Professor Wm. Merritt Dean
Classical Lang

BULLETIN
UNIVERSITY OF WASHINGTON

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CATALOGUE NUMBER

For 1935-1936 Sessions

SEATTLE, WASHINGTON

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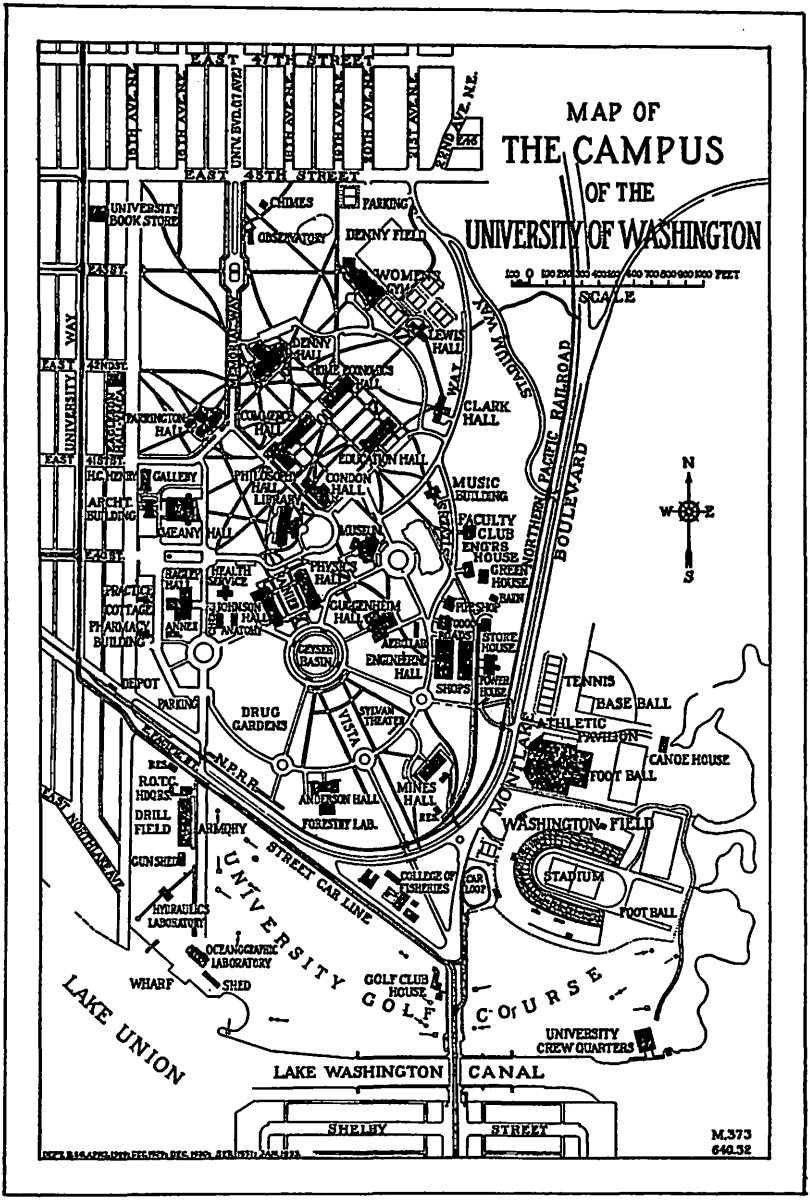

The University campus, comprising 582 acres, lies between Fifteenth Avenue Northeast and Lake Washington, and East Forty-fifth Street and Lake Union. Ravenna and Cowen Park cars run one block west of the campus. The offices of administration are located in Education Hall and are best reached by leaving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

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.

CATALOGUE NUMBER

For 1935-1936 Sessions

UNIVERSITY OF WASHINGTON

SEATTLE, WASHINGTON
October, 1935

Seattle
University of Washington Press
1935

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THE UNIVERSITY CALENDAR
1935-1936
AUTUMN QUARTER

Pre-registration dates.....May 6 to May 31; June 24 to Sept. 13
Pre-registration dates (for Engineering College).....May 6 to May 31; Sept. 2 to Sept. 13
Latest day to avoid increase in Incidental Fee.....Friday, Sept. 6
Section reservations will be cancelled if tuition is not paid by.....Friday, Sept. 13
Registration dates for students who do not pre-register.....Sept. 14 to 26, inclusive
Last registration day before beginning of instruction.....Thursday, September 26
Freshman Week.....Begins Thursday, Sept. 26; ends Monday, Sept. 30
College Aptitude Test.....Saturday, Sept. 28, at 8 a.m.
Instruction begins.....Tuesday, October 1
Last day for registration with late fee, and to add a course.....Monday, Oct. 7, 4:30 p.m.
President's annual address.....Friday, October 4, 11 a.m.
Regular meeting of faculty.....Tuesday, October 22, 4 p.m.
Latest day to withdraw and receive a "W" without grade...Monday, October 28, 4:30 p.m.
President's Reception to Parents of New Freshmen...Tuesday, November 26, 7:30-10 p.m.
Thanksgiving recess begins.....Wednesday, Nov. 27, 6 p.m.
Thanksgiving recess ends.....Monday, December 2, 8 a.m.
Regular meeting of faculty.....Tuesday, December 10, 4 p.m.
Instruction ends.....Friday, December 20, 6 p.m.

WINTER QUARTER

Pre-registration dates.....Nov. 1 to Dec. 20
Latest day to avoid increase in Incidental Fee.....Thursday, December 12
Section reservations will be cancelled if tuition is not paid by.....Friday, December 20
Registration dates for students who do not pre-register.....Dec. 21 to Jan. 4, 12 m.
Last registration day before the beginning of instruction.....Saturday, Jan. 4, 12 m.
Instruction begins.....Monday, Jan. 6, 8 a.m.
Last day for registration with late fee and to add a course.....Saturday, Jan. 11, 12 m.
College Aptitude Test.....Monday, Jan. 13, 12 m.
Regular meeting of faculty.....Tuesday, Jan. 28, 4 p.m.
Latest day to withdraw and receive a "W" without grade.....Saturday, Feb. 1, 12 m.
Washington's birthday (Founders' Day).....Saturday, Feb. 22
Regular meeting of faculty.....Tuesday, March 10, 4 p.m.
Instruction ends.....Friday, March 20, 6 p.m.

SPRING QUARTER

Pre-registration dates.....Feb. 6 to March 20
Latest day to avoid increase in Incidental Fee.....Friday, March 13
Section reservations will be cancelled if tuition is not paid by.....Friday, March 20
Registration dates for students who do not pre-register.....March 21 to March 28, 12 m.
Last registration day before beginning of instruction.....Saturday, Mar. 28, 12 m.
Instruction begins.....Monday, Mar. 30, 8 a.m.
Last day for registration with late fee, and to add a course.....Saturday, Apr. 4, 12 m.
College Aptitude Test.....Monday, April 6, 12 m.
Regular meeting of faculty.....Tuesday, April 21, 4 p.m.
Latest day to withdraw and receive a "W" without grade.....Saturday, April 25, 12 m.
Governor's Day.....Thursday, May 21
Memorial Day (holiday).....Saturday, May 30
Regular meeting of faculty.....Tuesday, June 2, 4 p.m.
Instruction ends.....Friday, June 12, 6 p.m.
Class Day and Alumni Day.....Saturday, June 13
Baccalaureate Sunday.....Sunday, June 14
Commencement.....Monday, June 15

SUMMER QUARTER
1936

Pre-registration dates.....April 27 to June 13, 12 m.
Latest day for securing reserved sections by payment of fees for students who pre-register (1st term).....Saturday, June 13, 12 m.
Last registration day before beginning of instruction.....Tuesday June 16
Instruction begins.....Wednesday, June 17, 8 a.m.
College Aptitude Test.....Monday, June 29, 12 m.
Last day to add a course (1st term).....Friday, June 19, 4:30 p.m.
Last day to add a course (full quarter).....Tuesday, June 23, 4:30 p.m.
Latest day to withdraw and receive a "W" without grade (1st term).....Tuesday, June 30, 4:30 p.m.
Independence Day (holiday).....Saturday, July 4
Latest day to withdraw and receive a "W" without grade (full quarter).....Tuesday, July 14, 4:30 p.m.
Regular meeting of faculty.....Tuesday, July 14, 4 p.m.
First term ends.....Friday, July 24, 6 p.m.
Latest day for securing reserved sections by payment of fees (2nd term).....Friday, July 24, 4:30 p.m.
Last registration day before beginning of instruction (2nd term)..Saturday, July 25, 12 m.
Second term begins.....Monday, July 27, 8 a.m.
Last day to add a course (2nd term).....Wednesday, July 29, 4:30 p.m.
Latest day to withdraw and receive a "W" without grade (2nd term).....Saturday, Aug. 8, 12 m.
College Aptitude Test.....Monday, Aug. 3, 12 m.
Regular meeting of the faculty.....Tuesday, Aug. 18, 4 p.m.
Instruction ends.....Thursday, Aug. 27, 6 p.m.

BOARD OF REGENTS

PHILIP D. MACBRIDE, President.....Seattle
Term ends March, 1938

ALFRED SHEMANSKI, Vice President.....Seattle
Term ends March, 1938

THOMAS BALMER.....Seattle
Term ends March, 1941

WINLOCK W. MILLER.....Seattle
Term ends March, 1941

ROBERT MONTGOMERY.....Puyallup
Term ends March, 1940

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Term ends March, 1939

EDWARD P. RYAN.....Spokane
Term ends March, 1940

HERBERT T. CONDON, Secretary.

COMMITTEES OF THE BOARD OF REGENTS

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Executive.....Macbride, Miller, Shemanski, Balmer
Finance.....Balmer, Shemanski, Ryan
University Lands.....Rupp, Miller, Ryan
University Welfare.....Montgomery, Ryan, Balmer

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First Vice-President.....Evan R. Peters, '23
Second Vice-President.....Mrs. Thomas Askren, '10
Treasurer.....Payne Karr, '29

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The University

LEE PAUL SIEG, Ph.D., LL.D.....President of the University
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The University College

EDWARD HENRY LAUER, Ph.D.....Dean of the University College
HENRY LANDES, M.A.....Vice Dean of the University College
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MILNOR ROBERTS, B.A.....Dean of the College of Mines
CHARLES WILLIS JOHNSON, Ph.C., Ph.D.....Dean of the College of Pharmacy
HAROLD SHEPHERD, B.A., J.D.....Dean of the School of Law
CARL EDWARD MAGNUSSON, E.E., Ph.D...Dean Emeritus of College of Engineering
EDGAR ALLEN LOEW, E.E.....Acting Dean of the College of Engineering
FREDERICK MORGAN PADELFORD, Ph.D., LL.D.....Dean of the Graduate School
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HARRY EDWIN SMITH, Ph.D.....Director of the Extension Service
EDWIN BICKNELL STEVENS, M.A.....Registrar
MAY DUNN WARD, M.A.....Acting Dean of Women
LOIS J. WENTWORTH, B.A.....Assistant to the Dean of the Graduate School
HARRIETT WESTMORELAND.....Publications Editor

LIBRARY STAFF

Smith, Charles Wesley, B.A., B.L.S.....*Librarian*
Henry, William Elmer, M.A.....*Librarian Emeritus*
Richards, John Stewart, B.A.(L.S.), M.A.....*Executive Assistant*
Putnam, Marguerite Eleanor, B.A., B.S.(L.S.).....*Acquisitions Librarian*
Edwards, Thelma Lillian, B.A., B.S.(L.S.).....*Catalogue Librarian*
Johns, Helen, B.A., Cert.(L.S.).....*Circulation Librarian*
Christoffers, Ethel Margaret, Ph.B., B.S.(L.S.).....*Reference Librarian*
Brice, Carol, B.A., B.S.(L.S.).....*Senior Assistant, Reference Division*
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Campbell, Freda, B.A., B.S.(L.S.).....*Senior Assistant, Catalogue Division*
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Cooper, Dorothy Margaret, B.S.(L.S.)...*Junior Assistant, Circulation Division*
Egbert, Ruby E., B.A., B.S.(L.S.).....*Senior Assistant, Catalogue Division*
Falkoff, E. Barbara, B.S., B.S.(L.S.), M.S..*Senior Assistant, Circulation Divison*
Ferguson, Elizabeth Margaret, B.S., B.A. in Librarianship....*Senior Assistant, Reference Division*
Gilchrist, Madeline, B.A., B.S.(L.S.).....*Parrington Branch Librarian*
Grier, Mary Catharine, B.S., B.S.(L.S.)...*Senior Assistant, Catalogue Division*
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Heathcote, Lesley Muriel, M.A., B.S.(L.S.).....*Senior Assistant, Acquisitions Division*
Johnston, Iris Francelle, B.A., B.S.(L.S.)..*Senior Assistant, Reference Division*
Jones, Winnifred, B.S., B.S.(L.S.).....*Senior Assistant, Reference Division*
Kelly, Clara J., B.S., B.S.(L.S.).....*Senior Assistant, Reference Division*
Loftus, Martin L., B.A., B.S.(L.S.).....*Senior Assistant, Reference Division*
Lyons, Hermiena Marion, B.A., B.S.(L.S.).....*Senior Assistant, Circulation Division*
McCutchen, Lydia May, B.A., Cert.(L.S.).....*Senior Assistant, Acquisitions Division*
Mooney, Jeanette Pearl, B.A., B.S.(L.S.).*Senior Assistant, Circulation Division*
Moseley, Maude Louise, B.A., B.S.(L.S.)*Senior Assistant, Acquisitions Division*
Norman, Elizabeth, B.S.(L.S.).....*Junior Assistant, Circulation Division*
Read, Sarah Louise, B.S.(L.S.).....*Junior Assistant, Circulation Division*
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*
Orman, Oscar C., LL.B., B.A. in Librarianship.....*Assistant Law Librarian*
Hoard, Mary, B.A., LL.M., B.S.(L.S.).....*Catalogue Librarian*

UNITED STATES ARMY RESERVE OFFICERS' TRAINING CORPS

Kimmel, Edward.....*Colonel, C.A.C.*
Woodbury, Edward N.....*Lieutenant Colonel, C.A.C.*
Gardner, Andrew G.....*Major, Infantry*
Lawrence, Jacob H.....*Captain, Infantry*
Daughtry, George O. A.....*Captain, Infantry*

Stiley, Joseph F.....*Captain, C.A.C.*
Wiltamuth, Ralph.....*Captain, Infantry*
Gregory, Edgar M.....*First Lieutenant, C.A.C.*
Bailey, Ray A.....*Staff Sergeant, D.E.M.L.*
Collins, Floyd.....*Sergeant, D.E.M.L.*
Hogwood, Joseph L.....*Sergeant, D.E.M.L.*
Roberts, John O.....*Private First Class, D.E.M.L.*
Whitchurch, Roy B.....*Private First Class, D.E.M.L.*
Honeas, William H.....*Private First Class, D.E.M.L.*

UNITED STATES NAVAL RESERVE OFFICERS' TRAINING CORPS

Riebe, Herbert B.....*Captain, U. S. Navy*
Kelley, Frank H., Jr.....*Commander, U. S. Navy*
Hall, George T.....*Major, U. S. Marine Corps*
Knapp, Robert A.....*Lieutenant, U. S. Navy*
Davis, Burton.....*Lieutenant, U. S. Navy*
Brown, John L.....*Lieutenant, U. S. Navy*
Hamilton, Malcolm.....*Chief Gunner's Mate, U. S. N. R.*
Harmony, Rufus A.....*Chief Quartermaster, U. S. N. R.*
King, Joseph C.....*Chief Turret Captain, U. S. N. R.*
Littell, Roland B.....*Chief Yeoman, U. S. N. R.*

OFFICE OF THE COMPTROLLER

Allen, Henry Coburn.....*Comptroller*
Hoffman, Paul.....*Auditor*
May, Charles C., B.S. (C.E.).....*Superintendent of Buildings and Grounds*
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

Stevens, Edwin Bicknell, M.A.....*Registrar*
Ollis, Alice M.....*Assistant to the Registrar*
Higgins, Wilma R., B.B.A.....*Schedules Assistant and Secretary*
Willard, Frances, B.A.....*Credentials Assistant*
Tate, Frances E.....*Registration Assistant*
Brugger, Minnie Kraus, B.A.....*Graduation Assistant*
Pepper, Leah H.....*Recording Assistant*

THE MUSEUM

Gunther, Erna, Ph.D.....*Director*
Rathbun, Samuel F.....*Honorary Curator of Birds*
Flahaut, Martha Reekie, B.A.....*Assistant in Biology*

THE HENRY ART GALLERY

Isaacs, Walter F., B.S. (F.A.).....*Director*
Savery, Halley .....*Curator*

ENGINEERING EXPERIMENT STATION

Magnusson, Carl Edward, Ph.D., E.E.....*Director*
Kirsten, Friedrich Kurt, B.S., E.E.....*Aeronautical Engineering*
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*

OCEANOGRAPHIC LABORATORIES

Thompson, Thomas Gordon, Ph.D.....*Director*

STATE CHEMIST

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

NORTHWEST EXPERIMENT STATION, UNITED STATES BUREAU OF MINES

Yancey, Harry Fagan, Ph.D.....*Supervising Engineer*
Johnson, Kenneth Alexander, B.S.....*Junior Chemist*
Westfield, James, Jr.....*Senior Safety Instructor, 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*
Houston, Frances, M.D.....*Assistant Health Officer*
Sims, Wayne W. C., M.D.....*Assistant Health Officer*
Neumayr, George H., M.D.....*Assistant Health Officer*
Hoedemaker, Edward D., M.D.....*Assistant Health Officer*
Reeder, Maude, R.N.....*Superintendent, Nurses*

*BOARDS AND COMMITTEES

1935-1936

Administrative Boards

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

Board of Deans—Lauer, Bash, Condon, Coon, Johnson, Landes, Loew, Padelford, Roberts, Shepherd, Thomson, 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.

Campus Planning.....Lauer, Condon, May, C. F. Gould

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

Graduate Publications—Padelford, Carpenter, Goodspeed, Griffith, Gundlach, Gunther, Lucas, R. C. Miller, Rigg, C. W. Smith.

Graduation—Goodspeed, Cornu, Grondal, J. W. Miller, Rhodes, Skinner, Stevens.

Honors—Winger, Burd, K. C. Cole, Denny, H. K. Moritz, Nottelmann, Powell.

Library—C. W. Smith, Beardsley, Coon, Guberlet, Loew, Padelford, Powell, Thomson, F. G. Wilson.

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

Relations with Secondary Schools and Colleges—T. R. Cole, Bolton, Carpenter, Foster, Frein, Sperlin, Stevens, Uhl, Utterback, Warner, Wilcox, F. G. Wilson.

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

Rules.....Shepherd, Loew, Steiner, Stevens, Utterback.

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

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

Director of Publications.....Padelford

Traffic Judge.....Richards

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

THE FACULTY OF THE UNIVERSITY

(Arranged by Seniority)*

Lee Paul Sieg, 1934.....*President of the University*

Edward Henry Lauer, 1934.....*Dean of Faculties*

PROFESSORS

Henry Landes, 1895
Trevor Kincaid, 1895 (1901)
Frederick Morgan Padelford, 1901
Milnor Roberts, 1901
Frederick Arthur Osborn, 1902
William Savery, 1902
David Thomson, 1902
Pierre Joseph Frein, 1903
Theodore Christian Frye, 1903
Charles Willis Johnson, 1903 (1904)
Robert Edouard Moritz, 1904
Everett Owen Eastwood, 1905
Carl Edward Magnusson, 1904 (1906)
Frederick William Meisnest, 1906
William Elmer Henry, 1906
David Connolly Hall, 1908
Herbert Henry Gowen, 1909 (1914)
Oliver Huntington Richardson, 1909
Charles Church More, 1900 (1912)
Henry Kreitzer Benson, 1904 (1912)
Hugo Winkenwerder, 1909 (1912)
Frederick Elmer Bolton, 1912
Edwin John Vickner, 1912
Effie Isabel Raitt, 1912 (1914)
Allen Rogers Benham, 1905 (1916)
Stevenson Smith, 1911 (1916)
Leslie James Ayer, 1916
William Maurice Dehn,1907(1919)
Howard Woolston, 1919
George McPhail Smith, 1919
James Edward Gould, 1920
Charles Edwin Weaver, 1907 (1921)
George Wallace Umphrey, 1911 (1922)
John Locke Worcester, 1917 (1922)
Howard Hall Preston, 1920 (1922)
Edgar Allen Loew, 1909 (1923)
Joseph Daniels, 1911 (1923)
Friederich Kurt Kirsten, 1915 (1923)
William Edward Cox, 1919 (1923)
Carl Spencer Dakan, 1919 (1923)
Herbert Ellsworth Cory, 1923
George Samuel Wilson, 1906 (1924)
Charles William Harris, 1906 (1924)
Charles Emanuel Martin, 1924
Roy Martin Winger, 1918 (1925)
Charles Wesley Smith, 1905 (1926)
Allen Fuller Carpenter, 1909 (1926)
Edward Godfrey Cox, 1911 (1926)
Harlan Thomas, 1926
Thomas Kay Sidey, 1903 (1927)
Edward McMahon, 1908 (1927)
Joseph Grattan O'Bryan, 1914 (1927)
Arthur Melvin Winslow, 1918 (1927)
Herman Vance Tartar, 1917 (1927)
Hewitt Wilson, 1919 (1927)
Henry Alfred Burd, 1924 (1927)
Dudley David Griffith, 1924 (1927)
Shirley Jay Coon, 1927
Rudolph H. Nottelmann, 1927
George Burton Rigg, 1909 (1928)
Moritz Rosen, 1909 (1928)
Albert Franz Venino, 1913 (1927)
Edwin Ray Guthrie, 1914 (1928)
Macy Milmore Skinner, 1916 (1928)
Carl Paige Wood, 1918 (1928)
Henry August Langenhan, 1922 (1928)
Frederick W. Orr, 1925 (1928)
Vernon McKenzie, 1928
Willis Lemon Uhl, 1928
Otto Patzer, 1907 (1929)
Theresa Schmid McMahon, 1911 (1929)
Charles Culbertson May, 1912 (1929)
Bror Leonard Grondal, 1913 (1929)
Harry Edwin Smith, 1914 (1929)
Thomas Gordon Thompson, 1918 (1929)
William R. Wilson, 1919 (1929)
Edward Ayers Taylor, 1929
Richard G. Tyler, 1929
Glenn Hughes, 1919 (1930)
John E. Guberlet, 1923 (1930)
Thomas R. Cole, 1930
W. F. Thompson, 1930
Harold Shepherd, 1931
August Werner, 1931
Roy J. Kennedy, 1931
Jennie Irene Rowntree, 1925 (1932)
Edward Kimmel, 1932
Harvey Bruce Densmore, 1907 (1933)
Joseph Barlow Harrison, 1913 (1933)

*This listing does not include the faculty of the Harborview and Providence Divisions of the School of Nursing Education. These will be found in the alphabetical list on page 18.

A single date following a name indicates the beginning of service in the University. When two dates are given, the first indicates the beginning of service in the University; the second, in parenthesis, is the date of appointment to present rank. Dates of appointment of deans are not shown.

Frances Dickey, 1914 (1933)
Homer Ewart Gregory, 1919 (1933)
Grace Goldena Denny, 1913 (1934)
Forest Jackson Goodrich, 1914 (1934)
Clinton Louis Utterback, 1918 (1934)
George Edward Goodspeed, 1919 (1934)
Elizabeth Soule, 1920 (1934)
Robert William Jones, 1920 (1934)
Henry Stephen Lucas, 1921 (1934)
Erwin Allen Esper, 1927 (1934)
Joseph Demmery, 1928 (1934)
Frances Graham Wilson, 1928 (1934)
James Kendall Hall, 1930 (1934)
H. B. Riebe, 1934
Edward Henry Lauer, 1934

Associate Professors

Loren Douglas Milliman, 1905 (1912)
Henry Louis Brakel, 1905 (1919)
Charles Goggio, 1920
Mary Gross Hutchinson, 1919 (1924)
George Irving Gavett, 1907 (1927)
Edward Noble Stone, 1910 (1927)
John H. Jessup, 1926 (1927)
E. Victor Smith, 1911 (1928)
John W. Hotson, 1911 (1928)
Curtis T. Williams, 1920 (1928)
Louis P. deVries, 1920 (1928)
Elgin Roscoe Wilcox, 1920 (1928)
Clarence Raymond Corey, 1907 (1929)
Charles Louis Helmlingé, 1911 (1929)
Arthur Philip Herrman, 1921 (1929)
Gordon Russell Shuck, 1918 (1929)
Gilbert Simon Schaller, 1922 (1929)
August Dvorak, 1922 (1929)
Alfred Lawrence Miller, 1923 (1929)
Lancelot Edward Gowen, 1924 (1929)
Frank Melville Warner, 1925 (1929)
Edgar Marion Draper, 1925 (1929)
Harry J. McIntyre, 1919 (1930)
Norman S. Hayner, 1925 (1930)
John Perry Ballantine, 1926 (1930)
Henry M. Foster, 1927 (1930)
Linden A. Mander, 1928 (1930)
Robert Cunningham Miller, 1924 (1930)
Kenneth C. Cole, 1924 (1930)
Howard Hanna Martin, 1930
James E. Lynch, 1931
Louise Van Ogle, 1915 (1932)
William David Frazer, 1916 (1932)
Warren Lord Beuschlein, 1922 (1932)
Arthur Sydney Beardsley, 1922 (1932)
John William Miller, 1909 (1933)
Brian Towne McMinn, 1920 (1933)
Robert H. G. Edmonds, 1920 (1933)
George Lisle Hoard, 1920 (1933)
George Sherman Smith, 1921 (1933)
Rachel Emilie Hoffstadt, 1923 (1933)
Ruth Worden, 1926 (1933)
John Henry Groth, 1928 (1933)
Richard E. Fuller, 1930 (1933)
Sargent Powell, 1919 (1934)
Ambrose Patterson, 1919 (1934)
Clyde Myron Cramlet, 1920 (1934)
Helen Neilson Rhodes, 1922 (1934)
Sophus Keith Winther, 1923 (1934)
Robert B. Van Horn, 1925 (1934)
Carlos Garcia-Prada, 1925 (1934)
Charles Wilson Lawrence, 1926 (1934)
Raymond L. Hill, 1927 (1934)
Melville H. Hatch, 1927 (1934)
Lee Horace McFarlan, 1927 (1934)
George F. McKay, 1927 (1934)
Earl R. Norris, 1927 (1934)
Jean C. W. Chessex, 1928 (1934)
Everett Nelson, 1930 (1934)
Robert Thomas Pollard, 1931 (1934)
John Kenneth Pearce, 1934
Louis Wait Rising, 1934
Frank H. Kelley, Jr., 1934
Arlien Johnson, 1923 (1934)
Edward N. Woodbury, 1935

Assistant Professors

Lewis Irving Neikirk, 1911 (1914)
Ira Leonard Collier, 1919
Addie Jeanette Bliss, 1922
Dudley Pratt, 1925
Martha E. Dresslar, 1918 (1927)
J. L. Alexander, 1927
William A. Read, 1927
Blanche Payne, 1927
Edna Benson, 1927
Hermance Mullemeister, 1918 (1928)
Mary Aid deVries, 1921 (1928)
Hope Lucille Foote, 1923 (1928)
Matilda Jane McGownd, 1923 (1928)
George E. Hawthorn, 1924 (1928)
Frederick Burt Farquharson, 1925 (1928)
Horace Rahskopf, 1928
Theodore Siegumteldt Jacobsen, 1928
Walter Bell Whittlesey, 1907 (1929)
Marie Alfonso, 1920 (1929)
Ebba Dahlin, 1920 (1929)
Arthur Rudolph Jerbert, 1921 (1929)
Raymond Forrest Farwell, 1921 (1929)
Cecil Eden Quainton, 1924 (1929)
Roy Eric Lindblom, 1924 (1929)
Austin V. Eastman, 1924 (1929)
Byron H. Christian, 1926 (1929)
Joseph E. Henderson, 1929

Kathleen Munro, 1929
Grant I. Butterbaugh, 1922 (1930)
Erna Gunther, 1923 (1930)
Lucy W. Davidson, 1924 (1930)
Edwin Harold Eby, 1926 (1930)
John Ashby Conway, 1927 (1930)
John E. Corbally, 1927 (1930)
Ralph Gundlach, 1927 (1930)
Charles John Miller, 1927 (1930)
Francis Fountain Powers, 1928 (1930)
Albert L. Seeman, 1928 (1930)
Roland Belshaw, 1930
Stephen Darden Brown, 1930
Florence Bean James, 1930
Melvin Miller Rader, 1930
Ralph Wiltamuth, 1930
Jane Sorrie Lawson, 1922 (1931)
Henrietta M. Adams, 1929 (1931)
Alfred E. Harsch, 1930 (1931)
Merritt E. Benson, 1931
Frances M. Earle, 1931
Donald H. Loughridge, 1931
John W. Richards, 1931
John Ritchie III, 1931
Robert Quixote Brown, 1919 (1932)
Edward Charles Wagenknecht, 1925 (1932)
Donald Cornu, 1928 (1932)
Harold Kennedy Moritz, 1928 (1932)
Lionel Henry Pries, 1928 (1932)
Leonard Peter Schultz, 1928 (1932)
Edgar M. Gregory, 1932
Vernon A. Mund, 1932
John Burrill Sholley, 1932
Joseph F. Stiley, 1932
Sergius I. Sergev, 1923 (1933)
Frederick Charnley Smith, 1926 (1933)
Donald H. Mackenzie, 1929 (1933)
George T. Hall, 1933
Lurline Violet Simpson, 1922 (1934)
Herbert Joseph Phillips, 1923 (1934)
Edith Dobie, 1925 (1934)
Fred S. Eastman, 1927 (1934)
Karl A. Windesheim, 1927 (1934)
Maryhelen Byers, 1928 (1934)
Elwood S. Harrar, 1928 (1934)
Thomas McKie Rowlands, 1928 (1934)
Rex J. Robinson, 1929 (1934)
Sybren Ruurd Tymstra, 1929 (1934)
Helen Hall, 1931 (1934)
Kenneth A. Kobe, 1931 (1934)
Giovanni Costigan, 1934
George O. A. Daughtry, 1934
Margaret Felton, 1934
Andrew G. Gardner, 1934
R. A. Knapp, 1934
Breck P. McAllister, 1934
J. Hoover Mackin, 1934
Warren L. Shattuck, 1935
Leon Hubbard Ellis, 1935
Kathleen Leahy, 1935
John L. Brown, 1935
Jacob H. Lawrence, 1935
William S. Hopkins, 1935
Burton Davis, 1935
Antonio Marcial de la Torre, 1935

Lecturers

James McConahey, 1921
Oscar Eldridge Draper, 1920 (1923)
Otis Bedney Sperlin, 1921 (1923)
Arthur Truax, 1924
Charles Alden, 1928
Merlin James Hauan, 1928
Arthur E. Wade, 1928
S. Harold Shefelman, 1930
F. Heward Bell, 1931
Joseph A. Craig, 1931
Frederick A. Davidson, 1931
Harry A. Dunlop, 1931
John F. Hall, 1931
Harlan B. Holmes, 1931
George A. Rounsefell, 1931
Saul D. Herman, 1932
Richard Van Cleve, 1932
Andrew W. Anderson, 1933
Roger W. Harrison, 1933
Helen Thompson Dorman, 1933
Frederic F. Fish, 1934
J. T. Barnaby, 1934
George B. Kelez, 1934
Edwin H. Dahlgren, 1934
Edward D. Hoedemaker, 1935
F. A. Zeusler, 1935
Bryan T. Newsom, 1935
Edmond Spellacy, 1935

Instructors

Alletta Maria Gillette, 1912
George Kirchner, 1919
Hiram Chittenden, 1923
Clarence E. Dunlap, 1926
Malcolm Hamilton, 1926
Roland B. Littell, 1926
Victorian Sivertz, 1926
Garland Ethel, 1927
Philip A. Jacobsen, 1927
Ruth Allen McCreery, 1924 (1927)
Fred H. Rhodes, Jr., 1927
August A. Auernheimer, 1928

Margaret Elma Terrell, 1928
Russell Cain, 1925 (1929)
Melville Jacobs, 1928 (1929)
Ray W. Kenworthy, 1929
Joseph C. King, 1929
Louise Benton Oliver, 1920 (1929)
Ruth Pennington, 1928 (1929)
Walter Welke, 1929
Siri Andrews, 1929 (1930)
Winfred Wylam Bird, 1926 (1930)
Claire Evans, 1930
Alfred Jensen, 1930
Norman Frederich Kunde, 1930
Joseph Voris Lamson, 1930
Miriam Terry, 1930
John F. Torney, 1930
Clotilde Wilson, 1929 (1930)
Iris Canfield, 1931
Harriet F. Glover, 1927 (1931)
Amy Violet Hall, 1923 (1931)
Bernard S. Henry, 1931
Paul McClellan Higgs, 1919 (1931)
Lyman D. Phifer, 1928 (1931)
Florence Reed Horton, 1930 (1931)
Ivar Spector, 1931
Elton Guthrie, 1929 (1932)
Neil Roy Knight, 1932
Robert S. Mansfield, 1932
Henry Olschewsky, 1931 (1932)
Russell Barthell, 1934
Harald Bergerson, 1934
Lyall Baker Cochran, 1934
Mary Carter Coolidge, 1934
Alberta Dodson, 1934
Rufus A. Harmony, 1934
Robert G. Hennes, 1934
George P. Horton, 1934
Arthur N. Lorig, 1934
Bergete Maydahl, 1929 (1934)
Herman Carl Meyer, 1934
Lea Puymbroeck, 1930 (1934)
Edmund Linton Ryder, 1934
Leone Helmich Rulifson, 1933 (1934)
Brents Stirling, 1932 (1934)
Maxim von Brevern, 1934
Morris Chertkov, 1934
Ernest Dirck Engel, 1934
Merrill Monroe Jensen, 1935
George K. Boyce, 1935
Clayton L. Sullivan, 1935
Jack M. Mackey, 1935
Louis Fischer, 1935
Paul S. Jorgenson, 1935
Phil E. Church, 1935
Mary Elizabeth Starr, 1935
Mary E. Haller, 1935
Ingomar M. Hostetter,, 1935
Henry S. Tatsumi, 1935
Roy A. Bailey, 1935
Joseph L. Hogwood, 1935
Floyd Collins, 1935
Roy B. Whitchurch, 1935
Elizabeth Rogge, 1935
Bernice E. Scroggie, 1935

ASSOCIATES

Winnifred Sunderlin Haggett, 1917
Ethel Sanderson Radford, 1919
Eugenie Worman, 1919
Clarence Edmundson, 1920
Sylvia Finlay Kerrigan, 1920
Bertha Almen Vickner, 1920
Frank Hartmond Hamack, 1921
Rachel Elizabeth Hamilton, 1920 (1921)
Dorsett Graves, 1922
Elenora Wesner, 1924
Lois Eula Brown, 1923 (1925)
Genevieve Knight Ballaine, 1926
Charlotte Felice Ankele, 1926 (1927)
Alvin Ulbrickson, 1927
Julia Goodsell, 1928
Martha J. Nix, 1926 (1928)
Llewellyn Arthur Sanderman, 1928
Ottilie Terzieff, 1924 (1928)
Arthur C. Ballard, 1929
Joseph Butterworth, 1929
Thomas G. Hermans, 1926 (1929)
Margaret C. Walter, 1929
Robert Martin, 1930
Angelo Pellegrini, 1930
James Phelan, 1930
Ralph Welch, 1930
Lawrence J. Zillman, 1930
Harold Heeremans, 1931
Max Schertel, 1931
Eleanor Nordoff Beck, 1932
Russell Blankenship, 1932
Joseph Cohen, 1932
Belle Stephens, 1932
Maude L. Beal, 1926 (1933)
Verne F. Ray, 1933
Harry Burns, 1934
Graham McFarland Dressler, 1934
Donald William Emery, 1934
Agnes Norlin, 1934
Sophie Weinstein, 1934
William Glen Lutey, 1934
George Neville Jones, 1934
George M. Savage, Jr., 1935
Benicia Genther Church, 1935
Emily Harris, 1935
Harold A. Coombs, 1935
Elizabeth Curtis, 1935
Earl F. Clark, 1935
Henry E. Wirth, 1935
John V. Fordon, 1935
Russell S. Weiser, 1935
Lauren R. Donaldson, 1935
Dan Rosenberg Van Draegen, 1935
Gloria Parker, 1935

ALPHABETICAL LIST OF THE UNIVERSITY FACULTY
1935-1936

Lee Paul Sieg, 1934.....President of the University
Ph.D., Iowa, 1910; LL.D., Pittsburgh, 1934

Edward Henry Lauer, 1934.....Professor of German; Dean of the University College; Dean of Faculties
Ph.D., Michigan, 1916

Adams, Henrietta M., 1929 (1931)..Assistant Professor of Nursing Education; Director of Nursing Education, Harborview Division
R.N., Seattle General Hospital; M.S., Washington, 1934

Alden, Charles, 1928.....Lecturer in Architecture
B.S., Massachusetts Institute of Technology, 1890

Alexander, James Lindsay, 1927.....Assistant Professor of Forestry
B.Sc.F., Toronto, 1921

Alfonso, Marie, 1920 (1929).....Assistant Professor of Librarianship
B.A., B.S.(L.S.), Washington, 1921

Anderson, Andrew W., 1933.....Lecturer in Fisheries
B.S., Washington, 1922

Andrews, Siri, 1929 (1930).....Instructor in Librarianship
B.S. (L.S.), Washington, 1930

Ankele, Felice Charlotte, 1926 (1927).....Associate in Germanic Languages
M.A., Washington, 1926

Auernheimer, August A., 1928.....Instructor in Physical Education for Men
M.A., Columbia, 1932

Ayer, Leslie James, 1916.....Professor of Law
J.D., Chicago, 1906

Bailey, Ray A., 1935.....Instructor in Military Science and Tactics

Ballaine, Genevieve Knight, 1926.....Associate in Latin
B.A., Olivet College, 1897

Ballantine, John Perry, 1926 (1930).....Associate Professor of Mathematics
Ph.D., Chicago, 1923

Ballard, Arthur C., 1929.....Research Associate in Anthropology
B.A., Washington, 1899

Barnaby, Joseph Thomas, 1934.....Lecturer in Fisheries
M.S., Stanford, 1932

*Barthell, Russell, 1934.....Instructor in Political Science and Executive Secretary, Bureau of Governmental Research
M.A., Washington, 1931

Bash, Mary Iola, 1925.....Associate Dean of Women
B.A., Washington, 1914

Beal, Maude L., 1926 (1933).....Associate in English
M.A., Washington, 1929

Beardsley, Arthur Sydney, 1922 (1932).....Law Librarian; Associate Professor of Law
LL.B., B.S.(L.S.), Ph.D., Washington, 1928

Beck, Eleanor N., 1932.....Associate in Music
Pupil of Marcel Grancjany, Harpist, American School at Fontainebleau, Paris

Bell, F. Heward, 1931.....Lecturer in Fisheries
B.A., British Columbia, 1924

Belshaw, Roland, 1930.....Assistant Professor of Physical Education for Men
M.A., Columbia, 1930

Benham, Allen Rogers, 1905 (1916).....Professor of English
Ph.D., Yale, 1905

Benson, Edna, 1927.....Assistant Professor of Design
M.A., Columbia, 1923

A single date following a name indicates the beginning of service in the University. When two dates are given, the first indicates the beginning of service in the University; the second, in parenthesis, is the date of appointment to present rank. Dates of appointment of deans are not shown.

*Absent, autumn quarter, 1935.

Benson, Henry Kreitzer, 1904 (1912).....Professor of Chemical Engineering
Ph.D., Columbia, 1907

Benson, Merritt E., 1931.....Assistant Professor of Journalism
LL.B., Minnesota, 1930

Bergerson, Harald, 1934.....Acting Instructor in Political Science and Acting Executive Secretary of the Bureau of Governmental Research
B.A., College of Puget Sound, 1931

Beuschlein, Warren Lord, 1922 (1932).....Associate Professor of Chemical Engineering
M.S., (Ch.E.), Washington, 1925

Bigham, Truman S., 1935.....Acting Professor of Public Utilities
Ph.D., Stanford, 1926

Bird, Winfred Wylam, 1926 (1930).....Instructor in English
M.A., Washington,1928

Blankenship, Russell, 1932.....Associate in English
Ph.D., Washington, 1935

Bliss, Addie Jeanette, 1922.....Assistant Professor of Home Economics
M.A., Columbia, 1917

Bolton, Frederick Elmer, 1912.....Professor of Education; Dean Emeritus of the College of Education
Ph.D., Clark, 1898

Bostwick, Irene Neilson, 1930.....Instructor in Music
B.M., Washington, 1922

Bowles, Albert J.....Lecturer in Thyroid Surgery, Harborview and Providence Divisions
M.D., Oregon, 1923

Boyce, George K., 1935.....Instructor in History
Ph.D., Yale, 1933

Brakel, Henry Louis, 1905 (1919)..Associate Professor of Engineering Physics
Ph.D., Cornell, 1912

Braker, Thelma.....Instructor in Nursing Education, Providence Division
R.N., Providence Hospital; B.S., Washington, 1931

**Brown, Harold C., 1935.....Acting Professor of Philosophy
Ph.D., Harvard, 1905

Brown, John L., Lieutenant U.S.N., 1935.....Assistant Professor of Naval Science and Tactics
Graduate, U. S. Naval Academy, 1923

Brown, Lois Eula, 1923 (1925).....Associate in English
M.A., Washington, 1924

Brown, Robert Quixote, 1919 (1932).....Assistant Professor of General Engineering
B.S. (E.E.), Washington, 1916

Brown, Stephen Darden, 1930.....Assistant Professor of Business Law
LL.B., Washington, 1925

Burd, Henry Alfred, 1924 (1927).....Professor of Marketing; Director of the Summer Quarter
Ph.D., Illinois, 1915

Burns, Harry, 1934.....Associate in English
Ph.D., Washington, 1935

*Butterbaugh, Grant I., 1922 (1930).....Assistant Professor of Accounting
M.B.A., Washington, 1923

Butterworth, Joseph, 1929.....Associate in English
M.A., Brown, 1921

Byers, Maryhelen, 1928 (1934).....Assistant Professor of Painting
M.A., Columbia, 1924

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*On leave, 1935-36.
**For autumn quarter, 1935.

