. The degree of master of arts implies advanced liberal training in some humanistic field, gained through intensive study of one of the liberal arts supplemented by study in one or two supporting subjects. This detailed study culminates in a thesis which, if not an actual contribution to knowledge, is concerned with the organization and interpretation of the materials of learning. Creative work of a high quality may be offered in lieu of a thesis.

Master of Science. The degree of master of science implies training similar to the above in some province of the physical or biological sciences. The thesis for this degree, however, must be an actual contribution to knowledge.

The requirements for these degrees are as follows:

1. At least three full quarters or their equivalent spent in undivided pursuit of advanced study. If a candidate has done graduate work elsewhere, his program may be slightly less exacting, but this work must pass review in the examination, and shall not reduce the residence requirement at this University.

2. Completion of a course of study in a major and one or two minor subjects and of a thesis which lies in the major field. The work in the major and minor subjects shall total not less than 36 course hours, of which 24 are usually in the major. The thesis normally counts for 9 hours in addition to the course work and lies in the major field. The passing grades for advanced degrees are *A* and *B*, *S* being used to indicate satisfactory work in a hyphenated course so far as the course has progressed, such work not to be counted toward a major or a minor until the final examination.

The requirement of a minor or minors may be waived, but only on recommendation of the major department and with the consent of the Graduate Council.

A reading knowledge of an acceptable foreign language is required for the degrees of master of arts and master of science.

No work in the major subject may be counted toward the master's degree until the candidate has complied with the departmental requirements as to previous work in that subject.

Elementary or lower division courses may not count toward the minor requirement, and teachers' courses may not count toward either the major or minor requirements.

The preparation of a thesis, as defined above.

4. An oral, or written or oral and written examination, given by a committee appointed by the head of the major department, including so far as feasible, all the instructors with whom the student has worked. If division of opinion exists among the examiners, the case shall be decided by the Graduate Council, with right of appeal to the Graduate Faculty.

5. The candidate's thesis shall be in charge of the instructor in whose field the subject falls, and it must be approved by a committee of the major department, of which the instructor in charge shall be a member. If the committee is divided in opinion, the case shall be decided by the Graduate Council, with right of appeal to the Graduate Faculty. At least two weeks before the date on which the candidate expects to take the degree, two copies of the thesis in typewritten form or printed form (or library hand, in case the thesis is of such a character that it cannot be typewritten) shall be deposited with the librarian for permanent preservation in the University archives. The thesis must meet the approval of the librarian as to form, printed instructions for the preparation of thesis manuscript being available at the library. The cost of binding for one copy must be deposited with the thesis.

6. A statement certifying that all courses and examinations have been passed, and that the thesis has been accepted and properly filed in the library,

shall be presented to the dean at least one week before graduation. This statement must bear the signatures of all instructors in charge of the student's work, and of the instructor in charge of the thesis.

Master of Arts and Master of Science in Technical Subjects. The degrees of master of arts and master of science are given in the following technical subjects: chemical engineering, civil engineering, electrical engineering, mechanical engineering, ceramic engineering, coal mining engineering, geology and mining, metallurgy, metallurgical engineering, mining engineering, forestry, pharmacy, physical education, and home economics. These degrees are designed for students who have taken the corresponding bachelor's degrees in technical subjects. In other respects, the requirements are essentially the same as those for the degree of master of arts and master of science. (See departmental write-ups.)

Master's Degree in Technical Subjects. The master's degree is given in the following technical subjects: forestry, economics and business, fine arts, education and music. The requirements for these degrees are essentially the same as those for the degrees of master of arts and master of science, with the exception that all the work is in the major. (See departmental write-ups.)

All candidates for advanced degrees must attend the Commencement exercises to receive their degrees in person, unless excused by formal petition to the Graduate Council.

Graduate Courses

(See Department of Instruction.)

For description of courses, see Departments of Instruction.

Department of Librarianship

The department of Librarianship offers professional education in the field, the technical curriculum extending through three quarters.

Graduates are competent to take charge of a small public library, or to take an assistant's place in any department of the larger libraries.

Initial admission to classes is permitted only at the beginning of the college year in October. Except as an auditor, no one may be admitted to any course in the department unless he is expecting to complete the entire curriculum.

Students desiring to enter the department must present an average of B in their undergraduate work, except in cases where successful library service has proved the student's ability to do library work.

Students not making an average of B in the courses of the department may, at the discretion of the faculty of the department, be dropped.

Admission

Admission to the general course in librarianship is granted as follows:

To graduate students who hold the baccalaureate degree from any college or university of good standing, and whose undergraduate work in either or both high school and college has included at least 20 college credits each in French and German, and who have made an average grade of B in their undergraduate work. Other modern languages may be substituted with the consent of the executive officer, provided the Romanic group and the Germanic group are represented.

Admission to the advanced course in library work with children is granted as follows:

To graduates of the University of Washington department of Librarianship or other accredited library schools. The number admitted will be limited,

so credentials must be taken up at an early date with the executive officer of the department.

For more detailed information concerning University fees and expenses. see General Information bulletin.

Loan Fund. By joint action of the Puget Sound Library Club and the Alumni Association of the department, a student loan fund has been established, known as The University of Washington Library School Loan Fund. This fund is available to students of the department who have satisfactorily carried the work of one quarter, and is available for emergency needs rather than to pay expenses throughout the year. It is administered by a committee of three, of which the executive officer of the department is chairman. The fund has been raised by voluntary contributions.

Degrees

On completion of the curriculum in librarianship (45 credits) the degree of bachelor of arts in librarianship is granted.

Upon completion of the advanced course in library work with children, a certificate in library work with children is granted.

Advisory Suggestions

As no one with serious physical defects, personality difficulties, or ill health can readily secure a position in library service, such persons should not ask admission to the department.

Persons beyond 30 years of age will not be considered for admission to the department unless they have already had satisfactory experience in library service.

The student entering the department should be a typist of accuracy and fair speed.

Students are advised not to plan for outside work as the courses are heavy.

Students desiring to prepare for children's librarianship are asked to take Soc. 57, Child Welfare, and Psych. 131, Child Psychology.

Graduates who have met the requirements for a teaching major and minor may qualify for their five-year normal diploma and take their bachelor of arts in librarianship in the fifth year. See general catalogue under "Teaching majors and minors for normal and life diplomas," or consult with the executive officers of the School of Education and the department of Librarianship.

The executive officer is the adviser for all pre-library students. Students planning to begin their professional training in librarianship after October 1933, should consult the executive officer in regard to their work once a year, preferably when registering for the spring quarter, and should have their programs approved by him.

CURRICULA

I. GENERAL COURSE

Autumn Quarter	*Credits*	*Winter Quarter*	*Credits*	*Spring Quarter*	*Credits*
170. Children's Work	3	184. Classif. & Cat.	3	178. Hist. of Books and Libraries	3
172. Intro. to Library Work	2	185. Bibliography and Reference	3-2	196. Books for Libs.	3
175. Classif. & Cat.	4	188. Bks. for libraries	2	°[5]180. Story Telling	3
177. Bibliography and Reference	3	°[5]183. Select. of books for children	3	°[5]181. Adv. Chil. Work	2
179. Books for Libs.	4	[5]189. Admin. of small libraries	2	°[5]182. School Adminis.	2
		186. Practice	5	°[5]190. Selection of Bks. for Children	3
				[5]191. Classif & Cat.	5-3
				[5]192. Administration	2
				[5]194. Bibliography and Reference	4
				[5]195. Book Selection for Schools	3

II. LIBRARY WORK WITH CHILDREN

Autumn Quarter	*Credits*	*Winter Quarter*	*Credits*	*Spring Quarter*	*Credits*
201. Children's Lit.	2	202. Children's Lit.	2	203. Children's Lit	2
204. Adm. of Children's Libraries	1	205. Adm. of Children's Libraries	1	206. Adm. of Children's Libraries	1
207. Traditional Lit.	2	208. Traditional Lit.	2	209. Traditional Lit.	2
210. School Work	1	211. School Work	1	212. School Work	1
213. Field Work	7	214. Field Work	7	215. Field Work	7
*Psych. 131. Child. Psy.	5	*Soc. 57. Child Welfare	3	°[6]Education	3

COURSES OF STUDY

For description of courses in librarianship, see Departments of Instruction section.

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[5] Electives.
° Consult instructor
[6] Consult executive officer of the department.
* May be taken in preparation.

SCHOOL OF LAW

Organization and Equipment

General Statement. The School of Law was established in 1899. It is a member of the Association of American Law Schools, which was organized in 1900 to set and maintain high standards of legal education, and which comprises the leading law schools of the country, membership being dependent on maintaining the standards set by the association. The School of Law is approved by the Council on Legal Education and Admission to the Bar of the American Bar Association.

The object of the School of Law is to provide a thorough training in the law and to prepare students for practice in any state or jurisdiction where the Anglo-American legal system prevails. Particular attention is given to the statutes, the special doctrines of law, and the rules of practice that obtain in the State of Washington. Instruction is given by use of the case system. This method of teaching law, which has been approved by experience and which is now employed in the leading law schools of the country, has the threefold merit of enabling the student to acquire a thorough and practical knowledge of legal principles, to develop the power of independent legal reasoning, and to become familiar with those processes of legal thinking which have determined the form and character of our jurisprudence and which will govern its future development. The faculty is composed of eleven resident professional law teachers who devote their entire time and energy to teaching. The courses in practice are taught by men experienced in practice at the Washington bar. In addition, lectures on special topics are given by distinguished lawyers and judges selected primarily from the bar of the State of Washington.

The Law Building. The School of Law occupies a separate building designed exclusively for Law School use.

The Libraries. The University law library contains 60,389 volumes (December, 1932), including the decisions of all English and American courts of last resort, and the reported decisions of all lower courts. Extensive runs of the English, American, and colonial statutes are available, and all legal periodicals published in the English language are received.

State and United States Courts. The School of Law is located within a few minutes' ride of both the federal and state courts sitting in Seattle. The United States District Court is in session and trying cases almost constantly, and the United States Circuit Court of Appeals for the Ninth Circuit holds a session in Seattle each autumn. The superior court for King county with thirteen departments, the justice courts, the municipal police court and the juvenile court are in session in Seattle throughout the school year, and enable the student to witness the trial of actual cases. The Supreme Court of the State of Washington is situated within comparatively easy reach at Olympia and affords the student casual opportunity of hearing the argument of state appeals.

General Information

Quarter System. The quarter system prevails in the School of Law. Each quarter is approximately 12 weeks in length. Credit is given usually on the basis of one credit representing a recitation or lecture one hour a week per quarter. The total hour values of courses prevailing in the schools of the Association of American Law Schools have been generally retained—*e. g.,*

courses formerly given two hours a week per semester are given three hours a week per quarter under the quarter system.

Admission to the Bar. The University of Washington School of Law is by law the standard of approved law schools for admission to the bar of this state. Admission to the Washington Bar, however, is conditioned upon passing a state bar examination.

Professional Standard of Minimum Training. The following resolution was adopted by the American Bar Association, September 1, 1921. It was approved by a national conference of state and local bar associations, February 24, 1922.

"(1) The American Bar Association is of the opinion that every candidate for admission to the bar should give evidence of graduation from a law school complying with the following standards:

"(a) It shall require as a condition of admission at least two years of study in a college.

"(b) It shall require its students to pursue a course of three years' duration if they devote substantially all of their working time to their studies, and a longer course, equivalent in the number of working hours, if they devote only a part of their working time to their studies.

"(c) It shall provide an adequate library available for the use of the students.

"(d) It shall have among its teachers a sufficient number giving their entire time to the school to insure actual personal acquaintance and influence with the whole student body.

"The Council on Legal Education and Admission to the Bar is directed to publish from time to time the names of those law schools which comply with the above standards and of those which do not and to make such publications available so far as possible to intending law students."

As stated, the University of Washington Law School is approved by the council.

Fees. For detailed information concerning general fees and expenses, see page 45.

Admission

Regular Students. Admission to the School of Law is on a selective basis. In passing upon applications for admission, the following factors are taken into account: amount of pre-legal work, scholarship in pre-legal work, special aptitude and fitness as evidenced by legal aptitude examination and personal interview with the dean of the Law School. Students contemplating entering the School of Law should file application blanks, copies of which may be obtained from the dean's office.

Students transferring from other colleges and law schools should settle the question of their admission in advance. In all cases, complete transcripts of college and law work should be sent to the dean's office.

The following are the minimum requirements for admission:

Candidates for the degree of juris doctor must have received the bachelor of arts degree or its equivalent from this university or an approved college.

Candidates for the bachelor's degree in arts and sciences, and the bachelor of law degree under the combined curricula must have completed three years of college work, including the group requirements of the college concerned, and must, in addition, have maintained a scholarship average of 2.25 grade points over their entire college work.

Candidates for the bachelor of law degree only, who enter the Law School prior to the autumn quarter of 1934, must have completed two years of college work, representing one-half of the work acceptable for a bachelor's degree, granted on the basis of a four-year period of study, in this university or an approved college and, in addition, must have a scholarship average of 2.25 grade points over the two years of college work.

Beginning with the autumn quarter of 1934, a minimum of three years' college work (135 quarter credits), together with a scholarship average of 2.25 grade points, will be required.

Special Students. No person will be admitted as a special student in law unless he is 23 years of age and his general education is such as to entitle him to admission to the first year class in the University of Washington. Special students are admitted only in exceptional cases upon vote of the faculty and the number shall not exceed ten per cent of the average number of students admitted by the school as beginning regular law students during the two preceding years.

A special student may become a candidate for a degree by complying with all the entrance requirements set forth in reference to regular students.

Degrees and Requirements for Graduation

Two degrees are given by this law school, J.D. (juris doctor) and LL.B. (bachelor of law).

The juris doctor degree will be conferred upon students who, prior to entering the Law School, have received the bachelor of arts degree, or its equivalent, from this institution or some other approved college and who, thereafter, complete the three years' professional law course (125 credits), including the prescribed courses of the first year and such advanced courses in law as the faculty may prescribe, and who, in addition, maintain a scholastic average of 3 grade points (B) over their entire law work.

The bachelor of law degree will be conferred on students who meet the requirements for admission to the School of Law and who, thereafter, complete 125 credits in professional law subjects, including the required first year courses, and who maintain over their entire law record a scholarship average of 2.25 grade points.

Combined Curricula in Arts, Sciences, and Law. It is possible for students to obtain the bachelor's degree in arts and sciences, and the bachelor's degree in law in six years. To do this, the student must first complete, with a grade point average of 2.25, the three years' work in arts and sciences, a total of 139 credits, including the group requirements of the college. (For details of these requirements, see the bulletins of the Colleges of Arts and Sciences). The student will then be admitted to the School of Law and upon completion of the prescribed first year's work in law (41 credits) will be granted the college degree. Upon completing the remaining two years of professional law work, with the required scholarship average, he will be granted the bachelor of law degree.

Residence Requirement. The candidate for graduation must spend nine quarters or their equivalent (three college years) in residence at a law school which is a member of the Association of American Law Schools. The three quarters immediately preceding the conferring of the law degree must be spent in residence at the University of Washington Law School.

Advanced Standing. If, in addition to satisfying the entrance requirements for regular standing in the Law School, a student has earned credits by regular attendance for at least one academic year of not less than eight

months in another law school which is a member of the Association of American Law Schools, he will ordinarily receive credit for such work, subject to the following restrictions: The work must equal in amount and character that required by this Law School and not more than two years' credit will be allowed for it. The right is reserved to refuse credit in law in whole or in part, save upon examination, and credit once given may be withdrawn for poor work in this school. Candidates for admission with advanced standing should forward a transcript of their record in both pre-legal and law work. No credit is given for time spent in private reading, correspondence work or study in a law office.

Summer School

General Statement. Courses are offered each summer as a part of the regular instruction of the Law School. This work carries the same credit and counts toward a degree the same as the work of any other quarter. Ordinarily, only second and third year courses are offered. For a detailed program, see the announcement of the summer session. By taking advantage of the summer work, students may shorten the period required for the law degree.

Miscellaneous Information

Washington Law Review. The Washington Law Review is a legal publication issued quarterly during the year under the direction of the law faculty with the assistance of a student board of 12 to 15 members chosen from the ablest students in the Law School. *The Review* serves as a medium of expression for the legal scholars of Washington and elsewhere and is devoted particularly to the interpretation, advancement, and harmonious development of the law. *The Review* contains scholarly articles by judges and lawyers and discussions of important recent court decisions by students in the Law School, based on thorough research. A place on the student editorial board is one of the goals of every earnest law student and the experience is invaluable to him in his later professional life.

The Order of the Coif. The Order of the Coif is a national honorary legal society with a chapter at this Law School. The order has for its purpose the encouragement of scholarship and the advancement of the ethical standards of the legal profession. Membership in the order is dependent entirely upon the attainment of high scholastic standing. Each chapter annually elects from the senior law class a number of persons, not exceeding ten per cent of the class, ranking highest in scholarship, with the proviso that any person whose character unfits him for membership in the order may be rejected.

The Carkeek Prize. Mr. Vivian M. Carkeek of Seattle offers an annual cash prize of $50 for the best student contribution to *The Washington Law Review* by a member of the senior class on a point of Washington law, or any point of peculiar interest to Washington attorneys.

Instruction in Other Departments. Law students may elect studies, for which they are prepared, in other departments of the University without charge, provided, that such election does not interfere with their law studies. Before registering in other departments, the student must obtain written permission from the dean of the Law School.

Inquiries

General Statement. Further particulars as to any phase of the work of the Law School not given herein, or in the University's bulletin of General Information, will be cheerfully given upon request. Communications addressed at any time to the Dean of the Law School, University of Washington, Seattle, Washington, will receive prompt attention.

Courses of Study

For a description of courses offered by the Law School, see Departments of Instruction section.

COLLEGE OF LIBERAL ARTS

General Statement

The College of Liberal Arts offers a flexible system for the planning of study programs based upon fundamental training in literature, language, art, mathematics, philosophy, and the social sciences. Physical and biological sciences may also be included by election of courses in the College of Science. By careful selection of high school courses, the student may make his education continuous. During the first two years at the University, he may study fields of knowledge which he did not study in the high school and may take the courses prerequisite to the major. During the last two years, he may take up his specialization by majoring with a department or by entering a professional school. Those planning to study law, education, journalism, library science, business, and architecture usually enter the University through the College of Liberal Arts. The college is organized to serve two important groups of students: (1) those wishing to secure a broad training during two years or more as an objective in itself or to aid in the choice of a vocation, and (2) those desiring to prepare for advanced studies in one of the various fields of knowledge.

Requirements for Admission

Correspondence. Credentials and all correspondence relating to admission to any college or school of the University should be addressed to the registrar, University of Washington. For detailed information concerning admission, registration, and general University fees and expenses, applicable to all students, see pages 37, 43, 45.

College of Liberal Arts Entrance Requirements

Entrance into the College of Liberal Arts is made under the same rules as entrance into the University except for certain subjects required in the high school or at the University. The following material is intended to support the belief that the students' education through the high school and the University should be continuous. It is very important to select in high school the subjects that are recommended below as preparation for the study of a main educational interest. Students who have not selected a field for specialization may follow a broad program chosen from laboratory science, literature and language, mathematics, and social science, including history.

Subject Requirements

In the College of Liberal Arts, of the four academic units in addition to English (2 units) required by the University of all students for entrance, three are specified as plane geometry (1 unit), a second unit of a foreign language, and a laboratory science (1 unit of chemistry, physics, biology, botany, or zoology). If a student enters with six or more academic units which include these subjects, he enters without deficiency. If he omits any of them, substitutes are required at the University. No university credit will be permitted for these substitutes unless the student presents eight or more academic units. The time required for these substitutes may delay the student's study program and his graduation. These subjects and other academic subjects in addition to the required six may and should be studied in the high school.

Substitutions

The following material does not apply to students who offer the above specified subjects for entrance but is intended to explain the practice of the college in regard to substitutions.

The University substitute for plane geometry is plane geometry taken by extension with an extra tuition fee, or Mathematics 1 (Advanced Algebra) and 5 (College Algebra) or 11 (Theory of Investments) or 13 (Elements of Statistical Method). This university mathematics earns university credit if the student presents for entrance eight or more academic units. If he presents fewer than eight academic units, the university courses are required without credit toward graduation.

The college requirement in language is the second unit of a foreign language in the high school or its language equivalent** at the University. There is one exception to this rule. Majors in Business (not including economics) may substitute for the above language requirement academic or commercial subjects in excess of the six academic units required of all entrants. In this department foreign language is an acceptable elective but is not required for entrance or for graduation. Foreign language studied at the University receives university credit if the student presents for entrance eight or more academic units or if the recommended substitutes in the department excepted above are made. If, in other than the excepted departments, the student presents fewer than eight academic units, the foreign language is required without credit toward graduation. The languages accepted for entrance are Greek, Latin, French, German, Spanish, Italian, Scandinavian, Chinese, Japanese, and Russian. The first unit of these languages may be studied before the tenth grade, but, if it is studied during the last three years of high school, it will be credited as an entrance unit. Less than one unit of a foreign language may not be counted for entrance.

The substitute for one unit of laboratory science in the high school is ten credits at the University from mathematics, physics, chemistry, botany, zoology, geology, geography 11-111, and astronomy. This university science earns university credit, if the student presents for entrance eight or more academic units. If he presents fewer than eight, the university science is required without credit toward graduation.

History. United States history, which may be United States history and civics, is required for graduation from most high schools. For this reason, it does not appear in the above list, but, if not studied in high school, the student must take United States history and political science 1 at the University (14 credits). Many departments recommend additional units in history other than United States history.

Requirements for Graduation

Students graduating after October, 1932, *may have the option of the bachelor of arts degree or the degree of the college, or school to which his major department belonged in the spring,* 1932.

Total Credits. To obtain the bachelor's degree, the student must complete not less than 180 credits plus the required military science or naval science or physical education, must observe the restrictions in regard to major and group requirements, scholarship requirements, and specific subject requirements of the college.

Graduation Option; Catalogues. All students shall have the option of being held to the entrance and graduation requirements of the catalogue under

**Twenty credits in one foreign language taken in the University or one unit in the high school and ten credits of the same language at the University satisfy the foreign language requirement.

which they enter, or those of the catalogue under which they expect to graduate. All responsibility for fulfilling the requirements for graduation from the various schools and colleges of the University shall rest with the student concerned.

Residence Work. A minimum of three full quarters of residence in the senior year, with completion of 36 credits, is required for any degree granted by the University. Senior standing is attained when 135 credits plus the required work in military or naval science or physical education have been completed.

Grades. Not less than three-fourths of the credits required for graduation must be earned with grades of A, B, or C.

Failures. Grade E is final and a student receiving a grade of E in a course can obtain credit for that course only by re-registering for it and repeating it.

Application for Degree. Each senior shall, before registering for the first quarter of his senior year, file with the registrar a written application for his degree. Each application shall be checked by the Committee on Graduation of the college at least six months before the date at which the student expects to be graduated and notice shall be sent to the student by the registrar of the acceptance or rejection of his application. The accepted list for each quarter shall be submitted at the last regular meeting of the faculty for the quarter and, if approved by the faculty, with or without modification, shall constitute the list of candidates to be recommended for graduation upon the completion of the work requisite for their respective degrees.

Two Degrees May Be Conferred. The degrees of B.A. and M.A., B.S. and M.S., or two different bachelor's degrees may be granted at the same time. In all such cases a minimum of 15 quarters shall have been occupied in the work for two degrees.

Planning Schedules in Lower Division. As a rule students in the lower division must confine their election to courses numbered 1 to 99 in the catalogue. If a student has had the proper prerequisite or is deemed qualified in intellectual maturity he may register for an upper division course with the consent of the dean and instructor concerned. If a student avails himself of this privilege he should be careful not to allow it to interfere with the completion of all the requirements of the first two years.

Specific Subject Requirements. After required entrance substitutes, if any, are satisfied, subject requirements* for the bachelor's degree may be satisfied by one of the following programs: (1) complete the subjects in the following list; (2) complete one of the set curricula leading to a bachelor's degree to be found under the departmental material in this bulletin.

Composition 1-2. Ten credits after passing Preliminary Freshman English Test unless exempted in whole or in part. For Composition 2, business students substitute Speech 37, and journalism students, Journalism 51.

Humanities. Ten credits—15 credits exempt from Composition 1. English, Oriental studies, liberal arts, ancient life and literature, appreciation in art, music, painting and architecture, foreign literature in translation, foreign language not used for language requirement; philosophy not used for the philosophy requirement.

Social Science. Fifteen credits. History, political science, economics, sociology, anthropology.

*In regard to the above requirements the student is to have the option until October, 1934, of satisfying these requirements or the requirements of his department, college, or school in the spring of 1932 or of the catalogue under which he entered the University.

Natural Science. Fifteen credits. Mathematics, physics, chemistry, botany, zoology, geology, astronomy, geography 11-111. It is recommended that the laboratory science of high school and university include both physical and biological science.

Psychology and or Philosophy. Ten credits. Upper division students may use Philosophy 101, 102, 103 as a part or all of this requirement.

Health Education. Five credits (required of women).

Military or Naval Science or Physical Education. Six quarters (men); 5 quarters (women). See General Information (page 56) for explanation of these requirements.

Major Requirements. A student must earn not less than 36 nor more than 60 credits in his major department. Not more than 96 credits will be accepted in the major and any other one department. For a major in English literature, drama, or public speaking, 10 credits in Composition 1-2 may be counted in addition to 60 credits in other English courses. In order that the pre-major and the major studies may be carefully planned, a student should consult with the adviser of his chosen major, preferably during the freshman year or as soon thereafter as he is able to decide on his principal specialization. The adviser for pre-law students is the dean of the College of Liberal Arts. For suggestions to students intending to specialize in education, journalism, law or library science, see departmental sections.

Major Subjects. The following is the list of accepted majors.

Anthropology
Art
Classical Languages:
  Greek or Latin
Economics
  Business Admin.
English:
  Literature
  Drama
  Public Speaking
General Literature
Germanic Language
History
Home Economics
Mathematics
Music
Oriental Studies
Philosophy
Political Science
Psychology
Romanic Languages:
  French
  Spanish
  Italian
Scandinavian Languages
Sociology

Curricula. Special curricula leading to the bachelor's degree in architecture, art, and music will be found with the departmental material.

Training for Professional Studies. Under "Major Departments and Special Curricula" below will appear suggestions for those interested in pre-education, pre-journalism, pre-law, and pre-library work.

Election from Courses Outside the College. Electives in engineering, forestry, law, mines, and pharmacy must not exceed 36 credits in all and not exceed 25 credits in any one of these.

Major Requirements and Special Curricula

A part of the requirement for graduation is the completion of a major or a set curriculum which leads to a bachelor's degree. Below are gathered together the pre-major and major requirements and set curricula arranged by departments. The electives of the set curricula are to be used as far as possible to satisfy the specific subject requirements of the college listed above.

ANTHROPOLOGY

Erna Gunther, Executive Officer, 211 Museum

	Credits		Credits
51,52.* Introd. to Anthropology	10	141. Primitive Literature *or*	
101. Basis to Civilization *or*		143. Primitive Art	3
105. Culture Growth	3	150. General Linguistics	3
111. Indian Cult. of Pacific *or*		185. Prim. Soc. and Pol. Institutions	3
112. Peoples of Pacific	3	193-195. Reading	12
			37

*Students starting major before winter, 1933, should be allowed to substitute other courses amounting to five credits.

ARCHITECTURE

Harlan Thomas, Executive Officer, Architecture Building

(See Architecture bulletin for detailed information.)

CURRICULUM IN ARCHITECTURE LEADING TO THE DEGREE OF BACHELOR OF ARCHITECTURE

First Year

Autumn Quarter	Credits	*Winter Quarter*	Credits	*Spring Quarter*	Credits
Arch. 1. Arch Apprec.	2	Arch. 2. Arch. Apprec.	2	Arch. 3. Arch. Apprec.	2
Arch. 4. El. of Design.	4	Arch. 5. El. of Design.	4	Arch. 6. El. of Design.	4
Arch. 7. Graphics	1	Arch. 8. Graphics	1	Arch. 9. Graphics	1
Arch. 47. El. Bldg. Con.	3	Arch. 48. El. Bldg. Con.	3	Art 34. Draw. & Sculp.	3
Art 32. Draw. & Sculp.	3	Art 33. Draw. & Sculp.	3	Comp. 6. Composition	3
Comp. 4. Composition	3	Comp. 5. Composition	3	Electives	2
Military or Naval Sci. or Phys. Edu.	+	Military or Naval Sci. or Phys. Edu.	+	Military or Naval Sci. or Phys. Edu.	+

Second Year

Arch. 51. Hist. of Arch.	2	Arch. 52. Hist. of Arch.	2	Arch. 53. Hist. of Arch.	2
Arch. 54. Design Gr. I.	5	Arch. 55. Design Gr. I.	5	Arch. 56. Design Gr I.	5
Math. 54. Trig.	3	Math. 55. Algebra	3	Math. 56. Anal. Geom.	3
French 1. Elem.	5	French 2. Elem.	5	French 3. Elem.	5
Military or Naval Sci. or Phys. Edu.	+	Military or Naval Sci. or Phys. Edu.	+	Military or Naval Sci. or Phys. Edu.	+

Third Year

Arch. 40. Water Color.	2	Arch. 41. Water Color.	2	Arch. 42. Water Color.	2
Arch. 101. Hist. of Arch.	2	Arch. 102. Hist. of Arch.	2	Arch. 103. Hist. of Arch.	2
Arch. 104. Des. Gr. II.	5	Arch. 105. Des. Gr. II.	5	Arch. 106. Des. Gr. II.	5
Arch 120. Work. Draw.	2	Arch. 117. Bldg. Const.	3	Arch. 118. Bldg. Const.	3
C.E. 130. Theory Const.	3	Arch. 121. Work. Draw.	2	Arch. 122. Work. Draw.	2
E.E. 105. Elec. Engin.	2	C.E. 106. Plumb. and Sanit.	2	M.E. 110. Heat. & Vent.	2

Fourth Year

Arch. 107. Design Gr. II.	5	Arch. 113. Freehd. Draw.	3	Arch. 126. Pencil Sketch.	1
Arch. 112. Freehd. Dr.	3	Arch. 125. Pencil Sketch.	1	Arch. †142. Hist. of Orn.	2
Arch. 140. Hist. of Orn.	2	Arch. 141. Hist. of Orn.	2	Arch. 151. Hist. of Arch.	2
Electives	6	Arch. 154. Des. Gr. III.	5	Arch. 155. Des. Gr. III.	5
		Electives	5	Electives	6

Fifth Year

Arch. 152. Theory of Arch.	2	Arch. 153. Arch. Materials	2	Arch. 158. Des. Gr. III.	5
Arch. 156. Des. Gr. III.	5	Arch. 157. Des. Gr. III.	5	Arch. 159. Spec. and Off. Pr.	2
Art 160. Life Drawing	3	Art 161. Life Drawing	3	Art 162. Life Drawing	3
B.A. 54. Bus. Law.	3	Electives	5	Electives	5
Electives	2				

†Suggested elective but not required.

ART

(See Art bulletin for detailed information.)

Advanced standing in this department is granted only on credentials from art schools or university art departments whose standards are recognized by this department. Ordinarily, the presentation of samples of work done will be required before advanced standing will be considered.

Opportunities for professional careers are to be found in the fields of public school art teaching, interior decoration, costume design and commercial art. Before deciding to enter any of these fields, the student should consult the various instructors as to the opportunities provided and as to his or her particular fitness for the work. Usually it is best to make this decision in the second year, since the first year requirements are the same in all branches. Only students of unusual ability should undertake to enter the professional field. For the teachers' course, candidates should have B standing or above, in art subjects.

A MAJOR IN PAINTING AND DESIGN

First Year

Autumn Quarter	*Credits*	*Winter Quarter*	*Credits*	*Spring Quarter*	*Credits*
Art 5. Drawing	3	Art 6. Drawing	3	Art 7. Drawing	3
Art 9. Art Structure	3	Art 10. Art Structure	3	Art 11. Art Structure	3
Comp. 4. Composition	3	Comp. 5. Composition	3	Comp. 6. Composition	3
Modern For. Lang.	5	Modern For. Lang.	5	Modern For. Lang.	5
Military or Naval Sci. or Phys. Edu.	+	Military or Naval Sci. or Phys. Edu.	+	Military or Naval Sci. or Phys. Edu.	+

Second Year

Art 53. Art Struc.	3	Art 54. Art Structure	3	Art 20. Sculp. Apprec.	2
Art 56. Draw. and Ptg.	3	Art 57. Draw. and Ptg.	3	Art 55. Art Structure	3
L.A. electives	5	L.A. 11. Intro. Fine Arts or electives	5	Art 58. Draw. and Ptg.	3
Electives	5	Electives	5	Electives	8
Military or Naval Sci. or Phys. Edu.	+	Military or Naval Sci. or Phys. Edu.	+	Military or Naval Sci. or Phys. Edu.	+

Third Year

Art 103. Pottery	3	Art 104. Pottery	3	Arch. 3. Arch. Apprec.	2
or		or		Laboratory Science	5
Art 157. Metal Work	3	Art 158. Metal Work	3	Electives	8
Art 126. Hist. of Ptg.	2	Laboratory Science	5		
Pol. Sci., Econ. or Soc.	5	Electives	7		
Electives	5				

Fourth Year

Art 150. Illus.	3	Art 151. Illus.	3	Art 152. Illus.	3
or		or		or	
Life	3	Life	3	Life	3
Art electives	6	Art electives	6	Art electives	6
Electives	7	Electives	7	Electives	7

Preferred electives for students interested in costume design—Art 169, 170, 171, 179, 180, 181; H.E. courses in clothing and textiles, 25, 112, 113, 119, 160, 161.

For those interested in commercial art: life or portrait.

A MAJOR IN PUBLIC SCHOOL ART

All students intending to teach are expected to take all the courses given in this curriculum. All substitutions must be arranged for through the head of the department.

First Year

Autumn Quarter	*Credits*	*Winter Quarter*	*Credits*	*Spring Quarter*	*Credits*
Art 5. Drawing	3	Art 6. Drawing	3	Art 7. Drawing	3
Art 9. Art Structure	3	Art 10. Art Structure	3	Art 11. Art Structure	3
Comp. 4. Composition	3	Comp. 5. Composition	3	Comp. 6. Composition	3
Modern For. Lang.	5	Modern For. Lang.	5	Modern For. Lang.	5
Military or Naval Sci. or Phys. Edu.	+	Military or Naval Sci. or Phys. Edu.	+	Military or Naval Sci. or Phys. Edu.	+

SECOND YEAR

Autumn Quarter	*Credits*	*Winter Quarter*	*Credits*	*Spring Quarter*	*Credits*
Art 53. Art Structure..	3	Art 54. Art Structure..	3	Art 55. Art Structure..	3
Art 56. Draw. and Ptg.	3	Art 57. Draw. and Ptg.	3	Art 58. Draw. and Ptg.	3
Laboratory Science.....	5	Laboratory Science	5	Edu. 60. Sec. Edu....	3
Electives	5	Electives	5	Econ., Soc., or Pol. Sci.	5
Military or Naval Sci. or Phys. Edu.....+		Military or Naval Sci. or Phys. Edu.....+		Electives	1
				Military or Naval Sci. or Phys. Edu.....+	

THIRD YEAR

Art. Life	3	Art 104. Pottery.....	3	Art 20. Sculp. Apprec.	2
Art 103. Pottery.....	3	or 158. Jewelry.....	3	Art 166. Stage Des...	3
or 157. Metal.....	3	L.A. 11. Intro. to Fine		Edu. 70. Methods.....	5
Art 126. Hist. of Ptg...	2	Arts or L.A. elect.	5	L.A. electives	5
Art 129. Design Apprec.	2	Edu. 9. Psych. of Sec.			
Edu. 90. Meas. in Sec.		Edu.....	3		
Edu.....	2	Electives	5		
Electives	3				

FOURTH YEAR

Art 150. Illus.....	3	Art 151. Illustration..	3	Art 152. Illustration...	3
Art. Composition	3	Art 105. Art Structure.	3	Art 106. Art Structure.	3
Art 100. Methods.....	2	Art 102. Indus. Arts..	2	Art 101. El. Int. Des..	2
Phil. 129. Esthetics.....	5	Edu. 71. Cadet Teaching	8	Edu. 71. Cadet Teaching	
Electives	3	Electives	3	Electives	3

A recommended program for the fifth year in public school art: 15 credits in general or cultural subjects, 15 in the major and 12 in a minor outside major department; Edu. 120.

Applicants for the five-year normal diploma are required to complete the curriculum of the current catalogue, unless the diploma is granted within five years from date of entrance.

For the teachers' course, candidates should have B standing or above, in art subjects.

A MAJOR IN INTERIOR DESIGN

FIRST YEAR

Autumn Quarter	*Credits*	*Winter Quarter*	*Credits*	*Spring Quarter*	*Credits*
Art 5. Drawing	3	Art 6. Drawing.....	3	Art 7. Drawing.....	3
Art 9. Art Structure..	3	Art 10. Art Structure...	3	Art 11. Art Structure..	3
Comp. 4. Composition..	3	Comp. 5. Composition..	3	Comp. 6. Composition..	3
Modern For. Lang....	5	Modern For. Lang.....	5	Modern For. Lang....	5
Military or Naval Sci. or Phys. Edu.....+		Military or Naval Sci. or Phys. Edu.....+		Military or Naval Sci. or Phys. Edu.....+	

SECOND YEAR

Arch. 1. Appreciation..	2	Arch. 2. Appreciation...	2	Arch. 3. Arch. Apprec..	2
Arch. 4. El. of Design.	4	Arch. 5. El. of Design.	4	Arch. 6. El. of Design.	4
Arch. 7. Graphics.....	1	Arch. 8. Graphics.....	1	Arch 9. Graphics.....	1
Art 80. Furn. Des....	3	Art 81. Furn. Design.	3	Art 82. Furn. Design..	3
L.A. electives	5	Electives	5	Electives	5
Military or Naval Sci. or Phys. Edu.....+		Military or Naval Sci. or Phys. Edu.....+		Military or Naval Sci. or Phys. Edu.....+	

THIRD YEAR

Art 110. Inter. Design	5	Art 111. Inter. Des...	5	Art 112. Int. Design..	5
Pol. Sci., Soc., Econ...	5	Laboratory Science	5	Laboratory Science....	5
Electives	5	L.A. 11. Intro. to Fine Arts or electives...	5	Electives	5

FOURTH YEAR

Art 126. Hist. of Ptg..	2	H.E. 47. House Furn...	3	Art 20. Sculp. Apprec..	2
Art 172. Inter. Design	5	Art 173. Inter. Des....	5	Art 174. Inter. Des....	5
H.E. 25. Textiles.....	3	Arch. 102. History.....	2	Arch. 103. History.....	2
Arch. 101. History....	2	Electives	6	Electives	7
Electives	4				

MAJOR IN PAINTING OR SCULPTURE

First Year

Autumn Quarter	*Credits*	*Winter Quarter*	*Credits*	*Spring Quarter*	*Credits*
Art 5. Drawing	3	Art 6. Drawing	3	Art 7. Drawing	3
Art 9. Art Structure	3	Art 10. Art Structure	3	Art 11. Art Structure	3
Comp. 4. Composition	3	Comp. 5. Composition	3	Comp. 6. Composition	3
Modern For. Lang.	5	Modern For. Lang.	5	Modern For. Lang.	5
Military or Naval Sci. or Phys. Edu.	+	Military or Naval Sci. or Phys. Edu.	+	Military or Naval Sci. or Phys. Edu.	+

Second Year

Art 56. Painting	3	Art 57. Painting	3	Art 58. Painting	3
Art 65. Draw. and Ptg.	3	Art. 66. Draw. and Ptg.	3	Art 67. Draw. and Ptg.	3
or		or		or	
Art. *72. Sculpture	3	Art *73. Sculpture	3	Art *74. Sculpture	3
L.A. electives	5	L.A. 11. Intro. Fine Arts or electives	5	Electives	10
Electives	5	Electives	4	Military or Naval Sci. or Phys. Edu.	+
Military or Naval Sci. or Phys. Edu.	+	Military or Naval Sci. or Phys. Edu.	+		

Third Year

Group I—Painting

Art 107. Portrait	3	Art 108. Portrait	3	Art 109. Portrait	3
Art 126. Hist. of Ptg.	2	Art 105. Lettering, Art Structure	3	Art 106. Posters, Art Structure	3
Art 150. Illustration	3	Laboratory Science	5	Arch. 3. Arch. Apprec.	2
Pol. Sci., Econ., or Soc.	5	Electives	4	Laboratory Science	5
Electives	3			Electives	2

Group II—Sculpture

Art 103. Pottery	3	Art 104. Pottery	3	Arch. 3. Arch. Apprec.	2
Art 122. Sculpture	3	Art 123. Sculpture	3	Art 20. Sculp. Apprec.	2
Art 126. History Ptg.	2	Laboratory Science	5	Art 124. Sculpture	3
Pol. Sci., Econ. or Soc.	5	Electives	5	Laboratory Science	5
Electives	3			Electives	4

Fourth Year

Group I—Painting

Art 160. Life	3	Art 161. Life	3	Art 162. Life	3
Art 163. Composition	3	Art 164. Composition	3	Art 165. Composition	3
Electives	10	Electives	10	Electives	10

Group II—Sculpture

Art 132. Sculpture	3	Art 133. Sculpture	3	Art 134. Sculpture	3
Art 136. Sculp. Comp.	3	Art 137. Sculp. Comp.	3	Art 138. Sculp. Comp.	3
Art 160. Life	3	Art 161. Life	3	Art 162. Life	3
Electives	7	Electives	7	Electives	7

Preferred electives—architectural design and history of ornament.
*Art 72, 73, 74 required of majors in sculpture.

CLASSICS

Thomas K. Sidey, Executive Officer, 201 Denny Hall

LATIN

For a major at least 36 credits chosen from courses other than 1-2, 3, 4, 5, 6, 11, 13. Fifty per cent of the credits in the major must be in upper division courses. A student majoring in Latin must take at least 15 credits of Greek. At the end of the senior year all majors must take the senior examination.

GREEK

For a major at least 36 credits chosen from courses other than 1-2, 11, 13, 15-16, 17. At least 50 per cent of the credits must be in upper division

courses. Two years of Latin in high school or Latin 1-2, 3 in the University. A reading knowledge of German is advisable. Senior examination required at the end of the senior year.

ECONOMICS

Shirley J. Coon, Executive Officer, 204 Commerce Hall

	Credits
1, 2. General Economics	10
59. Graphic and Tabular Analysis	5
105. American Labor Problems	5
Electives from the following list, approved by the department as a major sequence, and including 124, 160, and 168	30
Total minimum credits	50

Elective List

	Credits		Credits
100. Economic and Industrial Devel. of U.S.	5	131. Econ. of Public Utilities	5
*103. Money and Banking	5	133. Control of Public Utilities	5
*104. Econ. of Transportation	5	140. The Cooperative Movement	5
*105. American Labor Problems	5	145. Principles of Foreign Trade	5
*106. Econ. of Marketing and Adv.	5	160. Advanced Economics	5
*108. Econ. of Insurance	5	161. Economics of Labor	5
*109. Land Economics	5	162. European Labor Problems	5
*120. Business Organiz. and Comb.	5	168. Dev. of Economic Thought	5
121. Corporation Finance	5	173. International Com. Policies	5
124. Public Finance	5	175. Business Fluctuations	5
129. Taxation	5	181. Economics of Consumption	5

*Courses starred are intermediate courses introductory to special fields and may be taken in the sophomore year.

BUSINESS

(See Business Administration bulletin for detailed information.)

	Credits
1, 2. General Economics	10
54, 55, 56. Business Law	9
62, 63. Accounting	10
Electives approved by the department as a major sequence and including Advanced Economic Theory	30
Total minimum credits	59

For majors in the following fields, see the Economics and Business Administration Bulletin:

(a) Economics
(b) Management and Accounting
(c) Marketing
(d) Commercial Banking
(e) Investment Banking
(f) Foreign Trade
(g) Public Utilities
(h) Real Estate
(i) Transportation
(j) Commercial Teaching

EDUCATION

Willis L. Uhl, Executive Officer, 113 Education Hall

Liberal Arts students intending to qualify for the normal diploma must confer with Dean Uhl and earn credits in the following courses:

		Credits
60.	Principles of Secondary Education in the Senior High School	3
90.	Measurement in Secondary Education	2
9.	Psychology of Secondary Education	3
70.	Introduction to High School Procedure	5
75.	Special Methods	2
71.	Practice Teaching	8
120.	Educational Sociology	3
		26

ENGLISH

D. D. Griffith, Executive Officer, 107 Parrington Hall

LITERATURE

	Credits
64, 65, 66. Literary Backgrounds	13
75. Technique of Fiction	3
One major course	10
One major course in two other major groups	10
Electives	9
Senior major examination	0
Total minimum credits	45

DRAMA

	Credits
Speech 43. The Speaking Voice	3
Speech 47,48. Theatre Speech	4
Drama 51,52,53. Acting	6
Drama 104,105,106. Workshop	9
Drama 121,122,123. Adv. Acting and Directing	9
Drama 127, 128, 129. Hist. of Theatre Art	6
Drama 151,152,153. Represent. Plays.	9
Drama 191,192,193. Major Conference	3
Senior Major Examination	0

Supplementary Literature Courses Required:	*Credits*
64,65. Literary Background	10
75. Technique of Fiction	3
Two courses from 170,171, 177,178, 174,175, 161,162	10
Total minimum credits	72

SPEECH

		Credits
40.	Essentials of Speaking	5
41.	Advanced Speaking	3
38.	Argumentation	5
43.	The Speaking Voice	3
79.	Oral Reading of Literature	3
186.	Mind and Speech	3
187.	Adv. Voice Problems	3
188.	Adv. Probs. in Speaking	3
191.	Speech Correction	3

	Credits
138. Rhetoric of Public Speaking *or* 139. Forms of Public Address	3
Senior Major Examination	0
Supplementary Literature Courses Required:	
64,65. Literary Background	10
One Upper Div. Major Course	10
Total minimum credits	54

GENERAL LITERATURE

Louis P. deVries, Adviser, 209 Denny Hall

A major in general literature requires a reading knowledge of two foreign languages, Gen. Lit. 101, 191, 192, 193, and sufficient other courses to make a total of from 36-60 credits.

In preparation for this major and for Gen. Lit. 101, the student should earn 18 lower division credits from the following groups with not more than ten credits in any one group.

I. Greek 15-16.

II. Oriental Studies 50, 51, 52, 70, 71.

III. Literature 64, 65, 66, 97, 98, 99.

IV. German 70, 106, 107, 108; Scandinavian Languages 109, 110, 111, 180, 181, 182.

V. French 118, 119, 120, 134, 135, 136, 154, 155, 156; Spanish 118, 119, 120; Italian 118, 119, 120, 181, 182, 184.

VI. Liberal Arts 11; Philosophy 123.

The upper division courses listed above may be entered by qualified sophomores who have obtained the permission of the instructors.

The remaining courses offered for this major should be arranged in consultation with a major adviser. The plan of the work should include a survey of at least one national literature, some studies in each of the following groups, and a special knowledge of one of them:

I Oriental Literature; II Greek and Latin Literature; III Medieval and Renaissance Literature; IV Classic and Romantic Movements in Modern Literature.

GERMANIC LANGUAGES

E. O. Eckelman, Executive Officer, 112A *Denny Hall*

For the major, at least 36 credits in the department chosen from courses other than 1, 2, 3, 5. At least 50 per cent of the credits in the major must be in upper division courses.

HISTORY

Edmond S. Meany, Executive Officer, 202 Denny Hall

For a history major, 48 credits including history 1-2 as required courses. At least 50 per cent must be in upper division courses. Electives on advice of head of department.

HOME ECONOMICS

Effie I. Raitt, Executive Officer, 201 *Home Economics Hall*

Major in all fields in home economics.

	Credits
25-26. Textiles	6
45, 46. Household Management	6
47. Home Furnishing	3
107-108. Nutrition	10
112, 113, 114. Costume Design and Construction	9 or 11
115, 116, 117. Food Preparation	11 or 13
144-145. Household Economics	4
148. Home Management House	2
190. Child Nutrition and Care	5
	56 or 60

JOURNALISM

Vernon McKenzie, Executive Officer, 109 Commerce Hall

(See Journalism bulletin for detailed information.)

Major		*Credits*
1.	Journalism as a Profession	1
2.	The Newspaper and Society	1
3.	Elements of Publishing	3
51.	Preliminary News Writing	5
147.	Fundamentals of Journalism	10
148.	Fundamentals of Journalism	15
149.	Fundamentals of Journalism	7
		42

LAW

Harold Shepherd, Executive Officer, 205 Condon Hall

Pre-Law Course—Two-Year Course

Note: Beginning with the academic year 1934 all students entering the Law School will be required to have completed three years' work (135 credits) toward the college degree.

Admission. To be admitted from the College of Liberal Arts to regular standing in the Law School students who are candidates for the LL.B. degree only, must have earned 90 credits and have completed the requirements prescribed for the College of Liberal Arts.

Transfer Students. Students who transfer from other institutions with advanced standing, but who have had less than two full years of liberal arts credit in their respective institutions, and who are not entitled to 90 liberal arts credits in accordance with the credit computation system of this University, nor have completed the requirements of the College of Liberal Arts of this University, or their equivalent, must satisfy all of the local requirements before they will be admitted to the Law School. Students who transfer from other institutions with advanced standing, and who have had at least two full years of liberal arts credit in their respective institutions and are entitled to 90 liberal arts credits, more or less, in accordance with the credit computation system of this University, but who have not completed the requirements of the College of Liberal Arts of this University, or their equivalent, may be held to earn such additional liberal arts credits as the dean of the Law School may impose as a condition for entrance to, or graduation from, the Law School. The object of this provision is, with proper regard for comity between institutions of higher learning, to bring about a fair and reasonable leveling between the preliminary training offered by students from this University and that offered by students from other institutions.

Required Courses. It is of first importance that in general the required courses, when available, should be those first registered for. By this means a student will more easily avoid conflicts which, later on, may preclude him from completing the required courses in his two- or three-year pre-law curriculum.

English Recommendation. Pre-law students are urged to take additional courses in English, especially advanced composition and public speaking courses, to fit them for the correct writing and speaking of English, which is increasingly demanded of the legal profession.

Electives. The requirements of the lower division will not make a total of 90 credits. In choosing electives, the student is advised not to specialize in any particular subject or group, but rather to take one or two courses in each

or several of the various groups. For a broad general training the following are recommended:

Anthropology 51
Astronomy 1
Liberal Arts 1, 11
Latin 1-2, 3, 4, 5, 6
B.A. 1, 2, 65
Political Science 1, 118, 119, 120
Sociology 1
Speech 38, 40
Comp. 51, 52, 53, 54, 55, 56
Lit. 64, 65, 66, 73, 75
History 107

Pre-Law Curriculum—Three-Year Course

Combined Six-Year Arts-Law Course. It is possible to obtain the degrees of bachelor of arts and bachelor of laws in six years. To have the benefit of this combined course, students must, in the first three years, earn 139 liberal arts credits, together with the required credits in military or naval science or physical education. To take the 139 credits in three years the student should carry an average of 16 credits each for four quarters during the junior and sophomore years, exclusive of military or naval science or physical education. As the Law School can be entered advantageously only at the beginning of the autumn quarter, the entire 139 credits should be completed within the customary three years, with work during an intervening summer quarter. At the beginning of the fourth year, if a student has earned 139 credits with an average of 2.25 grade points, and the required credits in military or naval science, or physical education, he may enter the School of Law, and there earn 41 credits which will be counted toward his bachelor of arts degree. He will be granted the bachelor of arts degree at the end of the fourth year, or as soon as he completes the required work above specified and 41 credits in the School of Law, with an average of 2.25 grade points. The degree of bachelor of laws will be conferred upon completion of his work in the Law School.

This combined arts-law course, in lieu of a major, requires 70 upper division credits in place of the 60 credits required of students offering a major. As the 41 credits of law, counted towards the B.A. degree are upper division courses, it follows that at least 29 of the 139 credits referred to above must also be in upper division courses. These 29 credits must be so grouped that they can be approved by the dean of liberal arts as constituting, with the law courses, a satisfactory substitute for the major usually required for the bachelor of arts degree.

In exceptional cases where the student lacks a small number of the 139 liberal arts or science credits, the dean of the Law School may, upon written petition, permit registration in the Law School, the necessary credits to satisfy the combined degrees to be completed subsequently.

Transfer Law Students. Students from other institutions entering this University with advanced standing may take advantage of this combined six-year course, provided they are registered in the College of Liberal Arts for at least one full year of work, and earn at least 45 credits in the University before entering the School of Law. This privilege will not be extended to normal school graduates attempting to graduate in two years, nor to undergraduates of other colleges who enter this University with the rank of senior.

PRE-LIBRARY

Ruth Worden, Executive Officer, 221 Library

Admission. Admission to the general course in librarianship is granted as follows:

To graduate students who hold the baccalaureate degree from any college or university of good standing, whose undergraduate work in either or both high school and college has included the equivalent of at least 20 college

credits each in German and French. Other modern languages may be substituted with the consent of the executive officer, provided the Romanic and Germanic groups are represented. Such graduates must have made an average grade of B in their undergraduate work.

Initial admission to classes in the department of librarianship is permitted only at the beginning of the college year in October.

Students planning to begin their professional training in librarianship after October, 1933, should consult the executive officer of the department in regard to their work once a year, preferably when registering for the spring quarter; and should have their programs approved by her.

The following courses in librarianship are open to students outside of the department, but do not carry credit toward the degree in librarianship: 151, 152, 153, *Books and Their Authors;* 170, Section C, *Introduction to Children's Work;* 180, Section B, *Story Telling.*

The following courses may be taken by teaching majors who wish to qualify to meet the requirements of the State Department of Education for teacher-librarians: 170, Section B, *Introduction to Children's Work;* 175, *Cataloging and Classification;* 177, *Bibliography and Reference;* 182, *School Library Administration;* and 195, *Book Selection for School Libraries.*

Scholarship. In preparing for the department of librarianship a student must maintain an average of B, as a strong foundation is essential for successful library service. Students not making an average of B in librarianship courses may, at the discretion of the faculty of the department, be dropped.

Graduation. The degree of bachelor of arts in librarianship is granted upon satisfactory completion of 45 credits in the department.

MATHEMATICS

Robert E. Moritz, Executive Officer, 149 *Philosophy Hall.*

Prerequisite, ½ unit advanced algebra, ½ unit solid geometry in high school or university.

	Credits
4. Plane Trigonometry	5
5. College Algebra	5
6. Analytical Geometry	5
107, 108, 109. Differential and Integral Calculus	15
Electives (upper division)	6
Minimum total credits	36

MUSIC

Frances Dickey, Executive Officer, Music Building

(See Music bulletin for detailed information.)

All students who intend to enroll as music majors will be given a placement examination in music fundamentals, voice and piano, at the beginning of the term. The equivalent of Music 9A of the piano course (see page 230) is required for entrance. Students may substitute a corresponding proficiency on other approved instruments, in which case they shall complete Music 9A before graduation.

All students majoring in music will be required to complete the following general course outlined for the first two years, in addition to the University requirement in physical education or military or naval science. At the end of the second year, students may choose a major from the following four curricula:

I. A Major in Vocal or Instrumental Music.
II. A Major in School Music or Instrumental School Music.
III. A Major in Composition.
IV. The Special Elective Curriculum in Music.

REQUIREMENTS FOR THE FIRST TWO YEARS

First Year	*Credits*	*Second Year*	*Credits*
Music 15,16. Fundamentals	7	Music 4,5,6. Lit. and Hist	9
Music 51. Elementary Harmony	4	Music 53, 101. Harmony	10
[1]Vocal or Instrumental Music	6 to 9	[1]Vocal or Instrumental Study	6 to 9
Ensemble	3 to 6	Ensemble	3 to 6
English Composition	10	Physics 50,51. Sound	7
Modern Language	15	Soc., Pol. Sci. or Econ	5
		[2]Music 61. Ad. Ear Training	3
		[3]Music 109. Counterpoint	5
		[3]Music 112. Forms	5

[1]Students majoring in vocal or instrumental music are required to have 36 credits, 30 in one branch, for graduation, except in the case of organ majors, who may present 12 of the required number of credits in piano. The other three curricula require 18 credits, 6 of which may be earned in advanced orchestral instrument classes, Music 141, 142, 143.

[2]Required of students not receiving a grade of A or B in Music 51.

[3]Only students intending to major in Composition will be expected to complete Music 109 and 112 before the third year.

I. A MAJOR IN VOCAL OR INSTRUMENTAL MUSIC

Third Year	*Credits*	*Fourth Year*	*Credits*
Music 109. Counterpoint	5	Music 151,152,153. Modern Music	6
Music 112. Forms	5	Music 157. Adv. Composition	5
Music 117. El. Comp. and Arrg	5	Music 199. Senior Recital	2
Music 104,105,106. Since 1850	6	Phil. 129. Aesthetics	5
Vocal or Instrumental Study	9	Vocal or Instrumental Study	9
[1]Approved electives	15	[1]Approved electives	18

[1]Suggested electives: Music 190, 191, 192; Philosophy; Literature; Modern Languages.
[1]Piano majors are required to elect Mus. 165, 166, 167, *Piano Pedagogy.*

II.(a) A MAJOR IN SCHOOL MUSIC

(a) Students who have offered piano for instrumental entrance requirement (Music 9A) shall complete Music 50A of the piano course (see Music Bulletin) for graduation. Students who have substituted corresponding proficiency on another instrument shall complete Music 9A before graduation.

(b) Two years of voice training are required, preferably in the first two years.

(c) Students entering from normal schools should consult Miss Hall, M. B. 102, upon entrance.

Third Year	*Credits*	*Fourth Year*	*Credits*
Mus. 113,114,116. School Music	9	Music 117. El. Comp. and Arrng	5
Music 115. Tech. of Cond	2	Music 151,152,153. Modern Music	6
Music 112. Forms	5	Music 154. Sr. H.S. Music	3
Music 127,128,129. Ch. Forms	6	Music 180. Orch. Conducting	2
Vocal or Instrumental Study	6	Edu. 70. Int. H.S. Proc	5
Edu. 60. Secondary Education	3	Phil. 129. Aesthetics	5
Edu. 90. Edu. Measurements	2	[1]Approved electives	19
Edu. 9. Edu. Psychology	3		
[1]Approved electives	9		

[1]Students should consult with advisers early regarding a suitable teaching minor.

II.(b) A MAJOR IN INSTRUMENTAL SCHOOL MUSIC

(a) All students, upon entrance, shall demonstrate proficiency upon at least one orchestral instrument.

(b) All students shall satisfy the equivalent of Music 9A of the piano course before graduation.

(c) All students shall complete a year each of study in voice, wood-wind, brass-wind and strings.

Third Year	*Credits*	*Fourth Year*	*Credits*
Music 40,41,42. El. Orch. Instr	9	Music 112. Forms	5
Music 109. Counterpoint	5	Music 117. El. Comp. and Arrgn	5
Music 113,114,116. School Music	6	Music 140,141,142. Adv. Orch. Instr.	9
Music 115. Tech. of Conducting	2	Music 154. Sr. H.S. Music	3
Music 127. Choral Forms	2	Music 151,152,153. Mod. Music	6
Music 133,134,135, Sym. Orch	6	Edu. 70. Int. H.S. Proc	5
Edu. 60. Sec. Education	3	Phil. 129. Aesthetics	5
Edu. 90. Measurements	2	Electives	8
Edu. 9. Educ. Psychology	3		
Vocal or Instrumental Music	6		

The bachelor's degree will be awarded upon the completion of the requirements of the fourth year. The five-year normal diploma will be awarded upon the successful completion of the requirements as outlined below:

FIFTH YEAR

	Credits		Credits
Music 155. Supervision	5	[5]Edu. 71. Cadet Teaching	8
Music 190. Bach and Forerun	4	Edu. 120. Edu. Sociol	3
Music 191. 18th C. and 19th C. Mus.	4	Approved electives	6
Music 192. Contemporary Music	4	[6]Music 143. Orchestration	5
Vocal or Instrumental Music	6		

[5]Also required of normal school graduates.
[6]Required only of instrumental school music majors.
Suggested electives: Philosophy; Literature; History; Psychology; Music 190, 191, 192.

III. A MAJOR IN COMPOSITION

Third Year	Credits	Fourth Year	Credits
Music 115. Tech of Cond	2	Music 151,152,153. Modern Music	6
Music 117. El. Comp. and Arrg	5	Music 163. Adv. Counterpoint	5
Music 143. Orchestration	5	Music 180. Orch. Conducting	2
Music 157. Adv. Composition	5	Music 197. Adv. Composition	6
Music 104,105,106. Music since 1850	6	Vocal or Instrumental Music	6
Vocal or Instrumental Music	6	Phil. 129. Aesthetics	5
Electives	16	Electives	15

IV. [7]SPECIAL ELECTIVE CURRICULUM IN MUSIC

Third and fourth year requirements:

Music 109. Counterpoint	5	Phil. 129. Aesthetics	5
or		Free Electives	5
Music 112. Forms	5	U.D. Lib. Arts electives	45
Music electives	20		
Laboratory Science	10		

[7]Major students in this course will be given an examination in vocal or instrumental study at the end of the junior year.

ORIENTAL STUDIES

Robert Pollard, Executive Officer, 220 Denny Hall

	Credits
10. Culture of Asia *or*	
25. History of Asia	5
114, 115, 116. History of Religion	9
Electives	26
Minimum total credits	40

Fifty per cent of 40 required must be in upper division courses.

PHILOSOPHY

William Savery, Executive Officer, 264 Philosophy Hall

	Credits
2. Introduction to Social Ethics *or*	
3. Introduction to Ethics	5
5. Introduction to Logic	5
101-102-103. History of Philosophy	9
Electives	17
Minimum total hours	36

Fifty per cent of the credits in the major must be in upper division courses.

POLITICAL SCIENCE

Charles E. Martin, Executive Officer, 11A *Condon Hall*

Forty-five credits for a major which must include 30 upper division credits, 20 credits in one group and 10 in each of the other two.

I. Political Theory and Jurisprudence.
II. International Relations.
III. Politics and Administration.

PSYCHOLOGY

Stevenson Smith, Executive Officer, 238 *Philosophy Hall*

For a major, 36 credits of psychology approved by the department.

ROMANIC LANGUAGES AND LITERATURE

Pierre J. Frein, Executive Officer, 215 *Denny Hall*

FRENCH

After completing French 6 and 9 or equivalent, add the following courses:

	Credits
41. Phonetics	3
101, 102. Composition and Conversation	6
103. Composition and Conversation *or*	
107. French Themes	3
158, 159. Advanced Syntax	4
*Electives	9 or 10
Total minimum credits	25 or 26

*To be in French literature courses numbered above 117. At least 4 of the 9 or 10 credits shall be in literature courses conducted in French.

SPANISH

After completing Spanish 6 and 9 or equivalent, add the following courses:

	Credits
101, 102, 103. Advanced Composition	9
159. Advanced Syntax	3
*Electives	9 or 10
Total minimum credits	21 or 22

*To be in Spanish literature courses numbered above 117. At least 4 of the 9 or 10 credits shall be in literature courses conducted in Spanish.

SCANDINAVIAN LANGUAGES

Edwin J. Vickner, Executive Officer, 210 *Denny Hall*

A minimum of 36 credits approved by the department.

SOCIOLOGY

Jesse F. Steiner, Executive Officer, 319 *Physics Hall*

	Credits
1. Introductory Sociology *or*	
150. General Sociology	5
55. Human Ecology or approved equivalent	5
66. Group Behavior or approved equivalent	5
131. Social Statistics	5
164. Social Education	2
Electives from courses offered in the department after consultation regarding special field of interest	14
Minimum total credits	36

COURSES OF STUDY

For description of courses, see Departments of Instruction section.

COLLEGE OF PHARMACY

Registration as a Pharmacist in the State of Washington

In 1912 the State Board of Pharmacy by resolution required that, on and after July 1, 1914, all candidates for registration as a pharmacist must be graduates of recognized colleges of pharmacy. The legislature of 1923 enacted into law the requirements for registration of pharmacists as follows:

1. An applicant for registration must be a graduate of a college of pharmacy recognized by the department of license.

2. A graduate of the four or five-year course of the *University of Washington College of Pharmacy* has the right to register as a pharmacist without further examination and without the requirement of practical experience in pharmacy.

3. A graduate of a recognized college of pharmacy located outside of the State of Washington may become a registered pharmacist as follows:

(a) A graduate of a two-year course must have two years of practical experience and pass an examination as listed under paragraph four.

(b) A graduate of a three-year course must have one year of practical experience and pass an examination as listed under paragraph four.

(c) A graduate of a four-year course is not required to have practical experience but must pass an examination as listed under paragraph four.

4. The examination embraces the following subjects: pharmacy, materia medica, chemistry, toxicology and posology, compounding prescriptions, identification of drugs, and laws relating to the practice of pharmacy in Washington. The grade must not be less than 60 per cent in any one subject and a general average of 75 per cent.

5. A registered pharmacist must be over twenty-one years of age. Persons under twenty-one shall be classified as assistant registered pharmacists until the age of majority is attained.

6. Persons registered by examination in other states may register as pharmacists in Washington without examination other than in the subject of laws relating to the practice of pharmacy in the state of Washington, providing such persons are graduates of recognized colleges of pharmacy.

7. Recognized colleges of pharmacy (see rule 10 of handbook on pharmacy law issued by the state department of licenses) are such colleges as hold membership in the American Association of Colleges of Pharmacy and such foreign colleges of pharmacy as meet the standards and requirements of the American Association of Colleges of Pharmacy.

8. Applicants for registration as pharmacists should communicate with the state department of licenses, Olympia, Washington, for proper blanks and instructions. A fee of ten dollars for registration is payable to the state treasurer.

Work Offered

Training in pharmacy prepares students for a number of different types of work. With this in mind three curricula are outlined. The first two years of the three courses are the same for all students. At the beginning of the junior year the student must select the curriculum that he wishes to complete. The courses of study offer preparation as follows:

Retail Pharmacy. Pharmacy is clearly recognized as both a profession and a business. The graduate going out as a clerk in the ordinary retail store

must be a safe professional pharmacist in order to serve properly the public in the preparation and dispensing of medicines. He must also have a scientific training which will enable him to advise the public in the many problems affecting health and sanitation. In addition to this he must have some fundamental training in business methods if he is to be a success in his calling. This course of study aims to give training which will make the graduate a competent professional and business man for the ordinary retail pharmacy.

The Science Course. Curriculum number two is designed to give a scientific training which will prepare graduates for responsible positions in prescription pharmacies and hospital pharmacies. It also prepares students for positions in clinical diagnostic laboratories as pharmaceutical chemists and manufacturing pharmacists for large pharmaceutical manufacturing houses, as food and drug chemists in the enforcement of state and federal food and drug laws, and as chemists for food and drug manufacturing houses. There are also openings for teachers of pharmacy, but students desiring to teach in colleges of pharmacy are urged to take one or more years of graduate work.

Preparation for Study of Medicine. Curriculum number three is designed to give the student clear entrance to colleges of medicine and at the same time give him training in pharmacy. A graduate of this course, who later studies medicine, has a more thorough knowledge of drugs and medicines than can be obtained in any other way. Students taking this course are expected to select the college of medicine they wish to enter and, by proper use of elective courses, clear entrance for any one or more selected colleges of medicine can be gained. A graduate of this course, who studies medicine, has the benefit of training in two professions, and can practise both pharmacy and medicine as occasion demands.

GRADUATE STUDY

Master of Science in Pharmacy. A graduate of any one of the three undergraduate curricula can continue for a graduate degree. One year of properly selected study, with the completion of a research topic, leads to the degree of master of science in pharmacy. Students with this additional training have many added opportunities for employment.

Doctor of Philosophy with Major in Pharmacy. To obtain this degree the student must do at least two years of graduate work, in addition to that for the master's degree. More time may be necessary for the completion of a research problem, which will yield positive results and which is a definite contribution to knowledge. This College of Pharmacy is giving special attention to graduate work and can assure students who take the time for thorough and complete preparation that unusual opportunities will open for them. Pharmacy colleges all over the country are developing and rapidly extending their courses; hence thoroughly trained teachers are in demand. Manufacturing houses and United States governmental laboratories are always looking for thoroughly trained men with this degree.

GENERAL INFORMATION

American Association of Colleges of Pharmacy. The College of Pharmacy is a member of the American Association of Colleges of Pharmacy. The objects of the association are: to promote closer relations between the several colleges of pharmacy of the United States, to standardize pharmaceutical education and to encourage a higher standard of proficiency for members of the profession.

Garden of Medicinal Plants. The College of Pharmacy maintains on the campus a garden in which plants of pharmaceutical importance are cultivated.

The area and scope of this garden have been gradually extended, until the college has a complete collection of medicinal plants which furnishes valuable material for classes in botany, materia medica and drug assay, and for research.

Fellowships and Scholarships. See page 52.

Requirements for Admission

Correspondence. Credentials and all correspondence relating to admission to any college or school of the University should be addressed to the registrar, University of Washington. For detailed information concerning admission, registration, and general University fees and expenses, applicable to all students, see pages 37, 43, 45.

Degrees

1. The degree of bachelor of science in pharmacy (B.S. in Phar.) will be conferred upon any student who has fulfilled the entrance requirements and completed one of the four-year courses as outlined.

2. The degree of master of science in pharmacy (M.S.) will be conferred upon any graduate of the four-year course who has completed one year of graduate work and presented a satisfactory thesis.

3. The degree of doctor of philosophy (Ph.D.) with major and thesis in the pharmaceutical field may be taken by meeting all requirements of the Graduate School. The bulletin of the Graduate School should be consulted for information concerning graduate degrees.

Curricula Required for Graduation

Three four-year curricula are outlined, each leading to the degree of bachelor of science in pharmacy.

The first two years of all three curricula are the same and are outlined as follows:

First Year

Autumn Quarter	*Credits*	*Winter Quarter*	*Credits*	*Spring Quarter*	*Credits*
Phar. 1. General.....	3	Phar. 2. General.....	3	Phar. 3. General.....	3
Phar. 4. Profession....	2	Chem. 9. General.....	5	Chem. 10. Qualitative..	5
Chem. 8 General.....	5	Comp. 9. For Phar....	3	Comp. 10. For Phar...	2
Bot. 13. Pharmacy.....	5	Bot. 14. Pharmacy.....	4	Physiol. 6 Human.....	5
Military or Naval Sci. or Physical Edu...+		Military or Naval Sci. or Physical Edu...+		Military or Naval Sci. or Physical Edu...+	

Second Year

Phar. 5. Quant. Grav..	5	Phar. 6. Quant. Vol...	5	Phar. 7. Urinanalysis..	2
Phar. 9. Prescriptions..	3	Phar. 10. Prescriptions.	3	Phar. 11. Prescriptions.	3
Phar. 12. Pharmacog...	3	Phar. 13. Pharmacog...	3	Phar. 14. Pharmacog...	3
Chem. 37. Organic.....	5	Chem. 38. Organic.....	5	Phar. 8. U.S.P. Assay.	2
Military or Naval Sci. or Physical Edu...+		Military or Naval Sci. or Physical Edu...+		Chem. 39. Organic.....	5
				Military or Naval Sci. or Physical Edu...+	

Optional Curricula. The student, after completing the first two years, the outline of which is common to all courses, must elect to follow one of the following:

1. Pharmacy combined with business courses. (To prepare graduates for positions in retail pharmacy.)

THIRD YEAR

Autumn Quarter	*Credits*	*Winter Quarter*	*Credits*	*Spring Quarter*	*Credits*
Phar. 101. Pharmacol. Tox.	3	Phar. 102. Pharmacol. Tox.	3	Phar. 103. Pharmacol. Tox.	3
Phar. 113. Adv. Prescr.	5	Phar. 104. Microscopy.	2	Phar. 105. Microscopy..	2
B.A. 54. Bus. Law....	3	Phar. 114. Adv. Prescr.	5	Phar. 115. Adv. Prescr.	5
Bact. 101. General.....	5	B.A. 55. Bus. Law....	3	Econ. 3. General.	3
		Approved elective	3	Approved elective	3

FOURTH YEAR

Phar. 112. Biologicals..	3	Phar. 183. New Remed.	3	Phar. 184. Laws & Jour.	3
Phar. 195. Phar. Chem.	5	Phar. 196. Phar. Chem.	5	Phar. 197. Toxicology..	5
Approved elective	8	Approved elective	8	Approved elective	8

Total scholastic credits for graduation—180 plus six quarters in military or naval science or physical education.

2. THE SCIENTIFIC COURSE. (Prepares students for prescription and hospital pharmacy, manufacturing pharmacists and pharmaceutical chemists.)

THIRD YEAR

Autumn Quarter	*Credits*	*Winter Quarter*	*Credits*	*Spring Quarter*	*Credits*
Phar. 101. Pharmacol. Tox.	3	Phar. 102. Pharmacol Tox.	3	Phar. 103. Pharmacol. Tox.	3
Phar. 113. Adv. Prescr.	5	Phar. 104. Microscopy..	2	Phar. 105. Microscopy..	2
Bact. 101. General	5	Phar. 114. Adv. Prescr.	5	Phar. 115. Adv. Prescr.	5
Approved elective	2	Approved elective	5	Approved elective	5

FOURTH YEAR

Phar. 112. Biologicals..	3	Phar. 183. New Remed.	3	Phar. 184. Laws and Journ.	3
Phar. 195. Phar. Chem.	5	Phar. 196. Phar. Chem.	5	Phar. 197. Toxicology..	5
Physics 1 or 4. Mech..	5	Physics 2 or 5. Sd. Heat Lt.	5	Approved electives	8
Approved elective	3	Approved elective	3		

Total scholastic credits for graduation—180 plus six quarters in military or naval science or physical education.

3. PRE-MEDICAL CURRICULUM. (This curriculum, with proper selection of elective courses, will give clear entrance to colleges of medicine. The graduate upon completion of the study of medicine in the college of medicine has the benefit of training in both professions.)

THIRD YEAR

Autumn Quarter	*Credits*	*Winter Quarter*	*Credits*	*Spring Quarter*	*Credits*
Phar. 101. Pharmacol. Toxicology	3	Phar. 102. Pharmacol. Toxicology	3	Phar. 103. Pharmacol. Toxicology	3
Mod. For. Lang.....	5	Mod. For. Lang.....	5	Mod. For. Lang.....	5
Zoology 1 or 3.....	5	Zool. 2 or 4.....	5	Comp. 2. Composition..	5
Approved elective	2	Approved elective	2	or Speech 37. Arg.....	5
				Approved elective	2

FOURTH YEAR

Physics 1 or 4. Mech..	5	Phys. 2 or 5. Sd. Ht.		Physics 3 or 6. Elect..	5
Bact. 101. General.....	5	Lt.	5	Approved elective 10	
Approved elective	5	Approved elective 10			

Total scholastic credits for graduation—180 plus six quarters in military or naval science or physical education.

GRADUATE COURSES

4. WITH DEGREE OF MASTER OF SCIENCE IN PHARMACY. (Five-Year Course.)

Graduates of the four-year course may continue work for the master's degree as follows:

Not more than 25 credits allowed outside of the College of Pharmacy.

Not less than 20 credits shall be elected in the College of Pharmacy. At least 12 credits of the major work must be a research problem and the preparation of a thesis. Examination and thesis must conform to the regulations of the Graduate School.

5. WITH DEGREE OF DOCTOR OF PHILOSOPHY.

The degree of doctor of philosophy (Ph.D.) with major and thesis in the pharmaceutical field may be taken by meeting all requirements of the Graduate School. The section of the Graduate School, page 100, should be consulted for information concerning graduate degrees.

COURSES OF STUDY

For a description of courses, offered by the College of Pharmacy, see Departments of Instruction section.

COLLEGE OF SCIENCE

Requirements for Admission

Correspondence. Credentials and all correspondence relating to admission to any college or school of the University should be addressed to the registrar, University of Washington. For detailed information concerning admission, registration, and general University fees and expenses, applicable to all students, see pages 37, 43, 45.

Subject Requirements

For entrance to the College of Science, either by certificate or examination, the student must present 12 units of credit, belonging normally to the last three years of the high school curriculum, which must include the following:

English, two units
Plane geometry, one unit
Natural science with laboratory, one unit
Foreign language, a second unit of one*
Academic elective, one unit

In addition to these required subjects the student should choose his high school electives with a view to sound preparation for his major in the University. Recommendations:

Mathematics.

Prospective majors in astronomy, chemistry, geology, mathematics, physics, should elect advanced algebra, ½ unit, and solid geometry, ½ unit.

Prospective majors in botany, fisheries, psychology should elect advanced algebra, ½ unit.

Science.

Prospective majors in anatomy, astronomy, chemistry, geology, should elect physics, one unit, and chemistry, one unit.

Prospective majors in fisheries, mathematics, physics, should elect physics, one unit.

Foreign Language.

The language should normally be German, French or Latin.

Students in any college electing work in the Naval Reserve Officers' Training Corps are required to present plane geometry and plane trigonometry. For the naval course in aviation flight training (entered at the beginning of the senior year), in addition to the above, the student must have had elementary physics, solid geometry, and college algebra. In most cases plane trigonometry and college algebra may be taken during the freshman year, but the student who is planning to apply for admission to the Naval R.O.T.C. should take physics, plane and solid geometry and advanced algebra while in high school.

CURRICULA

The student entering the College of Science may take up one of several curricula, general or specialized, with emphasis on pure or applied sciences. These curricula, as set forth in detail in succeeding pages, are:

I. Elective curricula, for students desiring general training in science, leading to the degree of bachelor of science.

*A student who does not present two years of one foreign language must make up the deficiency in the University on the basis of 10 credits for each unit of deficiency. Further, credits earned in the University in satisfaction of this deficiency will not be counted toward graduation unless the student offers for entrance eight units of academic subjects (English, mathematics, natural science, social science, foreign language).

II. Required curricula, for students desiring to specialize in one department, or to obtain professional training, leading to the degree of bachelor of science, in one of the following subjects:

A. Anatomy
B. Bacteriology
C. Biology
D. Botany
E. Chemistry
F. Fisheries
G. Geology
H. Geography
I. Mathematics
J. Oceanographic Laboratories
K. Physics
L. Psychology
M. Zoology

III. Required curricula in group majors leading to the degree of bachelor of science:

A. Combined Science and Law
B. Pre-Library

IV. Prescribed curricula in vocational subjects:

A. Home Economics
B. Nursing Education
C. Physical Education for Men
D. Physical Education for Women
E. Pre-medical

V. Pre-Landscape Gardening curriculum.

I. Elective Curricula

The student selecting these curricula must choose one department of the College of Science, in which he proposes to do the preponderance of his work. This department will be known as his major department and the subject as his major subject. If possible, the student should choose his major subject at the time of entrance.

To secure the degree of bachelor of science in this division of the college, a student must earn 180 academic credits, observing the restrictions in regard to a major subject, scholarship requirements, and electives in other colleges.

Major subjects: The following are the departments from which a candidate for the bachelor of science degree must select his major:

Anatomy
Bacteriology
Botany
Chemistry
Fisheries
Geology and Geography
Home Economics
Mathematics
Nursing
Physical Education for Men
Physical Education for Women
Physics
Psychology
Zoology

A. Requirements in a Major Subject

A student must earn not less than 36 nor more than 60 credits in his major department. Not more than 96 credits will be accepted in the major and any other one department.

B. Distribution of Required Work

At least 60 of the scholastic credits presented for the degree of bachelor of science must be in the courses numbered above 100, and 18 such credits must be in the major subject. Requirements for graduation are as follows:

1. *Subjects Required Either in Secondary School or in the University*:
   - (a) United States history and civics, one year in high school or ten credits in the University.
   - (b) History in addition to (a), one year or ten credits.
   - (c) Mathematics, geology, or astronomy, one year or ten credits.
   - (d) Chemistry, one year or ten credits.
   - (e) Physics, one year or ten credits.
   - (f) Botany or zoology, one year or ten credits.
   - (g) The student must obtain a certificate of proficiency in English from the department of English, or must earn 10 credits in English composition in the University.

2. *Subjects Required in the University*:
   - (h) Physical education, or military or naval science, two years.
   - (i) Economics, history, language and literature, philosophy, political science, psychology, sociology, 20 credits, but only ten credits will be counted in any one of these subjects.

C. ELECTIVES

Students selecting these curricula may complete their courses with electives from any school or college of the University. Electives in technology, forestry, law, and pharmacy, must not exceed 36 credits in all, and must not exceed 25 credits from any one of these colleges.

II. Curricula in the Various Departments

For the degree of bachelor of science in any of the following departments a minimum of 180 academic credits is required for graduation based upon the curricula as outlined below.

A. ANATOMY

See C. Biological Sciences.

B. BACTERIOLOGY

First Year

Autumn Quarter	*Credits*	*Winter Quarter*	*Credits*	*Spring Quarter*	*Credits*
Comp. 1. Composition..	5	Comp. 2. Composition..	5	Psych. 1. General.....	5
Chem. 1 or 21. General.	5	Chem. 2 or 22. General.	5	Chem. 23. Qual. Anal..	5
Zool. 1 or 3. Intro....	5	Zool. 2 or 4. Intro....	5	Soc. 1. Intro.....	5
Military or Naval Sci. or Phys. Edu.....+		Military or Naval Sci. or Phys. Edu.....+		Military or Naval Sci. or Phys. Edu.....+	

Second Year

Chem. 131. Organic....	5	Chem. 132. Organic....	5	Chem. 111. Quant. Anal.	5
Physics 1. General.....	5	Physics 2. General.....	5	Physics 3. General.....	5
Elective	5	Elective	5	Bact. 101. General.....	5
Military or Naval Sci. or Phys. Edu.....+		Military or Naval Sci. or Phys. Edu.....+		Military or Naval Sci. or Phys. Edu.....+	

Third Year

Bact. 105. Infect. Dis..	5	Bact. 106. Clin. Diag..	5	Bact. 104. Serology....	5
Anat. 105. Histol.....	6	Anat. 106 or 102. Embryo. or General..	6	Anat. 107 or 103. Neur. or General....	6
Bact. 103. Pub. Hygiene	5	Bact. 102. Sanitary....	5	Elective	5

Fourth Year

Bact. 120. Applied.....	5	Bact. 121. Applied.....	5	Bact. 122. Applied.....	5
Electives	10	Electives	10	Electives	10

C. BIOLOGICAL SCIENCES

In this curriculum the student must select a major in anatomy, botany, or zoology. On selecting his major subject, the student should at once consult his major department, a member of which will act as his adviser. The adviser will plan a special curriculum for the student, fitting him for his chosen work. This curriculum must be submitted to the dean of the College of Science for approval. Thereafter the individual curriculum can be changed only with consent of the adviser and the dean.

First Year

Autumn Quarter	*Credits*	*Winter Quarter*	*Credits*	*Spring Quarter*	*Credits*
Comp. 1. Composition..	5	Comp. 2. Composition..	5	Mathematics or Elective	5
Botany or Zoology.....	5	Botany or Zoology.....	5	Electives	10
Electives	5	**Mathematics or Elect.	5	Military or Naval Sci. or Phys. Edu.....+	
Military or Naval Sci. or Phys. Edu.....+		Military or Naval Sci. or Phys. Edu.....+			

Second Year

Chemistry or Physics...	5	Chemistry or Physics...	5	Major	5
Major	5	Major	5	Electives	10
Electives	5	Electives	5	Military or Naval Sci. or Phys. Edu.....+	
Military or Naval Sci. or Phys. Edu.....+		Military or Naval Sci. or Phys. Edu.....+			

Third Year

Major	5	Major	5	Major	5
B.A. 1. Pol. Sci. or Soc.	5	Soc., Pol. Sci. or Econ.	5	Electives	10
Electives	5	Electives	5		

Fourth Year

Major	5	Major	5	Electives	15
Electives	10	Electives	10		

D. BOTANY

See C. Biological Sciences.

E. CHEMISTRY

First Year

Autumn Quarter	*Credits*	*Winter Quarter*	*Credits*	*Spring Quarter*	*Credits*
Chem. 1 or 21. General.	5	Chem. 2 or 22. General	5	Chem. 23. Qual. Anal..	5
Math. 4. Plane Trig....	5	Math. 5. College Alg...	5	Math. 6. Anal. Geom...	5
Comp. 1. Composition..	5	Comp. 2. Composition..	5	[1]Electives	5
Military or Naval Sci. or Phys. Edu.....+		Military or Naval Sci. or Phys. Edu.....+		Military or Naval Sci. or Phys. Edu.....+	
		(a) Geology or Mineralogy			
[1]Options		(b) Mechanical Drawing			
		(c) Biological Science			

Second Year

Chem. 109. Quan. Anal.	5	Chem. 110. Quan. Anal.	5	Chem. 101. Adv. Qual. Anal.	5
Physics 1 or 97. General	5	Physics 2 or 98. General	5	Physics 3 or 99. General	5
Math. 61. Calc.....	3	Math. 62. Calc.....	3	[2]Electives	5
and		and		or	
Electives	2	Electives	2	Math. 109. Calc.....	5
or		or		Military or Naval Sci. or Phys. Edu.....+	
Math. 107. Calc.....	5	Math. 108. Calc.....	5		
Military or Naval Sci. or Phys. Edu.....+		Military or Naval Sci. or Phys. Edu.....+			

**Two and one-half years of mathematics required, which may be taken in high school or University.

[2]Students expecting to elect the industrial group in junior year must take Chem. 52 the spring quarter of the sophomore year.

THIRD YEAR

Chem. 131. Organic.... 5	Chem. 132. Organic.... 5	Chem. 133. Organic.... 5
[4]Electives 5	[4]Electives 5	[4]Electives 5
Group Option	Group Option	Group Option
(a) General:	(a) General:	(a) General:
[5]Electives 5	[5]Electives 5	[5]Electives 5
(b) Industrial:	(b) Industrial:	(b) Industrial:
Chem. 121. Ind.... 5	Chem. 122. Ind.... 5	Chem. 123. Ind.... 5
(c) Biochemical:	(c) Biochemical:	(c) Biochemical:
Physiol. 151. Adv. or	Physiol. 152. Adv. or	Physiol. 153. Adv. or
Bact. 101. Gen.... 5	Bact. 102. Sanit... 5	Bact. 103. Pub. Hyg. 5
(d) [6]Oceanographical:	(d) [6]Oceanographical:	(d) [6]Oceanographical:
Physics 101. Intro.	Physics 105. Elec.. 5	Physics 160. Optics 5
Mod. Theor..... 5		

FOURTH YEAR

Chem. 181. Phys. and	Chem. 182. Phys. and	Chem. 181. Phys. and
Theor 5	Theor. 5	Theor. 5
[5]Electives 2	[5]Electives 5	
Group Option	Group Option	Group Option
(a) General:	(a) General:	(a) General:
Electives 8	Electives 8	Electives 10
(b) Industrial:	(b) Industrial:	(b) Industrial:
Chem. 171. Chem.	Chem. 172. Chem.	Electives 10
Engr. 5	Engr. 5	(c) Biochemical:
176. Chem. Engr.	177. Chem. Engr.	Chem. 163. Physiol.
Thesis 3	Thesis..... 3	Chem. 3
(c) Biochemical:	(c) Biochemical:	Electives 7
Chem. 161. Physiol.	Chem. 162. Physiol.	(d) [6]Oceanographical:
Chem. 5	Chem. 5	Electives 8
Electives 3	166. Bioch. Prep.... 3	
(d) [6]Oceanographical:	(d) [6]Oceanographical:	
Electives 8	Electives 8	

F. FISHERIES

FIRST YEAR

Autumn Quarter *Credits*	*Winter Quarter* *Credits*	*Spring Quarter* *Credits*
Comp. 1. Composition.. 5	Comp. 2. Composition.. 5	Zool. 5. Embryol..... 5
Zool. 1. Elementary.... 5	Zool. 2. Elementary.... 5	Chem. 23. Qual. Anal... 5
Chem. 1 or 21. General 5	Chem. 2 or 22. General 5	[1]Elective 5
Military or Naval Sci.	Military or Naval Sci.	Military or Naval Sci.
or Phys. Edu.....+	or Phys. Edu.....+	or Phys. Edu.....+

SECOND YEAR

Zool. 127. Comp. Anat. 5	Zool. 128. Comp. Anat.. 5	Zool. 108. Limnology... 5
or	or	Physics 3 or 6. Gen. or
Zool. 125. Invert. Zool. 5	Zool. 126. Invert. Zool.. 5	Elective 5
Elective 5	Elective 5	Elective 5
Physics 1 or 4. General 5	Physics 2 or 5. General 5	Military or Naval Sci.
Military or Naval Sci.	Military or Naval Sci.	or Phys. Edu.....+
or Phys. Edu.....+	or Phys. Edu.....+	

THIRD YEAR

Fish. 101. Ichth. or	Fish. 102. Ichth. or	Fish. 103. Ichth. or
Fish. 105. Comm. Invert. 5	Fish. 106. Comm. Invert. 5	Fish. 107. Comm. Invert. 5
Math. 4. Plane Trig.... 5	Math. 5. College Alg.. 5	Math. 6. Anal. Geom.. 5
Elective 5	Elective 5	Zool. 101. Cytol. or
		Elective 5

FOURTH YEAR

Fisheries electives 10	Fisheries electives 10	Fisheries electives 5
Fish. 195. Seminar.... 2	Fish. 196. Seminar..... 2	Fish. 197. Seminar..... 2
or	or	Math. 63. Calc..... 3
Zool. 16. Evolution..... 2	Zool. 121. Micro. Tech. 3	Elective 5
Math. 61. Calc..... 3	Math. 62. Calc..... 3	

[4]In addition to the subjects specially listed above, 10 credits in either French or German are required to be completed before the end of the third year.

[5]Chem. 190 and 191 (History of Chemistry) are suggested as electives in either the junior or senior year.

[6]Twenty-five hours of electives must be taken in the biological sciences or geology.

[1]Ten credits of German or French in the University are required before the end of the junior year.

G. GEOLOGY

First Year

Autumn Quarter	*Credits*	*Winter Quarter*	*Credits*	*Spring Quarter*	*Credits*
Chem. 1 or 21. General	5	Chem. 2 or 22. General	5	Chem. 23. Qual. Anal..	5
Math. 4. Trig.....	5	Math. 5. College Alg...	5	Comp. 1. Composition..	5
G.E. 1. Engr. Drawing..	3	G.E. 2. Engr. Drawing.	3	G.E. 21. Plane Surv...	3
Elective	2	Elective	2	G.E. 3. Drafting Prob..	3
Military or Naval Sci. or Phys. Edu.....+		Military or Naval Sci. or Phys. Edu.....+		Military or Naval Sci. or Phys. Edu.....+	

Second Year

Geol. 5. Rocks & Min..	5	Geol. 6. Elem. Physiog.	5	Geol. 7. Hist. Geol.....	5
Physics 1. General.....	5	Physics 2. General.....	5	Geol. 121. Mineral.....	5
Bot. or Zool. 1. Elem...	5	Bot. or Zool. 2. Elem..	5	Comp. 2. Composition..	5
Military or Naval Sci. or Phys. Edu.....+		Military or Naval Sci. or Phys. Edu.....+		Military or Naval Sci. or Phys. Edu.....+	

Third Year

Geol. 123. Optical Min..	5	Geol. 124. Petrog. and Petrology.....	5	Geol. 125. Petrog. and Petrology.....	5
Chem. 111. Quan. Anal.	5	Geol. 130. Paleont.....	5	Geol. 132. Invert. Paleont.....	5
French or German 1...	5	French or German 2...	5	French or German 3...	5

Fourth Year

Geol. 129. Mineral Res. —Metals.....	3	Geol. 126. Sed. Pet....	5	Geol. 128. Min. Res.— Non-Metals.....	3
Geol. 122. Field Meth. or *Professional electives	12	Geol. 127. Ore Deposits.	5	Geol. 190. Thesis.....	5
		*Professional elective..	5	*Professional electives..	7

H. GEOGRAPHY

First Year

Autumn Quarter	*Credits*	*Winter Quarter*	*Credits*	*Spring Quarter*	*Credits*
Geol. 1. Elem.....	5	History elective	5	Soc. 1. Introduction....	5
B.A. 1. Gen. Econ.....	5	B.A. 2. Gen. Econ.....	5	Geog. 11. Climate.....	5
Comp. 1. Composition..	5	Comp. 2. Composition..	5	Pol. Sci. 1. Government	5
Military or Naval Sci. or Phys. Edu.....+		Military or Naval Sci. or Phys. Edu.....+		Military or Naval Sci. or Phys. Edu.....+	

Second Year

[1]Geol. 5. Rocks and Min.	5	Geol. 6. Physiography..	5	Geog. 105. Latin Amer.	5
Fr. 1 or Ger. 1. Elem..	5	Fr. 2 or Ger. 2. Elem..	5	French 3 or Ger. 3. Elem.....	5
Anthrop. 51. Introd....	5	Geog. 70. Conservation.	5	Hist. or Pol. Sci. Elec..	5
Military or Naval Sci. or Phys. Edu.....+		Military or Naval Sci. or Phys. Edu.....+		Military or Naval Sci. or Phys. Edu.....+	

Third Year

Geog. 102. No. America	5	Geog. 103. Asia.....	5	Geog. 104. Europe.....	5
Soc. 55. Human Ecology	5	B.A. 100. Indus. Dev. U.S. or elective...	5	Psych. 1. General.....	5
History elective	5	B.A. 103. Money and Banking.....	5	Elective	5

Fourth Year

Geog. 175. Political...	5	B.A. 145. World Trade	5	Geog. 155. Environment	5
Hist. or Soc. elective..	5	Geog. 106. Africa-Austr.	5	Geog. 199. Pro-Seminar	5
Elective	5	Elective	5	B.A. 173. Int. Com. Pol.	5

*For those who desire to specialize in stratigraphical geology, the professional electives should include such courses as Mesozoic Geology, Tertiary Geology and Stratigraphy. For petrological geology courses in physical chemistry are essential and for mining geology, courses in mining engineering, metallurgy and metallurgical analysis.

[1]Prerequisite at least high school chemistry.

I. MATHEMATICS

First Year

Autumn Quarter	*Credits*	*Winter Quarter*	*Credits*	*Spring Quarter*	*Credits*
Comp. 1. Composition..	5	Comp. 2. Composition..	5	History	5
Math. 4. Plane Trig...	5	Math. 5. College Alg...	5	Math. 6. Anal. Geom..	5
Physics 1. General.....	5	Physics 2. General.....	5	Modern Foreign Lang..	5
Military or Naval Sci. or Phys. Edu.....+		Military or Naval Sci. or Phys. Edu.....+		Military or Naval Sci. or Phys. Edu.....+	

Second Year

History	5	B.A. 1. Gen. Econ....	5	Pol. Sci. 1. Comp. Govt.	5
Math. 107. Calc.....	5	Math. 108. Calc.....	5	Math. 109. Calc.....	5
Modern For. Lang....	5	Chem. 1. General.....	5	Chem. 2. General.....	5
Military or Naval Sci. or Phys. Edu.....+		Military or Naval Sci. or Phys. Edu.....+		Military or Naval Sci. or Phys. Edu.....+	

Third Year

Group I—Secondary School Teachers

Psych. 1. Intro.....	5	Philosophy or Logic...	5	Astron. 1. General.....	5
Biological Science	5	Biological Science	5	Mathematics .....2 or	3
Mathematics .....2 or	3	Mathematics .....2 or	3	Edu. 60. Sec. Edu....	3
Electives .....3 or	2	Electives .....3 or	2	Electives .....3 or	2
				Edu. Elective	3

Group II—College and University Teachers

Psych. 1. General.....	5	Philosophy or Logic...	5	Astronomy	5
Biological Science	5	Biological Science	5	Mathematics	4
Mathematics	5	Mathematics	5	Electives	5

Fourth Year

Group I—Secondary School Teachers

Edu. 70. H.S. Proced..	5	Edu. 71. Cadet Teaching —contd.		Education	3
Edu. 71. Cadet Teach..	8	Electives	12	Edu. 75Q. Math.....	3
Electives	7			Electives	3

Group II—College and University Teachers

Mathematics	5	Mathematics	5	Mathematics	5
Electives	10	Electives	10	Electives	10

J. OCEANOGRAPHIC LABORATORIES

A thorough training in the fundamental sciences is essential for an extensive study in oceanography. Such a study does not ordinarily begin until graduate standing has been attained, although exceptional seniors will be considered. Preparation for graduate study in oceanography may be approached by majoring in one of the physical or biological sciences. For the convenience of students contemplating such work, the following curricula for undergraduates are suggested by the staff of the laboratories. By adherence to the curricula a student may graduate with the degree of bachelor of science. The student adviser will be a member of the staff of the laboratories representing the major department.

Botany

First Year

Autumn Quarter	*Credits*	*Winter Quarter*	*Credits*	*Spring Quarter*	*Credits*
Bot. 1. Elem.....	5	Zool. 1. Elem.....	5	Bot. 3. Elem.....	5
Chem. 21. General.....	5	Chem. 22. General.....	5	Chem. 23. Qual. Anal..	5
Comp. 1. Composition..	5	Comp. 2. Composition..	5	Zool. 2. Elem.....	5
Military or Naval Sci. or Phys. Edu.....+		Military or Naval Sci. or Phys. Edu.....+		Military or Naval Sci. or Phys. Edu.....+	

SECOND YEAR

Autumn Quarter	*Credits*	*Winter Quarter*	*Credits*	*Spring Quarter*	*Credits*
Bot. 105. Morph. and Evolution	5	Bot. 106. Morph. and Evolution	5	Bot. 107. Morph. and Evolution	5
Physics 1. General	5	Physics 2. General	5	Physics 3. General	5
Math. 4. Plane Trig.	5	Math. 5. College Alg.	5	Math. 6. Anal. Geom.	5
Military or Naval Sci. or Phys. Edu.	+	Military or Naval Sci. or Phys. Edu.	+	Military or Naval Sci. or Phys. Edu.	+

THIRD YEAR

Bot. 119. Plant Histol.	5	Chem. 131. Organic	5	Chem. 132. Organic	5
Math. 107. Calc.	5	Math. 108. Calc.	5	Math. 109. Calc.	5
Elective	5	Elective	5	Elective	5

FOURTH YEAR

Bot. 143. Plant. Physiol.	5	Bot. 144. Plant Physiol.	5	Bot. 145. Plant Physiol.	5
Electives	10	Electives	10	Electives	10

For the electives, 20 credits must be selected from courses in language, literature, history, or the social sciences, with not more than 10 credits in one department. Suggested electives: Hist. 1-2; Pol. Sci. 1; B.A. 1; Soc. 1; Phil. 1; Psych. 1; Ger. 1-2, 3, 60, or continuation of work taken in secondary school; French 1-2, 3, 4, 7, or continuation of work taken in secondary school; Physics 101, 105, 160; Zool. 5, 106, 107, 125, 126; Chem. 111, 140, 141; Bot. 140, 247; Bact. 101.

Chemistry

FIRST YEAR

Autumn Quarter	*Credits*	*Winter Quarter*	*Credits*	*Spring Quarter*	*Credits*
Chem. 21. General	5	Chem. 22. General	5	Chem. 23. General	5
Math. 4. Plane Trig.	5	Math. 5. College Alg.	5	Math. 6. Anal. Geom.	5
Comp. 1. Composition	5	Comp. 2. Composition	5	Elective	5
Military or Naval Sci. or Phys. Edu.	+	Military or Naval Sci. or Phys. Edu.	+	Military or Naval Sci. or Phys. Edu.	+

SECOND YEAR

Chem. 109. Quan. Anal.	5	Chem. 110. Quan. Anal.	5	Chem. 101. Adv. Qual. Anal.	5
Physics 1. General	5	Physics 2. General	5	Physics 3. General	5
Math. 107. Calc.	5	Math. 108. Calc.	5	Math. 109. Calc.	5
Military or Naval Sci. or Phys. Edu.	+	Military or Naval Sci. or Phys. Edu.	+	Military or Naval Sci. or Phys. Edu.	+

THIRD YEAR

Chem. 131. Org. or Elec.	5	Chem. 132. Org.	5	Chemistry elective	5
Physics 101. Mod. Theor.	5	Physics 105. Electricity.	5	Physics 160. Phy. Optics	5
Elective	5	Elective	5	Elective	5

FOURTH YEAR

Chem. 181. Phys. and Theor.	5	Chem. 182. Phys. and Theor.	5	Chem. 183. Phys. and Theor.	5
Electives	10	Electives	10	Electives	10

For the electives, 20 credits must be selected from courses in language, literature, history or the social sciences, with not more than 10 credits in one department, and 25 credits from the biological sciences or geology.

Physics

FIRST YEAR

Autumn Quarter	*Credits*	*Winter Quarter*	*Credits*	*Spring Quarter*	*Credits*
Chem. 21. General	5	Chem. 22. General	5	Chem. 23. Qual. Anal.	5
Math. 4. Plane Trig.	5	Math. 5. College Alg.	5	Math. 6. Anal. Geom.	5
Biological Science	5	Biological Science	5	Comp. 1. Composition.	5
Military or Naval Sci. or Phys. Edu.	+	Military or Naval Sci. or Phys. Edu.	+	Military or Naval Sci. or Phys. Edu.	+

SECOND YEAR

Autumn Quarter	*Credits*	*Winter Quarter*	*Credits*	*Spring Quarter*	*Credits*
Physics 1. General.....	5	Physics 2. General.....	5	Physics 3. General.....	5
Math. 107. Calc.....	5	Math. 108. Calc.....	5	Math. 109. Calc.....	5
Elective	5	Elective	5	Elective	5
Military or Naval Sci. or Phys. Edu.....+		Military or Naval Sci. or Phys. Edu.....+		Military or Naval Sci. or Phys. Edu.....+	

THIRD YEAR

Physics 101. Modern Theor.....	5	Physics 105. Electricity	5	Physics 160. Phys.Optics	5
Biological Science	5	Biological Science	5	Biological Science	5
Elective	5	Elective	5	Elective	5

FOURTH YEAR

Physics 191. Anal. Mech.	3	Physics 192. Anal.Mech.	2	Chem. 183. Phys. and Theor.....	5
Chem. 181. Phys. and Theor.....	5	Chem. 182. Phys. and Theor.....	5	Electives	10
Electives	7	Electives	8		

For the electives, 20 credits must be selected from courses in language, literature, history or the social sciences, with not more than 10 credits in one department, and 10 credits must be in physics.

Zoology

FIRST YEAR

Autumn Quarter	*Credits*	*Winter Quarter*	*Credits*	*Spring Quarter*	*Credits*
Zool. 1. Elem.....	5	Zool. 2. Elem.....	5	Comp. 1. Composition..	5
Chem. 21. General.....	5	Chem. 22. General.....	5	Chem. 23. General.....	5
Math. 4. Plane Trig...	5	Math. 5. College Alg...	5	Math. 6. Anal. Geom..	5
Military or Naval Sci. or Phys. Edu.....+		Military or Naval Sci. or Phys. Edu.....+		Military or Naval Sci. or Phys. Edu.....+	

SECOND YEAR

Zool. 125. Invert. Zool..	5	Zool. 126. Invert. Zool.	5	Zool. 5. Gen. Embryol.	5
or		or		Physics 3. General.....	5
Zool. 127. Comp. Anat..	5	Zool. 128. Comp. Anat.	5	Math. 13. Stat. Meth...	5
or		or		Military or Naval Sci.	
Fish. 101. Ichthyology..	5	Fish. 102. Ichthyology..	5	or Phys. Edu.....+	
Physics 1. General.....	5	Physics 2. General.....	5		
Elective	5	Elective	5		
Military or Naval Sci. or Phys. Edu.....+		Military or Naval Sci. or Phys. Edu.....+			

THIRD YEAR

Chem. 131. Organic....	5	Chem. 132. Organic....	5	Chem. 111. Quan. Anal.	5
Bot. 1. Elem.....	5	Bot. 2. Elem.....	5	Zool. 102. Exper. Zool..	5
Elective	5	Elective	5	Elective	5

FOURTH YEAR

Zool. 106. Plankton....	5	Zool. 121. Micro. Tech.	3	Zool. 101. Cytology....	5
Bact. 101. General....	5	Electives	12	or	
Elective	5			Zool. 107. Parasitology.	5
				or	
				Zool. 108. Limnology...	5
				Electives	10

For the electives, 20 credits must be selected from courses in language, literature, history or the social sciences, with not more than 10 credits in one department.

K. PHYSICS

First Year

Autumn Quarter	*Credits*	*Winter Quarter*	*Credits*	*Spring Quarter*	*Credits*
Comp. 1. Composition..	5	Comp. 2. Composition..	5	Psych. 1. Intro.....	5
Math. 4. Plane Trig...	5	Math. 5. Col. Alg.....	5	Math. 6. Anal. Geom...	5
*Physics 1 or 4, or Chem. 21	5	Phys. 2 or 5, or Chem. 22	5	Physics 3 or 6, or Chem. 23	5
Military or Naval Sci. or Phys. Edu.....+		Military or Naval Sci. or Phys. Edu.....+		Military or Naval Sci. or Phys. Edu.....+	

Second Year

Chem. 21 or Physics 1 or 4.....	5	Chem. 22 or Physics 2 or 5.....	5	Chem. 23 or Physics 3 or 6.....	5
Math. 107. Calc.....	5	Math. 108. Calc.....	5	Math. 109. Calc.....	5
[1]Advisory elective	5	Advisory elective	5	Advisory elective	5
Military or Naval Sci. or Phys. Edu.....+		Military or Naval Sci. or Phys. Edu.....+		Military or Naval Sci. or Phys. Edu.....+	

Third Year

Physics elective.....3 or	5	Physics elective.....3 or	5	Physics elective.....3 or	5
Biol. Sci., Astron., Geol.	5	Biol. Sci., Astron., Geol.	5	Biol. Sci., Astron., Geol.	5
[2]Elective .....5 or	7	Elective .....5 or	7	Elective .....5 or	7

Fourth Year

Physics elective	5	Physics elective	5	Physics elective	5
[3]Advisory elective	5	Advisory elective	5	Advisory elective	5
Elective	5	Elective	5	Elective	5

L. PSYCHOLOGY

Psychology may be taken as a major in either the College of Science or the College of Liberal Arts. Students will follow the requirements of either college. Majors should if possible elect courses in mathematics, physics, physiology, and philosophy.

The following courses are particularly desirable for majors: Psych. 1, 102, 106, 107, 108, 112, 116, and 124.

(In this department the degree given is that of bachelor of science and not bachelor of science in psychology.)

M. ZOOLOGY

See C. Biological Sciences

III. Required Curricula in Group Majors

A. A SIX-YEAR COURSE IN SCIENCE AND LAW

This is a combination course whereby a student may obtain the degrees of bachelor of science and bachelor of laws in six years. At the end of his third year, after he has earned 139 credits, and completed the required six quarters in military or naval science or physical education, and all required work with a major in some department, he may register in the School of Law for the first year's work in law. He will be granted the bachelor of science degree at the end of the fourth year, or as soon as he completes the required work above specified and 41 credits in the School of Law, making a total of 180 credits for graduation. The fifth and sixth years of the combined course are devoted to completing the remainder of the required work for graduation from the School of Law.

*Physics, if trigonometry taken in high school.

[1]Advisory electives must be approved by the department.

[2]It is very desirable that the student take 15 credits of his free electives in history, economics, language, philosophy, political science, or sociology.

[3]If the student is preparing for graduate work he should plan his course so as to include Math. 114, 115, 116, and Chem. 181, 182.

B. PRE-LIBRARY

Admission. Admission to the general course in librarianship is granted as follows:

To graduate students who hold the baccalaureate degree from any college or university of good standing, whose undergraduate work in either or both high school and college has included the equivalent of at least 20 college credits each in German and French. Other modern languages may be substituted with the consent of the executive officer, provided the Romanic and Germanic groups are represented. Such graduates must have made an average grade of B in their undergraduate work.

Students planning to begin their professional training in librarianship after October, 1933, should consult the executive officer of the department in regard to their work once a year, preferably when registering for the spring quarter; and should have their programs approved by him.

The following courses in librarianship are open to students outside of the department, but do not carry credit to the degree in librarianship: 151, 152, 153, *Books and Their Authors;* 170 Section C, *Introduction to Children's Work;* 180 Section B, *Story Telling.*

The following courses may be taken by teaching majors who wish to qualify to meet the requirements of the State Department of Education for teacher librarians, 170 Section B, *Introduction to Children's Work;* 175 *Cataloging and Classification;* 177 *Bibliography and Reference;* 182 *School Library Administration;* and 195, *Book Selection for School Libraries.*

IV. Prescribed Curricula in Vocational Subjects

A PRESCRIBED CURRICULA IN HOME ECONOMICS

Home economics is primarily an applied field of knowledge. Its subject matter is based upon factual material and laws found in physical sciences, social sciences and fine arts. The application of the principles of these supporting subjects define the techniques, determine the standards and form the basis for the choices which modern living makes necessary. Home economics assembles from the basic fields of knowledge the material which will make the individual better understand his physical and social environment, endeavors to show the application of such knowledge in terms of human needs and to provide an outlet for his abilities in constructive vital work. The strength of home economics lies not only in well organized courses under its own title, but in the relation of these courses to the fundamental sciences and art.

The following curricula include these supporting courses in the proper sequence. These curricula lead to the degree of bachelor of science in home economics.

Smith-Hughes Teacher Training Curriculum

First Year

Autumn Quarter	*Credits*	*Winter Quarter*	*Credits*	*Spring Quarter*	*Credits*
Comp. 1. Composition	5	Comp. 2. Composition	5	Zool. 17. Eugenics	2
Physics 89. Home	4	Physics 90. Home	3	Physics 91. Home	3
Phys. Edu. 10. Health Edu.	5	Chem. 1 or 21. General.	5	Chem. 2 or 22. General.	5
Phys. Edu.	1	Nurs. Edu. 5. Home Nurs.	2	Elective	5
		Phys. Edu.	1	Phys. Edu.	1

Second Year

Chem. 135. Organic	5	Chem. 136. Organic	5	Physiol. 7. Elem.	5
Arch. 1. Arch. Apprec.	2	Arch. 2. Arch. Apprec.	2	H.E. 47. Home Furn.	3
H.E. 25. Textiles	3	H.E. 26. Textiles	3	or	
H.E. 45. Hh. Mgmt.	3	H.E. 46. Hh. Mgmt.	3	H.E. 46. Hh. Mgmt.	3
Art 9. Art Structure	3	or		Bact. 101. General	5
Phys. Edu.	1	H.E. 47. Home Furn.	3	Educ. 60. Sec. Edu.	3
		Elective	2		
		Phys. Edu.	1		

THIRD YEAR

Autumn Quarter	*Credits*	*Winter Quarter*	*Credits*	*Spring Quarter*	*Credits*
H.E. 112. Cost. Des. and Construction	3 or 5	H.E. 116. Food Prep.	3	H.E. 114. Cost. Des. & Construction	3
H.E. 115. Food Prep.	5	H.E. 113. Cost. Des. & Construction	3	H.E. 117. Food Prep.	3 or 5
Psych. 1. General	5	B.A. 1. Gen. Econ.	5	Sociol. 1. Introduction.	5
Elective	2 or 0	Educ. 90. Meas.	2	Edu. 9. Edu. Psych.	3
		Elective	2		

FOURTH YEAR

H.E. 107. Nutrition	5	H.E. 108. Nutrition	5	H.E. 148. Home Mgmt. House	2
Edu. 75NA. Spec. Meth.	3	Edu. 75NB. Spec. Meth.	3	H.E. 145. Hh. Econ.	2
Edu. 70. Methods	5	H.E. 144. Hh. Econ.	2	Electives	11
Elective	2	H.E. 190. Child Nutr. and Care	5		

Institution Management Curriculum

FIRST YEAR

Autumn Quarter	*Credits*	*Winter Quarter*	*Credits*	*Spring Quarter*	*Credits*
Comp. 1. Composition	5	Comp. 2. Composition	5	Physics 91. Home	3
Physics 89. Home	4	Physics 90. Home	3	Chem. 2 or 22. General	5
Phys. Edu. 10. Health Edu.	5	Chem. 1 or 21. General	5	Art 9. Art Structure	3
Phys. Edu.	1	Zool. 17. Eugenics	2	Elective	5
		Phys. Edu.	1	Phys. Edu.	1

SECOND YEAR

Chem. 135. Organic	5	Chem. 136. Organic	5	Bact. 101. General	5
Psych. 1. General	5	H.E. 46. Hh. Mgmt.	3	H.E. 47. Home Furn.	3
H.E. 45. Hh. Mgmt.	3	or		or	
Elective	2	H.E. 47. Home Furn.	3	H.E. 46. Hh. Mgmt.	3
Phys. Edu.	1	Physiol. 7. Elem.	5	H.E. 26. Textiles (I.M.)	3
		Elective	2	Soc. 1. Introd.	5
		Phys. Edu.	1		

THIRD YEAR

H.E. 115. Food Prep.	5	H.E. 116. Food Prep.	3	H.E. 117. Food Prep.	3 or 5
B.A. 1. Gen. Econ.	5	B.A. 65. Acct. Survey.	5	B.A. 106. Mktg. & Adv.	5
Elective	5	H.E. 122. Inst. Purch.	3	H.E. 124. Inst. Mgmt.	3
		Electives	4	Electives	2 or 4

FOURTH YEAR

H.E. 107. Nutrition	5	H.E. 108. Nutrition	5	Chem. 144. Physiol.	5
H.E. 125. Inst. Equip.	3	H.E. 120. Adv. Food Prep.	3	H.E. 191. Diet Therapy.	4
H.E. 121. Inst. Food Preparation	5	H.E. 144. Hh. Econ.	2	H.E. 145. Hh. Econ.	2
Elective	2	H.E. 190. Child Nutr. and Care	5	H.E. 123. Inst. Mgmt.	3
				Elective	1

Textiles, Clothing and Fine Arts Curriculum

FIRST YEAR

Autumn Quarter	*Credits*	*Winter Quarter*	*Credits*	*Spring Quarter*	*Credits*
Comp. 1. Composition	5	Comp. 2. Composition	5	Chem. 2 or 22. General	5
Art 9. Art Structure	3	Chem. 1 or 21. General.	5	Art 11. Art Structure	3
Art 5. Drawing	3	Art 10. Art Structure	3	Elective	7
Phys. Edu. 10. Health Educ.	5	Art 6. Drawing	3	Phys. Edu.	1
Phys. Edu.	1	Phys. Edu.	1		

Physics 89-90-91 may be substituted for Chemistry 1-2.