Cain, Russell, 1925 (1929).....Instructor in Pharmacy
Ph.D., Washington, 1933

Canfield, Iris, 1931.....Instructor in Music
B.A., Washington, 1922

Carpenter, Allen Fuller, 1909 (1926).....Professor of Mathematics
Ph.D., Chicago, 1915

Chertkov, Morris, 1934.....Instructor in Business Law
J.D., University of Chicago, 1933

Chessex, Jean Charles William, 1928 (1934)...Associate Professor of Romanic Languages
M.A., Lausanne (Switzerland), 1925

Chittenden, Hiram Martin, 1923.....Instructor in Civil Engineering
C.E., Washington, 1935

Christian, Byron Hunter, 1926 (1929).....Assistant Professor of Journalism
M.A., Washington, 1929

Church, Benecia Genther, 1935....Associate in Physical Education for Women
B.S., Washington, 1929

Church, Phil E., 1935.....Instructor in Geography and Meteorology
M.A., Clark, 1932

Clark, Earl F., 1935.....Associate in Physical Education for Men

Clein, Norman W.....Lecturer in Pediatric Nutrition, Harborview and Providence Divisions.
M.D., Northwestern, 1925

Cochran, Lyall Baker, 1934.....Instructor in Electrical Engineering
M.S., (E.E.), Washington

Coe, Herbert E.....Lecturer in Surgical Pediatrics, Harborview and Providence Divisions
M.D., Michigan, 1906

Cohen, Joseph, 1932.....Associate in Sociology
M.A., Washington, 1927

Cole, Kenneth C., 1924 (1930).....Associate Professor of Political Science
Ph.D., Harvard, 1930

Cole, Thomas Raymond, 1930.....Professor of Education
Ph.B., DePauw; LL.D.,Upper Iowa, 1931

Collier, Ira Leonard, 1919.....Assistant Professor of Civil Engineering
C.E., Washington, 1917

Collins, Floyd, 1935.....Instructor in Military Science and Tactics

Condon, Herbert T., 1903.....Dean of Men
B.A., Oregon; LL.B., Michigan, 1894

Conway, John Ashby, 1927 (1930).....Assistant Professor of Dramatic Art
B.A., Carnegie Institute of Technology, 1927

Coolidge, Mary Carter, 1934.....Instructor in Nursing Education
R.N., Massachusetts General Hospital, 1927; B.A., Smith, 1922

Coombs, Howard A., 1935.....Associate in Geology
M.S., Washington, 1931

Coon, Shirley Jay, 1927.....Professor of Economics; Dean of the College of Economics and Business
Ph.D., Chicago, 1926

Corbally, John E., 1927 (1930).....Assistant Professor of Education
Ph.D., Washington, 1929

Corey, Clarence Raymond, 1907 (1929).....Associate Professor of Mining Engineering and Metallurgy
E.M., Montana State School of Mines; M.A., Columbia, 1915

Cornu, Donald, 1928 (1932).....Assistant Professor of English
Ph.D., Washington, 1928

Cory, Herbert Ellsworth, 1923.....Professor of Liberal Arts
Ph.D., Harvard, 1910

Costigan, Giovanni, 1934.....Assistant Professor of History
Ph.D., Wisconsin, 1930

Cox, Edward Godfrey, 1911 (1926).....Professor of English
Ph.D., Cornell, 1906

Cox, William Edward, 1919 (1823)...Professor of Economics and Accounting
M.A., Texas, 1910

Craig, Joseph A., 1931.....Lecturer in Fisheries
M.A., Stanford, 1931

Cramlet, Clyde Myron, 1920 (1934).....Associate Professor of Mathematics
Ph.D., Washington, 1926

Cross, Harriet.....Instructor in Out-Patient Nursing, Harborview Division
R.N., Columbia Hospital; B.S., Minnesota, 1925

Curtis, Elizabeth, 1935.....Associate in Art
M.A., Washington, 1933

Curtis, Mary Elizabeth.....Instructor in Psychiatric Nursing, Harborview Division
R.N., B.N., Yale, 1931

Dahlgren, Edwin Harold, 1934.....Lecturer in Fisheries
B.S., Washington, 1931

Dahlin, Ebba, 1920 (1929).....Assistant Professor of History
Ph.D., Stanford, 1927

Dakan, Carl Spencer, 1919 (1923).....Professor of Corporation Finance and Investments
B.S., Missouri, 1909

Daniels, Joseph, 1911 (1923)..Professor of Mining Engineering and Metallurgy
M.S., Lehigh, 1908; E.M., Lehigh, 1933

Daughtry, George O. A., Captain, Infantry, 1934.....Assistant Professor of Military Science and Tactics
LL.B., Mercer University, 1915

Davidson, Frederick A., 1931.....Lecturer in Fisheries
Ph.D., Chicago, 1927

Davidson, Lucy W., 1924 (1930)....Assistant Professor of Physical Education for Women
M.A., Columbia, 1923

Davis, Burton, 1935.....Assistant Professor of Naval Science and Tactics
Graduate, U. S. Naval Academy, 1923

Davis, Erma Nelson, 1928.....Associate in History
M.A., Utah, 1924

Dehn, William Maurice, 1907 (1919).....Professor of Organic Chemistry
Ph.D., Illinois, 1903

de la Torre, Antonio Marcial, 1935.....Acting Assistant Professor of Spanish
M.A., Oklahoma

Demmery, Joseph, 1928 (1934).....Professor of Business Fluctuations and Real Estate
M.A., Chicago, 1924

Denny, Grace Goldena, 1913 (1934).....Professor of Home Economics
M.A., Columbia, 1919

Densmore, Harvey Bruce, 1907 (1933).....Professor of Greek
B.A., Oxford, 1907

de Vries, Louis Peter, 1920 (1928).....Associate Professor of French
Ph.D., Wisconsin, 1913

de Vries, Mary Aid, 1921 (1928)....Assistant Professor of Physical Education for Women
B.A., Wisconsin, 1920

Dial, Mabel.....Instructing Supervisor in Pharmacy, Harborview and Providence Divisions
R.N., Deaconess Hospital, Spokane; B.S., Washington State College, 1928

Dickey, Frances, 1914 (1933).....Professor of Music; Acting Director of the School of Music
M.A., Columbia, 1913

Dobie, Edith, 1925 (1934).....Assistant Professor of History
Ph.D., Stanford, 1925

Dodson, Alberta, 1934.....Instructor in Home Economics
M.A., Teachers' College, Columbia, 1934

Donaldson, Lauren R., 1935.....Associate in Fisheries
M.S., Washington, 1931

Dorman, Helen Thompson, 1933.....Lecturer in Sociology and Supervisor of Field Work, Graduate Division of Social Work
B.A., Washington, 1928

Dowler, Charlotte Crompton.....Instructor in Operating Rooms, Harborview Division
R.N., Niagara Falls Memorial Hospital; B.S., Washington, 1934

Draper, Edgar Marion, 1925 (1929).....Associate Professor of Education
Ph.D., Washington, 1927

Draper, Oscar Eldridge, 1920 (1923).....Lecturer in Accounting
M.Acct., Vories Business College, 1902

Dresslar, Martha Estella, 1918 (1927).....Assistant Professor of Home Economics
M.S., Columbia, 1918

Dressler, Graham McFarland, 1934.....Associate in English
M.A., Illinois, 1929

Dunlap, Clarence E., 1926.....Instructor in Naval Science and Tactics

Dunlop, Harry A., 1931.....Lecturer in Fisheries
M.A., British Columbia, 1922

Dvorak, August, 1922 (1929).....Associate Professor of Education
Ph.D., Minnesota, 1923

Earle, Frances M., 1931.....Assistant Professor of Geography
Ph.D., George Washington, 1929

Eastman, Austin Vitruvius, 1924 (1929).....Assistant Professor of Electrical Engineering
M.S., Washington, 1929

Eastman, Fred S., 1927 (1934).....Assistant Professor of Aeronautical Engineering
M.S., Massachusetts Institute of Technology, 1929

Eastwood, Everett Owen, 1905.....Professor of Mechanical Engineering; Director of Guggenheim Laboratories
C.E., M.A., Virginia, 1899

Eby, Edwin Harold, 1926 (1930).....Assistant Professor of English
Ph.D., Washington, 1927

Eckelman, Ernest Otto, 1911 (1934).....Professor of Germanic Languages
Ph.D., Heidelberg (Germany), 1906

Edmonds, Robert Harold Gray, 1920 (1933).....Associate Professor of Mechanical Engineering
M.E., Washington, 1931

Edmundson, Clarence, 1920.....Associate in Physical Education for Men
B.S., Idaho, 1910

*Ellis, Leon Hubbard, 1935.....Acting Assistant Professor of Political Science
LL.B., Washington, 1921

Emery, Donald William, 1934.....Associate in English
M.A., Iowa,,1928

Engel, Ernest Dirck, 1934.....Instructor in General Engineering
B.S.(C.E.), Washington, 1930

Esper, Erwin Allen, 1927 (1934).....Professor of Psychology
Ph.D., Ohio State, 1923

Ethel, Garland, 1927.....Instructor in English
Ph.D., Washington, 1928

*For autumn quarter, 1935.

Evans, Claire, 1930.....Instructor in Pharmacy
M.S. in Phar., Washington, 1928

Farquharson, Frederick Burt, 1925 (1928).....Assistant Professor of Civil Engineering
M.E., Washington, 1927

Farwell, Raymond Forrest, 1921 (1929)..Assistant Professor of Transportation
M.A., Washington, 1926

Felton, Margaret, 1934.....Assistant Professor of Nursing Education, Providence Division.
R.N., Providence Hospital; B.S., Washington, 1932

Fish, Frederic F., 1934.....Lecturer in Fisheries
Sc.D., Johns Hopkins, 1931

Fischer, Louis, 1935.....Instructor in Pharmacy
Ph.D., Washington, 1933

Foote, Hope Lucile, 1923 (1928).....Assistant Professor of Interior Design
M.A., Columbia, 1923

Fordon, John V., 1935.....Associate in Accounting
M.B.A., Washington, 1934

Foster, Henry Melville, 1927 (1930).....Associate Professor and Director of Physical Education for Men
M.A., Columbia, 1926

Frankland, Charles Frederick, 1932.....Director of Athletics
B.B.A., Washington, 1922

Frein, Pierre Joseph, 1903.....Professor of Romanic Languages
Ph.D., Johns Hopkins, 1899

Friedman, Harry J.....Lecturer in Gastro-Intestinal Diseases, Harborview and Providence Divisions
M.D., Jefferson, 1929

Frye, Theodore Christian, 1903.....Professor of Botany
Ph.D., Chicago, 1902

Fuller, Richard E., 1930 (1933)...Associate Professor of Geology on Research Appointment
Ph.D., Washington, 1930

*Garcia-Prada, Carlos, 1925 (1934).....Associate Professor of Spanish
Ph.D., Bogota (South America) 1929

Gardner, Andrew G., Major, Infantry, 1934....Assistant Professor of Military Science and Tactics

Gavett, George Irving, 1907 (1927).....Associate Professor of Mathematics
B.S. (C.E.), Michigan, 1893

Gillette, Alletta Maria, 1912.....Instructor in English
M.A., Washington, 1911

**Glover, Harriet F., 1927 (1931) Instructor in Physical Education for Women
M.S., in Physical Education, Washington, 1932

Goggio, Charles, 1920.....Associate Professor of Romanic Languages
Ph.D., Wisconsin, 1919

Goodrich, Forest Jackson, 1914 (1934).....Professor of Pharmacognosy
Ph.D., Washington, 1926

**Goodsell, Julia, 1928.....Associate in Physiology
M.S., Washington, 1928

Goodspeed, George Edward, 1919 (1934).....Professor of Geology
B.S. (Min.E.), Massachusetts Institute of Technology, 1910

Goss, H. L.....Lecturer in Ophthalmology and Otolaryngology, Harborview and Providence Divisions
M.D., Minnesota, 1917

Gould, James Edward, 1920.....Professor of Maritime Commerce
M.A., Harvard, 1907

*On leave, 1935-36.
**Absent, autumn quarter, 1935.

Gowen, Herbert Henry, 1909 (1914).....Professor of Oriental Studies
St. Augustine's College (Canterbury); D.D., Whitman College, 1912

Gowen, Lancelot, 1924 (1929).....Associate Professor of Architecture
M.A. (Arch.), California, 1921

Graves, Dorsett, 1922.....Associate in Physical Education for Men

Gregory, Edgar M., First Lieutenant C.A.C., 1932.....Assistant Professor of Military Science and Tactics
Graduate, U. S. Military Academy, 1918

Gregory, Homer Ewart, 1919 (1933).....Professor of Management and Accounting
M.A., Chicago, 1917

Griffith, Dudley David, 1924 (1927).....Professor of English
Ph.D., Chicago, 1916

Grondal, Bror Leonard, 1913 (1929).....Professor of Forestry
B.A., Bethany; M.S.F., Washington, 1913

Groth, John Henry, 1928 (1933).....Associate Professor of German
Ph. D., Columbia, 1928

Guberlet, John Earl, 1923 (1930).....Professor of Zoology
Ph.D., Illinois, 1914

Gundlach, Ralph, 1927 (1930).....Assistant Professor of Psychology
Ph.D., Illinois, 1927

Gunther, Erna, 1923 (1931)....Assistant Professor of Anthropology; Director of the Museum
Ph.D., Columbia, 1926

Guthrie, Edwin Ray, 1914 (1928).....Professor of Psychology
Ph.D., Pennsylvania, 1912

Guthrie, Elton, 1929 (1932).....Instructor in Sociology
Ph.D., Washington, 1933

Haggett, Winnifred Sunderlin, 1917.....Associate in English
M.A., Michigan, 1898

Hall, Amy Violet, 1923 (1931).....Instructor in English
M.A., Washington, 1923

Hall, David Connolly, 1908...Professor of Hygiene; University Health Officer
Sc.M., Chicago; M.D., Rush Medical College, 1907

Hall, George T., Major U. S. Marine Corps, 1933.....Assistant Professor of Naval Science and Tactics
LL.B., Washington, 1917

Hall, Helen, 1931 (1934).....Assistant Professor of Music
B.M., Washington, 1925

*Hall, James Kendall, 1930 (1934)....Professor of Public Utilities and Public Finance
Ph.D., Stanford, 1929

Hall, John F., 1931.....Lecturer in Sociology

Haller, Mary E., 1935.....Instructor in Mathematics
Ph.D., Washington, 1934

Hamack, Frank Hartmond, 1921.....Associate in Accounting
LL.B., Georgetown, 1916

Hamilton, Malcolm, 1926.....Instructor in Naval Science and Tactics

Hamilton, Rachel Elizabeth, 1920 (1921).....Associate in French
M.A., Washington, 1924

Harmony, Rufus A., 1934.....Instructor in Naval Science and Tactics

Harrar, Elwood S., 1928 (1934).....Assistant Professor of Forestry
Ph.D., New York State College of Forestry, 1934

Harris, Charles William, 1906 (1924).....Professor of Hydraulic Engineering
C.E., Cornell, 1905

*On leave, autumn and winter quarters, 1935-36.

Harris, Emily Cornelius, 1935.....Associate in Sociology and Supervisor of Field Work, Graduate Division of Social Work
B.A., Mt. Holyoke, 1922

Harrison, Joseph Barlow, 1913 (1933).....Professor of English
B.A., Oxford, 1913

Harrison, Roger W., 1933.....Lecturer in Fisheries
M.S. in Chemistry, George Washington, 1928

Harsch, Alfred E., 1930 (1931).....Assistant Professor of Law
LL.B., Washington, 1928

Hatch, Melville H., 1927 (1934).....Associate Professor of Zoology
Ph.D., Michigan, 1925

Hauan, Merlin James, 1928.....Lecturer in Civil Engineering
B.S. (E.E.), Washington, 1925

Hawthorn, George Edward, 1924 (1928).....Assistant Professor of Civil Engineering
C.E., Washington, 1926

Hayner, Norman Sylvester, 1925 (1930).....Associate Professor of Sociology
Ph.D., Chicago, 1923

Heeremans, Harold, 1931.....Associate in Music

Helmlingé, Charles Louis, 1911 (1929).....Associate Professor of Romanic Languages
M.A., Washington, 1915

Henderson, Joseph E., 1929.....Assistant Professor of Physics
Ph.D., Yale, 1928

Hennes, Robert G., 1934.....Instructor in Civil Engineering
M.S., (C.E.), Massachusetts Institute of Technology, 1928

Henry, Bernard S., 1931.....Instructor in Bacteriology
Ph.D., California, 1931

Henry, Dora Priaulx, 1932...Research Associate in Oceanography and Zoology
Ph.D., California, 1931

Henry, William Elmer, 1906.....Librarian Emeritus
M.A., Indiana, 1892

Hermans, Thomas G., 1926 (1929).....Associate in Psychology
M.A., Washington, 1927

Herrman, Arthur Philip, 1921 (1929).....Associate Professor of Architecture
B.A. (Arch.), Carnegie Institute of Technology, 1920

Higgs, Paul McClellan, 1919 (1931).....Instructor in Physics
B.S., Washington, 1919

Hill, Raymond L., 1927 (1934).....Associate Professor of Painting
Rhode Island School of Design; California School of Fine Arts, 1915

Hoard, George Lisle, 1920 (1933).....Associate Professor of Electrical Engineering
M.S. (E.E.), Washington, 1926

Hoedemaker, Edward D., 1935.....Assistant Health Officer; Lecturer in Psychiatry; Lecturer in Functional Psychosis, Harborview and Providence Divisions
M.D., Michigan, 1929

Hoffstadt, Rachel Emilie, 1923 (1933)....Associate Professor of Bacteriology
Ph.D., Chicago, 1915; D.Sc., Johns Hopkins, 1921

Hogwood, Joseph L., 1935.....Instructor in Military Science and Tactics

Holmes, Harlan B., 1931.....Lecturer in Fisheries
M.A., Stanford, 1931

Hopkins, William S., 1935.....Assistant Professor of Economics
Ph.D., Stanford, 1932

Horton, Florence Reed, 1930 (1931).....Instructor in Physical Education for Women
M.A., Teachers' College, Columbia, 1930

Horton, George P., 1934.....Instructor in Psychology
Ph.D., Princeton, 1932

Hostetter, Ingomar M., 1935.....Instructor in Mathematics
Ph.D., Washington, 1935

Hotson, John William, 1911 (1928).....Associate Professor of Botany
Ph.D., Harvard, 1913

Houston, Frances, 1931.....Assistant Health Officer
M.D., Rush, 1917

Hughes, Glenn, 1919 (1930).....Professor of English
M.A., Washington, 1921

Hutchinson, Mary Gross, 1919 (1924)....Associate Professor and Director of Physical Education for Women
M.A., Columbia, 1915

Isaacs, Walter F., 1922 (1929).....Professor of Fine Arts; Director of the School of Art
B.S. (F.A.), James Millikin, 1909

Jacobs, Melville, 1928 (1929).....Instructor in Anthropology
Ph.D., Columbia, 1931

Jacobsen, Philip A., 1927.....Instructor in General Engineering
B.S., Washington, 1926

Jacobsen, Theodore Siegumteldt, 1928.....Assistant Professor of Astronomy and Mathematics
Ph.D., California, 1926

Jacobson, Conrad.....Lecturer in Neuro-Surgery, Harborview and Providence Divisions
M.D., Johns Hopkins, 1911

James, Florence Bean, 1930.....Assistant Professor of English
Emerson College, 1914

Jensen, Alfred, 1930.....Instructor in General Engineering
B.S. in C.E., Washington, 1925

Jensen, Merrill Monroe, 1935.....Instructor in History
Ph.D., Wisconsin, 1934

Jerbert, Arthur Rudolph, 1921 (1929).....Assistant Professor of Mathematics
Ph.D., Washington, 1928

Jessup, John H., 1926 (1927).....Associate Professor of Education
M.A., Iowa, 1924

Johnson, Arlien, 1923 (1934).....Associate Professor of Sociology; Associate Director of the Graduate Division of Social Work
Ph.D., Chicago, 1930

Johnson, Charles Willis, 1903 (1904)..Professor of Pharmaceutical Chemistry; Dean of the College of Pharmacy
Ph.C., Ph.D., Michigan, 1903

Jones, George Neville, 1934.....Associate in Botany
M.S., State College of Washington, 1932

Jones, Robert William, 1920 (1934).....Professor of Journalism
M.A., South Dakota, 1918

Jones, W. Ray..Lecturer in Syphilology, Harborview and Providence Divisions
M.D., Illinois, 1912

Jorgensen, Paul S., 1935.....Instructor in Pharmacognosy
Ph.D., Washington, 1934

Kahin, Helen, 1930 (1935).....Instructor in English
Ph.D., Washington, 1934

Kelez, George Bothwell, 1934.....Lecturer in Fisheries
M.S., Stanford, 1932

Kelley, F. H., Commander, U. S. N., 1934.....Associate Professor of Naval Science and Tactics
Graduate, U. S. Naval Academy, 1910

Kennedy, Fred Washington, 1909.....Director of Journalism Laboratories

Kennedy, Roy J., 1931.....Research Professor in Physics
Ph.D., Johns Hopkins, 1924

Kenworthy, Ray W., 1929.....Instructor in Physics
M.S., Iowa, 1925

Kerrigan, Sylvia Finlay, 1920.....Associate in English
M.A., Washington, 1923

Kimmel, Edward, Colonel, C.A.C., 1932.....Professor of Military Science and Tactics
M.A., State College of Washington, 1907

Kincaid, Trevor, 1895 (1901).....Professor of Zoology
M.A., Washington, 1901

King, Joseph C., 1929.....Instructor in Naval Science and Tactics

Kirchner, George, 1919.....Instructor in Music
Leipzig

Kirsten, Friedrich Kurt, 1915 (1923)...Professor of Aeronautical Engineering
B.S., E.E., Washington, 1914

Knapp, R. A., Lieutenant, U. S. N., 1934.....Assistant Professor of Naval Science and Tactics
Graduate, U. S. Naval Academy, 1922

Knight, Neil Roy, 1932.....Instructor in Economics
Ph.D., Washington, 1935

Kobe, Kenneth Albert, 1931 (1934).....Assistant Professor of Chemical Engineering
B.S. in C.E.; Ph.D., Minnesota, 1930

Kunde, Norman Frederich, 1930.....Instructor in Physical Education for Men
M.A., Washington, 1932

Lamson, Joseph Voris, 1930.....Instructor in General Engineering
B.S. in E.E., Washington, 1926

Landes, Henry, 1895.....Professor of Geology and Mineralogy; Vice Dean of the University College
M.A., Harvard, 1893

Langenhan, Henry August, 1922 (1928).....Professor of Pharmacy
Ph.C., Illinois; Ph.D., Wisconsin, 1918

Larsen, Margaret A.....Instructor in Pediatric Nursing, Harborview Division
R.N., Women's Hospital, Philadelphia; B.S., Texas, 1930

Lawrence, Charles Wilson, 1926 (1934).....Associate Professor of Music
M.A. (Music), Washington, 1930

Lawrence, Jacob H., Captain, Infantry, 1935....Assistant Professor of Military Science and Tactics

Lawson, Jane Sorrie, 1922 (1931).....Assistant Professor of English
M.A., St. Andrews (Scotland), 1906

Leahy, Kathleen, 1935.....Assistant Professor of Nursing Education; Director of Public Health Nursing Field Work
R.N., Stanford; M.S., Washington, 1932

LeCocq, John F.....Lecturer in Orthopedics, Harborview and Providence Divisions
M.D., Oregon, 1928

Lindblom, Roy Eric, 1924 (1929).....Assistant Professor of Electrical Engineering
M.S. (E.E.), Washington, 1929

Littell, Roland B., 1926.....Instructor in Naval Science and Tactics

Loew, Edgar Allen, 1909 (1923).....Professor of Electrical Engineering; Acting Dean of the College of Engineering
E.E., Wisconsin, 1922

Lorig, Arthur N., 1934.....Instructor in Accounting
M.A., Stanford, 1932

Loughridge, Donald H., 1931.....Assistant Professor of Physics
Ph.D., California Institute of Technology, 1927

Lucas, Henry Stephen, 1921 (1934).....Professor of History
Ph.D., Michigan, 1921

Lutey, William Glen, 1934.....Associate in Liberal Arts
M.A., Washington, 1931

Lynch, James E., 1931.....Associate Professor of Fisheries
Ph.D., California, 1929

McAllister, Breck P., 1934.....Assistant Professor of Law
LL.B.; Ph.D., Brookings, 1929

McConahey, James, 1921.....Lecturer in Accounting
M.S., LL.B., Northwestern; C.P.A., 1916

McCreery, Ruth Allen, 1924 (1927).....Instructor in Music
B.M., Washington, 1924

McFarlan, Lee Horace, 1927 (1934).....Associate Professor of Mathematics
Ph.D., Missouri, 1924

**McGownd, Matilda Jane, 1923 (1928).....Assistant Professor of Physical Education for Women
M.A., Columbia, 1923

McIntyre, Harry John, 1919 (1930).....Associate Professor of Mechanical Engineering
B.S. (M.E.); M.B.A., Washington, 1923

McKay, George F., 1927 (1934).....Associate Professor of Music
B.Mus., Rochester, 1923

McKenzie, Vernon, 1928.....Professor of Journalism; Director of the School of Journalism
M.A., Harvard, 1914

McMahon, Edward, 1908 (1927).....Professor of American History
M.A., Wisconsin, 1907

McMahon, Theresa Schmid, 1911 (1929)....Professor of Economics and Labor
Ph.D., Wisconsin, 1909

McMinn, Bryan Towne, 1920 (1933).....Associate Professor of Mechanical Engineering
M.E., Washington, 1931

Mackenzie, Donald H., 1929 (1933).....Assistant Professor of Management and Accounting
M.B.A., Washington, 1925

Mackey, Jack M., 1935.....Instructor in General Engineering
B.S.(E.E.), Washington, 1931

Mackin, J. Hoover, 1934.....Assistant Professor of Geology
M.A., Columbia, 1932

Magnusson, Carl Edward, 1904 (1906)....Professor of Electrical Engineering; Director of the Engineering Experiment Station; Dean Emeritus of the College of Engineering
E.E.; Ph.D., Wisconsin, 1900

*Mander, Linden A., 1928 (1930).....Associate Professor of Political Science
M.A., Adelaide (Australia), 1921

Mansfield, Robert S., 1932.....Instructor in Journalism
M.A., Michigan, 1931

Mary Magna, Sister of Charity of Providence.....Assistant Professor of Nursing Education, Providence Division
R.N., Northwestern Hospital

*On leave, autumn quarter, 1935.
**On leave, 1935-36.

Martin, Charles Emanuel, 1924.....Professor of Political Science
Ph.D., Columbia, 1917

Martin, Howard Hanna, 1930.....Associate Professor of Geography
Ph.D., George Washington, 1929

Martin, John K.....Lecturer in Heart and Circulatory Diseases, Harborview and Providence Divisions
M.D., Nebraska, 1928

May, Charles Culbertson, 1912 (1929).....Professor of Civil Engineering and Architecture; Superintendent of Buildings and Grounds
B.S. (C.E.), Washington, 1910

Maydahl, Bergete, 1929 (1934)...Instructor in Physical Education for Women
M.S. in Physical Education, Washington, 1934

Meisnest, Frederick William, 1906.....Professor of German
Ph.D., Wisconsin, 1904

Meyer, Herman Carl H., 1934.....Instructor in German
B.A., Capital University, 1924

Miller, Alfred Lawrence, 1923 (1929).....Associate Professor of Civil Engineering
C.E., Washington, 1926

Miller, Charles John, 1927 (1930).....Assistant Professor of Marketing
M.B.A., Washington, 1927

Miller, John William, 1909 (1933).....Associate Professor of Aeronautical Engineering
C.E., Nebraska, 1928

Miller, Robert Cunningham, 1924 (1930).....Associate Professor of Zoology
Ph.D., California, 1923

Milliman, Loren Douglas, 1905 (1912).....Associate Professor of English
B.A., Michigan, 1890

More, Charles Church, 1900 (1912).....Professor of Structural Engineering
M.S.; C.E., Lafayette; M.C.E., Cornell, 1899

Moritz, Harold Kennedy, 1928 (1932).Assistant Professor of Civil Engineering
B.S. (M.E.), Massachusetts Institute of Technology, 1921

Moritz, Robert Edouard, 1904.....Professor of Mathematics
Ph.D., Nebraska; Ph.N.D., Strassburg, 1902

Mullemeister, Hermance, 1918 (1928).....Assistant Professor of Mathematics
Ph.D., Royal University of Utrecht, Holland, 1913

Mund, Vernon A., 1932.....Assistant Professor of Economics
Ph.D., Princeton, 1932

*Munro, Kathleen, 1929.....Assistant Professor of Music
M.A., Columbia, 1929

Neikirk, Lewis Irving, 1911 (1914).....Assistant Professor of Mathematics
Ph.D., Pennsylvania, 1903

Nelson, Everett, 1930 (1934).....Associate Professor of Philosophy
Ph.D., Harvard, 1929

Neumayr, George H., 1935.....Assistant Health Officer
M.D., Rush, 1928

Newhouse, Dean, 1934.....Assistant Dean of Men
B.A., Washington, 1930

Newsom, Bryan T., 1935....Lecturer in Principles of Preventive Medicine and Communicable Diseases, Harborview and Providence Divisions
M.D., Northwestern, 1929

*On leave, autumn quarter, 1935

Nix, Martha J., 1926 (1928).....Associate in English
M.A., Washington, 1925

Nixon, Edwin A.....Lecturer in Emergency and Abdominal Surgery, Harborview and Providence Hospitals
M.D., Iowa, 1928

Norlin, Agnes, 1934.....Associate in English
M.A., Washington, 1931

Norris, Earl R., 1927 (1934).....Associate Professor of Chemistry
Ph.D., Columbia, 1924

Northrup, Mary W.....Instructor in Diet Therapy, Harborview Division
M.S., Columbia, 1923

Nottelmann, Rudolph H., 1927.....Professor of Law
M.A., Illinois; LL.B., Yale, 1922

O'Bryan, Joseph Grattan, 1914 (1927).....Professor of Law
B.A., Jesuit College (Denver); LL.D., Regis College, 1928

Odland, Henry.....Lecturer in Dermatology, Harborview and Providence Divisions
M.D., Minnesota, 1915

Olcott, Virginia.....Instructor in Clinical Practice, Harborview Division
R.N., Peter Bent Brigham Hospital; M.S., Washington, 1931

Oliver, Louise Benton, 1920 (1929).....Instructor in Music
B.M., Washington,1919

Olschewsky, Henry, 1931 (1932).....Instructor in Architecture
B.Arch., Washington, 1931

Orr, Frederick Wesley, 1925 (1928).....Professor of English
G.C.D., Boston School of Expression; M.A., Lawrence College, 1925

Osborn, Frederick Arthur, 1902.....Professor of Physics
Ph.D., Michigan, 1907

Padelford, Frederick Morgan, 1901.....Professor of English; Dean of the Graduate School
Ph.D., Yale, 1899; LL.D., Colby, 1934

Palmer, Don.....Lecturer in Plastic and Breast Surgery, Harborview and Providence Divisions
M.D., Rush, 1903

Parker, Gloria, 1935.....Associate in Physical Education for Women
B.S., Oregon, 1925

Patterson, Ambrose, 1919 (1934).....Associate Professor of Painting
Melbourne National Gallery, Victoria, Australia; Julien, Colorossi and Delocluse Academies, Europe

Patzer, Otto, 1907 (1929).....Professor of French
Ph.D., Wisconsin, 1907

Payne, Blanche, 1927.....Assistant Professor of Home Economics
M.A., Columbia, 1927

Peacock, Alexander.....Lecturer in Urology, Harborview and Providence Divisions
M.D., Pennsylvania, 1902

Pearce, John Kenneth, 1934.....Associate Professor of Forestry
B.S.F., Washington, 1921

Pellegrini, Angelo, 1930.....Associate in English
B.A., Washington, 1927

Penington, Ruth, 1928 (1929).....Instructor in Painting
M.F.A., Washington, 1929

Phelan, James, 1930.....Associate in Physical Education for Men
B.A., Notre Dame, 1917

Phifer, Lyman D., 1928 (1931).....Assistant Director of Oceanographic Laboratories; Instructor in Oceanography
Ph.D., Washington, 1932

Phillips, Herbert Joseph, 1923 (1934).....Assistant Professor of Philosophy
Ph.D., Washington, 1933

Pollard, Robert Thomas, 1931 (1934).Associate Professor of Oriental Studies
Ph.D., Minnesota, 1931

Powell, Sargent, 1919 (1934).....Associate Professor of Chemistry
Ph.D., Illinois, 1919

Powers, Francis Fountain, 1928 (1930).....Assistant Professor of Education
Ph.D., Washington, 1928

Pratt, Dudley, 1925.....Assistant Professor of Sculpture
B.A., Yale, 1919

Preston, Howard Hall, 1920 (1922).....Professor of Money and Banking
Ph.D., Iowa, 1920

Price, George E.....Lecturer in Psycho-Neurosis and Mental Defectives Harborview and Providence Divisions
M.D., Pennsylvania, 1898

Pries, Lionel Henry, 1928 (1932).....Assistant Professor of Architecture
M.Arch., Pennsylvania, 1921

Puymbroeck, Lea, 1930 (1934).....Instructor in Design
M.F.A., Washington, 1934

Quainton, Cecil Eden, 1924 (1929).....Assistant Professor of History
B.A., Cambridge, 1924

Rader, Melvin Miller, 1930.....Assistant Professor of Philosophy
Ph.D., Washington, 1929

Radford, Ethel Sanderson, 1919.....Associate in Chemistry
B.A., McGill, 1895

Rahskopf, Horace G., 1928.....Assistant Professor of English
M.A., Iowa, 1927

Raitt, Effie Isabel, 1912 (1914).....Professor of Home Economics; Director of the School of Home Economics
M.A., Columbia, 1919

Ray, Verne F., 1933.....Associate in Anthropology
M.A., Washington, 1933

Read, William Merritt, 1927.....Assistant Professor of Classical Languages
Ph.D., Michigan, 1926

Rembe, Armin.....Lecturer in Medical Pediatrics, Harborview and Providence Divisions
M.D., Northwestern, 1925

Rhodes, Fred H., Jr., 1927.....Instructor in Civil Engineering
C.E., Washington, 1935

Rhodes, Helen Neilson, 1922 (1934).....Associate Professor of Design
National Academy of Design; Columbia; B.A.(Educ.), Washington, 1927

Richards, John W., 1931.....Assistant Professor of Law
S.J.D., Harvard, 1931

Richardson, Oliver Huntington, 1909..Professor Emeritus of European History
Ph.D., Heidelberg, 1897

Riebe, H. B., Captain, U.S.N., 1934....Professor of Naval Science and Tactics
Graduate, U. S. Naval Academy, 1906

Rigg, George Burton, 1909 (1928).....Professor of Botany
Ph.D., Chicago, 1914

Rising, Louis Wait, 1934.....Associate Professor of Pharmaceutical Chemistry
Ph.C.; Ph.D., Washington, 1929

Ritchie, John III, 1931.....Assistant Professor of Law
J.S.D., Yale, 1931

Roberts, Milnor, 1901.....Professor of Mining and Metallurgy; Dean of the College of Mines
B.A., Stanford, 1899

Robinson, Rex J., 1929 (1934).....Assistant Professor of Chemistry
Ph.D., Wisconsin, 1929

Rogge, Elizabeth, 1935.....Instructor in Home Economics
B.S., Chicago, 1926

Rollins, Eleanor, 1935.....Supervisor of Field Work, Graduate Division of Social Work
New York School of Social Work Diploma, 1920

Rosen, Moritz, 1909 (1928).....Professor of Music
Graduate, Warsaw Conservatory, Russia

Rounsefell, George A., 1931.....Lecturer in Fisheries
Ph.D., Stanford, 1931

Rowlands, Thomas McKie, 1928 (1934).....Assistant Professor of General Engineering
B.S. (Nav. Arch. and Marine Engr.), Mass. Institute of Technology, 1926

Rowntree, Jennie Irene, 1925 (1932).....Professor of Home Economics
Ph.D., Iowa, 1929

Ruge, E. C.....Lecturer in Organic Psychosis, Harborview and Providence Divisions
M.D., College of Physicians and Surgeons, Chicago, 1901

Rulifson, Leone Helmich, 1923 (1934)....Instructor in Physical Education for Women
B.S., Washington, 1922

Ryder, Edmund Linton, 1934.....Instructor in Aeronautical Engineering
Aeronautical Engineer, Washington, 1934

Sanderman, Llewellyn Arthur, 1928.....Associate in Physics
M.S., Washington, 1931

Savage, George M., Jr., 1935.....Associate in English
Ph.D., Washington, 1935

*Savery, William, 1902.....Professor of Philosophy
Ph.D., Harvard, 1899

Schaller, Gilbert Simon, 1922 (1929).....Associate Professor of Mechanical Engineering
B.S., Illinois; M.B.A., Washington, 1925

Schertel, Max, 1931.....Associate in German
M.A., Washington, 1929

Schultz, Leonard Peter, 1928 (1932).....Assistant Professor of Fisheries
Ph.D., Washington, 1932

Scoven, Sally.....Instructor in Surgical Nursing, Providence Division
R.N., Providence Hospital; B.S., Washington, 1935

Scroggie, Bernice E., 1935.....Instructor in Sociology and Supervisor of Field Work, Graduate Division of Social Work
M.A., Chicago, 1934

Sears, Ethel Katherine....Instructor in Surgical Nursing, Harborview Division
R.N., Wesley Memorial Hospital, Chicago; B.S., Washington, 1930

Seelye, Walter B.....Lecturer in Principles of Pediatrics, Harborview and Providence Divisions
M.D., Harvard, 1926

Seeman, Albert L., 1928 (1930).....Assistant Professor of Geography
Ph.D., Washington, 1930

Sergev, Sergius I., 1923 (1933).....Assistant Professor of Civil Engineering
M.E., Washington, 1931

Shattuck, Warren L., 1935.....Acting Assistant Professor of Law
LL.B., Washington, 1934

Shefelman, S. Harold, 1930.....Lecturer in Law
LL.B., Yale, 1925

Shepherd, Harold, 1931.....Professor of Law; Dean of the School of Law
J.D., Stanford, 1922

Sherwood, K. K....Lecturer in Arthritis, Harborview and Providence Divisions
M.D., Minnesota, 1926

*On leave, autumn quarter, 1935.

*Sholley, John Burrill, 1932.....Assistant Professor of Law
LL.B., Washington, 1932

Shuck, Gordon Russell, 1918 (1929).....Associate Professor of Electrical Engineering
E.E., Minnesota, 1906

Sidey, Thomas Kay, 1903 (1927).....Professor of Latin and Greek
Ph.D., Chicago, 1900

Simpson, Lurline Violet, 1922 (1934).....Assistant Professor of French
Ph.D., Washington, 1928

Sivertz, Victorian, 1926.....Instructor in Chemistry
Ph.D., McGill, 1926

Slyfield, Frederick.....Lecturer in Tuberculosis, Harborview and Providence Divisions
M.D., Iowa, 1909

Skinner, John W.....Lecturer in Endocrine and Metabolic Disturbances, Harborview and Providence Divisions
M.D., Colorado, 1931

Skinner, Macy Milmore, 1916 (1928).....Professor of Foreign Trade
Ph.D., Harvard, 1897

Smith, Charles Wesley, 1905 (1926).....Librarian; Professor of Librarianship
B.A.; B.L.S., Illinois, 1905

Smith, Eli Victor, 1911 (1928).....Associate Professor of Physiology
Ph.D., Northwestern, 1911

Smith, Frederick Charnley, 1926 (1933).....Assistant Professor of Civil Engineering
C.E., Washington, 1929

Smith, George McPhail, 1919.....Professor of Inorganic Chemistry
Ph.D., Freiburg (Germany), 1903

Smith, George Sherman, 1921 (1933).....Associate Professor of Electrical Engineering
E.E., Washington, 1924

Smith, Harriet H.....Assistant Professor of Nursing Education, Harborview Division
R.N., Seattle General Hospital; B.A., Mount Holyoke, 1918

Smith, Harry Edwin, 1914 (1929).....Professor of Insurance; Director of the Extension Service
Ph.D., Cornell, 1912

Smith, Stevenson 1911 (1916).....Professor of Psychology; Director of the Gatzert Foundation
Ph.D., Pennsylvania, 1909

Soule, Elizabeth, 1920 (1934)....Professor of Nursing Education; Director of the School of Nursing Education
R.N., Malden Hospital, Massachusetts; M.A., Washington, 1931

Spector, Ivar, 1931.....Instructor in Oriental Studies
Ph.D., Chicago, 1928

Spellacy, Edmond, 1935.....Lecturer in Political Science
Ph.D., Harvard, 1935

Sperlin, Ottis Bedney, 1921 (1923).....Lecturer in English
Ph.M., Chicago, 1908

Starr, Mary Elizabeth, 1935.....Instructor in Home Economics
M.A., Washington, 1935

Steele, Coralee.....Instructor in Nursing Education, Harborview Division
R.N., Multnomah County Hospital; B.S., Washington, 1933

Steiner, Jesse Frederick, 1931.....Professor of Sociology; Director of the Graduate Division of Social Work
Ph.D., Chicago, 1915

*On leave, 1935-1936.

Stevens, Belle, 1932.....Research Associate in Oceanography and Zoology
Ph.D., Washington

Stiley, Joseph F., Captain, C.A.C., 1932.....Assistant Professor of Military Science and Tactics

Stirling, Brents, 1932 (1934).....Instructor in English
Ph.D., Washington, 1934

Stone, Edward Noble, 1910 (1927).Associate Professor of Classical Languages
M.A., Olivet, 1893

Sullivan, C. L., 1935.....Instructor in Mechanical Engineering

Tartar, Herman Vance, 1917 (1927).....Professor of Chemistry
Ph.D., Chicago, 1920

Tatsumi, Henry S., 1935.....Instructor in Oriental Studies
A.B., Washington, 1932

Taylor, Edward Ayres, 1929.....Professor of English
Ph.D., Chicago, 1925

Terrell, Margaret Elma, 1928.....Instructor in Home Economics; Director of Dining Halls and Dormitories
M.A., Chicago, 1927

Terry, Miriam, 1930.....Instructor in Music
B.M., Washington, 1926

Terzieff, Ottilie, 1924 (1928).....Associate in German
M.A., Washington, 1926

Thomas, Harlan, 1926.....Professor of Architecture; Director of the School of Architecture
B.S., Colorado State College, 1894

Thompson, Thomas Gordon, 1918 (1929)..Professor of Chemistry; Director of Oceanographic Laboratories
Ph.D., Washington, 1918

Thompson, William F., 1930....Professor of Fisheries; Acting Director of the School of Fisheries
Ph.D., Stanford, 1931

Thomson, David, 1902.....Professor of Latin; Dean of Student Academic Guidance; Vice President Emeritus
B.A., Toronto, 1892

Thorp, Donald J...Lecturer in Obstetrics, Harborview and Providence Divisions
M.D., Michigan, 1927

Torney, John F., 1930.....Instructor in Physical Education for Men
M.A., Columbia, 1930

Truax, Arthur, 1924.....Lecturer in Finance

Tuttle, Aileen.....Instructor in Medical Nursing, Harborview Division
R.N., Presbyterian Hospital, Chicago; B.S., Washington, 1930

Tyler, Richard G., 1929.....Professor of Sanitary Engineering
C.E., Texas, 1908

Tymstra, Sybren Ruurd, 1929 (1934).....Assistant Professor of General Engineering
M.E., Zwickau (Germany), 1906

Uhl, Willis Lemon, 1928.....Professor of Education; Dean of the College of Education
Ph.D., Chicago, 1921

Ulbrickson, Alvin, 1927.....Associate in Physical Education for Men
B.B.A., Washington, 1927

Umphrey, George Wallace, 1911 (1922).....Professor of Romanic Languages
Ph.D.,Harvard, 1905

Utterback, Clinton Louis, 1918 (1934).....Professor of Physics
Ph.D., Wisconsin, 1926

Van Cleve, Richard, 1932.....Lecturer in Fisheries
B.A., Washington

Van Draegen, Dan Rosenberg, 1935.....Associate in English
B.A., Washington, 1932

Van Horn, Robert B., 1925 (1934)...Associate Professor of Civil Engineering
C.E., Washington, 1926

Van Norman, K. H.....Director of Medical Instruction, Harborview Division
M.D., Toronto, 1904

Van Ogle, Louise, 1915 (1932).....Associate Professor of Music
Theoretical work, with Dr. Bridge, Chester, England; Richter, Leipzig; Piano, Godowsky, Berlin; Lhevinne, Berlin; Harold Bauer, Paris

Venino, Albert Franz, 1913 (1928).....Professor of Music
New York Conservatory of Music; Pupil of Leschetizky

Vickner, Bertha Almen, 1920.....Associate in English
M.A., Washington, 1917

Vickner, Edwin John, 1912.....Professor of Scandinavian Languages
Ph.D., Minnesota, 1905

von Brevern, Maxim, 1934.....Instructor in Political Science and Executive Secretary of the Bureau of International Relations
Technical Military Academy, Vienna

Wade, Arthur E., 1928.....Lecturer in Home Economics
B.S., Cornell College; M.D., Sioux City College of Medicine, 1905

Wagenknecht, Edward Charles, 1925 (1932)...Assistant Professor of English
Ph.D., Washington, 1932

Walters, Margaret C., 1929.....Associate in English
M.A., Yale, 1919

Ward, May Dunn, 1918 (1933).....Acting Dean of Women
M.A., Washington, 1921

Warner, Frank Melville, 1925 (1929).....Associate Professor of Engineering Drawing
B.S. (M.E.), Wisconsin, 1907

Weaver, Charles Edwin, 1907 (1921).....Professor of Paleontology
Ph.D., California, 1907

Weinstein, Sophie, 1934.....Associate in English
M.A., Washington, 1930

Weiser, Russell S., 1935.....Associate in Bacteriology
Ph.D., Washington, 1934

Welke, Walter, 1929.....Instructor in Music
B.M.(Educ.), Michigan, 1927

Werner, August, 1931.....Professor of Music
B.S., College of Agriculture, Stend, Norway, 1913

Wesner, Elenora, 1924.....Associate in German
M.A., Northwestern, 1923

Whitchurch, Roy B., 1935.....Instructor in Military Science and Tactics

Whittlesey, Walter Bell, 1907 (1929).....Assistant Professor of French
M.A., Washington, 1909

Wilcox, Chester, 1930.....Associate in Physical Education for Men
B.S. (C.E.), Purdue, 1928

Wilcox, Elgin Roscoe, 1920 (1928).....Associate Professor of General Engineering
B.S.;Met.E., Washington, 1919

Williams, Curtis Talmadge, 1920 (1928).....Associate Professor of Education
Ph.D., Clark, 1917

Wilson, Clotilde, 1929 (1930).....Instructor in Romanic Languages
Ph.D., Washington, 1931

*Wilson, Florence Bergh, 1919 (1930).....Assistant Professor of Music
B.M., Washington; M.A., Columbia, 1925

Wilson, Francis Graham, 1928 (1934).....Professor of Political Science
Ph.D., Stanford, 1928

Wilson, George Samuel, 1906 (1924)...Professor of Mechanical Engineering; Consulting Engineer
B.S., Nebraska, 1906

Wilson, Hewitt, 1919 (1927).....Professor of Ceramics
Cer.Engr., Ohio State University, 1913

Wilson, William Charles Eade, 1926 (1930)....Assistant Professor of Spanish
Ph.D., Washington, 1928

Wilson, William R., 1919 (1929).....Professor of Psychology
Ph.D., Washington, 1925

Wiltamuth, Ralph, Captain, Infantry, 1930....Assistant Professor of Military Science and Tactics

Windesheim, Karl A., 1927 (1934).....Assistant Professor of English
Ph.D., Wisconsin, 1934

Winger, Roy Martin, 1918 (1925).....Professor of Mathematics
Ph.D., Johns Hopkins, 1912

Winkel, A. H.....Lecturer in Surgery of the Respiratory Tract and Chest, Harborview and Providence Divisions
M.D., Washington University, 1911

Winkenwerder, Hugo, 1909 (1912).....Professor of Forestry; Dean of the College of Forestry
M.F., Yale, 1907

Winslow, Arthur Melvin, 1918 (1927)..Professor of Mechanical Engineering
Ph.B., Brown; B.S., Massachusetts Institute of Technology, 1906

Winther, Sophus Keith, 1923 (1934).....Associate Professor of English
Ph.D., Washington, 1926

Wirth, Henry Edgar, 1935.....Research Associate in Oceanography
Ph.D., Washington, 1934

Wood, Carl Paige, 1918 (1928).....Professor of Music
M.A., Harvard, 1907

Woodbury, Edward N., Lieutenant Colonel, C.A.C., 1935..Associate Professor of Military Science and Tactics
Graduate U. S. Military Academy, 1908

Woodcock, Edith, 1930 (1933).....Assistant Professor of Music
B.M., Rochester, 1925

Woolston, Howard B., 1919.....Professor of Sociology
Ph.D., Columbia, 1909

Worcester, John Locke, 1917 (1922).....Professor of Anatomy
M.D., Birmingham School of Medicine, Alabama, 1900

Worden, Ruth, 1926 (1933)....Associate Professor of Librarianship; Director of the Library School
B.A., Wellesley, 1911

Worman, Eugenie, 1919.....Associate in Design
B.A.(Educ.), Washington, 1928

Wright, H. Garner.....Lecturer in Gynecology, Harborview and Providence Hospitals
M.D., Johns Hopkins, 1919

Zeusler, Frederick A., Commander United States Coast Guard, 1935...Lecturer in Oceanography

Zillman, Lawrence J., 1930.....Associate in English
B.A., Washington, 1928

*On leave, winter quarter, 1936

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 within the city limits of Seattle 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, Athletic Pavilion, 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, Women's Gymnasium, Health Service Building, Henry Art Gallery, Home Economics Hall, Hydraulics Laboratory, Johnson Hall, Henry Suzzallo Memorial 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 294,419 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 75,961 volumes, is separately administered by the Law School. In addition to the libraries on the campus, the Seattle Public Library, with 516,425 volumes, is available to students.

Museum

The museum of the University of Washington was created the State Museum by law in 1899. Its collections are 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 some 200 representative nineteenth century painters, was 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.

Alice McDermott Foundation

The Alice McDermott Memorial Foundation was established in 1924 through the will of the late Mrs. Josephine McDermott, for research and study in the field of tuberculosis.

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.

The Colleges and Schools. The University includes the following colleges and schools:

A. *The University College,* composed of the departments in liberal arts and pure science and the following semi-professional schools:
   1. The School of Architecture.
   2. The School of Art.
   3. The School of Fisheries.
   4. The School of Home Economics.
   5. The School of Journalism.
   6. The Library School.
   7. The School of Music.
   8. The School of Nursing Education.
   9. General Studies—For Students With no Major.

B. *The College of Education.*

C. *The College of Mines.*

D. *The College of Pharmacy.*

E. *The School of Law.*

F. *The College of Engineering.*

G. *The Graduate School.*

H. *The College of Forestry.*

I. *The College of Economics and Business.*

DEPARTMENT OF STUDENT ACADEMIC GUIDANCE

The department of student academic guidance affords guidance and counsel to students in choosing and planning their University schedules. A carefully chosen staff of faculty advisers endeavors to help the student adjust himself to University life, to instruct him in interpreting University rules and requirements, and to direct him into the courses that will best prepare him for the career he will follow after graduation. While it stands ready to be of service to all students in the University, the department's chief concern is naturally the entering freshman and particularly the student who has not yet chosen his major field. Students are cordially invited to come to the academic guidance office at any time for consultation and advice.

Definitions and Explanations. In all statements relating to the University the word *course* refers to a single study pursued for a definite period, for which credit may be given toward University requirements for graduation in accordance with the number of hours taken. A *curriculum* is a group of courses arranged to be followed consecutively or concurrently. A *department* is the unit of instructional organization in a particular science or art, as the department of geology. A *college* gives full curricula, beginning with the freshman year, or, in the College of Education, with the sophomore year, and covering 12 quarters. The work of a *school* is preceded by two or more years of college work.

The four-year program of the college is divided into the *lower division* (freshman and sophomore) and *upper division* (junior and senior).

The term *unit* is applied to work taken in high school; a *credit* to work taken in college. To count as a unit, a subject must be taught five times a week, in periods of not less than 45 minutes, for a school year of 36 weeks. A university credit is given for one hour of recitation a week throughout one quarter. Thus a quarter course in which there are five recitations a week is a five-credit course.

The term *major* is applied to the department or subject in which a student elects to specialize.

Special Curricula within the Schools. Certain semi-professional curricula are given for which no special school or college is provided. Such is the curriculum in chemistry in the University College.

The University does not give a medical course, but offers a pre-medical curriculum especially planned as a foundation for study in a medical school. This may be two years in length for schools not requiring college graduation, or four years for schools requiring that amount of preparation.

Under provisions of the National Defense Act, students in the University may attain commissions as reserve officers in the United States Army by meeting the requirements for advanced work in military science. This can be done without interference with the student's regular academic work. Likewise, students completing the course in naval science may receive commissions in the Naval Reserve.

Calendar Rule (The Four-Quarter System). The University is operated on the four-quarter system, each quarter having approximately 12 working weeks.

The autumn quarter shall begin on October 1, except when this date falls on Friday, Saturday, or Sunday, when it shall begin the Monday following; and it shall end December 20, except when this date falls on Saturday, Sunday, or Monday, when it shall end the preceding Friday.

The winter quarter shall begin on the Monday falling between January 2 and January 8, inclusive, except when January 2 falls on Monday, in which 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, 1935, 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 as regular students 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 accepted by 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

*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.

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. Freshman football is an activity in the meaning of the report. No person admitted to the University on freshman probation shall be pledged to any fraternity or sorority during the period of probation (Rule 54a).

6. *Admission to any of the Colleges of the University.* For admission to any 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.

Freshman Week

Freshman Week is a five-day program commencing September 26, and devoted to the interests of beginning freshmen. Its purpose is to bridge the gap between high school and college, and to give freshmen the right start in the University. Students, faculty, college organizations, and all departments of the University combine to make Freshman Week invaluable to the freshman.

Each freshman becomes a member of a group of some fifteen students under the leadership of a faculty section leader and an upperclassman student assistant. He is given the opportunity to see the actual work being done in the various colleges, and to advise with faculty members concerning his course of study and his problems. He is given the chance to know just what he is doing and why he is doing it. He is introduced to typical college activities, both physical and social, so he may select for his college career those from which he will secure the most profit and happiness.

The freshman who is denied the opportunity to participate in Freshman Week suffers a severe handicap both scholastically and socially.

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	unit
Plane and solid geometry	1½	units
Advanced algebra	½	unit
Physics	1	unit
Social science	1	unit
Other subjects	5	units
Total	12	units

*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.

A modern or an ancient foreign language will satisfy the entrance requirements of all the colleges except Forestry. Forestry specifies a modern foreign language.

Requirements of Colleges Accepting Students With Freshman Standing

(For other recommendations, see various college bulletins)

College	English	Mathematics	Foreign Language	Lab. Sci.	Soc. Sci.	Other Academic Subjects	Free Electives[1]
1. Economics and Business.....	2	1 (Pl. Geom. or 2nd year Alg.)			1 (U. S. Hist. and Civ.)	2	6
2. Engineering.....	2	2 (Pl. and Sol. Geom. & Adv. Alg.)	0	1 (Physics)[2]	0	1	6
3. Forestry.....	2	1½ (Pl. Geom. and Adv. Alg.)	2nd unit[3] of mod. foreign language	**	0	1½	6
4. Mines.....	2	2 (Pl. and Sol. Geom. & Adv. Alg.)	0	1 (Physics)[3]	0	1	6
5. Pharmacy.....	2			***		4	6
6. University College[4].....	2	1 (Pl. Geom. or 2nd year Alg.)	2nd unit[5] of one	1	1	0	6

(Formerly Liberal Arts and Science; includes also Schools of Art, Architecture, Fisheries, Home Economics, Journalism, Library, Music and Nursing Education)

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

[2]Beginning with the autumn quarter of 1936 both physics and chemistry will be required.

[3]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.

[4]If a student presents six or more academic units which include the above subjects, he enters without a deficiency. The foreign language and laboratory science requirements may be made up in the College with university credit.

[5]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.

**Physics is recommended.

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

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., University College, Engineering, Pharmacy, etc.

2. Students who have not graduated from high school and who 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.

Cumulative Aptitude Records

The information supplied by adequately maintained cumulative student records will be carefully considered in advising students. Such records are desired whenever they are available. For this purpose such records should (1) cover at least the three most recent years of the candidate's school life, (2) provide information concerning the candidate's intellectual capacity, physical and mental health, personal characteristics, habits, attitudes, interests and talents, (3) contain a complete summary of the applicant's official record of final school grades and of the results of any examinations taken under the auspices of a competent examining agency, (4) include the accurate record of the results of comparable (objective) measures of intellectual capacity and of achievement in all important subjects studied. Data obtained from all tests should be interpreted, whenever possible, in authenticated comparable terms, such as well established percentiles.

Cumulative record forms including the essential features embodied in those published by the office of the State Department of Education, Olympia, Washington, the American Council on Education, and the Educational Records Bureau may be used.

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 approved normal schools may receive advanced 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 (exclusive of required military or naval science and physical education) to bring the total up to a minimum of 180 quarter credits or up to the required number of credits in case the requirement of the specific curriculum is greater. 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 College of Education, normal school credits can usually be fairly well applied. 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 economics and business, and the bachelor of law degree under the combined curricula must have completed three years of college work, 139 quarter credits exclusive of military or naval science and physical education, 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 laws degree only must have completed in this University or in another approved college a minimum of three years of college study, represented by 135 quarter credits in the academic field and fulfillment of the requirement in military or naval science and physical education. In addition such candidates must have a scholarship average of 2.25 grade points over the three years of college work.

School of Journalism. Requirements for admission to the School of Journalism are: clear entrance to the University College covering all prescriptions for admission to upper division standing in the University College, and the required credits of military or naval science and physical education.

College of Education. Requirements for admission to the College of Education are: completion of the first year of work of any college of the University; 45 credits of college work in courses approved by the faculty of the College of Education and the faculty of the college concerned, and the required credits of military or naval science and 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 Library School 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 Library School, 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, Manila, 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.

College Entrance Board 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

Examinations for advanced credit are granted to a student on work done in unaccredited schools or by private study only after submission of evidence that the studies pursued are equivalent to courses offered at the University of Washington.

The student wishing to qualify for an examination for advanced credit must first file an application, pay his fee, and obtain a permit to be signed by the departmental examiner, the executive officer of the department, and the dean of the college or school concerned. The fee shall be $1 for the first hour of each course and $.50 additional for each additional hour. After qualifying for and successfully passing a written comprehensive examination which fully represents the work of the course, credits are certified by those signing the permit and the examination questions and paper deposited with the dean of his college or school concerned. Where, because of the nature of the work, a comprehensive written examination will not cover the work of the course, a statement of the procedure by which the student was tested may be filed with the application at the dean's office.

Permits for advanced credit by examination are not granted to a resident student in excess of the number of credits for which he would be allowed to register in regular courses, nor in excess of half the credits required for his degree. At least half of the student's work for a degree must be residence credit at this university or some other accredited school.

Credits based on credentials from unaccredited schools or private teachers are accepted only after certification by the departmental examiner, the executive officer of the department, the dean of the college or school concerned, and the Registrar. If an examination is not required for this certification, there is no fee.

NOTE: (Rule 1b, below), "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."

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.

RULE 16. 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 towards a University degree for their home study work:

Correspondence students in the Extension Service will upon satisfactory completion of their correspondence work receive a certificate of credit in the University. These credits can be applied towards a degree only when all other requirements have been met. 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.

(a) No more than ninety credits earned in courses offered by the University Extension Service and for the extension services of other institutions may be counted toward the requirement for the bachelor's degree in any school or college. No more than ten credits of the total extension credits may be counted in the forty-five credits of the senior year.

(b) For the purpose of this rule, all credits secured by examination for advanced standing shall be construed as extension credits and shall be included in the above maximum of ninety credits.

The work of the senior year (a minimum of 35 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 science and physical education have been earned.

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, approval 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.

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

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 up to a total of $4, except graduate students. 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 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 change of registration or number of changes which are made simultaneously. No fee is charged when the change is made on the initiative of the University.

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.

Note: The latest date for withdrawing from a course and receiving a "W" without a definite grade may be found in the University Calendar. (Page 7.)

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. *Credits Allowed Each Quarter.* 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 and physical education taken without academic credit), 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 and physical education).

RULE 5. No student may be registered for more than 20 credits (exclusive of military or naval science and 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 (Examination, absence from).

EXPENSES

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

FEES APPLICABLE TO STUDENTS ENROLLING FOR THE AUTUMN, WINTER, AND SPRING QUARTERS

Resident Tuition Fee. A general tuition fee of fifteen dollars ($15) each quarter is charged each *regular* student (except as noted 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 notes bearing satisfactory indorsements, with interest at the rate of four per cent per annum.

Non-Resident Tuition Fee. A general tuition fee of fifty dollars ($50) each quarter is charged each *regular student* (except as noted under *Exemp-*

tions) 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 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 educational institution not located in the State of Washington 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.

The following rules govern the determination of the legal domicile of a student:

(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.

Incidental Fee. Eleven dollars ($11) each quarter, except the summer quarter, is charged all *regular* students (except as noted under *Exemptions*) 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 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 members of the teaching staff of the University, part-time students and auditors during all quarters. Extension students and nurses in residence at approved hospitals are not extended the privilege of A.S.U.W. membership. (See page 63 for information relative to the Associated Students.)

Part-Time Fee. The regular tuition fee (resident or non-resident) is charged all students, graduate or undergraduate, registering for six credit hours or less. Part-time students are not required to pay the incidental fee. The A.S.U.W. fee is optional. *The part-time fee is not applicable to the summer quarter.*

Auditor's Fee. Twelve dollars ($12) each quarter; A.S.U.W. membership optional. (See pages 48, 52 for rules pertaining to auditors.)

Nurses in Residence at Approved Hospitals. Tuition fee, undergraduates, five dollars ($5) each quarter; graduates, ten dollars ($10) each quarter. A.S.U.W. membership not extended.

Law Library Fee. In addition to all other fees which may be applicable, students enrolled in the Law School are required to pay a Law Library fee of ten dollars ($10) per quarter.

Examples of
Autumn, Winter and Spring Quarter Fees for Various Types of Registration
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.....	$15	$11		$5	$2.50	$2.50	$31	$28.50	$28.50
Graduate.....	15	11		*Optional	*Optional	*Optional	26	26	26
Law School.....	15	11	10	5	2.50	2.50	41	38.50	38.50
Auditors.....	12			*Optional	*Optional	*Optional	12	12	12
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.....	15			*Optional	*Optional	*Optional	15	15	15

*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.
NOTE: Music, riding, golf and locker fees, listed on page 22 should be added to the above when applicable.

Examples of
Autumn, Winter and Spring Quarter Fees for Various Types of Registration
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
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.....	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.
NOTE: Music, riding, golf and locker fees, listed on page 22 should be added to the above when applicable.

Music, Riding and Golf Fees. In addition to all other fees which may be applicable, students enrolled in applied music, riding or golf courses, are subject to the following:

Instruction in vocal or instrumental music:	
Individual instruction—one lesson each week....	$25.00 each quarter
(Not governed by refund provisions noted below if withdrawal is made after the begining of instruction.)	
Group instruction.....	10 each quarter
(Not governed by refund provisions noted below if withdrawal is made after the begining of instruction.)	
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

Locker Fee (Men). In addition to all other fees which may be applicable, a fee of one dollar ($1) per quarter is charged all men taking physical education courses which require lockers. Locker cards may be obtained at the office of the Comptroller.

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's delay, and a further cumulative fee of one dollar ($1) for each day thereafter up to a total of four dollars ($4), except graduate students. This fine is imposed also for re-establishing sections during the first week. Not subject to refund. (See page 49.)

Exemptions

Members of the teaching staff of the University are exempted from the tuition and incidental fee.

Persons to whom cadet exemption certificates have been issued are exempted from the tuition fee only.

All honorably discharged service men or women who served in the military or naval service of the United States during the late World War; and all honorably discharged service men who served in the military or naval services of any of the governments associated with the United States during the said war, provided they were citizens of the United States at the time of their enlistment and who are again citizens at the time of their registration in the University, and who are classified as residents, are exempted from the payment of the tuition fee. Ex-service men and women who are classified as non-residents, are exempted from the payment of one-half of the non-resident tuition fee.

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 please indicate the statement number and make remittance for the *exact* amount due.

Refund of Fees

Autumn, Winter, and Spring Quarters

All fees noted on the foregoing pages (except those indicated as not subject to refund) will be refunded in full if complete withdrawal is made during

the first three days of instruction; one-half of said fees will be refunded if withdrawal is made during the first thirty calendar days of instruction.

Students withdrawing under discipline forfeit all rights to the return of any portion of the fees.

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

Summer Quarter Fees

Fees are charged Summer Quarter students as follows (except as noted below under *Exemptions*):

At Seattle:

Regular Students. For the full quarter: Tuition fee, thirty dollars ($30); A.S.U.W. membership fee, one dollar ($1); total for the quarter, thirty-one dollars ($31). For either term separately: Tuition fee, twenty dollars ($20); A.S.U.W. membership fee, one dollar ($1); total for one term only, twenty-one dollars ($21).

Law Students. Tuition fee, thirty dollars ($30), law library fee, ten dollars ($10); A.S.U.W. membership fee, one dollar ($1). The total is $41 for the quarter.

Auditors. Tuition fee, for the full quarter, twelve dollars ($12); for one term, eight dollars, ($8); A.S.U.W. membership optional. (See page 48 for rules pertaining to auditors.)

Nurses in Residence at Approved Hospitals. Tuition fee, undergraduates, five dollars, ($5); graduates, ten dollars, ($10), for either term or for both terms; A.S.U.W. membership not extended.

Music, Riding and Golf Fees. In addition to all other fees which may be applicable, students enrolled in applied music, riding or golf courses, are subject to the following:

Individual instruction in applied music (each term) (Not governed by refund provisions noted below if withdrawal is made after the beginning of instruction.)	$25.00
Group instruction in applied music (full quarter) (Not governed by refund provisions noted below if withdrawal is made after the beginning of instruction.)	10.00
Piano practice room, one hour a day (each term)	1.50
Violin practice room, one hour a day (each term)	.75
Organ practice room, one hour a day (each term)	6.25
Golf instruction fee (payable to golf club) (each term)	1.50

At Friday Harbor:

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

Non-Resident Students

There is no additional tuition for out-of-state students during the Summer Quarter.

Summer Quarter Exemptions

Members of the teaching staff of the University, and persons to whom cadet exemption certificates have been issued, are exempted from the tuition fee.

Refund of Summer Quarter Fees

Students who withdraw from the Summer Quarter for satisfactory reasons may, on application made at the time of withdrawal, receive a refund of fees (except as noted above) as follows:

(1) Before the beginning of instruction, refund entire fee.
(2) During the first week of instruction, refund four-fifths.
(3) During the second week of instruction, refund three-fifths.
(4) If registered for the full quarter, and withdrawal from either term is made, one-third of the tuition fee will be refunded.

Students withdrawing under discipline forfeit all rights to the return of any portion of the fees.

Miscellaneous Charges Applicable Only in Special Cases Subsequent to Enrollment

Change of Registration Fee. A fee of one dollar ($1) is charged for each change of registration or number of changes which are made simultaneously. (See page 49.)

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.

Special Examination Fee. A fee of one dollar ($1) will be charged for each examination outside the regular schedule, including the examination for foreign language reading required of all liberal arts students before graduation. In the case of examinations for advanced credit, a fee of one dollar ($1) for the first hour of each course and fifty cents ($.50) for each additional hour is charged. (See page 47.)

Locker Fee (Men). A fee of one dollar ($1) per quarter during the regular academic year, and fifty cents ($.50) per term during the summer quarter, is charged faculty members and students who are not registered for physical education but who desire a locker. Locker receipts may be obtained at the office of the comptroller.

Grade Book Fee. One grade book is furnished without charge; a fee of fifty cents ($.50) is charged for each additional book.

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.

Military and Naval Uniforms. See page 71 for details.

Refund of Above Miscellaneous Charges

The unused portion of breakage tickets will be refunded in full. The other charges noted above are not subject to refund, except when payment is made in error.

Board and Room

A list of approved living quarters for women students may be obtained from the office of the dean of women. This list includes residence hall accommodations, off-campus organized houses, boarding houses, private homes and cooperative houses. All women students under twenty-one years of age are required to live in organized houses. Further details and information may be obtained by writing to Miss Mary I. Bash, Associate Dean of Women, Education Hall, University of Washington.

The University residence halls for women are Clark Hall and Lewis Hall. The charge is eighty dollars per quarter. This charge is subject to change without notice should the cost of living rise materially. For details write to Miss Pearl McDonnell, Social Director of Residence Halls, Clark Hall, University of Washington.

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

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.

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 two main divisions; viz., a dispensary, and infirmary.

The service is housed exclusively in one building, with offices for doctors and nurses, forty-three beds with essential accessories, diet kitchen, nurses' quarters, etc. A corps of four physicians, seven nurses and a laboratory technician, all on full time, constitute the permanent staff. This is augmented temporarily whenever an increased number of patients makes added assistance necessary. Seriously ill students are not retained in the infirmary.

The dispensary is available to all students during the span of class hours, for emergencies and infectious ailments only. 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. Outside calls are not made by University physicians.

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 in good standing at their own expense.

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, Leave of Absence, page 67.)

DEGREES

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

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. (See Honor Awards and Senior Scholars (Rule 15), page 61.)

General Rules

Rule 9. The work of the senior year (a minimum of 35 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 and physical education have been earned.

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. (Applies only to students entering autumn, 1933, or thereafter.)

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 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. 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.

Details concerning issuance of normal and life diplomas may be obtained from the College of Education bulletin.

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 the 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 Student Handbook.

FELLOWSHIPS, SCHOLARSHIPS, PRIZES

FELLOWSHIPS

Loretta Denny Fellowships. Three fellowships are open to graduate students in any department of the University. Not to be awarded for 1935-36.

Arthur A. Denny Fellowships. Six fellowships are open to graduate students in the departments of civil engineering, education, English, history, mining engineering, and pharmacy, respectively. Not to be awarded for 1935-36.

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 College 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 $714 to the holder, for the 12 months beginning July 1. The recipients 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, College of Mines, University of Washington, Seattle, Washington.

The Bon Marche Industrial Fellowship. The Bon Marche of Seattle offers an annual fellowship of $550 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 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 $500 to $700.

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 $150 to $300.

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 freshman 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 School 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 School of Music.)

The Fontainebleau Scholarship. A scholarship of $1000 awarded to a junior in the School 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 College of Mines are due in March.

Honor Awards and Senior Scholars

Rule 15. (a) Students of the University College, College of Economics and Business, and College of Education 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. Senior scholars shall be elected by the faculty, upon recommendation of the committee on honors, in the June preceding their senior year and their election shall be announced at Commencement and published in the catalogue. Ordinarily the number of scholars shall not exceed ten per cent of the class. Students of the above mentioned colleges who, in the course of their senior year show fitness therefor, may be recommended and elected to 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.

(d) Any upper division student whose name has appeared on two yearly honor lists may, at his request and with the approval of the department concerned, be excused from some or all of the ordinary class routine in courses in his major department. The time thus released shall not exceed the equivalent of five credit hours in any quarter, and shall be devoted to individual study or research under the direction of an instructor in the major department who shall determine the student's grade for such work in any way he sees fit. Application for this privilege shall be made to the chairman of the department concerned.

Prizes

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

The Vivian Carkeek Prize. The Vivian M. Carkeek 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.

The Manson F. Backus Scholarships. Two one hundred dollar cash scholarships, known as the Manson F. Backus Scholarships, are awarded annually by the Law Faculty to senior students in the Law School who have maintained distinguished records and who assist the Faculty in preparing the Washington Annotations to the Restatements of the Law.

The Harold Shefelman Scholarship. The Harold Shefelman cash scholarship of one hundred dollars is awarded annually by the Law Faculty to a student in the Law School on the basis of high scholarship and financial need.

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

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

Junior Military Prize. The members of the Non-commissioned Officers' Training Camp, University of Washington, 1918, established a fund, 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 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.

STUDENT WELFARE

Housing

The University inspects and approves a wide variety of living accommodations for men and women. Lists of such places are available through the offices of the dean of men and dean of women. There are two residence halls for women on the campus. It is expected that residence shall be arranged for by the quarter through written or verbal agreement. Women students should consult the following rule:

Rule 33. (a) Women students under twenty-one years of age not living in their own 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.

Employment

Although various University offices and organizations attempt to assist students who wish to find work, the University can give no assurance that employment can be found. Part-time work is difficult to obtain and it is not advisable for a student to enroll unless he has sufficient funds for a quarter's maintenance. Students expecting to earn a portion of their support should not

register for a full-time schedule. Work for board and room is obtained through the offices of the dean of men and dean of women. All other work is applied for through the employment bureaus of the University Y.M.C.A., Y.W.C.A., and alumni office.

Loans

There are several loan funds available to both men and women students. Experience has demonstrated the wisdom of limiting such assistance to students who have junior standing or more, and who have demonstrated their ability as college students and their sincerity of purpose. Due to the heavy call upon loans under the present difficult economic situation, it has seemed necessary to limit the amount of individual loans to the cost of resident tuition and supplies. A few small emergency funds are available to younger students, very limited in amount and time. For information consult the dean of men or dean of women.

Personal and Vocational Guidance

The offices of the dean of men and dean of women are concerned with the general welfare of the students of the University and welcome correspondence and conferences with both parents and students. Students are urged to avail themselves of the opportunity for consultation in regard to social, personal, and vocational problems. These offices, which work closely with the advisory system of the colleges and schools of the University, are in a position not only to counsel with students personally, but to direct them to faculty advisers and other sources of information and assistance. Obstacles to successful work in colleges may often be removed through the friendly advice these officials stand ready to give.

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, including a subscription to the official publication of the association, *The Washington Alumnus.*

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

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, P.E. 10 or P.E. 4, 6, 8, and five quarters of activity courses. Academic credit is allowed for the *health courses.* For specific courses, see department of Physical Education announcement in the general catalogue.

Women who are over twenty-four years of age at the time of original entry into the University shall be exempted from the physical education *activity* requirement.

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

MEN

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

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

RULE 17. (a) 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.

(b) Five quarters of physical education are required of all male students except men over 24 years of age at the time of original entrance, men entering with junior or more advanced standing, special students carrying not more than six credits, or men exempt by the University health officer because they would not benefit from participating in the program. This requirement must normally be completed during the first six quarters of University residence.

(c) A two-credit academic course in hygiene is required of all male students who have not satisfied this requirement in an accredited university or college. This requirement should be completed during the first year of University residence.

The responsibility for complying with the regulations regarding military or naval science and physical education rests entirely with the student. Delay in completion of full registration will not excuse a student from class attendance 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.

In case the student enters naval science, he is required to continue for four years.

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 or Marine Corps 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.

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.

All male students in the University except those classified under (a), (b), (c), and (e), of Rule 18 and paragraph 1 of Rule 19, shall be required to earn 12 credits in military or naval science and five credits in physical education. Those excused under Rule 18, section (d), and all those excused on grounds not covered in Rule 18 and paragraph 1 of Rule 19, shall be required to earn credits equivalent to the deficiency in any other regularly scheduled courses of the University.

A student required to earn twelve hours of excess or academic credit because of excuse from military or naval science shall earn this credit without interference with the schedules and rules in regard to excess hours in force in his school or college.

All male students electing naval science or advanced military science in their freshman and/or sophomore years may substitute credits in excess of twelve hours for credits in physical education, except hygiene.

Departments of Military and Naval Science and Tactics

For additional information see page 71.

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 dean of faculties and securing the consent of the dean of faculties 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 a scheduled class hour within the last week of the quarter. Instructors desiring to use an additional hour for examination may use the preceding class hour of that particular course except in laboratory courses, where a laboratory period may be used as

a substitute or in addition. When an examination occurs at an hour prior to the last class meeting, the members of the class shall be required to meet on the scheduled periods until the close of instruction for the quarter. Such after-examination periods will be used for summing up the results of the quarter's work and stressing points upon which the examination may have shown the need of special emphasis. Attendance of the students shall be required as a basis for the release of a passing grade in the course.

Provided, however, that these rules (24 and 25) shall not be applicable to professional schools where it is possible to otherwise 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 his 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, or by a single dagger in the Law School.

RULE 26. A student desiring to be absent from his 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, provided, 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 students 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 and all candidates for graduate degrees must be in the registrar's office by 12 o'clock of the second Saturday preceding commencement day. If it is necessary in order to meet the terms of this rule, the instructor is under obligation to deliver the grades in person. Examinations for all candidates for graduation at the end of the autumn, winter, and summer quarters shall conform to the regular examination schedule.

HONORABLE DISMISSAL AND WITHDRAWAL REGULATIONS

Honorable Dismissal. 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. (See withdrawal regulations.)

Withdrawal Regulations. Withdrawal is the voluntary severance by a student of his connection with a course or with the University, and is indicated on the registrar's books by a W. During the first four weeks of a quarter a student may withdraw from a course and be given a W with the written consent of his dean. If he desires to withdraw at a later period, he may do so at any

time prior to the last two weeks of the quarter, but if his work has not been satisfactory, he shall be given an E instead of a W. If a withdrawal in either case will reduce the student's hours below 12, it must be approved by his dean. A student who drops a course without withdrawing shall be given an E.

The latest date for withdrawing from a course and receiving a grade of W without a definite grade may be found in the University calendar. (Page 7.)

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) Leaves 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. (See also rulings on leave of absence and incompletes under system of grades, page 68.)

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 (Withdrawn) 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. (See also Rule 39 (e), page 70.)

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 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.)

An incomplete is given only in case the student has been in attendance and done satisfactory work to a time within two weeks of the close of the quarter. The two-week limit may be extended to three weeks in those cases in which a student has obtained a regular leave of absence from his dean. (This provision for extension of time does not apply to one-term summer courses.)

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. (See withdrawal regulations, page 66.)

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. (This rule applies only to students entering autumn, 1933, or thereafter.)

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

MEETINGS AND SPEAKERS AT STUDENT CLUBS

RULE 51. (a) No student group or organization is entitled to the privileges of the campus or buildings unless registered and approved by the dean of faculties' office.

(b) Student clubs and organizations connected with the work of a department or departments may have speakers address them at the University, provided the speakers are sponsored by the department concerned. They must also secure the permission of the superintendent of buildings and grounds to use University grounds or buildings.

(c) All student groups not connected with the work of a department but registered with the dean of faculties' office as provided for in paragraphs (a) wishing to have speakers address them in University buildings or on the grounds must make advance application in writing to, and secure the consent of, the dean of faculties' office. In passing upon these applications it is the declared policy of the University to allow the utmost freedom of discussion consistent with the maintenance of an orderly assemblage and a dignified presentation of the subject matter.

(d) Any University group approved by the dean of faculties' office as provided for in paragraph (a) may have the use of a University room for a meeting at which no outside speakers are present by making application to the registrar if the meeting is held during regularly scheduled class hours, and, in the event that it is not held during regularly scheduled class hours, shall make application to the superintendent of buildings and grounds.

(e) No student meeting shall be designated as an assembly without the approval of the public exercises committee.

(f) No grant of a meeting place in University buildings or on the grounds to any student group shall be construed to carry with it the sanction or approval of the University as to subject matter or speaker; such meetings must not be represented as being sponsored by the University, nor may they be advertised as University meetings. Entire responsibility for the conduct of the meeting rests upon the student group which has received permission to hold the meeting.

PLEDGING TO FRATERNITIES OR SORORITIES

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 and military or naval science.

(c) Candidates for initiation into either fraternities or sororities shall secure from the registrar's office a certificate of eligibility.

HOUSING OF WOMEN STUDENTS

RULE 33. (a) Women students under twenty-one years of age not living in their own 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.

GENERAL ELIGIBILITY RULES

RULE 39. (a) 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). Fractional hours are to be disregarded in favor of the participant.
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 22(c).)
8. To be eligible for any class office, a student must have the same number of required credits as those specified for class representation on the board of control, except freshmen class officers who need no credit hours (for requirements for representatives on the board of control see article 9, section III, paragraph B, of the A.S.U.W. constitution).

(b) An incomplete shall not be counted as failure or passed until adjusted.

(c), (d) See student handbook.

MID-QUARTER WARNINGS

(e) The current records of all students engaged in student activities as defined in Rule 38, shall be checked at the beginning of each quarter and at the end of the first six weeks of each quarter. Students not having passed successfully in ten units the preceding quarter or not carrying successfully ten units at the end of the first six weeks of the current quarter shall be denied participation for the quarter or for such portion of the quarter as remains; provided, that students engaged in any activity as defined in (a), (b), (c), or (d) of Rule 38, who are ineligible at the commencement of any quarter by reason of incompletes reducing the hours passed during the preceding quarter below ten, may become eligible upon converting such incompletes into passing grades, and students engaged in such activities who become ineligible through midquarter warnings may become eligible by presenting to the registrar a certificate of satisfactory work from the professor giving the warnings.

(f) See student handbook.

For additional information re eligibility, see student handbook, (Rules 38 and 39).

STUDENT ACTIVITIES DEFINED AS APPLYING TO "FRESHMAN PROBATION"

Definition: Under student activities are included business managerships and elective offices of the A.S.U.W., executive committee of A.W.S., Y.M.C.A., Y.W.C.A., pledging to fraternities or sororities, residence in a fraternity or a sorority house, athletic teams (participation to be limited to intramural competition), athletic managerships or assistant managerships, public performances managed by students, and reportorial or other work on student publications.

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.

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 uni-

form fee to cover actual cost. This cost varies slightly from year to year; for the year 1935-1936, the cost will be $20.75. 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 made the following allowances to advanced course students for the year 1934-35: uniform—$35; commutation of rations—25c 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 Offiicers' 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.

Graduates Commissioned in Naval or Marine Corps 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 U. S. Naval Reserve, or in the U. S. Marine Corps 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.

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 or Marine Corps 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, for four full years.
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.

SCHOOLS OF ARCHITECTURE AND ART

(See University College section, pages 152, 153.)

COLLEGE OF ECONOMICS AND BUSINESS

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 41, 49, and 50.

For entrance into the College of Economics and Business the 12 units should be distributed as follows:

English	2 Units	Must be taken in high school
U. S. History and Civics	1 Unit	
Geometry or Advanced Algebra	1 Unit	
2nd Unit Foreign Language	1 Unit	Recommended
3rd Unit English	1 Unit	
Physics or Chemistry	1 Unit	
Social Science	1 Unit	
Bookkeeping	1 Unit	
Typewriting	1 Unit	
Shorthand	2 Units	

If the student does not present geometry or advanced algebra for entrance he must select Math. 1 and Math. 5 or 11 or 13 in fulfillment of the college science, language, or mathematics requirement.

Ability in typewriting is not a requirement for graduation, but it is a very useful tool while a student is at the University and a practical necessity in a large proportion of the positions which are available after graduation. Students who have not had this training in high school are urged to get it before they graduate from the University.

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.

GENERAL STATEMENT

The College of Economics and Business has the following objectives:

1. Business is a pecuniarily organized scheme for gratifying human wants. Properly understood, business falls little short of being as broad and inclusive as life itself in its motives, aspirations, and social obligations. The training of young people who look forward to positions of management in modern business must, therefore, have breadth and depth comparable to those of the problems with which they will deal. One fundamental hypothesis, upon which the curriculum is formulated, is that the business man administers his business under conditions imposed by his physical and social environment. It follows that the

student should be given an appreciation of the natural and physical sciences and it also justifies attention to government, law, economics, psychology, sociology, and to other social sciences. But the student's knowledge of environment is given practical content and closely related to his knowledge of the internal problems of management.

2. A second fundamental hypothesis upon which the curriculum is formulated is that the modern business man has a career that is satisfactory to himself and is approved by his fellow citizens in proportion to his ability to solve business problems. He must, therefore, have:

(a) The ability to use the tools and technical equipment with which business is administered and controlled (accounting, statistics, mathematics, business law, English, and sometimes modern foreign language).

(b) An appreciation of basic subject matter and fundamental principles upon which any business man, regardless of his particular field, must build. This will include a mastery of the basic principles of management of production, finance, labor, marketing, transportation, risk, etc.

(c) A certain amount of training in some one major phase of business or field of economic study which will involve the application of principles in analyzing concrete business situations.

3. A professional attitude and spirit. The curriculum, as a whole, is designed to foster a spirit of scientific research in the field of business, and to develop a community of interest in the common problems which business leadership faces.

The broad fundamental principles which are the foundations of all business and the general philosophy which underlies each branch of business can be understood by those who wish to give the matter careful study. It is this broad training in fundamentals that the college undertakes to offer, and such training as is given in the technique of business is built upon a careful selection of courses which will provide the cultural background necessary to the breadth of view essential to an executive. Emphasis is placed on student training in orderly, precise, and logical thought processes in grasping and applying the economic principles underlying industry. A broad point of view, an understanding of related problems in other fields, a proper perspective, an appreciation of the scientific approach to economic and business problems, and the inculcation of a professional point of view are necessary concomitants of this training.

No amount of training in the technique of business can take the place of practical experience. Some short cuts may be taken but, for the most part, training in the details of business technique is left where it belongs—in practical experience on the job. While graduates of the college cannot expect immediately to become business executives, their college training usually gains them an entrance into business through the subordinate positions and their chief advantage lies in their greater potentialities.

No student is allowed to enter the junior-senior courses in the college unless he has reached junior standing and satisfied the prerequisites to those courses. The prerequisites have been established after the most careful consideration of the standard of efficiency and performance aimed at in the course and the educational value of the course for the student. To admit students who have not completed the carefully arranged prerequisites would not only imperil the quality of the work of the instructor, but also make it impossible for the students to get the full benefit of the course. The college realizes that certain just claims to exceptions from the above rules could be presented, and such exceptions can be granted to students whose maturity and extended experience in economic affairs of a suitable nature make it just and reasonable. Proof of these experiences and qualifications will be passed on by the dean of the college and the committee on graduation.

The junior and senior years are largely reserved for the student's selected field of business interest. Each student or group of students is guided and assisted by the instructor designated for that department of work under the general direction of the dean of the College of Economics and Business.

REQUIREMENTS FOR GRADUATION

Graduates of the College of Economics and Business receive the degree of bachelor of arts in economics and business. The following is a summary of the requirements for this degree:

1. The student must satisfy the entrance requirements of the University and the College of Economics and Business. Students entering from other colleges with junior standing must either present or make up the following courses to meet the minimum lower division requirements of the college: B.A. 1, 2, 54, 55, 56, 59, 62, 63, 100.

2. The student must earn 180 credits in subjects required by the University and required or approved by the faculty of the college. In addition, he must meet the general University requirement of six quarters in physical education and military or naval science.

3. Course Requirements:

Lower Division Requirements

First Year

	Credits		*Credits*		*Credits*
B.A. 1. Gen. Econ.....	5	B.A. 2. Gen Econ.....	5	Geography 7.....	5
Composition 1.....	5	Comp. 37.....	5	Political Science 1.....	5
Science, Math. or Lang.[1]	5	Science, Math. or Lang.[1]	5	Elective.....	5

Second Year

	Credits		*Credits*		*Credits*
History 57.....	3	History 58.....	3	History 59.....	3
B.A. 54. Bus. Law.....	3	B.A. 55. Bus. Law.....	3	B.A. 56. Bus. Law.....	3
B.A. 62. Prin. of Acct...	5	B.A. 63. Prin. of Acct...	5	B.A. 100. Stat. Anal.....	5
Psychology 1.....	5	B.A. 59. Bus. Corres....	5	Elective.....	5

[1]Students electing foreign language to satisfy this requirement who have not had two units of the language chosen in high school must take 20 credits in the University, ten credits of which will count as electives.