SECOND YEAR

H.E. 25. Textiles	3	H.E. 26. Textiles	3	Physiol. 7. Elem.	5
H.E. 45. Hh. Mgmt.	3	H.E. 46. Hh. Mgmt.	3	H.E. 47. Home Furn.	3
Arch. 1. Arch. Apprec.	2	or		or	
H.E. 112. Cost. Des. & Construction	3 or 5	H.E. 47. Home Furn.	3	H.E. 46. Hh. Mgt.	3
Elective	2 or 4	Arch. 2. Arch. Apprec.	2	H.E. 114. Cost. Des. & Construction	3
		H.E. 113. Cost. Des. & Construction	3	Electives	4
		Electives	4		

THIRD YEAR

Autumn Quarter	*Credits*	*Winter Quarter*	*Credits*	*Spring Quarter*	*Credits*
H.E. 101. Needlecraft..	2	H.E. 102. Needlecraft..	2	H.E. 198. Hist. Text...	3
Art 169. Cost. Des.....	2	Art 170. Cost. Des....	2	B.A. 1. Gen. Econ....	5
Psych. 1. General.....	5	Soc. 1. Introduction...	5	Electives	7
H.E. 188. Adv. Text...	2	H.E. 109. El. of H.E..	5		
Elective	4	Elective	1		

FOURTH YEAR

Phil. 1 or 129..... 5	H.E. 160. Adv. Cost. Des..... 3	H.E. 161. Adv. Cost. Des..... 3
Art Electives 6	Art Electives 6	H.E. 133. History of Costume..... 5
Electives 4	Electives 6	Art electives 3
		Electives 4

B. CURRICULA FOR NURSES

I. ELECTIVE CURRICULA

Graduate students working for the master of arts or master of science degree in the department of nursing education may elect a major or minor in any school or college of the University. For information as to number of credits and distribution of work write to the head of the department of nursing education.

II. PRESCRIBED CURRICULA

A. & B. Basic curricula combining university and hospital practice leading to a degree of bachelor of science in nursing.

A. Believing that a broader scientific education is desired by young women entering the nursing profession, the University offers a five-year course in nursing education, including three years at the University and two years at a hospital selected by the University. This course leads to the degree of bachelor of science in nursing and a diploma in nursing.

FIRST YEAR

Autumn Quarter	*Credits*	*Winter Quarter*	*Credits*	*Spring Quarter*	*Credits*
Comp. 1. Composition..	5	Comp. 2. Composition..	5	H.E. 9. Nutrition.....	6
Nurs. Edu. 1. Hist. Nursing.....	2	Chem. 1 or 21. General.	5	Chem. 2 or 22. General.	5
Physics 89. Home.....	4	Physics 90. Home.....	3	Physics 91. Home.....	3
Elective	4	Elective	2	Elective	2
Phys. Edu.	1	Phys. Edu.	1	Phys. Edu.	1

SECOND YEAR

Anat. 100. Gen. Human. 3	Physiol. 54. Inter..... 5	H.E. 105. Nutrition.... 5
Physiol. 53. Inter..... 5	Soc. 1. Intro..... 5	Psych. 1. General..... 5
B.A. 1. Gen. Econ.... 5	Elective 5	Elective 6
Elective 2	Phys. Edu. 1	
Phys. Edu. 1		

THIRD YEAR

Anat. 101. Gen Human. 3	Anat. 102. Gen. Human. 3	Bact. 103. Pub. Hyg... 5
Bact. 101. General..... 5	Bact. 102. Sanit..... 5	Elective 10
Speech 40. Essen. of Speaking..... 5	Elective 9	
Elective 3		

Curriculum to be Followed in Hospital by Five-Year Nursing Students

	Credits		*Credits*
Hygiene and Sanitation	2	Modern Social and Health Movements	3
Materia Medica	4	Obstetrical Nursing	3
Elem. Nursing Procedure	6	Mental Nursing	3
Advanced Nursing Procedure	3	Emergency Nursing	2
Elements of Pathology	2	Diseases of Eye, Ear, Nose and Throat	2
Medical Nursing (including diseases of skin)	6	Pediatric Nursing	3
Surgical Nursing	4	Nursing Practice	48

B. Four years of university work, six quarters of which are taken on the campus and the remaining period in instruction and practice under university direction in an approved hospital school of nursing, leading to the degree of bachelor of science in nursing.

First Year

Autumn Quarter	*Credits*	*Winter Quarter*	*Credits*	*Spring Quarter*	*Credits*
Physics 89. Home	4	Physics 90. Home	3	Physics 91. Home	3
Nurs. Edu. 1. History Nursing	2	Comp. 5. Composition	3	Chem. 2 or 22. General.	5
Comp. 4. Composition	3	Chem. 1 or 21. General.	5	Psych. 1. General	5
Elective	6	Elective	4	Elective	2
Phys. Edu.	1	Phys. Edu.	1	Phys. Edu.	1

Second Year

Physiol. 53. Inter	5	Physiol. 54. Inter	5	Bact. 101. General	5
Anat. 100. Gen.Human.	3	Anat. 101. Gen. Human.	3	Soc. 1. Intro	5
Elective	7	H.E. 9. Nutrition	6	Elective	5
Phys. Edu.	1	Elective	2		
		Phys. Edu.	1		

Twenty credits of electives must be taken in the field of social sciences, literature, history or languages.

Third Year

Nurs. Edu.		Nurs. Edu.		Nurs. Edu.	
50. Prin. and Prac.	5	60. Prin. of Med.	3	51. Case Study	1
52. Intro. Hosp. Pr.	6	62. Hosp. Prac.	6	61. Prin. of Med.	3
Anat. 105. Path	3	70. Prin. of Surg.	3	71. Prin. of Surg.	3
Phar. 51. Elem	2	Phar. 61. Phar. & Ther.	3	72. Hosp. Prac.	6
Phys. Edu.	1	Phys. Edu.	1	H.E. 191. Nutrition	3

Summer Quarter — *Credits*
Nurs. Edu. 65. Hosp. Prac. 4

Fourth Year

Nurs. Edu.		Nurs. Edu.			
64. Spec. Therapy	2	73. Oper. Room	6	Chem. 131. Organic	5
80. Pediatrics	5	76. E. E. N. & T.	2	Bact. 106. Clin. Diag.	3
82. Hosp. Prac.	6	86. Obstetrics	5	Nurs. Edu. 88. Hosp. Practice	6

Summer Quarter — *Credits*
Nurs. Edu. 75. Hosp. Prac. 4

Fifth Year

Nurs. Edu.		Nurs. Edu.	
66. Prv. Med. and Nurs.	2	90. Psychiatry	5
68. Hosp. Prac.	6	92. Hosp. Practice	6
101. Intro. to Public Health	2	100. Prof. Probs.	2

C. Curriculum for Graduate Nurses

The University offers this course to enable the graduate nurse to broaden her scientific and cultural background and prepare for advanced professional work. It allows the student a choice of her electives in the fields of public health nursing, nursing administration, or nursing education.

FIRST YEAR

Autumn Quarter	*Credits*	*Winter Quarter*	*Credits*	*Spring Quarter*	*Credits*
Comp. 1. Composition..	5	Chem. 1 or 21. General.	5	Chem. 2 or 22. General.	5
Psych. 1. Intro.....	5	Comp. 2. Composition..	5	B.A. 1. Gen. Econ....	5
Elective	5	Elective	5	Elective	5
Phys. Edu.	1	Phys. Edu.	1	Phys. Edu.	1

Preferred electives: Soc. 1, 63, 62; Zool. 16, 17.

SECOND YEAR

Physiol. 53. Inter.....	5	Physiol. 54. Inter.....	5	H.E. 105. Nutrition....	5
Elective	10	Elective	10	Nurs. Edu. 150. Prin. of Edu.....	5
Phys. Edu.	1	Phys. Edu.	1	Elective	5

Preferred electives: Psych. 101, 114, 131; Speech 40; Soc. 131.

THIRD YEAR

Bact. 101. General.....	5	Bact. 102. Sanit.....	5	Bact. 103. Pub. Hyg....	5
Nurs. Edu. 102. Pub. Health.....	5	Nurs. Edu. 103. Admin. Pub. Health Nurs...	5	Elective	11
Elective	5	Elective	5		

Preferred electives: Soc. 155, 156, 171, 173; Nurs. Edu. 110, 150, 151, 152.

D. Curriculum for Graduate Nurses Leading to a Certificate in Public Health Nursing

The broadening of the field of nursing has created a demand on the part of nurses for definite study along lines which experience has shown to be closely interwoven with the problems of the family and the community. A nurse must combine with the technical knowledge she already possesses an understanding of the fundamental principles of economics and the social sciences.

The demand for properly trained and qualified public health nurses is constantly increasing as new fields open through recognition by the public of the economic value of the work. Beginning each quarter of the year the University offers a course in public health nursing which is open to graduate nurses who are deemed qualified for such work, and who wish to broaden their training to take up positions in this specialized line.

1. University Resident Curriculum

This includes three quarters of academic work at the University and one quarter of field work under the University Extension Service.

	Credits		*Credits*
Nurs. Edu. 102. Public Health.....	5	†Psych. 1. General	5
Nurs. Edu. 103. Admin. Pub. Health.	5	†Psych. 131. Child Psych.....	5
Nurs. Edu. 150. Prin. of Edu.....	5	†Psych. 132. Clinical Psych.....	3
†Soc. 175. Social Case Work.....	5	Bact. 103. Public Hygiene.....	5
†H.E. 105. Nutrition	5	Field Work	16
†Comp. 1 and 2. Composition.....	10	Total credits required.....	60
†Speech 40. Essen. of Speaking.....	5		

†Electives.

2. Firland Sanatorium Extension Service Curriculum

This includes 36 University credits under the University Extension Service distributed over a two-year period of clinical and field practice, and institutional work. Maintenance and nominal salary are given for part-time professional service, enabling the student to defray her expenses during the course.

	Credits		*Credits*
Nursing Edu. E.102. Public Health...	5	Soc. E.175. Social Case Work.....	5
Nurs. Edu. E.103. Admin. Pub. Health	5	Psych. E.1. General.....	3
H.E. E.104. Nutrition	3	Comp. E.1. Composition.....	5

E. Curriculum for Graduate Nurses Leading to a Certificate in Hospital Teaching Supervision

Executives and students of the field of hospital and nursing administration, have frequently expressed the need for supervisors, administrators and teachers who have had advanced education and experience, qualifying them for positions of responsibility in fields of obstetric, pediatric, medical, surgical, psychiatric, and out-patient nursing.

The University is offering a supervisory course for graduate nurses which combines academic courses and professional practice in the major and minors elected from the nursing specialties listed above. This course leads to a certificate in "teaching supervision."

Curricula

This includes 45 academic credits in scientific, social, and economic subjects at the University, and one year of graded clinical administrative practice in an approved hospital under University direction.

Academic Courses	*Credits*
B.A. 1. Gen. Econ.....	5
Soc. 1. Intro.....	5
Psych. 1. General.....	5
H.E. 103. Nutrition for Grad. Nurses	3
Phar. 101. E. Adv. Pharm. and Therapeutics.....	2
Nurs. Edu. 150. Princ. Edu.....	5
Nurs .Edu. 152. Supervision	5
Nurs. Edu. 153. Administration	5
Nurs. Edu. 154. Teach. and Ward Admin.....	10
	45

Professional Practice	
Review, supervision, and advanced administration in classes and practice of major and 1st and 2nd minor nursing specialties elected.	
Major service.....	3 months
1st minor service	3 months
2nd minor service	2 months
Adv. Admin.	4 months
	12 months

Preferred electives: H.E. 123, 191; Bact. 103; Comp. 1; Soc. 56, 175.

Service Courses. For students in hospital schools of nursing.

1. Preliminary Nursing Course in Basic Sciences

To meet the needs for certain courses in the basic sciences, the University is offering a one-quarter course to students who have entered hospital schools of nursing.

Requirements for entrance: 1. Recommendation of the hospital superintendent. 2. High school graduation.

The curriculum:

	Credits		*Credits*
Chem. 7. Gen. Chem. for Hosp. Students.....	5	Anat. 25. Anatomy.....	3
H.E. 9. Nutrition	6	Physiol. 20. Physiol. for Hospital Students.....	3

2. Senior Nursing Student Extension Courses

Nurs. Edu. E.101. Intro. to Public Health.....2 credits

PRESCRIBED CURRICULUM FOR PHYSICAL EDUCATION FOR MEN

First Year

Autumn Quarter	*Credits*	*Winter Quarter*	*Credits*	*Spring Quarter*	*Credits*
Comp. 1. Composition..	5	Comp. 2. Composition..	5	Speech 40. Essen. of Speaking.....	5
Soc. 1. Intro.....	5	Zool. 1. Elem.....	5	Zool. 2. Elem.....	5
Phys. Edu. 80. Intro...	2	Zool. 17. Eugenics.....	2	Phys. Edu. 90. Pers. and Gen. Hyg.....	2
Elective	3	Elective	3	Elective	3
Military or Naval Sci. or Phys. Edu.....+		Military or Naval Sci. or Phys. Edu.....+		Military or Naval Sci. or Phys. Edu.....+	

Second Year

Anat. 100. Gen. Human.	3	Physiol. 50 for P.E....	6	Bact. 103. Pub. Hyg...	5
Anat. 110. Spec. Demon.	1	Anat. 111. Spec. Dem..	1	Anat. 112. Spec. Dem..	1
Psych. 1. Intro.....	5	Elective	8	Phys. Edu. 113. Playgr. and Com. Rec....	3
Elective	6	Phys. Edu. 52.....	1	Phys. Edu. 115. Physiol. of Ex.....	3
Phys. Edu. 51	1			Phys. Edu. 122. Kines.	3
				Phys. Edu. 53.....	1

Third Year

Phys. Edu. 141. Meth..	3	Phys. Edu. 135. Indiv. Gym.....	3	Phys. Edu. 143. Meth..	3
Phys. Edu. 145. Prin..	3	Phys. Edu. 142. Meth..	3	Phys. Edu. 173. Meth..	2
Edu. 60. Second. Edu..	3	Phys. Edu. 153. Health Edu.....	2	Edu. 9. Psych. of Sec. Educ.....	3
Edu. 120. Pub. School Admin.....	3	Edu. 90. Measmt. in Sec. Edu.....	2	H.E. 104. Nutrition....	2
Elective	3	Elective	4	Elective	5

Fourth Year

Phys. Edu. 172. Meth..	2	Phys. Edu. 150. Admin.	5	Phys. Edu. 170. Meth..	2
Edu. 70. H.S. Proc....	5	Phys. Edu. 171. Meth..	2	Edu. 71. Cadet Teach..	
Elective	8	Edu. 71. Cadet Tch....	8	Edu. 145G. Health Edu.	3
		Elective	5	Elective	5

Electives: Phys. Edu. 127, 175, 190.

D. PRESCRIBED CURRICULUM FOR PHYSICAL EDUCATION FOR WOMEN

First Year

Autumn Quarter	*Credits*	*Winter Quarter*	*Credits*	*Spring Quarter*	*Credits*
Comp. 1. Composition..	5	Zool. 2. Elem.....	5	Comp. 2. Composition..	5
Zool. 1. Elem.....	5	Zool. 17. Eugenics....	2	Phys. Edu. 10. Health Edu.....	5
*Chem. 1. General.....	5	*Chem. 2. General.....	5	Phys. Edu. 13.....	2
Phys. Edu. 11.....	2	Phys. Edu. 100. Surv..	2	Elective	5
		Phys. Edu. 12.....	2		

Second Year

Anat. 100. Gen. Human.	3	Soc. 1. Intro.....	5	Phys. Edu. 113. Playgr. and Com. Rec.....	3
Anat. 110. Spec. Dem..	1	Physiol. 50 for P.E...	6	Phys. Edu. 115. Physiol. of Ex.....	5
Phys. Edu. 111. Rhyth. Act. for Sm. Child.	3	Anat. 111. Spec. Dem..	1	Anat. 112. Spec. Dem..	1
Psych. 1. General.....	5	Phys. Edu. 112. Elem. Ath. Games.....	3	Bact. 103. Pub. Hyg...	5
Speech 43. Spk. Voice..	3	Phys. Edu. 52.....	2	Phys. Edu. 53.....	2
Phys. Edu. 51.....	2				

*Chemistry 1-2 required of students who have not completed a year of chemistry or physics in high school.

THIRD YEAR

Autumn Quarter	*Credits*	*Winter Quarter*	*Credits*	*Spring Quarter*	*Credits*
Edu. 60. Second. Edu..	3	Phys. Edu. 101. Surv. Gym.....	3	Phys. Edu. 122. Kines..	3
Phys. Edu. 162. Meth..	5	Phys. Edu. 163. Meth..	5	Phys. Edu. 164. Meth..	5
Elective	9	Edu. 90. Measmt. Sec. Edu.....	2	Edu. 9. Psych. Sec. Edu.....	3
		Elective	6	Elective	6

FOURTH YEAR

Phys. Edu. 131. Adapt. Act.....	3	Phys. Edu. 132. Adapt Act.....	3	Phys. Edu. 133. Adapt. Act.....	3
Phys. Edu. 145. Prin..	3	Phys. Edu. 153. Meth. Health Edu.....	2	Phys. Edu. 152. Admin.	2
Elective	10	Elective	11	Edu. 145G. Sch. Hyg..	3
				Edu. 70. H.S. Proced.	5
				Elective	2

In no case can credits in courses Phys. Edu. 57 to Phys. Edu. 97, inclusive, be counted as part of the 180 academic credits for graduation.

A student may also use physical education as a major, following the restrictions outlined under Elective Curricula (curricula with major in one department). The department recommends that any student planning to teach physical education follow the four-year curriculum rather than the curriculum with a major in one department.

E. PRE-MEDICAL CURRICULA

TWO AND FOUR-YEAR CURRICULA PREPARATORY TO MEDICINE

The University offers two curricula preparatory to the study of medicine. One of these is for two years, and will meet the requirements of medical schools which require only two years of college work for admission to their professional study. The second is for four years, and prepares students for those medical schools that require for admission the completion of a full four-year college course. The curricula will not reduce the amount of work to be done by the student in the medical school but they are designed to increase its efficiency.

These courses are also well adapted for pre-dental students, as the best dental schools require the same foundation work as the medical schools.

Below is the outline of the four-year curriculum. The first and second years constitute the two-year curriculum:

FIRST YEAR

Autumn Quarter	*Credits*	*Winter Quarter*	*Credits*	*Spring Quarter*	*Credits*
Chem. 1 or 21. General.	5	Chem. 2 or 22. General.	5	Chem. 23. Qual. Anal..	5
Zool. 3. Pre-medical....	5	Zool. 4. Pre-medical....	5	Physiol. 7. Elem.....	5
Comp. 1. Composition..	5	Comp. 2. Composition..	5	Psych. 1. General.....	5
Military or Naval Sci. or Phys. Edu.....+		Military or Naval Sci. or Phys. Edu.....+		Military or Naval Sci. or Phys. Edu.....+	

SECOND YEAR

Sci. French or German.	5	Physics 2. General.....	5	Physics 3. General.....	5
Physics 1. General.....	5	Chem. 131. Organic....	5	Chem. 132. Organic....	5
Lit. 73. Intro. Mod. Lit.	5	Electives	5	B.A. 1. Gen. Econ....	5
Military or Naval Sci. or Phys. Edu.....+		Military or Naval Sci. or Phys. Edu.....+		or Pol. Sci. 1. Comp. Govt.	5
				Military or Naval Sci. or Phys. Edu.....+	

THIRD YEAR

Anat. 100. Lecture.....	3	Anat. 102. Gen. Human	6	Anat. 103. Gen. Human	6
Anat. 101. Gen. Human	3	Anat. 106. Hist. & Emb.	6	Anat. 107. Neurology...	6
Anat. 105. Hist. & Emb.	6	‡Bact. 106. Clin. Diag..	5	‡Bact. 104. Serology...	5
‡Bact. 101. General....	5				

FOURTH YEAR

Physiol. 151. Adv.....	5	Physiol. 152. Adv.....	5	Physiol. 153. Adv.....	5
‡Chem. 161. Physiol...	5	‡Chem. 162. Physiol....	5	Bact. 112. Pathol.....	5
Bact. 105. Inf. Dis....	5	Electives	6	Anat. 104. Topograph..	4
				Electives	2

‡Approved electives may be substituted.

VI. Pre-Landscape Gardening Curriculum

The climate and flora of this region make it peculiarly fitted for the study of landscape gardening. There are likewise increasing demands for work of this nature. It therefore seems possible and feasible to construct from courses already offered in the University a two-year curriculum for those students who wish to specialize in landscaping. This will enable them to finish the course, such as that offered at the University of California, Cornell University, Iowa State College, Washington State College and Oregon State College, in two years.

First Year

Autumn Quarter	*Credits*	*Winter Quarter*	*Credits*	*Spring Quarter*	*Credits*
Bot. 1. Elem.	5	Bot. 2. Elem.	5	Bot. 3. Elem.	5
Art 5. Drawing	3	Art 6. Drawing	3	Art 7. Drawing	3
Comp. 1. Composition	5	Comp. 2. Composition	5	B.A. 1. Gen. Econ.	5
Math. 54. Math. for Arch.	3	Math. 55. Math. for Arch.	3	G.E. 7. Engr. Drawing.	3
Military or Naval Sci. or Phys. Edu.	+	Military or Naval Sci. or Phys. Edu.	+	Military or Naval Sci. or Phys. Edu.	+

Second Year

Arch. 1. Arch. Apprec.	2	Arch. 2. Arch. Apprec.	2	G.E. 21. Plane Surv.	3
Arch. 4. Arch. Design.	4	Arch. 5. Arch. Design.	4	Bot. 90. Plant Prop.	3
Arch. 7. Graph. Rep.	1	Arch. 8. Graph. Rep.	1	Bot. 92. Orn. Plants.	5
Arch. 112. Freehand Drawing	2	Arch. 113. Freehand Drawing	2	Elective	4
B.A. 54. Bus. Law.	3	Speech 40. Essen. of Speaking	5	Military or Naval Sci. or Phys. Edu.	+
Geol. 1. Intro.	5	Military or Naval Sci. or Phys. Edu.	+		
Military or Naval Sci. or Phys. Edu.	+				

Courses of Study

For description of courses, see Departments of Instruction section.

EXPLANATION

This section contains a list of all courses of study offered in the University. The departments are arranged in alphabetical order.

The University reserves the right to withdraw temporarily any course which has not an adequate enrollment at the end of the sixth day of any quarter. For changes in registration, due to withdrawal of a course, no fee will be charged.

The four-quarter plan has been adopted to enable the University to render larger service. It is more flexible than the semester plan and adds 12 weeks' instruction to the regular year. It is impossible, however, to provide that every course be given every quarter.

Courses bearing numbers from 1 to 99 inclusive are normally offered to freshmen and sophomores; those from 100 to 199 to juniors and seniors, and those from 200 upwards to graduate students.

Two or three numbers connected by hyphens indicate a course which ordinarily carries credit only when pursued for the full time; the instructor's permission must be obtained for credit for only a single quarter of such a course. No credit in a beginning foreign language is given for less than two quarters' work.

The credit indicated in connection with each course is the "quarter credit," based on the class period per week.

The descriptions of courses in each department include: (1) the number of the course as used in University records; (2) the title of the course; (3) a brief statement of its subject matter and method; (4) number of quarter credits given; (5) quarter in which it is given (autumn, winter, spring, summer); (6) name of instructor.

Courses preceded by * are not given in 1933- 1934.

Courses preceded by ** are given if a sufficient number of students elect them.

DEPARTMENTS OF INSTRUCTION

AERONAUTICAL ENGINEERING

Professor Eastwood, Executive Officer

101. *Aerodynamics.* Study of air-flow phenomena and of the aerodynamical characteristics of air-foils and air-foils combinations. Prerequisite, junior standing. Three credits; autumn, winter. F. S. Eastman.

102. *Advanced Aerodynamics.* Mathematical development of air-foil contours; stability problems for various flight maneuvers; wind tunnel testing of airplane models. Prerequisite, A.E. 101. Three credits; winter, spring. Kirsten, F. S. Eastman.

103. *Airplane Performance.* Speed, climb, and stability estimates from theoretical considerations and from model tests. Full scale testing. Prerequisite, A. E. 102. Three credits; spring. F. S. Eastman.

111. *Airplane Design.* Layout and design of airplanes. Application of the United States Department of Commerce regulations. Prerequisite, A.E. 101. Three credits; autumn. J. W. Miller.

112. *Airplane Design.* Airplane structural details. Design, manufacture, inspection and testing. Prerequisites, A.E. 111, 173. Three credits; winter, spring. J. W. Miller.

121. *Airships.* Study of lighter-than-air craft, aerostatics and airship design. Prerequisite, A.E. 101. Three credits; spring. Kirsten.

141. *Aerial Propulsion.* Study of several methods of screw propeller design; design of a standard screw propeller and performance calculations. Prerequisite, A.E. 101. Three credits; autumn, spring. Kirsten.

142. *Advanced Aerial Propulsion.* Different types of propellers; coordination of propeller with vessel; standard propeller test methods. Prerequisite, A.E. 141. Three credits; winter. Kirsten.

*151. *Special Aeronautical Designs.*

161. *Aerial Transportation.* Layout, location, construction and equipment of airways and air terminals. Prerequisite, A. E. 111, 141. Three credits; autumn. J. W. Miller.

162. *Aerial Transportation.* Economics of airway location and operation. Economic considerations in the design and selection of aircraft for a given purpose. Prerequisite, A.E. 161. Three credits; winter. J. W. Miller.

171. *Aircraft Mechanics.* Parts subjected to simple bending and torsion; graphical solutions; wing truss analysis; ties, struts and connections. Prerequisite, C.E. 92. Three credits; autumn, winter. F. S. Eastman.

172. *Aircraft Mechanics.* A continuation of A.E. 171. Analysis of beams under combined bending and compressive loads. Indeterminate trusses for aircraft. Prerequisite, A.E. 171. Three credits; winter, spring. F. S. Eastman.

173. *Advanced Aircraft Mechanics.* Graphical analysis. Rigid frames and indeterminate structures. Prerequisite, A.E. 172. Three credits; spring. J. W. Miller.

*Not offered in 1933-1934.

181. *Advanced Airplane Design.* Advanced structural analysis and the preparation of final drawings. Prerequisite, A.E. 112. Three credits; spring. J. W. Miller.

190. *Seminar.*

191, 192, 193. *Research.* Two to five credits; autumn, winter, spring. Kirsten.

211, 212, 213. *Research.* Two to five credits; autumn, winter, spring. Kirsten.

Engineering English

For courses in Engineering English, see department of English, Comp. B, 100, 102, and Speech 103.

ANATOMY

Professor Worcester, Executive Officer

Gross Anatomy

25. *Anatomy.* For hospital students. Three credits; autumn, spring. Worcester, Assistants.

100. *Anatomy Lectures.* Three credits; autumn, winter, spring. Worcester.

101, 102, 103. *General Human Anatomy.* For students preparing for medicine, nursing or physical education; open to others. Prerequisites, Zool. 3 and 4 or their equivalent. Three or six credits a quarter; autumn, winter, spring. Worcester, Assistants.

104. *Topographic Anatomy.* Cross and saggital sections for correlation. Prerequisites, Anat. 101, 102, 103. Four credits; autumn, winter, spring. Worcester.

108. *Special Dissections.* For physicians or students who have completed the above courses in gross anatomy. Credits to be arranged; autumn, winter, spring. Worcester.

110, 111, 112. *Special Demonstrations.* For physical education and bacteriology majors. Credits and hours to be arranged; autumn, winter, spring. Worcester, Assistant.

Microscopic Anatomy

105, 106. *Histology and Embryology.* Especially for medicine, and nursing students; open to others. Prerequisites, 1 or 3, or their equivalent. Three to six credits for 105 (normal and abnormal microscopic anatomy for Harborview students); six credits for 106; winter. Worcester.

107. *Neurology.* Dissection of the human brain and cord and special organs of sense; comparative developmental history of the central nervous system; a microscopic study of the nuclei and fibre tracts. Prerequisites, Zool. 1 or 3 or their equivalent. Especially for pre-medic students but open to others. Six credits a quarter; spring. Worcester.

200. *Research.* Graduate and research work in anatomy for those qualified. Credits and time arranged. Autumn, winter, spring. Worcester.

ANTHROPOLOGY

Assistant Professor Gunther, Executive Officer

51. *General Introduction to Anthropology.* Including race classification, pre-history, language and theories of anthropology. Five credits; autumn, winter. Gunther, Jacobs.

52. *General Introduction to Anthropology*—Continued. Including social customs, political institutions, religion, art and literature. Five credits; winter and spring. Gunther, Jacobs.

101. *Basis to Civilization.* Prerequisite, Anthr. 51 or 52 or junior standing. Three credits; winter. Jacobs.

105. *Culture Growth.* Prerequisite, Anthr. 51 or 52 or junior standing. Three credits; spring. Gunther.

111. *Indian Cultures of the Pacific Northwest.* Three credits; autumn. Ray.

112. *Peoples of the Pacific.* Three credits; winter. Gunther.

*113. *Peoples of Northeastern Asia.*

*114. *Peoples of Africa.*

141. *Primitive Literature.* The forms and functions of oral tradition. Three credits; autumn. Gunther.

142. *Primitive Religion.* The religious and philosophical concepts of pre-literate peoples. Three credits; winter. Ray.

143. *Primitive Art.* The aesthetic theories and artistic achievements of pre-literate peoples with museum material for illustration. Three credits; spring. Gunther.

150. *General Linguistics.* The anthropological concept of language and its function in culture. Three credits; winter. Jacobs.

151. *American Indian Languages.* Phonetics and morphology of American Indian languages; methods of field research. Prerequisite, Anthr. 150. Three credits; spring. Jacobs.

185. *Primitive Social and Political Institutions.* Prerequisite, Anthr. 51 or 52. Three credits; autumn. Ray.

190, 191, 192. *Research.* Independent studies in field or campus with seminars and conferences. Instructor's permission necessary. Credits and hours to be arranged; autumn, winter, spring. Staff.

193, 194, 195. *Reading Course.* Directed reading in special fields. Instructor's permission necessary. Credits and hours to be arranged; autumn, winter, spring. Gunther.

204, 205. *Seminar.* Instructor's permission necessary. Three credits; winter, spring. Gunther.

ARCHITECTURE

Professor Thomas, Executive Officer

(Member of the Association of Collegiate Schools of Architecture)

All students contemplating the study of architecture should confer with the head of the department as to their special qualifications and reasons for entering the professional study of architecture. A student should have credits in plane geometry, algebra through quadratics, trigonometry, physics, and at least two years of foreign language. Thirty-five credits of foreign language are required for graduation, 15 credits of which are provided in the curriculum.

1-2. *Architectural Appreciation.* Illustrated lectures giving an historic

*Not offered in 1933-1934.

survey of domestic architecture. General appreciation of architecture. Two credits a quarter; autumn, winter. Herrman.

3. *Architectural Appreciation.* Important periods of architectural history, studied, wherever possible, in terms of present day conditions. Two credits; spring. Herrman.

4-5-6. *Elements of Architectural Design.* Problems in elementary architectural design. To be taken with Arch 7-8-9. Four credits a quarter; autumn, winter, spring. Herrman, Olschewsky.

7-8-9. *Graphical Representation.* Elementary principles of orthographic projections, shades and shadows, and perspective. To be taken with Arch. 4-5-6. One credit a quarter; autumn, winter, spring. Olschewsky.

40, 41, 42. *Water Color.* Still life studies and outdoor sketching in water color. Prerequisite, major in architecture. Two credits each quarter; autumn, winter, spring. Hill.

47-48. *Elementary Theory of Construction.* Analysis of fundamental structural problems by application of the laws of equilibrium. Three credits a quarter; autumn, winter. Sergev.

51-52-53. *History of Architecture.* Technical study of the architecture of Egypt, Greece, Rome, Byzantium, the Romanesque and Gothic. Prerequisite, Arch. 3. Two credits a quarter; autumn, winter, spring. Thomas.

54, 55, 56. *Architectural Design, Grade I.* Problems in design under individual criticism; order problems and simple problems of buildings. Prerequisite, Arch. 6. Five credits; any quarter; autumn, winter, spring. Gowen, Pries.[1]

101-102-103. *History of Architecture.* The Renaissance; a comparative study of the period in European architecture. Prerequisite, Arch. 53. Two credits a quarter; autumn, winter, spring. Herrman.

104,105,106,107. *Architectural Design, Grade II.* Advanced Problems in design done under individual criticism. (B.A.I.D. Class B Projets.) Prerequisite, Arch. Design, Grade I. Five credits; autumn, winter, spring. Herrman.[1]

112, 113. *Freehand Drawing.* Studies of casts of the human figure. Charcoal, flat wash, and pencil. Prerequisite, Art 34. Three credits a quarter; autumn ,winter. Pratt.

117. *Building Construction.* General principles of structural design; girders, columns and roof trusses in timber and steel as applied by the architect. Prerequisite, C.E. 130. Three credits; winter. Sergev, May.

118. *Building Construction.* Principles of concrete design; slab, joists, tile and joist columns, and the like, as applied by the architect. Prerequisite, Arch. 117. Three credits; spring. Sergev.

120-121-122. *Working Drawings.* Lectures on simple building construction. Drafting room practice in working drawings. Two credits a quarter; autumn, winter, spring. Olschewsky.

125-126. *Pencil Sketching.* Pencil sketches of architectural subjects—the first quarter from photograph, the second from actual subjects. Prerequisite, Architecture major or permission. One credit a quarter; winter, spring. Olschewsky.

140, 141, 142, *History of Architectural Ornament.* A comparative study of the historic development of architectural ornament. Prerequisite, sophomore standing. Two credits; autumn, winter, spring. Pries.

[1]General criticism and supervision of all courses in Design, Grades I, II, III and Advanced Design, is given by Professor Harlan Thomas, head of the department.

151. *History of Architecture.* Modern architecture in America and Europe from the middle of the eighteenth century to the present time. Prerequisite, Arch. 103. Two credits; spring. Gowen.

152. *Theory of Architecture.* Theory of architectural design, relation of composition and scale, planning. Class discussion and lectures. Prerequisite, Arch. Design, Grade II. Two credits; autumn. Gowen.

153. *Architectural Materials.* Properties of materials used in architectural construction and practice; steel, concrete, wood, plaster, paint, varnish, and the like. Senior standing. Two credits; winter. Gowen.

154, 155, 156, 157, 158. *Architectural Design, Grade III.* Advanced design under individual criticism. (B.A.I.D. Class A Projets.) Prerequisite, Arch. Design, Grade II. Five credits a quarter; autumn, winter, spring. Gowen, Pries.[1]

159. *Specifications and Office Practice.* Specifications and all contract forms used by the architect; modern business methods; ethics and office organization. Prerequisites, Arch 122 and 153. Two credits; spring. Alden.

160, 161, 162. *Architectural Problems.* Class A, B.A.I.D. Problems and advanced local problems in design. Prerequisite, Arch. 158. Three to seven credits; any quarter. Gowen, Thomas.

ART

Professor Isaacs, Executive Officer

Students applying for advanced standing should present samples of work done to the head of the department.

5, 6, 7. *Drawing.* Drawing with charcoal from casts and still life; perspective, introduction to painting, supplementary reading, lectures. Prerequisite for any subsequent course in drawing and painting. Three credits a quarter; autumn, winter, spring. Byers, Hill, Patterson, Penington.

9, 10, 11. *Art Structure.* Design developed through original problems, lectures, discussions, and supplementary reading, and the principles of art structure. Prerequisite for any subsequent course in art. Three credits a quarter; autumn, winter, spring. Benson, Puymbroeck, Rhodes, Penington.

20. *Sculpture Appreciation.* Illustrated lectures and demonstrations on the history and appreciation of sculpture. Two credits a quarter; spring. Pratt.

32, 33, 34. *Drawing and Sculpture for Architects.* One quarter of sculpture and modeling from casts. Two quarters of drawing from cast ornaments. Three credits a quarter; autumn, winter, spring. Hill, Pratt.

53, 54, 55. *Art Structure.* Creative design for industry and commerce. Criticisms, discussions and lectures, with assigned reading and research. Prerequisites, Art 5,6,7, 9,10,11. Three credits a quarter; autumn, winter, spring. Foote, Penington, Puymbroeck.

56, 57, 58. *Drawing and Painting.* Oil and water color painting from still life and casts, introduction to life and outdoor sketching, lectures and reading. Prerequisites, Art 5,6,7. Three credits a quarter; autumn, winter, spring. Byers, Hill, Patterson.

62. *Essentials of Interior Design.* Lectures on the art of home decoration. Illustrated with various objects and materials, textiles and lantern slides. Two credits a quarter; autumn, spring. Foote.

[1]General criticism and supervision of all courses in Design, Grades I, II, III and Advanced Design, is given by Professor Harlan Thomas, head of the department.

65, 66, 67. *Drawing and Painting.* A continuation of Art 56,57,58, for majors in painting; outdoor sketching in oil and water color. Three credits a quarter; autumn, winter, spring. Patterson.

72, 73, 74. *Sculpture.* Elementary clay modeling from casts. Life, for proficient students; compositions and plaster casting. Prerequisites, Art 5,6,7. Three credits a quarter; autumn, winter, spring. Pratt.

80, 81, 82. *Furniture Design.* Studied drawings of furniture at actual and small scale, also studies in color. Prerequisites, Art 5,6,7,9,10,11. Three credits a quarter; autumn, winter, spring. Foote.

83. *History of Furniture and Decoration.* Illustrated lectures on the history and development of furniture and its backgrounds, from the Renaissance to the present time. Two credits a quarter; winter. Foote.

100. *Art Methods.* A summary of aims, objectives and current methods of teaching and supervising art. Prerequisites, senior standing in art and one course in education. Two credits; autumn. Rhodes.

101. *Elementary Interior Design.* For the general student and those wishing to teach art in the public school. Two credits a quarter; spring. Foote.

102. *Industrial Art.* Lecture and laboratory course, for teachers of art and also open to any student having junior standing in art. Book binding and printing. Two credits a quarter; winter. Rhodes.

*103, 104. *Pottery.* Offered in 1934-1935.

105. *Lettering.* A course in lettering based upon the principles of art structure and composition. Exercises and problems in pen and brush technique. Lectures and supplementary reading. Prerequisites, Art 5,6,7, 9,10,11; for non-majors by permission of the art department. Three credits a quarter; autumn, winter. Benson.

106. *Poster Design.* A course in structural composition; advertising design studied and analyzed. Lectures and supplementary reading. Prerequisite, Art 105. Three credits; spring. Benson.

107, 108, 109. *Portrait Painting.* Character delineation, stressing composition, color contrast and personal expression. Reading and class reports. Prerequisites, Art 56,57,58. Three credits a quarter; autumn, winter, spring. Patterson.

110, 111, 112. *Interior Design.* For the special student wishing a technical knowledge of interior design, furnishings and architecture. Lectures and discussion. Prerequisites, Art 80,81,82. Five credits a quarter; autumn, winter, spring. Foote.

122, 123, 124. *Sculpture.* Portrait and figure from life. Compositions and work in terra cotta. Prerequisites, Art 72,73,74. Three credits a quarter; autumn, winter, spring. Pratt.

126. *History of Painting.* Appreciation of the great schools of painting. Illustrated lectures and discussion. Two credits; autumn. Isaacs.

129. *Appreciation of Design.* Intended to increase the enjoyment of beauty in the applied arts. Lectures illustrated with objective material. Reading. Two credits a quarter; winter. Benson.

*130. *Pottery.* Offered in 1934-35.

132, 133, 134. *Advanced Sculpture.* Continuation of second year work.

*Not offered in 1933-1934.

Prerequisites, Art 122,123,124. Three credits a quarter; autumn, winter, spring. Pratt.

136, 137, 138. *Sculpture Composition.* Imaginative design; problems met in professional practice. Prerequisites, Art 72,73,74. Three credits a quarter; autumn and winter. Time to be arranged. Pratt.

150, 151, 152. *Illustration.* Principles of composition applied to book illustration and to the making of prints. Lectures and laboratory. Prerequisite, senior standing in art. Three credits a quarter; autumn, winter spring. Rhodes.

157. *Metal Work.* The adaptation of principles of design to actual objects in copper, pewter, brass or their combination. Planned to develop appreciation. Prerequisite, junior standing in art. Three credits a quarter; autumn, winter. Penington.

158, 159. *Jewelry.* Principles of design as adapted to objects in metal, stones and enamels. A supplementary study of old and contemporary examples. Prerequisite, Art 157. Three credits a quarter; winter. Penington.

160, 161, 162. *Life.* Drawing and painting from the model. Lectures on historic styles. Class criticism of original compositions; anatomy. Prerequisites, Art 56,57,58. Three credits a quarter; autumn, winter, spring. Isaacs, Patterson.

163, 164, 165. *Composition.* The development of individuality in painting through creative composition. Reading and reports from works on modern criticism. Prerequisites, Art 56,57,58. Three credits a quarter; autumn, winter, spring. Isaacs.

166. *Art Structure.* Problems in decoration related to the stage. Prerequisites, Art 5,6,7, 9,10,11. Three credits a quarter; autumn. Benson.

169, 170, 171. *Costume Design.* Costume illustration and design. The study of art in dress through the application of design and color harmony. Supplementary reading reports. Prerequisites, Art 5,6,7, 9,10,11. Two credits a quarter; autumn, winter, spring. Benson.

172, 173, 174. *Interior Design.* An advanced course for the special student in interior design. Furnishings and architecture. Prerequisites, Art 110, 111,112. Five credits a quarter; autumn, winter, spring. Foote.

175, 176, 177. *Advanced Painting.* Prerequisites, Art 56,57,58. Three credits a quarter; autumn, winter, spring. Isaacs.

179, 180, 181. *Costume Design.* Prerequisites, Art 169,170,171. Two credits a quarter; autumn, winter, spring. Benson.

COURSES FOR GRADUATES ONLY

207, 208, 209. *Portrait Painting.* Work of ample size and of a professional character. Three or five credits a quarter; autumn, winter, spring. Patterson.

260, 261, 262. *Advanced Life Painting.* An intensive course in painting from life. Three or five credits a quarter; autumn, winter, spring. Isaacs.

263, 264, 265. *Composition.* Three or five credits a quarter; autumn, winter, spring. Isaacs.

Suggested courses in commercial art: Art 5,6,7; 9,10,11; 105,106; 129; 126; 150,151,152; 160,161,162; 169,170,171; Jour. 130,131,135; Econ. 134,135, 136; 139.

*Not offered in 1933-1934.

ASTRONOMY

Assistant Professor Jacobsen, Executive Officer

1. *Astronomy.* The solar system, the stars, and the sidereal universe. Five credits; autumn, spring. Jacobsen.

101. *Astrophysics.* Selected topics in the interpretation of spectra of stars, nebulae, and comets. Prerequisites, Ast. 1, modern physics. Four credits; winter, 1934, and alternate years. Jacobsen.

*102. *Principles of Astronomy.*

AVIATION

Ground School Course

See Naval Science and Tactics.

BACTERIOLOGY AND PATHOLOGY

Professor Weinzirl, Executive Officer

CO-OPERATING LABORATORIES

A. U. Simpson, M.D., Director State Board of Health.
J. S. McBride, M.D., Director Seattle Department of Health.
E. D. Clark, Ph.D., Director National Canners' Association.
Lester J. Palmer, M.D., Director Virginia Mason Hospital.
D. H. Nickson, M.D., Director Swedish Hospital.
G. A. Magnusson, M.D., Director Physicians' Clinical Laboratory.
O. G. West, M.D., Director Harborview Hospital Laboratory.
Gertrude Walters, Director Orthopedic Hospital Laboratory.

The work in bacteriology provides training along the following lines: (a) as part of a liberal education; (b) as applied to medicine, nursing pharmacy, fisheries, home economics, sanitary engineering, chemistry; (c) physical education; (d) for the preparation of technicians and bacteriologists; (e) for advanced degrees.

51. *Elementary Medical Bacteriology.* For nurses. Five credits; winter. Henry.

101. *General Bacteriology.* Prerequisite, Chem. 2. Prerequisite for advanced degrees. Five credits; autumn, spring, summer. Weinzirl, Henry.

102. *Sanitary Bacteriology.* Bacteriology of soil, air, water, sewage, foods, clothing, etc. Prerequisite, Bact. 101. Five credits; winter. Weinzirl.

103. *Public Hygiene.* Five credits; lectures only; autumn, spring. Weinzirl.

104. *Serology.* Types of immunity; immunization of animals and man; study of immune products. Prerequisite, Bact. 101. Five credits; spring. Hoffstadt.

105. *Infectious Diseases.* Study of the pathogenic bacteria, and methods of diagnosis of infectious diseases. Prerequisite, Bact. 101. Five credits; autumn. Hoffstadt.

106. *Clinical Diagnosis.* Examination of blood, urine, gastric and intestinal contents, parasites, etc. Prerequisite, Bact. 101. Five credits; winter. Hoffstadt.

*Not offered in 1933-1934.

110, 111, 112. *Pathology.* Gross and microscopic study of diseased tissue. Prerequisite, Anat. 105. Five credits; autumn, winter, spring. Karshner.

120, 121, 122. *Applied Bacteriology.* Work in media room, public health, private, hospital or industrial laboratories. Twenty hours per week. Registration, written report and letter from director required. For bacteriology majors only. Prerequisites, Bact. 102, 104, 105, 106. Five credits; autumn, winter, spring, summer. Henry.

126, 127, 128. *Journal Survey.* Prerequisite, Bact. 101. One credit; autumn, winter, spring. Hoffstadt.

COURSES FOR GRADUATES ONLY

204, 205, 206. *Advanced Bacteriology.* Under this head nearly all types of work can be provided. Time and credit to be arranged. Autumn, winter, spring, summer. Hoffstadt, Henry.

207, 208, 209. *Seminar.* Two credits; autumn, winter, spring. Staff.

210, 211, 212. *Research.* Open to qualified students after consultation. Credits to be arranged; autumn, winter, spring, summer. Staff.

213, 214, 215. *Tuberculosis Conference.* Open to qualified students after consultation. Autumn, winter, spring. No credit. Weinzirl.

BOTANY

Professor Frye, Executive Officer

SUGGESTED SELECTIONS

For the required biological science in the Colleges of Liberal Arts and Science, only courses 1,2,3, 105,106,107 will be accepted. Students in art, music or architecture desiring to satisfy the science requirements by taking botany may select from this list, or they may include 92. It is recommended that they include 92 where possible.

For a major, courses 105, 106, 107 are required.

For teaching botany, select from non-technical courses, among which 1, 3, 92, 105 106, 107 are suggested.

1. *Elementary Botany.* Structure and functions of roots, stems, leaves and seeds. Open to students entering with or without botany. Five credits (foresters four); autumn and winter. Rigg and assistants.

2. *Elementary Botany.* Types of the great groups of plants from the lowest to the highest. Prerequisite, Bot. 1 or one year high school botany. Five credits; winter Frye and assistants.

3. *Elementary Botany.* Plant analysis; field work with local flora. Open to students entering without botany. Five credits; spring. Frye and assistants.

11. *Foresters' Botany.* Types of plants and their parts. For forestry students only. Four credits; autumn. Hotson and assistants.

13, 14. *Pharmacy Botany.* Gross structure of vegetative and reproductive parts of seed plants, brief study of spore plants; microscopy of powdered drugs. Five credits, autumn; four credits, winter. Rigg and assistants.

90. *Plant Propagation.* The manner in which plants propagate; the principles underlying it; the illustration of these principles by laboratory methods Prerequisite, 15 credits of botany, including 92. Three credits; spring. Hotson.

92. *Ornamental Plants.* The plants used in beautifying lawns and house-yards, their propagation and use. Prerequisite, 10 credits of botany or high school botany. Five credits; spring. Hotson.

105, 106, 107. *Morphology and Evolution.* Morphological study of types to show advances in complexity. Required for all majors. Prerequisites, one year high school botany or ten credits of botany, or Zool. 1 and 2. Five credits a quarter; autumn, winter, spring. Frye and assistants.

111. *Forest Pathology.* Recognition and treatment of common wood-destroying fungi. Prerequisite, Bot. 11 or 105. Five credits; spring. Hotson and assistant.

119. *Plant Histology.* Preparation of slides for the microscope; a study of the cells which compose plant bodies. Prerequisite, ten credits of botany. Five credits; autumn. Frye and assistant.

129. *Plant Anatomy.* The cellular tissues of plants. The origin and development of the stele. Prerequisite, 15 credits of botany. Five credits; winter. Frye and assistant.

130. *Taxonomy.* The flowering plants. Prerequisite, 15 credits of botany including Bot. 3 or equivalent. Five credits; spring. Frye and assistant.

140, 141, 142. *General Fungi.* Morphology and classification of fungi as a basis for plant pathology. Prerequisite, 15 credits of botany. Five credits a quarter; autumn, winter, spring. Hotson.

143, 144, 145. *Plant Physiology.* Prerequisites, 15 credits of botany and Chem. 22. Desirable prerequisites, Chem. 133 and Physics 2. Five credits a quarter; autumn, winter, spring. Rigg and assistant.

180, 181, 182. *Plant Pathology.* Diseases of plants and the fungi which produce them. Prerequisite, Bot. 142. Five credits a quarter; autumn, winter, spring. Hotson.

199. *Proseminar.* Semi-independent work by students. Open only on consultation with the head of the department. Two to five credits; any quarter. Staff.

Teachers' Course in Botany. See Education 75B.

COURSES FOR GRADUATES ONLY

200. *Seminar.* Review of recent literature. Only graduate students may obtain credit. One-half credit per quarter, with maximum of two credits allowed any one student; autumn, winter, spring. Staff.

205, 206, 207. *Physiology of Marine Plants.* Prerequisites, Physics 3, Bot. 145, Chem. 111 and 129 or equivalents. Two lectures, one three-hour laboratory period. Three credits each quarter; autumn, winter, spring. Rigg.

210, 211. *Phytoplankton.* These courses are given at Friday Harbor laboratories by special arrangement with instructor. Three credits; winter, spring. Phifer.

220. *Advanced Fungi.* Prerequisite, 15 credits in fungi. Two to five credits; any quarter. Hotson.

233. *Research.* Two to five credits; any quarter. Staff.

247. *Diatoms.* Prerequisite, 30 credits of botany. Three credits; autumn. Frye.

250. *Algae.* Prerequisite, 30 credits of botany. Two to five credits; autumn, spring. Frye.

251. *Bryophytes.* Prerequisite, Bot. 106. Two to five credits; any quarter. Frye.

271, 272, 273. *Experimental Morphology.* Prerequisites, Bot. 106, 145; Chem. 23. Two credits a quarter; autumn, winter, spring. Frye.

279. *Colloidal Biology.* Prerequisites, Bot. 143, Chem. 132. Desirable prerequisites, Chem 141 and 204. Five credits; any quarter. Rigg.

280. *Micrometabolism.* Prerequisites, Bot. 107, 145. Five credits; any quarter. Rigg.

281. *Physiology of Fungi.* Prerequisites, Bot. 142, 145, 280. Five credits; any quarter. Rigg.

CERAMICS

See Mining, Metallurgy and Ceramics.

CHEMISTRY AND CHEMICAL ENGINEERING

Professor Benson, Executive Officer

Instruction in this department is designed to satisfy as far as possible the requirements of students who desire to study chemistry as a means of culture and as a necessary complement of a liberal education; but as the subject is eminently practical, it is also the desire of those in charge to guide the student so that he may fit himself for work in lines in which chemistry has become an applied science.

Requirements of the Department

Students wishing to specialize in chemistry may select one of the three courses: (1) the elective curriculum for those who want a general course in chemistry, leading to the degree of bachelor of science in the College of Science; (2) the suggested curriculum for those who intend to make use of chemistry as a vocation, leading to the degree of bachelor of science in chemistry; (3) the prescribed curriculum in chemical engineering for those who plan to engage in manufacturing industries, leading to the degree of bachelor of science in chemical engineering.

For purchase of chemicals and apparatus, each student is required to buy a breakage ticket when he obtains his locker key. The cost of the ticket is $3. Any unused portion will be refunded.

1-2. *General Inorganic Chemistry.* Open only to students not having had accredited high school chemistry. Two lectures, one recitation and two two-hour laboratory periods a week. Five credits a quarter; any quarter. Smith, Tartar, Powell, Sivertz.

7. *General Chemistry for Hospital Students.* Three recitations and two two-hour laboratory periods. Five credits; autumn. Radford.

8-9-10. *General Chemistry and Qualitative Analysis.* Open only to pharmacy students. The work in the spring quarter is qualitative analysis. Three lectures and two laboratory periods a week. Five credits a quarter; autumn, winter, spring. Lynn.

21-22. *General Inorganic Chemistry.* Open only to students having accredited high school chemistry. Two lectures, one recitation and two two-hour laboratory periods a week. Five credits a quarter; any quarter. Smith, Tartar, Powell, Sivertz.

23. *Elementary Qualitative Analysis.* Prerequisite, Chem. 2 or 22, or equivalent. Two lectures, one recitation and two two-hour laboratory periods a week. Five credits a quarter; any quarter.
Smith, Tartar, Thompson, Powell, Sivertz.

24-25. *General Chemistry.* Designed for engineering students having accredited high school chemistry. Two lectures, one recitation and one 2-hour laboratory period a week. Four credits; autumn, winter. Smith, Benson.

26. *Elementary Qualitative Analysis.* Continuation of Chem. 24-25. Two lectures, two 2-hour laboratory periods a week. Four credits; spring.
Smith, Benson.

37-38-39. *Organic Pharmaceutical Chemistry.* Organic chemicals of the U.S. Pharmacopoeia. Only open to pharmacy students. Prerequisite, Chem. 10 or its equivalent. Three lectures and two laboratory periods a week. Five credits a quarter; autumn, winter, spring. Johnson.

52. *Chemical Technology.* Application of mathematics, physics, and chemistry to unit chemical operations. Prerequisites, Chem. 23, Math. 61. Three lectures. Three credits; autumn, spring. Kobe.

*55. *Forest Products.*

*56. *Forest Soils.*

101. *Advanced Qualitative Analysis.* Two lectures and three laboratory periods a week. Prerequisite, Chem. 23 or its equivalent. Five credits; autumn, spring. Thompson, Robinson.

104. *Food Chemistry.* Methods of analysis of various foods and federal and state laws studied. Prerequisites, Chem. 111 and 132 or equivalent. Two lectures and two laboratory periods a week. Four credits; spring. Norris.

109. *Quantitative Analysis.* Gravimetric analysis. Prerequisite, Chem. 23 or its equivalent. Two lectures and three laboratory periods a week. Five credits; autumn, winter. Thompson, Robinson.

110. *Quantitative Analysis.* Volumetric analysis. Two lectures and three laboratory periods a week. Prerequisite, Chem. 109. Five credits; winter, spring. Thompson, Robinson.

111. *Quantitative Analysis.* Gravimetric and volumetric methods for students not majoring in chemistry. Prerequisite, Chem. 23. Two lectures and three laboratory periods a week. Five credits; autumn, winter, spring.
Thompson, Robinson.

118. *Chemistry of Engineering Materials.* The study of industrial materials in engineering use. Prerequisite, Chem. 26 or equivalent. Three lectures. Three credits; winter. Kobe.

121, 122, 123. *Industrial Chemistry.* Three lectures and two laboratory periods a week. Prerequisites, Chem. 52, 111 or equivalent. Five credits a quarter; autumn, winter, spring. Benson, Kobe.

131, 132, 133. *Organic Chemistry.* Three lectures and two laboratory periods a week. Prerequisite, Chem. 22, or its equivalent. Five credits; autumn, winter, spring. (131, 132 repeated winter, spring.) Dehn, Powell.

135-136. *Organic Chemistry.* For home economics students. Only women are admitted. Three lectures and two laboratory periods a week. Prerequisite, Chem. 2 or 22. Five credits a quarter; autumn, winter. Powell.

140-141. *Elementary Physical Chemistry.* Descriptive, non-mathematical, for pre-medic and science students not majoring in chemistry. Two lectures

*Not offered in 1933-1934.

and one laboratory period. Prerequisites, Chem. 111 or equivalent and ten credits of physics. Three credits a quarter; winter, spring. Sivertz.

144. *Physiological Chemistry.* For fisheries and home economics students. Prerequisite, Chem. 136 or equivalent. Three lectures and two laboratory periods. Five credits; spring. Norris.

150. *Undergraduate Thesis.* Investigation of special topics suggested by the staff. Report must conform to the thesis regulations of the library. Prerequisite, senior standing in chemistry. Two to five credits; any quarter. Staff.

152. *Advanced Chemical Technology.* Mathematical study of chemical processes with quantitative solutions of typical engineering problems. Prerequisite, Chem. 52. Three lectures. Three credits; spring. Kobe.

155. *Oceanographical Chemistry.* Prerequisite, Chem. 111, 132 or equivalent. Three lectures. Three credits; spring. Thompson.

156. *Oceanographical Chemistry.* Laboratory methods. Prerequisite, Chem. 155. One lecture and two laboratory periods. Three credits; spring. Thompson, Robinson.

161-162. *Physiological Chemistry.* For students of medicine, biology, bacteriology, and nutrition. Prerequisites, Chem. 111 and 131 or equivalent. Three lectures and two laboratory periods. Five credits; autumn, winter. Norris.

163. *Physiological Chemistry.* Study of normal and pathological blood and urine. For students of medicine, nurses and clinical technicians. Prerequisite, Chem. 162. One lecture and two laboratory periods. Three credits; spring. Norris.

166. *Biochemical Preparations.* Preparations of special substances involving biochemical methods. Prerequisite, Chem. 162. Two to three credits; autumn, winter, spring. Norris.

171, 172. *Chemical Engineering.* Unit operations. Three recitations and two laboratory periods. Prerequisites, Chem. 52. Five credits a quarter; autumn, winter. Beuschlein.

173. *Chemical Engineering.* Continuation of Chem. 172. Three lectures a week. Prerequisites, Chem. 52, 123. Three credits; spring. Beuschlein.

176, 177, 178. *Chemical Engineering Thesis.* One to five credits a quarter; autumn, winter, spring. Benson, Beuschlein, Kobe.

181, 182, 183. *Physical and Theoretical Chemistry.* Fundamental principles and theories of chemistry accompanied by physico-chemical measurements. Prerequisites, one year (15 credits) college physics, and Chem. 110; differential and integral calculus desired. Three lectures and two laboratory periods a week. Five credits a quarter; autumn, winter, spring. Tartar, Sivertz.

190, 191. *History of Chemistry.* (Offered every other year alternating with Chem. 205, 206, 207). Lectures and assigned readings. Prerequisite, Chem. 132, 182. No fee. Two credits; autumn, winter. Smith.

Teachers' Course in Chemistry. See Edu. 75C.

COURSES FOR GRADUATES ONLY

200. *Departmental Seminar.* Required of all graduate students during residence. Assigned readings and reports on the chemical literature. One-half credit a quarter; maximum of two credits will be allowed to any student; autumn, winter. Powell.

*201, 202, 203. *Advanced Theoretical and Physical Chemistry.* (Offered every other year, alternating with Chem. 204, 215, 216.)

204. *Chemistry of Colloids.* (Offered every other year, alternating with Chem. 202, 203.) Fundamental properties of substances in the colloid state. Surface phenomena such as surface tension and absorption. Prerequisite, Chem. 182 or equiv. Three lectures. No fee. Three credits; autumn. Tartar.

*205, 206, 207. *Inorganic Preparations.*

208, 209. *Advanced Quantitative Analysis.* Theoretical principles of analytical chemistry. Prerequisites, Chem. 111 and 182 or equivalent. Two lectures. Two credits a quarter; autumn, winter. Thompson.

211, 212. *Advanced Organic Preparations.* Preparation of special substances involving representative laboratory methods. Either quarter may be taken independently. Two credits; winter, spring. Powell.

215, 216. *Advanced Theoretical and Physical Chemistry.* (Offered every other year, alternating with Chem. 202, 203.) Radioactivity, atomic structure, interrelation of the chemical elements, periodic system, energy exchange in atomic and molecular processes, activated molecules. Prerequisite, Chem. 182. Three lectures. No fee. Three credits; winter, spring. Tartar.

218, 219, 220. *Selected Topics in Industrial Chemistry.* The application of fundamental chemical and economic principles to typical industries. Prerequisite, graduate standing in chemistry as a major. Two lectures a week. No fee. Two credits; autumn, winter, spring. Benson.

221, 222, 223. *Advanced Inorganic Chemistry.* The third quarter is devoted to the chemistry of the higher order compounds. Recommended for all majors and graduate students. Three credits a quarter; autumn, winter, spring. Smith.

224. *Chemistry of Nutrition.* Enzyme and chemical reactions involved in digestion and metabolism. Prerequisite, Chem. 162. Two lectures and one laboratory period. Three credits; autumn. Norris.

*225. *Advanced Quantitative Analysis.*

226, 227. *Micro-Analytical Chemistry.* Principles of micro-analysis. One lecture and two laboratory periods. Prerequisites, Chem. 111 and 132 or equivalent. Three credits; autumn, winter. Robinson.

231, 232, 233. *Advanced Organic Chemistry.* Detailed study of special fields of organic chemistry. Any quarter may be taken independently. Prerequisite, Chem. 132 or equivalent. Three lectures. Three credits a quarter; autumn, winter, spring. Dehn.

236. *Advanced Physical Chemistry Laboratory.* Advanced exercises in physico-chemical technic. Prerequisite, Chem. 141 or 182. Two laboratory periods to be arranged. Two credits; autumn. May be repeated for credit. Sivertz.

241, 242, 243. *Advanced Chemical Engineering.* (Offered every other year, alternating with Chem. 244, 245, 246.) A detailed study of basic unit operations. Flow of fluids, heat transfer, fuels, combustion, gas producers and filtration. Prerequisite, calculus and Chem. 171. No fee. Three credits a quarter; autumn, winter, spring. Beuschlein.

*244, 245, 246. *Advanced Chemical Engineering.*

249. *Graduate Seminar.* Assigned readings and reports dealing with

*Not offered in 1933-1934.

special topics. Offered as desired by members of the different division of the department. Hours and credits to be arranged; autumn, winter, spring. Staff.

250. *Research.* The work in research is of three types; (1) special investigations by advanced students under direction of members of the staff; (2) research for the master's degree; maximum, nine credits; (3) research for the doctor's degree under direction of any member of the senior staff of the department. Maximum, 45 credits. Staff.

Engineering English

For courses in Engineering English, see department of English, Comp. B, 100, 102 and Speech 103.

CIVIL ENGINEERING

Professor Tyler, Executive Officer

*54. *Topographic Surveys.*

55. *Forest Surveying.* Practice with chain, compass and level. Use of bearings and distances in mapping. For forestry students. Pack Forest. Two credits; spring. Chittenden.

56. *Forest Surveying.* Plane surveying with reference to work in forestry. Orientation. Pack Forest. Prerequisite, C.E. 55. Five credits; spring. Chittenden.

57. *Transportation Surveying.* Curves and earthwork. Complete survey notes and map for highway or railway grading project. Prerequisite, G.E. 21. Four credits; autumn. Hawthorn,

58. *Transportation Engineering.* Grading, balancing of earthwork quantities. Profile, mass diagram and estimate for highway or railway grading project. Prerequisite, C.E. 57. Four credits; winter. Hawthorn.

59. *Advanced Surveying.* Base line measurement; triangulation; precise leveling; determination of azimuth, latitude and time; plane table; hydrographic surveying. Prerequisite, G.E. 21. Four credits; spring. Hawthorn.

91. *Mechanics.* Fundamental principles of mechanics for non-civil students. Kinetics, kinematics. Prerequisites, Math. 62, Physics 97. Three credits; autumn, winter, spring.
A. L. Miller, Farquharson, Moritz, Hawthorn, Smith, Sergev.

92. *Mechanics.* Mechanics of materials for non-civil students. Analysis and design of structural members. Prerequisite, C.E. 91. Three credits; autumn, winter, spring.
A. L. Miller, Farquharson, Collier, Hawthorn, Smith, Sergev, Moritz.

95. *Mechanics.* (For students in civil engineering only.) Fundamentals of static and dynamic equilibrium. Kinematics. Prerequisites, Math. 61, Physics 97, G.E. 12. Three credits; winter. A. L. Miller, Rhodes.

96. *Mechanics.* (For students in civil engineering only.) Mechanics of materials. Fundamentals of structural mechanics. Prerequisite, C. E. 95. Three credits; spring. A. L. Miller, Rhodes.

106. *Sanitation and Plumbing.* For architects. Two credits; winter. Hauan.

121. *Roads and Pavements.* Location, construction and maintenance of roads and pavements. Materials and accessories. Prerequisite, C.E. 58. Three credits; spring. Hawthorn.

*Not offered in 1933-1934.

123. *Highway and Railway Economics.* Economics of highway and railway location, construction and maintenance. Prerequisite, C.E. 121. Three credits; winter. Hawthorn.

124. *Highway Design.* Selection and design of pavements. Pavement subgrades. Plans, specifications and estimates. Prerequisite, C.E. 121. Three credits; autumn. Hawthorn.

128. *Transportation Administration.* Highway and railway organization, operation and finance. Prerequisite, C.E. 123. Three credits; spring. Hawthorn.

130. *Theory of Building Construction.* For architects. Three credits; autumn. May.

142. *Hydraulics.* Flow of water through pipes, orifices, over weirs and in open channels; energy of jets with application to impulse wheels. Prerequisite, C. E. 91 or 95. Five credits; autumn, winter, spring. Harris, Wilcox, Van Horn, Smith.

143. *Hydraulic Engineering.* Complete projects presenting hydraulic engineering; hydrometric methods; economic design of pipes and spillways. Prerequisite, C.E. 142. Five credits; winter. Harris, Van Horn.

145. *Hydraulic Machinery.* Development and theory of water wheels and turbine pumps; design of a reaction turbine; hydrostatic machinery and dredging equipment. Prerequisite, C.E. 142. Three credits; autumn. Harris.

147. *Hydraulic Power.* Investigation of power development; generation of power; penstocks and turbines; types of installation. Prerequisite, C.E. 142. Three credits; spring. Harris.

150. *Sanitary Engineering.* Relation of biology, bacteriology and chemistry to water supply and sewage, with problems affecting the public health. Industrial hygiene. Prerequisite, Chem. 22. Three credits; spring. Van Horn.

154. *Sanitary Designs.* The design of sewers, sewage disposal plants and water purification plant. Prerequisite, C.E. 155 and 158. Three credits; spring. Tyler.

155. *Water Supply Problems.* Design, cost estimation, construction, operation and maintenance of water supplies, distribution systems and purification plants. Prerequisites, C.E. 142, 150. Three credits; winter. Tyler.

157. *Reclamation.* Reclamation of land by drainage and levees. Elements of irrigation engineering. Prerequisite. C.E. 142. Three credits; autumn. Van Horn.

158. *Sewerage and Sewage Treatment.* Design and operation of sewage systems and disposal plants. Refuse collection and disposal. Prerequisites, C.E. 150, 142. Three credits; autumn. Tyler.

159. *Drainage, Waterways, and Flood Control.* Advanced study of large area drainage in connection with flood control. The design of artifical waterways. Prerequisite, C.E. 143. Two credits; spring. Harris, Van Horn.

162. *Materials of Construction.* Investigating strength and physical characteristics of Portland cement and concrete. Designing concrete mixtures. Prerequisite, C.E. 92. Three credits; spring. Collier.

163. *Materials of Construction.* Strength and physical characteristics of timber and steel. Prerequisite, C.E. 92. Three credits; winter. Collier.

171. *Structural Analysis.* Reinforced Concrete—Investigation of the

stresses in reinforced concrete structures and structural members. Prerequisite, C.E. 96. Three credits; autumn. A. L. Miller, More, Rhodes.

172. *Structural Analysis.* Steel—investigation of the stresses in riveted and welded steel structures and structural members. Prerequisites, C.E. 171, or permission. Three credits; winter. A. L. Miller, More, Rhodes.

173. *Structural Analysis.* Timber—Investigation of the stresses in timber structures and structural members. Prerequisite, C.E. 172, or permission. Three credits; spring. A. L. Miller, More, Rhodes.

175. *Structural Design.* Reinforced Concrete—Design of reinforced concrete structures and structural members. Prerequisite, C.E. 173. Four credits; autumn. More.

176. *Structural Design.* Steel—Design of welded and riveted steel structures and structural members. Prerequisite, C.E. 175. Four credits; winter. More.

177. *Structural Design.* Timber—Design of timber structures and structural members. Prerequisite, C.E. 176. Three credits; spring. More.

181, 182, 183. *Advanced Structural Analysis.* Stresses and deflections in structures and structural members with particular reference to statically indeterminate cases. Seniors and graduates. Three credits; autumn, winter spring. More.

185, 186, 187. *Advanced Structural Design* Design of structures. Arches. Statically indeterminate trusses. Seniors and graduates. Four credits; autumn, winter, spring. More.

192, 194, 196. *Research.* Two to five credits; autumn, winter, spring. Staff.

198. *Thesis.* Three to six credits; autumn, winter, spring. Staff.

199. *Engineering Relations.* A study of business relations and economic conditions involved in engineering projects. Prerequisite, senior standing. Three credits; spring. May.

COURSES FOR GRADUATES ONLY

210, 212, 214. *Research.* For graduates. Two to five credits; autumn, winter, spring. Staff.

220, 222, 224. *Seminar.* For graduate. Two to five credits; autumn, winter, spring. Staff.

ENGINEERING ENGLISH

For courses in Engineering English, see department of English, Comp. B, 100, 102 and Speech 103.

CLASSICAL LANGUAGES AND LITERATURE

Professor Sidey, Executive Officer

For administrative purposes Greek and Latin are combined, but students must major in one or the other.

To satisfy the requirement of ten credits in ancient life and literature, the following courses may be used: Greek 1-2, 11, 13, 17, and Latin 4-5, 11, 13. Students are advised not to combine Greek 17 with Greek 11 or Latin 11.

*Not offered in 1933-1934.

I. GREEK

Requirements for a Major. At least 36 credits chosen from courses other than 1-2, 11, 13, 15-16, 17. At least 50 per cent of the credits in the major must be in upper division courses. A student majoring in Greek must have had at least two years of high school Latin or must take Latin 1-2, 3 in the University, and is advised to secure a reading knowledge of German. At the conclusion of the senior year major students must take the senior examination.

1-2, 3. *Elementary Greek.* Five credits a quarter, beginning autumn. Densmore.

4, 5. *Socrates.* A study of the life and personality of the philosopher, based on Plato, Xenophon, Aristophanes. Prerequisite, Greek 3. Three credits; autumn, winter. Densmore.

6. *The World of Homer.* Readings from the story of Achilles. Prerequisite, Greek 5. Three credits; spring. Densmore.

11. *Greek Civilization.* Knowledge of Greek not required. Open to freshmen only. Five credits; autumn. Densmore.

13. *Greek Literature.* Knowledge of Greek not required. Five credits; autumn, winter. Read.

*15-16. *Greek Civilization and Literature.*

17. *Greek and Roman Art.* Five credits; autumn. Sidey.

51. *Greek Authors.* Practice at sight-reading from a wide range of authors. Prerequisite, Greek 5. No credits. One hour weekly throughout the year. Densmore.

*101. *The Persian War Period.*

*102. *Pericles and the Peloponnesian War.*

*103. *Periods of Theban and Macedonian Supremacy.*

104, 105, 106. *Greek Poetry.* Lyric, drama, pastoral. Prerequisite, Greek 103, or permission of the instructor. Three credits a quarter; autumn, winter, spring. Densmore.

111. *Greek Civilization.* Knowledge of Greek not required. Not open to those who have taken Greek 11. Five credits; winter. Densmore.

113. *Greek Drama.* Knowledge of Greek not required. Not open to those who have taken Greek 13. Five credits; spring. Densmore.

122. *Grammar and Composition.* Intensive review of the entire grammar with practice in writing. Prerequisite, Greek 5. Three credits; spring. Densmore.

151, 152, 153. *Plato.* Study of all the sources for the principal philosophical concepts. Prerequisite, Greek 103. Three to five credits a quarter; autumn, winter, spring. Densmore.

*191, 192, 193. *Literary Criticism and Sophocles.*

COURSES FOR GRADUATES ONLY

201, 202, 203. *Greek Philosophy.* The pre-Socratics; ethical writings of Plato and Aristotle; later developments down to the Neo-Platonists. Three to five credits; autumn, winter, spring. Densmore.

*Not offered in 1933-1934.

211, 212, 213. *Hellenistic Literature.* The late epic. Three to five credits; autumn, winter, spring. Densmore.

*221, 222, 223. *Epigraphy.*

231. *Research in Special Authors.* For 1933-34, Aeschylus, the Anthology. Five credits; autumn, winter, spring. Densmore.

II. LATIN

Requirements for a major: At least 36 credits, chosen from courses other than 1-2, 3, 4, 5, 6, 11, 13. At least 50 per cent of the credits in the major must be in upper division courses. A student majoring in Latin must take at least 15 credits of Greek, preferably in the first two years. At the conclusion of the senior year all major students must take the senior examination.

1-2, 3. *Elementary Latin.* First and second year high school Latin. Five credits; autumn, winter, spring. Stone.

4, 5, 6. *Cicero and Vergil.* Prerequisite, two years high school Latin or Latin 1-2, 3 in the University. Qualifies a student for Latin 21. Review of grammar and syntax. Five credits; autumn, winter, spring. Read.

11. *Roman Civilization.* Knowledge of Latin not required. Five credits; winter, spring. Sidey, Read.

13. *Roman Literature.* Knowledge of Latin not required. Five credits; autumn, spring. Sidey.

Note: To enter Latin 21 to 25, the student is expected to be thoroughly familiar with the declensions and conjugations and with the normal phenomena of Latin syntax to be found in Caesar, Cicero and Vergil.

21. *Cicero: De Senectute.* With exercises in grammar and composition. Prerequisite, three and one-half years high school Latin. Five credits; autumn. Read.

*22. *Catullus.*

23. *Vergil: Georgics and Bucolics.* With exercises in grammar and composition. Prerequisite, three and one-half years high school Latin. Five credits; winter. Read.

24. *Sallust: Jugurtha.* With exercises in grammar and composition. Prerequisite, three and one-half years high school Latin. Five credits; spring. Sidey.

*25. *Ovid: Metamorphoses.*

100. *Livy.* One book and selections from other books. Prerequisites, Latin 21, 22, 24, or special permission. Five credits; autumn. Stone.

101. *Horace.* Selections from the complete works. Prerequisites, Latin 21, 22, 24, or special permission. Five credits; winter. Stone.

102. *Tacitus: Germania and Agricola.* Prerequisite, Latin 21, 22, 24, or special permission. Five credits; spring. Stone.

*103. *Plautus and Terence.*

104. *Martial: Epigrams.* Prerequisite, Latin 100 or 101 or 102. Three credits; spring. Stone.

106. *Syntax and Prose Composition.* Students should, if possible, register for this course in combination with Edu. 75P. Prerequisite, Latin 100 or 101 or 102, or equivalent. Three credits; autumn. Stone.

*Not offered in 1933-1934.

107. *Cicero's Letters.* Prerequisite, Latin 100 or equivalent. Three credits; winter. Stone.

*109. *Pliny's Letters.*

*113. *Roman Home Life and Religion.*

150. *Juvenal.* Selected satires. Prerequisite, Latin 113 or equivalent. Two to four credits; autumn. Sidey.

151. *Cicero: Tusculan Disputations.* Prerequisite, Latin 113 or equivalent. Two to four credits; spring. Sidey.

154. *Lucretius: De Rerum Natura.* Prerequisite, Latin 113 or equivalent. Two to four credits; winter. Sidey.

*155. *Cicero: De Oratore.*

160, 161, 162. *Major Conference.* Discussion with members of the staff of various features of Greek and Roman life and literature not specifically dealt with in other courses. Required of all majors. One credit each quarter. Staff.

For Teachers courses in Latin, see Edu. 75P.

COURSES FOR GRADUATES ONLY

*201. *Historical Latin Grammar.*

*204. *Tacitus.*

*207. *Seneca.*

*208. *Vergil: Aeneid.*

211. *Latin Novel. Selections from Petronius and Apuleius.* Two to four credits; autumn. Sidey.

*213. *Latin of the Italian Humanists.*

214. *Suetonius: Augustus.* Two to four credits; spring. Read.

*216. *Christian Latin.*

218. *Cicero: De Natura Deorum.* Two to four credits; winter. Sidey.

*220. *Latin Elegy.*

*240. *Relations of Latin to English and the Romance Languages.*

285,* 286. *Vulgar Latin.* Prerequisites, completion of work in Latin and at least one Romance language, satisfactory to instructor. Three credits; winter. Stone.

287, *288. *Medieval Latin.* Prerequisite, same as for 286. Three credits; spring. Stone.

ECONOMICS AND BUSINESS

Professor Coon, Executive Officer

Lower division courses are open to all students without prerequisite, except as indicated. B.A. 2 is a prerequisite to all intermediate courses, which are open to sophomores, except as indicated. All advanced courses have at least one specified intermediate course as a prerequisite, and the first advanced professional course in each field has, in addition, a prerequisite of all the lower division business administration required courses.

*Not offered in 1933-1934.

Lower Division Courses

1. *General Economics.* A descriptive analysis of modern economic institutions; nature and evolution of economic problems. Five credits; autumn, winter, spring, summer. Cox.

2. *General Economics.* The elementary principles of economic theory. Production, value and price, money and banking, international trade, functional and personal distribution. Prerequisite, B.A. 1. Five credits; autumn, winter, spring, summer. Mund.

3. *General Economics.* Same as B.A. 2 above, abbreviated for students in chemistry, pharmacy, forestry and engineering. Three credits; autumn, winter, spring. Cox.

†7. *Economic Geography.* The environment laws underlying the distribution of the major classes of raw materials; factors locating industries; geographic laws of trade. Five credits; autumn, winter, spring. Martin, Seeman.

54. *Business Law.* Designed to give the fundamentals of those branches of law which bear most closely upon the ordinary business transactions. Prerequisite, sophomore standing. Three credits; autumn, winter, spring. Brown, Harsch.

55. *Business Law.* Continuation of B.A. 54. Prerequisite, B.A. 54. Three credits; autumn, winter, spring. Brown, Harsch.

56. *Business Law.* Continuation of B.A. 55. Prerequisites, B.A. 54 and 55. Three credits; autumn, winter, spring. Brown, Harsch.

57. *Practical Business Relations.* Offered to those unable to devote nine hours to business law; should be taken in preference to B.A. 54 by those contemplating but one quarter of law. Students electing B.A. 57 may not receive credits for B.A. 54. Prerequisite, sophomore standing. Five credits; autumn. Brown.

62. *Principles of Accounting.* Field and scope; theory of the asset, liability, proprietorship accounts; revenue and expense; construction of financial statements. Prerequisite, sophomore standing. Five credits; autumn, winter, spring. Butterbaugh and assistants.

63. *Principles of Accounting.* Problems peculiar to partnerships and corporations; manufacturing accounts, theory of valuation, depreciation, profits and reserves. Prerequisite, B.A. 62. Five credits; autumn, winter, spring. Draper and assistants.

64. *Accounting Analysis and Control.* Accounting analysis for financial control; construction and interpretation of accounting standards, records, and measurement; problems in report writing. Prerequisite, B.A. 63. Five credits; autumn, winter, spring. Gregory.

65. *Accounting Survey.* A service course for students in other colleges who have only one quarter available for accounting. Not open to business administration students and may not be offered as a substitute for any required accounting course. Five credits; autumn, winter, spring. Van de Walker.

Intermediate Courses

59. *Graphic and Tabular Analysis of Business Problems.* Application of statistical method to business and economic problems. Design and execution of diagrams, maps and tables for effective presentation of statistical results. Analysis of collected material. Prerequisite, B.A. 2. Five credits; autumn. Demmery.

†Listed as B.A. 107 in Time Schedule.

103. *Money and Banking.* Functions of money; standards of value; principles of banking with special reference to the banking system of the United States. Prerequisite, B.A. 2. Five credits; autumn, winter, spring. Preston.

104. *Economics of Transportation.* A general survey of the development and present economic significance of the various forms of transport. Prerequisite, B.A. 2. Five credits; autumn, winter, spring. Farwell.

105. *American Labor Problems.* Historical survey of labor problems arising out of changing industrial conditions; programs of industrial political protective organizations. Prerequisite, B.A. 2. Five credits; autumn, winter, spring. McMahon.

106. *Economics of Marketing and Advertising.* Development of economic principles; market processes and systems; the middlemen and their functions. Prerequisite, B.A. 2. Five credits; autumn, winter, spring. Burd.

108. *Economics of Insurance.* The risk factor in its economic and social consequences; ways of meeting risk; the functions of life, fire and other types of insurance. Prerequisite, B.A. 2. Five credits; autumn. Smith.

109. *Land Economics.* Economic principles underlying the utilization of land; forces influencing the growth and structure of cities; types of land ownership; city and regional planning and zoning. Prerequisite, B.A. 2. Five credits; winter. Demmery.

115. *Business Correspondence.* Analysis of principles; development of judgment on points of business policy. Prerequisites, Comp. 1 and junior standing. Five credits; autumn, winter, spring. Miller.

117. *Commercial Education.* This course is required of all commercial teaching majors and is not open to other students. Prerequisites, one year each of high school shorthand and typewriting or equivalent. Five credits to commercial teaching majors only; autumn. Hamack.

118. *Commercial Education.* Continuation of B.A. 117. Prerequisite, B.A. 117. Five credits to commercial teaching majors only; winter. Hamack.

119. *Business Ethics.* An examination of the efforts to develop and enforce a code of ethics consistent with the fundamental principle that business is conducted for profit. Prerequisite, B.A. 2. Two credits; autumn, winter, spring. Dakan.

120. *Business Organization and Combination.* Business corporations, associations and combinations; special reference to their functions, operation, advantages and disadvantages; relation to the anti-trust laws. Prerequisite, B.A. 2. Five credits; autumn. Dakan.

Advanced Courses

Management and Accounting

101. *Management of Business Enterprise.* A general non-technical study of the effective control of business which stresses the economic aspects of management. It may be considered as introductory to the applied courses in economics, merchandising, transportation, foreign trade, finance, accounting and business technology. Prerequisite, lower division requirements in business administration. Five credits; autumn, spring. Mackenzie.

111. *Advanced Theory of Accounts.* Application of theory to business problems; advanced partnership and corporation problems; receiverships; annuities; consignments. Prerequisite, lower division requirements in business administration. Five credits; autumn, winter, spring. Draper.

112. *Advanced Theory of Accounts.* Continuation of B.A. 111. Mergers and consolidations; consolidated balance sheets, and profit and loss statements; accounting for securities. Prerequisite, B.A. 111. Five credits; winter, spring. Cox.

130. *Industrial Management.* The manager's use of technology. The important industrial factors used in controlling physical operating conditions. Prerequisite, B.A. 101 or B.A. 7 and consent of instructor. Five credits; autumn, winter. McIntyre.

154. *Cost Accounting I.* Economics of cost accounting; industrial analysis production control through costs; types of cost systems; burden application; standard costs; selected problems. Prerequisite, B.A. 64. Five credits; autumn, winter. Gregory.

155. *Cost Accounting II.* Continuation of B.A. 154. Prerequisite, B.A. 154. Five credits; spring. Gregory.

156. *Auditing.* Auditing procedure; balance sheet audits; analysis of asset and liability values; profit and loss statement audits; analysis of income and expense; certifications and reports; classifications of audits and investigations. Prerequisite, B.A. 112. Five credits; autumn. Cox.

157. *Income Tax Accounting.* Selected cases illustrating the definition of taxable income of individuals, corporations, partnerships. Regulations of Treasury Department. Prerequisite, B.A. 112. Five credits; autumn. McConahey.

158. *C.P.A. Problems.* Selected cases taken from American Institute and State C.P.A. examinations. Prerequisite, B.A. 112. Five credits; spring. McConahey.

BANKING AND FINANCE

121. *Corporation Finance.* Financial problems connected with promotion of corporations, underwriting and sale of securities, management, expansion, and reorganization of unsuccessful corporations. Prerequisites, B.A. 63 and B.A. 103. Five credits; autumn, winter. Dakan.

122. *Principles of Investment Banking.* Underlying principles of investment credit; origin and purpose of credit instruments; selection of sound investments; investment policy of individuals and institutions; care of investments; relation of the investment market to the money market. Prerequisite, lower division requirements in business administration and B.A. 121. Five credits; winter, spring. Dakan.

124. *Public Finance.* A brief survey and analysis of fiscal thought; the growth and fundamentals of public expenditures in modern times; the sources and underlying economic principles and theory of public revenues except taxation; the principles and practices of public credit and a critical evaluation of public financial administration. Prerequisite, B.A. 103. Five credits; autumn. Hall.

125. *Advanced Money and Banking.* Presupposes a knowledge of our existing financial organization and devotes attention to questions of banking and monetary policy. Each student makes a special study of a selected subject and prepares a term paper thereon. Prerequisites, lower division requirements in business administration and B.A. 103. Five credits; spring. Preston.

129. *Taxation.* The economic theory and principles basic to problems in taxation; taxation in national, state and local governments; the character of various kinds of taxes; an evaluation of the model tax system of the National Tax Association; theories and problems of classification, equity and incidence in taxation. Prerequisite, B.A. 124. Five credits; winter. Hall.

176. *Investment Analysis.* An analytical study of typical industrial, public utility and railroad securities; analysis of financial operations, revenue and expense reports and their relation to investment values. Prerequisite, B.A. 122. Five credits; spring. Dakan.

189. *Bank Credit Administration.* The administration of bank credit based on actual problems selected from portfolios of Pacific Northwest banks. Prerequisites, lower division requirements in business administration and B.A. 103. Three credits; winter. Truax.

MARKETING

134. *Wholesaling.* The wholesale functions and agencies performing them; historical development and economic justification; recent trends and future prospects. Prerequisites, lower division requirements in business administration and B.A. 106. Five credits; autumn. Miller.

135. *Retailing.* The various types of retail organizations; their evolution, present status and future prospects; economic functions performed by each type; their relative efficiency. Prerequisites, lower division requirements in business administration and B.A. 106. Five credits; winter. Miller.

136. *Advertising.* Advertising as a business force; its economic justification as a factor in marketing; analysis of current criticisms; advertising organizations, their functions and procedure. Prerequisites, lower division requirements in business administration and B.A. 106. Five credits; spring. Miller.

137-138-139. *Problems in Wholesaling, Retailing and Advertising.* Individual and group study. Required business contacts. Compiling, organizing and interpreting data from original and library sources. Each student will specialize in one field: wholesaling, retailing, or advertising. Graduating seniors may register for ten credits in one quarter but may not receive more than fifteen credits for the course. Prerequisites, B.A. 134, 135, 136. Five credits each quarter; autumn, winter, spring. Burd.

140. *The Cooperative Movement.* Examination of cooperative ventures in the U.S. and abroad; recent tendencies; cooperative buying groups; cooperative producing, advertising and selling. Prerequisite, B.A. 106. Five credits; winter. Smith.

FOREIGN TRADE

127. *Foreign Exchange and International Banking.* Foreign currencies and banking systems; foreign banking by American institutions; foreign exchange markets; theory of international exchange; financing of exports and imports; specie movements. Prerequisites, lower division requirements in business administration and B.A. 103. Five credits; autumn. Skinner.

145. *Principles of Foreign Trade.* The historical development of world-commerce; theories of foreign trade; principal materials of commerce, their volume value, and movements; trends in commerce. Prerequisite, B.A. 104. Five credits; autumn, winter. Skinner.

146. *Advanced Theory and Practice of Foreign Trade.* International trade theories as tested by the facts of commerce; government and private trade promotion; organization and management of foreign trade concerns; foreign trade methods and practices. Prerequisites, lower division requirements in business administration and B.A. 145. Five credits; winter, spring. Skinner.

173. *International Commercial Policies.* Economic and commercial relations of nations; commercial treaties; tariff systems and administration; inter-

national balance of payments; national and international controls of foreign exchange, raw materials, exports and imports. Prerequisite, B.A. 145. Five credits; spring. Skinner.

PUBLIC UTILITIES AND TRANSPORTATION

131. *Economics of Public Utilities.* The development of the fundamental economic theory underlying public utility industries; their economic, social and legal characteristics; monopolistic nature; problems of joint, special and differential costs; fundamentals of sound rate practice. Prerequisite, B.A. 104. Five credits; autumn. Hall.

132. *Management of Public Utilities.* Basic administrative problems of differential rate schedule determination, production, distribution, interconnection, marketing, finance, public relations. Special attention to Pacific coast conditions. Prerequisites, lower division requirements in business administration and B.A. 131. Five credits; winter. Hall.

133. *Control of Public Utilities.* Economic, legislative and administrative problems of regulation; state and federal regulation; court decisions on fair value and fair return evaluated; the public utility holding company and the problems of regulation raised thereby; municipal ownership and operation with its incidental problems. Prerequisite, B.A. 131. Five credits; spring. Hall.

143. *Railway Transportation.* An intensive treatment of the principles of railway transportation. Critical evaluation of problems of finance, operation, competition, combination and regulation. Prerequisites, lower division requirements in business administration and B.A. 104. Five credits; autumn, spring. Gould.

144. *Water Transportation.* Economic principles basic to water transportation. Problems of joint and special costs, competition, rate practices, rate agreements, shipping subsidies, inter-coastal regulations. Prerequisites, lower division requirements in business administration and B.A. 104. Five credits; winter. Gould.

149. *Marine Insurance and Carriers' Risks.* Liabilities of rail and water carriers; plans of marine insurance; marine underwriters; insurable interests; warranties. Prerequisite, B.A. 143 or 144. Five credits; autumn. Farwell.

150. *Transportation Rates.* An intensive examination of theory underlying commodity classifications and tariffs. Rate-making power of governmental bodies. Prerequisite, B.A. 143 or 144. Five credits; autumn, winter. Gould.

151. *Traffic Management.* Principles and theory of scientific industrial traffic management. Problems of routing, expediting, auditing, demurrage, reconsignment, port and terminal facilities. Prerequisites, lower division requirements in business administration and B.A. 104. Five credits; spring. Farwell.

152. *Ports and Terminals.* Special needs of rail, water, motor and air carriers as to port and terminal facilities. Prerequisites, lower division requirements in business administration and B.A. 151. Three credits; winter. Farwell.

ECONOMIC THEORY AND GENERAL BUSINESS

100. *Economic and Industrial Development of the United States.* Survey of the important phases in the development of the American economic and industrial system. Special attention will be given to manufactures, commerce, labor, finance, and agriculture. Prerequisites, History 59, and 20 upper division credits in economics. Five credits; winter. Coon.

160. *Advanced Economic Theory.* Economic thought centering about the neo-classical theories of value and distribution and the validity of this thought under present conditions. Prerequisite, 30 upper division credits in economics and business administration. Five credits; autumn, winter, spring. Mund.

161. *Economics of Labor.* A consideration of labor theories in their relation to social, political and other economic theories reflected against a common institutional background. Prerequisites, B.A. 105, and 10 upper division credits in economics. Five credits; autumn. McMahon.

162. *European Labor Problems.* A comparative study of the problems of labor in foreign countries; historical economic backgrounds; programs of amelioration and reform. Prerequisites, B.A. 105, and 10 upper division credits in economics. Five credits; spring. McMahon.

168. *Development of Economic Thought.* A study of the contributions of the classical and neo-classical economists and their contemporary critics. Primary sources will be used and attention will be given to the industrial, social, and political background of economic thought. Prerequisite, B.A. 160. Five credits; winter. Coon.

169. *Applied Economics of Real Estate.* Types of real estate uses and their characteristics; appraisals of farm and urban land improvements; property rights; real estate finance; management of real property; leases. Prerequisites, lower division requirements in business administration and B.A. 109. Five credits; spring. Demmery.

170. *Applied Economics of Insurance.* Application of the general principles to the various forms of insurance such as life, health, accident, fire, marine, casualty, automobile, etc. Prerequisite, lower division requirements in business administration and B.A. 108. Five credits; spring. Smith.

175. *Business Fluctuations.* Survey of past business fluctuations; secular trends, seasonal variations, irregular fluctuations and business cycles; discussion of forces which tend to destroy economic equilibrium; proposals for controlling business fluctuations. Prerequisite, B.A. 103. Five credits; autumn, winter. Demmery.

177. *Business Diagnosis.* Analysis of current economic conditions in general and by industries; evaluation of business "barometers"; underlying assumptions and methods involved in forecasting business activity; appraisal of forecasting services. Prerequisites, lower division requirements in business administration and B.A. 175. Five credits; spring. Demmery.

181. *Economics of Consumption.* Historical development of human wants in relation to the economic laws of consumption; attempts to control consumption. Prerequisite, B.A. 105, and 10 upper division credits in economics. Five credits; winter. McMahon.

SEMINARS

190. *Research in Business Administration.* Summer quarter only. Coon and staff.

191ABC. *Research in Accounting and Management.* Prerequisite, consent of instructor. Three credits; autumn, winter, spring. Gregory.

194C. *Research in Transportation.* Prerequisite, consent of instructor. Three credits; spring. Gould.

195ABC. *Research in International Trade.* Prerequisite, consent of instructor. Three credits; autumn, winter, spring. Skinner.

196ABC. *Research in Public Utilities.* Prerequisite, consent of instructor. Three credits; autumn, winter, spring. Hall.

COURSES FOR GRADUATES ONLY

204AC. *Graduate Seminar in Economic Theory.* For graduate students whose major interest is in the field of economic theory and its history, economic history, or in the fundamental principles underlying some field in applied economics. Students electing this course will be expected to devote approximately half of their time to it. They will read widely and critically and will undertake research in the field of their major interest. There will be class discussions and reports as well as individual conferences. Prerequisites, B.A. 160, 168 or the equivalent, and consent of the instructor. Seven credits each quarter; autumn, spring. Coon.

206AB. *Graduate Seminar in Finance.* For students interested in monetary and banking theory, international finance, and public finance. Students electing this course will be expected to devote approximately half of their time to it. Assigned reading, individual research, and conferences will be included. Prerequisites, B.A. 103, at least one advanced course in finance, and consent of instructor. Seven credits each quarter; autumn, winter. Preston.

208ABC. *Graduate Seminar in Labor.* Theories and problems. Class reports and individual conferences in the field of research. Prerequisites, at least one advanced course in labor, and consent of instructor. Three credits each quarter; autumn, winter, spring. McMahon.

*210ABC. *French and German Economists.*

TEACHERS' COURSES IN BUSINESS ADMINISTRATION

Educ. 75E. *Commercial Teachers' Course.* Five credits. (Two credits only count in education); spring. Draper.

Educ. 75F. *Teachers' Course in Shorthand and Typewriting.* Five credits. (Two credits only count in education); spring. Hamack.

EDUCATION

Professor Uhl, Executive Officer

Course 60 is prerequisite to all other courses in education. Courses 60 and 70 are prerequisite to 71, which should be planned for the autumn or winter terms in the senior year. Placements for the spring term are limited. Courses 60, 90, 9, 70, 75, 71, and 120 are regularly required for the five-year normal diploma.

I. ELEMENTARY COURSES (UPPER DIVISION CREDIT)

9. *Psychology of Secondary Education.* The psychological basis of secondary education. Prerequisites, Edu. 60, 90, and Psych. 1. Three credits; autumn, winter, spring. Powers.

60. *Principles of Secondary Education; Problems of the Senior High School Teacher.* Three credits; autumn, winter, spring. Draper.

70. *Introduction to High School Procedures.* Methods and observation of high school teaching. Prerequisites, Edu. 60, 90, and 9. Five credits; autumn, winter, spring. Williams.

71. *Cadet Teaching.* Semester basis. Prerequisites, Edu. 60, 90, 9, 70 and 75 or approved equivalent. Eight credits. (Cadets electing fall semester,

*Not offered in 1933-1934.

register for eight credits autumn quarter. Fall registration may show maximum of 19 credits, while winter quarter maximum will be 14 credits. Cadets electing spring semester, register for eight credits winter quarter. Maximum registration for winter quarter is 21 credits, while spring quarter may show a maximum of 11 credits. Three successive free hours should be provided in the schedule each quarter for cadet teaching.

Cadets registering for fall semester, report to 114a Education Hall for assignment to Seattle schools Monday, September 25, 8 a.m. Spring semester cadets will report Saturday, January 27, 8 a.m. for assignment.)

Corbally, Powers, Cole.

71P. *Cadet Teaching for Women Physical Education Majors.* Eight credits; three quarters required. Registration in the autumn quarter. Teaching arrangements made by the department of women's physical education and the director of cadets.

90. *Measurement in Secondary Education.* The use of tests and scales in secondary education. Prerequisite, Edu. 60. Two credits; autumn, winter, spring. Dvorak.

Course 70 is prerequisite, except as stated above, to courses numbered 75. One of the teachers' courses is required for the normal diploma.

Students in librarianship who have completed a major and minor in teaching subjects can satisfy the practice teaching requirements and their requirements in the teachers' courses numbered 75 by completing the curriculum in library science.

75. *Teachers' Courses in Secondary Subjects.* Courses in the technique of instruction are offered in the following departments:

For the teachers' course in art, see Art 100.

75B. *Botany.* Discussion of texts, subject matter and methods of presenting the subject. Prerequisite, two years of botany. Two credits; autumn. Frye.

75C. *Chemistry.* Prerequisite, at least 20 credits of college chemistry of average B grade. Two credits; autumn, winter, spring. Smith.

75D. *Civics.* Attitude of approach, arrangement of material, methods of presentation. Two credits; spring. Cole.

75E. *Commercial Course.* Typical business courses examined and discussed. Prerequisite, 30 credits of the 54 required for a major in commercial teaching, including 15 credits in accounting. Five credits (two credits only count as education; three count as business administration); spring. Draper.

*75F. *Commercial Course, Shorthand and Typewriting.*

*75G. *Dramatic Art.*

75H. *English.* Two credits; spring. Sperlin.

*75I. *English Composition.*

*75J. *English Literature.*

75K. *French.* Prerequisites, French 41, 101, 102, 103, 158 and 159. Two credits; autumn. Frein.

75L. *German.* Prerequisite, German 110, or consent of instructor. Two credits; spring. Meisnest.

*Not offered in 1933-1934.

75M. *History.* Special reference to work of the high school. Prerequisite, History 160. Two credits; winter. McMahon.

75NA, 75NB. *Home Economics.* Survey of objectives, organization, and curricula of home economics in elementary, junior and senior high schools. Prerequisite, 25 credits of home economics. Three recitations. Three credits each quarter (only two counted toward normal diploma); autumn, winter. Raitt.

75O. *Geography.* (Prerequisites, Geography 1, and 5 additional credits). Two credits; winter. Earle.

For teachers' course in journalism, see Jour. 125.

75P. *Latin.* Prerequisite, 20 credits of college Latin. Course must be taken in combination with Latin 107 except by special arrangement. Two credits; autumn. Stone.

75Q. *Mathematics.* Prerequisite, Math. 109. Three credits (two credits in education; one credit elective); spring. Jerbert.

For teachers' course in music, see Music 116.

For teachers' course in physical education for men, see Phys. Edu. 141, 142, 143.

75V. *Physical Education for Women.* Prerequisites, Phys. Edu. 162, 163, 164. at least five credits of which must be in residence. Two credits; autumn. Gross.

For teachers' course in piano, see Music 167.

75X. *Public Speaking.* Two credits; spring. Orr.

For teachers' course in sociology, see Soc. 164.

75Y. *Spanish.* Prerequisites, Span. 101, 102, 103, 159. Two credits; autumn. Umphrey.

75Z. *Zoology.* Prerequisite, 20 credits in zoology. Two credits; winter. Guberlet.

II. ADVANCED COURSES

101. *Educational Psychology.* A systematic treatment of the theoretical principles and experimental background in the field. Three credits; autumn. Powers.

*102. *Child Study.*

104. *Psychology and Training of Exceptional Children.* Subnormal, superior, backward, eccentric, and delinquent children studied from the point of view of the teacher. Five credits; spring. Dvorak.

105. *Modern Problems of Adolescence.* Three credits; winter. Bolton.

*107. *Modern Psychology and Education.*

*109. *Psychology of High School Subjects.*

120. *Educational Sociology.* A consideration of the problems of education as related to the process of social evolution. Prerequisite, 12 credits in education. Three credits; winter, spring. Uhl.

130. *Public School Administration.* This course is designed for superintendents and principals, or those seeking such positions. Four credits; autumn. Jessup.

*Not offered in 1933-1934.

131. *School Administration, State and County.* An analysis of modern practice and historical background of the organization, supervision and financial support of public education. Four credits; winter. Jessup.

*132. *School Administration, City.*

133. *Elementary School Organization and Administration.* Four credits; winter. Jessup.

134. *High School Organization and Administration.* A study of the high school principal as supervisor, administrator, and director of extra-class and intramural activities. Three credits; winter. Corbally.

140. *School Supervision.* Analysis of the problems and technique of the improvement of school work through the in-service education of teachers. Four credits; autumn. Jessup.

*145F. *The Health Education Movement.*

145G. *School Hygiene.* Particular attention is given such problems as schoolroom construction, lighting, heating, ventilation, sanitation of spaces, selection and location of equipment, medical inspection and supervision, communicable disease, the school lunch, fatigue, rest and play. Three credits; spring. Belshaw.

145V. *Principles and Objectives of Vocational Education.* Aims of vocational education, materials of instruction, standards of work, and judging measurement of work. Three credits; spring. Corbally.

146. *Extra-class and Intramural Activities.* Weekly conferences with the instructor. Class is limited to 20 students. Prerequisite, Edu. 60. Three credits; spring. Draper.

147. *Educational and Vocational Guidance.* Three credits; autumn. Corbally.

150. *Principles of Elementary Education.* An examination of the bases upon which rests a system of elementary education in a nation. Four credits; autumn. Jessup.

153. *Elementary School Curriculum.* Four credits; spring. Jessup.

163. *Secondary School Curricula.* Prerequisites, Edu. 60 and 70. Three credits; autumn. Uhl.

164-165. *Technique of Curriculum Making.* The student will be expected to give one hour a week for laboratory and field work in the public schools. Prerequisite, Edu. 60 and 70 or equivalent. Three credits each quarter; winter, spring. Draper.

180, 181, 182. *History of Education.* A social interpretation of the historic beginnings of education; (a) the contributions of the Greeks and Romans and the beginnings of Christianity; (b) the medieval period and the Renaissance, and (c) the development of educational theories and practices since the Renaissance. Three credits a quarter; autumn, winter, spring. Jessup.

183. *Historical Backgrounds of Educational Method.* Three credits; autumn. Williams.

184. *Comparative Education.* Modern education in foreign countries. Four credits; spring. Jessup.

188. *Philosophy of Education.* Five credits; autumn. Uhl.

*Not offered in 1933-1934.

191. *Advanced Educational Measurements.* Prerequisite, Edu. 90 or its equivalent. Three credits; winter. Dvorak.

193. *Experimental Studies in Character Training.* Experimental background of the modern effort toward character development. Three credits; winter. Powers.

COURSES FOR GRADUATES ONLY

201. *Advanced Educational Psychology.* Students must have as prerequisites courses in general and educational psychology. Three credits; spring. Powers.

209-210. *Seminar in Psychology of High School Subjects.* Three credits; winter, spring. Williams.

*220-221. *Seminar in Educational Sociology.*

*222. *Seminar in Social Survey of School Materials.*

230. *Seminar in Administration* (Legislation). Four credits; winter. Jessup.

231. *Seminar in Business Administration.* Methods of raising and distributing school revenues. Five credits; winter. Cole.

233. *Seminar in Administration.* (School Buildings.) Four credits; spring. Jessup.

240. *Technique of Objective Supervision.* Three credits; spring. Williams.

*243-244. *Supervision of Secondary School Subjects.*

245, 246, 247. *The Organization of Supervisory and Administrative Programs.* Five credits each quarter; autumn, winter, spring. Cole.

260-261. *Seminar in Secondary Education.* Two credits each quarter; autumn, winter. Draper.

263. *Junior College.* Three credits; spring. Dvorak.

265, 266, 267. *Seminar in College Teaching.* A survey of the literature and investigations of college teaching. Discussions and reports. First meeting October 2, at 7 p.m.; autumn, winter, spring. No credit. Uhl, Powers, Wilson.

270-271. *Problems in Modern Methods.* Three credits each quarter; autumn, winter. Williams.

287-288-289. *Seminar in Philosophy of Education.* Three credits each quarter; autumn, winter, spring. Uhl.

290. *Educational Statistics.* Required of candidates for the doctor's degree in education. Five credits; autumn. Dvorak.

291. *Methods of Educational Research.* Required of candidates for the master's and doctor's degrees in education. Three credits; autumn, winter. Dvorak.

298, 299, 300. *Individual Research or Thesis Work.* Credits to be arranged; autumn, winter, spring. Staff.

*Not offered in 1933-1934.

ELECTRICAL ENGINEERING

Professor Magnusson, Executive Officer

101. *Direct Currents.* Short course in continuous current machinery, for non-electrical students, to be taken in connection with E.E. 102. Prerequisites, Physics 98, Math. 62. Four credits; autumn, winter, spring. Eastman, Hoard.

102. *Direct Currents Laboratory.* Continuous current machinery, for non-electrical students. To be taken with E.E. 101. Prerequisite, Physics 98. Two credits; autumn, winter, spring. Lindblom, ———.

103. *Direct Currents.* A short course in direct current machinery, for civil engineering students. Prerequisites, Physics 98, Math. 62. Three credits; autumn. Lindblom, Eastman.

104. *Direct Currents Laboratory.* Direct current machinery, for civil engineering students. Prerequisite, Physics 98. One credit; autumn. Lindblom.

105. *Electric Wiring.* A short course for architects. Two credits; autumn. Shuck.

109. *Direct Currents.* Theory of electric and magnetic circuits; construction, operation and characteristics of direct current machines. To be taken with E.E. 110. Prerequisites, Physics 98, Math. 62. Four credits; autumn, winter. Shuck, Lindblom.

110. *Direct Currents Laboratory.* Direct current machinery. Prerequisite, Physics 98. To be taken with E.E. 109. Two credits; autumn, winter. Hoard, Shuck.

111. *Direct Currents.* Continuation of E.E. 109 in direct current machinery. Storage batteries. Direct current systems. To be taken with E.E. 112. Prerequisite, E.E. 109. Four credits; winter, spring. Smith, Lindblom.

112. *Direct Currents Laboratory.* Experimental work on direct current dynamo machinery and on storage batteries. To be taken with E.E. 111. Prerequisite, E.E. 110. Four credits; winter, spring. Hoard, Lindblom.

**15. *Elementary Direct Currents.* (Extension night class.) Laws of the electric and magnetic circuits with application to direct current machinery. Practical course for electricians. Shuck.

**20. *Elementary Alternating Currents.* (Extension night class.) Alternating current theory with experimental work on alternating current machinery. Prerequisite, E.E. 15. Shuck.

121. *Alternating Currents.* Alternating currents, for non-electrical students. To be taken with E.E. 122. Prerequisite, E.E. 101. Four credits; autumn, winter, spring. Shuck, Eastman.

122. *Alternating Currents Laboratory.* Experimental work on alternating current machinery. To be taken with E.E. 121. Prerequisite, E.E. 102. Two credits; autumn, winter, spring. Eastman, Lindblom.

123. *Alternating Currents.* A short course in alternating current machinery for civil engineering students. Prerequisites, E.E. 103, 104. Three credits; winter. Smith.

124. *Alternating Currents Laboratory.* Alternating current machinery for civil engineering students. Prerequisites, E.E. 103, 104. One credit; winter. ———.

**Will be offered if a sufficient number of students elect the course.

141. *Illumination.* Electric lamps; commercial photometry; adaptation of electric lighting to commercial requirements. Junior or senior elective. Prerequisites, E.E. 109, 110. Three credits; winter. Shuck.

152. *Electrical Machine Design.* Complete design of one direct current generator or motor. Prerequisites, E.E. 111, 112. Three credits; winter, spring. Lindblom.

**154. *Design of Electrical Apparatus.* Switchboards, transformers, alternators, alternating current motors, etc. Prerequisite, E.E. 111. Six credits. Lindblom.

161. *Alternating Currents.* Theory of singlephase and polyphase systems; power factor and power measurements; theory of transformers and induction motors. To be taken with E.E. 162. Prerequisite, E.E. 111. Six credits; autumn, spring. Loew, Hoard.

162. *Alternating Currents Laboratory.* Experimental work with alternating current machinery. To be taken with E.E. 161. Prerequisite, E.E. 112. Four credits; autumn, spring. Smith, Shuck.

163. *Alternating Currents.* Theory of alternators, rotary converters, rectifiers, synchronous and commutator motors and transmission lines. To be taken with E.E. 164. Prerequisite, E.E. 161. Six credits; autumn, winter. Loew, Hoard.

164. *Alternating Currents Laboratory.* To be taken with E.E. 163. Prerequisite, E.E. 162. Four credits; autumn, winter. Hoard, Shuck.

171. *Electric Railways.* Electrification of steam railroads. Fundamentals of direct current and alternating current systems of electrification. Prerequisites, E.E. 161, 162. Four credits; autumn. Hoard.

**173. *Central Stations.*

175. *Power Transmission.* Theory, design and operation of electric power transmission lines. Prerequisites, E.E. 163, 164. Five credits; winter, spring. Loew.

180, 182, 184. *Research.* Two to five credits a quarter; autumn, winter, spring. Magnusson.

181. *Vacuum Tubes—Theory and Application.* Theory of vacuum tube amplifiers, oscillators, detectors, and rectifiers; applications in the power, radio and telephone fields. Prerequisite, E.E. 161. Five credits; autumn, winter, spring. Eastman, Hoard.

183. *Radio.* Laws of oscillatory circuits; continuous wave telegraphy; radio telephone; television; theory of antennas and radiation; transmission phenomena. Prerequisite, E.E. 181. Five credits; spring. Eastman.