Upper Division Requirements

		Credits
B.A. 103.	Money and Banking	5
B.A. 104.	Public Service Industries	5
B.A. 105.	Economics of Labor	5
B.A. 106.	Economics of Marketing and Adv	5
B.A. 107.	World Economic Policies	5
B.A. 121.	Corporation Finance	5
B.A. 171.	Public Finance and Taxation I	5
B.A. 175.	Business Fluctuations	5
B.A. 185.	Advanced Economic Theory	5
General Requirements		45
Special Requirements		15
Electives		30

The lower division provides for the introductory economics courses, the tool subjects in business, and for the minimum requirements in the cultural subjects outside of economics and business which are necessary to give breadth and vision. The elective in the first year is to provide for students who wish to take a year of foreign language or who elect a science which requires a year's work. The elective in the second year may be used for one of the introductory field courses. If the elective in either the first or second year is not used for the purposes just mentioned, it must be used for Sociology 1. If Sociology 1 is not taken in lower division, Sociology 150 should be taken as one of the 30 credits of electives in upper division.

The forty-five credits of general requirements in the upper division enable the student to view the economic and business structure as an integrated whole.

By the time these requirements are completed a sufficiently broad foundation has been established for any business profession, regardless of the particular field in which the student may later be interested.

The thirty credits of electives provide for the student who wishes to take some intermediate or advanced courses in other major fields, but he must have the proper prerequisites for the course he elects. His electives may also be used for courses in philosophy, the humanities, or any other department of the University for which he has the proper prerequisites. Students will consult their advisor in regard to the use of their electives, and as to the courses to be included in the minimum of fifteen credits which will be approved as meeting the special requirements.

SUGGESTIONS FOR PLANNING COURSES

A major in this college is in the general field of economics and business but, since a certain amount of concentration is desirable, either before or in the third quarter of the sophomore year, each student in the college is required to select a minimum approved sequence of at least fifteen credits in some special field. He is placed in contact with an instructor, working in that field, who will advise him. *Conferences between student and instructor may be held at any time at their mutual convenience and should not be delayed until the registration period.* At the time of registration the student's program must be approved by the registration secretary for the College of Economics and Business who will enforce all requirements, together with the course prerequisites as stated in this bulletin. A brief description of the special fields and the sequences which meet the special requirements are given below.

The courses in economics are planned with three classes of students in mind: (1) those who do not care to specialize in any technical field but who desire a general cultural education centering around economic and social thought; (2) students who are looking forward to teaching economics and business; (3) students who are preparing to do graduate and research work in social science.

Students whose interests are in economics, in politics or in a general cultural background in the social sciences, and not in professional training for business, will find these courses highly important to an enlightened judgment and an intelligent appraisal of many of the more important phases and developments of our economic and social order. The college thus performs a *service* as well as a professional function.

The most common sequences in Economics which meet the special requirements are listed in the next three paragraphs. Following these, approved sequences which give professional training for business and combinations with other fields, are suggested.

1. *Theory:* B.A. 181, 187, 188. The professor in charge of the course in Advanced Economic Theory will advise in the choice of electives.

2. *Labor:* B.A. 161, 162, 163. Students will be advised by the professor in charge of the labor courses as to the other courses which best fit their individual needs.

3. *Public Finance:* B.A. 102, 172, 181. This sequence is a timely one. Students should consult the professor in charge of the course in Public Finance and Taxation.

4. *Real Estate:* B.A. 109, 169, 176. The courses in real estate are organized to consider the fundamental problems of land and the improvements upon it, such as the utilization, management and control of land and the basic factors which determine its value. The principles which are necessary to an understanding of these problems are emphasized so that the student will under-

stand the technique of appraisals, financing and the management of property, detailed knowledge of which will come through experience in the employ of real estate mortgage bankers, brokers, appraisers and property managers.

5. *Insurance:* B.A. 108, 128, 129. The courses in insurance are intended primarily to enable students to acquire knowledge of the economic principles which are the foundation of the science of insurance and the practices followed in writing insurance contracts.

6. *Banking and Finance.* Students interested in this field should take B.A. 103 in the sophomore year and meet the special requirements by selecting a minimum of 15 credits from the following courses: B.A. 122, 123, 125, 127, 192. Students in business finance are required to take in the senior year either B.A. 123 or 192. Both may be taken if desired. These courses are taught by the case system and train in analytical method.

B.A. 172 and 176 are especially recommended as electives, the former by those who wish to take a second course in public finance, and the latter by those who are preparing for work in credit or purchasing departments.

The purposes of the courses in business finance are twofold: (1) to provide basic training for all business students in the principles and practices used in financing business enterprises, and the determination of proper investment policies for individuals or institutions; (2) to furnish a professional training for students desiring to prepare for positions in (a) commercial and savings banking, (b) investment banks and the security brokerage business, (c) credit departments in manufacturing, commercial and mercantile enterprises, (d) financial institutions established by the Federal government.

7. *Foreign Trade and Consular Service:* B.A. 127, 131, 132. Training in this field has three objectives:

(1) It aims to give students such an acquaintance with the facts and principles of international economic relations that they will have an intelligent understanding of the problems that confront the nations of the world and will be able to judge them dispassionately yet constructively.

(2) It instructs students in the mechanism of international trade in raw materials and manufactured goods, and the production, distribution, exchange and financing of these products. The courses in foreign trade, covering the principles of exporting and importing, when supplemented by work in money and banking, marketing, commercial law, and marine insurance, prepare students for positions with export commission houses, the export departments of manufacturing concerns, the profession of customs broker, manufacturer's export agents, or foreign representatives of an American exporting or manufacturing concern.

(3) It prepares students for the United States Government trade and consular service. The government requirements are exacting. Students who major in this field and who, under guidance, supplement their major courses with the proper electives in other departments, secure an adequate preparation for the consular examinations and their future work in the foreign field.

Students preparing for foreign service should have a speaking knowledge of some modern foreign language. Supporting courses in other departments include Geography 102, 103, 104, 105, 106, 115; Political Science 121, 122, 124, 127, 129; History 157, 158, 159; Oriental Studies 90, 91; and Law 122, 141.

8. *Marketing:* B.A. 134, 135, 136. The field of marketing comprises all those activities involved in getting goods from producers to consumers. The work in this department is planned to provide an understanding of the economic structure of the marketing system, a knowledge of the marketing functions and the agencies performing them, a familiarity with current problems, and a certain facility in gathering, analyzing, and interpreting data as the basis for marketing plans and policies.

Courses must be carefully planned before registration in conference with a member of the marketing staff. The supporting or elective courses are vitally important and vary so much with the different needs of individual students that they cannot be set down here. B.A. 106, *Economics of Marketing and Advertising,* will be followed by B.A. 134, *Wholesaling;* B.A. 135, *Retailing;* and B.A. 136, *Advertising,* preferably in the order named, although the sequence may be begun with B.A. 135 by those who take B.A. 106 in the autumn quarter. These are foundation courses for the three divisions in the general field. Together they constitute the necessary ground work for specialized study in any one of the divisions. This may be done in B.A. 193ABC, *Problems in Marketing.* This work is largely individual in character. The first quarter is devoted to the principles and the methodology of product and market analysis. The remaining quarters are given to individual and group study of specific problems. Each student will be required to complete a major project involving the assembling, presentation, and interpretation of data covering a specific problem in his field.

9. *Public Utilities and Transportation.* The courses in public utilities and transportation are designed to develop the facts and principles basic to an understanding of the economic character of the public service industries; to provide a background for an intelligent appreciation of important and far-reaching problems of management and of social control; and to develop an attitude of critical analysis and an ability to make sound judgments. In the field of public utilities and transportation is found a highly significant social experiment to control and to fix prices and service.

The professional objectives are (1) preparation for positions and eventual executive or administrative work in traffic and business departments of the public service industries; (2) preparation for work on the technical staffs of the various state and federal public service regulatory commissions. In addition, majors in other disciplines and fields of economics and business find course work in public utilities and transportation of interest as related to business production costs, distribution costs, pricing and service practices and policies, investments, the position of the consumer, the pragmatic experiment in governmental price control, etc.

Students particularly interested in railroad, water, or air transportation should select a minimum sequence of 15 credits from the following courses: B.A. 143, 144, 146, 147, 149. The electives may be selected from this and other fields in economics and business, or in certain cases students may be advised to elect supporting courses from Civil Engineering 123, 128; Naval Science 55, 56, 61, 62, 63; or Aeronautical Engineering 101, 111, 141, 161, 162.

Students particularly interested in the local utilities should take the sequence B.A. 141, 142, 146, and 196. The electives may be selected from this or other fields in economics and business, or in certain cases students may be advised to elect supporting courses from Law 119, 120, 133; Political Science 101.

10. *Management and Accounting.* Management is essentially a study of the basic problems of business control considered from the viewpoint of the owner or the responsible operator or financial executive. An attempt is made in the courses to introduce the student to the philosophy of science in business and give him a proper understanding of the status of business management as a profession, through a study of the fundamental processes found in the internal and external conditions of commercial and industrial concerns.

The management series includes B.A. 101, 150, and 195, and covers such problems as the economics of business structures and functions; social controls over business; the economics of location; the manager's administration of purchasing, processing, marketing, and finance through the use of organization, standards and measurements. A brief survey is made of the technological aspects of commerce and industry through a study of the mechanical, electrical, chemical and geological factors involved. On the professional side, the courses

provide training for those students who are looking forward to such executive positions as departmental managers, factory superintendents, personnel managers and directors of research.

Because of the great importance of business measurements used in executive control, special emphasis is placed upon the study of accounting, of which three distinct groups of courses are offered. The first group, consisting of B.A. 62 and 63, taken in lower division, is designed to give the student a thorough knowledge of the basic structure of accounting.

The second group, consisting of B.A. 151, 152 and 153, are pre-professional courses in advanced accounting theory and are designed to give the student the ability to apply the principles of accounting to analysis and interpretation of operating and financial statements. They are a preparation for students who expect to serve in the capacity of treasurer, comptroller or budget director in any business enterprise, as well as to provide a preparation for the accounting theory section of the State Certified Public Accountant's examination.

The third group, including B.A. 154, 155, 156, 157 and 158, consists of professional courses, and constitutes sufficient theoretical and technical training for professional accounting work. These courses lead to such opportunities as governmental and private auditors, industrial accountants and Certified Public Accountants.

11. *Economic Geography.* Economics and Business may be combined with Geography by substituting a major of 28 upper division credits in Geography for the special requirement of 15 credits in Economics and Business and 13 credits of electives. The cycle of advanced continent courses in Geography (Europe, Asia, South America, etc.) provides a comprehensive survey of world resources and activities which gives the student trained in Economics a broad general background for business, participation in world affairs, and travel or exploration. Majors in Economic Geography should add electives in Political Science or World Trade.

12. *Geology and Mining.* For those who contemplate positions with oil or mining companies or government positions dealing with mineral resources, a combination with geology and mining is suggested. After satisfying the general and special upper division requirements of the College of Economics and Business, 30 credits remain as free electives in the normal program. These may be used in courses which will give a background of the principles involved without the advanced technical work necessary for the mining engineer and geologist. Students who plan to use their electives in this way should offer chemistry in satisfaction of the science requirement. The student advisor in geology or mining engineering should be consulted in electing courses in these fields.

13. *Pre-Law Curriculum—Combined Six-Year Courses in Economics and Business and Law.* It is possible to obtain the degree of bachelor of arts in economics and business and bachelor of laws in six years. The requirements and suggestions for the first two years of this combined six-year course are the same as for the economics and business course. Students planning to take advantage of the combined six-year curriculum may omit business law (B.A. 54, 55, 56), and substitute therefor first-year law courses after entrance to the Law School. To have the benefit of this combined course, students must maintain a uniformly good record and must, in the first three years, earn 139 economics and business credits, together with the six quarters of required military or naval science and physical education. To take the 139 credits in three years, the student should carry an average of 16 credits per quarter exclusive of military science and 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 if necessary.

At the beginning of the fourth year, if a student has earned 139 credits and the six quarters of required military or naval science and physical education, he may enter the School of Law and there earn 41 credits which will be counted toward his bachelor of arts degree in economics and business. He will be granted this 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 in economics and business. The degree of bachelor of laws will be conferred upon completion of his work in the Law School. In exceptional cases where the student lacks part of the 139 economics and business 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.

In the 139 economics and business credits must be included the 45 credits of upper division general requirements. The student must comply with all of the regulations prescribed for majors in economics and business, except the requirement of 15 credits in a special field.

14. *Commercial Engineering.* This course consists of a major in engineering, primarily mechanical, with a minor in economics and business. 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 curriculum are the same as electrical and mechanical engineering, which include B.A. 3. In the third and fourth years some of the more specialized engineering subjects are replaced by B.A. 54, 55, 62, 63, 101, 103, 121, 151, and 154.

15. *Maritime Commerce and Naval Science.* The University of Washington is one of six institutions in the United States at which a department of naval science and tactics has been organized. All male students who can pass the physical examination may take courses in this department. Thirty credits of work are offered during the four years of undergraduate study. The completion of the work in the naval science and tactics department leads to a commission in the United States Naval Reserve.

Following is a summary of the combination of the work in naval science with a major in economics and business, including the special requirements in public utilities and transportation.

	Credits
General lower division requirements in economics and business. (See page 9)	93
General and specific requirements in economics and business. (See page 6)..	60
Seamanship and naval science—18 academic plus 18 basic credits.....	18
Electives.....	9
	180 plus 18 Basic Credits.

For the four-year curriculum in naval science see the professor of naval science.

16. *Commercial Teaching.* The courses in commercial teaching are planned to prepare students for teaching positions in commercial departments of secondary schools. The requirements are as follows:

(a) Satisfaction of the lower division requirements as outlined on page 76.

(b) B.A. 16-17-18. *Secretarial Training.* Nine credits. This requirement may be satisfied in either lower or upper division, or by passing a satisfactory examination. In case of exemption by examination university credit is not given.

(c) Thirty credits of the upper division general requirements in Economics and Business, including B.A. 106 and B.A. 185. The remaining fifteen credits of this requirement may be postponed until the fifth year.

(d) The special requirement must be met by ten credits of upper division accounting and a second course in marketing.

(e) Twenty-nine credits of education courses, including Education 75E or Education 75F. See College of Education section, page 100.

COURSE IN GOVERNMENT SERVICE

General Statement

The College of Economics and Business, in cooperation with the Department of Political Science and the School of Law, offers a combined course to meet the growing need for trained men in governmental service. The expansion of personnel in bureaus, divisions, and departments of government during recent years provides an opportunity for students who are trained for public service administrative work. With the government broadening its functions on both extensive and intensive margins, future opportunities for adequately trained students will become even greater. Successful governmental administration, in large measure, is a problem of personnel. There is more and more insistence upon the use in government of experts who have a background of scientific training and whose efforts are characterized by the scientific attitude and method. Our institutions of higher education are in a position to make a substantial contribution to economic and social progress, to public well-being, and to the success of our political institutions by providing a trained personnel for government work.

The curriculum in government service is designed to equip a group of selected students, who have demonstrated a high order of scholarship, with a sound philosophy of government, and an understanding of the scientific attitude and method in dealing with problems. It will provide technical training in accounting, statistics, public finance and taxation, public utilities, labor relations, and governmental administration, and will include a period of supervised apprenticeship with government departments. The University assumes no obligation to find employment for the students completing this curriculum, but it is making an earnest attempt to prepare young men and women for governmental service as a career.

The course in government service differs from an ordinary major in economics and business, or political science, in the following respects.

1. Students must be approved before they will be permitted to enter this course. They will be expected to maintain not less than a B standard of performance. Failure to maintain this standard will result in dropping the student from this major.
2. Five years will be required for the completion of the course, and there are no electives. The student is expected to take the courses in the quarters indicated in the fixed curriculum. In the fifth year students may enter the course only in the fall quarter.
3. The degree of bachelor of arts in economics and business will be awarded at the end of the fourth year. At the successful conclusion of the fifth year a certificate of completion of the course in government service will be granted.
4. The autumn quarter of the fifth year consists of seminar work and a four-hour course in administrative law in the School of Law. Four three-hour special seminars in labor relations, public finance and taxation, public utilities and public administration will be provided. The general purpose of these seminars is to improve the student's perspective relative to the practical problems of governmental administration and his academic background, to develop further an attitude of critical analysis and an ability to make sound and incisive judgments, and to deal with advanced subject matter in these several fields.
5. The winter quarter of the fifth year will be spent in some department of state or local government, where the student will be serving a period of apprenticeship under intimate guidance and supervision. He will report weekly by letter to his supervisor. Reports will be secured periodically from the department heads under whom the students are securing their training. The various departments of state and local government will be contacted frequently to insure that the student is securing the maximum amount of benefit from his apprenticeship and is giving a maximum amount of service to the department. The period of ap-

prenticeship will provide an opportunity for the student to gain valuable experience in administrative routines and departmental organization; also to meet and to visualize the practical problems of governmental administration which can be secured in no other way.

6. The spring quarter of the fifth year will be spent in residence at the University. During this quarter the student will take seminar work, which will serve the general purpose of relating the experience gained by the student during the period of apprenticeship to his technical background and provide him with an opportunity to make an analysis of the problems discovered. The remainder of the time will be devoted to directed research and the preparation of a thorough report on the functioning of the particular department, and a study of the functions and structure of similar departments in other jurisdictions. In this way it is expected that an effective association between the student's academic background and problems of governmental administration may be realized. The directed research work will establish student acquaintanceship with research methodology, scholarly procedure, a knowledge of source materials and their use, an improved facility in written expression, and emphasize the importance of fact finding and fact analysis.

The curriculum for the freshman year is identical with that of all students in the College of Economics and Business. The special features begin in the sophomore year. The complete curriculum follows.

THE COURSE IN GOVERNMENT SERVICE

First Year

Credits	Credits	Credits
B.A. 1. Gen. Econ..... 5	B.A. 2. Gen. Econ..... 5	Geography 7..... 5
Composition 1..... 5	Composition 37..... 5	Pol. Sci. 1..... 5
Science, Math. or Lang.. 5	Science, Math. or Lang.. 5	Elective..... 5
Military or Naval Science and Phys. Ed..... +	Military or Naval Science and Phys. Ed..... +	Military or Naval Science and Phys. Ed..... +

Second Year

Credits	Credits	Credits
Hist. 57. U. S. Hist..... 3	Hist. 58. U. S. Hist..... 3	Hist. 59. U. S. Hist..... 3
B.A. 54. Bus. Law..... 3	B.A. 55. Business Law.. 3	B.A. 56. Bus. Law..... 3
B.A. 62. Prin. of Acct... 5	B.A. 63. Prin. of Acct... 5	B.A. 100. Statis. Anal... 5
Pol. Sci. 51. Prin. of Pol. 5	Pol. Sci. 52. Intro. Pub. Law..... 5	Pol. Sci. 61. Mun. Gov't. 5
Military or Naval Science and Phys. Ed..... +	Military or Naval Science and Phys. Ed..... +	Military or Naval Science and Phys. Ed..... +

Third Year

Credits	Credits	Credits
B.A. 103. Money & Bank. 5	B.A. 105. Econ. of Labor 5	B.A. 104. Public Serv. Ind..... 5
B.A. 107. World Econ. Pol..... 5	B.A. 106. Econ. of Mark. 5	B.A. 121. Corp. Finance. 5
Pol. Sci. 155. Intro. Pub. Adm..... 5	Pol. Sci. 154. Public Service..... 5	B.A. 151. Acct. Anal. and Control..... 5
Pol. Sci. 101. Am. Const. Govt..... 2		

Fourth Year

Credits	Credits	Credits
B.A. 141. Reg. of Pub. Util..... 5	Pol. Sci. 163. State Govt. and Adm..... 5	B.A. 154. Cost Acct..... 5
Law 119. Const. Law I.. 4	Law 120. Const. Law II. 4	B.A. 161. Labor Legis... 5
B.A. 171. Pub Fin. and Tax. I..... 5	B.A. 172. Pub. Fin. and Tax. II..... 5	B.A. 185. Adv. Econ. Theory..... 5
B.A. 175. Bus. Fluctua.. 5		

Fifth Year

Credits		Credits
Pol. Sci. 251. Seminar Pub. Adm..... 3	Contact and apprenticeship period with state and local government departments.	B.A. 212. Seminar Pub. Serv. Prob..... 3
B.A. 196. Sem .Pub. Util. 3		Law 199. Seminar Adm. Law..... 4
B.A. 198. Sem. Pub. Fin. 3		Research..... 8
B.A. 206. Sem. Labor Relations..... 3		
Law. 121. Adm. Law.... 4		

UNIVERSITY COLLEGE

Majors in economics in the University College must meet the general requirements of that college. They must take B.A. 1, 2, 100, 105, 185, 187, and four additional courses selected from the list below.

A minor in economics in the College of Education consists of B.A. 1, 2, 185 and one other course selected from this list.

*102. Business Organization & Combination
*103. Money and Banking
*104. Public Service Industries
*105. Economics of Labor
*106. Economics of Marketing & Advertis.
*107. World Economic Policies
*108. Risk and Risk Bearing
121. Corporation Finance
131. Principles of Foreign Trade
141. Regulation of Public Utilities
142. Advanced Economics of Pub. Utilities
161. Labor Legislation
162. European Labor Problems
163. Economics of Consumption
171. Public Finance and Taxation I.
172. Public Finance and Taxation II.
175. Business Fluctuations
181. Economic Development of the U. S.
185. Advanced Economic Theory
187. Development of Economic Thought
188. Institutional Economics

*Courses starred are intermediate courses introductory to special fields and may be taken in the third quarter of the sophomore year.

REQUIREMENTS FOR GRADUATE DEGREES

A graduate degree is not conferred as a reward for the accumulation of any specified number of credits. The candidate's fitness for such a degree is determined by a committee whose judgment is based partly upon the candidate's general personal qualifications and partly upon the successful completion of the courses which the committee approves for the particular candidate, an acceptable thesis, and a searching examination of the candidate.

I. MASTER'S DEGREE

1. *Master of Arts* (M.A.). This is a non-professional degree. The candidate must have a reading knowledge of a foreign language. He must present a major in economics (see IV.-1 below) and a minor from some other department.

2. *Master of Business Administration* (M.B.A.). This is a professional degree. The candidate is not required to have a reading knowledge of a foreign language. He must present a major in a business administration field (see IV.-2 below) and all of his work is done in the College of Economics and Business.

II. BACKGROUND

Candidates for either of the above degrees must submit, in addition to the work required for the master's degree, a background equivalent to that possessed by those who have completed at least 35 approved credits in economics and business. These must include at least three intermediate courses with numbers between 101 and 109 inclusive, or their equivalent. Candidates for the M.B.A. degree must include training in accounting, statistics, and business law as a part of the background. Background subjects must be approved by the committee having supervision over the work of the candidate, but the committee may, at its discretion, approve the substitution of courses in history, sociology, political science, or business, as may be deemed necessary to establish a satisfactory background for the graduate work being undertaken.

III. CANDIDATE'S COMMITTEE: PRELIMINARY CONFERENCE

During the quarter in which the candidate makes known his intention to take a master's degree, the candidate should have the preliminary conference required by the Graduate Council. The examining committee consists of a representative of the College of Economics and Business in charge of graduate

students, the professor in charge of the candidate's major field, and one or more other members selected by these two. The purpose of this conference is to decide upon the candidate's qualifications to do work leading to the master's degree and to plan the student's course of study. The courses which will be approved will be those which seem best for the purpose of rounding out the student's knowledge in the field or fields which he has selected. These courses need not necessarily be confined strictly to the field of concentration, and the minor field, if there is one, but should have a bearing upon those fields. The candidate's committee has power to make any adjustments that seem desirable in the candidate's program. If the committee decides that the candidate is qualified to do graduate work and if a satisfactory program is arranged, his formal petition to be admitted as a candidate for a master's degree will be approved.

IV. REQUIREMENTS

Note: No courses will be accepted toward fulfillment of the minimum course requirements unless the grade earned is A or B. Intermediate courses cannot be taken for graduate credit unless by special permission of the candidate's committee.

1. *Requirements for the Master of Arts Degree.* A candidate for the master of arts degree shall select a field of concentration which must be approved by his committee. He must then meet the following requirements:

(a) He shall complete a minimum of thirty-three credits of approved graduate work in the major field.

(b) He shall complete a minimum of twelve credits of approved graduate work in a minor field, in addition to satisfying the background requirements prescribed by the minor department.

(c) In satisfying the requirements for the major, he shall elect the seminar or research course in his field of concentration. If his thesis is a part of the work required in this course, no additional credit will be granted for the thesis.

(d) He shall, sometime previous to the final examination, formally demonstrate that he has a reading knowledge of a foreign language.

(e) He is advised to elect B.A. 208, Graduate Seminar in Economics, in preparation for the examination in this field. (See VI.)

2. *Requirements for the Master of Business Administration Degree.* A candidate for the master of business administration degree will select a field of concentration which must be approved by his committee. He must then meet the following requirements:

(a) He shall complete a minimum of forty-five credits of approved graduate work in the major field.

(b) He shall elect the seminar or research course in his field of concentration. If his thesis is a part of the work required in this course, no additional credit will be granted for the thesis.

(c) He is advised to elect one or more of the graduate seminars in preparation for the examination in the field of concentration or supporting fields. (See VI.)

3. *Requirements for a Master's Degree Combining Economics and Business and Education.* Education may be offered as a major or a minor in combination with economics and business. All of the requirements for a commercial teaching major must be met by candidates who wish to be certified as commercial teachers. All other requirements are the same as those outlined for the master of arts degree. (See sections IV.-1 and VII.)

V. THESIS

A thesis shall be required of every candidate for the master's degree. The work on the thesis shall be spread over at least two full quarters, but may be extended over three quarters. The thesis shall be in charge of the committee named above (Section III).

At least two weeks before the date on which the candidate expects to take the degree two copies of the thesis in typewritten form shall be deposited with the librarian for permanent preservation in the University archives. The thesis must meet with the approval of the librarian as to form, and the cost of binding must be deposited with the thesis. Eight weeks before the thesis is deposited in the library, the candidate shall submit a tentative draft to the committee, and two weeks before the thesis is deposited in the library a final draft shall be submitted to the committee.

VI. FINAL EXAMINATION

All candidates for the master's degree shall be given a written examination. The examining committee may call candidates for a supplementary oral examination if deemed desirable. The written examination will be designed to test the candidate's general knowledge in the whole field of concentration and will not necessarily be confined to the particular courses presented for credit. The examination will be given once each quarter upon an announced date or dates and normally requires one full day's time.

The examination for the master of arts degree shall consist of:

1. An examination in the candidate's special field of concentration and the field of economic theory.
2. An examination in the minor field.

The examination for the master of business administration degree shall consist of:

1. An examination covering the field of concentration.
2. An examination in two supporting fields approved by the candidate's committee.

VII. MINOR IN ECONOMICS AND BUSINESS

Candidates for the master's degree with economics and business as a minor shall present a background equivalent to that possessed by those who have completed at least eighteen approved credits in economics and business. In addition, the candidate must present not less than twelve credits in approved advanced courses in economics and business.

VIII. THE DOCTOR OF PHILOSOPHY (PH.D.) DEGREE IN ECONOMICS AND BUSINESS

A candidate for the doctor's degree in economics and business must have a reading knowledge of French and German. Upon recommendation of the candidate's committee, approved by the dean of the Graduate School and the dean of the College of Economics and Business, any other Germanic language may be substituted for German and any other Romance language for French. The candidate must be as well grounded in history, economics, government, and such other technical, scientific or philosophic subjects as may be necessary for an intelligent pursuit of the studies in which he plans to specialize. He should include, in either undergraduate or graduate work, B.A. 100, *Statistical Analysis;* B.A. 151, *Accounting Analysis and Control;* and B.A. 181, *Economic Development of the United States,* or their substantial equivalents.

The candidate is expected to concentrate his graduate work in at least four specific fields, to be determined in conference. Economic theory, considered historically and critically, shall always be included. Candidates whose ma-

jor and minor are both in the College of Economics and Business must select five fields. The following fields are recognized for this purpose: (1) Economic Theory and History of Economic Thought, (2) Money, Banking, and Prices, (3) International Economic Policies, (4) Marketing, (5) Public Finance and Taxation, (6) Public Utilities and Transportation, (7) Labor and Consumption, (8) Accounting and Management. In order to develop a program of work which best meets the needs of the individual student, it may be necessary to require the election of courses in other departments, which may be counted in one of the candidate's fields but are not alone of sufficient number to constitute a separate field. The general requirements for this degree are fully outlined in the Graduate School section, page 127. A special memorandum for Doctor of Philosophy candidates in Economics and Business is available on request.

IX. MINOR FOR DOCTOR OF PHILOSOPHY DEGREE

Candidates for the doctor of philosophy degree who present two minors, one of which is in economics and business, must have a background equivalent to at least 18 approved credits in the field which he has selected. In addition to this, he must present for graduate credit not less than three approved courses in economics and business.

Candidates for the doctor of philosophy degree who present one minor which is in economics and business shall have a background equivalent to at least 35 approved credits in the field which he has selected. In addition to this, he must present for graduate credit not less than six approved courses in economics and business.

The background subjects and the graduate courses need not necessarily be confined strictly to the specific field which the student has selected, but they should have a bearing upon that field and must be approved by the committee. The background subjects and graduate courses together must be adequate to give a satisfactory knowledge of the field.

GENERAL INFORMATION

Library Facilities. For many years government reports, containing a vast amount of material for the student of business, have been filed in the library. Most of the domestic journals in economics and commerce, as well as many foreign ones, are received. Each student is expected to make use of the material and report from time to time on current topics of interest.

Student Organizations. A number of honorary and professional societies with national affiliations have been established in economics and business. Beta Gamma Sigma is an honorary fraternity for both men and women. Gamma Epsilon Pi, honorary for women specializing in economics and business, has been merged with Beta Gamma Sigma. Many prominent business men and women in Seattle and eastern cities are members of these societies. Beta Alpha Psi is an honorary accounting fraternity for men. Membership in these honoraries is based on high scholarship. Alpha Kappa Psi is a professional business fraternity for men with chapters in many institutions. Its aim is to promote the serious study of business problems. Alpha Delta Sigma is a professional organization for men interested in advertising. The parent chapter of Pan Xenia, professional and international society for major students in foreign trade, was founded in 1918 at the University of Washington and bids fair to play an important part in the future of our work in foreign trade. The membership of the Propeller Club is composed of students who have a particular interest in maritime commerce or water transportation. The University Women's Vocational Club was formed in 1927, its purpose being to bring about a spirit of friendliness and comradeship among women interested in business as a profession and to acquaint University women with vocational opportunities through personal contacts with downtown women's clubs.

Required Military or Naval Science and Physical Education. The University requirements in military or naval science, physical education and hygiene are satisfied as follows:

Men Students. Freshmen and sophomores, three quarters of military or naval science and physical education each year.

Women Students. Participation in healthful activities for the first five quarters when taking P.E. 10, and the first five quarters when taking P.E. 4, 6, and 8.

Correspondence. Inquiries in regard to the College of Economics and Business may be addressed to the dean. All correspondence regarding admission should be sent to the Registrar of the University.

Contact with Actual Business. The business men in the state and especially in the city of Seattle, are co-operating in a most genuine way in educational work in business administration. Students are encouraged to avail themselves of the opportunities to do part-time work in local concerns along their chosen lines.

During the senior year, or during a year of graduate work, students specializing in marketing, merchandising or advertising are given opportunity to spend alternate quarters in actual business under the immediate supervision of a field director. This plan involves either attendance at summer school or working under supervision during the summer between the junior and senior years. These apprenticeships are made possible by the active cooperation of business houses. They give the student the benefit of a favorable introduction to the best business practice, and also give him this introduction while he is still in college. His theories may be vitalized by supervision of department heads in the business and the teacher of theory in college discussing with him the application of theory to actual business as the student finds it.

The Students' Advisory Council. The B.A. Council, organized in the autumn quarter of 1919 by students of Economics and Business, is a representative body having as its members three officers, two representatives from each of the three upper undergraduate classes, one representative from the freshman class, and one from the graduate school. It functions in an advisory capacity on matters relating to standards of scholarship, student esprit-de-corps, cooperation between the faculty and the student body on other matters which are brought to its attention by the faculty or the student body. Economics and Business assemblies are organized and conducted under the direction of the council.

The mentor system is the conception of this council. The plan provides for the appointment of a group of senior and graduate students to meet the freshmen at a certain appointed time during each quarter. The mentors take the responsibility of seeing that every freshman student in his or her group gets the largest possible benefit out of his college life.

Outside Lectures. Where advisable, work in the college is supplemented with practical lectures and discussions by business men. Many of the leading business men of Seattle and the state have delivered lectures in their special fields to classes.

DESCRIPTIONS OF COURSES

For descriptions of courses, offered by the College of Economics and Business, see Departments of Instruction section, page 204.

COLLEGE OF EDUCATION

GENERAL STATEMENT

General Plan. The College of Education is a four-year college, beginning with the sophomore year and continuing through the fifth year of university work, a total of 225 credits. The degree of bachelor of science or bachelor of arts and the normal diploma will be granted at the end of the fifth year.

A limited number of students in the College of Education may receive a degree of bachelor of arts or bachelor of science with merit. Such students are those whose gradepoint average for the first four years of college is 3.2. Such students, after completing the requirements as stated below for entrance to their fifth year of college, may graduate at the end of their fourth year in the University.

Students in health and physical education and who are not candidates for the five-year diploma may graduate upon completion of the regular four-year curriculum. (See page 98.)

The College has three departments: education, health and physical education for men, and health and physical education for women.

During the freshman year, students who have decided to enter the teaching profession register as pre-education freshmen in the University College. They must confer with the advisory officers in the College of Education for admission to this college as sophomores. These conferences are to assist students in the selection of suitable combinations of teaching subjects and also to direct the students in the selection of proper orientation courses for their proposed preparation for teaching.

Education. The professional work in education begins in either the freshman or the sophomore year with Education 1. The later work in education is based on two years of college or normal school work. The degrees awarded are bachelor of arts or, at the student's option, bachelor of science, according to the character of the academic work chosen. The courses in education are strictly professional and provide special training and technique for the various types of teachers and educational specialists.

A probationary teaching certificate, the five-year normal diploma, is granted after five years, the last year of which must be earned in residence. A minimum of 26 credits in professional courses in education is required, but all students seeking the life certificate must earn 12 additional credits in residence at this University or at an institution having an approved graduate school, and must 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 professionalize the subjects of instruction and the fundamental principles of teaching. Prospective teachers should be masters of the subject that they expect to teach.

General Academic Work. Owing to the variety of work that every teacher is likely to be required to do on beginning to teach and to fulfill 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: English, history, civics—a foreign language is often included in this combination; English, French; English, French, Latin; English, Latin, history; French, German, Spanish; chemistry, mathematics, physics; biology—a combination of botany and zoology is frequently joined with the physical sciences and mathematics; home economics alone or in connection with one or two other subjects; commercial subjects alone or with other subjects; athletics, drawing, or music in combination with other work. Public speaking, dramatics, and journalism are desirable as part of the preparation for teaching English. Library science is needed also by many teachers.

Professional Work. The requirements for the academic major and minors assure a proper distribution of academic subjects. The professional work consists of (a) 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 principles of learning and teaching are developed in education.

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.

Physical Education. The requirement in the health and physical education program in secondary schools has created a demand for well-trained teachers of health and physical education. There is also an increasing demand for elementary school physical education teachers and for playground and recreation leaders.

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 asked 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 career and should take courses in these subjects.

Librarianship. Many schools that cannot afford full-time 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. Students who pursue this work should have a good knowledge of books and also human interest and sympathy and an intelligent desire to stimulate the reading of young people. (See *Librarianship,* page 180.)

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 advisers 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 professional training in education.

Free Typewriting Service. The modern teacher must do so much written work that all teachers should have fair skill in typewriting. The University of Washington, assisted by grants from the Carnegie Foundation for the Advancement of Teaching, maintains a typewriting work room in 102 Education Hall. Students may use the typewriters available for any of their written work. For instruction in typewriting, consult the Extension Division.

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.

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

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

Bureau of Appointments. The University maintains a placement service division to assist school executives who seek teachers and administrators. A nominal fee is charged for this service.

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

Admission to Professional Courses and the Fifth Year

The requirement for admission to professional courses beyond Education 1 is the completion of 90 academic credits of college work earned in the University of Washington or in an accredited institution of equal rank, including the usual undergraduate requirements in physical education or military or naval science.

Students admitted from the undergraduate curricula of other colleges of the University must have satisfied the requirements of their respective colleges except in foreign language up to the time of their transfer to the College of Education.

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. Claims for exemption from specific requirements, based on work in normal schools, are passed on by the registrar and the dean of the college concerned.

Fifth-year standing cannot be attained until after the completion of Education 1, 9, 60, and 90, and the passing of a comprehensive examination on Education 9, 60, and 90. Education 1 cannot be taken for credit after the beginning of the junior year. Students without teaching experience are accepted in the fifth year as candidates for the master's degree only if they have been graduated with merit (grade-point average of 3.2). Senior standing is attained when 135 academic credits have been earned.

Graduation

A minimum of three full quarters in residence is required for any degree granted by the University. College of Education candidates for the bachelor's degree must satisfy the graduation requirements of the University College except in foreign language. If foreign language is omitted, 20 credits selected from general literature and English must be substituted. Such substitutions must be in addition to the regular requirements of the University College in English. Also, certain College of Education academic major teaching subjects may be substituted for those of the University College. In the total of 225 credits required by the College of Education for graduation of all except normal school graduates, who are not candidates for the teaching diploma, the following must be included:

Academic major—36 to 60 credits (see departmental requirements).

One course each in economics, philosophy, psychology, and sociology, and either a course in political science or Education 184.

Education—28 credits (26 for students who take Education 1 for no credit). Education 75 or a substitute for it may be counted for only two credits toward this requirement.

An academic major consists of a minimum of 36 credits in a department other than education. The academic major and minor must be begun before the professional courses in education.

The education courses required for certification shall include the following:

		Credits
1.	Orientation in Education	2
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
71-72.	Practice Teaching	8
120.	Educational Sociology	3

The degrees awarded are bachelor of arts or, at the student's option, bachelor of science, according to the character of the academic major work.

The five-year diploma is granted only to holders of the degree of bachelor of arts or science from the College of Education, or the degree of master of arts or science with either a graduate major or a graduate minor in education.

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 to 225, including all specific degree requirements except foreign language, of the University College and the College of Education not fully covered by previous 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. For the five-year normal diploma, the nine credits must be earned in courses dealing specifically with secondary education.

Normal school graduates who have taught three or more years and who are not candidates for the university teaching diploma (the five-year diploma) may

receive the degree of bachelor of arts or science by completing the University College requirements for graduation except foreign language, and nine credits in education at this institution.

All applicants for either the degree or the normal diploma should consult a departmental adviser before registering.

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 the College of Education

Before registering for their first course in education, students must consult a departmental adviser.

Courses in education required for certification by the University of Washington are divided into three classes, excepting Education 1, which is required of freshmen and sophomores. Courses numbered from 9 to 99 are open only to juniors and seniors. Courses numbered from 100 to 199 are open only to juniors seniors, and graduate students. Courses numbered from 200 to 300 are open only to graduate students.

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

A. Educational psychology
B. Educational sociology
C. Educational administration and supervision
D. Elementary Education
E. Secondary education { General / Curriculum / Guidance }
F. Classroom techniques
G. History and philosophy of education and comparative education
H. Educational measurements and scientific techniques

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. They should select courses from these divisions according to their interests, abilities, and the activities in which they expect to be engaged.

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 to assist candidates in selecting proper divisions of education and necessary courses in these divisions.

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 schools of the State, or (2) a minor definitely reinforcing the major. The list of acceptable majors and minors follows:

Bacteriology
Botany
Chemistry
Civics
Commercial Teaching
Drama
Economics
English
French
Geography
Geology
German
History
Home Economics
Industrial Arts
Journalism
Latin
Mathematics
Health and Physical Education for men
Health and 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 minor also in another field of music; the same is true of art and home economics. One year of library science will be accepted in lieu of a second academic minor.

Normal Diplomas

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

1. Earn 225 university credits in approved courses, including the required courses in Education. All credits earned after graduation must be in residence.

2. Evidence of good health and such general scholarship and personal and moral qualities as give promise of success and credit in the teaching profession.

3. Completion of the following undergraduate courses: Economics 1, Philosophy 1, 2, 3 or 5, Political Science 1 or Education 184, Psychology 1, Sociology 1, Speech 191 or its equivalent (unless exempted by a satisfactory voice test).

4. Normal diplomas will not be granted to aliens who have not completed their naturalization.

Normal Diploma Requirements for Candidates From Other Institutions

1. Normal School graduates must comply with the requirements for either a bachelor's or a master's degree from this institution before they are eligible for a five-year normal diploma.

2. They must present a total of 225 credits which will include an acceptable teaching major and minor and 9 credits in approved courses in education.

3. Graduates and transfers from other institutions must earn a degree from this University. They must present 225 credits including the required educational courses and an acceptable teaching major and minor. A minimum of ten credits in the major and five credits in the minor should be earned in the University of Washington.

Life Diplomas

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

1. Earn 237 university credits.

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 academic subjects. Normal school graduates are required to earn 18 credit hours in education at this University. This must include Education 101 or 201 (or their equivalents).

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, until he has been in residence at this University at least three quarters.

8. If the time that 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.

9. The education courses shall be specified by the executive officer in education to supplement the student's professional equipment.

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

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

12. Grades required for the five-year normal diploma and life diploma:
    (a) C average or better in all university courses.
    (b) C average or better in all education courses, with C or better in Education 71-72, *Cadet Teaching.*
    (c) C average or better in the minor teaching subject with no grades below C in required courses.
    (d) In the major teaching subject there shall be such general average in individual departments as shall be approved by the general faculty and no grades below C in required courses.

Administrative Requirements in Accredited Districts

Elementary Principal's Credential

For the issuance of the elementary principal's credential, the following requirements are set forth:

(a) At least two years of successful teaching experience in the elementary school or the junior high school.
(b) Twelve quarter hours of professional courses relating to elementary administration and supervision in addition to the requirements for standard elementary certification at the time application for the credential is made.

Junior High School Principal's Credential

For the issuance of the junior high school principal's credential, the following requirements are set forth:

(a) Completion of not less than four years of professional preparation.
(b) At least two years of successful teaching experience in the common schools.

(c) Twelve quarter hours of professional courses relating to junior high school administration and supervision in addition to the requirements for junior high school certification at the time application for the credential is made.

Senior High School Principal's Credential

The principal of an accredited high school shall have had at least two years of thoroughly successful teaching experience on the secondary school level, and also shall have earned a minimum of 12 quarter hours of work in professional courses relating to secondary organization, administration, and supervision, in addition to the minimum hours in education required for certification.

Superintendent's Credential

The superintendent of a district having an accredited high school and also an elementary school, or schools, shall qualify under the following provisions:

(a) A minimum of two years of successful experience in an elementary school; and

(b) A minimum of two years of successful experience in an accredited high school; *Provided,* That not less than two years of such successful experience shall have been in the capacity of principal on either level; and *Provided, further,* That in lieu of (a) 24 quarter hours of professional courses relating to elementary work may be substituted, or in lieu of (b) 12 quarter hours of professional courses relating to secondary organization, administration, and supervision, in addition to the minimum number of hours in education required for certification, may be substituted. Professional work may be substituted for (a) or (b), but not for both.