185. *Telephone Transmission.* Theory of telephone transmission; reflection phenomena; standing and travelling waves; loading; measurement of line constants. Prerequisite, E.E. 161. Four credits; winter. Eastman.

186, 188. *Thesis.* After consultation with the head of the department, the student selects a suitable topic for investigation. Reports of progress are made weekly to the instructor in charge of the work selected. Two to five credits a quarter; autumn, winter, spring. Loew, Hoard.

190, 194. *Seminar.* Prerequisites, E.E. 161, 162. Five credits; autumn, spring. Magnusson.

**Will be offered if a sufficient number of students elect the course.

191. *Advanced Circuit Theory.* Operational calculus applied to the solution of electric circuits. Prerequisites, E.E. 161, 162. Three credits; autumn, winter. Loew.

193. *Advanced Circuit Theory.* A study of net-works under short circuit conditions with the use of symmetrical components. Prerequisite, E.E. 191. Three credits; spring. Loew.

195. *Electric Transients.* Single and double energy transients; standing and travelling waves; short circuit transients; surges; corona; lightning. Prerequisites, E.E. 161, 162. Three credits; autumn, winter, spring. Magnusson.

196. *Electric Transients Laboratory.* To be taken with E.E. 195. Prerequisite, E.E. 162. Three credits; autumn, winter, spring. Smith.

198. *Electric Transients Laboratory.* Continuation of E.E. 196. Special problems. Two to five credits; autumn, winter, spring. Smith.

COURSES FOR GRADUATES ONLY

210, 212, 214. *Research.* Two to five credits a quarter; autumn, winter, spring. Magnusson.

ENGINEERING ENGLISH

For courses in Engineering English, see department of English, Comp. B, 100, 102 and Speech 103.

ENGLISH

Professor Griffith, Executive Officer

SUGGESTIONS TO MAJOR STUDENTS

The department of English includes four divisions: composition, literature, speech, and drama. Majors are granted in literature, speech, and drama, normally requiring from 45 to 60 credits, of which at least 50 per cent must be upper division. Composition 1 and 2 or their equivalent of composition are required but cannot be counted toward a major or minor. For all divisions the equivalent of Comp. 2 is Comp. 16 and 17, provided that these last two courses are taken concurrently with Lit. 66 and 75.

At the conclusion of the senior year, all major students are required to pass the senior examination given by the division of English in which their major falls. The examination will require a general knowledge of English and specialization in the chosen branch of English study.

The schedules for majors and minors in the various divisions need not be repeated here, as they are found in the Liberal Arts or in the Education bulletin, listed with the requirements for a teaching diploma. Majors in literature who are not seeking a normal diploma, however, may substitute English electives for Speech 79 and may omit Lit. 117. The "major courses" are taught in small classes to facilitate discussion and to increase contacts between teacher and student. They are grouped as follows:

Group I.	Old and Middle English (150, 151)
	Old English Literature (180, 181)
	English Literature 1476-1642 (153, 154)
Group II.	Shakespeare (170, 171)
	Seventeenth Century Literature (167, 168)
	Eighteenth Century Literature (144, 145)
Group III.	Early Nineteenth Century Literature (177, 178)
	Late Nineteenth Century Literature (174, 175)
	American Literature (161, 162)

For the major in literature at least ten credits in one major course are required and five credits in each of the major groups other than the one in which the ten-credit major course is taken. For majors in speech, drama, and minors in literature, at least ten credits from these major courses are required.

Candidates for a graduate degree in English are required to offer the equivalent of an undergraduate major in English at the University of Washington. In addition majors present a master's thesis and 24 or 25 credits which include Lit. 201. 203 and ten credits in one graduate year-course. Minors present 12 graduate credits which shall complete the undergraduate major in English and contain at least three credits in English courses for graduates only.

Composition

A. *Elementary Composition.* A non-credit composition course required of students who fail in examinations for entrance into Comp. 1, 4. No credit; autumn, winter, spring. Miss Lawson in charge.

B. *Elementary Composition.* A non-credit course in the fundamentals of writing. For those who fail in the test for admission to Comp. 100. A passing grade in the course is equivalent to passing in this test. Autumn, winter, spring. Miss Hall in charge.

1, 2. *Composition.* Principles and practice of composition with conferences for personal criticism. Entrance into this course is gained by a satisfactory grade in the freshman preliminary English test. As this test is graded both for entrance and for efficiency, there are several possible assignments for students after its completion. The usual assignments are (1) exemption. from Comp. 1 and 2; (2) transfer to Comp. 15, where five credits of composition are required instead of 10; (3) assignment to Comp. 1, where if a student's work is of sufficiently high quality, he may be exempted from Comp. 2 or transferred to Comp. 16 on the recommendation of his instructor and the instructor in charge of this course; (4) assignment to Comp. 1 and 2; (5) transfer to Comp. A, a non-credit course required before entrance into Comp. 1. In forestry, the grade in Comp. 1 is a tentative grade contingent upon good work in English in subsequent forestry courses. Five credits each; autumn, winter, spring. Miss Lawson in charge.

4, 5, 6. *Composition.* For students in architecture, art, forestry, nursing education and drama. Three credits; autumn, winter, spring. Miss Lawson in charge.

9, 10. *Composition.* For students in pharmacy. Three credits, winter; two credits, spring. Miss Lawson in charge.

15. *Composition.* For students ranking very high in the freshman preliminary test as a substitute for Comp. 1 and 2. Five credits; autumn. Miss Lawson in charge.

16, 17. *Major Composition.* For majors and minors in English and to be studied concurrently with Lit. 66 and 75. When so studied this course substitutes for Comp. 2. Two credits; winter, spring. ———.

*51, 52, 53. *Advanced Composition.*

54, 55, 56. *Advanced Composition.* Description, narration, and the writing of criticism. Upper division credit for upper division students. Prerequisites, Comp. 1 and 2 or Speech 37 or 40. Two credits; autumn, winter, spring. Walters, ———.

61, 62, 63. *Verse Writing.* Prerequisite, Comp. 1, 2. Two credits; autumn, winter, spring. Zillman.

*Not offered in 1933-1934.

67, 68, 69. *English Prose Style.* A study of composition to develop effective presentation of material. Upper division credit for upper division students. Prerequisites, Comp. 1 and 2 or equivalent. Two credits; autumn, winter, spring. Milliman.

100. *Technical Composition.* The logical organization of material, and its effective presentation in the form of articles, business letters, and reports. Prerequisite, the passing of a test in the mechanics of English; such a test is given to sophomore engineers on the third Tuesday of the Autumn quarter. Three credits; autumn, winter, spring. Miss Hall in charge.

102. *English for Engineers.* In this course, the technical student who wishes to come in contact with authors representative of the thought or the culture of either the past or the present and to improve his own style of writing, is given opportunity to progress in accordance with his ability. Individual conferences, weekly. This course may be repeated for credit. Prerequisite, Comp. 100. Three credits; autumn, winter, spring. Hall.

110, 111, 112. *Advanced Verse Writing.* Given in conjunction with English 61, 62, 63. All the elementary credits must be earned before advanced credit will be given. Two credits; autumn, winter, spring. Zillman.

156, 157. *Advanced Composition: Narration.* Prerequisite, 1 and 2 or equivalent. Five credits; autumn, winter, spring. ———.

For other courses in composition, see Speech 138; Drama 111, 112, 113; Jour. 173, 174-175.

Speech

37. *Argumentation.* Primarily for students in the College of Business Administration. Analysis, the use of evidence, and the discovery of fallacies. Five credits; autumn, winter, spring. Stirling in charge.

38. *Argumentation and Debating.* A study of the principles of argumentation and their application in practical debate. Upper division credit for upper division students. Five credits; autumn, winter, spring. Bird.

*39. *Advanced Argumentation and Debating.*

40. *Essentials of Speaking.* Five credits; autumn, winter, spring. Orr in charge.

41. *Advanced Speaking.* Upper division credit for upper division students. Prerequisite, Speech 40. Three credits; autumn, winter, spring. Rahskopf, Bird.

43. *The Speaking Voice.* A study of the vocal mechanism and the establishment of fundamental co-ordination of mind, voice and body. Upper division credit for upper division students. Three credits; autumn, winter, spring. Orr, Rahskopf, Strother.

47, 48. *Theatre Speech.* To prepare the speech of students for desirable usage in the theatre. Prerequisite, Speech 43. Two credits; autumn, winter, spring. ———.

79. *Oral Reading of Literature.* Required for a normal diploma in English. Upper division credit for upper division students. Three credits; autumn, winter, spring. Orr, Pellegrini.

101. *Public Debate.* Only students chosen for the debate squad may register for this course. Credits will be allowed upon the recommendation of the instructor in charge, provided that no more than two credits are earned in one year and that the total does not exceed six credits. Prerequisite, membership in the debate squad. Two credits; winter, spring. Orr in charge.

103. *Extemporaneous Speaking.* Recommended to students in engineering and law. Not open to liberal arts and science students not to students who have credit for Speech 40. Three credits; spring. Strother.

138. *The Rhetoric of Public Speaking.* The development of an effective oral style based upon the study of modern public speeches. Prerequisite, Speech 40. Three credits; winter. Rahskopf.

*139. *Forms of Public Address.*

186. *Mind and Speech.* Speech; its development; its relation to personality; its instinctive, intellectual and emotional aspects, and its social significance. Three credits; spring. Rahskopf.

187. *Advanced Voice Problems.* A study of minor voice and speech defects with special attention given to diagnosis and remedy. Prerequisite, Speech 43. Three credits; winter. Orr.

188. *Advanced Problems in Speaking.* Laboratory and research. Prerequisite, Speech 40. Three credits; spring. Orr.

191. *Speech Correction.* The methods of correcting minor speech defects together with the practical application of these methods to specific cases. Three credits; autumn, spring. Rahskopf.

Teachers' Course. See Education 75X.

COURSES FOR GRADUATES ONLY

214, 215, 216. *Public Speaking* . Three credits; autumn, winter, spring. Orr.

For other courses in Speech, see Drama 51, 52, 53, 121, 122, 123; Psych. 106, 107.

LITERATURE

64, 65. *Literary Backgrounds.* English classics, especially Beowulf, Chaucer, Spenser, Shakespeare, Milton, Dryden, Pope, Johnson, Burns, emphasizing literary forms, their appreciation, and social relations. Grade of "A" or "B" grants upper division credit to an upper division student for the quarter in which the grade is earned. Five credits; autumn, winter, spring. Cornu, Wagenknecht, Blankenship, Zillman, Kahin.

66. *Literary Backgrounds.* Introduction to poetry with illustrations from the nineteenth century. Not open to students who have credit for Literature 57, 21, 83, or 84. Three credits; autumn, winter, spring. Harrison, Wagenknecht, Zillman.

73. *Introduction to Modern Literature.* Essays on European and American thought. Readings in poetry, novel, and drama. Five credits; autumn, winter, spring. Cornu, Blankenship, Walters.

75. *Technique of Fiction.* A critical analysis of short stories, novels, and plays. For majors in literature and drama and for others who desire to study the organization of narrative literature. Upper division credit for upper division students. Three credits; autumn, winter, spring. Milliman, Blankenship.

97, 98, 99. *The Bible as Literature.* The literature of the Old Testament. Open to all. Upper division credit for upper division students. Two credits; autumn, winter, spring. Wagenknecht.

104, 106. *Contemporary Literature.* Special studies in English and continental contemporary literature for advanced students. Three credits; autumn, winter, spring. Cox, Harrison.

117. *History of the English Language.* English language from Early Germanic to the present day presented in three aspects; pronunciation, vocabulary, and syntax. Open to sophomores who intend to major in English. Literature 180 may be substituted for this course. Five credits; autumn, spring. Benham.

141, 142, 143. *Social Ideals in Literature.* Model commonwealths and such other literatures as illustrate the development of social and economic thought. Three credits; autumn, winter, spring. Winther.

144, 145. *Eighteenth Century Literature.* The classic period, Johnson and his Age, and eighteenth century romanticism. Five credits; autumn, winter, spring. Cox, Cornu.

*147, 148, 149. *The English Novel.*

150, 151. *Old and Middle English Literature.* Five credits; autumn, winter, spring. Benham, Wagenknecht.

153, 154. *English Literature*: 1476-1642. The Renaissance, Spenser and his contemporaries, and non-Shakespearean Elizabethan drama. Five credits; autumn, winter. Taylor.

161, 162. *American Literature.* From the beginnings to 1870. Five credits; autumn, winter, spring. Harrison, Eby, Blankenship.

164, 165, 166. *American Literature since* 1870. The beginning of realism; tendencies from 1900 to 1915; contemporary fiction and poetry. Three credits; autumn, winter, spring. Harrison.

167, 168. *Seventeenth Century Literature.* A study of Milton and his contemporaries. Five credits; autumn, winter. Benham.

170, 171. *Shakespeare.* Prerequisites, Lit. 64, 65 or 60. Five credits; autumn, winter, spring. Benham, Taylor, Eby.

174, 175. *Late Nineteenth Century Literature.* Poetry, novels, essays, and drama. Five credits; autumn, winter, spring. Winther.

177, 178. *Early Ninteenth Century Literature.* Poetry, novels essays, and drama. Five credits; autumn, winter, spring. Padelford, Cox, Eby, Cornu.

*180, 181. *Old English Language.*

191. *Major Conference.* Individual conferences for guidance in individual reading and study. Each student meets his instructor once a week in conference. Three credits; autumn, winter, spring. Staff.

Teachers' Courses. See Education 75H.

For courses in foreign literature taught in English, see Department of General Literature.

COURSES FOR GRADUATES ONLY

*201. *Introduction to Graduate Study.*

203. *Literary Criticism.* A brief history of English Criticism. Five credits; autumn. Benham.

205, 206. *Chaucer.* The problems of Chaucerian scholarship. Five credits; winter, spring. Griffith.

*208, 209, 210. *English Drama to* 1642.

*Not offered in 1933-1934.

211, 212, 213. *Seminar in Sixteenth Century Literature: Spenser.* Five credits; autumn, winter, spring. Padelford.

217, 218, 219. *Seminar in Shakespeare.* Five credits; autumn, winter, spring. Taylor.

221, 222, *223. *Seminar in Seventeenth Century Literature.* The Renaissance and the Reformation, the literature of the Puritan and the Cavalier, the Jacobean and Restoration drama, and the beginnings of English science. Five credits; winter, spring. Benham.

224, 225, 226. *American Literature.* Five credits; autumn, winter, spring. Eby.

229. *Seminar in American Literature.* For advanced graduate students in American Literature. Five credits; autumn. Harrison.

230, 231. *Old English.* Anglo-Saxon grammar; readings in Old English prose and poetry; Beowulf. Five credits; autumn, winter. ———.

233, *234. *Advanced Old English.* Prerequisites, Literature 230, 231, or equivalent. Five credits; spring. ———.

*237. *Gothic.*

238, 239, 240. *Seminar in Early Nineteenth Century Literature.* Five credits; autumn, winter, spring. Cox.

*241, 242, 243. *Victorian Literature.*

244, 245, *246. *Eighteenth Century Literature.* Five credits; winter, spring. Cox.

250, 251, 252. *Thesis Research.* A student should not enroll for this course until after he has chosen a thesis subject. Time and credit to be arranged. Autumn, winter, spring. Staff.

For other graduate courses that may be counted toward an English major for an advanced degree, see French 210,211,212, French Criticism, and Liberal Arts 214, 215, 216, Recent Aesthetic Theory and Literary Criticism.

Drama

51, 52, 53. *Elementary Acting.* Theory and Practice of the art of acting. Members of class form nucleus for workshop play productions. Prerequisites, speech 43, 47, 48. Two credits; autumn, winter, spring. ———.

104, 105, 106. *Elementary Theatre Workshop.* Construction of actual stage settings, properties, costumes, models. Design, make-up, stage lighting. One hour lecture, four hours laboratory. Three credits; autumn, winter, spring. Conway.

111, 112, 113. *Playwriting.* Principles of dramatic composition with experimental creative work. The course may be substituted for other courses in the department with the consent of the department. Five credits; autumn, winter, spring. Hughes.

114, 115, 116. *Advanced Theatre Workshop.* Four hours laboratory. Prerequisites, Drama 104, 105, 106. Two credits; autumn, winter, spring. Conway.

121, 122, 123. *Advanced Acting and Directing.* Members of the class given first consideration for parts in the major production each quarter and to direct laboratory plays under supervision. Prerequisites, Drama 51, 52 53. Three credits; autumn, winter, spring. James.

*Not offered in 1933-1934.

127, 128, 129. *History of the Theatre.* The origins. Evolution of the physical playhouse, stage machinery and scenery, acting and costuming, masks and marionettes. Lectures and required reading. Two credits; autumn, winter, spring. Conway.

151, 152, 153. *Representative Plays.* Origin and development of the drama. Representative plays of all important periods. Three credits; autumn, winter, spring. Hughes.

191, 192, 193. *Major Conference.* Individual conferences; required of drama majors in their senior year. One credit each for the three fields of study: (1) acting and directing, (2) technical, (3) historical and literary; autumn, winter, spring. Hughes in charge.

COURSES FOR GRADUATES ONLY

210, 211, 212. *Research in Drama.* Individual conference. Permission of instructor necessary for enrollment. Time to be arranged. Three credits; autumn, winter, spring. Hughes in charge.

For other courses in Drama, see Speech 43, 47, 48; Lit. 154, 170, 171, 208, 209, 210, 217, 218, 219.

FISHERIES

Professor W. F. Thompson, Executive Officer.

The prerequisites as given apply only to those students matriculating subsequent to September, 1931. The department should be consulted by those who have matriculated previously.

101, 102, 103. *Systematic Ichthyology.* Classification and anatomy of fishes. Prerequisites, Zool. 1 and 2. Two laboratory periods, and three lectures a week. Five credits; autumn, winter, spring. Schultz, Donaldson.

105, 106, 107. *Commercial Aquatic Invertebrates.* Classification and life histories of commercially important invertebrates, especially molluscs and crustacea. Prerequisites, Zool. 1 and 2. Two laboratory periods, and three lectures a week. Five credits; autumn, winter, spring. Lynch.

125, 126, 127. *Early Life History of Fishes.* Natural spawning, egg production, care of young, and larval history of fresh water and marine fishes. Prerequisites, Zool. 5, Fish. 101, 102. Two laboratory periods and three lectures a week. Five credits; autumn, winter, spring. Schultz.

151, 152, 153. *Hatchery Biology.* Design, structure and maintenance of hatcheries, pond systems and aquaria. Methods of hatching and rearing fish. Physical and chemical determinations of suitability of water. Fish foods, natural and artificial. Plant and animal organisms of ponds and hatcheries in relation to fish. Prerequisites, Zool. 1 and 2; Chem. 1-2 or 21 and 22. Two laboratory periods and three lectures a week. Five credits; autumn, winter, spring. Lynch and Donaldson.

154. *Diseases of Fish.* Nature and causes of disease in fish. Prerequisites, Zool. 1 and 2; Fish. 101 and 102. Two laboratory periods and three lectures a week. Five credits; autumn. Guberlet.

*157, 158. *Later Life History of Fishes.*

**159. *Conservation.* Theory of overfishing and statistical methods of observation. Prerequisite, Fish. 106 or 126. Five credits; spring. Thompson.

**Will be offered if a sufficient number of students elect the course.

165, 166, 167. *Elementary Problems.* Students will be assigned problems to be worked out under the direction of an instructor. Prerequisite, 15 credits in fisheries. Two to five credits; any quarter. Staff.

195, 196, 197. *Seminar.* Reports and discussions of current fisheries literature. Prerequisite, 15 credits in fisheries. Two credits; any quarter. Thompson.

COURSES FOR GRADUATES ONLY

201, 202, 203. *Research.* Prerequisite, 25 credits in fisheries or its equivalent in zoology. Credits to be arranged; any quarter. Thompson and staff.

205, 206, 207. *Graduate Seminar.* Required of all graduate students. Open to graduates in zoology. Two credits; any quarter. Thompson.

FORESTRY AND LUMBERING

Professor Jeffers, Executive Officer

1a. *Dendrology.* Identification, classification and distribution of the trees of North America. Two recitations and one three-hour laboratory period. Prerequisite, Bot. 1. Three credits; spring. Winkenwerder.

1b. *Dendrology.* Continuation of For. 1a. Prerequisite, For. 1a. Three credits; autumn. Alexander.

2. *Introduction to Forestry.* To familiarize the student with the field of work he is about to enter. Required of all freshmen. Two credits; autumn. Winkenwerder.

3. *Introduction to Forestry.* Continuation of For. 2, but need not be preceded by it. Two credits; winter. Winkenwerder.

4. *Forest Protection.* Classification of injuries, factors influencing the spread and severity of forest fires, methods of detection and suppression. Required of freshmen. Three credits; spring. Winkenwerder.

6. *General Forestry.* Survey of forestry as a whole for non-majors. No prerequisite. Three credits; winter. Winkenwerder.

10. *Wood Technology.* Identification, taxonomy, physical and chemical properties of woods in relation to their uses. Prerequisites, Physics 3, For. 1a, 10 credits of chemistry. Two lectures and one three-hour laboratory period. Three credits; autumn. Grondal.

11. *Wood Structure.* Microstructure of wood; identification, xylotomy, and elementary microtechnique. Prerequisite, For. 10. One lecture and two laboratory periods. Three credits; winter. Grondal.

15. *General Lumbering.* Comparative methods of lumbering on the Pacific Coast and in other lumbering regions of the United States. Prerequisite to all courses in logging and milling. Prerequisite, For. 3. Five credits; autumn. Mills.

40. *Silviculture.* Field studies of forest types and silvicultural problems. Three credits; spring. Alexander.

60. *Forest Mensuration.* The theory of scaling, volume and taper tables, sample plot methods, determination of contents of stands; growth and yield. Prerequisites, For. 3, Math. 13. Four credits; winter. Alexander.

62. *Forest Mensuration.* Problems in scaling, volume table construction, cruising, mapping, growth and yield studies. Given at Pack Forest. Prerequisites, G.E. 7, For. 60. Six credits; spring. Alexander.

104. *Timber Physics.* General mechanics, stresses, tests, theory of flexure, moisture and strength: mechanical properties of wood. Required of juniors. Prerequisites, Math. 13, For. 11, Physics 2. Five credits; winter. Mills.

105. *Wood Preservation.* Factors influencing the development of fungi; classification and control of wood destroying agencies; mechanical properties of treated wood. Prerequisite, For. 11. Three credits; spring. Grondal.

106. *Wood Preservation Laboratory.* Evaluation of preservatives; methods of testing and inspection of treated material. Must be preceded or accompanied by For. 105. Two laboratory periods. Two credits; spring. Grondal.

110. *Characteristics of Trees.* Identification, distribution, life habits, and uses of trees of the Pacific Northwest. Offered only to students not enrolled in forestry. Two lectures weekly and occasional field trips. Two credits; spring. Winkenwerder.

115. *Forest Protection.* Fire plans, relation of forestry practice in the control of insect and fungus attacks. Prerequisite, For. 4. Three credits; autumn. Winkenwerder.

119. *Forest Administration.* Objects, principles, and methods of administering private and public forest industries. Prerequisites, B.A. 1 or 3. Three credits; autumn. Jeffers.

121. *Silvics.* Relation of trees and forests to soil, moisture, light and temperature as a foundation for forestry practice; forest ecology. Prerequisites, Bot. 11, For. 1b, 3. Three credits; winter. Alexander.

122. *Silvicultural Methods.* Type and site classification; intermediate cuttings; final cuttings; natural and artificial regeneration. Prerequisites, For. 40, 121. Five credits; autumn. Alexander.

126. *Forest Economics.* Position of forests in the economic structure of the United States and other countries. Prerequisite, For. 119. Four credits; winter. Jeffers.

140. *Construction.* Machinery and methods of construction; plans, specifications and cost estimates for roads, trails and wooden bridges, land clearing, Forest Service Improvement work and logging construction. Two lectures, one three-hour laboratory period. Three credits; autumn. Mills.

151. *Forest Finance.* Mathematics of forest finance and operations; cost of growing timber; valuation of land for forest production. Required of students in senior or graduate year. Prerequisite, For. 62. Four credits; autumn. Jeffers.

152. *Forest Organization.* Principles of forest organization and regulation of the cut; sustained yield management of forests; forest working plans. Required of students in senior or graduate year. Prerequisite, For. 151. Four credits; winter. Jeffers.

153. *Forest Management.* Lectures, assigned readings and extensive field work on large size tracts of timber. Required of forest management majors. Prerequisites, For. 119, 122, 152. Sixteen credits; spring. Jeffers.

158. *Forest Utilization.* Classification and utilization of secondary and derived forest products from the viewpoint of forest economics. Prerequisite, For. 11. Five credits; winter. Grondal.

160, 161, 162. *Undergraduate Studies.* The object of this course is to enable students to prepare themselves for work in fields for which there is not sufficient demand to warrant the organization of regular classes. Opportun-

ities are offered in grazing, city forestry, tree surgery, forest recreation, wood fibers, microtechnique in the study of wood, research methods and advanced work in any of the regular forestry subjects. Credit to be arranged any quarter. Instructor assigned according to nature of work. Registration subject to approval of the dean. Staff.

171. *Forest Geography.* Silvicultural regions, relation to regional industrial development and problems of lumbering and management. Prerequisite, senior standing. Four credits; winter. Winkenwerder.

183. *Milling.* Organization, planning, operation and administration of timber conversion plants. Prerequisites, M.E. 82, For. 15, 104, 158. Four lectures and one laboratory period. Five credits; autumn. Grondal.

184. *Manufacturing Problems.* Lumber producing regions; economics and geography of utilization; selling and distribution of lumber; financing methods. Prerequisites, B.A. 57 and 65, For. 183. Five credits; spring. Grondal.

185. *Forest Engineering.* Logging plans; correlation of logging methods and conditions of stand, topography, etc. Engineering methods in logging and forest management; logging costs. Field trips to nearby logging operations. Four lectures and one three-hour laboratory period. Prerequisite, senior standing. Five credits; autumn. Mills.

186. *Logging Engineering.* Logging machinery and equipment. Machine costs, output and depreciation. Solution of machine and equipment problems. Prerequisites, For. 185, C.E. 57, M.E. 82. Four lectures and one three-hour laboratory period. Five credits; winter. Mills.

187. *Forest Engineering Field Trip.* Field methods, stand inventory, topographic data in some logging operation. Plan of log transportation methods. Study of various logging operations. Cost estimates, appraisals and comparison of logging methods. Five to six weeks in field, one week study of various logging operations, four weeks compilation of field data. Prerequisite, For. 186. Sixteen credits; spring. Mills.

188. *Theory and Practice of Kiln Drying.* Wood liquid relationships and hygrometry; application of gas laws. Problems in the design of dry kilns. Prerequisites, For. 11 and 158. Two lectures and one laboratory period. Three credits; winter. Grondal.

189. *Wood Pulp.* Design of waste conversion plants; wood pulp manufacture. Prerequisites, For. 11, 158. Five credits; spring. Grondal.

193, 194. *Seminar.* Review and advanced work in dendrology, mensuration, silviculture and lumbering. Prerequisite, senior standing. Three credits; autumn, winter. Jeffers, Alexander.

COURSES FOR GRADUATES ONLY

202. *Thesis.* Total requirement nine credits; instructors assigned according to nature of work. Three to six credits a quarter; autumn, winter, spring. Staff.

203. *Advanced Wood Preservation.* Theory of penetrance; design of wood preservation plants. Fire proofing and fire proofing compounds. Prerequisites, For. 105, 106. One lecture and two laboratory periods. Three credits; autumn. Grondal.

204. *Forest Management Plans.* Development of data covering a working circle; valuation of forest area; organizing the forest property to conserve earning and productive power. Prerequisite, For. 153. Two lectures, two laboratories. Four credits; autumn. Jeffers.

208. *Graduate Seminar.* Reviews, assigned readings, reports and discussions on current periodical literature, Forest Service and state publications. Three credits; winter. Staff.

210, 211, 212. *Graduate Studies.* For students who wish to prepare themselves in fields in which the faculty of the department is prepared to give instruction but for which there is not sufficient demand to organize regular courses. Prerequisite, graduate standing. Three to five credits; any quarter. Staff.

213, 214, 215. *Research.* Ample opportunity is offered for research in special phases of forestry. Three to five credits; any quarter. Staff.

220. *Advanced Forest Engineering.* Logging management; analysis of costs. Economic selective logging and valuation. Stumpage and logging appraisal; financial reports. Prerequisite, graduate standing. Five credits; winter. Mills.

221. *Forest History and Policy.* Forest policy of the United States; forestry in the states and island possessions; the rise of forestry abroad. Three credits; winter. Jeffers.

GENERAL ENGINEERING

Associate Professor Wilcox, Executive Officer

1. *Engineering Drawing.* Fundamental principles of orthographic projection; theory of related views; types of graphical representation. Prerequisite, solid geometry. Three credits; autumn, winter, spring. Warner.

2. *Engineering Drawing.* Fundamental requirements of working drawings, including practice in their reading and execution. Prerequisite, G.E. 1. Three credits; autumn, winter, spring. Warner, Rowlands.

3. *Drafting Problems.* Detailed analysis and solution of engineering problems by the use of drafting room methods. Descriptive geometry. Prerequisites, G.E. 1 and G.E. 2. Three credits; autumn, winter, spring. Warner, Tymstra.

7. *Engineering Drawing.* A special short course for forestry students. Three credits; winter. Warner.

11. *Engineering Problems.* Training in methods of attacking, analyzing and solving engineering problems. Coaching in proper methods of work and study, including training in systematic arrangement and clear workmanship. Deals principally with problems in dynamics. Student is assisted in orienting himself in his engineering work. Prerequisites, high school physics and advanced algebra. Three credits; autumn, winter, spring. Wilcox, Brown.

12. *Engineering Problems.* Elementary mechanics, statics and graphics. Continuation of the work in G.E. 11. Prerequisites, G.E. 1, 11 and Math. 31. Three credits; autumn, winter, spring. Wilcox, Smith.

21. *Plane Surveying.* Surveying methods, instruments, computations, mapping, U.S. public land surveys. Prerequisites, G.E. 1, 2 and Math. 31. Three credits; autumn, winter, spring. Van Horn.

GENERAL LITERATURE

Associate Professor deVries, Adviser

A major in General Literature requires a reading knowledge of two foreign languages, Gen. Lit. 101, 191, 192, 193, and sufficient other courses to make a total of from 36-60 credits.

In preparation for this major and for Gen. Lit. 101, the student should

earn 18 lower division credits from the following groups with not more than ten credits in any one group.

I. Greek 15-16, 113.
II. Oriental Studies 50, 51, 52, 70, 71, 80.
III. Literature 64, 65, 66, 97.
IV. German 70, 106, 107, 108; Scandinavian Languages 109, 110, 111, 180, 181, 182.
V. French 118, 119, 120; 34, 35, 36; 134, 135, 136; Spanish 118, 119, 120; Italian 181, 182, 184.
VI. Liberal Arts 11; Philosophy 123.

The upper division courses listed above may be entered by qualified sophomores who have obtained the permission of the instructors.

The remaining courses offered for this major should be arranged in consultation with a major adviser. The plan of the work should include a survey of at least one national literature, some studies in each of the following groups, and a special knowledge of one of these groups.

I. Oriental Literature.
II. Greek and Latin Literature.
III. Medieval and Renaissance Literature.
IV. Classic and romantic movements in modern literature.

101. *Introduction to Theory of Literature.* The relation of literature to life in the light of recent psychological, philosophic, and social scholarship. (May receive credit in English.) Five credits; spring. deVries.

191, 192, 193. *Major Conference.* Individual conference once a week to correlate studies and for guidance in individual reading. Three credits; autumn, winter, spring. deVries.

GEOLOGY AND GEOGRAPHY

Professor Landes, Executive Officer

I. GEOLOGY

Courses described below are grouped to lead into different fields of work in geology, as follows:

(a) Mineralogy, Petrography, and Economic Geology: Courses 1, 5 or 105, 121, 123, 124, 125, 126, 127, 128, 129, 220, 227.

(b) Physiography: Courses 1, 5 or 105, 6 or 106, 7 or 107, 112, 113, 212, and Geography 11 and 114.

(c) Paleontology: Courses 1, 5 or 105, 6 or 106, 7 or 107, 123-126, 130, 131, 132, 133, 134, 135, 230.

1. *Introduction to Earth Science.* The important facts and elementary principles concerned in a study of the earth sciences. Lectures, laboratory and field trips. Five credits; autumn, winter, spring. Landes.

5. *Rocks and Minerals.* Sight recognition of the more common minerals, and a full discussion of many rock types. Lectures and laboratory, with field trips. Prerequisite, at least a high school course in chemistry. Five credits; autumn. Goodspeed.

6. *Elements of Physiography.* Processes and agencies affecting the earth's surface; relation of topography to structure, etc. Lectures and laboratory. Five credits; winter. ———.

7. *Historical Geology.* Origin and evolution of the earth with emphasis on the general history of North America. Lectures and laboratory work with some field excursions. Prerequisite, five credits of geology or Zool. 1 and 2. Not open to students who have had Geol. 2. Five credits; spring. Weaver.

105. *Petrology as Applied to Engineering.* Same as Geol. 5 but with additional work and readings. Specially designed for students in civil, electrical or mechanical engineering. Prerequisite, junior standing. Five credits; autumn. Goodspeed.

106. *Principles of Physiography.* Same as Geol. 6, but with additional work and readings. Not open to students who have had Geol. 6. Prerequisite, junior standing. Five credits; winter. ———.

107. *Principles of Historical Geology.* Same as Geol. 7, but with additional work and reading. Prerequisite, junior standing. Five credits; spring. Weaver.

*112. *Physiography of the Eastern United States.*

*113. *Physiography of the Western United States.*

121. *Mineralogy.* The elements of crystallography and blowpipe analysis, followed by descriptive and determinative mineralogy. Prerequisites, Geol. 5 and at least a high school course in chemistry. Five credits; spring. Goodspeed.

*122. *Field Methods.*

123. *Optical Mineralogy.* Principles and methods involved in the use of the petrographic microscope; recognition of the optical properties of the common minerals. Prerequisites, Geol. 5 and 121 (except for U.D. chemistry students.) Three or five credits; autumn. Goodspeed.

124. *Petrography and Petrology.* Systematic study of the igneous rocks both macroscopically and in thin sections with the petrographic microscope. The principles of the petrology of igneous rocks including their modes of occurrence and origin. Prerequisite, Geol. 123. Three or five credits; winter. Goodspeed.

125. *Petrography and Petrology.* Continuation of the same methods used in the previous course (Geol. 124) with reference to sedimentary and metamorphic rocks. Special emphasis is given to metamorphism. Prerequisites, Geol. 123, 124. Three or five credits; spring. Goodspeed.

126. *Sedimentary Petrography.* Principles of correlation of sedimentary rocks by their mineral constituents; methods of preparation involving the use of heavy solutions and the recognition of mineral grains under the petrographic microscope. Prerequisite, Geol. 125. Two to five credits; winter. Goodspeed.

127. *Ore Deposits.* Systematic study of the form, structure, mineralogy, petrology and mode of origin of ore deposits. Prerequisites, Geol. 5 or 105, 6 or 106, 121, 124, 125. Five credits; winter. Goodspeed.

128. *Mineral Resources—Non-Metals.* A thorough study of all the non-metallic resources of value, such as oil and gas, coal, structural materials, etc.; their world distribution, manner of occurrence, production, technology and uses. Prerequisite, five credits in geology. Three credits; spring. Landes.

129. *Mineral Resources—Metals.* A survey of the metallic minerals with principal references to their modes of occurrence, distribution, technology, uses, reserves, and their influences upon human affairs. Prerequisite, five credits in geology. Three credits; autumn. Landes.

*Not offered in 1933-1934.

130. *General Paleontology.* Principles of paleontology and a general systematic study of fossils. Prerequisites, Geol. 7 or Zool. 1 and 2. Five credits; winter. Weaver.

131. *Stratigraphy.* Studies concerning the origin, deposition and methods of correlation of sedimentary strata. Prerequisites, Geol. 7, 122, and 125. Three credits; winter. Weaver.

132. *Invertebrate Paleontology.* A study of the more important type fossils of each geologic period. Prerequisite, Geol. 130. Five credits; spring. Weaver.

133. *Mesozoic Geology.* Geologic history of the Mesozoic era and its fauna from a world wide standpoint with special emphasis upon Europe. Prerequisites, Geol. 130 and 132. Five credits; winter. Weaver.

134. *Tertiary Geology.* A study of the Tertiary formations and their faunas with special emphasis upon Europe and correlation with North and South America. Prerequisites, Geol. 130 and 132. Five credits; spring. Weaver.

135. *Study of Ammonites.* For advanced students in paleontology or zoology. Two credits; winter. Weaver.

190. *Undergraduate Thesis.* Preparation of a thesis in geology or any of its several branches. Completed thesis must be submitted at least one month before graduation. Prerequisite, senior standing. Total of five credits allowed for thesis. Hours and credits to be arranged. Each quarter. Staff.

COURSES FOR GRADUATES ONLY

Two modern languages, a Teutonic and a Romanic, are practically necessary for graduate work in geology.

200. *Field Studies or Advanced Work in General Geology.* Credits and hours to be arranged. Each quarter. Staff.

212. *Advanced Studies or Field Work in Physiography.* Credits and hours to be arranged. Each quarter. ———.

220. *Advanced or Research Work in Mineralogy, Petrography, and Petrology.* Credits and hours to be arranged. Each quarter. Goodspeed.

227. *Advanced or Research Work in Economic Geology.* Credits and hours to be arranged. Each quarter. Landes, Goodspeed.

230. *Advanced or Research Work in Paleontology and Stratigraphy.* Credits and hours to be arranged. Each quarter. Weaver.

II. GEOGRAPHY

1. *Elements of Geography.* Land forms, soils, minerals, climate; major geographic regions of the world. Use and interpretation of topographic maps; study of projections; map making. Five credits; autumn, winter, spring. Seeman.

Physiography (See Geol. 6).

Economic Geography (See B.A. 107). Martin, Seeman.

11. *Weather and Climate.* World distribution of temperature, pressure, winds, precipitation. Climatic cycles. Construction and interpretation of weather maps. Graphic representation of climatic data. Five credits; autumn, winter, spring. Earle.

70. *Conservation of Natural Resources.* Public policy in the management of soils, forests. minerals, fisheries, etc. Land reclamation; problems

in resource utilization. (Upper division students may receive upper division credit by special work.) Five credits; winter. Martin.

101. *Principles of Geography.* Same as Geog. 1, but with additional work and readings. Not open to those who have had Geog. 1. Prerequisite, junior standing. Five credits; autumn, winter, spring. Seeman.

102. *Geography of North America.* Regional specialization in industry; sectionalism, growth of cities, internal problems. Prerequisites, Geog. 1-101, B.A. 7-107, or junior standing. Five credits; autumn. Martin.

103. *Geography of Asia.* Countries and their natural regions. Distribution of resources; ratio of population to land. Transportation and trade problems. Prerequisites, Geog. 1-101, B.A. 7-107, or permission of instructor. Five credits; winter. Martin.

104. *Geography of Europe.* Survey of development by countries. Localization of manufactures. Geographic bases for commerce. Prerequisites, Geog. 1-101, B.A. 7-107, or permission of instructor. Five credits; spring. Martin.

105. *Geography of Latin America.* Regions and resources; raw materials and potential markets. American policy in the Caribbean. Prerequisites, Geog. 1-101, B.A. 7-107, or permission of instructor. Five credits; spring. Seeman.

106. *Geography of Africa-Australasia.* European imperialism and colonization. The native problem. Exploitation of resources. Plantation agriculture and tropical trade. Prerequisites, Geog. 1-101, B.A., 7-107, or permission of instructor. Five credits; winter. Earle.

111. *Climatology.* Same as Geog. 11 but with additional work and readings. Not open to those who have had Geog. 11. Prerequisite, junior standing. Five credits; autumn, winter, spring. Earle.

155. *Influences of Geographic Environment.* Man's changing relation to his habitat; type studies of occupance; urbanization; philosophy of geographic adjustment. Prerequisite, Geog. 1-101, B.A. 7-107, or permission of instructor. Five credits; spring. Earle.

175. *Problems in Political Geography.* Geographic background of international relations; world resources and imperialism. A reading course with regular conferences and reports. Prerequisite, 5 credits of geography and permission of instructor. Five credits; autumn, winter. Seeman.

199. *Proseminar in Geography.* Training in research methods; preparation and presentation of paper. Permission of instructor necessary. Five credits; spring. Martin.

Teachers' Course in Geography. See Education 750.

COURSES FOR GRADUATES ONLY

200. *Seminar in Geography.* Five credits; spring. Martin.

201. *Research in Geography.* Credits and hours to be arranged; each quarter. Earle.

*211. *Meteorology.*

*Not offered in 1933-1934.

GERMANIC LANGUAGES AND LITERATURE

Associate Professor Eckelman, Executive Officer

Requirements for a departmental major: at least 35 credits in the department chosen from courses other than German 1, 2, 3, 5. At least 50 per cent of the credits in the major must be in upper division courses. For the departmental or academic major or minor wishing a departmental recommendation to teach, see Education, major and minor requirements.

Students of mathematics and the applied sciences should take German 1, 2, 3, *with honors,* 60 and the upper division scientific courses for specialized reading. Students of history and the social sciences should elect Ger. 5 and 6, or eight credits second year work, and the third-quarter recent writers course where special vocabulary studies will be provided. Students preparing for library work may substitute literary courses in German (not translation courses) for the departmental major requirements, Ger. 109, 110, 111, 121. See Education, major and minor requirements.

Credit is allowed for any quarter in any course except 1-2.

However, credits earned in 117 shall not be applied towards the fulfillment of any academic major, minor or reading requirements. All courses are conducted in German unless otherwise specified.

1-2. *First Year.* Stage pronunciation, grammar, reading of easy prose, conversation. Five credits a quarter; autumn, winter, spring.
Meisnest, Groth, Wesner, Terzieff, Schertel, Ankele.

3. *First Year Reading.* Reading of modern prose, conversation, composition, continuance of grammar. Prerequisite, Ger. 1-2 or one year in high school. Five credits a quarter; autumn, winter, spring.
Meisnest, Groth, Wesner, Terzieff, Schertel, Ankele.

5. *Second Year Reading.* Pronunciation, vocabulary building, reading of modern prose, conversation. Prerequisite, Ger. 3 or two years high school. Three credits; autumn, winter, spring.
Meisnest, Schertel, Terzieff, Ankele, Eckelman.

6. *Second Year Rapid Reading.* Modern prose, vocabulary building. conversation. Prerequisites, Ger. 5 or 10; Ger. 3, Grade A, or on consent of instructor. Three credits; winter. Terzieff.

7. *Second Year Rapid Reading.* Modern prose, vocabulary building, conversation. Prerequisite, Ger. 5 or 6 or 10 or 11. Three credits; spring.
Terzieff.

10, 11, 12. *Second Year Review Course.* Modern prose, grammar review with emphasis on syntax, conversation. Prerequisite as for Ger. 5. Two credits, autumn, winter; three credits, spring. Wesner, Terzieff, Schertel.

60, 61. *Lower Division Scientific German.* Introduction to chemical German. Outside and class reading. Vocabulary building. Prerequisite, Ger. 5, or 10 or 11; Ger. 3, grade A or B, or combinations with consent of instructor. Three credits, autumn, winter; two credits, spring. Wesner, Schertel.

70. *Literature in Translation: Novel.* A nineteenth century survey of the German novel. Its reflection of the main currents of thought. Discussion, special reports. No knowledge of German required. Upper division credit to upper division students. Three credits; spring. Eckelman.

100. *Schiller.* Life and dramatic works. Jungfrau von Orleans. Other selections. Discussion, oral and written reports. Prerequisite, three years high school or eight credits second year work. Three credits; winter. Ankele.

101, 102. *Recent Writers.* Prose and dramatic literature adapted to rapid reading on German middle class and industrial life. Discussion, written

reports. Prerequisite, three years high school or eight credits second year German in college. Three credits; autumn, spring. Wesner, Groth.

106. *Literature in Translation: Goethe.* Lyric, prose and dramatic works of Goethe's formative period; *Faust,* Part I. Lectures, special reports. No knowledge of German required. Three credits; autumn. Eckelman.

107. *Literature in Translation: Short Story.* The contemporary short story, novel and *Bildungsroman.* Helen Boehlau, L. Thoma and others; Thomas Mann. No knowledge of German required. Two credits; spring. Groth.

108. *Literature in Translation: Drama.* The nineteenth century drama up to the present. German forerunners of Ibsen; Hauptmann; post-war expressionism. Lectures, special reports. No German requirement. Two credits; winter. Eckelman.

109*, 110, 111. *Advanced Composition.* Grammar and syntax, translation and original composition, oral work, letter writing, themes. Prerequisite, three years high school or eight credits second year German. May repeat. Three credits a quarter; winter, spring. Meisnest.

115, 116. *Upper Division Scientific German.* Scientific monographs, technical periodicals. Each student reports reading in his own field in weekly conferences. Prerequisite, German 60 or 61, or equivalent, or three years in high school. Two or three credits a quarter; winter, spring. Schertel.

*117. *Scientific Vocabulary Study.*

118. *German Prose Reading.* From the best prose and dramatic works. Heine's *Harzreise,* Goethe's *Hermann und Dorothea.* Discussion, oral and written reports. For majors, minors and advanced students. Prerequisite, Ger. 100 or equivalent. Three credits; autumn. Eckelman.

*119. *German Prose Reading.*

121. *Phonetics.* Systematic study of the nature, production and classification of the German speech sounds; stage pronunciation; phonetic transcription; oral practice. Prerequisite, Ger. 3. Two credits; autumn, spring. Meisnest.

*130-131-132. *German Institutions.*

*135. *Modern Novels.*

*138. *Modern Drama.*

*139, 140. *Studies in German Literature.*

*141. *History of German Literature.*

142. *Lyrics and Ballads.* Goethe. The Romanticists. Uhland, Heine, Mörike, Storm. Schiller's ballads. Class reading and assigned topics. Prerequisite, Ger. 100 or equivalent. Three credits; winter. Eckelman.

153. *Goethe's Dramatic Works: Goetz von Berlichingen, Tasso.* Discussion, oral and written reports. Prerequisite, Ger. 100 or equivalent. Three credits; spring. Eckelman.

183, 184, 185. *Nineteenth Century Literature.* Seminar. Kleist, Grillparzer, Hebbel, Ludwig, Raabe, Keller, Storm, C. F. Meyer. The naturalistic movement, *Heimatkunst,* the post-war expressionism. Lectures, special problems, term, papers. Primarily for graduates. Three credits a quarter or six credits with consent of instructor; autumn, winter, spring. Groth.

*Not offered in 1933-1934.

COURSES FOR GRADUATES ONLY

*200-201-202. *Goethe's Lyrics and Letters.*

*203-204-205. *Storm and Stress Period.*

*206-207-208. *Romantic School.*

*220-221-222. *Inter-relations of German and English Literature.*

*250-251-252. *History of German Language.*

253, 254, 255. *Middle High German.* An introduction to the language and literature of the German 12th century. Seminar for advanced students. Three credits a quarter; six credits only with the consent of the instructor; autumn, winter, spring. Eckelman.

*256, 257, 258. *Gothic.*

*259, 260, 261. *Old Saxon.*

Teachers' Course in German. See Education 75L.

COMPARATIVE PHILOLOGY

The following courses in Comparative Philology are available in the department of Scandinavian Languages and Literature.

190-191. *Introduction to the Science of Languages.* Two credits; autumn, winter. Vickner.

192. *Life of Words.* Two credits; spring. Vickner.

HISTORY

Professor Meany, Executive Officer

Requirements of the Department

The University requirements in history may be satisfied by one of the following courses:

Medieval and Modern European History (1-2). It is desirable that this course be selected in fulfillment of the history requirements and that it be taken in the freshman year. It is repeated each quarter.

History of the United States (57-58-59). Primarily for sophomores.

English Political and Social History (5-6). Open without prerequisites to freshmen, sophomores and upperclassmen.

Ancient History (72-73). Open without prerequisites to sophomores and upperclassmen.

For a major at least 50 per cent of the credits in the department must be obtained in courses carrying upper division credit. Course 1-2 is required of all history majors.

It is recommended that all history majors shall take in excess of departmental requirements additional work in history and in certain related fields. Selection should be made under advice.

Requirements of the department and of the School of Education for Teaching Certificates

Prospective teachers of history as a major or minor subject in high schools must secure the recommendation of the department of history and also fulfill the requirements of Education for the attainment of teaching certificates. For the former they must become acquainted with the elementary facts requisite

*Not offered in 1933-1934.

for the teaching of courses in history, civic government, economics and sociology taught in the high schools of the state and have specialized knowledge in their chosen fields. Courses in history, government, economics, anthropology and sociology should be selected with this aim in view.

Joint requirements of the history department and of Education with respect to departmental recommendation for teaching positions and to teaching certificates are to be satisfied as follows:

A. Attainment of standards of scholarship formulated in the requirements of the School of Education.

B. Satisfaction of requirements for an academic major or minor.

The former must have a minimum of 48 credits, and the latter must have a minimum of 20 credits. (See announcements in Education concerning history majors and minors.)

I. FOR ACADEMIC MAJOR

1. *Required*: 1-2, Medieval and Modern, ten credits; 57-58-59, United States, 139, 140, 141, United States, 143, 144, 145, United States, or 147, 148, 149, United States, nine to eleven credits; 5-6, English History, ten credits; 72-73, Ancient History, ten credits; electives from preferential group below, ten credits. Minimum total, required, 48 credits.

2. *Preferential Group* of courses from which ten additional credits must be taken, of which five are to be selected from upper division courses in European, English, or ancient history courses; and the remainder from upper division courses in American history.

II. ACADEMIC MINOR

1. *Required*: 1-2, Medieval and Modern European History (or its equivalent), ten credits.

2. Choice between 139-140-141, 143-144-145, or 147-148-149, Advanced American History, nine to 11 credits; or 72-73, Ancient History, ten credits; or upper division European History, including English, ten credits; also additional electives, one to five credits. Minimum total, 20 credits.

Courses Offered

1-2. *Medieval and Modern European History.* General survey from the Roman world empire of Augustus to our own times. Five credits a quarter; autumn, winter, spring. Lucas, Quainton, Dobie.

The above course is repeated beginning with the winter quarter.

5-6. *English Political and Social History.* Political, social, economic and intellectual development of the English people from the Saxon conquest to the present time. By special work under direction of the instructor, upper division students may receive upper division credit. Pre-law students may substitute Hist. 107 for 6. Five credits a quarter; autumn, winter. Barnes.

8. *Westward Movement in the U.S. to* 1812. The advance of the frontier and its effect on American ideals from the colonial period to the war of 1812. Three credits; autumn. Dahlin.

9. *Westward Movement in the U.S.,* 1812-1860. The frontier from the war of 1812 to the civil war. Three credits; winter. Dahlin.

10. *The Agrarian Crusade in the U.S.,* 1860-1924. The agrarian movements for control, their causes and results. Three credits; spring. Dahlin.

57-58-59. *History of the United States.* A general survey with emphasis on political and economic history. Not open to freshmen. Three credits a quarter; autumn, winter, spring. McMahon.

60. *Makers of the Nation.* Period of Revolution and the Constitution. Two credits; autumn. Meany.

61. *Makers of the Nation.* Period of the Monroe Doctrine and boundary settlements. Two credits; winter. Meany.

62. *Makers of the Nation.* Period of national development. Two credits; spring. Meany.

72-73. *Ancient History.* History of the ancient Mediterranean world, Greece and Rome. By special work under direction of the instructor, upper division students may receive upper division credit. Not open to freshmen. Five credits a quarter; autumn, winter. Offered 1933-34, Creer; 1934-35 Quainton, Lucas.

101. *Alexander the Great: His Empire and His Successors.* Given in 1933-34, but omitted in 1934-35. Three credits; autumn. Creer.

103. *The Roman Republic.* Given in 1933-34; but omitted in 1934-35. Three credits; winter. Creer.

104. *The Roman Empire from Augustus to Justinian.* Given in 1933-34; but omitted in 1934-35. Three credits; spring. Creer.

107. *English Constitutional History.* Development of legal and governmental institutions of the English people to the present time. Prerequisite, Hist. 5. Five credits; winter. Barnes.

111. *Greek Political Institutions.* Given in 1933-34; but omitted in 1934-35. Three credits; winter. Creer.

113. *Medieval Civilization.* Prerequisite, Hist. 1-2. Five credits; spring. Lucas.

114. *The Culture of the Renaissance.* Five credits; autumn. Lucas.

115. *The Reformation.* Prerequisite, Hist. 1-2 or 5-6. Five credits; winter. Lucas.

117. *France from the Reformation to the French Revolution.* Prerequisite, Hist. 1-2. Five credits; autumn. Quainton.

125. *Great European Treaties,* 1453-1925. Prerequisite, Hist. 1-2. Five credits; spring. Quainton.

129. *The French Revolution and Napoleonic Era.* Prerequisite, Hist. 1-2. Five credits; winter. Quainton.

130. *Europe* 1814-1870. Prerequisite, Hist. 1-2. Five credits; spring. Quainton.

131. *Europe Since* 1870: *The War and Its Background.* Historical background, fundamental causes and progressive development of events and issues in the world war. Given in 1933-34; but omitted in 1934-35. Five credits; spring. Creer.

139. *American Colonies in the 17th Century.* Open only to juniors, seniors and graduates. Not open to students who have had 139 before. Five credits; autumn. Dahlin.

140. *American Colonies in the 18th Century.* Open only to juniors, seniors and graduates. Not open to students who have had 140 before. Five credits; winter. Dahlin.

141. *American Revolution.* Open only to juniors, seniors and graduates. Five credits; spring. Dahlin.

143. *History of the United States,* 1789-1815. Open only to juniors, seniors and graduates. Three credits; autumn. Dahlin.

144. *History of the United States,* 1815-1846. Open only to juniors, seniors and graduates. Three credits; winter. Dahlin.

145. *History of the United States,* 1846-1860. Open only to juniors, seniors, and graduates. Three credits; spring. Dahlin.

147. *History of the Civil War Period.* Open only to juniors, seniors, and graduates. Three credits; autumn. McMahon.

148. *History of the Reconstruction Period.* Open only to juniors, seniors and graduates. Three credits; winter. McMahon.

149. *History of National Development.* Development of the American nation from the close of the reconstruction period to the present time. Open to juniors, seniors, graduates. Five credits; spring. McMahon.

153. *The Pacific Rim.* History of the countries bordering upon the Pacific Ocean with especial reference to recent changes. Open to juniors, seniors and graduates. Three credits; autumn. Meany.

154. *Spain in America.* Rise and fall of Spanish power in America, and an outline of the history of the Spanish-American republics. Open to juniors, seniors and graduates. Three credits; winter. Meany.

155. *History of Canada.* Canadian development to the present time. Open to juniors, seniors and graduates. Three credits; spring. Meany.

157-158-159. *History of American Diplomacy.* American relations with foreign powers from colonial times to the present. Open to juniors, seniors and graduates. Two credits a quarter; autumn, winter, spring. Meany.

160. *History in the High School.* The meaning, value, aims and place of history in the high school curriculum; historical problems. Prerequisite for Edu. 75M. Two credits; autumn. McMahon.

163-164-165. *Northwestern History.* From the earliest voyage to the Pacific Northwest to the organization of the present form of government. Open to juniors, seniors and graduates. Two credits a quarter; autumn, winter, spring. Meany.

181. *History of the British Empire Since* 1783. (Not open to students who have had Hist. 81.) Five credits; winter. Dobie.

182. *England in the 19th Century.* Important social, religious, intellectual, economic developments. Growth of democracy, changes in political life. Five credits; spring. Dobie.

185. *Eighteenth Century England,* 1714-1793. Open to juniors, seniors and graduates. Five credits; autumn. Barnes.

Teachers' Course in History. See Education 75M.

COURSES FOR GRADUATES ONLY

201. *Historiography.* Normally the first graduate course in history. Recommended for all graduates majoring in history. Given in 1933-34; but omitted in 1934-35. Three credits; autumn. Creer.

*207-208-209. *Seminar in Greek and Roman History.*

211-212-213. *Seminar in European History* (1300-1600). Three credits a quarter; autumn, winter, spring. Lucas.

*Not offered in 1933-1934.

215-216. *Seminar in English History.* Prerequisite, Hist. 185. Five credits each; winter, spring. Barnes.

221-222-223. *Seminar in American History.* Three credits a quarter; autumn, winter, spring. McMahon.

227-228-229. *Seminar in State History.* Three credits a quarter; autumn, winter, spring. Meany.

231-232-233. *Seminar in European History* (1600-1815). Three credits a quarter; autumn, winter, spring. Quainton.

HOME ECONOMICS

Professor Raitt, Executive Officer

Food Selection and Preparation. Courses 9, 115, 116, 117, 120, 121, 200.
Nutrition. Courses 104, 105, 107-108, 190, 191, 204, 205, 206, 214, 215.
Household Sanitation, Furnishings, Administration. Courses 45, 46, 47, 109, 144-145, 148, 245.
Textiles and Clothing. Courses 25-26, 101, 102, 112, 113, 114, 160, 161, 133, 188, 198, 207, 208. 210, 211, 212.
Institutional Management. Courses 122, 123, 124, 125, 220, 221, 222.
Home Economics Education. Courses 202, Edu. 75NA, 75NB.

9. *Nutrition for Hospital Students.* Composition and nutritive value of foods; food preparation; physiological needs in relation to food. Open to student nurses only. Six credits; autumn, winter, spring. Bliss ,O'Keefe.

25-26. *Textiles.* Economic and esthetic values in all types of standard and new fabrics; relation of raw material, construction, and finish to quality and cost of fabrics. Three credits a quarter; autumn ,winter, spring. Denny.

45, 46. *Household Management.* Housing standards and laws; principles of scientific management; personal and household accounts; materials for home interiors, consideration of the relative efficiency of labor saving devices and of the chemistry and adequacy of cleaning reagents. Prerequisites, or parallels, Physics 89-90, Chem. 1-2. Three credits a quarter; autumn, winter, spring. Raitt, O'Keefe.

47. *Home Furnishing.* Structural art principles applied to treatment of interiors. Cost estimates adapted to various income levels. Prerequisite, Art 9. Saturday excursions. Three credits; autumn, winter, spring. Denny.

Health Education. (See P.E. 8-9 and 10.) Food selection in relation to nutritive requirements of various age groups. Two credits for 8-9; five credits for 10; autumn, winter, spring. O'Keefe, Bliss.

101, 102. *Needlecraft.* Interpretation of the needle arts of various nationalities. Application of authentic and original designs. Prerequisites, H.E. 112, and Art 9. Two credits a quarter; autumn, winter. Payne.

104. *Nutrition.* Open to men only. Of special interest to majors in physical education, military training, mining, and forestry. Two credits; spring. Rowntree.

105. *Nutrition for Nurses.* Principles of human nutrition. Prerequisites, H.E. 9, Chem. 1-2, Physiol. 7. Five credits; spring. Bliss.

107-108. *Nutrition.* Fundamental principles of human nutrition. Prerequisites, H.E. 115, Chem. 135-136. Pre-medical students and chemistry majors may enroll with instructor's consent. Prerequisite to all advanced courses in nutrition. Five credits a quarter; autumn, winter. Rowntree.

109. *Household Budgets.* Survey of cost of living studies. Factors that control expenditures and distribution at different income levels. Five credits; winter. Raitt.

112, 113, 114. *Costume Design and Construction.*. Art applied to costume design. Economic problems in textile and clothing industries. Prerequisite, Art 9. Three or five credits for 112, depending upon diagnostic tests; three credits for 113, three credits for 114; autumn, winter, spring. Payne.

115, 116, 117. *Food Preparation.* Relation of the fundamental sciences to the processes and techniques of food preparation. Place and significance of the economic and esthetic aspects of food. An introduction to research methods. Prerequisites, Chem. 1-2, Physiol. 7. Five credits for 115; three credits for 116; three or five credits for 117, depending upon diagnostic tests; autumn, winter, spring. Dresslar.

120. *Advanced Food Preparation.* Contribution of various countries to the art of food preparation. Food supply and selection at different economic levels. Prerequisite, H.E. 116, or parallel. Three credits; winter. Dresslar.

121. *Institution Food Preparation.* For dietitians and other administrators in community feeding. A study of large quantity manipulation, cost accounting, standardization of formulas, and menu planning. Prerequisite, H.E. 117. Five credits; autumn. Terrell.

122. *Institution Purchasing.* Factors influencing quality, grade and cost of food with a view to developing accurate judgments in food purchase. Prerequisites, H.E. 108, 116, 124. Three credits; winter. Terrell.

123. *Institution Management I.* Organization, housing and furnishing standards for institutions. Prerequisites, H.E. 117, Econ. 1. Three credits; spring. Raitt.

124. *Institution Management II.* Efficiency analysis. Scientific principles applied to actual practice. Two-hour conference and six hours laboratory a week. Prerequisites, H.E. 117, or parallel, Econ. 1. Three credits; autumn, spring. Terrell.

125. *Institution Equipment.* Construction, operation and care of equipment; routing of work. One-hour conference and eight hours laboratory work a week. Prerequisites, H.E. 116, 105 or 108, 124. Three credits; autumn. Terrell.

133. *History of Costume.* Fashion as an expression of the esthetic, social and economic life. Creative designing. Of special interest to students in dramatics and professional costume design. Prerequisites, H.E. 114, Art 169. Five credits; spring. Payne.

144-145. *Household Economics.* Economics of the household, personal and household budgets. Organization of the household. Prerequisites, Econ. 1, Soc. 1, junior standing. Two credits a quarter; winter, spring. Raitt.

148. *Home Management House.* Organization, financial management, records, housekeeping, food preparation and service, and hospitality. Two credits; autumn, spring. O'Keefe.

160, 161. *Advanced Costume Design and Construction.* Creative designing of costumes and accessories. The social significance of style control. Prerequisites, H.E. 114, Art 9 and 169. Three credits a quarter; winter, spring. Payne.

188. *Advanced Textiles.* Analysis of fabrics. Methods, technique and evaluation of testing. Textile legislation and standardization. Prerequisites, H.E. 25-26, Econ. 1. Two credits; autumn. Denny.

190. *Child Nutrition and Care.* Problems of maternity and infancy; evaluation of methods of improving health of children. Work centers around University Child Nutrition Service. Prerequisite, H.E. 107. Five credits; winter, spring. Rowntree.

191. *Diet Therapy.* For students who expect to qualify as professional dietitians. Prerequisite, H.E. 108. Four credits; spring. Rowntree.

198. *Historic Textiles.* A collection of rare materials is available for study. Prerequisites, H.E. 25-26, 47, 188, Art 9, 10, 11, or equivalent. Three credits; spring. Denny.

Teachers' Course in Home Economics. See Education 75NA, 75NB.

COURSES FOR GRADUATES ONLY

200. *Advanced Experimental Cookery.* Investigation of problems in food supply and preparation based upon related sciences. Prerequisite, H.E. 117. Three credits; winter. Dresslar.

202. *Home Economics Education.* Status of home economics education; critical study of achievements, trends, functions and relationships. Credits to be arranged; spring. Raitt.

204, 205, 206. *Research in Nutrition.* Individual research in mineral or energy metabolism, animal feeding, or dietary studies. Prerequisite, H.E. 108. Credits to be arranged; autumn, winter, spring. Rowntree.

207, 208, 209. *Research in Textiles.* Prerequisites, H.E. 26, Econ. 1. Credits to be arranged; autumn, winter, spring. Denny.

211, 212. *Research in Costume Design.* Prerequisites, H.E. 114, 133. Credits to be arranged; winter, spring. Payne.

214, 215. *Readings in Nutrition.* Library research. Prerequisite to other graduate courses in nutrition. Five credits; autumn. Two credits; winter. Rowntree.

220, 221, 222. *Research in Institution Management.* Problems dealing with food service and housing units in various types of institutions. Prerequisites, H.E. 121, 122, 123, 124, 125 or equivalent. Credits to be arranged. Hours to be arranged; autumn, winter, spring. Terrell.

245. *Advanced Household Economics.* Prerequisites, H.E. 144-145, Econ. 1. Credit to be arranged; autumn. Raitt.

JOURNALISM

Professor McKenzie, Executive Officer

1. *Journalism as a Profession.* Required in the freshman year of pre-journalism majors. One credit; autumn. McKenzie.

2. *The Newspaper and Society.* Required in the freshman year of pre-journalism majors. Prerequisite, Jour. 1, except for non-journalism majors. One credit; winter. McKenzie.

3. *Elements of Publishing.* Head styles; proof reading; binding, engraving; press work; problems of production. Required in the freshman year of pre-journalism majors. Three credits; spring. Kennedy, Benson.

51. *Preliminary News Writing.* Not open to freshmen. Required in the sophomore year of pre-journalism majors. Five credits; autumn, winter, spring. Benson, Mansfield.

61. *The Smaller Newspaper.* Problems peculiar to the community weekly. Not open to freshmen. Three credits; winter. Jones.

90, 91, 92. *Current Events.* Current state, national and world movements. Not open to freshmen. Two credits a quarter; autumn, winter, spring. Christian, Benson.

93. *Publicity.* General publicity methods. Prerequisite, Jour. 51. Not open to students who have had 135. Two credits; spring. Christian.

**120. *Copy Reading.* Required of majors in journalism. Prerequisite, Jour. 101. Three credits; winter. Benson.

*125. *Principles of High School Journalism.*

130. *Fundamentals of Advertising.* The theory of advertising display, attention devices, media. Five credits; autumn. Jones.

131. *Display Advertising.* Layouts and copy for publications advertising. Prerequisite, Jour. 150. Five credits; winter, spring. Jones.

147-148-149. *Fundamentals of Journalism.* Advanced news writing, reporting, court procedure, copy reading, history of American journalism, comparative journalism, problems of publishing, law of the press. Prerequisite, the prescribed ten credits of pre-journalism, and junior standing. Ten-fifteen-seven credits. Continuous, autumn, winter, spring. Staff.

150. *Editorial Writing.* Prerequisite, Jour. 51. Three credits; spring. Jones.

**152. *Specialized Reporting and Advanced News Writing.* Required of seniors in journalism. Prerequisite, Jour. 101. Five credits; spring. Christian.

171-172. *Magazine and Feature Writing and Trade Journalism.* Articles graded according to probable marketability. Three credits a quarter; autumn, winter. Jones.

173, 174-175. *Short Story Writing.* Critical appreciation and practical work in the writing of short stories. Not open to lower division students. Signature of instructor necessary before registration for autumn quarter. Five credits a quarter; autumn, winter, spring. McKenzie.

195, 196, 197. *Daily Newspaper Practice.* A laboratory course. Registration restricted to 15 students who must have upper division standing. Registration by special permission of director of journalism only. A limited number of additional students may register, without credit, by special permission of the instructor. Three credits; autumn, winter, spring. Limit of nine credits to one student. Christian.

199. *Problems of Journalism.* Actual research work in the field. Open to seniors and graduate students only. Two to four credits; autumn, winter, spring. McKenzie.

201. *Propaganda.* Crystallization of public opinion. Two credits; spring. McKenzie.

225, 226, 227. *Advanced Short Story.* Prerequisites, Jour. 173, 174-175. Class restricted to a maximum of eight students. Fourth year students or special students who have had short stories published in standard magazines, or who may have equivalent professional qualifications, may be admitted by permission of the instructor. Two to four credits a quarter; autumn, winter spring. McKenzie.

250. *Research in Journalism.* Admission only by consent of instructor. Three to five credits; autumn, winter, spring. Staff.

**For seniors who have not previously removed this requirement only. Not to be offered after 1933-1934.

*Not offered in 1933-1934.

LAW

Professor Shepherd, Executive Officer

FIRST YEAR

All first year subjects are required.

100. *Introduction of Law.* Shepherd's Syllabus and Selected Materials and Cook and Hinton's Cases on Common Law Pleading. Place of law in society; content, classification, and determination of rules and principles of law; historical development of English courts and procedure; the common law system of actions and pleadings; American judicial system, federal and state. Five credits; autumn. Ritchie.

†101. *Contracts and Rules of Damages Applicable to Contract Actions.* Williston's Cases. Four credits; autumn, winter, spring. Shepherd.

†102. *Torts.* Bohlen's Cases, 3rd ed. Three credits a quarter; autumn, winter, spring. Richards.

†104. *Real Property.* Case book to be announced. Three credits a quarter; winter, spring. Mechem.

†105. *Criminal Law and Procedure.* Case book to be announced. Three credits; autumn and winter. O'Bryan.

112. *Agency*: Case book to be announced; Three credits; spring. Ayer.

SECOND AND THIRD YEARS

†110. *Sales.* Woodward's Cases on Sales, 2nd ed. Three credits a quarter; autumn, winter. Ayer.

111. *Wills and Administration.* Mechem and Atkinson's Cases. Testamentary capacity; undue influence; fraud; execution; integration; revocation; condition and mistake; revalidation; function and necessity of probate and administration; management of the estate; distribution and settlement of the estate. Four credits; spring. O'Bryan.

*113. *Persons.* Woodruff's Cases on Persons and Domestic Relations, 3rd ed. ———.

†114. *Equity.* Cook's Cases on Equity. Three credits a quarter; autumn, winter, spring. Nottelmann.

†115. *Evidence.* Hinton's Cases on Evidence, 2nd ed. Three credits a quarter; autumn, winter. Richards.

†116. *Negotiable Instruments.* Britton's Cases on Bills and Notes. Three credits a quarter; autumn, winter. Sholley.

117. *Legal Ethics.* Costigan's Cases. Two credits; autumn. Shefelman.

118. *Conflicts.* Lorenzen's Cases on Conflict of Laws. Five credits; spring. Sholley.

119. *Constitutional Law I.* Case book to be announced. Making and changing constitutions; function of judiciary in enforcing constitutions; separation and delegation of powers of government; personal and religious liberty; protection to persons accused of crime; interstate privileges and im-

†No examination for credit until completion of the entire course.

munities of citizens; operation of fourteenth amendment in securing civil rights; due process and equal protection of law; procedure, protective and regulative power (police power). Four credits; autumn. Sholley.

120. *Constitutional Law II.* Case book to be announced. Political rights; general scope of federal powers, federal taxation, regulation of commerce; intergovernmental relations. Four credits; winter. Sholley.

*121. *Administrative Law.* Frankfurter and Davison's Cases.

122. *International Law.* Hudson's Cases. (May receive political science credit.) Three credits a quarter; autumn, winter. Martin.

124. *Community Property.* Mechem's Cases on Community Property. The laws of Washington regarding the acquisition, control and disposition of property by husband and wife; the liability of such property for the obligations of each. Three credits; winter. Mechem.

*125. *Trade Regulation.* Oliphant's Cases.

†126. *Trusts.* Costigan's Cases on Trusts. Three credits a quarter; autumn, winter. Nottelmann.

127. *Code Pleading.* Hinton's Cases, 2nd ed. Three credits a quarter; winter. Richards.

130. *Legal Bibliography.* A study of the books which constitute the sources of the law; the methods of search for authorities in point, with detailed studies in the use of the digests, annotations, periodicals, encyclopedias and the various indexes, tables, and books of citation; practical application of the above studies in the preparation of briefs for argument of motions or demurrers, trial briefs, and briefs on appeal. Four credits. Course will be given in autumn and repeated in spring quarter. Beardsley.

131. *Quasi-Contracts.* Thurston's Cases. Three credits; spring. Sholley.

132. *Rights in Land.* Case book to be announced. Four credits; autumn. Mechem.

133. *Public Utilities.* Smith and Dowling, Cases on Public Utilities. Four credits; spring. Nottelmann.

135. *Landlord and Tenant.* Cases on Landlord and Tenant, selected from Aigler's Cases on Titles, and Bigelow's Cases on Rights in Land (bound in one volume) and selected materials. Three credits; spring. Mechem.

136. *Insurance.* Vance's Cases on Insurance. Three credits; spring. Sholley.

137. *Water Rights.* Bingham's Cases on Water Rights. Three credits; winter. O'Bryan.

138. *Future Interests.* Kales' Cases on Future Interests. Five credits; autumn. Mechem.

†139. *Administration of Debtors' Estates.* Sturges' mimeographed materials. Comparative study of the use of different methods of liquidating debtors' estates; composition agreements; assignments for the benefit of creditors; receivership and bankruptcy proceedings. Three credits a quarter; winter, spring. Ritchie.

*140. *Mining Law.* Costigan's Cases on Mining Law. O'Bryan.

†No examination for credit until completion of the entire course.
*Not offered in 1933-1934.

*141. *Admiralty.* Sayre's Cases on Admiralty.

‡142. *Practice and Procedure I.* Selected cases and material on nature of judicial action, judicidial remedies, form and commencement of action, courts and their jurisdiction, original and appellate, venue, process, statutes of limitations. Three credits; autumn. O'Bryan.

‡143. *Practice and Procedure II.* The drawing of all necessary papers in bringing, attacking, defending (except actual trial), serving and levying of writs and process, in the following suits and actions: attachment, garnishment, claim and delivery, forcible entry and unlawful detainer, appointment of receiver, injunction, foreclosure of mortgages, real and chattel, foreclosure of lien on real estate and chattels; levy and sale of realty and personalty, supplementary proceedings; justice court, appeal to superior court and appeals to supreme court, certiorari, mandamus, prohibition, quo warranto; examination of records for mortagages, liens, etc. Grand jury, proceeding before magistrate, binding over, arraignment, plea indictment, etc., habeas corpus, extradition. Three credits; winter. O'Bryan.

‡144. *Practice and Procedure III.* Probate proceedings complete, approximately six weeks. Trials to the court and before jury, upon statement of facts, pleadings, introduction of evidence (drawing of jury and instructions) argument, findings of fact and conclusions and judgment. Three credits; spring. O'Bryan.

†145. *Credit Transactions.* Sturges' Cases on Credit Transactions. Accommodation contracts; mortgages; pledges; conditional sales; dealer's financing; security holders' documents, protection and priorities; enforcement proceedings and rights to redeem. Three credits, autumn, spring; four credits, winter. Ritchie.

*146. *Taxation.* Rottschaefer's Cases.

147. *Municipal Corporations.* Case book to be announced. Four credits; spring. Shefelman.

148. *Business Associations I.* Clark and Douglas' Cases. Credit separately given this year only as it will be combined with Business Associations II beginning 1934-1935 as a continuous course. Not open to students who have credit in Law 134, Partnership. Four credits; autumn. Ayer.

†149. *Business Associations II.* This course will include work formerly offered under Law 123, Private Corporations. Berle's Cases on Corporation Finance and the Uniform Business Corporation Act, with additional work in corporate procedure and corporation finance. Credit separately given this year only as it will be combined with Business Associations I beginning 1934-35 as a continuous course. Not open to students who have credit for Law 123, Private Corporations. Four credits; winter and spring. Ayer.

198. *Research Problems in Law.* Properly qualified third year students may, with the consent of a member of the law faculty and the Dean of the Law School, receive from one to three credits for individual research in any of the major fields covered by the curriculum. Hours and credits by special arrangement; autumn, winter, and spring quarters.

*199. *Seminar in Administrative Law.*

*Not offered in 1933-1934.
†No examination for credit until completion of the entire course.
‡Two hours additional work may be required in order to get the prescribed credit.
NOTE: An average of 14 credits in each quarter is required, making a minimum total of 125 credits for completion of the law course.
Students are limited to 14 credits per quarter, except upon special permission of the Dean.

LIBERAL ARTS

Professor Cory, Executive Officer

1. *Introduction to Modern Thought.* Especially for lower division students, but open to all. Upper division students may obtain upper division credits on the basis of extra reading and conferences. Five credits; autumn, spring. Cory.

11. *Introduction to the Study of the Fine Arts.* Five credits; winter, summer. Cory.

214, 215, 216, 217. *Recent Aesthetic Theory and Literary Criticism.* Two to eight credits a quarter; autumn, winter, spring, summer. Cory.

LIBRARIANSHIP

Assistant Professor Worden, Executive Officer

The following courses are open only to students registered in the department.

151, 152, 153. *Books and Their Authors.* A rapid survey of the literature of the principal nations of the world. Required of pre-library students. Five credits; autumn, winter, spring. Andrews.

170. *Introduction to Children's Work.* A basic course. Three credits; autumn. Andrews.

172. *Introduction to Library Work.* Library organization, problems of different types of libraries and current library topics. Two credits; autumn. Worden.

175, 184, 191. *Cataloguing, Classification, Subject Headings.* Four credits, autumn; three credits, winter; three to five credits, spring. Alfonso.

177, 185, 194. *Bibliography and Reference.* A study of important types of reference books, including trade bibliographies and government documents; preparation of bibliographic lists, with lectures on sources and methods of work. Three credits autumn; two or three credits, winter; four credits, spring. Smith, Alfonso.

178. *History of Books and Libraries.* Three credits; spring. Alfonso.

179, 188, 196. *Books for Libraries.* A study of the book field, and the problems of selecting books. Four credits, autumn; two credits, winter: three credits, spring. Worden.

180. *Story Telling.* A study of folk tales, myths and epics as source material for library story hours; planning story hour programs, organization of cycle stories and practice in story telling to children. Prerequisites: Lib. Econ. 181, 183, 190 required if this course is elected. (Consult executive officer on electives.) Three credits; spring.

181. *Advanced Children's Work.* Organization of a children's department; problems of book buying and administration. (Consult executive officer on electives.) Two credits; spring. Andrews

182. *School Library Administration.* Prerequisites: Lib. Sci. 183, 195 required if this course is elected. (Consult executive officer on electives.) Two credits; spring. Worden.

183, 190. *Selection of Books for Children.* (Consult executive officer on electives.) Three credits; winter, spring. Andrews.

186. *Practice.* Four weeks (42 hours a week) of practice work under expert supervision in neighboring Northwest libraries. Five credits; winter. Worden.

189. *Organization and Administration of Small Libraries.* Two credits; winter. Putnam.

192. *Administration.* Problems of library management, buildings, equipment, finance, and publicity. Two credits; spring. Putnam.

195. *Book Selection for School Libraries.* Prerequisites: 182 and 183 required if this course is elected. Three credits; spring. Worden.

The following courses are open to dept. of librarianship graduates only, on permission of the executive officer of the dept.. The work will be a co-ordination of theory and practice, the theory to be taken at the University and the practice to be taken in half-time positions at the Seattle Public Library. All courses are required and must be taken in the prescribed order. The following courses, outside of the department of librarianship, are required: Child Psychology, Child Welfare and Education. It is recommended that they be taken as preparatory courses, but they may be carried along with the advanced work. Courses in the following are also strongly recommended as preparatory courses: Greek literature, Latin literature, early literature of various countries, playground and recreation.

201, 202, 203. *Children's Literature.* A comparative and critical study of books for children, and a history of the development of literature for children. Two credits; autumn, winter, spring. Andrews.

204, 205, 206. *Administration of Children's Librarian.* One credit; autumn, winter, spring. Andrews.

207, 208, 209. *Traditional Literature.* A thorough study of folk lore and of epic material, its adaptation for children, and its use in library story hours. Two credits; autumn, winter, spring. Andrews.

210, 211, 212. *School Work.* Special problems of school libraries, and methods of giving instruction to children in the use of the library. One credit; autumn, winter, spring. Andrews.

213, 214, 215. *Field Work.* Each student will spend 21 hours each week in an assigned branch of the Seattle Public Library. Seven credits; autumn, winter, spring. Andrews.

MATHEMATICS

Professor Moritz, Executive Officer

MINIMUM REQUIREMENTS OF THE DEPARTMENT

For a major in mathematics, 36 credits; including courses 4, 5, 6, 107, 108, 109. plus six additional upper division credits.

Candidates who are not majors in mathematics but wish to teach mathematics as a minor subject must have earned at least 20 credits in mathematics, including courses 4, 5 and 6, before receiving the recommendation of the department.

Major students in mathematics should, if possible, select their courses in mathematics in the following order: Math. 4, 5, 6, 107, 108, 109. In addition they should elect physics as their freshman science.

Courses 1 and 2 must be taken by all students who select mathematics as a major or a minor, if these subjects were not taken in the high school.

1. *Advanced Algebra.* Algebra from quadratics on. Prerequisite, one year of high school algebra. Five credits; autumn, winter.

2. *Solid Geometry.* Prerequisite, one year of plane geometry. Five credits; winter.

4. *Plane Trigonometry.* For students in the Colleges of Liberal Arts and Science. Prerequisite, one and a half years of algebra and one year of plane geometry. Five credits; autumn.

5. *College Algebra.* Prerequisite, Math. 1 or one and one-half years of high school algebra. Five credits; winter.

6. *Analytic Geometry.* For students in the Colleges of Liberal Arts and Science. Prerequisites, Math. 1, 2 and 4. Five credits; spring.

11. *Theory of Investments.* Interest and annuities; annuities, amortization, capitalization and depreciation, sinking funds, etc. Prerequisites, one year algebra, one year geometry. Five credits; autumn, winter, spring.

12. *Mathematics of Finance and Insurance.* Prerequisite, Math. 11. Five credits; spring.

13. *Elements of Statistical Method.* Prerequisite, one year algebra, one year plane geometry. Five credits; each quarter. Gavett.

31, 32, 33. *Engineering Freshman Mathematics.* For students in the College of Technology. Prerequisites, one and one-half years algebra and one year plane geometry. Five credits each quarter; autumn, winter, spring.

52. *College Algebra.* For students in the College of Technology and architecture. Prerequisite, Math. 51. Four credits; autumn.

53. *Analytic Geometry.* For students in the College of Technology and architecture. Prerequisite, Math. 52. Four credits; autumn, winter.

54, 55, 56. *Mathematics for Architects.* Prerequisite, one and one-half years algebra, one year plane geometry. Three credits a quarter; autumn, winter, spring.

61, 62, 63. *Calculus.* For students in the College of Technology. Prerequisites, Math. 2 and 53. Three credits a quarter; autumn, winter, spring.

101. *Advanced Trigonometry.* Trigonometric series, DeMoivre's and Euler's theorems, hyperbolic functions. The elements of spherical trigonometry. Prerequisites, Math. 2 and 4 or 51. Two credits; autumn. Moritz.

102. *Advanced Analytical Geometry.* Poles and polars, the general conic, abridged notation. Prerequisite, Math. 6 or 53. Two credits; winter. Moritz.

103. *Solid Analytical Geometry.* Fundamental theorems regarding the planes, lines, cones, cylinders, and quadric surfaces in general. Prerequisites, Math. 2 and 6 or 53. Two credits; spring. Moritz.

107, 108, 109. *Calculus.* Differential and integral calculus, primarily for students in the College of Science. Prerequisite, Math. 6. Five credits a quarter; autumn, winter, spring. Moritz, McFarlan.

*113. *Mathematical Statistics.*

114, 115. *Ordinary and Partial Differential Equations.* Prerequisite, Math. 109 or 63. Three credits for 114, autumn, winter; four credits for 115, winter. Ballantine, Jerbert, Winger.

*Not offered in 1933-1934.

116. *Advanced Calculus.* Prerequisites, Math. 114, 115. Five credits; spring. Carpenter.

*117, 118, 119. *Projective Geometry.*

*121-122-123. *Finite Collineative Groups.*

124-125-126. *Algebraic Curves.* The projective theory of plane curves. Algebraic invariants and applications to rational curves. Prerequisite, projective geometry or permission of instructor. Two credits each quarter; autumn, winter, spring. Hours to be arranged. Winger.

131. *Selected Topics in Mathematics.* A course in directed reading for prospective high school teachers. Prerequisite, Math. 109. Three credits; spring. Jerbert.

*161, 162, 163. *Analytical Mechanics.*

164, 165, 166. *Partial Differential Equations of Mathematical Physics.* Math. 114 should be taken before or concurrently. Three credits a quarter; autumn, winter, spring. Neikirk.

Teachers' Course in Mathematics. See Education 75Q.

COURSES FOR GRADUATES ONLY

Prerequisites. All 200 courses require a full year's work in differential and integral calculus as a prerequisite and in addition the consent of the instructor in charge.

*201, 202, 203. *Projective Differential Geometry.*

*204, 205, 206. *Modern Algebra.*

*207, 208. *Analysis Situs.*

*209. *Finite Differences.*

214-215-216. *Higher Calculus.* Prerequisite, Math. 109. Four credits each quarter; autumn, winter, spring. Ballantine.

*221, 222, 223. *Higher Plane Curves.*

*224, 225, 226. *Functions of Real Variables.*

*227, 228, 229. *Theory of Numbers.*

*231, 232, 233. *Theory of Infinite Processes.*

*234-235-236. *Analytical Dynamics.*

*241, 242, 243. *Functions of Complex Variables.*

*244, 245, 246. *Calculus of Variation.*

MECHANICAL ENGINEERING

Professor Eastwood, Executive Officer

53. *Manufacturing Methods.* Principles of the founding of ferrous metals. One credit; autumn, winter, spring. Schaler, Sullivan.

54. *Manufacturing Methods.* Mechanical and heat treatment of steel; gas and electric welding. One credit; autumn, winter, spring. Schaller, Sullivan.

*Not offered in 1933-1934.

55. *Manufacturing Methods.* Fundamental theory and practice of machining operations on iron and steel. One credit; autumn, winter, spring. Sullivan, Schaller.

*70. *Elementary Heat Engineering.*

81. *Mechanism.* Operation of machines involving the transmission of forces and the production of determinate motions. Prerequisites, G.E. 3, Math. 32. Three credits; autumn, winter, spring. McIntyre, McMinn, Edmonds, Winslow.

82. *Steam Engineering.* Various steam apparatus used in modern steam plants; construction, use and reason for installation. Not open to freshmen. Prerequisite, G.E. 2. Three credits; autumn, winter, spring. Eastwood, McMinn, Edmonds, Winslow.

83. *Steam Engineering Laboratory.* Calibrations of instruments; horsepower tests; complete engine and boiler test. Preceded or accompanied by M.E. 82. Three credits; autumn, winter, spring. Wilson, McIntyre.

104. *Manufacturing Methods.* Founding, welding and machining of nonferrous metals. One credit; winter. Schaller.

105. *Advanced Manufacturing Methods.* Individual problems of machining operations on mechanical equipment. Prerequisite, M.E. 55. One credit; autumn. Sullivan.

106. *Advanced Manufacturing Methods.* Study of machining problems from the standpoint of production. Prerequisite, M.E. 105. One credit; winter. Sullivan.

107. *Production Planning.* Design and equipment of a representative manufacturing plant. Prerequisite, M.E. 106. One credit; spring. Schaller.

108. *Production Management.* A study of the location, operation and organization of manufacturing plants. Three credits; winter. Schaller.

109. *Factory Cost Analysis.* Analyzing shop operations from the standpoint of manufacturing costs. Three credits; autumn, spring. Schaller.

110. *Heating and Ventilation.* Abridged for architecture students. Prerequisite, junior standing. Two credits; spring. Eastwood.

111, 112. *Machine Design.* Design of machine details. Prerequisite, C.E. 92. Three credits a quarter; autumn, winter, spring. McIntyre, Edmonds, McMinn.

113, 114. *Machine Design.* Advanced problems in machine design. Prerequisites, M.E. 112, Two credits a quarter; autumn and winter. Winslow.

115. *Steam Engine Design.* Computations and drawings for the design of a steam engine. Prerequisites, M.E. 114, 124. Three credits; spring. Winslow.

123, 124. *Engines and Boilers.* Generation and use of steam in various types of boilers and engines. Prerequisite, M.E. 83, also preceded or accompanied by C.E. 91. Three credits a quarter; autumn, winter. Winslow.

140. *Time Study and Job Analysis.* Job standardizing in modern industry. Personnel requirements and training. Analyzing job. Computing, applying, and perpetuating standards. Five credits; spring. McIntyre.

151, 152, 153. *Experimental Engineering.* Continuation of M.E. 83, involving more extended and complete investigations. Prerequisite, M.E. 83. Three credits a quarter; autumn, winter, spring. Wilson.

*Not offered in 1933-1934.

167. *Engineering Materials.* Properties of the various materials used in engineering construction. Recitation and laboratory. Prerequisite, C.E. 92. Three credits; autumn, winter, spring. McMinn.

182. *Heating and Ventilation.* Various systems of heating and ventilating methods with designs. Prerequisite, M.E. 82. Three credits; winter. Eastwood.

183. *Thermodynamics and Refrigeration.* Fundamental principles underlying the transformation of heat into work. Special application to engineering. Prerequisite, M.E. 83, junior standing. Five credits; autumn, spring. Eastwood.

184. *Power Plants.* Design of steam power plants, involving their location, building, prime movers, and power transmission. Prerequisites, M.E. 123, 183. Five credits; spring. Winslow.

185. *Naval Architecture.* Theory of naval architecture. Displacement; stability; strength; construction. Junior standing. Three credits; spring. Eastwood.

191-192-193. *Research.* Two to five credits. Eastwood.

195. *Thesis.* Investigation, design or experiment under direction of the professor in charge. Two to five credits; senior year. Wilson.

198. *Gas Engineering.* Development of gas engineering; stationary, marine, automobile and airplane motors, and gas producer plants. Prerequisite, M.E. 82. Three credits; autumn, winter, spring. Wilson.

199. *Gas Engine Design.* Calculations and plans for the design of a given type of motor. Prerequisite, M.E. 198. Three credits; spring. Wilson.

COURSES FOR GRADUATES ONLY

200. *Vibrations of Machinery.* Mathematical investigations of vibration phenomena with emphasis on applications to operating conditions of machines. Elective for approved seniors and graduates. Three credits autumn. Winslow.

211-212-213. *Research.* Three credits a quarter; autumn, winter, spring. Eastwood.

METALLURGY

See Mining, Metallurgy and Ceramics.

MILITARY SCIENCE AND TACTICS

Colonel Edward Kimmel, Professor of Military Science and Tactics.
Major Frazer, Executive Officer

The instruction of the first two years, together with that provided for the third and fourth years, constitutes the courses prescribed by the War Department for institutional units of the Reserve Officers' Training Corps. The advanced courses, those of the third and fourth years, are open to students who have completed the first two years—basic course—of instruction and training.

The University has adopted a distinctive uniform for all students in the department of military science and tactics. Each student who has been accepted for enrollment and training in this department will be charged a uniform fee to cover actual cost. This cost varies slightly from year to year;

for the year 1933-1934, the cost will be $18.25. This uniform will be worn at such times as the professor of military science and tactics may direct, and will become the personal property of the student.

The student will be reimbursed by the University in the amount allowed by the federal government which currently is $18 for the two years, payable in part at the close of each academic year.

Upon the approval of the professor of military science and tactics, students who are proven to be self-supporting may, if they so desire, be permitted to purchase and wear second-hand uniforms. All such uniforms, however, must be previously inspected and officially accepted as suitable by him.

The uniform prescribed for advanced students is the regulation army officer's uniform with appropriate R.O.T.C. insignia.

The federal government makes the following allowances to advanced course students: uniform, $35; commutation of rations, 25 cents per day for two years, less time spent in summer camp; pay while in summer camp, 70 cents per day. This total approximates $200 for the two-year course.

The summer camp is held annually, for a period of six weeks, commencing about the middle of June. The student attends camp after the completion of his first year in the advanced course. During the time he is in attendance at camp he is allowed food, clothing, shelter, medical and hospital attendance and 70 cents per day, and in addition transportation to and from camp.

Four-Year Curriculum in Military Science

For students who desire to major in military science a four-year curriculum has been provided. This will give a good general college education upon which any line of professional or technical study may be based and will give to the graduate the degree of bachelor of science in military science, and at the same time enable him to obtain a commission as second lieutenant in the Officers' Reserve Corps of the Army of the United States in accordance with the provisions of the National Defense Act.

Information concerning this curriculum may be obtained from the professor of military science and tactics.

First Year

1, 2, 3. *Basic Infantry.* Military fundamentals; leadership, military sanitation and first aid; rifle marksmanship (Model 1903); Browning automatic rifle (characteristics, limitations and mechanical functioning); scouting and patrolling; infantry equipment. Two recitations and one laboratory period a week. Two credits a quarter; any quarter. Wiltamuth.

4, 5, 6. *Basic Coast Artillery.* Leadership; military organization, sanitation and first aid, discipline and courtesies; national defense act; military history and policy; rifle marksmanship; coast artillery ammunition, weapons and material. Two recitations and one laboratory period a week. Two credits a quarter; any quarter. Frazer.

11, 12, 13. *Band.* Two credits a quarter; any quarter. Welke.

Second Year

51, 52, 53. *Basic Infantry.* Military fundamentals; leadership; musketry (mechanics of combat firing), practical landscape target firing; squad combat principles; defense against chemical attack; machine guns and the characteristics of infantry supporting weapons. Two recitations and one laboratory period a week. Two credits a quarter; any quarter. Milner.

61, 62, 63. *Basic Coast Artillery.* Leadership; fire control and position finding for seacoast artillery and anti-aircraft artillery; identification of aircraft; characteristics of naval targets; submarine mines; defense against

chemical warfare. Two recitations and one laboratory period a week. Two credits a quarter; any quarter. Frazer.

81, 82, 83. *Band.* Prerequisite, Mil. Sci. 13. Two credits a quarter; any quarter. Welke.

Third Year

104. *Advanced Infantry.* Leadership; military map reading; interpretation of aerial photographs. Five hours a week. Three credits; any quarter. Priest.

105. *Advanced Infantry.* Leadership; combat principles of the rifle section and platoon, the 37 mm gun squad, the 3-inch trench mortar squad, and the howitzer platoon; the mechanics and functioning of the 37 mm gun and the 3-inch trench mortar; infantry anti-aircraft defense. Five hours a week. Three credits; any quarter. Priest.

106. *Advanced Infantry.* Leadership; maneuver and combat principles of the machine gun squad, section and platoon; rifle and pistol marksmanship. Five hours a week. Three credits; any quarter. Priest.

114. *Advanced Coast Artillery.* Leadership; map and aerial photography reading; orientation. Five hours a week. Three credits; any quarter. Stiley.

115. *Advanced Coast Artillery.* Leadership; gunnery for seacoast artillery. Five hours a week. Three credits; any quarter. Stiley.

116. *Advanced Coast Artillery.* Leadership; gunnery for anti-aircraft artillery. Five hours a week. Three credits; any quarter. Stiley.

†124. *Advanced Ordnance.* Leadership; map and aerial photography reading; ordnance material; ordnance engineering. Five hours a week. Three credits; any quarter. Crim.

†125. *Advanced Ordnance.* Leadership; ordnance material; ordnance engineering. Five hours a week. Three credits; any quarter. Crim.

†126. *Advanced Ordnance.* Leadership; ammunition, current ordnance problems; technical electives. Five hours a week. Three credits; any quarter. Crim.

130. *Advanced Camp.* Required practical training to supplement the theoretical and practical courses taken in the military department by advanced students of the R.O.T.C. Six weeks in the summer, following the first year of the advanced course. Three credits.

Fourth Year

154. *Advanced Infantry.* Leadership; military administration; military history and policy of the United States; military law. Five hours a week. Three credits; any quarter. Cooper.

155. *Advanced Infantry.* Leadership; signal communications; combat principles of rifle platoon and company, offensive and defensive; organization of the ground. Five hours a week. Three credits; any quarter. Cooper.

156. *Advanced Infantry.* Leadership; ceremonies; combat principles of the machine gun and howitzer units and infantry battalion. Five hours a week. Three credits; any quarter. Cooper.

‡157. *Military Thesis on Infantry.* Five credits; any quarter. Milner.

†Limited to engineering students with junior standing.
‡Limited to students majoring in Military Science.

164. *Advanced Coast Artillery.* Leadership; military history and policy; military law; administration. Five hours a week. Three credits; any quarter. Gregory.

165. *Advanced Coast Artillery.* Leadership; combat orders; tactical employment of heavy, seacoast and anti-aircraft artillery. Five hours a week. Three credits; any quarter. Frazer.

166. *Advanced Coast Artillery.* Leadership; motor transportation; coast artillery material; field engineering. Five hours a week. Three credits; any quarter. Gregory.

‡167. *Military Thesis on Coast Artillery.* Five credits; any quarter. Frazer.

174. *Advanced Ordnance.* Leadership; military law; military history and policy; administration and supply. Five hours a week. Three credits; any quarter. Crim.

175. *Advanced Ordnance.* Leadership; ordnance organization; property accounting; ordnance engineering; current ordnance problems. Five hours a week. Three credits; any quarter. Crim.

176. *Advanced Ordnance.* Leadership; military mechanization; industrial mobilization; ordnance field service. Five hours a week. Three credits; any quarter. Crim.

‡180. *Military Thesis on Ordnance.* Five credits; any quarter. Crim.

MINING, METALLURGY AND CERAMICS

Professor Roberts, Executive Officer

I. Mining

51. *Elements of Mining.* The field of mining, considering prospecting and boring, drilling, explosives, rock breaking, and principles applying to open-pit and underground methods. Prerequisite, sophomore standing. Three recitations. Three credits; autumn. Daniels.

52. *Methods of Mining.* Continuation of Min. 51. Methods of working metal, coal, and placer mines, quarries, and clay deposits. Prerequisite, Min. 51. Two recitations and one laboratory period. Three credits; winter. Daniels.

101. *Milling.* Preliminary course in the principles of ore dressing; practice with all milling machinery in Mines Laboratory. Prerequisite, junior standing. Two recitations and one laboratory period. Three credits; autumn. Roberts.

103. *Mine Rescue Training.* Practice in the use of oxygen rescue apparatus, and instruction in first-aid; 25 hours' intensive instruction during first three weeks of quarter. Physical examination required. A government certificate is granted on completion of course. One credit; winter. Daniels.

106. *Mine Excursion.* A five-days' trip in spring of junior year to a neighboring mining region; detailed inspections of mines. Expense approximately $25. One credit; spring. Roberts, Daniels.

107. *Mine Excursion.* A five-days' trip in spring of senior year, similar to Min. 106. One credit; spring. Roberts, Daniels.

122. *Coal Mining Methods.* Special methods involved in prospecting, development, and operation of coal and stratified deposits. Detailed studies

‡Limited to students majoring in Military Science.

are made at nearby mines. Prerequisite, Min. 51 and Min. 52. Three recitations. Three credits; winter. Daniels.

151. *Mining Engineering.* Principles and practice as exemplified at typical mines. Laboratory studies of air compressors, drills, etc.; studies at nearby mines. Prerequisite, senior standing. Two recitations, one laboratory period. Three credits; autumn. Roberts.

152. *Ore Dressing.* The principal branches of ore dressing, with laboratory practice in complete mill tests. Prerequisite, senior standing. Three recitations and two laboratory periods. Five credits; spring. Roberts.

162. *Costs in the Mineral Industry.* An economic study of the whole cost of producing and selling metals and non-metallic mineral products. Open to seniors in any department. Three recitations and one laboratory period. Four credits; winter. Roberts.

*163. *Mine Operation.*

171. *Mine Ventilation.* Composition and properties of mine gases; principles of ventilation; safety and physiological factors, applied to both coal and metal mines. Prerequisites, Min. 51, 52, and 103. Three recitations. Three credits; winter. Daniels.

176. *Coal Preparation.* Methods of preparing coal by dry and wet cleaning processes; control by float-and-sink methods. Field examinations of washing plants at local mines. Prerequisites, Min. 101 and Met. 103. Two recitations and two four-hour laboratory periods. Five credits; winter. Daniels.

182. *Mineral Industry Management.* Employment of labor, systems of payment, efficiency of labor and methods, social and economic aspects of mineral engineering operations. Prerequisite, senior standing. Three recitations. Three credits; spring. Daniels.

191, 192, 193, 194. *Thesis.* Preparation of a graduation thesis in mining, metallurgy, or ceramics. Completed thesis is due one month before graduation. Prerequisite, senior standing. A minimum total of five credits allowed for thesis. Hours and credits to be arranged; autumn, winter, spring, summer. Roberts, Daniels, Corey, Wilson.

COURSES FOR GRADUATES ONLY

201, 202, 203. *Seminar.* Lectures and discussions by Bureau of Mines staff, mining engineering faculty and fellows. Required of fellowship holders in department of Mines. Prerequisite, graduate standing. One credit; autumn, winter, spring. Staff.

211, 212, 213, 214. *Graduate Thesis.* Preparation of a thesis in mining, metallurgy, or ceramics. Prerequisite, graduate standing. Completed thesis is due at least one month before graduation. Hours and credits to be arranged; total nine credits allowed for thesis. Autumn, winter, spring, summer. Roberts, Daniels, Corey, Wilson.

221, 222, 223. *Metal Mining.* Studies in metal mining. Prerequisite, graduate standing. Hours and credits to be arranged. Roberts.

231, 232, 233. *Ore Dressing.* Studies in ore dressing. Prerequisite, graduate standing. Hours and credits to be arranged. Roberts.

251, 252, 253. *Coal Mining.* Studies in coal mining or in the preparation of coal. Prerequisite, graduate standing. Hours and credits to be arranged. Daniels.

261, 262, 263. *Fuels and Combustion.* A course in fuels, their utilization and combustion. Prerequisite, graduate standing. Hours and credits to be arranged. Daniels.

II. METALLURGY

53. *Elements of Metallurgy.* Properties of metals and alloys, fuels, refractory materials, furnaces, the extraction of the common metals from their ores. Open to all engineering students with sophomore standing. Three recitations. Three credits; spring. Corey.

101. *Fire Assaying.* Testing of reagents, crushing, sampling, and assaying of ores, furnace, and mill products. Prerequisite, Met. 53. One recitation and two laboratory periods. Three credits; autumn. Corey.

102. *Metallurgical Laboratory.* Experiments illustrating metallurgical principles. Prerequisite, Met. 53. One four-hour laboratory period. Two credits; spring. Corey.

103. *Fuels.* Primary and manufactured fuels; source, composition, methods of utilization, economy, relative values, and efficiencies. Laboratory work in analysis of common fuels. Prerequisite, junior standing. Three recitations and one laboratory period. Four credits; winter. Daniels, Corey.

104. *Non-ferrous Metallurgy.* Metallurgy of copper, lead, zinc, gold and silver, especially the methods of roasting, smelting, lixiviation and refining. Prerequisite, Met. 53. Three recitations. Three credits; autumn. Corey.

140. *Materials of Construction.* Methods of manufacture, properties, and engineering uses of ferrous and non-ferrous metals and alloys, and ceramic materials. Prerequisite, junior standing. Three lectures. Three credits; autumn. Corey, Daniels, Wilson.

153. *Wet Assaying.* Technical methods for the determination of copper, lead, zinc, etc., in ores and furnace products. Prerequisite, Chem. 23. One recitation and two laboratory periods. Three credits; winter. Corey.

155. *Iron and Steel.* Metallurgy and manufacture of commercial iron and steel; especially, their properties and uses in engineering work. Prerequisite, junior standing. Three recitations. Three credits; autumn. Daniels.

160. *Metallurgical Analysis.* Technical methods of analysis of slags, industrial products (for ceramics and geology students) and clays and rocks. Prerequisite, Met. 153. Two laboratory periods. Two credits; spring. Corey.

162. *Physical Metallurgy.* The constitution of metals and alloys, and their relations to the physical and mechanical properties of the metal. Prerequisite, senior standing. Open to all upperclass engineering students. Three recitations. Three credits; autumn. Corey.

163. *Metallography.* Preparation and study of metal sections, photomicrography and the use of the microscope in testing industrial alloys. One recitation and two laboratory periods. Open to all upperclass engineering students. Three credits; winter. Corey.

165. *Metallurgical Calculations.* Physical chemistry of the metallurgist, slag calculations, and furnace problems. Prerequisite, senior standing. Three recitations. Three credits; winter. Corey.

166. *Advanced Non-ferrous Metallurgy.* Study of methods and practice in the extraction of the minor non-ferrous metals. Prerequisite, senior or graduate standing. Three credits; spring. Corey.

COURSES FOR GRADUATES ONLY

221, 222, 223. *Advanced Metallurgy.* Studies in metallurgy. Prerequisite, graduate standing. Hours and credits to be arranged. Corey.

III. Ceramics

90. *Ceramic Materials.* Origin, occurrence, physical properties, and preparation of materials used in the ceramic and non-metallic industries. Prerequisite, sophomore standing in mines, engineering, or science. Three recitations. Three credits; spring. Wilson.

100. *Plasticity, Suspensions and Drying.* Physical characteristics of ceramic materials in the plastic condition and as slip-suspensions. Prerequisite, Cer. 90. Three recitations. Three credits; autumn. Wilson.

101. *Firing.* The effect of heat on ceramic materials; vitrification of clay; melting, fusion, and crystallization of silicates. Prerequisite, Cer. 100. Three recitations. Three credits; winter. Wilson.

102. *Ceramic Decoration.* The value of decoration in ceramics. Ceramic colors, surface textures and glazes. The chemistry of color production. Prerequisite, Cer. 101. Three recitations. Three to six credits; spring. Wilson.

104. *Calculations for Bodies and Glazes.* Physics and chemistry of preparing, drying, firing, testing and designing ceramic materials and glazes. Prerequisite, junior standing in mines or engineering. Three recitations. Three credits; autumn. Wilson.

105. *Calculations for Drying and Firing.* Problems in the physics and chemistry of drying, firing, and the combustion of fuel. Prerequisite, junior standing in mines or engineering. Three recitations. Three credits; winter. Wilson.

110. *Ceramic Physical-Chemical Measurements.* Laboratory testing of clays and other ceramic materials. Prerequisite, junior standing in mines or engineering. Two laboratory periods. Two credits; spring. Wilson.

121, 122, 123. *Ceramic Products Laboratory.* Laboratory problems in preparing raw materials and the manufacture and testing of ceramic and non-metallic products. Prerequisite, Cer. 90 to 110. Three laboratory periods and two recitations. Five credits a quarter; autumn, winter, spring. Wilson.

**131, 132, 133. *General Ceramics.* Technology of pottery, glass, lime plaster, cements, metal enamels, or refractories. Hours and credits to be arranged. Wilson.

COURSES FOR GRADUATES ONLY

221, 222, 223. *Ceramic Research.* Studies of the ceramic resources of the Pacific Northwest or in the development of new products or processes. Prerequisite, graduate standing. Hours and credits to be arranged. Wilson.

MUSIC

Associate Professor Dickey, Executive Officer

Music Materials and Composition. Courses 15, 16, 51, 53, 61, 101, 109, 112, 117, 143, 157, 163, 197.

Music Literature and History. Courses 4, 5, 6, 22, 23, 24, 104, 105, 106, 151, 152, 153, 190, 191, 192.

School Music. Courses 40, 41, 42, 113, 114, 115, 116, 140, 141, 142, 154, 155, 180, 181, 195.

Choral Ensembles. Courses 10, 11, 12, 25, 26, 27, 28, 29, 30, 65, 66, 67, 127, 128, 129.

**Will be offered if a sufficient number of students elect the course.

Instrumental Ensembles. Courses 31, 32, 33, 124, 125, 126, 130, 131, 132, 133, 134, 135.

Piano Pedagogy. Courses 165, 166, 167.

Vocal or Instrumental Music: Technic, Interpretation and Repertory. Courses 1, 2, 3, 7, 8, 9, 18, 19, 20, 48, 49, 50, 68, 69, 70, 118, 119, 120, 168, 169, 170, 199.

Students will register for a one-hour class in interpretation and repertory and for one or two individual half-hour lessons per week. Two or three credits a quarter. Fee. $25 or $50 a quarter. Students may register for private lessons only, with the same fees, but no credit will be given unless the class work is taken and satisfactorily passed. A student who registers for two credits may re-register under the same course number for one additional credit, or if his progress has been sufficient, he may register for the next following course. The various branches of vocal and instrumental music will be designated by capital letters immediately following the course numbers:

A. *Piano,* Venino, Van Ogle, McCreery, Bostwick.
B. *Violin,* Rosen, Oliver.
C. *Voice,* Werner, Lawrence.
D. *Violoncello,* Kirchner, Anderson.
E. *Organ,* Heeremans.
F. *Wind Instruments,* Welke.
G. *Harp,* Beck.

For detailed descriptions of the courses in the various branches of vocal and instrumental study, see page 81.

1, 2, 3. *Elementary Instrumental Music.* Credits for elementary study will be allowed to music majors only if they have fulfilled entrance requirements in another branch (see page 82.) Two or three credits a quarter. Staff.

4. *Introduction to Music, Literature and History.* Study of style, general design, historical background of standard concert repertoire with emphasis on current programs. Prerequisite, Mus. 15 or permission of department. Three credits; autumn. Woodcock.

5, 6. *Music Literature and History.* Historical survey of music literature. Prerequisite, Mus. 4. Three credits; winter, spring. Woodcock, Wilson.

7, 8, 9. *Elementary Instrumental Music.* Two or three credits a quarter. Staff.

10-11-12. *University Chorus.* Students registering for this course must have had some choral experience and be able to read music at sight. One credit a quarter; autumn, winter spring. Upper division credit to students having been enrolled in music courses for at least two years. No credit to students registered in 25,26,27, 28,29,30, 65,66,67. Lawrence.

15. *Music Fundamentals.* Laboratory work in hearing and reading; transposition; melody-writing. Three credits; autumn, winter, spring. Staff.

16. *Music Fundamentals.* Continuation of Mus. 15 and introduction to harmony. Prerequisite. Mus. 15 or exemption. Four credits; autumn, winter, spring. Staff.

18, 19, 20. *Vocal or Instrumental Music.* Majors in any branch of instrumental music may not receive credit for Music 18, 19, 20, except in a different branch. Two or three credits a quarter. Staff.

22, 23, 24. *Music Appreciation.* For the purpose of increasing understanding and enjoyment of good music. Designed for the general student. No credit to music majors. By special work under direction of the instructor,

upper division students may receive upper division credit. Two credits; autumn, winter, spring. Woodcock.

25-26-27. *Men's Choral Ensemble.* For freshmen. Audition required. (Auditions, first week autumn quarter, every afternoon, Room 102-B Meany Hall.) Three credits a quarter; autumn, winter, spring. Lawrence.

28-29-30. *Women's Choral Ensemble.* Part songs for women's voices. Audition required. (Auditions every afternoon first week autumn quarter, 105 Music Building.) Two credits a quarter; autumn, winter, spring. Wilson.

31, 32, 33. *Elementary Orchestra.* Three rehearsals a week, one of which may be spent in chamber music or other recommended ensemble groups. Two credits a quarter; autumn, winter, spring. Welke.

*34, 35, 36. *Voice Training.*

40, 41, 42. *Elementary Orchestral Instruments.* Fundamental playing principles of each instrument. Wind instruments autumn and winter; strings, spring. Three credits. Welke.

48, 49, 50. *Vocal or Instrumental Music.* First year for instrumental majors and voice students. Two or three credits a quarter. Staff.

51. *Elementary Harmony.* Nature and use of primary harmonies and non-harmonic tones. Continuation of ear training and key-board work. Prerequisite, Mus. 16. (No exemption.) Four credits; autumn, winter, spring. Staff.

53. *Intermediate Harmony.* Secondary harmonies and simple modulations. Prerequisite, Mus. 51. (See Mus. 61).) Five credits; autumn, winter, spring. Staff.

61. *Advanced Ear Training.* Designed to parallel and supplement Mus. 53. Required of all except students receiving grade of A or B in Mus. 51. Three credits; autumn, spring. Lawrence.

65-66-67. *Men's Choral Ensemble.* Not open to freshmen. Audition required. (Auditions held first week autumn quarter, Room 102-B Meany Hall.) Three credits; autumn, winter, spring. Lawrence.

68, 69, 70. *Vocal or Insrumental Music.* Second year for instrumental majors and voice students. Two or three credits a quarter. Staff.

*84, 85, 86. *Advanced Voice Training.*

101. *Advanced Harmony.* Chromatic harmonies and modulations. Prerequisite, Mus. 53. Five credits; autumn, winter, spring. Staff.

104. *Music Since* 1850. Development of the symphonic poem. Discussion and illustration of works of Berlioz; Liszt; Strauss. Two credits; autumn. Van Ogle.

105. *Music Since* 1850. Cesar Franck; the Impressionists Debussy and Ravel; Post-Impressionists Satie and others. Two credits; winter. Van Ogle.

106. *Music Since* 1850. Modern Spanish and British Composers. Two credits; spring. Van Ogle.

109. *Counterpoint.* Regulation of two or more concurrent melodies. Prerequisite, Mus. 53. Five credits; autumn, spring. Wood, McKay.