HEALTH AND PHYSICAL EDUCATION FOR MEN

Requirements for a Bachelor of Science Degree with a Major in Health and Physical Education.

1. Required Foundation and Related Courses:

	Credits		Credits
Comp. 1, 2. Composition	10	Psych. 1. General Psychology	5
Zool. 1. Animal Biology	5	Soc. 1. Introductory Sociology	5
Zool. 2. General Zoology	5	Speech 40. Essentials of Speaking	5
Zool. 16. Evolution	2	Chem. 1-2. General Chemistry	10*
Zool. 17. Eugenics	2	Home Econ. 104. Nutrition	2
Physiol. 50. Physiology	6	P.E. 16,17,18,19,20. Phys. Educ.	+5
Anat. 100. Anatomy	3		
Bact. 103. Public Hygiene	5		65+5

*Unless taken in high school.

2. Required Professional Courses:

	Credits		Credits
107. Personal & General Hygiene	3	141, 142, 143. P.E. Methods	9
110. First Aid & Athletic Training	3	145. Principles of Health & Phys. Edu.	5
113. Playground and Community Rec.	3	150. Phys. Educ. Administration	5
115. Physiology of Muscular Exercise	5	153. Methods in Health Education	2
122. Kinesiology	3	Athletic Coaching	6
127. Tests and Measurements	3	Educ. 145. School Hygiene	3
135. Individual Gymnastics	3		53

3. Required Education Courses:

	Credits		Credits
Educ. 1. Introduction to Education	2	Educ. 70. Intro. to H.S. Procedure	5
Educ. 9. Psych. of Secondary Educ.	3	Educ. 71-72. Cadet Teaching	8
Educ. 60. Prin. of Sec. Educ.	3	Educ. 120. Educ. Sociology	3
Educ. 90. Meas. in Secondary Educ.	2		26

Requirements for the Major in Health and Physical Education for the Normal Diploma.

1. Major: (Required professional courses listed above.)
2. Required Supplementary Courses:

	Credits		*Credits*
Anat. 100. Anatomy	3	Home Econ. 104. Nutrition	2
Physiol. 50. Physiology	6	Sociology and English 1	10
Zool. 1, 2. Zoology	10		
Bact. 103. Public Hygiene	5		36

3. Requirements for the Minor:

	Credits		*Credits*
P.E. 107. Personal & General Hygiene.	3	P.E. 145. Prin. of Health & Phys. Edu.	5
P.E. 110. First Aid & Athletic Training	3	Athletic Coaching	6
P.E. 141, 142, 143. P.E. Methods	9		26

4. Elective credits to make the total of 225 credits required for the degree.

HEALTH AND PHYSICAL EDUCATION FOR WOMEN

Requirements for a Bachelor of Science Degree with a Major in Health and Physical Education.

1. Required Foundation and Related Courses:

	Credits		*Credits*
Comp. 1, 2. Composition	10	Physiol. 50. Physiology (P.E.)	6
Zool. 1. Animal Biology	5	Soc. 1. Introductory Sociology	5
Zool. 2. General Zoology	5	Psych. 1. General Psychology	5
Zool. 16. Evolution	2	Speech 40. Essentials of Speaking	5
Zool. 17. Eugenics	2	Bact. 103. Public Hygiene	5
P.E. 10. Health Education	5	P.E. 11-12-13. P.E. Activ. for Fr. Maj.	+3
Chem. 1-2. General Chemistry	10*	P.E. 51-52-53. P.E. Activ. for So. Maj.	+3
Anat. 100. Anatomy Lectures	3		68+6

*Unless taken in high school.

2. Required Professional Courses:

	Credits		*Credits*
110. First Aid and Athletic Train	3	145. Prin. of Health & Phys. Edu.	5
111. Rhythmic Activ. for Small Child	2	152. Org. and Admin. of Phys. Edu. in Elem. and Secondary Schools	2
112. Elem. School Athletic Program	3	153. Methods in Health Education	2
113. Playground & Community Rec.	3	162,163,164. Meth. in Phys. Edu.	15
115. Physiology of Muscular Exercise.	5	181. Org. & Admin. of Camp Programs	3
101. Survey of Gymnastics	3	Educ. 145-G. School Hygiene	3
122. Kinesiology	3		61
131-132-133. Prin. & Meth. in Posture Edu.	9		

3. Required Education Courses:

	Credits		*Credits*
Educ. 1. Introduction to Education	2	Educ. 75-V. Phys. Educ. for Women	2
Educ. 9. Psych. of Secondary Educ.	3	Educ. 71-72-73. Cadet Teaching	8
Educ. 60. Prin. of Sec. Educ.	3	Educ. 120. Educ. Sociology	3
Educ. 90. Meas. in Secondary Edu.	2		
Educ. 70. Intro. to H.S. Procedure	5		28

4. Elective credits to make the total of 225 credits required for the degree.

Requirements for an Academic Major in Health and Physical Education for the Normal Diploma.

Major	*Credits*
101. Survey of Gymnastics	3
110. First Aid in Athletic Training	3
111. Rhythmic Activ. for Small Child	2
112. Elem. School Athletic Program	3
113. Playground and Community Rec.	3
115. Physiology of Muscular Exercise	5
122. Kinesiology	3
131-132-133. Principles and Meth. in Posture Edu.	9
145. Principles of Health and Physical Education	5
152. Org. and Adm. of Phys. Edu. in Elem. and Secondary Schools	2
153. Methods in Health Education	2
162, 163, 164. Meth. in Phys. Educ.	15
181. Org. & Adm. of Camp Programs	3
	58

Required Supplementary Courses for a Major:

	Credits		*Credits*
Anat. 101	3	Zool. 17	2
Physiol. 50	6	Bact. 103	5
Zool. 1, 2	10	Educ. 145-G	3
Zool. 16	2		31

Required Supplementary Courses: 10 credits to be selected from sociology and English.

Educ. 71-72-73, Cadet Teaching, is required in all cases except by exemption by the Dean of the College of Education and the head of the department of physical education.

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

Minor	*Credits*	*Minor*	*Credits*
112. Elem. School Athletic Program	3	162,163,164. Methods in Phys. Educ.	15
145. Prin. of Health and Phys. Educ.	5		
153. Methods in Health Education	2		25

Four-Year Curriculum Beginning with the Freshman Year for Non-Teaching Majors in Health and Physical Education and Leading to the Bachelor of Arts Degree.

I. General Requirements—University College.

A. Composition 1 and 2. 10 credits. Normally Composition 1 is included in the first quarter's registration.

B. Humanities. 10 credits. (If excused from Composition 2, the 5 credits freed are added to this group.)

In Humanities. English, Art appreciation, Music appreciation, Architecture appreciation, Foreign language not used for the language requirement, liberal arts, Greek, Latin, and Oriental Studies.
Preferred selection to include Music appreciation, Art appreciation, liberal arts.

C. Social Science. 15 credits. History, anthropology, sociology, political science, economics. Recommended that not more than ten be in one department.

Preferred selection to include history, sociology.

D. Natural Science. 15 credits. Zoology, botany, physics, chemistry*, mathematics, geology, astronomy, and Geography 11 or 111. All Geography except 11 or 111 is excluded.

Preferred selection to include Zoology 1, 2, Chemistry 1, 2, unless taken in high school, Anatomy 100, Physiology 50.

E. Psychology and/or Philosophy. 10 credits.

F. For Women only—P.E. 10. 5 credits or P.E. 4, 6, 8. Six credits plus 5 quarters of activities.

G. For Men only—P.E. 15. 2 credits plus 5 quarters activity plus 6 quarters of Military or Naval Science.

II. Major Requirements.

Women	*Credits*	*Men*	*Credits*
111. Rhyth. Act. for Small Children...	2	107. Pers. & Gen. Hygiene.....	3
112. Elem. Sch. Ath. Program.....	3	110. First Aid and Ath. Train.....	3
115. Physiol. Musc. Exer.....	5	115. Physiol. Musc. Exer.....	5
113. Play. and Community Rec.....	3	113. Play and Community Rec.....	3
145. Prin. of Health and P.E.....	5	141,142,143. P.E. Methods.....	9
162,163,164. Meth. in P.E.....15		145. Prin. of Health & P.E.....	5
181. Adm. & Org. of Camp Programs..	3	153. Meth. in Hlth. Educ.....	2
Edu. 145G. School Hygiene.....	3	Athletic Coaching.....	4
	39	Edu. 145G. School Hygiene.....	3
			37

*Unless taken in High School.

III. Required Education Courses. Educ. 1, 9, 60, 90. (Ten credits.)

IV. Elective credits to make a total of 180 academic credits.

Requirements Made for Academic Majors and Minors, by the Respective Departments

BACTERIOLOGY

Major	*Credits*	*Minor*	*Credits*
101. General Bacteriology.....	5	101. General Bacteriology.....	5
102. Sanitary Bacteriology.....	5	102. Sanitary Bacteriology.....	5
103. Pub. Hyg. Bacteriology.....	5	103. Public Hygiene.....	5
104. Serology	5	Bacteriology Electives.....	5
105. Infectious Diseases.....	5		
106. Clinical Diagnosis.....	5	Minimum total.....20	
Bacteriology Electives.....	6		
Minimum total.....36			

BOTANY

Major	*Credits*	*Minor*	*Credits*
1. Elementary Botany.....	5	1. Elementary Botany.....	5
3. Elementary Botany.....	5	3. Elementary Botany.....	5
101. Ornamental Plants.....	5	101. Ornamental Plants.....	5
105,106 or 107. Morphology & Evol....10		105,106 or 107. Morphology & Evol....10	
140,141,142. General Fungi or 143,144,145. Plant Physiology	15	Minimum total.....25	
Minimum total.....40			

CHEMISTRY

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

1. Satisfaction of the lower division requirements as outlined in the bulletin of the College of Economics and Business, page 9.

2. B.A. 16, 17, 18. *Secretarial Training;* nine credits. This requirement may be satisfied in either lower or upper division, or by passing a satisfactory examination. In case of exemption by examination university credit is not given.

3. Thirty credits of the upper division general requirements in Economics and Business, including B.A. 106 and B.A. 185. The remaining fifteen credits of this requirement may be postponed until the fifth year.

4. The special requirement must be met by ten credits of upper division accounting and a second course in marketing.

5. Twenty-nine credits of education courses, including Education 75E or Education 75F.

6. Students majoring in commercial education in the College of Education are required to take B.A. 1 and 2, General Economics, and Geography 7, Economic Geography, and in addition the following courses:

	Credits		*Credits*
B.A. 16-17-18. Secretarial Training	9	B.A. 62,63. Prin. of Accounting	10
B.A. 54,55,56. Business Law	9	Upper Division Accounting	10
B.A. 59. Business Correspondence	5	Marketing	10

ECONOMICS

Students choosing economics as either 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*
B.A. 1,2. General Economics	10
B.A. 100. Statistical Analysis	5
B.A. 105. Economics of Labor	5
B.A. 185. Advanced Economic Theory.	5
B.A. 187. Dev. of Econ. Thought	5
Additional credits chosen from the following list	20
	50

Minor	*Credits*
B.A. 1,2. General Economics	10
B.A. 185. Advanced Econ. Theory	5
Additional credits chosen from the following list	5
	20

Electives from which to choose additional credits:

	Credits		Credits
B.A. 102. Bus. Organ. & Combination.	5	B.A. 142. Adv. Econ. of Pub. Util....	5
B.A. 103. Money and Banking.....	5	B.A. 161. Labor Legislation.....	5
B.A. 104. Public Service Industries...	5	B.A. 162. European Labor Problems...	5
B.A. 105. Economics of Labor.....	5	B.A. 163. Economics of Consumption..	5
B.A. 106. Econ. of Mktg. and Adv.....	5	B.A. 171. Pub. Finance & Taxation I..	5
B.A. 107. World Econ. Policies.....	5	B.A. 172. Pub. Finance & Taxation II.	5
B.A. 108. Risk and Risk Bearing.....	5	B.A. 175. Business Fluctuations.....	5
B.A. 121. Corporation Finance.....	5	B.A. 181. Econ. Dev. of the U.S.....	5
B.A. 131. Prin. of Foreign Trade.....	5	B.A. 185. Advanced Econ. Theory.....	5
B.A. 141. Regulation of Pub. Util.....	5	B.A. 187. Develop. of Econ. Thought..	5
		B.A. 188. Institutional Economics.....	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 Composition 1 and 2. These are general courses and may not be counted toward a major or minor.

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 Ninetenth 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. These

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
Drama 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 of Theat. 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
Drama 47,48. Theatre Speech	4
Drama 51,52,53. Acting (2 quarters)	4
Drama 104,105,106. Workshop (2 qtrs.)	6
Drama 127,128,129. Hist. Theatre Art or Drama 151,152,153. Rep. Plays	6 or 9
	23 or 26

SPEECH

Work in the division of speech is designed to be both cultural and practical. The cultural aim is based on the fact that an understanding and mastery of speech, as a fundamental activity of civilized life, are essential parts of a liberal education. The practical aim is based on every individual's need for effectiveness in his own speaking. Courses in speech fall into five main groups:

Group I. Public Address and Argumentation
Courses 38, 39, 40, 41, 101, 103, 139, 188, 218

Group II. Voice Science and Voice Training
Courses 43, 44, 187, 214

Group III. Oral Interpretation of Literature
Courses 79, 179, 215

Group IV. Speech Pathology
Courses 191, 192, 193, 216

Group V. General and Special Courses
Courses 161, 186, Education 75X

Admission to this division as a major is granted only when the student has a good record and has been accepted by the director of speech and the department of English.

Major	*Credits*
Speech 40. Essentials of Speaking	5
Speech 41. Advanced Speaking	3
Speech 38. Essen. of Argumentation	5
Speech 43. The Speaking Voice	3
Speech 44. Voice and Articulation	3
Speech 79. Oral Reading of Literature	3
Speech 139. Forms of Public Address	3
Speech 186. Backgrounds in Speech	3
Speech 188. Adv. Problems in Speak	5
Speech 191. Speech Correction	3
Speech 187. Adv. Voice Problems or Speech 193. Speech Pathology	5
	41

Minor	*Credits*
Speech 40. Essentials of Speaking	5
Speech 43. The Speaking Voice	3
Speech 186. Backgrounds in Speech	3
Speech 191. Speech Correction	3
Speech 79. Oral Reading of Lit. or Speech 38. Essen. of Argumentation	3 or 5
{Speech 44. Voice & Articulat'n *and* {Speech 188. Adv. Probs. in Speak. or {Speech 41. Adv. Speaking, *and* {Speech 187. Adv. Voice Problems	8
	25 or 27

Speech majors should elect the following courses related to speech work as a part of the University College requirements:

Literature 64, 65 ..... 10 credits
Literature 117 ..... 5 credits
Psychology 1 ..... 5 credits
Philosophy 2 ..... 5 credits
Physiology 7 or 50 ..... 5 credits

For a recommendation to teach speech, the student must have credit for Educ. 75X.

GEOGRAPHY

Major	*Credits*
1. Intro. Regional Geog. or 101. World Regional Geog. or 7. Economic Geog.	5
11. Weather and Climate, or 111. Climatology	5
102. North America	5
140. Geog. in the High School	3
155. Influ. Geog. Environment	5
170. Conservation	5
Approved electives	10
Minimum total	38

Minor	*Credits*
1. Intro. Regional Geog. or 101. World Regional Geog. or 7. Economic Geog.	5
11. Weather and Climate, or 111. Climatology, or 102. North America	5
170. Conservation	5
140. Geog. in the High School	3
Approved electives	5
Minimum total	23

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; 165. Schiller's Hist. Drama; 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 of all courses included; 118 to 120. German Prose Read.; 133 to 135. Modern Novels; 136 to 138. Modern Drama; 139 to 140. Studies in German Lit.; 141. Survey of German Lit.; 142. Lyrics and Ballads; 150 to 153. Lessing, Goethe; 165. Schiller's Hist. Drama; 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 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 acquaint-

ed 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 note 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 92.

(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	*Credits*
1-2. Medieval and Modern European History (or its equivalent), 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 find it necessary usually to take one or both of the last two mentioned courses for upper division credit.

MAJOR IN ALL FIELDS IN HOME ECONOMICS

Students in Home Economics may satisfy the requirements for both a major and a minor recommendation by work in Home Economics only.

	Credits		*Credits*
25. Textiles	5	144. Household Economics	3
47. Home Furnishing	5	145. Family Relationships	3
107,108. Nutrition	8	148. Home Management House	2
112,113,114. Cost. Des. & Construction	11	190. Child Nutrition and Care	5
115,116,117. Food Preparation	13		
141. Household Management	5	Minimum total	60

Prerequisites: Art 9, Chemistry 1 and 2; Chemistry 135-136; Physiology 7. Related courses that should be included: Physics 89-90-91; Architecture 1-2; Bacteriology 101; Nursing 5.

Major must include Education 75NA.

MAJOR AND MINOR IN TEXTILES AND CLOTHING

Major	*Credits*
25. Textiles	5
47. Home Furnishing	5
112,113,114. Cost. Des. & Construction	11
160,161. Adv. Costume Design	6
133. History of Costume	5
148. Home Management House	2
144. Household Economics	2
145 Household Economics	2
Minimum total	38

Minor	*Credits*
25. Textiles	5
112,113,114. Cost. Des. & Construction	11
47. Home Furnishing	5
Minimum total	21

Prerequisites for either major or minor:

Credits	*Credits*
Art. 9. Art Structure 3	Art. 9. Art Structure 3
Art. 169,170. Costume Design 4	

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

INDUSTRIAL ARTS

Students who wish to major or minor in industrial arts should 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 School 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.

LIBRARY SCHOOL

State standards for library work in accredited high schools divide the schools into five classes: Class 1 covering schools with enrollment of 100 or less; Class 2, 100 to 200; Class 3, 200 to 500; and Classes 4 and 5, over 500.

Applicants for the normal diploma desiring to qualify for library work in accredited high schools of the fourth and fifth classes may take the fifth year in the Library School. Consult with advisory officers of both departments.

Teacher-librarians in accredited high schools of 100 or less (Class 1) must have at least 7½ credits in librarianship.

Teacher-librarians in accredited high schools of 100 to 200 (Class 2), and of 200 to 500 (Class 3) must have at least 15 credits in librarianship.

Teacher-librarians in accredited high schools in Class 4 (500 to 1000) and Class 5 (over 1000) are recommended to have one year's preparation in an approved library school.

Courses open to teacher-librarians in autumn, winter, and spring.

		Credits
170.	Introduction to Children's Work.....autumn	3
175.	Cataloging, Classification, Subject Headings.....autumn, spring	4
177.	Bibliography and Reference.....autumn, winter	3
182.	School Library Administration.....autumn, spring	2
195.	Book Selection for High School Libraries.....winter, spring	3

A six weeks summer course covers qualifications for Class 1, twelve weeks for Classes 2 and 3.

MATHEMATICS

Major	*Credits*	*Minor*	*Credits*
4. Plane Trigonometry	5	4. Plane Trigonometry	5
5. College Algebra	5	5. College Algebra	5
6. Analytical Geometry	5	6. Analytical Geometry	5
107,108,109. Diff. and Integral Calculus	15	U.D. Electives in Math	10
U.D. Electives in Math	9		
Minimum total	39	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. 71-72, *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. 71-72, *Cadet Teaching in Music.*

Major	*Credits*
51,53. Elem. Harmony	9
40,41,42. Elem. Orch. Instruments	6
101. Advanced Harmony	5
113. Elem. School Music	5
116. Junior H.S. Music	3
127,128. Choral Literature	4
136. Tech. of Conducting	2
154. Senior H.S. Music	3
155. Music Supervision	3
180. Orch. Conducting	3
190,191. Advanced Music Lit.	8
Vocal and Instrumental Music	12
Minimum total	63

Minor	*Credits*
(For non-music majors)	
51,53. Harmony	9
40,41,42. Orch. Instruments	6
113. Elem. School Music	5
116. Junior H.S. Music	3
127. Choral Literature	2
136. Tech. of Conducting	2
180. Orch. Conducting	3
Minimum total	30
(For majors in Music)	
109. Counterpoint	5
112. Musical Forms	5
117. Composition	5
104,105,106, 151,152,153. Mod. Music	6
Minimum total	21

For majors and minors in Physical Education for men and women see page 98.

PHYSICS

Major	*Credits*
1-2,3, 101-102. General Physics or 4,5,6, 101-102. General Physics	20
105-106. Elec. and Magnetism	6
160. Optics	6
Physics Electives	10
Minimum total	42

Minor	*Credits*
1-2,3. General Physics or 4,5,6. General Physics	15
101-102. Introd. to Mod. Theories	5
105-106. Elec. and Magnetism	6
160. Optics	6
Minimum total	32

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 College of Education, using public school art as the major and minor.

For recommendations for a normal diploma the major and minor in public school art are required, and also an average grade of (B).

	Credits
53,54,55. Art Structure (Design)	9
56,57,58. Drawing and Painting	9
20. Sculpture Appreciation	2
100. Methods	2
101. Elementary Interior Design	2
102. Industrial Art	2
103,104. Pottery, or 157,158. Metal, Jewelry	6
105,106. Lettering and Posters	6
126. History of Painting	2
129. Design Appreciation	2
150,151. Illustration	6
Life	3
166. Stage Design	3
	54

Samples of art work must be presented to the director of the School of Art if advanced credit is desired.

ROMANIC LANGUAGES AND LITERATURE

The number of credits required for a major or a minor will depend on the high school preparation of the student. For this reason the requirements for a major, based upon the 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. Comp. and Conversation	9
158,159. Advanced Syntax	4
Educ. 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. The Novel	6
*124,125,126. The Short Story	6
*131,132,133. Lyric Poetry	9
*141,142,143. The French Drama	9
*151,152,153. 19th Century Lit.	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.

Minor	*Credits*
41. Phonetics	3
101,102,103. Comp. and Conversation	9
158,159. Advanced Syntax	4
Educ. 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. The Novel	6
*124,125,126. The Short Story	6
*131,132,133. Lyric Poetry	9
*141,142,143. The French Drama	9
*151,152,153. 19th Century Lit.	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

A total of not more than three credits of the nine credits in literature may be elected from courses which are conducted in English.

Spanish

Major	*Credits*
101,102,103. Adv. Composition	9
159. Advanced Syntax	3
Educ. 75Y. Teach. Course 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	6
131,132,133. Spanish Lyrics	9
141,142,143. Spanish Drama	6
151,152,153. 19th Century Lit.	6
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. Course 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	6
141,142,143. Spanish Drama	6
184,185,186. Spanish American Lit.	9
Minimum total	23

Not more than two credits of the nine credits in literature may be elected from the courses 118, 119, 120; not more than three from 34, 35, 36, or 134, 135, 136; but if two credits from 118, 119, 120 are offered for this requirement, none may be offered from 34, 35, 36, or 134, 135, 136; and if three credits are offered in 34, 35, 36, or 134, 135, 136, then no credits will be accepted for this requirement in literature from 118, 119, 120.

SOCIOLOGY

Major	*Credits*
1. Introductory Sociology or 150. General Sociology	5
55. Human Ecol. or approved equiv.	5
66. Group Behavior or approv'd 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
140. Population or approved equiv., or 190. Social Attitudes or app. equiv.	3
Electives from courses offered in the department after consultation regarding the special field of interest	17
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

DESCRIPTIONS OF COURSES

For descriptions of courses offered by the College of Education, see Departments of Instruction section, page 211.

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, civil, commercial, electrical and mechanical engineering. Four-year curricula 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 consists 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 cause and to permit the inclusion of a limited number of cultural courses in his schedule.

GENERAL ENGINEERING

The freshman work is identical for all 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 application 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 curriculum 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 seminars, 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 hydroelectric 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.

MILITARY AND NAVAL SCIENCE

These departments are described on pages 71, 72.

ENGINEERING LABORATORIES

Aeronautical Engineering. The new aeronautical laboratories are located in Guggenheim Hall, which is a gift from the Daniel Guggenheim Fund for the Promotion of Aeronautics. They include an aircraft room, containing a variety of engines, wing specimens, fusilage parts and miscellaneous models. Two small wind tunnels are available for student research in aerodynamics. The four-foot Boeing wind tunnel is housed in a separate building and is used both for experimental and commercial investigations. A display room houses three airplanes of different types, completely assembled, which have been assigned to the department of aeronautics by the United States navy.

Chemical Engineering. Fully equipped separate laboratories in Bagley Hall are devoted to general chemistry, analytical chemistry, food inspection and analysis, organic chemistry, physiological chemistry, industrial chemistry, and pharmaceutical chemistry. The chemical engineering laboratories are equipped with the types of apparatus used in manufacturing processes, such as filter press, hydraulic press, stills, grinding apparatus, heating furnaces and vacuo-drying oven. A separate building is used for research in chemical engineering.

Civil Engineering. The *Hydraulic Laboratory* is housed in a laboratory building adjacent to Lake Union, where facilities are available for both medium and high-head experiments. For a medium-head, a free water surface, one acre in extent, is provided 100 feet above the laboratory floor. The high-head supply is furnished by centrifugal pumps having a combined capacity of 2,500 gallons per minute under heads of 0 to 400 feet.

The *Materials Testing Laboratory* contains five universal testing machines with capacities from 30,000 to 300,000 pounds, one beam testing machine, and two impact machines with various hammers ranging in weight from 550 to 1,500 pounds, with the necessary auxiliary apparatus for general materials testing.

The *Cement Laboratory* is equipped for making all of the ordinary tests on Portland cement as specified by the American Society for Testing Materials.

The *Highway Laboratory* is equipped for making the standard tests on materials used in the construction of roads.

The *Soils and Foundations Laboratory* has facilities for testing soils in accordance with recently developed methods for studying foundation, subgrade, and earth work problems.

The *Sanitary Engineering Laboratory* is equipped with the apparatus needed for making the routine chemical, bacteriological and microscopic examinations of water and sewage.

Electrical Engineering. The dynamo laboratory contains twenty-seven alternating and forty-five direct current generators and motors. The 26 power transformers range in voltage from 110 to 55,000. Power from two storage batteries of 60 cells each is available at a separate switchboard in the dynamo laboratory. The University power house, containing three steam-driven units of 400, 200, and 100 kilowatts, serves also as a laboratory for testing purposes.

Ten smaller rooms are used for the following purposes: (a) instrument calibrating and repairing, (b) laboratory shop and repair room, (c) instrument

and stock room, (d) telephone laboratory, (e) electrolysis and special thesis problems, (f) storage battery rooms, (g) dark rooms for photometry work, (h) radio laboratory, (i) transmission line laboratory, (j) transients laboratory. There are also oscillographs, a Surge recorder, A.C. regulator, fluxometer, klydonograph, A.C. potentiometer, and other accessory apparatus.

A high-tension laboratory is being equipped for research and advanced instruction in high-tension phenomena.

Laboratory in Manufacturing Methods. This laboratory is organized into three major divisions, viz., foundry, forge and machine. The foundry division is equipped with cupola, electric arc and crucible melting furnaces, together with five types of molding machines and sand conditioning and casting cleaning equipment. Equipment is also available for pattern-making and flask repair. The forge division contains, in addition to the regular forging equipment, four heat treating furnaces, Brinell hardness testing machine, oxy-acetylene welding and cutting equipment and an electric arc welder. The machine division contains a complete range of basic machine tools in which engine lathes predominate.

Mechanical Engineering. The steam and experimental laboratory is fully equipped with steam apparatus including engines aggregating 1,000 H.P., simple and compound, high speed and Corliss types; steam turbines; jet and surface condensers; injector; centrifugal pumps; steam calorimeters; indicators; calibrating appliances; oil testing machine; gas engines of stationary and automobile types; a semi-Diesel 2-cylinder oil engine; a Diesel 3-cylinder oil engine; Sprague electric dynamometer; Webster radiator testing outfit for vacuum systems of heating; ventilation fan equipment for tests; Nash vacuum pump; equipment for automobile testing; belt and pulley testing machine; gas producer plant; refrigerating apparatus; compressed air machinery for two stage compression and Westinghouse full train equipment; fuel testing facilities, including Maher Bomb, Junkers and other calorimeters, with accessories for determining heating value and analysis of solid, liquid and gaseous fuels.

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 41, 49, and 50.

Entrance Requirements

The departments of engineering require 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.

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

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.

PREPARATION IN ALGEBRA

All students entering any department 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, University College) 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, chemical, civil, commercial, electrical and mechanical engineering, 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.

Normal Diploma. Any student graduating in engineering may, upon completing the requirements in education with some additional work in mathematics and physics, obtain his five-year teacher's certificate with a major in industrial arts and minors in mathematics and physics. Engineering students planning such a program should normally register for the science mathematics instead of the usual engineering mathematics.

Advanced Degrees. The degrees of master of science in aeronautical, chemical, civil, electrical, and mechanical 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.

A graduate of the College of Engineering of the University of Washington or of any other engineering college of equal standing will be permitted to enroll for the degree of master of science in the respective engineering departments provided his grade average for his last year of undergraduate work (not less than 45 quarter credits) be not less than B (3.0). Also at the discretion of an examining committee any candidate from another University may be required to take a preliminary qualifying examination.

The above rule is not intended to prevent a graduate student in engineering from taking any graduate or undergraduate courses for which he has the necessary prerequisite. Such courses may be applied toward a bachelor's degree in some department other than the one in which he previously majored.

The professional degrees, aeronautical engineer (A.E.), chemical engineer (Ch.E.), civil engineer (C.E.), electrical engineer (E.E.), and mechanical engineer (M.E.), 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 responsible engineering work for not less than four years and who present satisfactory theses.

In general acceptable engineering work shall be interpreted to mean that it is equivalent to that required for associate membership in the national founder engineering societies. In case the applicant has rendered special services to the profession by accomplishments of undisputed merit the thesis may be waived upon presentation of articles describing such work in publications of recognized standing. Teaching experience shall count in lieu of professional experience in the same ratio as now recognized by the engineering societies, provided that a minimum of two years of acceptable engineering work, other than teaching, be included.

*Arthur A. Denny Fellowship.** One fellowship of $500 is open to graduate students in the department of civil engineering awarded by the department 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 him, and must be in his hands on or before March 15 preceding the academic year for which the fellowship is to be granted.

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 *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 University College 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.

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*Not available in 1935-36.

CURRICULA OF THE DEPARTMENTS 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
Mil. Sci. and Phys. Edu. or Nav. Sci.	+	Mil. Sci. and Phys. Edu. or Nav. Sci.	+	Mil. Sci. and Phys. Edu. or Nav. Sci.	+

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. 41. Calc.	3	Math. 42. Calc.	3	A.E. 83. Gen. Aeron.	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
Mil. Sci. and Phys. Edu. or Nav. Sci.	+	Mil. Sci. and Phys. Edu. or Nav. Sci.	+	Mil. Sci. and Phys. Edu. or Nav. Sci.	+

JUNIOR

A.E. 101. Aerodynam.	3	A.E. 102. Adv. Aerodynamics	3	A.E. 103. Airplane Performance	3
A.E. 171. Aircraft Mech.	3	A.E. 172. Aircraft Mech.	3	A.E. 173. Adv. Aircraft Mech.	3
A.E. 100. Aircraft Power Plants	2	E.E. 101-2. Dir. Cur.	6	E.E. 121-2. Alt. Cur.	6
C.E. 141. Hydraulics	3	M.E. 112. Mach. Des.	3	M.E. 167. Engr. Matls.	3
M.E. 111. Mach. Des.	3	M.E. 104. Mfg. Methods	1		
Comp. 102. Engr.	3				

SENIOR

A.E. 111. Airpl. Des.	3	Instruments	3	M.E. 183. Thermo. and Ref.	5
A.E. 141. Aerial Propulsion	3	Des.	3	A.E. 121. Airships	3
A.E. 161. Aerial Tran.	3	A.E. 162. Aer. Transp.	3	A.E. 181. Adv. Airpl. Des.	3
Electives	7	A.E. 168. Aircraft		Electives	5
		A.E. 112. Adv. Airpl.			
		M.E. 198. Gas Engines.	3		
		B.A. 54. Bus. Law.	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. 41. 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
Mil. Sci. and Phys. Edu. or Nav. Sci.	+	Mil. Sci. and Phys. Edu. or Nav. Sci.	+	Mil. Sci. and Phys. Edu. or Nav. Sci.	+

JUNIOR

Chem. 121. Ind..... 5	Chem. 122. Ind..... 5	Chem. 123. Ind..... 5
Chem. 131. Org..... 5	Chem. 131. 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	Chem. 178. Chem. Engr. Thesis..... 1
Chem. 176. Chem. Engr. Thesis..... 2	Chem. 177. Chem. Engr. Thesis..... 2	Electives.....11
M.E. 111..... 3	Elective..... 4	

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. 41. 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
Mil. Sci. and Phys. Edu. or Nav. Sci..... +	Mil. Sci. and Phys. Edu. or Nav. Sci..... +	Mil. Sci. and Phys. Edu. or Nav. Sci..... +

JUNIOR

C.E. 142. Hydraulics.... 5	C.E. 143. Hyd. Engr.... 5	C.E. 121. Roads & Pav... 3
C.E. 171. Str. Anal..... 3	C.E. 172. Str. Anal..... 3	C.E. 150. Sanit. Engr... 3
E.E. 103. Dir. Cur..... 3	C.E. 162. Mtls. of Con.. 3	C.E. 173. Str. Anal..... 3
E.E. 104. Dir. Cur. Lab. 1	E.E. 123. Alt. Cur..... 3	C.E. 163. Matls.—Timber and Steel..... 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..... 4	C.E. 154. Sanit. Des.... 3
C.E. 158. Sewerage..... 3	Elective..... 9	C.E. 177. Str. Des..... 3
C.E. 175. Str. Des..... 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..... 3
C.E. 158. Sewerage..... 3	C.E. 176. Str. Des..... 4	C.E. 185. Adv. Str..... 4
C.E. 175. Str. Des..... 4	C.E. 182. Adv. Str..... 3	C.E. 199. Engr. Rel..... 3
C.E. 181. Adv. Str..... 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..... 3
C.E. 158. Sewerage..... 3	C.E. 176. Str. Des..... 4	C.E. 199. Engr. Rel..... 3
C.E. 175. Str. Des..... 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. 41. Calc.	3	Math. 42. 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
Mil. Sci. and Phys. Edu. or Nav. Sci.	+	Mil. Sci. and Phys. Edu. or Nav. Sci.	+	Mil. Sci. and Phys. Edu. or Nav. Sci.	+

Junior

B.A. 62. Accounting	5	B.A. 63. Accounting	5	B.A. 151. Accounting	5
B.A. 54. Bus. Law	3	B.A. 55. Bus. Law	3	B.A. 103. Mon. & Bank.	5
M.E. 111, Mach. Des.	3	M.E. 112. Mach. Des.	3	Electives	5
Electives	6	Comp. 102. Adv. Engr.	3		
		Electives	3		

Senior

B.A. 121. Corp. Fin.	5	B.A. 101. Mgmt.	5	E.E. 121. Alt. Cur.	4
E.E. 101. Dir. Cur.	4	B.A. 154. Cost Acctng.	5	E.E. 122. A.C. Lab.	2
E.E. 102. D.C. Lab.	2	C.E. 142. Hydraulics	5	M.E. 167. Engr. Matls.	3
Electives	5			Speech 103. Extemp.	3
				Electives	3

Not less than 17 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. 41. Calc.	3	Math. 42. Calc.	3	E.E. 109. Dir. Cur.	4
M.E. 81. Mechanism	3	M.E. 83. Steam Lab.	3	E.E. 110. Dir. Cur. Lab.	2
M.E. 82. Steam Engr.	3	C.E. 91. Mechanics	3	C.E. 92. Mechanics	3
M.E. 53. Mfg. Methods	1	M.E. 54. Mfg. Methods	1	M.E. 55. Mfg. Methods	1
Mil. Sci. and Phys. Edu. or Nav. Sci.	+	Mil. Sci. and Phys. Edu. or Nav. Sci.	+	Mil. Sci. and Phys. Edu. or Nav. Sci.	+

Junior

E.E. 111. Dir. Cur.	4	E.E. 161. Alt. Cur.	6	E.E. 163. Alt. Cur.	6
E.E. 112. Dir. Cur. Lab.	4	E.E. 162. Alt. Cur. Lab.	4	E.E. 164. Alt. Cur. Lab.	4
Comp. 100. Engr.	3	E.E. 152. Mach. Des.	3	C.E. 142. Hydraulics	5
M.E. 111. Mach. Des.	3	M.E. 112. Mach. Des.	3		
M.E. 167. Materials	3				

Senior

E.E. 195. El. Trans.	3	E.E. Group*	6	E.E. Group*	6
E.E. 196. El. Trans. Lab.	3	B.A. 3. Gen. Econ.	3	Electives	9
Comp. 102. Adv. Engr.	3	Electives	7		
E.E. Group*	7				

Electives must in all cases be approved in advance by the head of the department.

*E.E. Group requirements must be satisfied by elections from the following advanced courses offered in the Electrical Engineering Department:

		Credits
E.E. 141.	Illumination	3
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. 184, 186, 188.	Research (each)	2 to 5
E.E. 181, 182.	Vacuum Tubes	6
E.E. 183.	Radio	5
E.E. 185.	Telephone Transmission	4
E.E. 191, 193.	Advanced Circuit Theory (each)	3
E.E. 190.	Seminar	4
E.E. 194.	Seminar	5

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	Physics 98. Engr.	5	Physics 99. Engr.	5
Math. 41. Calc.	3	Math. 42. 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
Mil. Sci. and Phys. Edu. or Nav. Sci.	+	Mil. Sci. and Phys. Edu. or Nav. Sci.	+	Mil. Sci. and Phys. Edu. or Nav. Sci.	+

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
Electives	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. 184. Power Plants.	5
M.E. 183. Thermo. and Ref.	5	M.E. 182. Heat. & Vent.	3	M.E. 195. Thesis	3
Electives	5	M.E. 198. Gas. Eng.	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.

DESCRIPTIONS OF COURSES

For the descriptions of courses, offered by the College of Engineering, see Departments of Instruction section, pages 183, 194, 198, 215, 253.

SCHOOL OF FISHERIES

(See University College, page 160.)

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. 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.

The Lee Field Laboratory. This is a tract of 80 acres containing a second growth stand of approximately 40-year-old timber located at Maltby. The tract was donated to the College of Forestry by Ingie Marie Lee Hodgins, Edna Mae Lee Engle and George O. Lee, in memory of their parents, the late Mr. and Mrs. O. H. Lee. As the tract can be reached by auto in less than one-half hour from the University campus it will be especially valuable in connection with the regular laboratory instruction in the courses in silviculture and mensuration, and will also lend itself to some experimental work.

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 41, 49, and 50.

Entrance Requirements

1. Requires for entrance

Advanced algebra	½ unit
Plane geometry	1 unit
**Modern foreign language	second unit of one

2. Recommends that prospective students include in their preparatory courses a year of physics.

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.

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

**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.

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.

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. Three 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.

Graduate students will be received as candidates in the College of Forestry for the degree of doctor of philosophy. Subject to the requirements of the Graduate School, advanced courses will be provided and announced as the need arises.

For more detailed information on graduate work, see page 130.

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 59)

ORGANIZATION OF THE CURRICULUM

The curriculum of the department 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. 21. 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. Phys. Edu.....	+	Military or Naval Sci. Phys. Edu.....	+	Military or Naval Sci. 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. Phys. Edu.....	+	Military or Naval Sci. Phys. Edu.....	+	C.E. 56. For. Surv..... Military or Naval Sci. Phys. Edu.....	5 +

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	For. 153. Sr. Field Trip,
For. 151. For. Finance.. 4	For. 152. For. Organ.... 4	Management students.16
For. 185. For. Engr..... 5	For. 171. For. Geog..... 4	For. 187. Sr. Field Trip,
Elective..... 3-5	*For. 186. Log. Engr.... 5	Log. Engr. students..16

*Required of students specializing in Logging Engineering.

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. 62. Acct. Princ's... 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; 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, 57, 100.

DESCRIPTIONS OF COURSES

For descriptions of courses, offered by the College of Forestry, see Departments of Instruction section, page 227.

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 members 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 50.

LIBRARY FACILITIES

The University general library contains about 294,419 volumes, and receives virtually all of the publications of learned societies. The law library contains approximately 75,961 volumes. The Seattle Public Library, containing about 516,425 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 59.)

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 undivided academic 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, the substitution for 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 state-

ment 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. These examinations are given approximately three weeks before the end of the autumn, winter and spring quarters, and about two weeks before the end of each summer term. Students are responsible for acquainting themselves at the Graduate School office with the exact dates.

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 dean of the Graduate School.

GRADUATE COURSES

For description of courses, see Departments of Instruction section, page 182.

GRADUATE DIVISION OF SOCIAL WORK

The Graduate Division of Social Work was established at the University of Washington in the autumn of 1934 for the purpose of providing the Pacific Northwest with a center for the education of men and women desiring to enter social work as a profession. Although the University had maintained a curriculum in social work in the Department of Sociology since 1919, when it was chosen by the American Red Cross as one of a number of training demonstrations to which that organization gave financial assistance, the number of definitely professional courses was limited. The discontinuance in 1931 of the School of Applied Social Sciences of the University of Oregon left no school of social work in this region at a time when the demand for social workers with special preparation was rapidly growing. The University of Washington has, therefore, established a division of social work upon a graduate basis and in accordance with standards outlined by the American Association of Schools of Social Work, to which the Division has been admitted to membership.

The educational objectives of the Graduate Division of Social Work are those of a professional school; viz., to build, upon a broad educational background, specific knowledge and skills. For social work, this means completion of a college course with a major in the social or biological sciences; graduate study of fundamental principles and methods common to all forms of social

work and of different procedures developed in connection with special problems; and practice through actual work in the field, under competent supervision.

Personal qualities and attitudes, as well as academic training, are important in social work. High qualities of character, mental maturity, emotional poise, ability to accept responsibility, and a spirit of service are essential to those who would become social workers. Persons under 21 or over 35 are not encouraged to begin preparation for social work unless, in the case of those over 35, the person has been engaged in related kinds of work.

The Graduate Division of Social Work does not offer any "short courses" nor does it encourage too highly specialized interests. The need today, especially in the West, is for social workers with broad educational preparation and generalized professional training, who are competent to adapt their knowledge to changing social conditions and to assume leadership in directing the development of new methods of social treatment.

Social Work as a Profession

It is only within recent years that the apprenticeship method of entering social work has given way to the educational preparation in professional schools. With the growth of literature in the subject, with the substitution of full time faculty members for instructors recruited part-time from agencies, and with the organization of field work under careful, purposive supervision, has come an increased demand from social agencies for persons who have had well-rounded preparation in the professional schools.

One effect of the prolonged depression has been to hasten the expansion of the social service functions of local, state, and the federal governments. Private social agencies, with increased burdens and limited funds, are beginning to stress the quality of service they render, more than the quantity. Until a Utopian society is realized, both public and private agencies will be required to render skilled, constructive social services to individuals and communities. The demand for persons with leadership qualities and educational preparation in a professional school of social work is at present far greater than the supply.