112. *Musical Forms.* Analysis of many examples and simple exercises in composition. Prerequisite, Mus. 53. Five credits; autumn, winter. Wood, Woodcock.

*Not offered in 1933-1934.

113. *Elementary School Music.* The principles and procedures involved in teaching music in the primary grades. (No credit to students having credit in Mus. 56.) Prerequisite, Mus. 16. Four credits; autumn, spring. Munro.

114. *Intermediate School Music.* Application of educational principles to the teaching of music in grades 4, 5 and 6. Prerequisite, Music 56 or 113. Two credits; autumn, winter. Dickey, Hall.

115. *Technique of Conducting.* Study of the principles of conducting with practical experience in directing groups. Not open to students having credit in choral conducting. Two credits; autumn, winter. Munro.

116. *Junior High School Music.* A study of the adolescent and the contribution of music to his needs. Prerequisites, Mus. 114, 115. Two credits; winter, spring. Hall.

117. *Elementary Composition and Arranging.* Original work and arrangements for the more usual combinations of voices or instruments. Prerequisites, Mus. 101, 109, 112. Five credits; autumn, winter. McKay.

118, 119, 120. *Vocal or Instrumental Music.* Third year for instrumental majors and voice students. Two or three credits a quarter. Staff.

124, 125, 126. *Chamber Music.* Advanced study of musical literature for stringed trios, quartets and quintets. One credit a quarter; autumn, winter, spring. Rosen.

127, 128, 129. *Choral Forms—A Capella.* Singing of important choral works with the idea of increasing skill in part-singing and promoting musicianship. Two credits; autumn, winter, spring. Hall, Munro.

130, 131, 132. *University Band.* Study and production of more difficult compositions for band. One credit a quarter; autumn, winter, spring. Welke.

133, 134, 135. *University Symphony Orchestra.* Study and production of more difficult orchestral compositions. Players admitted only upon examination. (Auditions every afternoon, first week autumn quarter, 100 Meany Hall.) Three rehearsals a week, one of which may be spent in chamber music or other ensemble groups recommended by instructor. Two credits a quarter; autumn, winter, spring. Welke.

140, 141, 142. *Orchestral Instruments—Applied Music.* Advanced work in ensemble and orchestral routine, with regular class work. Required of all majors in instrumental school music. Prerequisites, Mus. 40, 41, 42, or instructor's permission. Three credits; autumn, winter, spring. Welke.

143. *Orchestration.* Study of the principles of orchestral composition. Not open to students who have had credit in 173. Prerequisite, Mus. 117. Five credits; winter. McKay.

151. *Modern Music.* Intensive study of Wagner's Ring of the Nibelungs, illustrated by Victrola records. Wagner's theories and use of motives. Two credits; autumn Van Ogle.

152. *Modern Music.* Russian music; historical background, discussion and illustration of works of Balakirew, Borodin, Cui, Moussorgsky, Rimsky-Korsakow. Two credits; winter. Van Ogle.

153. *Modern Music.* Tschaikowsky; Scriabin the mystic; Stravinsky the realist. Two credits; spring. Van Ogle.

154. *Senior High School Music.* An analysis and intensive study of the high school problem in relation to music. Prerequisite, Mus. 116. Three credits; autumn, winter. Dickey, Munro.

155. *Music Supervision.* Problems related to the organization and supervision of school music. Prerequisite, Mus. 154. Five credits; winter, spring. Dickey, Munro.

157. *Free Composition.* Pieces in the smaller forms for voices and for instruments. Prerequisite, Mus. 117. Five credits; winter. McKay.

163. *Advanced Counterpoint.* The invention, canon, fugue, etc. Analysis and composition. Prerequisite, Mus. 109. Five credits; autumn. Wood.

165, 166, 167. *Piano Teaching.* Survey of teaching material and consideration of principles involved, with supervised practice in teaching of piano. Permission of instructor required. Two credits; autumn, winter, spring. Woodcock.

168, 169, 170. *Vocal or Instrumental Music.* Fourth year for instrumental majors and voice students. Two or three credits a quarter. Staff.

180, 181. *Orchestral Conducting.* Ensemble and orchestral groups; study of the literature practicable for these groups. Two credits a quarter; autumn, winter, spring. Welke.

190. *Bach and His Forerunners.* Detailed study of music literature through student participation. Prerequisite, senior standing. Four credits; autumn. Munro.

191. *Eighteenth and Nineteenth Century Music.* Study of the music of these periods through ensemble performance projects. Prerequisite, Mus. 190. Four credits; winter. Wilson, Woodcock.

192. *Contemporary Music.* Study of twentieth century music literature, its idioms and tendencies, through performance projects. Prerequisite, Mus. 191. Four credits; spring. Staff.

195. *Choral Conducting.* Intensive practical experience in conducting large choral ensembles. Prerequisite, Mus. 115. Three credits; spring. Munro.

197. *Advanced Composition.* Original work in the larger forms. Prerequisite, Mus. 157. Two to six credits; spring. McKay.

199. *Senior Recital.* Two credits; autumn, winter or spring. Staff.

COURSES FOR GRADUATES ONLY

201, 202, 203. *Graduate Composition.* Credits to be arranged, 12 to 27; autumn, winter, spring. McKay.

204, 205, 206. *Research.* Problems in music education or musicology. Credits to be arranged. Maximum 12 credits. Autumn, winter, spring. Dickey.

207, 208, 209. *Thesis.* Original contribution from student's field of research, or acceptable original composition performed before a committee of the faculty. Prerequisite for music education or musicology majors, Edu. 291. Credits to be arranged; autumn, winter, spring. Staff.

218, 219, 220. *Graduate Vocal or Instrumental Music.* Open only to students having 30 undergraduate credits in one branch. Credits to be arranged; autumn, winter, spring.

COLLEGE COURSES IN VOCAL AND INSTRUMENTAL STUDY

Students will be examined upon entrance and at the end of each year by an examining committee which will include the teachers of the individual students. Term examinations will be given by the individual teachers. A student may not be passed to a more advanced course without having satisfactorily

completed the work and passed an examination in the course in which he has been placed.

Six of the required credits in instrumental music may be earned in advanced orchestral instrument classes. (Mus. 140, 141, 142.)

Students enrolled in these courses will be given opportunity on demonstration of the required ability, to participate in the public recitals of the department.

A. PIANO COURSE

Students majoring in piano are expected to show marked talent for performance.

The minimum requirement for entrance is:

1. Third year, first semester of state course of study for private study in piano in high school, or

2. All major and minor scales, diminished seventh chords and major and minor triads in arpeggio form, with correct fingering. Great attention should be given to tone, good hand position and freedom of arm. Also, one from each of the following groups:

(a) Bach, Two Part Inventions; Bach Album (Heinze).

(b) Haydn Sonatas; Mozart Sonatas.

(c) One of the following to be played from memory: Schubert, Impromptu, op. 90, no. 2 or 3; Brahms, Intermezzo in B Flat; Beethoven-Seitz, Contra Dances; Bach-Saint-Saens, Gavotte; Grieg, March of the Dwarfs, Norwegian Bridal Procession; MacDowell, Dance Andalouse, Shadow Dance; Moskowski, Enticelles; Korngold, any one of the Fairy Tales; Debussy, Gollywogs' Cake Walk.

Piano entrance requirements for music majors with no other instrumental training: Completion of second year, first semester of the state course of study for high school credit in piano, or the equivalent of Music 9A. Elementary piano (Mus, 1A, 2A, 3A, 7A, 8A, 9A) consists of weekly class lessons, designed to aid in sight reading, accompanying and playing in ensemble groups, and half-hour private lessons conducted to supplement the class work.
Music 1A, 2A, 3A.

1. Any major scale to be played, hands separately in 4/4 measure, quarter note, M.M. 100 in the following form: one octave in quarter notes; two octaves in eighth notes.

A knowledge of all minor scales, and major and minor broken chords.

Attention to be given to hand position and freedom of arm.

2. One volume from each of the following groups:

(a) Czerny-Germer, vol. 1, pt. 1; or Kuhner, Selected Studies, vols. 1 and 2; or Vogl, op. 33, vols. 1 and 2.

(b) Diller and Quail, bks. 1 and 2; Burgmuller, op. 100, bk. 1; or similar material.

3. Sight reading.

Music 7A, 8A, 9A.

1. Any major scale to be played, hands separately, 4/4 measure, one quarter note to M.M. 80, in the following form: one octave in quarter notes, two octaves in eighth notes, four octaves in sixteenth notes.

Any minor scale to be played in the same form as the major scales in 3A.

Any diminished seventh chord to be played in the same form as the minor scales.

Major and minor arpeggio.

2. One volume from each of the following groups:

(a) Czerny-Germer, vol. 1, pt. 2; Duvernay, op. 120; Berens, op. 61; Loeschorn, op. 66.

(b) Heller, op. 125; Heller-Foote Compendium, nos. 1-2.

(c) Bach Album (Carroll, Foote); Bach Album (Master Series, Hughes); Handel Album (Master Series, Hughes); Sonatina Album of Schirmer, Presser or Litolff (vol. 1512).

(d) Mendelssohn, Children's Pieces; Songs without Words, nos. 6, 9 or 12; Grieg, Valse in A Minor; Elfin Dance; MacDowell, To a Wild Rose; Schubert, Country Dances, Scherzo in B Flat Major; Schumann, selection from the Album for the Young; Tschaikowsky, selection from the Album for the Young; Rameau, Tambourin.

3. Sight reading of the difficulty of the average hymn tune.

Music 18A, 19A, 20A.

1. Any major scale, hands together, in 4/4 measure, quarter note to M.M. 88 as form in 9A.

Any minor scale, hands separately, in same form as major scales in 9A.

Any diminished arpeggio, quarter note to M.M. 98, in the following form: One octave in quarter notes, two octaves in eighth notes, three octaves in triple accent.

Major and minor arpeggio.

One from each of the following groups:

(a) Czerny-Germer, vol. 2, pt. 1; Czerny, op. 299; Hasert, op. 50, bk. 1; Loeschorn, op. 136, bk. 1.

(b) Bach, Little Preludes, Two-Part Inventions.

(c) Sonatinas or selections from easier compositions of Haydn, Mozart or Beethoven.

(d) Schumann, selection from Album for the Young (Rider's Piece, Knight Rupert, In Memoriam, Norse Song); Chopin, Mazurka, op. 7, no. 1; Prelude, op. 28, no. 7, no. 20, no. 4; Brahms, Valse in A Flat Major; Grieg, Sailors' Song, Berceuse, Dance Caprice; MacDowell, Woodland Sketches (any one except "To a Wild Rose"); simplest rondos or sonata movements of Haydn or Mozart.

3. Sight reading of the difficulty of Concord Series, no. 7.

Music 48A, 49A, 50A. First year for piano majors.

1. Any major scale to be played, hands together, an octave apart in 4/4 measure, a quarter note to M.M. 88, in the following form: one octave in quarter notes, two octaves in eighths, three octaves in triplets and four octaves in sixteenth notes.

Any minor scale to be played in the same form as major scales in Mus. 20A.

Any diminished seventh, dominant seventh chord and any major or minor triad to be played in arpeggio form.

2. One of each of the following groups:

(a) Czerny, op. 740 or Cramer; Loeschorn, op. 136, bk. 1, or like studies.

(b) One of the easier sonatas of Haydn, Mozart or Beethoven.

(c) Bach Three Part Inventions.

(d) Study of some of the more difficult numbers and ability to read musically the simpler numbers in Bach, Handel, Haydn, Mozart, Beethoven, Schubert, Schumann, Chopin and Tschaikowsky.

3. Sight reading of the grade of difficulty of bk. 14 of the Concord Series.

Sophomore Year

Music 68A, 69A, 70A.

1. Major and minor arpeggios, diminished seventh arpeggios and major and minor scales in thirds, sixths, and tenths to be played in various rhythms.
2. Continuation of Czerny, op. 740 or Cramer, or material chosen by the teacher to fit the needs of the student.
3. Beethoven, at least two of the earlier sonatas. (Suggestions: op. 2, no. 3; op. 10, no. 2; op. 10, no. 3.)
4. Bach, at least four preludes and fugues from the Well Tempered Clavichord; Suite from French or English Suites.
5. Selections from the romantic and modern composers.

Junior Year

Music 118A, 119A, 120A.

1. Continuation of Bach preludes and fugues; one organ transcription of Bach.
2. Chopin, etudes.
3. Beethoven, sonatas of the second period.
4. Selections from romantic and modern composers.

Senior Year

Music 168A, 169A, 170A.

Preparation for senior recital to consist of the following numbers or those of similar type and like difficulty.

1. Bach, an organ transcription, or Italian Concerto, or Chromatic Fantasie and Fugue, or a suite or partita, or a group of preludes and fugues from the Well Tempered Clavichord.
2. A standard piano concerto.
3. Compositions of romantic composers.
4. Compositions of modern composers.

Students majoring in piano are required to elect Mus. 165, 166, 167.

B. Violin Course

The following outline is intended for students who have had no previous instruction in violin and will be indicated by Mus. 1, 2, 3, 7, 8, 9-B.

1B, 2B, 3B. Violin Method, bks. 1 and 2, Rosen; exercises, op. 45, bk. 1, Wohlfahrt; bk. 1, DeBeriot, exercises, op. 68.

1B, 2B, 3B. Scales, Hrimaly; studies, Blumenstengal, op. 33; Mazas, bks. 1 and 1; Concerto, Accoly; Scene de Ballet, DeBeriot.

7B, 8B, 9B. Scales; exercises; etudes, Kreutzer, Fiorillo; Concerto 9 and 7, DeBeriot; one sonata by Handel.

18B, 19B, 20B. Scales, Rosen; etudes, Dancla; op. 35, Dont; Rovelli; Concerto, Bruch; D minor Wieniawski.

The following outline is intended for students who have had at least four years' previous instruction in violin. It will be varied however, to meet the individual needs and preparation of the student.

48B, 49B, 50B. *Technique.* Scales, Hrimaly, Rosen; Exercises, Sevcik, op. 1, bks. 1 and 2; Sevcik, op. 9, double-stops; Kreutzer; Fiorillo; Rode, 24, Studies; Rode, 12 studies; Dancla, 20 studies; Rovelli.

Repertoire. Sarsate, Zigeunerweisen; Wieniawski, Second Polonaise; Vieuxtemps, Ballade and Polonaise; Nardini, Concerto in E minor; Vivaldi, Concerto in A minor; Bruch, Concerto in G minor.

68B, 69B, 70B. *Technique.* Schradieck, bks. 1 and 2; Wilhelmy, Daily Studies in Thirds; Mazas, bk. 3; Givini, 24 Studies; Zajic, Daily Studies.

Repertoire. Sarsate, Faust-Fantasie; Sarsate, Spanish Dances; Sarsate, Introduction—Tarantelle; Mendelssohn, Concerto in E minor; Wieniawski, Second Concerto in D minor; Spohr, Concerto Nos. 2 and 8 .

118B, 119B, 120B. *Technique.* Carl Flesch, Scale System; Sevcik, Op. 1, bk. 3; Sauret, bk. 1; Dont, Exercises, op. 35; Wieniawski, Exercises, op. 18 and op. 10.

Repertoire. Beethoven, Two Romances; Hubay, Carman Fantasie; Corelli, Sonata in D Major; Tartini-Kreisler, Fugue in A Major; Saint-Saens, Concerto in B minor; Saint-Saens, Havanaise; Vieuxtemps, Concertos Nos. 4 and 5; Wieniawski, Scherzo-Tarantelle.

168B, 169B, 170B. *Technique.* Paganini, 24 Caprices.

Repertoire. Bach, Sonatas for violin alone; Tschaikowski, Concerto; Spohr, Concerto No. 7; Wieniawski, Concerto in F sharp minor; Gaganini, Concerto; Lalo, Spanish Symphony; Beethoven, Concerto; Brahms, Concerto; Glazounov, Concerto; Goldmark, Concerto.

NOTE: The senior student is obliged to memorize and play in public one of the concertos given in the senior year.

C. VOICE COURSE

48C, 49C, 50C. Elementary studies in tone production. Studies in vowel formation together with an elementary study of the physiology involved in the act of phonation. Suitable songs in the English language.

68C, 69C, 70C. Continued studies of voice production and technique together with a thorough foundation for proper diction. Songs from the old Italian masters; songs in languages which the student has studied or with which he is familiar.

118C, 119C, 120C. Continued studies in voice production; French songs; Italian and German classics; Lieder; suitable arias from oratorios and operas.

168C, 169C, 170C. Modern song literature; repertoire; oratorio; opera. Senior program consisting of excerpts from the classics, Italian, French and German songs; songs by representative foreign and American composers.

NOTE: If students are sufficiently advanced in voice upon entrance, their training will vary from that outlined above, to suit individual needs and abilities.

D. VIOLONCELLO COURSE

48D, 49D, 50D. Piatti Studies (Book 1.) Augener's Editions; Nölck Studies, op. 69, bks 1, 11; Two Octave scales, Major and Minor, Julius Klengel Edition; Arpeggios and Broken Thirds in Two Octaves, Klengel; Progressive Studies, bk. 1, Alvin Schroeder; Concerto in G, Golterman; some lighter solo numbers.

68D, 69D, 70D. Three Octave scales, arpeggios and broken thirds, Klengel; Progressive studies, bk. 1, Alvin Schroeder; Studies for the Left Hand,

Cossman; Concerntino in G, Klengel; Concertstucke in d minor, Klengel; Concerto in D, Romberger, Peters Edition; Twenty Studies, Merk.

118D, 119D, 120D. Scales, Arpeggios and Broken Thirds in four octaves, Klengel; last half of Studies for the Left Hand, Cossman; Bow Studies by Sevcik, Books 1 and 11, Book 11, Progressive Studies, Schroeder; Twelve Studies, Grützmacher; Suites, No. 1 and 3, Bach; Sonata in D, Marcello; Concerto in E, Popper.

168D, 169D, 170D. Concerto, Saint-Saens; Symphonique Variations, Boellmann; Sonatas No. 2 in D and No. 4 in E flat, Bach; Twelve Studies, Piatta; Bow-Technique. Sevcik; Sonata in L, Locatelli; Allegro Appassinato, Saint-Saens.

E. Organ Course

All students wishing to begin the course in organ must give satisfactory evidence of a foundation in piano at least equivalent to the first year of the course for piano majors.

First Year

48E, 49E, 50E. Manual and pedal exercises. Selections from Bach's Organ Works (Schirmer ed., vols. 1 and 11) including the "Eight Short Preludes and Fugues" complete. Albrechtsberger, Six Trios. Various slow movements from Mendelssohn's Organ Sonatas.

Second Year

68E, 69E, 70E. Continuation of Bach and Mendelssohn. Choral Preludes from Bach's "Orgelbuchlein" (Novello ed., vol. XV). Selections from Sonatas by Guilmant and Rheinberger and other works of a similar nature.

Third Year

118E, 119E, 120E. Continuation of Guilmant and Rheinberger. A Bach Trio-Sonata (Schirmer ed., vol. V). Several compositions of Bach from Vol. III (Schirmer ed.). Pieces by Cesar Franck.

Fourth Year

168E, 169E, 170E. Continuation of Bach Trio-Sonatas and compositions from vols. II, III, IV (Schirmer ed.). Selected Symphonies of Widor and Vierne. More difficult works of Cesar Franck, Karg-Elert and other contemporary composers.

Note: Organ majors must elect Music 163, Advanced Counterpoint.

NAVAL SCIENCE AND TACTICS

Commander C. L. Best, Executive Officer

All male students in the University who are American citizens, and are not physically disqualified, are required to take military training throughout the first two years of residence. The four-year course in naval science and tactics, prescribed by the Navy Department for units of the Naval Reserve Officers' Training Corps, may be substituted by the student for military training. Enrollment in this course is limited by the Navy Department and students will be selected for enrollment by the professor of naval science and tactics from those applying. The course in naval science and tactics leads to a commission as ensign in the United States Naval Reserve.

For those students who desire to major in naval science, a four-year curriculum has been arranged. (See the professor of naval science and tactics.)

First Year

1-2-3. *Basic Course—Indoctrination and Seamanship.* Three hours a week plus two additional hours of drill. Three credits; autumn, winter, spring.

Second Year

51-52-53. *Basic Course—Navigation and Nautical Astronomy.* Three hours a week plus two hours of drill. Three credits; autumn, winter, spring.

Third Year

101-102-103. *Advanced Course—Ordnance and Gunnery.* Three hours a week plus two hours of drill. Three credits; autumn, winter, spring.

Fourth Year

151-152-153. *Advanced Course—Leadership and Administration.* Three hours a week plus two hours of drill. Three credits; autumn, winter, spring.

COURSES OPEN TO GENERAL REGISTRATION

The following courses in naval science are open to general registration and are offered to all students registered in the University not enrolled in the Naval Reserve Officers' Training Corps.

55. *Seamanship.* Three credits; winter.

56. *Seamanship.* Prerequisite, Nav. Sci. 55. Three credits; spring.

61. *Sea Navigation.* Prerequisite, sophomore standing. Three credits; autumn.

62. *Sea Navigation.* Prerequisite, Nav. Sci. 61. Three credits; winter.

63. *Advanced Sea Navigation and Aerial Navigation.* Prerequisite, Nav. Sci. 62. Three credits; spring.

NAVAL AVIATION GROUND SCHOOL

(Preliminary to Flight Training)

Limited to Seniors or University Graduates

The department of naval science conducts an evening class without University credit for seniors or graduates who desire flight training for qualification as naval aviation pilots. Enrollment in Naval R.O.T.C. is not necessary to take this course. For particulars apply to professor of naval science and tactics, Good Roads Building.

NURSING EDUCATION

Associate Professor Soule, Executive Officer

The department of Nursing Education offers the following curricula for basic students in nursing and for graduate nurses.

A, B. Basic curricula combining university and hospital practice leading to a degree of bachelor of science in nursing.

C. Curriculum for graduate nurses leading to a degree of bachelor of science in nursing.

D. Curriculum for graduate nurses leading to a certificate in public health nursing.

E. Curriculum for graduate nurses leading to a certificate in hospital supervision.

EXTENSION

A. Curriculum leading to a certificate in public health nursing given at Firland Sanatorium.

B. An introductory course in public health nursing to senior students in general hospitals.

1. *History of Nursing and Survey of Field.* Open to any woman student in the University. Two credits; autumn. Soule.

5. *Home Care of the Sick and Child Hygiene.* Two credits; winter. Olcott.

OPEN ONLY TO BASIC STUDENTS AT HARBORVIEW HOSPITAL
Courses 50 to 100, Inclusive

50. *Principles and Practice of Elementary Nursing.* Open only to nursing majors. Five credits; autumn, spring. Olcott.

51. *Methods of Case Study.* Principles and practice of advanced nursing in relation to special types of disease. One credit; winter. Adams.

52. *Introduction to Hospital Practice.* Three months' experience in practical application of principles of hospital organization and economy. Six credits; autumn, spring. Olcott and department heads.

60. *Principles of Medicine and Nursing in General Medical Diseases.* Three credits; winter. Tuttle.

61. *Principles of Medicine and Nursing in Medical Specialties.* Including dermatology, syphilology, tuberculosis. Three credits; spring. Medical specialists and Tuttle.

62. *Hospital Practice in Medical Nursing.* Six credits; autumn, winter, spring, summer. Tuttle.

64. *Principles of Special Therapy.* The use of light, electricity, heat, water, massage, exercise and occupation as aids in cure or control of disease. Two credits; winter. Olcott and department head.

65. *Hospital Practice in Departments of Special Therapy.* Six credits; autumn, winter, spring, summer. Adams and department heads.

66. *Principles of Preventive Medicine and Nursing Care in Acute Communicable Disease.* Two credits; autumn. Nursing instructor and department heads.

68. *Practice of Nursing in Acute Communicable Diseases.* Six credits; autumn, winter, spring. Sears.

70. *Principles of Surgery and Nursing in General Surgical Diseases.* Lecture, demonstrations, clinics. Three credits; winter. Surgeon and Radford.

71. *Principles of Surgery and Nursing in Surgical Specialties.* Includes gynecology, urology, orthopedics, and operating room technique. Three credits; spring. Surgical specialists and Radford.

72. *Hospital Practice in Surgical Nursing.* Six credits; autumn, winter, spring, summer. Radford.

73. *Operating Room Practice.* Six credits; autumn, winter, spring, summer. Leach.

75. *Hospital Practice in Clinical Diagnosis.* Demonstration, clinics, and two months' practice in out-patient department and diagnostic laboratory. Six credits; autumn, winter, spring. Adams and department heads.

76. *Principles of Otology, Ophthalmology, and Neurology.* Two credits; winter. Medical specialists and Tuttle.

80. *Principles of Pediatrics and Pediatric Nursing.* Five credits; autumn. Pediatrician and Larsen.

82. *Hospital Practice in Pediatric Nursing.* Practical experience in nursing care of infants and children, including practice in formula room. Six credits; autumn, winter, spring, summer. Larsen.

*86. *Principles of Obstetrics and Obstetrical Nursing.*

88. *Hospital Practice in Obstetrical Nursing.* Nursing care of patients during pre-natal, labor and post partum periods, including care of the new born. Six credits; autumn, winter, spring, summer.
Obstetrical nursing supervisor and obstetrician.

90. *Principles of Psychiatry and Psychiatric Nursing.* Lectures, demonstrations and clinics dealing with various types of mental diseases. Five credits; spring. Psychiatrist and Curtis.

92. *Hospital Practice in Psychiatric Nursing.* Three months' experience in psychiatric wards, out-patient, and commitment clinics. Six credits; autumn, winter, spring, summer. Curtis.

100. *Professional Problems and Survey of Nursing.* Two credits; winter, summer. Smith.

102. *Principles of Public Health Nursing.* Prerequisite, graduate registered nurse. Five credits; autumn. Soule.

103. *Organization, Administration, and Techniques in Special Fields of Public Health Nursing.* Prerequisite, Nurs. Edu. 102. Five credits; winter, spring. Soule.

110E. *Field Work.* See Nurs. Edu. 110E under Extension.

111. *Supervised Field Work in School Nursing.* Prerequisite, graduate registered nurse. Three credits; autumn, spring. Soule.

150. *Teaching in Nursing Schools.* Principles of teaching applied to nursing procedure. Five credits; autumn. Adams.

151. *Administration of Schools of Nursing.* Five credits; spring. Adams.

152. *Supervision of Hospital Departments.* Organization, equipment and administration. Five credits; winter. Adams.

153. *Hospital Administration in Relation to Nursing Service.* Prerequisites, graduate registered nurse, Nurs. Edu. 152. Five credits; spring.
Smith and Adams.

154. *Cadet Teaching and Ward Administration in Hospitals.* Prerequisites, Nurs. Edu. 150, 152, graduate registered nurse. Ten credits; autumn, winter, spring, summer. Adams.

COURSES FOR GRADUATES ONLY

*200. *Seminar.*

*201-202, 203. *Problems.* Prerequisites, graduate registered nurse, 30 credits in nursing. Credits to be arranged. Soule, Adams.

*Not offered in 1933-1934.

205. *Research in Nursing Education, Hospital Administration, Public Health Nursing.* Prerequisites, Nurs. Edu. 102, 103, Bact. 103, or Nurs. Edu. 150, 151, 152. Credits arranged; autumn, winter, spring. Staff.

BY EXTENSION

E110. *Public Health Nursing.* Field work to give a practical knowledge of the field of public health nursing. Prerequisite, Nurs. Edu. 102. Eight to sixteen credits. Time to be arranged. Soule.

OCEANOGRAPHIC LABORATORIES

Professor T. G. Thompson, Director

101. *Oceanography.* Fundamental principles of general oceanography. Three credits; spring. Miller.

Chem. 155. *Oceanographical Chemistry.* Prerequisite, Chem. 111, 132, or equivalent. Three credits; spring. Thompson.

Chem. 156. *Oceanographical Chemistry.* Laboratory methods. Prerequisite, Chem. 155. Two three-hour laboratory periods and one conference. Three credits; spring. Thompson, Robinson.

Physics 166. *Physical Oceanography.* A study is made of (1) physical properties of sea water; (2) methods of observation and operation of instruments; (3) an introduction to the theory of the measurements of ocean currents. Prerequisite, Physics 3. Two credits; spring. Utterback.

Bot. 205, 206, 207. *Physiology of Marine Plants.* Prerequisites, Physics 3, Bot. 145, Chem. 111 and 129, or equivalent. Two lectures, one three-hour laboratory period. Three credits each quarter; autumn, winter, spring. Rigg.

Bot. 210, 211. *Phytoplankton.* These courses are given at the Friday Harbor laboratories by special arrangement with instructor. Prerequisites, Physics 3, Bot. 145, Chem. 111 and 132 or equivalent. Three credits; winter, spring. Phifer.

Physics 219. *Hydrodynamics.* Prerequisites, Physics 200, Math. 116. Utterback.

Zool. 213, 214, 215. *Advanced Invertebrate Embryology.* Development and life history of marine invertebrate animals, life history of parasites of marine fishes. Prerequisite, Zool. 5, 106, and 126. Three credits; autumn, winter, spring. Guberlet.

249. *Graduate Seminar.* Assigned readings and reports dealing with special topics. Credits to be arranged; autumn, winter, spring. Staff.

250. *Research in Oceanography.* The work in research is of three types; (1) special investigations by advanced students; (2) research for the master's degree; (3) research for the doctor's degree. Maximum, 45 credits. Staff.

ORIENTAL STUDIES

Assistant Professor Pollard, Executive Officer

The department offers work in the history, literature, civilization, and to a limited extent the languages of Russia and the Orient. Its courses are designed to serve those interested in the cultural, social, and religious life of Asiatic peoples, as well as their relations, political and intellectual, with the Occident.

Courses 114, 115, 116 give credit in the department of philosophy as well as in Oriental Studies. Upper division credit may be earned in courses numbered 26, 27, 40, 41, 50, 51, 52, 70, 71, by doing extra work under the direction of the instructor. Requirements for a major in Oriental Studies:

1. The general requirements governing majors in the College of Liberal Arts.

2. The departmental requirements of O.S. 10 or 25, 114, 115, 116.

3. A comprehensive senior examination in the final quarter of work.

1-2, 3. *Japanese Language.* First-year course. Elements of spoken and written language; grammar, *kana,* and characters. Five credits; autumn, winter, spring. Tatsumi.

7-8, 9. *Russian Language.* First-year course. Fundamentals of Russian grammar, pronunciation, vocabulary, conversation, composition; readings from the Russian classics. Five credits, autumn; three credits, winter and spring. Spector.

10. *Culture of Asia.* General survey of the political, philosophical, religious, literary, and social aspects of Asiatic life, yesterday and today. Especially valuable to freshmen. Five credits; autumn, winter, spring. Cutts.

*25. *Introduction to the History of Asia.*

†26. *Introduction to the History of China.* An outline of Chinese history, with special emphasis on the period since 1842. Five credits; winter. Pollard.

†27. *Introduction to the History of Japan.* An outline of Japanese history, with special emphasis on the modern period. Five credits; spring. Pollard.

†40. *Chinese Civilization.* The social, intellectual, and institutional life of the Chinese, with emphasis on recent tendencies. Five credits; autumn. Pollard.

†41. *Japanese Civilization.* The social, intellectual, and institutional life of the Japanese, with emphasis on recent tendencies. Five credits; winter. Pollard.

*44-45, 46. *Chinese Language.*

*47, 48, 49. *Chinese Language.*

†50. *Literature of India.* Indian literature from the Vedas to Rabindranath Tagore. Five credits; autumn. Cutts.

† 51. *Literature of the Euphrates Valley and Egypt.* Survey of literary discoveries in Sumerian, Babylonian, Assyrian, and Egyptian archaeology. Five credits; winter. Cutts.

†52. *Literature of Persia.* Persian literature from Zoroaster to the present day, including Muhammad and the Qu'ran. Five credits; spring. Cutts.

†70. *Literature of China.* The Chinese classics; the great poets and philosophers; Chinese fiction. Five credits; autumn. Pollard.

†71. *Literature of Japan.* Japanese literature from the Kojiki to the present day, including poetry, the novel, and the drama. Five credits; spring. Tatsumi.

101-102-103. *Hebrew, Aramaic, or Arabic.*

104-105-106. *Sanskrit.*

†Upper division students may receive U.D. credits by doing extra work.
*Not offered in 1933-1934.

107, 108, 109. *Japanese Language.* Intensive course in written language; ideograph, grammar, and reading in Japanese literature. Prerequisite, O.S. 3 or equivalent. Five credits a quarter; autumn, winter, spring. Tatsumi.

114. *History of Religion.* The general principles of primitive religion, and the religions of primitive peoples. Three credits; autumn. Cutts.

115. *History of Religion.* The religions of the Ancient Empires, and the religions of the Orient. Three credits; winter. Cutts.

116. *History of Religion.* A survey of Judaism, Christianity, and Muhammadanism. Three credits; spring. Cutts.

120. *Problems of Eastern Asia and the Pacific.* An intensive study of selected topics dealing with the contemporary situation in Japan, China, and the western Pacific. Prerequisite, U.D. standing or permission of instructor. Five credits; spring. Pollard.

125-126, 127. *Diplomatic History of Eastern Asia.* The opening of China and Japan; Japan as a great power; the nationalist movement in China and its effects on the treaty rights of Russia, Japan, and Western nations. Prerequisite, U.D. standing or permission of instructor. Three credits a quarter; autumn, winter, spring. Pollard.

130. *Russian Literature.* The best novels from 1842 to 1917; special reference to the works of Gogol, Goncharov, Turgenev, Dostoyevsky, Tolstoy, Tchekhov, Gorky. Three credits; winter, spring. Spector.

*136. *History of Russia.*

*152, 153, 154. *Hebrew, Arabic, or Sanskrit.*

190. *West Asia Reading Course.* Selected reading in primary and secondary sources. Term papers from reading. Proper use of bibliography and foot-notes. Three credits; autumn. Cutts.

191. *Reading Course in India.* Selected reading in primary and secondary sources. Term papers from reading. Proper use of bibliography and foot-notes. Three credits; winter. Cutts.

192. *East Asia Reading Course.* Directed reading, following the student's special interests, and covering the general field of the Far East. Three credits; spring. Pollard.

COURSES FOR GRADUATES ONLY

220. *Seminar on Eastern Asia.* Intensive graduate study of selected Chinese and Japanese subjects. Two credits; winter. Pollard.

221. *Sources in East Asia.* Methods of research; an introduction to the primary and secondary sources for the study of Chinese and Japanese history, diplomacy, and literature. Two credits; autumn. Pollard.

*222. *Sources in West Asia.*

280, 281, 282. *Research.* Research work in Oriental Studies for those qualified. Credits and time arranged. Autumn, winter, spring. Pollard and Spector.

290, 291, 292. *Thesis.* Directed investigation and writing in connection with work for advanced degrees. Two to five credits; autumn, winter, spring. Staff.

Note: Courses in other departments of instruction relating to the Oriental field are:

*Not offered in 1933-1934.

Anthropology: 51, 52, *General Introduction to Anthropology;* 101, *Basis of Civilization;* 105, *Culture Growth.*

Geography: 103, *Economic Geography of Asia;* 175, *Problems in Political Geography;* 200, *Seminar in Geography.* Students interested in the Orient should consult with the instructor before registering for courses 175 and 200.

Political Science: 114, *Oriental Political Theory;* 129, *International Relations of the Far East;* 158, *Governments and Politics of the Far East.*

Sociology: 68, *National Traits;* 142, *Race Invasion.*

PHARMACY, PHARMACEUTICAL CHEMISTRY, PHARMACOLOGY, TOXICOLOGY, MATERIA MEDICA AND FOOD CHEMISTRY

Professor Johnson, Executive Officer

1, 2, 3, *Theoretical and Manufacturing Pharmacy.* Pharmaceutical operations and manufacture of U.S.P. and N.F. preparations. Two lectures and one laboratory period a week. Three credits a quarter; autumn, winter, spring. Cain and assistants.

4. *The Profession of Pharmacy.* A survey of the development of pharmacy as a profession. Two lectures a week. Two credits; autumn. Langenhan.

5. *Gravimetric Quantitative Analysis.* Two lectures, one quiz and two 4-hour laboratory periods a week. Five credits; autumn. Goodrich.

6. *Volumetric Quantitative Analysis.* Two lectures, one quiz and two 4-hour laboratory periods a week. Five credits; winter. Goodrich.

7. *Urinanalysis.* One lecture and one laboratory period a week. Two credits; spring. Goodrich.

8. *Pharmacopoeial Assay.* The assay of drugs by methods in the United States Pharmacopoeia. One lecture and three hours laboratory a week. Two credits; spring. Goodrich.

9, 10, 11. *Prescriptions.* Theory and practical application of extemporaneous compounding. One lecture, one quiz and one laboratory period a week. Three credits a quarter; autumn, winter, spring. Evans and assistants.

12, 13, 14. *Pharmacognosy.* Organic drugs, their source, methods of collecting and preserving, identification, active constituents and adulterations. Three lectures a week. Three credits; autumn, winter, spring. Goodrich.

51. *Elementary Pharmacy.* A brief survey of the fundamental knowledge of dispensing which the nurse should have. Two credits; autumn. Dial.

61. *Pharmacology and Therapeutics.* The source, actions, and uses of drugs. Three credits; winter. Dial.

101, 102, 103. *Pharmacology and Toxicology.* Action, uses and doses of drugs. Symptoms and treatment in poisoning. Three credits a quarter; autumn, winter, spring. Lynn.

104, 105. *Pharmacognosy.* A microscopic study of crude and powdered drugs for purposes of identification and for detection of adulteration. Two laboratory periods a week. Two credits; winter, spring. Goodrich.

112. *Biologicals.* A course dealing with those animal drugs and biological products used in medicine. Three credits; autumn. Goodrich.

113, 114, 115. *Advanced Prescriptions.* Problems in dispensing and manufacturing. Preparation of diagnostic reagents. Study U. S. P. and N. F. Two lectures and three laboratory periods. Five credits; autumn, winter, spring. Langenhan and assistants.

183. *New Remedies.* New and non-official remedies; modern modes of administering medicines. Three lectures a week. Three credits; winter. Langenhan.

184. *Pharmacy Laws and Journals, and Problems.* Laws relating to the practice of pharmacy. Three lectures a week. Three credits; spring. Langenhan.

191, 192, 193. *Research Problems in Pharmacy.* Open to juniors, seniors and graduates. One to five credits; autumn, winter, spring. Lynn, Langenhan, Goodrich, Johnson.

195, 196, 197. *Pharmaceutical Chemistry.* The pharmacy and chemistry of alkaloids, glucosides, oils, volatile oils and other plant and animal principles of pharmaceutical importance. The course will also include the separation and identification of poisons from animal tissue. One lecture and three laboratory periods. Five credits; autumn, winter, spring. Lynn.

COURSES FOR GRADUATES ONLY

201. *Investigation in Practical Pharmacy.* Maximum credit forty-five credits. Any quarter. Langenhan.

202. *Investigation in Pharmacognosy.* Maximum credit forty-five credits. Any quarter. Goodrich.

203. *Investigation of Toxicology.* Maximum credit forty-five credits. Any quarter. Lynn, Johnson.

204. *Investigation in Pharmaceutical Chemistry.* Maximum credit forty-five credits. Any quarter. Lynn, Johnson.

205. *Investigation in Pharmacology.* Maximum credit forty-five credits. Any quarter. Lynn.

210. *Graduate Seminar.* Reports on assigned reading under direction of members of the staff. One hour a week. No credit; autumn, winter, spring. Staff.

PHILOSOPHY

Professor Savery, Executive Officer

Philosophy 2 or 3, 5, and 101,102,103 are required of majors.
Psychology 1 is required of majors in philosophy.
Philosophy 2 or 3, 5, and 101, 102, 103 are required of majors.
At least 50 per cent of the credits in the major must be in upper division courses.

1. *Introduction to Philosophy.* Not open to freshmen. Five credits; autumn, winter, spring. Savery, Nelson, Robson.

2. *Introduction to Social Ethics.* Social ideals and problems, with special emphasis upon the opposition of democracy and aristocracy in government, industry, law, education, art and religion. Not open to freshmen. Five credits; winter. Savery and assistants.

3. *Introduction to Ethics.* Moral principles and their application to the problems of life. Not open to freshmen. Five credits; spring. Rader, Robson.

5. *Introduction to Logic.* Conditions of clear statement, adequate evidence, and valid reasoning, and their establishment in the mental processes of the student. Not open to freshmen. Five credits; autumn, winter. Nelson.

101, 102, 103. *History of Philosophy.* Ancient, medieval and modern. Open to juniors and seniors only. Prerequisite, Phil. 101 or 5 credits of Phil. for 102 or 103. Three credits a quarter; autumn, winter, spring. Rader.

104-105-106. *Metaphysics.* The nature of reality, with special reference to the concepts and principles of science. For advanced students in philosophy or in the sciences. Instructor's permission necessary. Three credits a quarter; autumn, winter, spring. Savery.

*113. *Philosophy of Religion.*

Oriental Studies 114, 115, 116. *History of Religion.* Autumn quarter: primitive conceptions of religion; naturism and spiritism. Winter quarter: the religions of the Far East. Spring quarter: Judaism, Christianity, and Muhammadanism. Offered in alternate years. Three credits; autumn, winter, spring. Cutts.

123. *Philosophy in English Literature of the Nineteenth Century.* From Wordsworth to Shaw, including Emerson, Whitman, and Mark Twain. Prerequisite, Phil. 1 or instructor's permission. Five credits; spring. Savery.

129. *Esthetics.* Theories of the nature of art, the nature of beauty, and the various sources of esthetic effect. Open only to juniors and seniors. Five credits; autumn. Rader.

133. *Ethical Theory.* An advanced course in the fundamental concepts and principles of ethics. Prerequisite, Phil. 2 or 3. Two credits; spring. Rader.

141-142-143. *Contemporary Philosophy.* Modern movements: idealism, mysticism, intuitionism, positivism, pragmatism, realism, mechanism, and vitalism. Prerequisite, Phil. 1 or 101, 102, 103. Two credits; autumn, winter, spring. Robson.

193. *Advanced Logic.* Symbolic logic; critical examination of logical doctrines bearing on philosophical questions; inductive method. Prerequisite, Phil. 5. Three credits; spring. Nelson.

COURSES FOR GRADUATES ONLY

207-208-209. *Seminar in Philosophy of Science.* An advanced study of metaphysics. Open to students upon approval of instructor. Three or four credits a quarter; autumn, winter, spring. Savery.

214-215-216. *Seminar in Logic.* The Boolean algebra of logic, the nature of deductive systems, studies in the *Principia Mathematica,* extensional and intensional logics, theory of propositions; and recent contributions to induction and probability theory. Prerequisite, Phil. 5, and approval of the instructor. Three or four credits a quarter; autumn, winter, spring. Nelson.

*237-238-239. *Seminar in Locke, Berkeley, Hume.*

241-242-243. *Seminar in Plato and Neo-Platonism.* Reading of the Dialogues of Plato and the Enneads of Plotinus in translation, with discussion and interpretation. Open to students upon approval of instructor. Three or four credits a quarter; autumn, winter, spring. Rader.

*244-245-246. *Seminar in the Philosophy of Kant.*

*247-248-249. *Seminar. The Philosophy of Schopenhauer and Nietzsche.*

251-252-253. *Research in Philosophy.* Open to students upon approval of instructor. One to six credits a quarter; autumn, winter, spring. Staff.

*Not offered in 1933-1934.

PHYSICAL EDUCATION AND HYGIENE FOR MEN

Associate Professor Foster, Executive Officer

Requirements for Graduation. Two years of physical education or military or naval science and tactics are required of all able-bodied male students, with the exception of men over 24 years of age at the time of original entrance into the University.

Health and Physical Examinations. All students entering the University for the first time are required to receive a thorough medical and physical examination. The examination will serve to determine the course in which the student shall register.

Required Service Courses

For Freshmen

1, 2, 3. *Elementary Physical Education.* One credit a quarter; autumn, winter, spring. Torney and Staff.

5, 6, 7. *Restricted Exercise.* Work adapted to meet the individual needs based upon the findings of the medical and physical examination. One credit a quarter; autumn, winter, spring. Belshaw.

For Sophomores

51, 52, 53. *Advanced Physical Education.* During the sophomore year the student is permitted to select three activities in which to specialize. One credit a quarter; autumn, winter, spring. Auernheimer and Staff.

55, 56, 57. *Restricted Exercise for Sophomores.* A continuation of Physical Education 5, 6, 7. One credit a quarter; autumn, winter, spring. Belshaw.

Note: The above courses are offered in satisfaction of the general lower division physical education requirement only.

For professional courses in physical education, see page 98.

PHYSICAL EDUCATION AND HYGIENE FOR WOMEN

Associate Professor Gross, Executive Officer

The physical education requirement for graduation consists of the health education lecture course and physical education activity courses as follows:

P.E. 4-5, 6-7, 8-9. Health Education	6 credits
P.E. activity classes	4 credits
	10 credits
or	
P.E. 10. Health Education	5 credits
P.E. activity classes	5 credits
	10 credits

The health education course is taken preferably in the freshman year, the activity courses during the freshman and sophomore years. A student may be exempt from the health education course by passing the health knowledge test given during freshman week. In healthful activity at least one credit must be in P.E. 95, *Swimming,* unless the student is able to pass the swimming test given at the time of the physical examination.

(a) *Health Education Lecture Course.* Given jointly by the home economics, nursing education, and physical education departments.

(b) *Physical Education Activity Courses.* The requirement represents knowledge and proficiency in at least one activity from each of the following four groups of activities: One, three, four and five, and an additional one from any:

1. *Individual Group*: Tennis, Golf, Riding, Canoeing, Rifle Marksmanship, Archery, Fencing.
2. *Team Group*: Volleyball, Basketball, Hockey.
3. *Rhythmic Group*: Folk Dancing, Character Dancing, Natural Dancing.
4. *Swimming Group.*
5. *Posture Group.*

No credits received in these courses, however, may be counted as part of the 180 academic credits required for graduation.

(c) *Professional Physical Education Courses.* Courses leading to a major in physical education are listed under professional courses. For curricula in physical education see College of Science or School of Education announcements.

Health Education Lecture Courses

4-5. *Health Education.* The development of personal and social attitudes in matters of personal and community hygiene. Study of physiological facts related to these attitudes. Development of a social consciousness regarding personal and future problems in the matter of self-direction. Two lectures a week. Two credits; autumn, winter, spring. Davidson.

6-7. *Health Education—Community Hygiene.* Development of public health program in rural communities and cities. Public health and communicable disease. Two lectures a week. Two credits; winter, spring. Olcott.

8-9. *Health Education.—Nutrition.* Food selection in relation to nutritive requirements of various age groups. Consideration of simple corrective diets. Two lectures a week. Two credits; autumn, winter, spring. O'Keefe.

10. *Health Education.* (Equivalent of P.E. 4-5, 6-7, 8-9). Five credits; autumn, winter, spring. Davidson, O'Keefe, Soule, Adams, Bliss.

Physical Education Activity Courses for Women

1, 2. *Corrective Gymnastics.* One credit; autumn, winter, spring. McGownd.

11-12-13. *Physical Education Activities for Freshman Majors.* (Required of all freshman major students.) Practice in folk dancing, character dancing, hockey, basketball, tennis, soccer, archery, baseball, volleyball, natural dancing, swimming. Two credits each; autumn, winter, spring. Reed, Rulifson, deVries, Glover, Maydahl.

51-52-53. *Physical Education Activities for Sophomore Majors.* (Required of all sophomore major students.) Practice in folk dancing, character dancing, hockey, basketball, tennis, soccer, archery, baseball, volleyball, natural dancing, swimming. Two credits each; autumn, winter, spring. Reed, Rulifson, deVries, Glover, Maydahl.

57 to 98. *Physical Education Activities.* 57, Fencing; 61, folk dancing; 62, character dancing: 63, advanced character dancing; 64, hockey; 65, basketball; 67, tennis; 69, advanced tennis; 68, soccer; 72, rifle marksmanship; 75, archery; *80, baseball; 82, volleyball; 85, canoeing; 87, golf; 88, advanced

golf; 91, natural dancing; 92, advanced natural dancing; 94, equitation; 95, elementary swimming; 96, intermediate swimming; 97, advanced swimming. One credit each; autumn, winter, spring. For section, see time schedule.
Reed, Rulifson, deVries, Glover, Jefferson, Maydahl, Mahan.

PROFESSIONAL COURSES FOR MEN AND WOMEN

80. *Introduction to Physical Education.* (For men). General survey of the field; range and type of activities, including professional opportunities; relation of the required curricular courses to the special field. Two credits; autumn. Foster.

90. *Personal and General Hygiene.* (For men.) The laws of hygiene as they apply to the individual problem of adjustment. Two credits; spring. Foster.

*95. *Elementary Games.* (For men.) Two credits; autumn. Kunde.

100. *Survey of Physical Education as a Profession.* (For women.) Opportunities in the field. Relation of courses. Required of all physical education majors. Two credits; winter. Gross.

101. *Survey of Gymnastics.* (For women.) Classification of gymnastic material. Principles and technique of teaching. Prerequisites or accompanying courses, Anat. 100, 110, 111, 112, and Physiol. 50. One hour lecture and two hours practice. Three credits; winter. Davidson.

*110. *Athletic Training and First Aid.*

111. *Rhythmic Activities for Small Children.* (For women.) Activities suited to the pre-school, kindergarten, and primary child. Educational value, significance in child development, methods of presentation. Lecture and practice. Three credits; autumn. Reed.

112. *Elementary School Athletic Program.* (For women.) Progressive series from the hunting games and elementary forms to the standard athletic activities of late adolescent years. Game sequence and organization methods of judging and achievement and improvement. One hour lecture, two hours practice. Three credits; winter. Rulifson.

113. *Playground and Community Recreation.* (For men and women.) The playground movement, its setting and development. Materials and activities suitable for play and recreation programs. Three credits; spring. Kunde.

115. *Physiology of Muscular Exercise.* (For men and women.) A comprehensive course in the physiology of muscular exercise as related to physical activities. Prerequisites, Anat. 100, Physiol. 50, or the equivalent. Three credits; spring. Belshaw.

122. *Kinesiology.* (For men and women.) Study of the principles of body mechanics. The analysis of leverage in body movement and problems of readjustment in relation to posture and to sports. Prerequisites, Anat. 100, 110, 111, 112, and Physiol. 50. Three credits; spring. McGownd.

127. *Tests and Measurements.* (For men and women.) The place and possibilities of measurement in physical education. Practical problems will be assigned to class for experimental study. Prerequisite, senior standing. Three credits; winter. Belshaw.

131-132-133. *Theory and Practice in Adapted Activities.* (For women.) Application of principles of body mechanics in the maintenance of postural patterns. Analytical study and application of remedial exercises. Fundamental manipulations of massage and its place in correction of postural de-

*Not offered in 1933-1934.

fects. Prerequisites. P.E. 122, Anat. 100, 110, 111, 112, and Physiol. 50. Three credits; autumn, winter, spring. McGownd.

135. *Individual Gymnastics.* (For men.) This course will consider physical abnormalities of the most frequent occurrence; selection and application of corrective exercise to actual cases under supervision. Prerequisite, P.E. 122. Three credits a quarter; winter. Belshaw.

141, 142, 143. *Physical Education Methods.* (For men.) Theory and application of educational method to the teaching of physical education in the elementary and secondary schools. Prerequisite, P.E. 1, 2, 3, 51, 52, 53 or examination. Three credits a quarter; autumn, winter, spring. Auernheimer and Staff.

145. *Principles of Physical Education.* (For men and women.) Social, biological, and educational foundations. Formulation of the major aims and objectives. Prerequisite, junior standing. Three credits; autumn. Foster.

150. *Physical Education Administration.* (For men.) Organization and administration in the schools and colleges. Prerequisite, P.E. 145. Five credits; winter. Foster and Staff.

152. *Organization and Administration of Physical Education.* (For women.) Organization of activities for grade and high school curriculum. Methods of classification of students and administration of activities, the organization of leadership. Prerequisites, P.E. 100, 111, 112, 145, 162, 163, and 164. Two hours a week. Two credits; spring. Gross.

153. *Principles in Health Education.* (For men and women.) The place of health education in the school program, principles of organization and administration, the general program of health teaching, subject matter and methods in health teaching in both the elementary and high school. Two credits; winter. Gross.

162, 163, 164. *Methods in Physical Education.* (For women.) Theory and practice of educational method to the various activities of the physical education program. Prerequisites, P.E. 11, 12, 13, 51, 52, 53. Five credits; autumn, winter and spring. deVries, Glover, Rulifson, Reed, Maydahl.

170. *Methods in Teaching Football.* (For men.) Theory and practice of the fundamental principles underlying both individual and team play. Prerequisite, junior. Two credits; spring. Phelan.

171. *Methods in Teaching Basketball.* (For men.) Individual and team development; offensive and defensive play. Prerequisite, junior. Two credits; winter. Edmundson.

172. *Methods in Teaching Track and Field.* (For men.) Methods of training for the various events. Correct form in running. Conducting and officiating meets. Prerequisite, junior. Two credits; autumn. Edmundson.

173. *Methods in Teaching Baseball.* (For men.) Fundamentals of batting, base-running, and position play; theory and practice. Prerequisite, junior. Two credits; spring. Graves.

175. *Methods in Teaching Swimming and Diving.* (For men.) Prerequisite, medical examination. Two credits; winter. Torney.

181. *Organization and Administration of Camp Programs.* (For women.) Theory and practice in camp organization and administration and in the conduct of camp activities; studies are made of the educational significance of current movements and existing local and national organizations. Three credits; spring. Davidson.

*182. *Scouting Principles and Practice.*

190. *The Curriculum.* (For men and women.) Guiding principles underlying the curriculum. Selection and organization of program content in relation to such problems as characteristics and needs of pupils and local conditions. Practical experience in curriculum making. Prerequisite, 15 credits in physical education. Three credits; spring. Foster.

Teachers' Course in Physical Education. See Edu. 75V. For additional courses, see Edu. 145G, School Hygiene.

COURSES FOR GRADUATES ONLY

200. *Seminar.* (For men and women.) Present status of physical education with special reference to a state survey of standards, training of teachers, programs, equipment, schedules, etc. Prerequisite, 20 credits in physical education. Credits to be arranged; autumn. Gross.

201, 202, 203. *Problems in Physical Education.* (For men and women.) Special problems, including administration of school programs, organization of activities. Problems selected will depend upon personnel of class. Prerequisite, 20 credits in physical education. Credits to be arranged; autumn, winter, spring. Gross.

204. *Supervision of Physical Education.* (For men and women.) Analysis of the problems and technique of the improvement of teaching as relating to the in-service education of teachers; visitation and conference; selection and organization of subject matter; standardization of the materials of instruction; use of tests and measurements; the evaluation of the efficiency of teachers. Prerequisite, 20 credits in physical education. Three credits; spring. Gross.

PHYSICS

Associate Professor Brakel, Executive Officer

Students not in engineering, who do not have a year of high school physics, must elect Physics 4, 5, 6.

Engineering students must have a year of high school physics before taking Physics 97.

Students majoring in physics should elect the following courses in order given: 1, 2, 3 or 4, 5, 6; 101, 105, 160, 191, 192 and elective physics courses to make 45 credits. Math. 4, 5, 6 and 107, 108, 109 are required of physics majors, and Chem. 181, 182 and Math. 114, 115, 116 are advised.

1-2. *General Physics.* These courses will satisfy the physical science requirement in the Colleges of Liberal Arts and Science and may be taken by students in forestry, pharmacy and fine arts. Prerequisite, a year of high school physics. Five credits; autumn, winter. Osborn.

3. *General Physics, Electricity.* Required of physics majors, of mathematics majors taking physics as a minor and of pre-medic students. Prerequisites, Physics 1-2. Five credits; spring. Utterback.

4-5. *General Physics.* For students without a year of high school physics. These courses will satisfy the same requirements as Physics 1-2. Five credits; autumn, winter. Utterback.

6. *General Physics, Electricity.* This course will satisfy the same requirements as Physics 3. Prerequisite, Physics 5. Five credits; spring. Utterback.

*Not offered in 1933-1934.

50-51. *Sound and Music.* Three credits for 50; four credits for 51; winter, spring. Kenworthy.

54. *Photography for Amateurs.* Prerequisite, elementary physics or chemistry. Three credits; spring. Higgs.

89-90-91. *Physics of the Home.* For students in home economics and nursing. Four credits, autumn; three credits, winter, spring. Osborn.

97. *Physics for Engineers—Mechanics.* Prerequisite, a year of high school physics and 12 credits of college mathematics. Five credits; autumn, winter. Brakel, Loughridge.

98. *Physics for Engineers—Electricity.* Prerequisite, Physics 97. Five credits; winter, spring. Brakel, Loughridge.

99. *Physics for Engineers—Light and Heat.* Prerequisite, Physics 97. Five credits; autumn, spring. Brakel, Loughridge.

101. *Introduction to Modern Theories.* Prerequisite, Physics 3 or 6. Five credits; autumn. Utterback.

105. *Electricity.* Prerequisite, Physics 3 or 6. Five credits; winter. Brakel.

*109. *Pyrometry.*

*110. *Heat and Introduction to Thermodynamics and Kinetic Theory.*

115. *Applications of Photography to Scientific Work.* Prerequisite, 15 credits of college physics and 15 credits of college chemistry. Three credits; winter. Higgs.

154. *Electrical Measurements.* For engineering students. Prerequisite, Physics 97, 98, 99. Three credits; autumn, spring. Brakel.

160. *Optics.* Prerequisite, Physics 3 or 6, and calculus. Six credits; spring. Osborn.

166. *Physical Oceanography.* Physical properties of sea water; methods of observation and operation of instruments; theory of the measurements of ocean currents. Prerequisite, Physics 3 or 6. Two credits; spring. Utterback.

167, 168, 169. *Special Problems.* Prerequisite, special permission. Credits arranged; autumn, winter, spring. Staff.

*170. *Spectrometry.*

*180. *History of Physics.*

191, 192. *Theoretical Mechanics.* Prerequisite, 20 credits of physics, and calculus. Three credits, autumn; two credits, winter. Loughridge.

195, 196. *Atomic Physics.* A laboratory course designed to acquaint the student with a group of phenomena representative of modern experimental physics. Prerequisite, 30 credits of physics. Three credits; autumn, winter. Higgs.

COURSES FOR GRADUATES ONLY

200, 201, 202. *Introduction to Theoretical Physics.* A study of the fundamental principles and mathematical theory of the entire field of physics, constituting a thorough foundation for subsequent specialization and more intensive study. *An Introduction to Theoretical Physics* by Page, is used as a text.

*Not offered in 1933-1934.

Prerequisite, forty credits of physics and taking Math. 114. Five to eight credits; autumn, winter, spring. Kennedy, Loughridge.

*204. *Thermodynamics.*

*205. *Kinetic Theory.*

210. *Mathematical Theory of Sound.* A detailed study of the propagation of sound; its transmission and filtration from the standpoint of impedance theory. Prerequisite, forty credits of physics. Four to six credits; spring. Loughridge.

211. *Statistical Mechanics.* Theoretical foundations of classical and modern statistical mechanics, with applications in physics and physical chemistry. Prerequisite, Physics 202. Four to six credits; winter. Kennedy.

212. *Conduction of Electricity through Gases.* A study is made from current literature of electrical phenomena in gases and related electrode behavior. Prerequisite, 40 hours of physics. Four to six credits; autumn. Henderson.

*213, 214, 215. *Electrostatics and Magnetostatics.*

*216. *X-Rays and Radioactivity.*

*219. *Hydrodynamics.*

*220. *Advanced Dynamics.*

226-227-228. *Electrodynamics.* The electrodynamics of the electron from the viewpoint of the restricted theory of relativity. The electromagnetic theory of light. Prerequisite, Physics 202. Four credits; autumn, winter, spring. Henderson.

230, 231. *Atomic Structure.* Prerequisite, Physics 202. Four credits; autumn, winter. Utterback.

232. *Atomic Structure.* A continuation of Physics 231 with introduction to wave mechanics. Prerequisite, Physics 231. Four credits; spring. Henderson.

*240. *Wave Mechanics.*

*241, 242, 243. *Theory of Relativity.*

250, 251, 252. *Seminar.* Prerequisite, graduate standing. One credit a year. Staff.

256, 257, 258. *Research.* Credits arranged; autumn, winter, spring. Staff.

POLITICAL SCIENCE

Professor Martin, Executive Officer

The courses in political science are offered to meet the needs of the following groups: (1) students seeking sufficient political training to aid them in understanding their civic duties; (2) those desiring courses in political science as a part of their liberal education; (3) students who desire to prepare themselves for positions in the public service, national, state, and local, and the foreign service; (4) students seeking courses in political science which are preparatory and supplementary to their work in the following professional schools— law, education, business administration, and journalism; (5) those who desire that systematic and intensive training which will prepare them as teachers or investigators in political science.

*Not offered in 1933-1934.

Prerequisites. The normal prerequisite for all courses in the department is Pol. Sci. 1. For upper division courses, Pol. Sci. 51, 52, 54, and 61 and elementary courses in economics, history and sociology are strongly recommended.

Subject Groups. The work of the department is divided into the following groups: I. Political Theory and Jurisprudence; II, International Relations; III, Politics and Administration. A major student must select any one group as his chief interest before proceeding with upper division courses.

The Major. Candidates for the bachelor's degree with political science as a major must offer 45 credits in political science, of which at least 30 shall be in upper division courses.

Major programs must be approved by the department.

Programs must include 20 credits in one group and at least ten credits in each of the remaining groups.

Graduate Study. For admission to graduate courses and to candidacy for higher degrees, see the announcement of the Graduate School. Candidates for higher degrees in political science must register in the graduate seminar during every quarter of their residence, and in two research seminars, one of which must be in the field of the special investigation.

Lower Division Courses

ELEMENTARY COURSES, PRIMARILY FOR FRESHMEN

1. *Comparative Government.* Representative modern governments; presidential, parliamentary, federal, unitary; United States, France, England, Germany, and Japan. Five credits; autumn, winter, spring. Martin and staff.

INTERMEDIATE COURSES, PRIMARILY FOR SOPHOMORES

51. *Principles of Politics.* The origin, form, function and nature of the state; its relations to other social institutions, and other states. Five credits; autumn. Wilson.

52. *Introduction to Public Law.* The legal construction of political organization. The state and the individual; leading concepts in constitutional, international, and administrative law. Five credits; winter. Cole.

54. *International Relations.* Rise of modern states; alliances, imperialism, the League of Nations; present problems; factors underlying international relations. Five credits; autumn. Mander.

61. *Municipal Government.* Growth of cities, home rule, city charters, forms of city government, collections and politics, and other problems. Not open to students who have had 161. Five credits; spring. Harris.

Upper Division Courses

Prerequisite: Pol. Sci. 1. Recommended: Pol. Sci. 51, 52, 54, 61, and one of the following courses: Econ. 1, Soc. 1, Hist. 1-2.

101. *Introduction to American Constitutional Government.* Fundamental principles of the American Constitutional system; its function and evolution; the unwritten constitution. Two credits; autumn, winter, spring. Wilson.

Group I—Political Theory and Jurisprudence

111. *History of Political Theory.* Historical development of statehood and theories concerning it; ancient, medieval, modern. Periods and schools in political thought. Three credits; autumn. Wilson.

112. *American Political Theory.* Fundamental characteristics of the American political system; American political ideas. Three credits; winter. Wilson.

113. *Contemporary Political Thought.* Recent political ideas in the Occident; questions of sovereignty and allegiance; state concepts. Three credits; spring. Wilson.

114. *Oriental Political Theory.* Theories and principles of statehood and statecraft in the Orient, especially in China, Japan and India. Five credits; winter. Wilson.

Primitive Social and Political Institutions. (See Anthropology 185.)

118. *Law and the State.* Ancient, medieval, and modern conceptions of the relationship between political authority and the legal institutions. Law and politics in an ideal commonwealth. Five credits; autumn. Cole.

119. *Jurisprudence.* The law as an agency of social control. Main implications of fundamental concepts of justice: rights, persons, property, contract, liability. The sources of law: legislation, precedent, custom. Five credits; winter. Cole.

120. *Introduction to Roman Law.* This course aims to familiarize the student with the principal institutions of the corpus juris civilis—one of the chief monuments of western culture. Five credits; spring. Cole.

Group II—International Relations

121. *Foreign Relations of the United States.* Leading American policies regarding Latin America, Canada, and Europe. Contemporary problems of American diplomacy. Three credits; winter. Mander.

122. *The Foreign Service.* Department of state; diplomatic and consular services; American diplomatic practice and procedure. Three credits; spring. Martin.

*124. *International Relations of Post-War Europe.*

125. *The Government of Dependencies.* Colonial policies and administrative practices, with special reference to East and West Africa, Malaya, Ceylon, Pacific Islands and West Indies. Five credits; spring. Mander.

127. *International Organization and Administration.* International unions, conferences, commissions, and especially the League of Nations. Three credits; winter. Mander.

129. *International Relations of the Far East.* China and Japan. Pacific and Far Eastern questions. Developments to 1895. The period 1895-1914. Recent problems. Five credits; spring. Mander.

International Law. (See Law 122, *Principles of International Law.*) The general principles of international law as developed by custom and agreement, and as exhibited in decisions of international tribunals and municipal courts, diplomatic papers, treaties, conventions, in legislation, in the works of authoritative writers, and in the conduct of nations. Three credits a quarter; autumn, winter. Martin.

Diplomatic History of Eastern Asia. (See O.S. 125-126, 127.)

*Not offered in 1933-1934.

Group III—Politics and Administration

151. *Problems in American Federal Government.* Significant national problems, including presidential "dictatorship," bureaucracy, the lobby, congressional investigations, executive justice. Grants-in-aid, committee government, civil liberties. Five credits; autumn. Cole.

152. *Political Parties and Elections.* Organization and methods of political parties; campaign and conventions; election administration. Five credits; spring. Harris.

153. *Introduction to Constitutional Law.* Growth and development of the United States constitution as reflected in leading decisions of the Supreme Court. Their political, social, and economic effects. Five credits; spring. Cole.

*154. *The Law of Public Administration.*

155. *Introduction to Public Administration.* Civil service, administrative organization and control, public finance, public reporting. Five credits; autumn. Harris.

Public Finance. (See B.A. 124.)

156. *European Governments.* A comparative study, many of parliamentary institutions. Great Britain, Germany, Fascism, Russia, and Poland and Jugo-Slavia. Five credits; autumn. Mander.

*158. *Governments and Politics of the Far East.*

159. *The British Commonwealth.* The dominions and legal relations: India, the Colonies; problems of unity. Five credits; winter. Mander.

160. *Government and Constitutions of the British Dominions.* Canada, South Africa, Australia, New Zealand, Ireland, compared as to unitary and federal systems, and as to parliamentary institutions. Three credits; spring. Mander.

162. *Municipal Administration.* Civil service, finance, city planning, zoning, police, traffic, health, water, sewerage, public works, utilities, etc. Five credits; autumn. Harris.

163. *State Government and Administration.* Constitutions, governor, legislature, administrative organization, state activities, counties, parties, elections. Five credits; winter. Harris.

COURSES FOR GRADUATES ONLY

201, 202, 203. *Graduate Seminar.* For candidates for higher degrees in political science. Three credits; autumn, winter, spring. Martin and staff.

211, 212, 213. *Seminar in Political Theory.* Readings and discussions based on the writings of first importance of the masters of political science. Three credits; autumn, winter, spring. Wilson.

215. *Methods and Research in Political Science.* Political science and the social sciences; methods of research; bibliography of general and special fields. Three to five credits; spring. Wilson.

221. *Seminar in International Organization.* Three to five credits; autumn. Mander.

251. *Seminar in Politics and Administration.* Research in special problems. Three to five credits; winter. Harris.

256. *Seminar in Public Law.* Special subject for investigation: Administrative Discretion. Three to five credits; winter. Cole.

*Not offered in 1933-1934.

Seminar in Oriental Diplomacy. (See Oriental Studies 225, 226, 227.)

Problems in Administrative Law. (See Law 199.)

Constitutional Law. (See Law 119, 120.)

Administrative Law. (See Law 121.)

PSYCHOLOGY

Professor Stevenson Smith, Executive Officer

Students who have shown an aptitude in psychology, and who consider taking extensive work in this subject, are invited to confer with members of the staff in order to plan their work to advantage.

Majors in psychology may count five hours in Phil. 1 or Phil. 101-102-103 toward satisfying their major requirement.

1. *General Psychology.* No prerequisites. Five credits; course repeated every quarter. Staff.

2. *The Fields of Psychology.* The significant problems, methods, and materials of the main fields of psychology. Prerequisite, Psych. 1. Five credits; winter and spring. Guthrie.

102. *The Neural Basis of Bahavior.* Contemporary neurological theory concerning action, the emotions, the regulatory functions, learning, thinking, Prerequisite, Psych. 1. Five credits; winter. Esper.

106. *Experimental Psychology.* Training in laboratory methods. Prerequisite, Psych. 1. Three credits; winter. Esper.

107. *Advanced Experimental Psychology.* Prerequisite, Psych. 106. Three credits; spring. Esper.

108. *Essentials of Mental Measurement.* Ways in which experimental results are evaluated and treated. Required of majors in psychology. Prerequisite, Psych. 1. Five credits; winter. Guthrie.

109. *Mental Tests.* The preparation, evaluation and application of tests. Essential to work in clinical psychology. Prerequisites, Psych. 1 and 108. Five credits; spring. Smith.

*111. *History of Psychology.*

112. *Modern Psychological Theory.* This may be taken to advantage concurrently with 113. Prerequisite, Psych. 1. Three credits; spring. Guthrie.

113. *Structural Psychology.* The methods and results of the traditional school of psychology in America as contrasted with those of behaviorism. Prerequisite, Psych. 1. Two credits; spring. Gundlach.

114. *Current Psychological Literature.* Reading and discussion in recent books and journals. Prerequisite, ten credits in psychology. Five credits; winter. Guthrie.

116. *Animal Behavior.* Prerequisite, Psych. 1. Three credits; autumn. Gundlach.

117. *Superstition and Belief.* Why we are superstitious. The psychological analysis and the historical development of certain false opinions. Prerequisite, Psych. 1. Two credits; autumn. Smith.

*Not offered in 1933-1934.

118. *Folk Psychology.* Psychology of social human nature; language, custom, public opinion, morals, war, family, caste, nationalism, religion. Prerequisite, Psych. 1. Five credits; autumn. Guthrie.

120. *Psychology of Beauty.* Prerequisite, five credits in psychology. Two credits; autumn. Guthrie.

121. *Applied Psychology.* Psychology of personal efficiency, vocational guidance, scientific management, social work, law, medicine, athletics, business. Prerequisite, Psych. 1. Five credits; winter. Gundlach.

124. *Psychology of Learning.* How habits are formed. Efficiency in learning, transfer of training, recent experimental findings. Prerequisite, Psych. 1. Five credits; autumn. Esper.

126. *Abnormal Psychology.* Description and explanation of abnormal behavior. Psychoneuroses, automatisms, "The Unconscious," dreams, and sleep. Prerequisite, ten credits in psychology. Five credits; spring. Guthrie.

131. *Child Psychology.* Individual and social development and their causes, from infancy to adult age. Prerequisite, Psych. 1. Five credits; autumn. Smith.

132. *Principles of Clinical Psychology.* Methods of diagnosis and training of children brought for clinical examination. Special disabilities. Prerequisite, Psych. 1. Three credits; spring. Smith.

151, 152, 153. *Undergraduate Research.* An opportunity, for promising students, to begin experimental work under direction. Prerequisite, 15 credits in psychology and permission of the department. Three credits each quarter. Staff.

COURSES FOR GRADUATES ONLY

Before a student registers for graduate courses, his topic for research must be approved by the department.

201, 202, 203. *Graduate Research.* Each quarter. Credit to be arranged. Staff.

211, 212, 213. *Seminar.* Open to all research students and majors. Two credits each quarter. Staff.

ROMANIC LANGUAGES AND LITERATURE

Professor Frein, Executive Officer

Students entering with high school credits in French or Spanish will be admitted to classes upon the basis of one high school semester counting as the equivalent of one University quarter.

For reasons of any interruption in the continuation of a language, some adjustment may be made, but all exceptional cases must be determined by the executive officer of this department.

If, for any reason, a student who has done one year of French in high school needs to enter French 2, he will be given University credit therefor, but he will be required to finish French 3, 4 and 7, in fulfillment of the language requirement.

Students who have done two years of a Romanic language in high school may, if there has been an interval of two years or more in their study of that language, enter French 4 and 7 with full credit.

Full credit will be given for university work done in all elementary language courses desired by the student except in the one language which he offers for entrance to the University.

cussions will be mostly in French. Prerequisite, French 6 and 9 or equivalent. Two credits a quarter; autumn, winter, spring. Patzer.

Teachers' Course in French. See Edu. 75K.

COURSES FOR GRADUATES ONLY

No student will be given a master's degree with a minor in this department until he shall have done at least at much as is required of students working for the bachelor of arts degree with a major in this department.

201, 202, 203. *Middle French and Sixteenth Century.* Lectures in French. Reading assigned from fourteenth, fifteenth and sixteenth century authors. Prerequisite, four years of French. Two credits a quarter; autumn, winter, spring. Frein.

221, 222, 223. *Old French Reading.* One of the most helpful courses for teachers of French. Open to graduates who have studied French at least four years. Graduates who are not French majors will translate the Old French into English; French majors will be expected to translate the Old French into modern French. Five credits a quarter; autumn, winter, spring. Goggio.

*231, 232, 233. *History of Old French Literature.*

241, 242, 243. *French Historical Grammar.* Conducted in English so that English and other majors may, if they wish, elect this course; but a reading knowledge of French is necessary, and some knowledge of Latin is desirable. Prerequisite, graduate standing and four years of French. Three credits a quarter; autumn, winter, spring. Frein.

*281, 282, 283. *Seminar in Fifteenth and Sixteenth Century Literature.*

291, 292, 293. *Conferences for Thesis.* Graduates at work upon a thesis will arrange their conferences individually with the instructor in charge. Frein, Patzer.

II. Italian

The department, through its scheme of alternate courses, offers enough work to satisfy the major or minor requirements. Students who desire to major or minor in Italian are requested, however, to plan their work with the instructor in charge.

1-2, 3. *Elementary.* No credit will be given for Ital. 1 until 2 has been completed. Ital. 1 is repeated in winter and Ital. 2 in the spring. Five credits a quarter; autumn, winter, spring. Goggio.

*111, 112, 113. *Modern Italian Literature.*

121, 122, 123. *The Italian Novel.* History of the novel from its beginning. Prerequisite, Ital. 2. Two or three credits a quarter; autumn, winter, spring. Goggio.

181, 182. *Dante in English Translation.* The Divine Comedy studied so as to draw from it Dante's imaginative and philosophical ideas as related to medieval thought. No knowledge of Italian is necessary. Two credits a quarter; autumn, winter. Goggio.

184. *Renaissance Literature of Italy in English Translation.* Stress will be laid on the works of Petrarch and Boccaccio especially, and on those of Machiavelli, Castiglione, Cellini, Ariosto, and Tasso. Lectures in English and collateral reading. No knowledge of Italian is necessary. Two credits; spring. Goggio.

*Not offered in 1933-1934.

COURSES FOR GRADUATES ONLY

*201, 202, 203. *Italian Literature of the XV and XVI Centuries.*

*221, 222, 223. *Italian Literature of the XIII and XIV Centuries.*

231, 232, 233. *The Works of Dante,* particularly the Divine Comedy. Two to five credits a quarter; autumn, winter, spring. Goggio.

*243. *Italian Historical Grammar.*

III. Provençal

223. *Old Provençal.* Readings, mostly epic and lyric. Three credits; spring. Goggio.

IV. Spanish

Requirements of the department: Span. 101, 102, 103, 159, Edu. 75Y, and at least nine credits of literature are required of majors and of all who wish to be recommended as teachers. Freshmen and sophomores may enter any course, except graduate, for which they have the prerequisite.

1-2, 3. *Elementary.* No credit will be given for Span. 1 until 2 has been completed. Five credits a quarter; each course repeated every quarter.

4, 5, 6. *Reading of Modern Authors.* Span. 4, 5, 6, may be combined with 7, 8, 9, making a five-hour course each quarter. Prerequisite to Span. 4 is 3 or equivalent. Three credits a quarter; autumn, winter, spring.

7, 8, 9. *Grammar, Composition, Conversation.* May be combined with Span. 4, 5, 6, making a five-hour course each quarter. Prerequisite to Span. 7 is 3. Span. 7 is prerequisite to 8. Two credits a quarter; autumn, winter, spring.

34, 35, 36, or 134, 135, 136. *Comparative Literature of France, Italy, Spain, in English Translation.* Three credits a quarter. (For description of course see French 34, 35, 36.)

101, 102, 103. *Advanced Composition and Conversation.* Prerequisite, Span. 9. Three credits a quarter; 101 repeated in spring quarter. Garcia-Prada.

104, 105, 106. *Advanced Reading and Conversation.* Courses to accompany 101, 102, 103, and planned to offer an opportunity to become acquainted with fluent speech. Prerequisite, Span. 6. Two credits a quarter. Wilson.

118, 119, 120. *Survey of Spanish Literature.* Lectures in English and collateral reading of English translations. Those who are able to read Spanish will be assigned Spanish texts to read. Two credits a quarter; autumn, winter, spring. Garcia-Prada.

121, 122, 123. *The Novel.* The history of prose fiction in Spain from its beginning to the present day. Selected texts, lectures, collateral reading and reports. Prerequisite, Span. 6 and 9 or equivalent. Three credits a quarter; autumn, winter, spring. Umphrey.

*131. *Lyric Poetry.*

*141, 142, 143. *Spanish Drama.*

*151, 152, 153. *Spanish Literature of the Nineteenth Century.*

*Not offered in 1933-1934.

159. *Advanced Syntax.* Problems in syntax studied from the teacher's point of view. Prerequisite, Span. 102. Three credits; autumn. Umphrey.

171, 172, 173. *Seventeenth Century Literature.* One of the greatest writers of the Golden Age, Lope de Vega, Cervantes, or Calderon, will be selected each quarter for special study. Prerequisite, Span. 6 and 9 or equivalent. Two credits a quarter; autumn, winter, spring. Garcia-Prada.

*184, 185, 186. *Spanish-American Literature.*

Teachers' Course in Spanish. See Education 75Y.

COURSES FOR GRADUATES ONLY

The *minor* will not be given to candidates for the master's degree in other departments until they shall have done at least as much as is required of majors for the bachelor's degree in this department.

221. *Old Spanish Readings.* Reading and linguistic study of the *Poema de mio Cid* and other Old Spanish texts. Five credits; autumn. Umphrey.

231. *Epic Poetry.* The epic material in Old Spanish literature and its later treatment in poetry and drama. Special investigations and reports. Five credits; winter. Umphrey.

241. *Spanish Historical Grammar.* Five credits; spring. Umphrey.

291, 292, 293. *Conferences for Thesis.* Graduates at work upon a thesis will arrange their conferences individually with the instructor in charge. Umphrey.

SCANDINAVIAN LANGUAGES AND LITERATURE

Professor Vickner, Executive Officer

1-2, 3. *Elementary Swedish.* Courses 1-2, 3 may be taken with 4-5, 6, making a five-hour course; 1, 2, 3 are hyphenated if 4-5 are not taken. Three credits a quarter; autumn, winter, spring. Vickner.

4-5, 6. *Swedish Reading Course for Beginners.* Supplementary to courses 1-2, 3, but may also be taken separately. No previous knowledge of Swedish necessary. Two credits a quarter; autumn, winter, spring. Vickner.

10-11, 12. *Elementary Norwegian-Danish.* Courses 10-11, 12 may be taken with 13-14, 15, making a five-hour course; 10, 11, 12 are hyphenated if 13-14 are not taken. Three credits a quarter; autumn, winter, spring. Vickner.

13-14, 15. *Norwegian-Danish Reading Course for Beginners.* Supplementary to 10-11, 12, but may also be taken separately. No previous knowledge of Norwegian-Danish necessary. Two credits a quarter; autumn, winter, spring. Vickner.

20, 21, 22. *Norwegian-Danish Literature.* Prerequisite, ability to read easy Norwegian or Danish. May be entered any quarter. Two credits a quarter; autumn, winter, spring. Vickner.

23, 24, 25. *Swedish Literature.* Prerequisite, ability to read easy Swedish. May be entered any quarter. Two credits a quarter; autumn, winter, spring. Vickner.

103, 104, 105. *Recent Swedish Writers.* Representative writers of the nineteenth and twentieth centuries. Prerequisite, relatively fluent reading knowledge of Swedish. May be entered any quarter. Two or three credits; four credits by permission; autumn, winter, spring. Vickner.

*Not offered in 1933-1934.

106, 107, 108. *Recent Norwegian-Danish Writers.* Representative writers of the nineteenth and twentieth centuries are read. Prerequisite, relatively fluent reading knowledge of Norwegian-Danish. May be entered any quarter. Two or three credits; four credits by permission; autumn, winter, spring. Vickner.

109, 110, 111. *Modern Scandinavian Authors in English Translation.* No knowledge of the Scandinavian languages necessary. May be entered any quarter. One credit a quarter; autumn, winter, spring. Vickner.

180, 181, 182. *Recent Scandinavian Literature in English Translation.* No knowledge of the Scandinavian languages necessary. May be entered any quarter. Two credits; autumn, winter, spring . Vickner.

COURSES FOR GRADUATES ONLY

*201-202. *Old Icelandic.*

*203-204. *History of the Swedish Language.*

205-206. *Scandinavian Literature in the Nineteenth Century.* Two to four credits a quarter; winter, spring. Vickner.

*208. *Scandinavian Lyric Poetry.*

*209. *History of Scandinavian Literature.*

COMPARATIVE PHILOLOGY

190-191. *Introduction to the Science of Language.* General principles of linguistic development with special reference to English. Prerequisite, some knowledge of one of the classical languages and of one modern foreign language of Old English. Two credits; autumn, winter. Vickner.

192. *Life of Words.* Etymology and semasiology; growth of vocabulary; word values. Lectures, discussions, and exercises. Prerequisite, same as for courses 190-191. Two credits; spring. Vickner.

SOCIOLOGY

Professor Steiner, Executive Officer

Sociology treats of the life of human groups. Its subject matter is closely related to that presented by the other social studies. Students should read the department leaflet and consult staff advisers before selecting courses.

Soc. 1 or its equivalent is required of those taking advanced work. Course 150, General Sociology, may be substituted by upper division students. The courses 55, 66, and 131 are fundamental for advanced work and these courses or their equivalents must be taken by major students before electing special lines.

1. *Introductory Sociology.* A course which aims to introduce the student to the data and method of studying group life. (Juniors and seniors may substitute 150, *General Sociology*). Five credits; autumn, winter, spring. Staff.

55. *Human Ecology.* Factors and forces which determine the distribution of people and communities. A study of ecological concepts and processes. Prerequisite, Soc. 1. Five credits; autumn. Steiner.

56. *The Family.* The changing home; family and marriage customs; family interaction and organization; analysis and treatment of domestic discord. Prerequisite, Soc. 1. Five credits; winter. Hayner.

*Not offered in 1933-1934.

57. *Child Welfare.* Rights of childhood to health, education, recreation, protection; measures used to secure them. Field trips. Prerequisite, Soc. 1. Three credits; winter. Buck.

61. *The Rural Community.* A study of the organization and activities of life in the village and open country. Review of investigations and consideration of means of amelioration. Prerequisite, Soc. 1. Five credits; spring. Steiner.

62. *Play and Leisure Time.* Theories and functions of play; traditional and commercialized forms of recreation; social utilization of leisure. Prerequisite, Soc. 1. Three credits; spring. Hayner.

64. *Field of Social Work.* Historical background and development of social work as a specialized field. Present scope, aims and methods. Typical problems and agencies; field trips. Prerequisite, Soc. 1. Three credits; autumn. Buck.

65. *The City.* Organization and activities of urban groups. A comparative and analytic study. Prerequisite, Soc. 1. Five credits; autumn. Woolston.

66. *Group Behavior.* Analysis of conditioning factors and collective response in typical social groups—crowds, assemblies, parties, sects, etc. Prerequisites, five credits of psychology and five credits in sociology. Five credits; winter. Woolston.

68. *National Traits.* Traditional differences between peoples. Historic backgrounds and prejudice. Problems of assimilation and amalgamation in America. Prerequisites, five credits in psychology and five credits in sociology. Five credits; spring. Woolston.

*70. *Family Standards.*

81. *Social Control of Defectives.* Social factors involved and methods of dealing with the physically and mentally handicapped. Prerequisite, Soc. 1. Three credits; winter. Buck.

*90. *Social Change.*

130. *Methods of Social Investigation.* Concerns planning and conducting investigations of communities, institutions, social conditions. Prerequisite, Soc. 1. Five credits; autumn, spring. Cohen.

131. *Social Statistics.* Methods and sources for quantitative investigation, as applied to sociology and related fields. Prerequisite, Soc. 1. Five credits; winter. Cohen.

140. *Population.* Study of growth, composition and distribution of world populations. Prerequisite, five credits in sociology or five credits in economics. Three credits; autumn. Steiner.

141. *Migration.* A study of human migrations, the factors determining them and the problems arising therefrom. Prerequisite, five credits in sociology or five credits in economics. Three credits; winter. Steiner.

142. *Race Invasion.* General survey of race invasion and the conditions associated therewith. Special attention given to race invasion on the Pacific Rim. Prerequisite, five credits in sociology or five credits in economics. Three credits; spring. Steiner.

144. *Social Frontiers.* A study of demarcation between social groups; contact, defense and penetration of boundaries; lines of cleavage within communities. Prerequisite, ten credits of sociology or equivalent. Two credits; autumn. Woolston.

*Not offered in 1933-1934.

145. *Assimilation.* The fusion of cultures; programs of nationalization; traditional and experimental methods of training for citizenship. Prerequisite, ten credits of sociology or equivalent. Three credits; winter. Woolston.

146. *Co-operation.* Development of mutual aid in civilization; economic, political, and cultural forms. Prerequisite, ten credits of sociology or equivalent. Three credits; spring. Woolston.

150. *General Sociology.* Major concepts of sociology and the scientific point of view in dealing with social phenomena. Prerequisites, five credits in psychology and five credits in social science. Five credits; autumn. Guthrie.

*152. *Social Control.*

153. *Problems of Poverty.* History and ecology of poverty; causes underlying destitution; methods of prevention and relief. Prerequisite, Soc. 1. Three credits; winter. Hayner.

154. *Administration of Social Agencies.* (Offered in Extension Service.)

155. *Social Legislation.* An historical and critical analysis of the programs of social legislation in relation to child welfare and factory legislation in the United States and Europe. Prerequisite, Soc. 1. Five credits; spring. Buck.

156. *Criminology.* Individual and social factors in delinquency; history and methods of criminal justice. Field trips to local penal institutions. Prerequisite, Soc. 1. Five credits; spring. Hayner.

157. *Social Disorganization.* Case analysis of personal and social disorganization. Prereqisite, ten credits of sociology or equivalent. Not open to students who have had pathology. Five credits; autumn. Hayner.

158. *Social Factors in Personality.* Survey of the literature on personality; case studies of personality problems. Prerequisite, Soc. 1. Three credits; winter. Guthrie.

159. *Juvenile Delinquency.* Special attention to the juvenile court, probation, and programs for prevention. Should, if possible, be preceded by Soc. 156. Three credits; autumn. Hayner.

164. *Social Education.* Purpose, content and method of courses intended to promote good citizenship. Recommended for teachers of social science subjects. Prerequisite, fifteen credits in social science. Two credits; spring. Woolston.

171-172, 173. *Social Case Work.* Principles and methods of social case work. Processes in treatment of economic, medical and behavior problems. Two hours class work, 12 hours supervised field work with local agencies. Prerequisite, Soc. 64 or permission of instructor. Students may take first two consecutive quarters or all three. Five credits; autumn, winter, spring. Buck.

174. *Community Organization.* A study of the modern community movement with emphasis upon the organization of community forces in the interests of social welfare. Typical experiments in community organization illustrated by case records will be analyzed and evaluated. Prerequisite, Soc. 1. Not open to students who have had Soc. 63. Five credits; winter. Steiner.

175. *Social Work and Health.* Introduction to the point of view and method of social case work. Open to students from the department of nursing education, and to others with permission of instructor. Prerequisites, Soc. 1 and 64 or permission of instructor. Two hours class, 12 hours supervised field work. Five credits; spring. Buck.

*Not offered in 1933-1934.

178. *The State and Social Welfare.* An introductory course presenting a general view of state participation in social work in the United States and Europe. Prerequisite, Soc. 1. Five credits; autumn. Buck.

180. *Public Welfare Administration.* (Offered in Extension Service.)

190. *Social Attitudes.* How persons develop and manifest dispositions to act in certain ways toward their fellows. Prerequisite, five hours psychology and five hours sociology. Upper division students may substitute for Soc. 66. Three credits; autumn. Woolston.

*194. *History of Social Thought I.*

*195. *History of Social Thought II.*

196. *History of Social Thought III.* Study of the contemporary trends in sociological theory in Europe and America. Prerequisite, ten credits sociology or equivalent. Three credits; spring. Guthrie.

COURSES FOR GRADUATES ONLY

*200. *Secret Societies.*

201. *Public Opinion.* Character and operation of beliefs formed by general discussion. Problems of propaganda, criticism and education. Attention is called to Psych. 117, *Superstition and Belief,* and Jour. 201, *Propaganda,* which articulate with and complete the work of this course. Advanced students only. Two credits; winter. Woolston.

207, 208, 209. *Community Research.* Original investigation of special community problems. Prerequisite, graduate standing. Two credits a quarter; autumn, winter, spring. Steiner.

210, 211, 212. *Departmental Seminar.* Open to graduate students completing independent investigations and to instructors in the department. Two credits each; autumn, winter, spring. Staff.

ZOOLOGY AND PHYSIOLOGY

Professor Kincaid, Executive Officer

Zoology

1-. *Animal Biology.* An introductory course, giving a survey of the more general aspects of animal life. Five credits; autumn, winter. Kincaid, Hatch and Assistants.

-2. *General Zoology.* A survey of the animal kingdom, with emphasis upon the structure, classification and economic relations of the more important groups. Prerequisite, Zool. 1 or equivalent. Five credits; winter, spring. Kincaid, Hatch and Assistants.

3-4. *Pre-Medical Zoology.* For students entering a medical course. Five credits a quarter; autumn, winter. Guberlet.

5. *General Embryology.* Comparative developmental history of animals, with emphasis on vertebrate forms. Prerequisite, Zool. 1-2 or 3-4. Five credits; spring. Guberlet.

16. *Evolution.* Lectures on the more important biological problems related to the general theory of evolution. Two credits; autumn. Kincaid.

17. *Eugenics.* Principles of evolution in their relation to human welfare. Two credits; winter, spring. Kincaid.

*Not offered in 1933-1934.

101. *Cytology.* The structure and activities of the animal cell with special reference to problems of development, sex-determination, and heredity. Prerequisite, Zool. 1-2 or 3-4. Five credits; winter. Miller.

*102. *Experimental Zoology.*

106. *Plankton.* Classification, adaptations and interrelationships of the microscopic fauna of the sea. Field work in Puget Sound. Prerequisite, Zool. 1-2 or 3-4. Five credits; autumn. Kincaid.

107. *Parasitology.* Animal parasites. Prerequisite, Zool. 1-2 or 3-4. Five credits; spring. Guberlet.

108. *Limnology.* Classification and interrelationship of organisms found in lakes and streams. Field work in neighboring fresh-water bodies. Prerequisite, Zool. 1-2 or 3-4. Five credits; spring. Kincaid.

111. *Entomology.* The structure, classification and economic relations of insects. Prerequisite, Zool. 1-2 or 3-4 or equivalent. Five credits; spring. Hatch.

121. *Microscopic Technique.* Methods of imbedding, sectioning and staining animal tissues. Prerequisite, Zool. 1-2 or 3-4 or its equivalent. Three credits; winter. Guberlet.

125, 126. *Invertebrate Zoology.* The morphology, physiology and ecology of invertebrate animals, with special reference to the local marine fauna. Prerequisite, Zool. 1-2 or 3-4. Five credits a quarter; autumn, winter. Miller.

127. *Comparative Anatomy.* Comparative morphology of the vertebrate animals. Prerequisite, Zool. 1-2 or 3-4. Five credits a quarter; autumn. Miller.

*128. *Advanced Comparative Anatomy.*

129. *Vertebrate Zoology.* Taxonomy, morphology, and ecology of amphibians, reptiles, birds, and mammals. Prerequisite, Zool. 1-2 or 3-4. Five credits; spring. Miller.

131. *History of Zoology.* The history of zoology during ancient, medieval and modern times. Prerequisite, 20 credits of zoology. Two credits; autumn. Hatch.

155, 156, 157. *Elementary Problems.* Students will be assigned minor problems under direction of an instructor in the department. Prerequisite, 20 credits in zoology or physiology. Three credits; autumn, winter, spring. Staff.

Teachers' Course in Zoology. See Education 75Z.

COURSES FOR GRADUATES ONLY

201, 202, 203. *Research.* Students capable of carrying on independent work will be assigned problems under direction of an instructor. Prerequisite, 25 credits in zoology or physiology. Credits to be arranged. Staff.

205, 206, 207. *Advanced Problems.* Designed especially for graduate students working for the doctor's degree. Hours and credits to be arranged. Staff.

210, 211, 212. *Seminar.* Reports and discussions of current zoological literature. The history of zoology. One credit; any quarter. Staff.

213, 214, 215. *Advanced Invertebrate Embryology.* Development and life history of invertebrate animals, particularly of marine forms, life history of parasites of marine fishes, examination and determination of contents of fish stomachs. Prerequisites, Zool. 5, 106 and 126. Three credits; autumn, winter, spring. Guberlet.

*Not offered in 1933-1934.

PHYSIOLOGY

6. *Elementary Physiology.* Human structure and function, designed to meet the needs of students in pharmacy. Five credits; spring. Goodsell.

7. *Elementary Physiology.* Structure and functions of the human body, with special emphasis on metabolism, and the nervous and vascular systems. Five credits; autumn, winter, spring. Smith.

20. *Physiology for Hospital Students.* A special course for hospital students. Three credits; autumn, spring. Goodsell.

50. *Physiology.* Required of students majoring in physical education. Six credits; winter. May be taken as a five-credit course without laboratory by non-majors. Smith.

53-54. *Intermediate Physiology.* Adapted for students expecting to teach the subject in high school. Required of nursing majors; recommended for students in dietitics and sanitary science. Five credits; autumn, winter. Smith.

*115. *Principles of General Physiology.*

151-152-153. *Advanced Physiology.* Arranged for students in medicine and advanced students who wish to study experimental methods. Prerequisites, Zool. 1-2 or 3-4, Chem. 2 or 22, and Physics 1-2 or 4-5. Five credits a quarter; autumn, winter, spring. Smith.

163. *Physiology of Metabolism.* An advanced course in metabolism. Prerequisites, Physiol. 7 or Zool. 2 or 4, and Chem 2 or 22. Five credits; spring. Smith.

*Not offered in 1933-1934.

SUMMER QUARTER

Thomson, David, B.A. ..... *Director*

History. The first summer session of the University of Washington was held in June and July of 1904, with a total attendance of 114 and a faculty of 25. Since then the summer work has grown with almost uninterrupted steadiness. During the Summer Quarter of 1931 there was a student body of 3,686 and a teaching staff of more than 210.

The University of Washington year is organized in four quarters. The Summer Quarter is an integral part of the University year and its courses are co-ordinated with those of the other quarters. It is divided into two terms of equal length. Students may enroll for either term separately or for the entire quarter.

Resources. The entire physical resources of the University are available to summer students. Recitation halls, libraries, laboratories, the museum, the art gallery, the health service, and the commons are in regular use.

Special Advantages. Because of the season of the year, the extra-curricular activities of the regular academic year are largely discontinued, and because of the large number of teachers and visitors in attendance, special advantages in great variety are available to Summer Quarter students.

These include opportunities for industrial, educational, sociological, and historical study provided by the city of Seattle and its environs; a climate delightfully adapted to habits of study; world renowned scenic attractions and recreational opportunities at their best; organized trips to places of special interest; pageants, dramatic attractions, and concerts featuring famous artists; and a series of special lectures at 4 and 8 o'clock from Monday to Thursday of each week.

Entrance Requirements. Entrance requirements for the summer quarter are the same as for any other quarter of the University year. As far as possible, all credentials for prospective students and applications for admission should be in the hands of the registrar before the opening of the quarter.

Registration. Registration for the summer quarter of 1934 may be completed on or before Tuesday, June 19. Students expecting to be in attendance during the second term only may register on or before Saturday, July 28, 12 m. Students living outside of Seattle may, with the consent of the registrar, register by mail. Write for application form.

Credits. Students desiring university credit will be required to pass examinations during the closing week of each term.

Amount of Work Registered For. The regular load is seven and one-half credits each term or fifteen credits for the entire quarter. Students whose previous record is good, or whose experience and maturity seem to warrant it (if no grades are on record here) may register with the consent of the dean of the college concerned, for a maximum of 10 credits for one term or 20 credits for the entire quarter.

Fees. For statement of summer quarter fees, see page 48.

Graduate School. The University lays special emphasis on graduate work during the summer quarter. More than a third of the students are enrolled in the Graduate School. Attendance during three summer quarters will satisfy the residence requirement for the master's degree. Candidates for th doctorate are not encouraged to register in courses during the summer quarter, beyond the work of the first year. They may, however, proceed with work on their theses.

College of Liberal Arts. Summer quarter instruction is provided in languages, education, economics and business administration, history, English, philosophy, political science, psychology, sociology, and anthropology.

Education. The curriculum of the School of Education is expanded and its faculty augmented to meet the needs of the increasing numbers of teachers who attend. Those who plan to obtain a degree or a normal diploma therefore find greatly enriched opportunities in the summer quarter.

Business Administration. An interesting curriculum is offered in the fields of accounting, commercial banking and credit administration, commercial teaching, economics, foreign trade, investment banking, labor, management, marketing, merchandising, and advertising, public utilities, real estate, and transportation.

College of Science. Beginning or fundamental courses are repeated each summer. Advanced and graduate courses are changed from summer to summer so that variety is available to those attending year after year.

In comparison with the other quarters of the year, the summer session is a very desirable time for work in the science departments. The classes are usually not so large, the laboratories are not so crowded, and the opportunities for field trips about the campus and into the neighboring region are unsurpassed.

Art, Architecture, Music. Summer courses in architecture are selected especially for their value to teachers of architectural drawing and design and appreciation of the fine arts. Courses offered in music serve to enrich the musical knowledge, broaden the musical interest, and quicken the enthusiasm by making fresh points of contact with new phases of musical study and new suggestions of methods of presentation. Teachers and majors in art are offered both beginning and advanced courses in painting, sculpture, and design.

Law School. Summer work in law, enables students to hasten the completion of their training and their entry into practice. In addition, it offers advantages to school or college teachers intending to practice law who desire to complete part of their preparation for the bar before leaving their positions to enter a law school, to students in other law schools who wish to do extra work for credit in their own schools, and to practitioners who desire systematically to pursue particular subjects.

Journalism. Courses are planned primarily for teachers and for students of other schools and colleges, as well as for journalism majors.

College of Engineering. Courses for teachers of industrial arts are offered in engineering shop. General engineering courses are being expanded as the demand grows.

Librarianship. Courses offered in 1933 were for the express purpose of aiding teacher-librarians to meet the standards set by the State Board of Education in their field of instruction.

Library work will be continued and expanded if the interest is sufficient to warrant it.

Information. For bulletin and other information address Director of the Summer Quarter, 230 Education Hall.

UNIVERSITY OF WASHINGTON OCEANOGRAPHIC LABORATORIES

Seattle and Friday Harbor

The Staff

Thomas G. Thompson, Ph.D. ..... *Director and Professor of Chemistry*
Lyman D. Phifer, Ph.D. ..... *Assistant Director and Instructor in Oceanography*
John E. Guberlet, Ph.D. ..... *Professor of Zoology*
Robert C. Miller, Ph.D. ..... *Associate Professor of Zoology*
George B. Rigg, Ph.D. ..... *Professor of Botany*
Rex J. Robinson, Ph.D. ..... *Instructor in Chemistry*
Clinton L. Utterback, Ph.D. ..... *Associate Professor of Physics*
Earl R. Norris, Ph.D. ..... *Assistant Professor of Chemistry*
Bernard S. Henry, Ph.D. ..... *Instructor in Bacteriology*
Forrest Fuller ..... *Curator*
Mary Bardue ..... *Secretary*
Mary Grier, B.S. ..... *Librarian*
Iver Igelsrud, B.S. ..... *Stockroom*
Henry E. Wirth, M.S. ..... *Stockroom*
William M. Lanphere, B.S. ..... *Assistant Curator*

Scope of the Work. The University of Washington Oceanographic Laboratories were created by action of the Board of Regents on March 29, 1930. The purpose of the organization is to correlate and co-ordinate the research dealing with various problems of the sea, which previously were conducted independently by the several departments of the College of Science.

The main laboratories are situated on the shores of Lake Union, from which ready access to the sea is obtained through the Lake Washington canal. The laboratories are equipped for work in marine botany and plant physiology, chemistry, physics, and zoology. A system of circulating sea water, maintained at a temperature averaging 10° C., is installed in the building.

A 75-foot boat, the *Catalyst*, designed and equipped for carrying out certain scientific investigations while at sea, is maintained and operated by the Laboratories.

The Oceanographic Laboratories also include the buildings and equipment located on a 485-acre tract with two miles of shore line near Friday Harbor. Problems receiving special attention are:

Botany. Plant physiology and ecology, phytoplankton.

Chemistry. Oceanographical chemistry, micro chemistry.

Physics. Physics of the sea, hydrodynamics.

Zoology. Embryology, zooplankton, invertebrate zoology, ecology, parasitology.

Equipment. The laboratories and the library are equipped for work in some of the general problems of oceanography.

Admission. Graduate standing is required for admission to the work of the laboratories, although the applications of seniors with high scholastic records and potential research ability may be considered. Application for admission and information regarding tuition and fees should be made to the director. Transcript of scholastic record should accompany application.

Class Work. Classes are chiefly in the form of seminars held by various members of the staff.

Research. Properly prepared students are assigned research problems under a member of the staff according to the major interest of the student. The laboratories are open throughout the year to visiting research workers. Communications concerning research space should be addressed to the director.

THE UNIVERSITY EXTENSION SERVICE

Smith, Harry Edwin, Ph.D.....*Director*

General Statement

The Extension Service of the University of Washington provides university instruction by mail and in extension classes and lectures for those who cannot give full time to university study.

The Extension Service presents for 1933-34 the following activities:

1. Evening Campus Classes.
2. Off Campus Classes (Seattle, Everett, Tacoma).
3. Home Study.
4. Graduate Medical Lectures.
5. Firland School for Nurses.
6. Harborview School for Nurses.

About 350 courses are available either through correspondence or in classes, at moderate fees. This Service is an integral part of the University, and is maintained by the state for educational services to those engaged in gainful employment who desire to pursue advanced study.

UNIVERSITY CREDIT

Most of the courses at present offered by classes and by correspondence may be taken by properly qualified students for credits toward a university degree. Credit work is of course subject to all rules and regulations of the University that are applicable.

HOME STUDY COURSES AND UNIVERSITY DEGREES

Students who are unable to spend in residence the full number of years required for a university degree may earn as many as half of the required credits for graduation through Home Study, provided that not less than one year of work is done in residence at the University of Washington. But in the senior year at least 36 of the 45 credits must be earned in residence. For such Home Study courses, the student should plan well in advance and with the advice of University authorities. The studies required in the freshman and sophomore years are more largely available for Home Study. Therefore, to make a combination of Home Study and residence study, students should plan for the first rather than the latter part of the University course in Home Study.

Requirements for the University life diploma may be satisfied in part by Home Study credits.

TUITION FEES

Fees are due and payable at the time of enrollment and are refunded if the applicant is rejected or in case of failure to give the course. Enrollment constitutes an agreement on the part of the student to complete the course and he must take the responsibility for any failure on his part to do it.

Fees are based upon a uniform charge of $4 for credit hour; five 2-hour sessions are required for one credit in a class and six assignments for one credit in home study.

HOME STUDY COURSES

Home Study Courses of Instruction. Anthropology, astronomy, botany, classical languages and literature, economics and business administration, education, engineering, English language and literature, geology, Germanic languages and literature, history, home economics, mathematics, music, navigation, Oriental studies, painting, sculpture and design, parliamentary law,

philosophy, political science, psychology, Romanic languages and literature, Scandinavian languages and literature, sociology, zoology.

The University reserves the right to change this list without notice. Faculty changes, the publication of new textbooks, changes in the material to be emphasized may compel the withdrawal or shifting of courses. It is planned to keep the list of courses revised and as nearly permanent as circumstances warrant.

EXTENSION CREDITS FOR STUDENTS IN RESIDENCE

Extension courses are not intended for students in University residence and can be taken by them only in exceptional cases. A student may take courses in the Extension Service while regularly enrolled in the University, provided the consent of his dean and the approval of the registrar of the University and the director of the Extension Service are filed in writing with his application. If a student has begun a course while not in residence and desires to complete it after he begins his residence work, he should file his application in writing at the time he begins his residence work. Such application will generally be denied if it is not filed until the Extension work has been done while in residence and also if the student's previous grades would not justify his carrying the number of hours that his residence plus his Extension work would total. Blanks for this purpose may be secured at the office of the Extension Service.

GRADUATE MEDICAL LECTURES

In co-operation with the Washington State Medical Society and the King County Medical Society, the Seventeenth Graduate Medical Lectures were held July 17 to 21, 1933, inclusive.

COURSES IN PUBLIC HEALTH NURSING

The University of Washington department of Nursing Education through the Extension Service, offers a course in public health nursing to graduate nurses at Firland Sanatorium and at Harborview Hospital. A two-year curriculum is offered.

SUMMARY OF DEGREES CONFERRED

1932

Bachelor's Degrees

Bachelor of Arts	289
Bachelor of Arts in Education	195
Bachelor of Arts in Journalism	19
Bachelor of Arts in Music	10
Bachelor of Architecture	18
Bachelor of Business Administration	161
Bachelor of Fine Arts	29
Bachelor of Laws	66
Bachelor of Music	36
Bachelor of Science	77
Bachelor of Science in Aeronautical Engineering	12
Bachelor of Science in Anatomy	4
Bachelor of Science in Botany	4
Bachelor of Science in Ceramic Engineering	5
Bachelor of Science in Chemical Engineering	18
Bachelor of Science in Chemistry	14
Bachelor of Science in Civil Engineering	22
Bachelor of Science in Commercial Engineering	6
Bachelor of Science in Education	29
Bachelor of Science in Electrical Engineering	31
Bachelor of Science in Forestry	21
Bachelor of Science in Geology	2
Bachelor of Science in Home Economics	31
Bachelor of Science in Library Science	42
Bachelor of Science in Mechanical Engineering	27
Bachelor of Science in Metallurgical Engineering	1
Bachelor of Science in Mining Engineering	1
Bachelor of Science in Naval Science	1
Bachelor of Science in Nursing	15
Bachelor of Science in Pharmacy	12
Bachelor of Science in Physical Education	19
Bachelor of Science in Physics	1
Bachelor of Science in Zoology	4
Total	1222

Advanced and Professional Degrees

Master of Arts	97
Master of Arts in Business Administration	1
Master of Arts in Home Economics	3
Master of Arts in Music	4
Master of Arts in Music Education	3
Master of Business Administration	12
Master of Education	1
Master of Fine Arts	3
Master of Forestry	5
Master of Science	41
Master of Science in Ceramic Engineering	1
Master of Science in Civil Engineering	4
Master of Science in Electrical Engineering	3
Master of Science in Forestry	2
Master of Science in Geology and Mining	1
Master of Science in Home Economics	5
Master of Science in Metallurgy	1
Master of Science in Pharmacy	4
Master of Science in Physical Education	2
Professional Degree in Civil Engineering	4
Professional Degree Engineer of Mines	2
Doctor of Philosophy	20
Total	219

Diplomas and Certificates

Certificate in Library Work with Children	1
Certificate in Nursing Supervision	4
Certificate in Public Health Nursing	40
Life Diplomas	300
Normal Diplomas	322
Pharmaceutical Chemist	26
Total	693

SUMMARY OF ENROLLMENT 1932-33

I. BY SCHOOLS AND COLLEGES

Schools and Colleges	Summer Quarter			Autumn Quarter	Winter Quarter	Spring Quarter	Total*
	1st Term	2nd Term	Total				
	1	2	3	4	5	6	7
Education...	635	485	643	100	5	16	106
Men.....	163	135	151	40	3	9	42
Women...	472	350	492	60	2	7	64
Forestry.....	4	3	4	103	87	86	114
Men.....	4	3	4	102	87	85	113
Women...	..	..	..	1	..	1	1
Grad. School	1000	876	1073	492	531	511	641
Men.....	441	409	465	327	342	323	397
Women...	559	467	608	165	189	188	244
Law.....	59	56	60	317	283	275	324
Men.....	56	54	57	295	267	259	302
Women...	3	2	3	22	16	16	22
Liberal Arts	711	607	758	3278	3351	2932	3761
Men.....	255	244	270	1679	1748	1478	1951
Women...	456	363	488	1599	1603	1454	1810
Library Schl.	10	11	20	47	51	51	148
Men.....	..	4	4	2	2	1	2
Women...	10	7	16	45	49	50	46
Pharmacy...	5	5	5	111	110	111	117
Men.....	4	4	4	82	82	84	88
Women...	1	1	1	29	28	27	29
Science.....	295	254	310	1031	865	953	1137
Men.....	104	93	111	438	389	429	487
Women...	191	161	199	593	476	524	650
Engineering..	42	28	42	860	821	742	945
Men.....	41	27	41	857	817	739	942
Women...	1	1	1	3	4	3	3
Totals.....	2761	2325	2915	6339	6104	5677	7193
Men.....	1068	973	1107	3822	3737	3407	4324
Women...	1693	1352	1808	2517	2367	2270	2869

*Note: The number of total individuals is based upon the classification of the autumn quarter to which is added the new students entering the same classification for the first time for the winter and spring quarters. Students who change their classification during the year are counted in this column as of their first classification.

SUMMARY OF ENROLLMENT 1932-33

II. BY CLASSES

Classes	Summer Quarter			Autumn Quarter	Winter Quarter	Spring Quarter	Total*
	1st Term	2nd Term	Total				
	1	2	3	4	5	6	7
Graduates...	1034	805	1113	594	606	588	745
Men.....	465	432	490	405	393	376	477
Women...	569	473	623	189	213	212	268
Seniors.....	522	460	530	1066	1195	1153	1147
Men.....	216	200	216	675	766	718	727
Women...	306	260	314	391	429	435	420
Juniors.....	503	423	522	1321	1364	1331	1449
Men.....	162	141	163	859	867	838	940
Women...	341	282	359	462	497	493	509
Sophomores .	160	149	171	1506	1355	1256	1685
Men.....	87	82	96	882	814	741	998
Women...	73	67	75	624	541	515	687
Freshmen...	104	87	104	1788	1533	1302	2086
Men.....	44	39	44	962	868	705	1135
Women...	60	48	60	826	665	597	951
Specials.....	22	17	25	64	51	47	81
Men.....	8	5	8	39	29	29	47
Women...	14	12	17	25	22	18	34
Transients...	416	284	450				
Men.....	86	74	90				
Women...	330	210	360				
Totals.....	2761	2325	2915	6339	6104	5677	7193
Men.....	1068	973	1107	3822	3737	3407	4324
Women...	1693	1352	1808	2517	2367	2270	2869

*Note: The number of total individuals is based upon the classification of the autumn quarter to which is added the new students entering the same classification for the first time for the winter and spring quarters. Students who change their classification during the year are counted in this column as of their first classification.

TOTAL STUDENTS IN RESIDENCE

During regular academic year	7,193	
During summer quarter	2,915	
Total	10,108	
Deduct summer quarter duplicates	504	
Total	9,604	

EXTENSION STUDENTS

Classes:		
Men	609	
Women	2,045	2,654
Home Study:		
Men	459	
Women	528	987

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