Among the types of positions in the field of social work to which professional education may lead are: *family case work,* in family welfare societies, emergency relief organizations, county departments of public welfare, travelers' aid societies, or other positions where generalized knowledge of case work is necessary; *child welfare work,* in the probation and mothers' aid departments of juvenile courts, in child placing societies, in children's institutions, in state or county divisions of child welfare, or other organizations dealing with dependent, defective, or delinquent children; *social work in the schools,* such as attendance enforcement, visiting teaching, case work with child guidance clinics or child study laboratories; *medical social work* and *psychiatric social work,* in general hospitals and clinics, in mental hospitals, probation departments working with adult delinquents, and in state or county welfare departments; *group and neighborhood work,* in social settlements, Y.W.C.A.'s and Y.M.C.A's, scouting, etc.; *community organization,* in councils of social agencies, state welfare departments, health education agencies; *social research,* including statistical and survey work in private organizations or in state or federal departments, such as the United States Children's Bureau.

The Pacific Northwest offers challenging opportunities for service on every hand. A recently quickened interest in social problems and an awakened feeling of responsibility are leading states to look beyond their immediate problems and to plan long-time programs of public welfare services, in which, undoubtedly, the social worker with knowledge, vision and the spirit of the pioneer, will play an important part.

Admission

Professional Students. To enter the professional courses, a student must have received a baccalaureate degree from an accredited college. The applicant's undergraduate study should have included at least thirty-six hours in the social and biological sciences, twenty-five hours of which should be in a particular sequence. Those not having such basic foundation for professional study may be admitted with the understanding that he or she will make up the deficiency gradually during the period of study at the University, since the understanding and treatment of social problems and disadvantaged individuals rest upon a comprehension of their relationships to historic and contemporary problems in industry, politics, government, and human relations or society.

Part-time Students. Social workers of experience may be admitted to professional courses by special arrangement; except that no one may register for a case work course unless at the time the class work is taken, he or she can fulfill the requirements for sixteen hours of field work a week under the supervision of the University. The third quarter of case work is open only to students having twelve hours credit in professional courses other than case work.

Pre-Professional Students. A program of background courses has been arranged in the Sociology Department for those planning to enter the Graduate Division of Social Work in their fifth year. Courses numbered under 200 are open to undergraduate students. A leaflet advising a pre-professional sequence of courses in the social sciences and related fields may be had upon request to the Sociology Department.

Procedure for Admission. The school year is divided into four quarters. Students are admitted to beginning case work courses twice a year, at the opening of the autumn (October 1) and spring (April 1) quarters. A candidate must submit to the Graduate Division of Social Work, at least *one month before the quarter* in which he wishes to enter, the following:

(1) An application on the form issued by the Graduate Division of Social Work, together with a medical statement on a similar form.

(2) An official transcript of previous college work.

For more detailed information concerning admission, fees and expenses see General Information section pages 41, 49 and 50.

Curriculum

While a specified curriculum is required of all students, the requirements are sufficiently flexible to permit adaptation to the interests and previous experience of the individual student. In addition to courses under the direction of the faculty of the Graduate Division of Social Work, the faculties of other departments and schools of the University of Washington are called upon for courses in law, political science, home economics, labor problems, public health and psychology.

Required Curriculum

	Quarter Hours
Social Case Work I and II (including field work)	12
Medical Information for Social Workers I and II	4
Psychiatric Information for Social Workers I and II	4
The State and Social Welfare	5
Community Organization	5
Social Statistics *or* Methods of Social Investigation	5
Total	35

The curriculum consists of class and field work, and is intended to cover:

(1) Principles and methods of case work, generic and specific

(2) Public welfare administration
(3) Community organization and administration
(4) Selected economic problems and social relationships, and how to study them

The curriculum is planned to lead to the degree of master of arts, and no diploma or certificate is granted along the way. For the student who enters with a minimum of 36 hours in social and biological sciences, approximately 48 credit hours will need to be earned in professional and other courses. The average student program carries 15 credit hours each quarter.

Field Work

Practical experience in the field is planned to supplement the class work. As part of the case work courses the student does sixteen hours a week of supervised work in a selected social agency. In addition to three faculty members who give full time to field work supervision, the Graduate Division of Social Work is fortunate in having competent assistance from staff members of a number of the Seattle social agencies.

The Master of Arts Degree

Candidacy. A graduate student who has satisfactorily completed one quarter of professional work in residence may make application for candidacy for the degree of master of arts, and will, with the recommendation of the faculty of the Graduate Division of Social Work, be admitted upon submission of an acceptable subject and plan for a thesis.

Requirements. The work for this degree includes:

(1) Preparation for a comprehensive examination, oral or written. This will require completion of courses basic to all fields of social work, and specialized courses, elected by the student.
    Students who have not had adequate undergraduate work in the social and biological sciences will be required to complete a minimum of 36 course hours as a basic foundation for professional study, 25 hours of which shall be in a particular sequence.
(2) Field work including at least 480 clock hours, taken in conjunction with the appropriate class work. Two quarters of the required field and class work must be spent in generic case work.
(3) A satisfactory thesis approved by a committee of the department, and prepared under the direction of the instructor in whose field the subject falls.
(4) A minimum of three full quarters of work in residence. Unless, however, a person has had professional preparation elsewhere with experience in social work, completion of the requirements in three quarters will be possible only for the exceptional student.
(5) The master's degree is awarded not on the basis of credits for courses completed, but in recognition of the student's competency in both theory and practice in the field of social work. The comprehensive examination, therefore, is intended to test his understanding of:
    (a) Principles and methods of social case work as applied to different fields of social work
    (b) The problems and trends in social work under governmental auspices
    (c) Methods of community organization and administration
    (d) The significance of certain economic problems and social relationships.
(6) A reading knowledge of a foreign language.

DESCRIPTION OF COURSES

For description of courses in Graduate Division of Social Work see Departments of Instruction section page 300.

SCHOOLS OF HOME ECONOMICS AND JOURNALISM

(See University College, pages 164 and 166.)

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 74,203 (Jan., 1935) volumes, 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 value of courses prevailing in the schools of the Asso-

ciation of American Law Schools has 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.

Expenses

For information concerning University fees and expenses, see General Information section, page 50.

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 or science, and the bachelor of laws degree under the combined curricula must have completed three years of

college work, 139 quarter credits, 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 laws degree only must have a minimum of three years' college work (135 academic quarter credits), together with a scholarship average of 2.25 grade points. Of the three years of academic work required for admission, not more than one year may be done by extension.

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.

Attention is called to the fact that in order to be eligible to take the Washington State Bar examinations, the student must have completed two years of college work prior to beginning his professional law study. Students intending to qualify for the Washington State Bar examinations are, therefore, advised not to petition for admission as special students.

Degrees and Requirements for Graduation

Two degrees are given by this law school, J.D. (juris doctor), and LL.B. (bachelor of laws).

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 quarter 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 laws 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 2.00 grade points.

Combined Curricula in Arts, Sciences, and Law. It is possible for students to obtain the bachelor's degree in arts or science, and the bachelor's degree in laws 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 academic credits, including the group requirements of the college. (For details of these requirements, see the bulletin of the University College.) 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 laws 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 the 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. The Vivian M. Carkeek cash prize of $50 is awarded annually "for the best student contribution to *The Washington Law Review* on a point of Washington law, or any point of peculiar interest to Washington attorneys."

Manson F. Backus Law Scholarships. Two cash scholarships of $100 each are awarded annually to students of outstanding scholarship who assist the faculty with the Washington Annotations to the Restatements of the law. These scholarships are the gift of Mr. Manson F. Backus of Seattle.

The Shefelman Award. Mr. S. Harold Shefelman of the Seattle Bar offers annually a cash prize of $100 to a student of superior scholarship in the Law School.

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.

DESCRIPTIONS OF COURSES

For a description of courses offered by the Law School, see Departments of Instruction section, page 246.

LIBRARY SCHOOL

(See University College, page 180.)

COLLEGE OF MINES

SCOPE AND FACILITIES

Mining, Metallurgical, and Ceramic Industries Available for Study. Mining machinery of many kinds is in operation within easy reach of the University. It is also kept in stock at the Seattle branches of the eastern machinery firms, for distribution throughout the Pacific Northwest, British Columbia, and Alaska. Methods important to the mining engineer are illustrated in Seattle by the operations of steam shovels and hydraulic giants. Engineers in charge of mines and plants have given students every opportunity to become familiar with the methods of planning and carrying on work.

Available works of interest include coal mines, washeries, briquet plants, and coke ovens, with the largest production west of the Rocky Mountain region; gold, silver, copper, arsenic, manganese, and mercury mines, and treatment plants; cement plants, stone quarries, and dressing works; clay mines, and works producing brick, building and roof tile, terra cotta, sewer pipe and drain tile, fire brick, pottery, and decorated mantel tile; sand and gravel pits making large production by modern methods; the Tacoma smelter and refinery; the U. S. Assay Office; the Northwest Lead works; the Seattle steel plant of the Pacific Coast Steel Corporation, numerous foundries, and plants engaged in electro-metallurgy.

LABORATORIES

The headquarters of the College of Mines are in Mines Laboratory, a steel-frame building, which has an area of 57 by 162 feet and a height of 58 feet, with four full floors and mezzanine decks. The building, in addition to the laboratories, contains the offices, classrooms, and library of the departments of mining, metallurgical, and ceramic engineering, and the offices of the Northwest Experiment Station of the United States Bureau of Mines, which makes joint use of the College of Mines equipment.

Complete equipment is available for carrying on laboratory instruction, technical investigations and tests, and research studies. The cost of the building and equipment to date has exceeded one-third of a million dollars.

Mining. The mining equipment is divided into three groups, as follows: exhibits designed for purposes of study, laboratory apparatus for experiment and practice, and field equipment.

Ore Dressing. The laboratory was designed for testing not only ores but also non-metallic mineral substances, which are of great importance in Washington and the Northwest. The equipment is new and complete; much of it is of standard size.

Metallurgy. Separate laboratories are provided for general metallurgy, fire assaying, wet analysis, fuels, electrolytic work, research, and metallography, besides the balance rooms, dark room, and stock room.

Coal Washing. The coal section of Mines Laboratory occupies an area of 54 by 57 feet and a height of 70 feet, including four stories and a sub-basement, connected by electric elevator. Full-size equipment is provided for receiving and storing a carlot of coal, followed by picking, elevating, screening, jigging, classifying, tabling, and air-tabling. This portion of the building also contains fuel and analytical laboratories for the College of Mines and the U. S. Bureau

of Mines, a room for conducting float-and-sink tests, a sampling room, and a coal-crushing and grinding room for the preparation of samples.

Ceramics. The ceramics apparatus is used for washing, purifying, and preparing ceramic and non-metallic raw materials, and for the manufacture and testing of finished ceramic products.

Mining, Metallurgical, and Ceramic Research

The department aims to encourage development in the mining, metallurgical, and ceramic industries of Washington, the Pacific Northwest and Alaska by research in the special problems presented, and to solve the problems through the efforts of fellowship holders and others studying in the department.

Graduates from suitable technical courses at institutions of recognized standing, or men who present evidence of technical training that has fitted them to undertake investigations, are eligible to enroll in mining and metallurgical research. The degree of master of science may be granted students holding suitable bachelor of science degrees who complete investigative work in compliance with the University requirements for the master's degree. Although as much latitude as possible will be allowed in the choice of subjects for research, the general topics will be those of special importance to this region.

Investigations of Problems. Under certain conditions, the University will permit mining, metallurgical, and ceramic companies who have special problems for solution, to detail a representative to work on such problems, 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 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.

Fellowships and Scholarships. See page 59.

Mines Loan Fund

A loan fund, the nucleus of which was created by the North Pacific Section of the Woman's Auxiliary of the American Institute of Mining and Metallurgical Engineers, is available to assist upperclass students. Requests for financial assistance should be made to the dean of the college.

Mining Institute

Each winter, soon after the Christmas holidays, a Mining Institute is held for the benefit of prospectors, miners, metallurgists, mining investors, men engaged in the clay and cement industries, and all others interested. The instructors in the department of mining, metallurgy, and ceramic engineering demonstrate the extensive equipment in Mines Laboratory and perform tests of special interest to those enrolled in the Institute. Other members of the faculty of the College of Mines give lectures in their particular fields, and prominent mining engineers and operators give special talks on work in which they are engaged. In the evening lantern slides and moving pictures of the mining industry are shown. The course begins on a Monday morning and continues throughout the entire week. It is open to all persons and no fees are charged.

Announcement of the opening date is made in the local papers and in the technical press. It is not necessary to enroll in advance, but better preparation can be made if those who expect to attend will indicate their intention by phone or by letter to the College of Mines a few days before the date set for opening.

At the session held in January, 1935, the registered attendance numbered 280. The next session of the Institute will open at 9 a. m. on Monday morning, January 20, 1936.

Mines Society

The Mines Society, a student chapter of the American Institute of Mining and Metallurgical Engineers, has a membership composed of all students in the College. At the meetings of the society addresses are made by prominent mining engineers, and papers descriptive of their summer work are presented by the student members.

United States Bureau of Mines Northwest Experiment Station

The Department of the Interior maintains at the College of Mines its Northwest Experiment Station, which serves the Pacific Northwest and the coast regions of Alaska. The headquarters of the station, from which all operations in this territory are directed, are in Mines Laboratory. At present the principal investigations being conducted by the station are in the treatment and uses of coal and of other non-metallic substances. These investigations are conducted by the Station in cooperation with the College of Mines principally through the research fellowships provided by the College. The results of cooperative investigations are published by the Bureau or the University.

Mine Safety Station. The Mine Safety Station of the United States Bureau of Mines is located in the new Federal Office Building on First Avenue at Madison Street. Apparatus for rescue and resuscitation is kept on hand for practice as well as for instant service. The senior safety instructor in charge of the Station gives instruction at Mines Laboratory to students in the College of Mines during the winter quarter. The applicant is taught the construction of the apparatus and is given practice in its use. First-aid instruction is also given. Applicants who have completed the course of training receive a certificate from the United States Bureau of Mines. An automobile truck equipped with rescue apparatus ready for emergency calls, forms part of the equipment of the Station.

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 41, 49, and 50.

ENTRANCE REQUIREMENTS

Subject Requirements. For entrance to the College of Mines the student must present twelve units* of credit, belonging normally to the 10th, 11th and 12th years of the high school curriculum, which must include the following:

English	two units*
Advanced algebra	one-half unit
Plane geometry	one unit
Solid geometry	one-half unit
Physics	one unit
Academic elective	one unit

The additional six units may be chosen from either academic or non-academic subjects. A student who does 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, beginning in the autumn of 1936.

*A "unit" is applied to work taken in the high school. To count as a unit, a subject must be taught five times a week, in periods of not less than forty-five minutes, for a school year of thirty-six weeks.

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

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.

PREPARATION IN ALGEBRA

All students entering any department 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, University College) during the first quarter.

DEGREES

The College of Mines offers specialized courses in mining, metallurgical, and ceramic engineering. The four-year curricula lead to degrees as follows:

I. Bachelor of science in mining and metallurgy (B.S. in Min. and Met.)
II. Bachelor of science in mining and geology (B.S. in Min. and Geol.)
III. Bachelor of science in ceramic engineering (B.S. in Cer. E.)

Degree with Honors. A degree with honors in mines may be conferred upon any student of the College of Mines who, upon vote of the faculty and of the honors committee, may be declared worthy of unusual distinction.

Advanced Degrees. The degrees of master of science in mining, metallurgical, and ceramic 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 thesis, with grades 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 and by the Graduate Council.

The degree of engineer of mines (E.M.) may be granted to a graduate in mining engineering with a high scholarship record, who has practiced his profession for at least five years and who presents a satisfactory thesis prepared under the direction of the College of Mines. Similarly, graduates in metallurgy or in ceramics are eligible for the respective degrees of metallurgical engineer (Met.E.) or ceramic engineer (Cer.E.).

CURRICULA OF THE COLLEGE OF MINES

MINING, METALLURGICAL AND CERAMIC ENGINEERING

For the Freshman and Sophomore Years in All Options

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. and Phys. Edu.	+	Military or Naval Sci. and Phys. Edu.	+	Military or Naval Sci. and Phys. Edu.	+

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 41. 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. and Phys. Edu.	+	Military or Naval Sci. and Phys. Edu.	+	Military or Naval Sci. and Phys. Edu.	+

Practice in mining or geology or metallurgy or ceramics in summer vacation.

MINING AND METALLURGY

Leading to the Degree of Bachelor of Science in Mining and Metallurgy.

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 AND SOPHOMORE

(The same for all curricula. See above.)

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	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

Autumn Quarter	*Credits*	*Winter Quarter*	*Credits*	*Spring Quarter*	*Credits*
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. of Metals.....	5	Min. 193. Thesis.....	1
		Elective.....	3	Elective.....	4

Electives must in all cases be approved in advance by the head of the department.

CERAMIC ENGINEERING

Leading to the Degree of Bachelor of Science in Ceramic Engineering.

FRESHMAN AND SOPHOMORE

(The same for all curricula. See above.)

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. Decor....	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.
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.

DESCRIPTIONS OF COURSES

For a description of courses offered by the College of Mines, see Departments of Instruction section, page 257.

SCHOOLS OF MUSIC AND NURSING EDUCATION

(See University College, pages 168 and 170.)

OCEANOGRAPHIC LABORATORIES

(See page 173.)

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 practice 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 59.

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 41, 49, and 50.

The College of Pharmacy recommends that high school students preparing for pharmacy should include in their schedules one unit of plane geometry, one unit of laboratory science and two units of one foreign language, one of which may be taken in the ninth grade.

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.

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. Urinalysis	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	3
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 elective	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	
				Comp. 37. Arg.	5
				Approved elective	2

FOURTH YEAR

Physics 1 or 4. Mech.	5	Phys. 2 or 5. Sd. Ht. Lt.	5	Physics 3 or 6. Elec.	5
Bact. 101. General.	5	Approved elective	10	Approved elective	10
Approved elective	5				

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 department of pharmacy.

Not less than 20 credits shall be elected in the department 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 bulletin of the Graduate School should be consulted for information concerning graduate degrees.

DESCRIPTIONS OF COURSES

For a description of courses, offered by the College of Pharmacy, see Departments of Instruction, page 276.

UNIVERSITY COLLEGE CURRICULA

University College was formed by the union of the College of Liberal Arts with the College of Science. It is a four-year college and offers a wide range of courses leading generally to the degrees of bachelor of arts and bachelor of science.

UNIVERSITY COLLEGE ENTRANCE REQUIREMENTS

For entrance to University College, 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, or second year algebra
Social science, one unit
Foreign language, a second unit
Laboratory science, one unit (biology, botany, chemistry, physics, or zoology)

If a student enters with six or more academic units which include the above subjects he enters without a deficiency. The foreign language and laboratory science requirements *only* may be made up in the college with university credit.

CURRICULA

The departments and schools in University College shall be grouped as follows:

Group I	*Group II*	*Group III*
Architecture	Anthropology	Anatomy
Art	Economics	Astronomy
Classical Languages	Geography	Bacteriology
English	History	Botany
General Literature	Home Economics	Chemistry
Germanic Languages	Nursing Education	Fisheries
Journalism	Philosophy	Geology
Liberal Arts	Political Science	Mathematics
Librarianship	Psychology	Physics
Music	Sociology	Zoology & Physiology
Oriental Studies		
Romanic Languages		
Scandinavian Languages		

Courses from other colleges, schools, or departments in the University may be placed under these groups for the convenience of transfer students, and for the allocation of electives.

There are three types of curricula.

1. *Prescribed Departmental Curricula*

Students should elect prescribed departmental majors only after consultation with special departmental advisers. They should consider their aptitude for the particular branch of specialized knowledge and in some cases the outlook for future employment. Courses of study in those departments offering prescribed majors are listed in this bulletin and may be considered as requirements for the bachelor's degree. The degree given will be bachelor of arts or bachelor of science in the chosen department.

2. *Curricula Involving Majors*

Elective departmental majors are more flexible than prescribed majors and should be chosen by those students who have definite leanings toward a particular branch of knowledge, but who for good reasons may not want to follow the prescribed departmental curricula. Such students should have some acquaintance with the principal fields of knowledge and a thorough training in one or two fields.

The minimum requirements for the first two years shall be thirty credits in one group, twenty credits in a second group, and ten credits in the remaining group, the major department determining the choice of courses. The major department, if it so desires, may institute comprehensive examinations in the major subject at the end of the second year.

For the last two years of work the student should consult departmental advisers. At least sixty hours of the total one hundred and eighty shall be in the upper division courses. The degree will be bachelor of arts or bachelor of science depending on the major selected.

3. *General Studies* (Open only to freshmen entering autumn quarter, 1935).

While some departments of University College favor an early decision in the selection of a major, other departments strongly advise a student to postpone the selection of a major for one or even two years. Such a student may elect a program in general studies for which the minimum requirements for the first two years are fifteen hours in each group. The remaining credit hours are free electives to be chosen with the approval of the special adviser to which each general studies student is assigned. In most instances a general studies student will choose an elective departmental major for the last two years. At least sixty hours of the total one hundred and eighty shall be in the upper division courses. The degree will be bachelor or arts or bachelor of science depending on the major selected.

In addition to the three types of curricula, the following requirements in English composition, military or naval science, and physical and health education must be included.

Composition 1-2. Ten credits after passing Preliminary Freshman English Test unless exempted in whole or in part. For Composition 2, journalism students substitute Journalism 51.

The physical education requirement for women consists of the health education lecture course, Physical Education 10 or Physical Education 4, 6, 8, for which academic credit is allowed, and five quarters of activity courses to be taken during the first two years.

Two years of military or naval science are required of all male students during the first six quarters of residence in addition to five quarters of physical education and a two-credit academic course in hygiene, Physical Education 15.

MAJOR REQUIREMENTS AND SPECIAL CURRICULA IN THE VARIOUS DEPARTMENTS AND SCHOOLS

Below are gathered together the pre-major and major requirements and set curricula arranged by departments and schools.

ANATOMY

John L. Worcester, Executive Officer, Anatomy Building

(See Biological Sciences)

ANTHROPOLOGY

Erna Gunther, Executive Officer, 211 Museum

DEGREE: Bachelor of Arts

	Credits		Credits
51, 52.* Introduction to Anthropology	10	141. Primitive Literature	3
101. Basis to Civilization *or*		142. Primitive Religion	3 } 6
105. Culture Growth	3	143. Primitive Art	3
111. Indian Cultures of Pacific *or*		150. General Linguistics	3
112. Peoples of the Pacific	3	185. Primitive Social and Political Institutions	3
		193-195. Reading	12
			40

*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 School of Architecture bulletin for detailed information.)

Member of the Association of Collegiate Schools of Architecture

DEGREE: Bachelor of Architecture

All students contemplating the study of architecture should confer with the head of the school 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, fifteen credits of which are provided in the curriculum.

FIRST YEAR

Autumn Quarter	*Credits*	*Winter Quarter*	*Credits*	*Spring Quarter*	*Credits*
Arch. 1. Architecture Appreciation	2	Arch. 2. Architecture Appreciation	2	Arch. 3. Architecture Appreciation	2
Arch. 4. Elements of Design	4	Arch. 5. Elements of Design	4	Arch. 6. Elements of Design	4
Arch. 7. Graphics	1	Arch. 8. Graphics	1	Arch. 9. Graphics	1
Arch. 47. Elements of Building Construction	3	Arch. 48. Elements of Building Construction	3	Art 34. Drawing and Sculpture	3
Art. 32. Drawing and Sculpture	3	Art 33. Drawing and Sculpture	3	Comp. 6. Composition	3
Comp. 4. Composition	3	Comp. 5. Composition	3	Electives	2
Military or Naval Science and Physical Education	+	Military or Naval Science and Physical Education	+	Military or Naval Science and Physical Education	+

SECOND YEAR

Arch. 51. History of Architecture	2	Arch. 52. History of Architecture	2	Arch. 53. History of Architecture	2
Arch. 54. Design Grade I	5	Arch. 55. Design Grade I	5	Arch. 56. Design Grade I	5
Math. 54. Architecture Mathematics	3	Math. 55 Architecture Mathematics	3	Math. 56. Architecture Mathematics	3
French 1. Elementary	5	French 2. Elementary	5	French 3. Elementary	5
Military or Naval Science and Physical Education	+	Military or Naval Science and Physical Education	+	Military or Naval Science and Physical Education	+

THIRD YEAR

Arch. 40. Water Color	2	Arch. 41. Water Color	2	Arch. 42. Water Color	2
Arch. 101. History of Architecture	2	Arch. 101. History of Architecture	2	Arch. 101. History of Architecture	2
Arch. 104. Design Grade II	5	Arch. 105. Design Grade II	5	Arch. 106. Design Grade II	5
Arch. 120. Working Drawings	2	Arch. 121. Working Drawings	2	Arch. 122. Working Drawings	2
C.E. 130. Theory Construction	3	Arch. 117. Building Construction	3	Arch. 118. Building Construction	3
Electives	2	Arch. 125. Pencil Sketching	1	Arch. 126. Pencil Sketching	1

FOURTH YEAR

Autumn Quarter	*Credits*	*Winter Quarter*	*Credits*	*Spring Quarter*	*Credits*
Arch. 107. Design Grade II	5	Arch. 113. Freehand Drawing	3	Arch. 142.* History of Ornament	2
Arch. 112. Freehand Drawing	3	Arch. 141. History of Ornament	2	Arch. 151. History of Architecture	2
Arch. 140. History of Ornament	2	Arch. 154. Design Grade II	5	Arch. 155. Design Grade II	5
E.E. 105. Electric Wiring	2	C.E. 106. Plumbing and Sanitation	2	M.E. 110. Heating and Ventilation	2
Electives	3	Electives	2	Electives	3

FIFTH YEAR

Arch. 152. Theory of Architecture	2	Arch. 153. Theory of Architecture	2	Arch. 158. Design Grade III	5
Arch. 156. Design Grade III	5	Arch. 157. Design Grade III	5	Arch. 169. Specifications and Materials	2
Art 160. Life Drawing.	3	Arch. 168. Specifications and Materials	2	Art 162. Life Drawings.	3
B.A. 57. Survey of Business Law	3	Art 161. Life Drawings.	3	Electives	5
Electives	2	Electives	3		

*Suggested elective but not required.

ART

Walter F. Isaacs, Executive Officer, 401 Education Hall

(See School of Art bulletin for detailed information.)

DEGREE: Bachelor of Arts

The work in art is designed to offer the fundamentals for the benefit of the general student who wishes to gain some appreciation of the field, and for those who expect to pursue a more advanced course. About one year of broad fundamental training is prerequisite to highly specialized work. Courses of vocational nature are not featured in the beginning inasmuch as the student's progress is limited without the cultivated art sense that is achieved by sound fundamental training. Students who expect to enter one of the professional fields of art should consult their instructors concerning the available opportunities and probability of success.

Advanced standing is granted only on credentials from art schools or university art departments whose standards are recognized by this school. Ordinarily, the presentation of samples of work done will be required before advanced standing will be considered.

All students majoring in art will be required to complete the course as outlined for the first year, after which one of the major curricula may be selected.

REQUIREMENTS FOR THE FIRST YEAR

(The same for all Curricula.)

Art 5, 6, 7. Drawing and Painting	9 credits
Art 9, 10, 11. Design	9 credits
Comp. 4, 5, 6. English Composition	9 credits
Modern Foreign Language	15 credits
General Electives	3 credits
Military or Naval Science, and Physical Education	+ credits

MAJOR IN PAINTING AND DESIGN

Second Year	*Credits*
Art 20. Sculpture Appreciation	2
Art 53, 54, 55. Design	9
Art 56, 57, 58. Drawing and Painting	9
Electives	15
Electives (Not Art include L.A. 1 or 11)	10
Military or Naval Science and Physical Education	+

Fourth Year	*Credits*
Art 150, 151, 152. Illustration *or* Art 160, 161, 162. Life	9
Art Electives	15
Electives	21

Third Year	*Credits*
Arch. 3. Architecture Appreciation	2
Applied Art (Metal, Jewelry or Pottery)	6
Art 126. History of Painting	2
Political Science, or Sociology or Economics	5
Laboratory Science	10
Electives	20

Preferred electives for students interested in Costume Design, Art 169, 170, 171; 179, 180, 181; Home Economic Courses in clothing and textiles, 25, 47, 101, 102, 112, 113, 114; 160, 161 and 198.

For those interested in Commercial Art: Portrait, Lettering and Posters.

MAJOR IN PUBLIC SCHOOL ART

Students intending to teach are expected to take all the courses given in this curriculum.

Second Year	*Credits*
Art 53, 54, 55. Design	9
Art 56, 57, 58. Drawing and Painting	9
Laboratory Science	10
Economics, Political Science or Sociology	5
Education 60. Secondary Education	3
Electives	9
Military or Naval Science, and Physical Education	+

Education 60 taken spring quarter. It is necessary to have 20 or 25 hours of major course before taking Education subjects.

Third Year	*Credits*
Art 160, 161, 162. Life	3
Applied Art (Pottery, Metal or Jewelry)	6
Art 20. Sculpture Appreciation	2
Art 126. History of Painting	2
Art 129. Design Appreciation	2
Art 166. Stage Design	3
Arch. 3. Architecture Appreciation	2
Edu. 90. Measures in Secondary Education	2
Edu. 9. Psychology of Secondary Education	3
Edu. 70. Methods	5
Electives (Not Art include L.A. 1 or 11)	10
Electives	5

Fourth Year	*Credits*
Art 150, 151, 152. Illustration	9
Art 163, 164, 165. Composition	3
Art 100. Methods	2
Art 101. Elements of Interior Design	2
Art 102. Industrial Art	2
Art 105, 106. Lettering and Posters	6
Edu. 71-72. Cadet Teaching	8
Phil. 129. Esthetics	5
Electives	8

Recommended program for the fifth year in Public School Art; 15 credits in general 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 teacher's course, candidates should have a B standing or above, in Art subjects.

MAJOR IN INTERIOR DESIGN

Second Year	*Credits*
Arch. 1, 2, 3. Appreciation	6
Arch. 4, 5, 6. Elements of Design	12
Arch. 7, 8, 9. Graphics	3
Art 80, 81, 82. Furniture Design	9
Art 83. History of Furniture	2
General Electives	13
Military or Naval Science and Physical Education	+

Third Year	*Credits*
Art 110, 111, 112. Interior Design	15
Art 62. Essentials of Interior Design	2
Economics, Political Science or Sociology	5
Laboratory Science	10
General Electives	8
Electives (Not Art include L.A. 1 or 11)	10

Fourth Year	*Credits*
Art 20. Sculpture Appreciation	2
Art 126. History of Painting	2
Art 172, 173, 174. Interior Design	15
Arch. 101, 102, 103. History of Architecture	6

Fourth Year (Continued)	*Credits*
H.E. 25. Textiles	5
H.E. 47. Home Furnishings	3
Electives	12

MAJOR IN PAINTING OR SCULPTURE

Painting

Second Year	*Credits*
Art 56, 57, 58. Drawing and Painting	9
Art 65, 66, 67. Drawing and Painting	9
Electives (Not Art include L.A. 1 or 11)	10
Electives	17
Military or Naval Science and Physical Education	+

Third Year	*Credits*
Art 107, 108, 109. Portrait	9
Art 105, 106. Lettering and Posters	6
Art 126. History of Painting	2
Arch. 3. Appreciation	2
Laboratory Science	10
Economics, Political Science, or Sociology	5
Art 20. Sculpture Appreciation	2
Art Electives	9

Fourth Year	*Credits*
Art 160, 161, 162. Life	9
Art 163, 164, 165. Composition	9
Electives	27

Sculpture

Second Year	*Credits*
Art 56, 57, 58. Drawing and Painting	9
Art 72, 73, 74. Sculpture	9
Electives (Not Art include L.A. 1 or 11)	10
Electives	17
Military or Naval Science and Physical Education	+

Third Year	*Credits*
Art 20. Sculpture Appreciation	2
Art 103, 104. Pottery	6
Art 122, 123, 124. Sculpture	9
Art 126. History of Painting	2
Arch. 3. Appreciation	2
Laboratory Science	10
Economics, Political Science, or Sociology	5
Electives	9

Fourth Year	*Credits*
Art 132, 133, 134. Sculpture	9
Art 136, 137, 138. Sculpture Composition	9
Art 160, 161, 162. Life	9
Electives	18

Preferred electives—Architectural Design and History of Ornament.

BACTERIOLOGY

B. S. Henry, Acting Executive Officer, 420 Johnson Hall

DEGREE: Bachelor of Science in Bacteriology

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, industry; (c) physical education; (d) for the preparation of technicians and bacteriologists; (e) for advanced degrees.

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. Qualitative Analysis.....	5
Zool. 1 or 3. Introduction	5	Zool. 2 or 4. Introduction	5	Soc. 1. Introduction.....	5
Military or Naval Science and Physical Education +		Military or Naval Science and Physical Education +		Military or Naval Science and Physical Education +	

SECOND YEAR

Chem. 131. Organic.....	5	Chem. 132. Organic.....	5	Chem. 111. Quantitative Analysis.....	5
Physics 1 or 4. General.	5	Physics 2 or 5. General.	5	Physics 3 or 6. General.	5
Elective.....	5	Elective.....	5	Bact. 101. General.....	5
Military or Naval Science and Physical Education +		Military or Naval Science and Physical Education +		Military or Naval Science and Physical Education +	

THIRD YEAR

Bact. 105. Infectious Diseases.....	5	Bact. 106. Clinical Diagnosis.....	5	Bact. 104. Serology.....	5
Anat. 105. Histology....	6	Anat. 100 and 101. Lectures and General.....	6	Zool. 107. Parasitology..	5
Bact. 103. Public 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

BIOLOGICAL SCIENCES

Anatomy—John L. Worcester, Executive Officer, Anatomy Building
Botany—T. C. Frye, Executive Officer, 306 Johnson Hall
Zoology—Trevor Kincaid, Executive Officer, 202 Johnson Hall

DEGREE: Bachelor of Science in Anatomy, Botany or Zoology, depending upon which science is selected

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.

FIRST YEAR

Autumn Quarter	*Credits*	*Winter Quarter*	*Credits*	*Spring Quarter*	*Credits*
Comp. 1. Composition...	5	Comp. 2. Composition...	5		
Botany or Zoology.....	5	Botany or Zoology.....	5	Mathematics or Elective.	5
Electives.....	5	**Mathematics or Elective	5	Electives.....	10
Military or Naval Science and Physical Education +		Military or Naval Science and Physical Education +		Military or Naval Science and Physical Education +	

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 Science and Physical Education +	
Military or Naval Science and Physical Education +		Military or Naval Science and Physical Education +			

THIRD YEAR

Autumn Quarter	*Credits*	*Winter Quarter*	*Credits*	*Spring Quarter*	*Credits*
Major	5	Major	5	Major	5
Political Science, Sociology, or Economics	5	Political Science, Sociology, or Economics	5	Electives	10
Electives	5	Electives	5		

FOURTH YEAR

Major	5	Major	5	Electives	15
Electives	10	Electives	10		

**Two and one-half years of mathematics required, which may be taken in high school or University.

CHEMISTRY

H. K. Benson, Executive Officer, 201 Bagley Hall

Students wishing to specialize in chemistry may select one of three courses: (1) the elective curriculum for those who want a general course in chemistry, leading to the degree of bachelor of science with a major in chemistry; (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 (see College of Engineering Bulletin). Chemistry also is often offered as a major in teaching (see College of Education Bulletin); or as a major preliminary to entering medicine; or as a major in a broad general education. To serve these objectives the major should include the following courses: Chemistry 1 or 21, 2 or 22, 23, 111, 131, 132, 140, 141, together with 15 credits each in college mathematics and physics.

DEGREE: Bachelor of Science in 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. Qualitative Analysis	5
Math. 4. Plane Trigonometry	5	Math. 5. College Algebra	5	Math. 6. Analytical Geometry	5
Comp. 1. Composition	5	Comp. 2. Composition	5	[1]Electives	5
Military or Naval Science and Physical Education +		Military or Naval Science and Physical Education +		Military or Naval Science and Physical Education +	
[1]Options		(a) Geology or Mineralogy (b) Mechanical Drawing (c) Biological Science			

SECOND YEAR

Chem. 109. Quantitative Analysis	5	Chem. 110, Quantitative Analysis	5	Chem. 101. Advanced Qualitative Analysis	5
Physics 1 or 97. General	5	Physics 2 or 98. General	5	Physics 3 or 99. General	5
Math. 107. Calculus	5	Math. 108. Calculus	5	Math. 109. Calculus	5
Military or Naval Science and Physical Education +		Military or Naval Science and Physical Education +		Military or Naval Science and Physical Education +	

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: [5]Electives	5	(a) General: [5]Electives	5	(a) General: [5]Electives	5
(b) Industrial: Chem. 121. Industrial	5	(b) Industrial: Chem. 122. Industrial	5	(b) Industrial: Chem. 123. Industrial	5
(c) Biochemical: Physiol. 151. Advanced or Bact. 101. General	5	(c) Biochemical: Physiol. 152. Advanced or Bact. 102. Sanitation	5	(c) Biochemical: Physiol. 153. Advanced or Bact. 103. Public Hygiene	5
(d) [6]Oceanographical: Physics 101. Introduction Modern Theories	5	(d) [6]Oceanographical: Physics 105. Electricity	5	(d) [6]Oceanographical: Physics 160. Optics.	5

FOURTH YEAR

Autumn Quarter	*Credits*	*Winter Quarter*	*Credits*	*Spring Quarter*	*Credits*
Chem. 181. Physical and Theoretical	5	Chem. 182. Physical and Theoretical	5	Chem. 181. Physical and Theoretical	5
[5]Electives	2	[5]Electives	5		
Group Option		Group Option		Group Option	
(a) General: Electives	8	(a) General: Electives	8	(a) General: Electives	10
(b) Industrial: Chem. 171. Chemical Engineering	5	(b) Industrial: Chem. 172. Chemical Engineering	5	(b) Industrial: Electives	10
176. Chemical Engineering Thesis	3	177. Chemical Engineering Thesis	3	(c) Biochemical: Chem. 163. Physiological Chemistry	3
(c) Biochemical: Chem. 161. Physiological Chemistry	5	(c) Biochemical: Chem. 162. Physiological Chemistry	5	Electives	7
Electives	3	166. Biological Preparations	3	(d) [6]Oceanographical: Electives	8
(d) [6]Oceanographical: Electives	8	(d) [6]Oceanographical: Electives	8		

[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.

CLASSICAL LANGUAGES AND LITERATURE
(Latin and Greek)

Thomas K. Sidey, Executive Officer, 201 Denny Hall

DEGREE: Bachelor of Arts

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, 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

S. J. Coon, Executive Officer, 204 Commerce Hall

DEGREE: Bachelor of Arts

Majors in economics in University College must meet the general requirements of that college. They must take Economics and Business 1, 2, 100, 105, 185, 187, and four additional courses selected from the list below.

*102. Business Organization & Combination
*103. Money and Banking
*104. Public Service Industries
*105. Economics of Labor
*106. Economics of Marketing & Advertis.
*107. World Economic Policies
*108. Risk and Risk Bearing
121. Corporation Finance
131. Principles of Foreign Trade
141. Regulation of Public Utilities
142. Advanced Economics of Pub. Utilities
161. Labor Legislation
162. European Labor Problems
163. Economics of Consumption
171. Public Finance and Taxation I.
172. Public Finance and Taxation II.
175. Business Fluctuations
181. Economic Development of the U. S.
185. Advanced Economic Theory
187. Development of Economic Thought
188. Institutional Economics

*Courses starred are intermediate courses introductory to special fields and may be taken in the third quarter of the sophomore year.

ENGLISH

(Literature, Drama, Public Speaking and Composition)

D. D. Griffith, Executive Officer, 107 Parrington Hall

DEGREE: Bachelor of Arts

The schedules given below present the courses required in addition to Composition 1 and 2, which are general courses and may not be counted toward a major or minor in English.

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

LITERATURE

The upper division majors courses in Literature are divided into the following groups:

Group I

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

Group II

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

Group III

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

MAJOR REQUIREMENTS

	Credits
66. Literary Backgrounds: Introduction to Poetry	3
75. Technique of Fiction	3
64, 65. Literary Backgrounds	10
One major course from each major group	15
A continuation of one of the above major courses	5
Electives	9
Senior Major Examination	0
	45

DRAMA

The Division of Drama, in addition to the required courses listed below, offers advanced courses in Workshop and Acting and a course in Puppetry.

MAJOR REQUIREMENTS

	Credits
Speech 43. The Speaking Voice	3
Drama 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. History of the Theatre	6
Drama 151, 152, 153. Representative Plays	9
Drama 191, 192, 193. Major Conference	3
Senior Major Examination	0
	49

Normally supplementary studies in literature are required which should include Literature 64, 65, 66, 75, and two courses from 161, 162, 170, 171, 174, 175, 177, 178.

SPEECH

Work in the Division of Speech is designed to be both cultural and practical. An understanding and mastery of speech as a fundamental activity of civilized life is an essential part of a liberal education. From the point of view of the practical, every individual's need for effectiveness in his own speaking is self-evident.

Courses in speech fall into five main groups:

Group I
Public Address and Argumentation
Courses 38, 39, 40, 41, 101, 103, 139, 188, 218

Group II
Voice Science and Voice Training
Courses 43, 44, 187, 214

Group III
Oral Interpretation of Literature
Courses 79, 179, 215

Group IV
Speech Pathology
Courses 191, 192, 193, 218

Group V
General and Special Courses
Courses 161, 186, Education 75X

Majors in speech are offered two schedules: one for those who desire the training for its cultural values or for some definite speech activity and the other for those who wish to prepare for teaching. For specific information regarding the requirements of a teaching major or minor in speech, see the bulletin of the College of Education and consult the Division of Speech. The following schedule offers an academic major in speech with emphasis on public address, interpretation, or speech correction, and is designed for those not selecting the teaching major.

MAJOR REQUIREMENTS

	Credits
40. Essentials of Speaking	5
43. The Speaking Voice	3
191. Speech Correction	3
186. Backgrounds of Speech	3
Approved Speech electives (18 credits upper division)	26
Comprehensive Senior Examination	0
	40

Speech majors should elect the following courses as a part of the University College requirements:

Literature 64, 65. Literary Backgrounds	10
Literature 117. History of the English Language	5
Psychology 1. General Psychology	5
Philosophy 2. Introduction to Social Ethics	5
Approved studies in a subject other than speech (10 credits Upper Division)	25

Students whose major work may lie in other fields but who are interested in the cultural and professional values to be gained through the study of speech may complete a minor which includes twenty-five credits of approved courses, at least ten of which should be upper division.

COMPOSITION

As the individual student objectives are so varied, no formal major in composition is outlined. In general the requirements include Literature 64, 65, 66, 75, and one course from each of the major groups. The remainder of forty-five credits is selected from the following courses.

Composition 51, 52, 53. Advanced Composition
Composition 54, 55, 56. Advanced Composition: Criticism and Narration
Composition 61, 62, 63. Verse Writing
Composition 67, 68, 69. English Prose Style
Composition 110, 111, 112. Advanced Verse Writing
Composition 156, 157, 158. Advanced Composition: Narration
Drama 111, 112, 113. Playwriting
Journalism 173, 174, 175. Short Story Writing.

FISHERIES

W. F. Thompson, Acting Executive Officer, 1 Fisheries Building

DEGREE: Bachelor of Science in Fisheries

FIRST YEAR

Autumn Quarter	*Credits*	*Winter Quarter*	*Credits*	*Spring Quarter*	*Credits*
Comp. 1. Composition...	5	Comp. 2. Composition...	5	Elective.....	5
Zool. 1. Animal Biology.	5	Zool. 2. Animal Biology.	5	Zool. 5. Embryology.....	5
Chem. 1 or 21. General..	5	Chem. 2 or 22. General..	5	Chem. 23. Qualitative Analysis.....	5
Military or Naval Science and Physical Education	+	Military or Naval Science and Physical Education	+	Military or Naval Science and Physical Education	+

SECOND YEAR

*German or French.....	5	*German or French.....	5	Elective.....	5
Zoology or Fisheries (see options A, B, or C)...	5	Zoology or Fisheries (see options A, B, or C)...	5	Zoology or Fisheries (see options A, B, or C)...	5
Math. 4 or 31.....	5	Math. 5 or 32.....	5	Math. 6 or 33.....	5
Military or Naval Science and Physical Education	+	Military or Naval Science and Physical Education	+	Military or Naval Science and Physical Education	+

*German is recommended. Any language substitution must be approved by the School of Fisheries.

NOTE: These requirements are listed in the order in which it is recommended that they be taken. They may be postponed and subjects required or permitted in the third and fourth years may be substituted, on approval by the School of Fisheries.

THIRD AND FOURTH YEARS

One of the following optional courses should be chosen: A, General Fisheries Biology; B, Life History and Conservation, Vertebrates or Invertebrates; C, Hatchery Biology, the Propagation and Rearing of Fish. Under each option five hours of fisheries are required each quarter and in addition Fisheries 195, 196, 197, Seminar, are required in the fourth year. The remaining elective credit hours under option B and C must be chosen from subjects recommended by the School of Fisheries.

OPTION A. *General Fisheries Biology.* Fish. 101, Comparative Anatomy of Fishes, 102, 103, Classification and Identification; 105, 106, 107, Commercial Aquatic Invertebrates; are required under this option. A student must earn not less than 36 hours nor more than 60 in fisheries and not over 96 credits in any two departments. The remaining elective credits must be approved by the School of Fisheries.

OPTION B. *Life History and Conservation.* Fish. 101, Comparative Anatomy of Fishes; 102, 103, Classification and Identification; 105, 106, 107, Commercial Aquatic Invertebrates; and 157, 158, Age, Growth, Migrations, and Races are required. 125, Spawning Habits; 126, Early Life History of Fishes;

127, Marine Pelagic Eggs and Larvae of Fish, may be substituted for 157 and 158. In addition 15 credits of mathematics besides that specified in the second year are required.

OPTION C. *Hatchery Biology. Propagation and Rearing of Fish.* Fish. 101, Comparative Anatomy of Fishes; 102, 103, Classification and Identification; 105, 106, 107, Commercial Aquatic Invertebrates; 151, Natural Fish Foods, Water Supplies; 152, Propagation of Fresh Water Fishes; 153, Hatchery Biology; 154, Fish Diseases; are required. Fish. 125 or 157, may be substituted for 103. Chem. 144, Physiological; Bacteriology 101, General; are required.

Recommended Electives. In options B, and C, any fisheries, zoological or oceanographical course may count as an elective. The following additional subjects are recommended as electives: *Chemistry:* 109, 110, or 111, Quantitative Analysis; 131, 132, 133, Organic; 144, Physiological. *Mathematics:* 13, Statistics; 41, 42, or 107, 108, 109, Calculus. *Bacteriology:* 101, General; 102, Sanitary. *Physics:* 1, 2, 3, or 4, 5, 6, General. *Physiology:* 53, 54, General. *Geology:* 1, Earth Science, or 6, Physiography, or 7, History of Geology. *Botany:* 3, Classification.

GENERAL LITERATURE

Louis P. deVries, Adviser, 209 Denny Hall

DEGREE: Bachelor of Arts

A major in general literature requires a reading knowledge of two foreign languages, General Literature 101, 191, 192, 193, and sufficient other courses to make a total of from 36-60 credits.

In preparation for this major and for General Literature 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, 113.
II. Oriental Studies 50, 51, 52, 70, 71, 90, 91.
III. Literature 64, 65, 66, 97, 98, 99.
IV. German 55, 70, 106, 107, 108; Scandinavian Languages 109, 110, 111, 180, 181, 182.
V. French 118, 119, 120, 34, 35, 36; 134, 135, 136, 154, 155, 156; Spanish 118, 119, 120; Italian 121, 122, 123, 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.

GEOGRAPHY

Howard H. Martin, Executive Officer, 29 Johnson Hall

DEGREE: Bachelor of Arts in Geography

FIRST YEAR

Autumn Quarter	*Credits*	*Winter Quarter*	*Credits*	*Spring Quarter*	*Credits*
Geog. 1. Introductory	5	Geog. 2. Physical	5	Geog. 11. Weather and Climate	5
Econ. 1. General Economics	5	Econ. 2. General Economics	5	Soc. 1. Introduction	5
Comp. 1. Composition	5	Comp. 2. Composition	5	Pol. Sci. 1. Comparative Government	5
Military or Naval Science and Physical Education	+	Military or Naval Science and Physical Education	+	Military or Naval Science and Physical Education	+

SECOND YEAR

Geog. 102. North America	5	Geog. 115. Caribbean America	3	Geog. 105. South America	5
French 1 or Ger. 1. Elementary	5	Geol. 6. Physiography	5	Psych. 1. General	5
Soc. 55. Human Ecology	5	Soc. 141. Migration	3	French 3 or Ger. 3. Elementary	5
Military or Naval Science and Physical Education	+	French 2 or Ger. 2. Elementary	5	Military or Naval Science and Physical Education	+
		Military or Naval Science and Physical Education	+		

THIRD YEAR

Geog. 103. Asia	5	Geog. 170. Conservation	5	Geog. 104. Europe	5
Anthrop. 51. General Introduction	5	Econ. 107. World Economic Policies	5	O.S. 120. Problems of Pacific	5
Elective	5	Elective	5	Elective	5

FOURTH YEAR

Geog. 175. Political	5	Geog. 106. Africa-Australasia	5	Geog. 155. Environment	5
Social Science Elective	5	Econ. 131. Foreign Trade	5	Geog. 199. Pro-Seminar	5
Elective	5	Elective	5	Elective	5

GEOLOGY

Henry Landes, Executive Officer, 201 Johnson Hall

DEGREE: Bachelor of Science in 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. Qualitative Analysis	5
Math. 4. Trigonometry	5	Math. 5. College Algebra	5	Comp. 1. Composition	5
G.E. 1. Engineering Drawing	3	G.E. 2. Engineering Drawing	3	G.E. 21. Plane Surveying	3
Elective	2	Elective	2	G.E. 3. Drafting Problems	3
Military or Naval Science and Physical Education	+	Military or Naval Science and Physical Education	+	Military or Naval Science and Physical Education	+

SECOND YEAR

Geol. 5. Rocks and Minerals	5	Geol. 6. Elementary Physiography	5	Geol. 7. Historical Geology	5
Physics 1. General	5	Physics 2. General	5	Geol. 121. Mineralogy	5
Bot. or Zool. 1. Elementary	5	Bot. or Zool. 2. Elementary	5	Comp. 2. Composition	5
Military or Naval Science and Physical Education	+	Military or Naval Science and Physical Education	+	Military or Naval Science and Physical Education	+

THIRD YEAR

Geol. 123. Optical Mineralogy	5	Geol. 124. Petrography and Petrology	5	Geol. 125. Petrography and Petrology	5
Chem. 111. Quantitative Analysis	5	Geol. 130. Paleontology	5	Geol. 132. Invertebrate Paleontology	5
French or German 1	5	French or German 2	5	French or German 3	5

FOURTH YEAR

Autumn Quarter	*Credits*	*Winter Quarter*	*Credits*	*Spring Quarter*	*Credits*
Geol. 129. Mineral Resources—Metals....	3	Geol. 126. Sedimentary Petrography.....	5	Geol. 128. Mineral Resources—Non-metals..	3
Geol. 122. Field Methods or *Professional electives..	12	Geol. 127. Ore Deposits. *Professional electives...	5 5	Geol. 190. Thesis..... *Professional electives..	5 7

*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. For physiographic geology, courses in map interpretation, geomorphology and glacial geology are necessary.

GERMANIC LANGUAGES

E. O. Eckelman, Executive Officer, 112A Denny Hall

DEGREE: Bachelor of Arts

Prerequisite to the major are courses Ger. 1, 2, 3, 5. These may be taken at the University, or their equivalent in the high school. For the departmental major at least 36 credits in the department are required beyond Ger. 1, 2, 3, 5.

Students are advised to distribute their major over their entire four-year college course; again, to avoid periods of disuse, and to give ample time to their supporting subjects.

In the humanities, for purposes of orientation, the department offers courses in English translation. Here, four or five aspects of Germany's intellectual and literary history have been singled out for study with the hope that they may prove particularly fruitful when understood.

Majors preparing for library work may substitute literary courses in German (not courses offered in translation, however) for the departmental major requirements, Ger. 109, 110, 111, 121. These latter are demanded of prospective teachers (see College of Education bulletin, major and minor requirements).

	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 Readings 133 to 135. Modern Novels 136 to 138. Modern Drama 139, 140. Studies in German Literature 141. Survey of German Literature 142. Lyrics and Ballads 150 to 153. Lessing, Goethe 165. Schiller's Historical Dramas 180 to 185. Nineteenth Century Literature	about 21
109, 110, 111. Advanced Composition	6
121. Phonetics	2
Minimum total	36

HISTORY

Edward McMahon, Executive Officer, 202 Denny Hall

DEGREE: Bachelor of Arts

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
(Euthenics)

Effie I. Raitt, Executive Officer, 201 Home Economics Hall

(See School of Home Economics bulletin for detailed information.)

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.

CURRICULUM FOR FRESHMAN YEAR FOR STUDENTS PLANNING TO ENTER THE SCHOOL OF HOME ECONOMICS

Autumn Quarter	*Credits*	*Winter Quarter*	*Credits*	*Spring Quarter*	*Credits*
Comp. 1. Composition...	5	Comp. 2. Composition...	5	P.E. 10. Health Education *or* Physiol 7. Elementary	5
Physiol. 7. Elementary, or P.E. 10. Health Education	5	Chem. 1 or 21. General.	5	Chem. 2 or 22. General.	5
*Elective in language, literature or history..	5	*Elective in language, literature or history..	5	*Elective in language, literature or history..	5
P.E. activity.....+1		P.E. activity.....+1		P.E. activity.....+1	
	16		16		16

*In the Teacher Training Curriculum, freshman registration may include the following courses: Architecture 1 and 2, Zoology 17, Nursing 5, Art 9.

NOTE: The Institution Administration Curriculum may include Art 9 during the freshman year.

NOTE: In the Textiles, Clothing and Fine Arts Curriculum, freshman registration may include the following courses: Art 5, 6, 7, Architecture 1 and 2.

SECOND YEAR

TEACHER TRAINING AND INSTITUTION ADMINISTRATION CURRICULA

Chemistry 1 or 21, and 2 or 22, and Physiology 7, should be completed in the freshman year.

Autumn Quarter	*Credits*	*Winter Quarter*	*Credits*	*Spring Quarter*	*Credits*
Physics 89. Physics of the Home	4	Physics 90. Physics of the home	3	Physics 91. Physics of the home	3
Chem. 135. Organic	5	Chem. 136. Organic	5	H.E. 115. Food Preparation	5
Art 9. Design	3	H.E. 47. Home Furnishing	5	H.E. 25. Textiles	5
Electives	3	Electives	2	Electives	3
P.E. activity.....+1		P.E. activity.....+1			

TEACHER TRAINING CURRICULUM

This curriculum satisfies the requirements for a Vocational Educational Certificate.

THIRD YEAR

Autumn Quarter	*Credits*	*Winter Quarter*	*Credits*	*Spring Quarter*	*Credits*
Educ. 60. Principles of Secondary Education.	3	H.E. 117. Food Preparation	3	Econ. 1. General	5
H.E. 116. Food Preparation	5	Psych. 1. General	5	Bact. 101. General	5
H.E. 112. Costume Design and Construction.	5	H.E. 113. Costume Design and Preparation..	3	H.E. 114. Costume Design and Construction.	3
Arch. 1. Architecture Appreciation	2	Arch. 2. Architecture Appreciation	2	Nurs. 5. Home Nursing.	3
		Zool. 17. Eugenics	2		

FOURTH YEAR

Autumn Quarter	*Credits*	*Winter Quarter*	*Credits*	*Spring Quarter*	*Credits*
Educ. 90. Measures in Secondary Education	2	Educ. 9. Psychology of Secondary Education	3	H.E. 190. Child Nutrition and Care	5
H.E. 107. Nutrition	5	Educ. 70. Introduction to High School Procedure	5	H.E. 145. Family Relationships	3
H.E. 141. Household Management	5	H.E. 108. Nutrition	3	Educ. 75NA. Home Economics	3
H.E. 148. Home Management House	2	H.E. 144. Household Economics	3	Soc. 1 or 150. General	5

Fifteen hours of language, literature or history are required for graduation in this curriculum.

INSTITUTION ADMINISTRATION

THIRD YEAR

Autumn Quarter	*Credits*	*Winter Quarter*	*Credits*	*Spring Quarter*	*Credits*
Econ. 1. General	5	H.E. 120. Advanced Food Preparation	3	Chem. 144. Physiological	5
H.E. 116. Food Preparation	5	H.E. 122. Institution Purchasing	3	Bact. 101. General	5
H.E. 107. Nutrition	5	H.E. 108. Nutrition	3	H.E. 191. Diet Therapy	3
		Psych. 1. General	5	Electives	2
		Elective	2 or 3		

FOURTH YEAR

H.E. 121. Institution Food Preparation	5	H.E. 124. Institution Management	3	H.E. 123. Institution Management	3
H.E. 141. Household Management	5	H.E. 144. Household Economics	3	H.E. 145. Family Relationships	3
Educ. 75NB. Home Economics	3	H.E. 190. Child Nutrition and Care	5	Soc. 1 or 150. General	5
Electives	2	Econ. 62. Principles of Accounting	5	Electives	2

Twenty hours of language, literature or history are required for graduation in this curriculum.

TEXTILES, CLOTHING AND FINE ARTS

Chemistry 1 or 21, and 2 or 22, and Physiology 7 should be completed during the freshman year.

SECOND YEAR

Autumn Quarter	*Credits*	*Winter Quarter*	*Credits*	*Spring Quarter*	*Credits*
Art 5. Drawing	3	Art 6. Drawing	3	Art 7. Drawing	3
Art 9. Design	3	Art 10. Design	3	Art 11. Design	3
H.E. 25. Textiles	5	H.E. 47. Home Furnishing	5	Psych. 1. General	5
Arch. 1. Architecture Appreciation	2	Arch. 2. Architecture Appreciation	2	Economics 1. General	5
Electives	2	Electives	2		
P.E. activity	+1	P.E. activity	+1		

THIRD YEAR

H.E. 112. Costume Design and Construction	5	H.E. 113. Costume Design and Construction	3	H.E. 114. Costume Design and Construction	3
Art 169. Costume Design	2	Art 170. Costume Design	2	Art 171. Costume Design	2
H.E. 188. Advanced Textiles	3	Soc. 1 or 150. General	5	H.E. 198. Historic Textiles	3
Phil. 1, 2, or 129	5	Art 129. Design Appreciation	2	Electives	7
		Electives	3		

FOURTH YEAR

Art 53. Advanced Design	3	Art 54. Advanced Design	3	Art 55. Advanced Design	3
Art 126. History of Painting	2	H.E. 160. Advanced Costume Design and Construction	3	H.E. 161. Advanced Costume Design and Construction	3
Electives	10	H.E. 144. Household Economics	3	H.E. 145. Family Relationships	3
		Electives	5	H.E. 133. History of Costume	5

A minimum of 20 hours of language, literature or history is required for graduation from this curriculum.

TEXTILES AND CLOTHING

A major in Textiles and Clothing, leading to the degree of bachelor of arts, is also offered. For this curriculum, the following courses in addition to general University College requirements must be completed:

	Credits
H.E. 25. Textiles	5
H.E. 47. Home Furnishing	5
H.E. 112, 113, 114. Costume Design and Construction	11
H.E. 133. History of Costume	5
H.E. 144. Household Economics	3
H.E. 160, 161. Advanced Costume Design and Construction	6
H.E. 188. Advanced Textiles *or* H.E. 189. Hand Weaving	3
	38

	Credits
Art 5, 6. Drawing	6
Art 9, 10, 11. Art Structure	9
Art 169, 170. Costume Design	2

JOURNALISM

Vernon McKenzie, Executive Officer, 109 Commerce Hall

(See School of Journalism bulletin for detailed information.)

The curriculum of the School of Journalism leads to the degree of bachelor of arts, major in journalism, for which 180 credits must be obtained, plus the University requirements in military or naval science and physical education. A student seeking a degree of bachelor of arts, major in journalism, is required to take the regular University College requirements; ten credits of specified pre-journalism; 32 credits of upper division journalism (given in the non-elective third year); 30 credits of English; 13 credits of specified political science (8 credits of which are included in the non-elective third year); 5 credits of specified geography (included in the non-elective third year); and 20 credits in one of the fields of sociology, political science, psychology, history, geography or economics, or in some other field only by special permission of the heads of the departments concerned. Of the 30 credits required in English, 23 are specified as follows: Composition 1, 5 credits; Speech 38 or 40, 5 credits; Literature 64, 65 and 66, 13 credits. Political Science 1, 5 credits, is required before taking the journalism third year. An average class grade of B or better must be earned in all journalism subjects.

REQUIRED JOURNALISM COURSES

		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	12
149.	Fundamentals of Journalism	10
		42

MATHEMATICS

Robert E. Morits, Executive Officer, 149 Philosophy Hall

DEGREE: Bachelor of Arts or Science

For a major in mathematics the following courses in mathematics are required.

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

DEGREE: Bachelor of Science in 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 Trigonometry	5	Math. 5. College Algebra	5	Math. 6. Analytical Geometry	5
Physics 1. General	5	Physics 2. General	5	Modern Foreign Language	5
Military or Naval Science and Physical Education +		Military or Naval Science and Physical Education +		Military or Naval Science and Physical Education +	

SECOND YEAR

History	5	B.A. 1. General Economics	5	Pol. Sci. 1. Comparative Government	5
Math. 107. Calculus	5	Math. 108. Calculus	5	Math. 109. Calculus	5
Modern Foreign Language	5	Chem. 1. General	5	Chem. 2. General	5
Military or Naval Science and Physical Education +		Military or Naval Science and Physical Education +		Military or Naval Science and Physical Education +	

THIRD YEAR

Group I—Secondary School Teachers

Psych. 1. Introduction	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. Secondary Education	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. High School Procedure	5	Edu. 71. Cadet Teaching —continued.		Education	3
Edu. 71. Cadet Teaching	8	Electives	12	Edu. 75Q. Mathematics.	3
Electives	7			Electives	3

Group II—College and University Teachers

Mathematics	5	Mathematics	5	Mathematics	5
Electives	10	Electives	10	Electives	10

MUSIC

Frances Dickey, Acting Executive Officer, Music Building

(See School of Music bulletin for detailed information.)

DEGREE: Bachelor of Arts

All students who intend to register as music majors will be given a placement examination in music fundamentals, voice and piano, at the beginning of the year. The equivalent of Music 9A of the piano course (see School of Music bulletin, p. 10) is required for entrance. Students may substitute a corresponding proficiency on other approved instruments, in which case they shall complete Music 9A before graduation. Students whose training and proficiency in music, gained before entering the University, may warrant advanced standing, must make application during the first quarter of residence. Entering freshmen will ordinarily not be given advanced credits in music, but will substitute other approved courses for those usually required. In any case not more than 18 credits in vocal or instrumental music will be allowed students with advanced standing.

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, and military or naval science.

First Year	*Credits*	*Second Year*	*Credits*
Music 15, 16. Fundamentals	7	Music 53, 101. Harmony	10
Music 51. Harmony	4	Music 72, 73, 74. Literature & History	9
[1]Vocal or Instrumental Music	6	Vocal or Instrumental Music	6
English Composition	10	Physics 50. Sound	5
[2]Electives (not Music)	18	Electives (not Music)	10-15
[3]Ensemble	3	Ensemble	3
		[4]Music 61. Advanced Ear Training	3
		[5]Music 127, 128, 129. Choral Literature	6

[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.

[2]Majors in music education must elect the following specific courses: Sociology—5 credits, political science—5 credits, psychology—5 credits, economics—5 credits, philosophy—5 credits. It is suggested that all music majors follow the same schedule of electives.

[3]In addition to the 180 credit hours for graduation, all music majors must complete 18 plus credits in ensemble, with not more than 12 in any one organization. Ensemble credit may be used as electives in other departments.

[4]Not required of students receiving a grade of A or B in music 51.

[5]Required of music education and voice majors.

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 Music Education
III. A major in Composition
IV. A music major in General Studies Division

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. Advanced Composition	5
Music 117. Elementary Composition and Arrangement	5	Music 199. Senior Recital	2
Music 104, 105, 106. Since 1850	6	Phil. 129. Aesthetics	5
Vocal or Instrumental Music	9	Vocal or Instrumental Music	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 Music 165, 166, 167, *Piano Pedagogy.*

[1]Organ majors elect, Music 163.

[1]Voice majors elect, Literature 66, 10 hours of German and 10 hours of either Italian or French.

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) To qualify for the normal diploma students should choose a teaching minor in an academic subject during the sophomore or junior year.

Third Year	*Credits*
Music 40, 41, 42. Elementary Orchestral Instruments	9
Music 109. Counterpoint	5
Music 112. Forms	5
Music 113, 116. School Music	8
Music 136. Technique of Conducting	2
Ensemble	6
Education 60. Secondary Education	3
Education 90. Measurements	2
[1]Natural Science	10

Fourth Year	*Credits*
Music 104, 105, 106 or 151, 152, 153. Modern Music	4
Music 117. Elementary Composition	5
Music 154. Senior High School Music	3
Music 155. Supervision	3
Music 180. Orchestral Conducting	3
Music 195. Choral Conducting	3
Vocal or Instrumental Music	6
Ensemble	6
Education 9. Educational Psychology	3
Education 70. Introduction to High School Procedure	5
Humanities	7
Electives (not Music)	3

[1]Only University College sciences will satisfy.

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
Music 190. Bach and Forerunners	4
Music 191. 18th and 19th Century Music	4
Music 192. Contemporary Music	4
Vocal or Instrumental Music	6
Edu. 71-72. Cadet Teaching	8
Edu. 120. Educational Sociology	3
Approved electives	16

III. A MAJOR IN COMPOSITION

Third Year	*Credits*
Music 109. Counterpoint	5
Music 112. Forms	5
Music 117. Elementary Composition and Arranging	5
Music 136. Technique of Conducting	2
Music 143. Orchestration	5
Music 157. Composition	5
Music 104, 105, 106. Music since 1850	6
Vocal or Instrumental Music	6
Electives (not Music)	6

Fourth Year	*Credits*
Music 151, 152, 153. Modern Music	6
Music 163. Advanced Counterpoint	5
Music 180. Orchestral Conducting	3
Music 197. Advanced Composition	6
Vocal or Instrumental Music	6
Music 190, 191, 192. Advanced Music Literature	12
Philosophy 129. Aesthetics	5
Electives	2

Suggested Electives: Philosophy; Literature; History; Psychology.

IV. GENERAL STUDIES DIVISION* (B.A. IN MUSIC)

Minimum requirements:

	Credits
Music 15, 16. Fundamentals	7
Music 51, 53. Harmony	9
Vocal or Instrumental Music	12
Music 127, 128, 129. Choral Literature	6
Music Literature and History	18
Chosen from the following: Music 72, 73, 74, 104, 105, 106, 151, 152, 153, 190, 191, 192.	
Instrumental Ensemble or Music 140, 141, 142	8
English Composition	10
Sociology, Political Science, Economics	15
Psychology	5
Philosophy	5
Natural Science	15
Humanities	10
Upper Division Electives (not Music)	45

*Major students in this course will be given an examination in vocal or instrumental music at the end of the junior year.

NURSING EDUCATION

Elizabeth Soule, Executive Officer, 309 Home Economics Hall

(See School of Nursing Education bulletin for detailed information.)

CURRICULA

Students entering the School of Nursing Education may take up curricula in one of two main groups: I. Basic courses leading to the degree of bachelor of science in nursing; II. Post graduate nursing courses for degree or for certificates in public health nursing or nursing supervision. These curricula are set forth in detail in the succeeding pages.

GROUP I.—BASIC COURSES

Curriculum A

Curriculum A is arranged on a five-year basis. Nine quarters are spent in the University and eight quarters in a hospital school of nursing whose course is approved by the school for forty-five lump credits.

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. History of Nursing	3	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
Physical Education	+1	Physical Education	+1	Physical Education	+1

SECOND YEAR

Anat. 100. Lectures	3	Physiol. 54. Intermediate	5	H.E. 105. Nutrition	5
Physiol. 53. Intermediate	5	Soc. 1. Introduction	5	Psych. 1. General	5
B.A. 1. General Economics	5	Elective	5	Elective	6
Elective	2	Physical Education	+1		
Physical Education	+1				

THIRD YEAR

Anat. 101. General Human	3	Anat. 102. General Human	3	Bact. 103. Public Hygiene	5
Bact. 101. General	5	Bact. 102. Sanitation	5	Electives	10
Speech 40. Essentials 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
Elementary 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

COOPERATIVE SERVICE COURSE FOR PRELIMINARY HOSPITAL STUDENTS

Courses selected from the curriculum A, but not meeting the complete requirements for the bachelor of science degree in Nursing are selected for students of hospital schools wishing the cooperation of the University in a one-year preliminary nursing course. On completing the preliminary course and the hospital course, granting 45 lump credits, the student receives junior standing in the University toward the graduate nurse degree curriculum.

Curriculum B

Curriculum B is arranged on a sixteen-quarter basis, six quarters of which are taken on the campus and the remaining ten in nursing instruction and practice under university direction in a hospital division of the University of Washington School of Nursing approved for academic credit in each course.

Autumn Quarter	*Credits*	*Winter Quarter*	*Credits*	*Spring Quarter*	*Credits*
Physics 89. Home	4	Physics 90. Home	3	Physics 91. Home	3
Comp. 4. Composition	3	Comp. 5. Composition	3	Chem. 2. General	5
Nurs. 1. History	3	Chem. 1. General	5	Home Econ. 9. Nutrition	6
Psych. 1. General	5	Electives	4	Elective	2
Physical Education	+1	Physical Education	+1	Physical Education	+1
Chem. 135. Organic	5	Anat. 100. Lectures	3	H.E. 105. Advanced Nutrition	5
Bact. 101. General	5	Anat. 101. General Human	3	Soc. 1. Introduction	5
Physiol. 53. Intermediate	5	Bact. 106. Clinical Diagnosis	5	Electives	6
Physical Education	+1	Physiol. 54. Intermediate	5		
		Physical Education	+1		

Twenty credits must be taken in the field of liberal arts, or social sciences.

Autumn Quarter	*Credits*	*Winter Quarter*	*Credits*	*Spring Quarter*	*Credits*
Nurs. Edu. 50. Elementary Principles	5	Nurs. Edu. 60. Principles of Medicine	3	Nurs. Edu. 61. Medical Specialties	3
Nurs. Edu. 51. Case Study	1	Nurs. Edu. 70. Principles of Surgery	3	Nurs. Edu. 71. Surgical Specialties	3
Nurs. Edu. 52. Introduction to Hospital Practice	6	Nurs. Edu. 62. Practice in Medical Nursing	6	Nurs. Edu. 72. Practice in Surgical Nursing	6
Anat. 105. Pathology	3	Pharm. 61. Therapeutics	3		
Pharm. 51. Elementary	2				
Nurs. Edu. 76. Principles of Otology, Ophthalmology and Neurology	2	Nurs. Edu. 66. Principles of Preventive Medicine	2	Nurs. Edu. 80. Principles of Pediatrics	5
Nurs. Edu. 64. Special Therapy	2	Nurs. Edu. 75. Hospital Practice in Clinical Diagnosis	6	Nurs. Edu. 73. Operating Room Practice	6
Nurs. Edu. 65. Practice in Special Therapy	6	Elective	2	Elective	2
Elective	2				
Nurs. Edu. 86. Principles of Obstetrics	5	Nurs. Edu. 90. Principles of Psychiatry	5	Nurs. Edu. 101. Introduction to Public Health	2
Nurs. Edu. 82. Pediatric Practice	6	Nurs. Edu. 88. Obstetrical Practice	6	Nurs. Edu. 92. Psychiatric Practice	6
		Elective	2	Elective	2
Nurs. Edu. 100. Professional Problems	2				
Nurs. Edu. 68. Practice in Communicable Diseases	6				
Elective	2				

Group II.—Curricula for Graduate Nurses

Degree Curriculum

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. Introduction	5	Comp. 2. Composition	5	B.A. 1. General Economics	5
Elective	5	Elective	5	Elective	5
Physical Education	+1	Physical Education	+1	Physical Education	+1

SECOND YEAR

Autumn Quarter	*Credits*	*Winter Quarter*	*Credits*	*Spring Quarter*	*Credits*
Physiol. 53. Intermediate	5	Physiol. 54. Intermediate	5	H.E. 105. Nutrition	5
Elective	10	Elective	10	Nurs. Edu. 150. Principles of Education	5
Physical Education	+1	Physical Education	+1	Elective	5

THIRD YEAR

Bact. 101. General	6	Bact. 102. Sanitation	5	Bact. 103. Public Hygiene	5
Nurs. Edu. 102. Public Health	5	Nurs. Edu. 103. Administration of Public Health	5	Elective	11
or		or			
Nurs. Edu. 151. Administration of Schools of Nursing	5	Nurs. Edu. 152. Supervision	5		
Elective	5	Elective	5		

CURRICULUM LEADING TO 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. This course is endorsed by the National Organization for Public Health Nursing.

This includes three quarters of academic work at the University and one quarter of field work.

	Credits		*Credits*
Nurs. Edu. 102. Public Health	5	†Psych. 1. General	5
Nurs. Edu. 103. Administration of Public Health	5	†Psych. 131. Child Psychology	5
Nurs. Edu. 150. Principles of Education	5	†Psych. 132. Clinical Psychology	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. Essentials of Speaking	5		
Soc. 128. Field of Social Work	3		
†Nursing 111. School	3		

†Electives.

CURRICULUM LEADING TO A CERTIFICATE IN NURSING 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, operating room, 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 "Nursing Supervision."

Curricula

This includes 45 academic credits in scientific, social, and economic subjects at the University, and one year of graded clinical review and administrative practice in an approved hospital under University direction.

Academic Courses	*Credits*
B.A. 1. General Economics	5
Soc. 1. Introduction	5
Psych. 1. General	5
H.E. 105. Nutrition for Graduate Nurses	5
Phar. 101. Pharmacology and Therapeutics	3
Nurs. Edu. 150. Principles of Education	5
Nurs. Edu. 152. Supervision	5
Nurs. Edu. 153. Administration	5
or Nurs. Edu. 151. Administration	5
Nurs. Edu. 154. Teaching and Ward Administration	10
	48

Professional Practice	
Review, supervision, and advanced administration in classes and practice of major and 1st and 2nd minor nursing specialties selected.	
Major service	3 months
1st minor service	3 months
2nd minor service	3 months
Advanced Administration and Teaching	3 months
	12 months

Graduate students working for the master of arts or master of science degree in the School 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 director of the School of Nursing Education.

OCEANOGRAPHIC LABORATORIES

Thomas G. Thompson, Executive Officer, 201 Oceanographic Laboratories

(See Oceanographic Laboratories bulletin for detailed information.)

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. Elementary	5	Zool. 1. Elementary	5	Bot. 3. Elementary	5
Chem. 21. General	5	Chem. 22. General	5	Chem. 23. Qualitative Analysis	5
Comp. 1. Composition	5	Comp. 2. Composition	5	Zool. 2. Elementary	5
Military or Naval Science and Physical Education	+	Military or Naval Science and Physical Education	+	Military or Naval Science and Physical Education	+

Second Year

Bot. 105. Morphology and Evolution	5	Bot. 106. Morphology and Evolution	5	Bot. 107. Morphology and Evolution	5
Physics 1. General	5	Physics 2. General	5	Physics 3. General	5
Math. 4. Plane Trigonometry	5	Math. 5. College Algebra	5	Math. 6. Analytical Geometry	5
Military or Naval Science and Physical Education	+	Military or Naval Science and Physical Education	+	Military or Naval Science and Physical Education	+

Third Year

Bot. 119. Plant Histology	5	Chem. 131. Organic	5	Chem. 132. Organic	5
Math. 107. Calculus	5	Math. 108. Calculus	5	Math. 109. Calculus	5
Elective	5	Elective	5	Elective	5

Fourth Year

Bot. 143. Plant Physiology	5	Bot. 144. Plant Physiology	5	Bot. 145. Plant Physiology	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 Trigonometry	5	Math. 5. College Algebra	5	Math. 6. Analytical Geometry	5
Comp. 1. Composition	5	Comp. 2. Composition	5	Elective	5
Military or Naval Science and Physical Education	+	Military or Naval Science and Physical Education	+	Military or Naval Science and Physical Education	+

Second Year

Chem. 109. Quantitative Analysis	5	Chem. 110. Quantitative Analysis	5	Chem. 101. Advanced Qualitative Analysis	5
Physics 1. General	5	Physics 2. General	5	Physics 3. General	5
Math. 107. Calculus	5	Math. 108. Calculus	5	Math. 109. Calculus	5
Military or Naval Science and Physical Education	+	Military or Naval Science and Physical Education	+	Military or Naval Science and Physical Education	+

Third Year

Chem. 131. Organic	5	Chem. 132. Organic	5	Chemistry elective	5
Physics 101. Introduction to Modern Physics	5	Elective	10	Physics 160. Optics	5
Elective	5			Elective	5

Fourth Year

Chem. 181. Physical and Theoretical	5	Chem. 182. Physical and Theoretical	5	Chem. 183. Physical and Theoretical	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. Qualitative Analysis	5
Math. 4. Plane Trigonometry	5	Math. 5. College Algebra	5	Math. 6. Analytical Geometry	5
Biological Science	5	Biological Science	5	Comp. 1. Composition	5
Military or Naval Science and Physical Education	+	Military or Naval Science and Physical Education	+	Military or Naval Science and Physical Education	+

Second Year

Physics 1. General	5	Physics 2. General	5	Physics 3. General	5
Math. 107. Calculus	5	Math. 108. Calculus	5	Math. 109. Calculus	5
Elective	5	Elective	5	Elective	5
Military or Naval Science and Physical Education	+	Military or Naval Science and Physical Education	+	Military or Naval Science and Physical Education	+

Third Year

Physics 101. Introduction to Modern Theories	5	Physics 105. Electricity	5	Physics 160. Optics	5
Biological Science	5	Biological Science	5	Biological Science	5
Elective	5	Elective	5	Elective	5

FOURTH YEAR

Autumn Quarter	*Credits*	*Winter Quarter*	*Credits*	*Spring Quarter*	*Credits*
Physics 191. Theoretical Mechanics	3	Physics 192. Theoretical Mechanics	2	Chem. 183. Physical and Theoretical	5
Chem. 181. Physical and Theoretical	5	Chem. 182. Physical and Theoretical	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. Elementary	5	Zool. 2. Elementary	5	Comp. 1. Composition	5
Chem. 21. General	5	Chem. 22. General	5	Chem. 23. General	5
Math. 4. Plane Trigonometry	5	Math. 5. College Algebra	5	Math. 6. Analytical Geometry	5
Military or Naval Science and Physical Education +		Military or Naval Science and Physical Education +		Military or Naval Science and Physical Education +	

SECOND YEAR

Zool. 125. Invertebrate Zoology	5	Zool. 126. Invertebrate Zoology	5	Zool. 5. General Embryology	5
or		or		Physics 3. General	5
Zool. 127. Comparative Anatomy	5	Zool. 128. Comparative Anatomy	5	Math. 13. Statistical Methods	5
or		or		Military or Naval Science and Physical Education +	
Fish. 101. Ichthyology	5	Fish. 102. Ichthyology	5		
Physics 1. General	5	Physics 2. General	5		
Elective	5	Elective	5		
Military or Naval Science and Physical Education +		Military or Naval Science and Physical Education +			

THIRD YEAR

Chem. 131. Organic	5	Chem. 132. Organic	5	Chem. 111. Quantitative Analysis	5
Bot. 1. Elementary	5	Bot. 2. Elementary	5	Zool. 102. Experimental Zoology	5
Elective	5	Elective	5	Elective	5

FOURTH YEAR

Zool. 106. Plankton	5	Zool. 121. Microscopic Technique	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.

ORIENTAL STUDIES

Robert Pollard, Executive Officer, 220 Denny Hall

DEGREE: Bachelor of Arts

	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

DEGREE: Bachelor of Arts

	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 percent of the credits in the major must be in upper division courses.

PHYSICS

Henry L. Brakel, Executive Officer, 206 Physics Hall

DEGREE: Bachelor of Science in Physics

FIRST YEAR

Autumn Quarter	Credits	*Winter Quarter*	Credits	*Spring Quarter*	Credits
Comp. 1. Composition	5	Comp. 2. Composition	5	Psych. 1. Introduction	5
Math. 4. Plane Trigonometry	5	Math. 5. College Algebra	5	Math. 6. Analytical Geometry	5
*Physics 1 or 4, or Chem. 21. General	5	Physics 2 or 5, or Chem. 22. General	5	Physics 3 or 6, or Chem. 23. General	5
Military or Naval Science and Physical Education	+	Military or Naval Science and Physical Education	+	Military or Naval Science and Physical Education	+

SECOND YEAR

Chem. 21. or Physics 1 or 4. General	5	Chem. 22. or Physics 2 or 5. General	5	Chem. 23. or Physics 3 or 6. General	5
Math. 107. Calculus	5	Math. 108. Calculus	5	Math. 109. Calculus	5
[1]Advisory elective	5	Advisory elective	5	Advisory elective	5
Military or Naval Science and Physical Education	+	Military or Naval Science and Physical Education	+	Military or Naval Science and Physical Education	+

THIRD YEAR

Physics elective	3 or 6	Physics elective	3 or 6	Physics elective	3 or 6
Biological Science, Astronomy, Geology	5	Biological Science, Astronomy, Geology	5	Biological Science, Astronomy, Geology	5
[2]Elective	4 or 7	Elective	4 or 7	Elective	4 or 7

FOURTH YEAR

Physics elective	5	Physics elective	5	Physics elective	5
[2]Advisory elective	5	Advisory elective	5	Advisory elective	5
Elective	5	Elective	5	Elective	5

*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.

POLITICAL SCIENCE

Charles E. Martin, Executive Officer, 11A Condon Hall

DEGREE: Bachelor of Arts

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.

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, 338 Philosophy Hall

DEGREE: Bachelor of Arts or Bachelor of Science

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.

For a major, 36 credits of psychology approved by the department.

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.

ROMANIC LANGUAGES AND LITERATURE
(French, Spanish and Italian)

Pierre J. Frein, Executive Officer, 215 Denny Hall

DEGREE: Bachelor of Arts

FRENCH

For a major, a minimum of 36 credits which must include 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
*Literature	9 or 10

*French literature courses numbered above 117. At least 6 of the 9 or 10 credits shall be in literature courses conducted in French.

ITALIAN

A minimum of 36 credits approved by the head of the department.

SPANISH

For a major, a minimum of 36 credits which must include the following courses:

	Credits
101, 102, 103. Advanced Composition	9
159. Advanced Syntax	3
*Literature	9 or 10

*Spanish literature courses numbered above 117. At least 6 or 7 of the 9 or 10 credits shall be in literature courses other than the survey courses, which are Spanish 118, 119, 120; 34, 35, 36, or 134, 135, 136.

SCANDINAVIAN LANGUAGES AND LITERATURE
(Swedish, Norwegian, and Danish)

Edwin J. Vickner, Executive Officer, 210 Denny Hall

DEGREE: Bachelor of Arts

SWEDISH

	Credits
1, 2, 3. Elementary	9
4, 5, 6. Swedish Reading	6
23, 24, 25. Swedish Literature	6
103, 104, 105. Recent Swedish Writers	9
106, 107, 108. Recent Norwegian-Danish Writers	6
	36

NORWEGIAN AND DANISH

	Credits
10, 11, 12. Elementary	9
13, 14, 15. Norwegian-Danish Reading	6
20, 21, 22. Norwegian-Danish Literature	6
103, 104, 105. Recent Swedish Writers	6
106, 107, 108. Recent Norwegian-Danish Writers	9
	36

SOCIOLOGY

Jesse F. Steiner, Executive Officer, 319 Physics Hall

DEGREE: Bachelor of Arts

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.

	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
Electives from courses offered in the department after consultation regarding special field of interest	16
Minimum total credits	36

ZOOLOGY

Trevor Kincaid, Executive Officer, 202 Johnson Hall

(See Biological Sciences page 155.)

PRE-EDUCATION CURRICULUM

W. L. Uhl, Executive Officer, 113 Education Hall

Pre-education Students. During the freshman year, students who expect to teach register as pre-education freshmen in the University College and pursue the regular courses of this college. They must confer in this year with the dean of the College of Education. This conference is for two purposes: (1) to obtain admission to the College of Education; and (2) to select suitable combinations of teaching subjects and orientation courses for the proposed preparation for teaching.

PRE-LAW CURRICULUM

David Thomson, Adviser, 107 Parrington Hall

(See Library School bulletin for detailed information.)

General. The minimum requirements for admission to the School of Law are three years of college work (135 academic credits plus required work in military or naval science and physical education) and a scholarship average of 2.25 grade points. While the Law School does not prescribe specific courses, it strongly recommends that all pre-law students complete the basic courses in history (English and American), economics, political science, and English composition. Some work in sociology is desirable and a course in logic or mathematics is strongly recommended. In choosing electives the student should include some work in the biological and physical sciences.

Combined Six-Year Arts-Law Course. It is possible to obtain a degree 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 credits in the University College together with the required credits in military or naval science and 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 and physical education. As one can enter the Law School to advantage 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 if necessary. 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 and 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 toward the bachelor of arts degree, are in 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 the University College 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 has at least 135 credits, the dean of the Law School may, upon written petition, permit registration in the Law School and allow the student to satisfy the remaining four credits necessary for the combined degrees at some subsequent time.

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 University College 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.

Required Curricula in Group Majors

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 academic credits, and completed the required six quarters in military or naval science and 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 courses are devoted to completing the remainder of the required work for graduation from the School of Law.

PRE-LIBRARY CURRICULUM

Ruth Worden, Executive Officer, 111 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 director, 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 School of Librarianship is permitted only at the beginning of the college year in October.

Students planning to take a degree in librarianship should consult the director of the school at least once a year.

The following course in librarianship is open to students outside of the school, but does not carry credit toward the degree in librarianship: 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 School 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 school, be dropped.

Graduation. The degree of bachelor of arts in librarianship is granted upon satisfactory completion of 45 credits in the school.

PRE-MEDICAL CURRICULA

John L. Worcester, Executive Officer, Anatomy Building

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. Students should consult adviser.

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. Courses in other years optional:

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. Qualitative Analysis.....	5
Zool. 3. Pre-medical....	5	Zool. 4. Pre-medical....	5	Physiol. 7. Elementary..	5
Comp. 1. Composition...	5	Comp. 2. Composition...	5	Psych. 1. General.....	5
Military or Naval Science and Physical Education +		Military or Naval Science and Physical Education +		Military or Naval Science and Physical Education +	

Second Year

Physics 1. General.....	5	Scientific French or German.....	5	Physics 3. General.....	5
Lit. 73. Introduction to Modern Literature....	5	Physics 2. General.....	5	Chem. 132. Organic.....	5
Electives.....	5	Chem. 131. Organic.....	5	B.A. 1. General Economics.....	5
Military or Naval Science and Physical Education +		Military or Naval Science and Physical Education +		or Pol. Sci. 1. Comparative Government.....	5
				Military or Naval Science and Physical Education +	

Third Year

Anat. 100. Lectures.....	3	Anat. 102. General Human.....	6	Anat. 103. General Human.....	6
Anat. 101. General Human.....	3	Anat. 106. Histology and Embryology.....	6	Anat. 107. Neurology...	6
Anat. 105. Histology and Embryology.....	6	‡Bact. 106. Clinical Diagnosis.....	5	‡Bact. 104. Serology....	5
‡Bact. 101. General.....	5				

Fourth Year

Physiol. 151. Advanced..	5	Physiol. 152. Advanced..	5	Physiol. 153. Advanced..	5
‡Chem. 161. Physiological	5	‡Chem. 162. Physiological	5	Bact. 112. Pathology....	5
Bact. 105. Infectious Diseases.....	5	Electives.....	6	Anat. 104. Topographic.	4
				Electives.....	2

‡Approved electives may be substituted.

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 upward 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 1935-1936.

Courses preceded by ** are given if a sufficient number of students elect them.

In the lists of department faculties appearing in this bulletin, the first name in each instance is that of the department executive officer.

DEPARTMENTS OF INSTRUCTION

DESCRIPTION OF COURSES

AERONAUTICAL ENGINEERING

Guggenheim Hall

Professors Eastwood, Kirsten; Associate Professor J. W. Miller; Assistant Professor F. S. Eastman; Instructor Ryder

AERONAUTICAL ENGINEERING

83. *General Aeronautics.* A descriptive outline of the field of aeronautical engineering. Development and application of the principles of mechanical flight. Prerequisite, sophomore standing. Three credits; autumn, winter, spring. Ryder.

100. *Aircraft Power Plants.* Installation and testing of aircraft engines and their accessories. Prerequisite, A.E. 83. Two credits; autumn. J. W. Miller.

101. *Aerodynamics.* Study of air-flow phenomena and of the aero-dynamical characteristics of air-foils and air-foil combinations. Prerequisites, A.E. 83, Phys. 97. Three credits; autumn, winter. Kirsten, Ryder.

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. J. W. Miller.

111. *Airplane Design.* Layout and design of airplanes. Application of the United States Department of Commerce regulations. Prerequisites, A.E. 103, 172. Three credits; autumn. J. W. Miller.

112. *Advanced Airplane Design.* Airplane structural details. Design, manufacture, inspection and testing. Prerequisite, A.E. 111. Three credits; winter. J. W. Miller.

121. *Airships.* Study of lighter-than-air craft, aerostatics and airship design. Prerequisite, A.E. 101. Three credits; spring. F. S. Eastman.

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.* Application of aircraft as transport machines. Air traffic study and airline location. Prerequisite, A.E. 103. Three credits; autumn. J. W. Miller.

162. *Aerial Transportation.* Layout, location, construction and equipment of airways and air terminals. Prerequisite, A.E. 161. Three credits; winter. J. W. Miller.

163. *Advanced Aerial Transportation.* Economics of airway location and operation. Economic considerations in the design and selection of aircraft for a given purpose. Prerequisite, A.E. 162. Three credits; spring. J. W. Miller.

*Not offered in 1935-36.

168. *Aircraft Instruments.* Testing, calibration, construction and installation of aircraft instruments. Prerequisite, A.E. 101. 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. F. S. Eastman.

181. *Advanced Airplane Design.* Advanced structural analysis and the preparation of final drawings. Prerequisites, A.E. 112, 173. 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, 101, 102, 103, and Speech 103.

ANATOMY

Anatomy Building

Professor Worcester

Gross Anatomy

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, Assistants.

Microscopic Anatomy

105, 106. *Histology and Embryology.* Especially for medical and nursing students; open to others. Prerequisites, Zool. 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; spring. Worcester.

200. *Research.* Graduate and research work in anatomy for those qualified. Credits and time arranged. Autumn, winter, spring. Worcester.

ANTHROPOLOGY

Museum

Assistant Professor Gunther; Instructor Jacobs; Associate Ray

51. *General Introduction to Anthropology.* Including race classification, pre-history, language and theories of anthropology. Five credits; autumn, winter, spring. Staff.

52. *General Introduction to Anthropology*—Continued. Including social customs, political institutions, religion, art and literature. Five credits; autumn, winter, spring. Staff.

101. *Basis to Civilization.* Primitive mentality and culture patterns. Prerequisite, Anthr. 51 or 52 or junior standing. Three credits; winter. Jacobs.

105. *Culture Growth.* A study of the fundamental material inventions in the building of cultures. Prerequisite, Anthr. 51 or 52 or junior standing. Three credits; spring. Ray.

110. *Indians of the United States.* A study of the Indian life of this country as a background for the modern social and economic problems of this group. Three credits; winter. Gunther.

111. *Indian Cultures of the Pacific Northwest.* An ethnographic study of the Indians west of the Rockies from the Columbia river through southern Alaska, with special emphasis on the tribes of Washington. Three credits; autumn. Ray.

*112. *Peoples of the Pacific.* An ethnographic study of the primitive peoples of the Pacific and a brief analysis of the effects of Europen contacts. 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.* A descriptive survey of primitive religions. 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 approach to language and its function in culture. Three credits; winter. Jacobs.

*Not offered in 1935-36

151. *American Indian Languages.* Phonetics and morphology of American Indian languages; methods of field research. Prerequisite, Anthr. 150. Three credits; spring. Jacobs.

152. *Introduction to Anthropology.* A general survey of the field as a basis for other social sciences. Prerequisite, junior standing. Five credits; autumn. Gunther.

185. *Primitive Social and Political Institutions.* Prerequisite, Anthr. 51 or 52, or instructor's permission. Three credits; spring. 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; winter, spring. Gunther, Jacobs.

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 in Methods and Theories.* Instructor's permission necessary. Three credits; autumn, winter. Gunther.

206. *Seminar in Indian Administration.* A course dealing with the problems of administration of Indian affairs and their history; also a discussion of the present social and economic resources of the Indian. Three credits; spring. Gunther.

ARCHITECTURE

Architecture Building

Professor Thomas; Associate Professors Herrman, Gowen; Assistant Professor Pries; Instructor Olschewsky; Lecturer Alden

1-2. *Architectural Appreciation.* Illustrated lectures giving an historic 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.

*Not offered in 1935-36.

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 Projects.) 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 photographs, 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.

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.

152-153. *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, winter. Gowen.

154, 155, 156, 157, 158. *Architectural Design, Grade III.* Advanced design under individual criticism. (B.A.I.D. Class A Projects.) Prerequisite, Arch. Design, Grade II. Five credits a quarter; autumn, winter, spring.
Gowen, Pries.[1]

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.

168-169. *Specifications and Materials.* Specifications and all contract forms used by the architect; modern business methods; ethics and office organization. Properties of materials used in architectural practice; steel, concrete, wood, plaster, paint, varnish and the like. Senior standing. Prerequisite, Arch. 122. Two credits; winter, spring. Alden.

*170. *Senior Mechanics.*

[1]General criticism and supervision of all courses in Design, Grades I, II, III and Advanced Design, are given by Professor Harlan Thomas, head of the school.

*Not offered in 1935-36.

ART

Education Hall

Professor Isaacs; Associate Professors Patterson, Hill, Rhodes; Assistant Professors Benson, Foote, Pratt, Byers, Penington; Instructor Puymbroeck; Associates Worman, Curtis.

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. A special section of Art 5 is provided for science majors, with work adapted to the needs of the laboratory. Three credits a quarter; autumn, winter, spring. Byers, Hill, Patterson, Curtis.

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, Curtis, Worman, 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. Pratt, Hill.

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.
Penington, Puymbroeck, Foote.

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. Foote.

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, Art senior standing, Educ. 70. 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.* The simple processes of building, decorating, and glazing. Required reading. Clays and glazes. In both courses emphasis is on creative design and appreciation of pottery. Prerequisites, Art 5, 6, 7; 9, 10, 11. Three credits a quarter. Course 103, autumn, spring; 104, winter. Worman.

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; winter. Benson.

106. *Poster Design.* A course in structural composition; advertising design studied and analyzed. Lectures and supplementary reading. Prerequisites, 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.

116. *Design for Industry.* The study of design in its relation to the modern commercial world. Designs for useful objects, with emphasis on technical rendering. Prerequisites, Art 55, 105. Three credits a quarter; spring. Benson

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.* Advanced work with emphasis on glazing. Prerequisites, Art 103, 104. Three credits a quarter; winter. Worman.

132, 133, 134. *Advanced Sculpture.* Continuation of second year work. 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, winter, spring. 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 appre-

ciation. Prerequisite, junior standing in Art. Three credits a quarter; autumn, spring. 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, spring. 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, Curtis.

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 profesional character. Three or five credits a quarter; autumn, winter, spring. Patterson.

250, 251, 252. *Advanced Design.* Problems in design of graduate character. Prerequisites, Art 150, 151, 152. Three or five credits a quarter; autumn, winter, spring. Rhodes.

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, 126; 129; 150, 151, 152; 160, 161, 162; 169, 170, 171; Jour. 130, 131.

ASTRONOMY

Observatory

Assistant Professor Jacobsen

1. *Astronomy.* The solar system, the stars, and the sidereal universe. Prerequisites, two high school units of math. Five credits; autumn, spring. Jacobsen.

51. *Practical Astronomy.* Methods of determining latitude, longitude, azimuth, and time. Prerequisites, Astron. 1, trig. Four credits; spring. Jacobsen.

101. *Astrophysics.* Selected topics in the interpretation of spectra of stars, nebulae, and comets. Prerequisites, Astron. 1, modern physics. Four credits; winter 1935-36 and alternate years. Jacobsen.

*102. *Principles of Astronomy.*

*Not offered in 1935-36.

AVIATION

Ground School Course

See Naval Science and Tactics.

BACTERIOLOGY AND PATHOLOGY

Johnson Hall

Instructor Henry; Associate Professor Hoffstadt; Associate Weiser.

CO-OPERATING LABORATORIES

James A. Berry, M.S., Director U. S. Frozen Pack Laboratory.
A. U. Simpson, M.D., Director State Board of Health Laboratory.
Marie Mulhern, B.S., Director Seattle Department of Health Laboratory.
E. D. Clark, Ph.D., Director National Canners' Association Laboratory.
Freda Hendrickson, M.S., Director Virginia Mason Hospital Laboratory.
D. H. Nickson, M.D., Director Swedish Hospital Laboratory.
G. A. Magnusson, M.D., Director Physicians' Clinical Laboratory.
C. R. Jensen, M.D., Director Harborview Hospital Laboratory.
Gertrude Walters, B.S., Director Orthopedic Hospital Laboratory.
Alfred Balle, M.D., Director Providence 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, industry; (c) physical education; (d) for the preparation of technicians and bacteriologists; (e) for advanced degrees. Ten undergraduate credits prerequisite to graduate work.

51. *Elementary Medical Bacteriology.* For nurses. Does not count toward a bacteriology major. Five credits; winter. Henry.

101. *General Bacteriology.* Prerequisite, Chem. 2, Zool 2 or 4 or Bot. 2, and junior standing. Five credits; autumn, spring, summer. Henry.

102. *Sanitary Bacteriology.* Bacteriology of soil, air, water, sewage, foods, clothing, etc. Prerequisite, Bact. 101. Five credits; winter. Henry.

103. *Public Hygiene.* Lectures only. Prerequisite, junior standing. Five credits; autumn, spring. Hoffstadt.

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.

110, 111, 112. *Pathology.* Gross and microscopic study of diseased tissue. Prerequisite, Anat. 105. Five credits; autumn, winter, spring. Weiser.

120, 121, 122. *Applied Bacteriology.* Work in media room, public health, private, hospital or industrial laboratories. Fifteen hours per week. Registration, and letter from director required. For bacteriology majors only. Prerequisites, Bact. 102, 104, 105, 106. Five credits; autumn, winter, spring, summer. Hoffstadt, Henry.

127. *Journal Survey.* Prerequisite, Bact. 101, 105. One credit; winter. Hoffstadt.

130, 131, 132. *Industrial Bacteriology.* Application of bacteria in the industries. Prerequisite, Bact. 101 and permission of instructor. Three or five credits; autumn, winter, spring. Henry.

COURSES FOR GRADUATES ONLY

201. *Physiology of Bacteria.* Environmental factors influencing bacteria; bacterial metabolism and activities. Open to qualified students after consultation. Two to five credits; autumn. Henry.

202. *Filterable Viruses.* Study of representative types of ultramicroscopic agents causing disease in man, lower animals and plants. Open to qualified students with permission of instructor. Two to five credits; winter. Hoffstadt.

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.* No credit. Time to be arranged. Staff.

210, 211, 212. *Research.* Open to qualified students after consultation. Credits to be arranged; autumn, winter, spring, summer. Staff.

BOTANY

Johnson Hall

Professors Frye, Rigg; Associate Professor Hotson; Associate Jones.

SUGGESTED SELECTIONS

For the required biological science in the University College, only courses 1, 2, 3, 105, 106, and 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 101. It is recommended that they include 101 where possible.

For a major, courses 105, 106, and 107 are required.

For teaching botany, select from non-technical courses, among which 1, 3, 101, 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. Should not be taken by those who have decided to major in botany. 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.

5. *Introduction to Botany.* A general view of the various phases of the science and its relation to man and the industries. Students who expect to continue with botany should begin with Bot. 1 or 3. Four lectures and a two-hour laboratory period, or field trips. Five credits, spring. Frye.

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.

16. *Economic Botany.* Cellular structure of plants; living matter; structure of roots, stems, leaves and fruits, and their use by man for food and clothing and shelter. Five credits; autumn, winter, spring. Lanphere.

101. *Ornamental Plants.* The plants used in beautifying lawns and houseyards, their propagation and use. Prerequisite, 10 credits of botany or high school botany. Not open to students who have had Bot. 92. Five credits; spring. Hotson.

102. *Textile Fibers.* Cotton, wool, hairs, linen, jute, ramie, silk, rayon, etc.; their microscopy and staining; permanent mounts and cross sections. Prerequisite, H.E. 25. Three credits; spring. Tschudy.

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. Perrequisite, Bot. 11 or 105. Five credits; winter and 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. Tschudy.

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, 10 credits of botany including Bot. 3 or equivalent. Five credits; spring. Jones.

*131. *Mosses.*

*132. *Algae.*

140, 141, 142. *General Fungi.* Morphology and classification of fungi as a basis for plant pathology. Prerequisite, fifteen credits of botany. Five credits a quarter; autumn, winter, spring. Hotson.

143, 144, 145. *Plant Physiology.* Prerequisites, fifteen 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. One to fifteen credits; any quarter. Staff.

Teachers' Course in Botany. See Education 75B.

*Not offered in 1935-36.

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 their 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, Bot. 142. Two to five credits; any quarter. Hotson.

233. *Research.* Two to five credits; any quarter. Staff.

247. *Diatoms.* Prerequisite, thirty credits of botany. Three credits; autumn. Frye.

250. *Algae.* Prerequisite, thirty 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.

CHEMISTRY AND CHEMICAL ENGINEERING

Bagley Hall

Professors Benson, Dehn, Smith, Tartar, Thompson; Associate Professors Beuschlein, Powell, Norris; Assistant Professors Robinson, Kobe; Instructor Sivertz; Associate Radford.

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 University College; (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 2-hour laboratory periods a week. Five credits a quarter; any quarter. Smith, Tartar, Powell, Sivertz.

4. *Introduction to Chemistry.* An outline of the fundamental principles of chemistry, including their derivation and their application to the development of our natural resources, to the problems of industry and to those of daily life. Students who expect to continue with chemistry should begin with Chem. 1 or 21. Four lectures and 1 quiz. Five credits; autumn. Tartar.

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. Rising.

21-22. *General Inorganic Chemistry.* Open only to students having accredited high school chemistry. Two lectures, one recitation and two 2-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 2-hour laboratory periods a week. Five credits a quarter; any quarter. Smith, Powell, Sivertz.

24-25. *General Chemistry.* For engineering students having accredited high school chemistry. Two lectures, one recitation and one two-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.

51. *Chemical Technology.* Application of chemical units and laws in industrial calculations as applied to combustion processes. Prerequisites, Chem. 26, Math. 33, or equivalents. Two lectures. Two credits; autumn, winter. Kobe.

52, 53. *Chemical Technology.* Continuation of Chem. 51 with application to unit chemical operations. Prerequisite, Chem. 51. Two lectures. Two credits. Chem. 52, winter and spring; 53, spring and autumn. Kobe.

*55. *Forest Products.*

*56. *Forest Soils.*

74. *Elementary Electrochemistry.* Fundamental principles and theory of electrochemistry. Prerequisites, Chem. 26, Phys. 98. Not open to chemists and chemical engineers. Two lectures, two credits; autumn. Kobe.

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.

*Not offered in 1935-36.

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. Prerequisite, 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.

137. *Organic Chemistry.* A brief course designed for students in Nursing. Four lectures and one laboratory period. Five credits; autumn. Powell.

140-141. *Elementary Physical Chemistry.* Descriptive, non-mathematical, for pre-medic and science students not majoring in chemistry. Two lectures 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. 53. 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. Prerequisite, Chem. 53. Five credits a quarter; autumn, winter. Beuschlein.

173. *Chemical Engineering.* Continuation of Chem. 172. Three lectures a week. Prerequisite, Chem. 53. Three credits; spring. Beuschlein.

175. *Industrial Electrochemistry.* Industrial applications of electrochemistry, solutions and electric furnace applications. Prerequisites, Chem. 181 for chemists and chemical engineers; Chem. 74 for others. Three lectures, three credits; winter. Kobe.

176, 177, 178. *Chemical Engineering Thesis.* One to five credits a quarter; autumn, winter, spring. Benson, Beuschlein, Kobe.

179. *Research in Electrochemistry.* Research in electrochemistry under various staff members, or reports on selected topics. Prerequisites, permission of the instructor. Two to five credits; winter and spring. Staff.

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. 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. Two credits; autumn, winter. Smith.

Teachers' Course in Chemistry. See Education 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.*

204. *Chemistry of Colloids.* (Offered every other year, alternating with 202, 203). Fundamental properties of substances in the colloid state. Surface phenomena such as surface tension and absorption. Prerequisite, Chem. 182 or equivalent. Three lectures. Three credits; autumn. Tartar.

*205, 206, 207. *Inorganic Preparations.* (Offered every other year alternating with 190, 191.)

208, 209, 210. *Advanced Quantitative Analysis.* Theoretical principles of analytical chemistry. Prerequisites, Chem. 111 and 182 or equivalent. Two lectures. Two credits a quarter; autumn, winter, spring. 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 202, 203.) Three lectures. 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. 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.

*Not offered in 1935-36.

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.* Work adapted to the interest and needs of the students. Prerequisite, Chem. 141 or 182. Two laboratory periods to be arranged. Two credits; autumn. Sivertz.

241, 242, 243. *Advanced Chemical Engineering.* (Offered every other year, alternating with 244, 245, 246.) A detailed study of basic unit operations. Flow of fluids, heat transfer, fuels, combustion, gas producers and filtration. Prerequisites, calculus and Chem. 171. Three credits a quarter; autumn, winter, spring. Beuschlein.

*244, 245, 246. *Advanced Chemical Engineering.* (Offered every other year alternating with 241, 242, 243.) Evaporation, drying, distillation, absorption and extraction. Three credits a quarter; autumn, winter, spring. Beuschlein.

249. *Graduate Seminar.* Assigned readings and reports dealing with special topics. Offered as desired by members of the different divisions 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, 101, 102, 103 and Speech 103.

CIVIL ENGINEERING

Guggenheim Hall

Professors Tyler, More, Harris, May; Associate Professors A. L. Miller, Van Horn; Assistant Professors Collier, Hawthorn, Farquharson, Morits, Smith, Sergev; Instructors Chittenden, Rhodes, Hennes; Lecturer Hauan.

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, Chittenden.

*Not offered in 1935-36.

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, Chittenden.

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. Collier, Hawthorn.

91. *Mechanics.* Fundamental principles of mechanics for non-civil students. Kinetics, kinematics. Prerequisites, G.E. 12, Math. 33, Physics 97. Three credits; autumn, winter, spring. Moritz, Smith, Sergev, Farquharson, Tymstra.

92. *Mechanics.* Mechanics of materials for non-civil students. Analysis and design of structural members. Prerequisite, C.E. 91. Three credits; autumn, winter, spring. Farquharson, Collier, Hawthorn, Smith, Sergev, Moritz.

95. *Mechanics.* (For students in civil engineering.) Fundamentals of static and dynamic equilibrium. Kinematics. Prerequisites, Math. 33, G.E. 12, preceded by or concurrent with Phys. 97. Three credits; autumn, winter. Miller, Rhodes.

96. *Mechanics.* (For students in civil engineering.) Mechanics of materials. Fundamentals of structural mechanics. Prerequisite, C.E. 95. Three credits; winter, spring. 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; winter, spring. Hawthorn.

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. 121. Three credits; spring. Hawthorn.

130. *Theory of Building Construction.* For architects. Prerequisites, Math 56, Arch. 48. Three credits; autumn. May, Sergev.

141. *Dynamics of Fluids.* Conservation of energy and loss of energy in fluid motion. Application of Torricelli, Bernoulli and Borda's principles. No laboratory work. Prerequisite, C.E. 91. Three credits; autumn. Harris.

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, Moritz, Smith.

143. *Hydraulic Engineering.* Complete projects presenting hydraulic engineering; hydrometric methods; economic design of pipes and spillways. Prerequisite, C.E. 142. Five credits; autumn, winter. 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, junior standing. Three credits; spring. Van Horn.

154. *Sanitary Designs.* The design of sewers, sewage disposal plants and water purification plants. 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. 143. Three credits; autumn, winter. 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 artificial 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. 96. Three credits; winter. Collier, Smith.

163. *Materials of Construction.* Strength and physical characteristics of timber and steel. Prerequisite, C.E. 96. Three credits; spring. Collier, Smith.

171, 172, 173. *Structural Analysis.* Theory of structural mechanics. Mechanics of materials with special consideration of reinforced concrete, steel, and timber. Prerequisite, C.E. 96. Three credits; autumn, winter, spring. Farquharson, Miller, Rhodes.

175, 176, 177. *Structural Design.* Application of the theory of structures and mechanics of materials to the design of reinforced concrete, steel, and timber members and connections. Prerequisite, C.E. 173. C.E. 175, 176, four credits; C.E. 177, three credits; autumn, winter, spring. More, Staff.

181, 182, 183. *Advanced Structures.* Stresses and deflections in structures and structural members with particular reference to statically indeterminate cases. Seniors and graduates in civil engineering. Prerequisite, C.E. 173. Three credits; autumn, winter, spring. More.

185. *Advanced Structures.* Arches. Statically indeterminate trusses. Seniors and graduates. Prerequisite, C.E. 182. Four credits; autumn, winter, spring. More.

186. *Soil Mechanics.* The mechanics of landslides; building and dam foundations; tunnel linings. Soil stabilization. Seniors and graduates. Three credits; autumn. Hennes.

187. *Soil Mechanics.* A study of those physical properties of soil affecting the work of the civil engineer. Soil testing. Seniors and graduates. Three credits; winter. Hennes.

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 in engineering. Three credits; spring. May, Sergev.

COURSES FOR GRADUATES ONLY

210, 212, 214. *Research.* For graduates. Two to five credits; autumn, winter, spring. Staff.

220, 222, 224. *Seminar.* For graduates. Two to five credits; autumn, winter, spring. Staff.

CLASSICAL LANGUAGES AND LITERATURE

Denny Hall

Professors Sidey, Densmore; Associate Professor Stone; Assistant Professor Read; Associate Ballaine; Assistant Searls.

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 the humanities, any of the courses in Greek or Latin, or the following courses in English may be used: Greek 11, 13, 15, 17, 111, 113 and Latin 11, 13.

I. GREEK

Requirements for a Major. At least 36 credits chosen from courses other than 1-2, 11, 13, 15, 17, 111, 113. 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 all 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. Searls.

6. *The World of Homer.* Readings from the story of Achilles. Prerequisite, Greek 5. Three credits; spring. Searls.

7. *New Testament Greek.* This course will be given instead of Greek 6 if the class elects it. Prerequisite, Greek 5. Three credits; spring. Searls.

8, 9. *Grammar and Composition.* Prerequisite, Greek 3. Two credits; autumn, winter.

11. *Greek Civilization.* Knowledge of Greek not required. Five credits; autumn. Searls.

13. *Greek Literature.* Knowledge of Greek not required. Five credits; autumn, winter, spring. Sidey.

15. *Greek Civilization and Literature.* A study of Fifth Century Athens. Knowledge of Greek not required. Five credits; winter, spring. Searls.

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.* Readings in Herodotus and Plutarch. Prerequisite, Greek 5. Three credits; autumn. Densmore.

102. *Pericles and the Peloponnesian War.* Aristotle, Thucydides, Xenophon, and Plutarch. Three credits; winter. Densmore.

103. *Periods of Theban and Macedonian Supremacy.* Plutarch, Demosthenes and Arrian. Three credits; spring. Densmore.

*104, 105, 106. *Greek Poetry.*

*111. *Greek Civilization.*

113. *Greek Drama.* Knowledge of Greek not required. Five credits; spring. Densmore.

*122. *Grammar and Composition.*

151, 152. *Plato.* The Phaedo, Symposium, and extensive readings in the second half of the Republic. Prerequisite, Greek 103. Three to five credits a quarter; autumn, winter. Densmore.

153. *Plato.* Selections from the Parmenides, Theaetetus, Sophist, Timaeus. Prerequisite, Greek 152. Three to five credits; spring. Densmore.

191, 192, 193. *Literary Criticism and Sophocles.* Textual criticism. Aristotle and other ancient critics. Independent critical study of one play. Prerequisite, Greek 106. A reading knowledge of Latin required. Three to five credits, autumn, winter, spring. Densmore.

COURSES FOR GRADUATES ONLY

201. *Greek Philosophers.* The pre-Socratics. Three to five credits; autumn. Densmore.

202. *Greek Philosophers.* Aristotle's Ethics. Three to five credits; winter. Densmore.

203. *Greek Philosophers.* Plotinus. Three to five credits; spring. Densmore.

*211, 212, 213. *Hellenistic Literature.*

*221, 222, 223. *Epigraphy.*

231. *Research in Special Authors.* For 1935-36, Overbeck's Schriftquellen for Greek sculpture. Three to 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, winter. Read.

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.

*Not offered in 1935-36.

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; spring. Sidey.

25. *Ovid: Metamorphoses.* With exercises in grammar and composition. Prerequisite, three and one-half years high school Latin. Five credits; winter. Read.

100. *Livy.* One book and selections from other books. Prerequisite, 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.* Prerequisites, 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.

107. *Cicero's Letters.* Prerequisite, Latin 100 or equivalent. Three credits; winter. Stone.

*109. *Pliny's Letters.*

154. *Lucretius: De Rerum Natura.* Prerequisite, Latin 109 or equivalent. Two to four credits; winter. Sidey.

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 Education 75P.

165. *Cicero: De Finibus.* Prerequisite Lat. 109 or equivalent. Two to four credits; autumn. Sidey.

166. *Survey of Latin Satire.* Selections from Horace, Persius, and Juvenal. Prerequisite, Lat. 109 or equivalent. Two to four credits; spring. Sidey.

COURSES FOR GRADUATES ONLY

*204. *Tacitus.*

*207. *Seneca.*

211. *Latin Novel.* Selections from Petronius and Apuleius. Two to four credits; autumn. Sidey.

214. *Suetonius: Augustus.* Two to four credits; spring. Read.

*216. *Christian Latin.*

*218. *Cicero: De Natura Deorum.*

*Not offered in 1935-36.

*220. *Latin Elegy.*

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

Commerce Hall

Professors Coon, Burd, Cox, Dakan, Demmery, Gould, Gregory, Hall, McMahon, Preston, Skinner, Smith; Associate Professors Martin, McIntyre; Assistant Professors Brown, Butterbaugh, Farwell, Hopkins; Mackenzie, Mund, Miller; Lecturers Draper, McConahey, Truax; Instructors Chertkov, Knight, Lorig; Associates Fordon, Hamack.

Lower division courses are open to all students without prerequisite, except as indicated. B.A. 1 and 2 are required for majors in Economics and Business and usually should be taken by students who plan to devote two courses, and no more, to Economics. Students who take but one of these courses should choose B.A. 1, if they want a descriptive survey of the problems of economic life, or B.A. 2, if they want a course in economic theory and its practical application. B.A. 2 is a prerequisite to all intermediate courses, which are open to third quarter sophomores. All advanced courses have at least one specified intermediate course as a prerequisite.

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 and their current application. Production, value and price, functional and personal distribution. This course should be taken by students who, although not majors, may wish later to take an intermediate course in Economics and Business. Five credits; autumn, winter, spring, summer. Mund.

3. *General Economics.* Condensation of B.A. 1 and 2 above, abbreviated for students in chemistry, pharmacy, forestry, and engineering. Three credits; autumn, winter, spring. Cox.

16-17-18. *Secretarial Training.* This course is designed to standardize the skills in shorthand and typewriting and other secretarial subjects. Meets two hours daily; three credits each quarter; autumn, winter, spring. Hamack.

54. *Business Law.* This and the two following courses are designed to give the fundamentals of law which bear most closely upon ordinary business transactions, and give some acquaintance with the growth and development of the law of English-speaking peoples. The courses are developed from an analysis of cases and problems. B.A. 54 covers an introduction to the study of law, its origin and development, and the formation of contracts, the latter receiving major emphasis. Prerequisite, sophomore standing. Three credits; autumn, winter, spring. Brown, Harsch.

55. *Business Law.* Continuation of B.A. 54, giving emphasis to fraud, mistake, duress, and undue influence; performance, rights of third parties, remedies, and the law of negotiable instruments. Prerequisite, B.A. 54. Three credits; autumn, winter, spring. Brown, Harsch.

*Not offered in 1935-36.

56. *Business Law.* Continuation of B.A. 55. Particular emphasis is given to the law of sales, with a treatment of the form and legal efficacy of the various kinds of business associations. Prerequisites, B.A. 54 and B.A. 55. Three credits; autumn, winter, spring. Brown, Harsch.

57. *Business Law.* An elementary course especially arranged for engineering students or others who are unable to devote more than three credit hours to the study of business law. Intended to acquaint the student with the fundamental principles of law involved in ordinary business transactions, and deals with partnerships, contracts, negotiable instruments, insurance, etc. May not be substituted for B.A. 54, and does not carry credit for students in Economics and Business. Prerequisite, sophomore standing. Three credits; autumn, spring. Brown.

59. *Business Correspondence.* Analysis of principles; development of judgment on points of business policy. Prerequisite, Composition 1. Five credits; autumn, winter, spring. Miller.

62. *Principles of Accounting.* A study of the objectives of accounting, information of value to executives, investors, etc. Emphasis placed upon the value to executives in solving business problems. The fundamental principles of accounting are developed, including the theory of accounts. Methods of recording studied, criticized, and appraised. Prerequisite, sophomore standing. Five credits; autumn, winter, spring. Mackenzie and assistants.

63. *Principles of Accounting.* General theory of partnership, corporation and manufacturing accounts viewed in their accounting and legal relationships. Introduction to valuation and depreciation theory. Methods of handling various special accounting problems concerned with cash, inventories, buying, sales, and credit. Short problems used throughout. Prerequisite, B.A. 62. Five credits; autumn, winter, spring. Butterbaugh and assistants.

Intermediate Courses

100. *Statistical Analysis.* Application of statistical method to practical business and economic problems. The presentation of group characteristics, nature and construction of index numbers, measurement of seasonal and cyclical variations, determination of trends, methods of measuring related fluctuations in business and economics. The correct interpretation of statistical data is stressed. Prerequisite, B.A. 2. Five credits; autumn, winter, spring. Mackenzie and assistants.

101. *Scientific Management.* A general non-technical study. Scientific management as a philosophy and a scientific approach applicable to all business enterprises. The principles applied to administration, control, and coordination of business functions; to sales; purchases; production (plant, materials, labor, and overhead); current finances; the office; traffic, and personnel. Commercial research time and motion studies, scientific incentives, planning and flexibility are stressed. Prerequisite, B.A. 2. Five credits; autumn, winter. Mackenzie.

102. *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. Smith.

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, summer. Preston.

104. *Public Service Industries.* A general survey of the elements of transportation and communication, with particular reference to the history, modern development, and economic significance of rail, water, highway and air trans-

portation systems of the world; modern communication systems; introduction to public utilities. Prerequisite, B.A. 2. Five credits; autumn, winter, spring. Farwell.

105. *Economics of Labor.* 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.

107. *World Economic Policies.* Economic and commercial relations of nations; commercial treaties, tariff systems and administration; international balance of payments; national and international controls of foreign exchange; raw materials; exports and imports. Prerequisite, B.A. 2. Five credits; autumn, winter, spring. Skinner.

108. *Risk and Risk Bearing.* 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; winter. Smith.

109. *Principles of Real Estate I.* Economic principles underlying the utilization of land; forces influencing the growth and structure of cities; determining factors for the location of residential, commercial, industrial, and financial districts; types of land ownership; city and regional planning and zoning. Prerequisite, B.A. 2. Five credits; autumn. Demmery.

Advanced Courses

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, spring. Dakan.

122. *Principles of Investment.* 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, B.A. 121. Five credits; autumn, winter. Dakan.

123. *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.

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. Prerequisite, B.A. 121. Five credits; spring. Preston.

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. Prerequisite, B.A. 103. Five credits; autumn. Skinner.

*128. *Personal Insurance.* Scientific basis of life insurance; types of policies and considerations involved in proper selection; premium rates; reserves; types of insurance organizations; governmental regulation of life insurance business, companies and agents; insurance company investments; types of cov-

*Not offered in 1935-36.

erage provided in life and health insurance; group life and accident insurance; workmen's compensation insurance. Prerequisite, B.A. 108. Five credits; spring. Given 1936 and alternate years. Smith.

129. *Property Insurance.* Coverage of property risks; types of companies; study of the standard fire insurance contract; governmental and internal regulation; fire prevention and protection; business interruption, profit, credit and burglary insurance. Prerequisite, B.A. 108. Five credits; spring. Given 1936 and alternate years. Smith.

FOREIGN AND DOMESTIC COMMERCE

131. *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. 107. Five credits; winter. Skinner.

132. *Advanced 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. Prerequisite, B.A. 131. Five credits; spring. Skinner.

134. *Wholesaling.* The wholesale functions and agencies performing them; historical development and economic justification; recent trends and future prospects. Prerequisite, 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. Prerequisite, 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 criticism; advertising organizations, their functions and procedure. Prerequisite, B.A. 106. Five credits; spring. Miller.

PUBLIC UTILITIES AND TRANSPORTATION

141. *Regulation of Public Utilities.* Economic, legislative and administrative problems of regulation; an evaluation of local, state and federal utility control; the problem of fair value and fair return; the holding company; municipal ownership and operation with its incidental problems; taxation of public utilities. Prerequisite, B.A. 104. Five credits; autumn. Hall.

142. *Advanced Economics of Public Utilities.* Theory of cost differentiation; joint and special costs; increasing and diminishing returns; problems of differential rates, production, distribution, interconnection, marketing, finance, public relations. Special attention to Pacific coast conditions. Prerequisite, B.A. 104. Five credits; winter. Hall.

143. *Railway Transportation.* An intensive treatment of the principles of railway transportation. Critical evaluation of problems of finance, operation, competition, combination and regulation. Prerequisite, B.A. 104. Five credits; winter. Gould.

144. *Water Transportation.* Economic principles basic to water transportation. Problems of joint and special costs, competition, rate practices, rate agreements, shipping subsidies, intercoastal regulations. Prerequisite, B.A. 104. Five credits; autumn, spring. Gould.

145. *Air and Highway Transportation.* Economic principles underlying motor and air transportation, problems of costs, commodity classifications, tar-

iffs, competition, coordination, governmental subsidies and regulation. Prerequisite, B.A. 104. Five credits; autumn. Farwell.

146. *Traffic Management.* Principles and theory of scientific industrial traffic management. Problems of routing, expediting, auditing, demurrage, reconsignment, port and terminal facilities. Special needs of rail, water, motor and air carriers as to port and terminal facilities. Prerequisite, B.A. 104. Five credits; winter. Farwell.

147. *Transportation Rates.* An intensive examination of theory underlying commodity classifications and tariffs. Rate-making power of governmental bodies. Prerequisite, B.A. 143, or B.A. 144. Five credits; spring. 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 B.A. 144. Five credits; spring. Farwell.

MANAGEMENT AND ACCOUNTING

150. *Technology of Industry.* The manager's use of technology. The important industrial factors used in controlling physical operating conditions. Prerequisite, B.A. 101. Five credits; autumn, winter. McIntyre.

151. *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.

152. *Advanced Theory of Accounts I.* Application of accounting theory to business problems; advanced partnership and corporation problems; receiverships; annuities; consignments. Prerequisite, B.A. 151. Five credits; autumn, winter, spring. Draper.

153. *Advanced Theory of Accounts II.* Continuation of B.A. 152. Mergers and consolidations; consolidated balance sheets, and profits and loss statements; accounting for securities. Prerequisite, B.A. 152. Five credits; autumn, winter, spring. Draper.

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. 151. Five credits; autumn, winter, spring. Gregory.

155. *Cost Accounting II.* Standard Costs. Prerequisite, B.A. 154, and consent of the instructor. Five credits; spring. Gregory.

156. *Income Tax Accounting.* Selected cases illustrating the definition of taxable income of individuals, corporations, partnerships. Regulations of Treasury Department. Prerequisite, B.A. 153. Five credits; autumn, winter. McConahey.

157. *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. 153. Five credits; autumn, winter. Cox.

158. *C. P. A. Problems.* Selected cases taken from American Institute and State C.P.A. examinations. Prerequisite, B.A. 157. Five credits; spring. McConahey.

ADVANCED ECONOMICS

161. *Labor Legislation.* A consideration of labor legislation in its relation to social, political and economic theories reflected against a common institutional background. Prerequisite, B.A. 105. Five credits; autumn.

162. *European Labor Problems.* A comparative study of the problems of labor in foreign countries; historical economic backgrounds; programs of amelioration and reform. Prerequisite, B.A. 105. Five credits; spring.

163. *Economics of Consumption.* Historical development of human wants in relation to the economic laws of consumption; attempts to control consumption. Prerequisite, B.A. 105. Five credits; autumn. McMahon.

169. *Real Estate II.* Types of real estate uses and their characteristics; appraisals of farm and urban land and improvements; property rights; real estate finance; management of real property; leases. Prerequisite, B.A. 109. Five credits; winter. Demmery.

171. *Public Finance and Taxation I.* The growth of public expenditures in modern times; the underlying principles and theory of the various forms of public revenue; taxation by national, state and local governments; the character of various forms of taxation; the principles and practices of public credit and of public financial administration. Prerequisite, B.A. 103. Five credits; autumn, winter, spring. Hall.

172. *Public Finance and Taxation II.* A survey and analysis of fiscal thought; methods and problems in expenditure analysis; a study of tax systems; an evaluation of the Model Plan of state and local taxation of the National Tax Association; theories and problems of classification, equity and incidence in taxation; a critical evaluation of the use and control of public credit and the custody and disbursement of public funds. Prerequisite, B.A. 171. Five credits; winter. Hall.

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, spring. Demmery.

176. *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. Prerequisite, B.A. 175. Five credits; spring. Demmery.

*181. *Economic 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 manufacturers, commerce, labor, finance, and agriculture. Prerequisite, 30 upper division credits in economics and business. Five credits; winter 1937, and alternate years. Coon.

185. *Advanced Economic Theory.* Economic thought centering about the neo-classical theories of value and distribution and the validity of this thought under present conditions. Analysis of the price system; monopoly; competition; the agents of production; economic systems; and social control. Prerequisite, 30 upper division credits in economics and business. Five credits; autumn, winter, spring, summer. Mund.

187. *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. 185. Five credits; autumn, winter. Coon.

*Not offered in 1935-36.

188. *Institutional Economics.* A reading and discussion course dealing with John R. Commons' interpretation of institutional economics, namely, "An analysis of economic theories of today, their origin and evolution, and their operation in modern political-economic life." Prerequisite, 40 upper division credits in Economics, Sociology or Political Science. Five credits; winter. McMahon.

SEMINARS

190. *Research in Business Administration.* Summer quarter only. Coon and staff.

192. *Bank Credit Administration.* The administration of bank credit based on actual problems selected from portfolios of Pacific Northwest banks. Prerequisites, B.A. 63, B.A. 103 and consent. Three credits; winter. Truax.

193. *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. Prerequisites, B.A. 134, 135, 136, and consent. Three credits; autumn, winter, spring. Miller.

194. *Research in Transportation.* Open only to qualified students in transportation who will be placed in part time contact with transportation agencies. Prerequisite, consent of instructor. Three credits; autumn, winter. Gould.

195. *Research in Management and Accounting.* Open to qualified undergraduate and graduate students. Prerequisite, consent of instructor. Three credits; autumn, winter, spring. Gregory.

196. *Research in Public Utilities.* Open to qualified undergraduate and graduate students. Prerequisite, consent of instructor. Three credits; autumn, winter, spring. Hall.

197. *Research in International Trade.* Open to qualified undergraduate and graduate students. Prerequisite, consent of instructor. Three credits; autumn, winter, spring. Skinner.

198. *Graduate Seminar in Public Finance and Taxation.* Advance theories and problems of public finance; special attention to administrative practices and problems of taxation; public credit, budgeting, and financial administration. Prerequisite, B.A. 172. Three credits; autumn. ———.

COURSES FOR GRADUATES ONLY

202. *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. Five to seven credits each quarter; autumn, winter. Preston.

206. *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. Five to seven credits each quarter; winter, spring. McMahon.

208. *Graduate Seminar in Economics.* 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. 185, 187, or equivalent, and consent of instructor. Five to seven credits each quarter; spring. Coon.

210. *French and German Economists.* Prerequisite, consent of instructor. Three credits; autumn, winter, spring. Skinner.

212. *Graduate Seminar in Public Service Problems.* For students majoring in the course in government service. Assigned reading, reports, and discussions. Three credits; spring. ———.

Teachers' Courses in Business Administration

Educ. 75E. *Teachers' Course in Accounting.* 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

Education Hall

Professors Uhl, Bolton, Cole; Associate Professors Draper, Dvorak, Jessup, Williams; Assistant Professors Corbally, Powers.

Course 60 is prerequisite to all courses in education excepting Education 1, which is open to freshmen and sophomores. Courses 60 and 70 are prerequisite to 71-72 which should be planned for the graduate year now required for the normal diploma. Courses 60, 90, 9, 70, 75, 71-72 and 120 are regularly required for certification.

1. *Education Orientation.* A preview of the field of teaching in its several phases. Prognostic and aptitude evaluation. Discussion of the teaching opportunities in the several fields. Assistance to students in checking fundamental preparations such as reading speed, voice, study habits, etc., and the suggested remedial measures when needed. Conferences. For those contemplating teaching as a profession. Two credits; spring. Uhl, Powers.

I. Elementary Courses (Upper Division Credit)

9. *Psychology of Secondary Education.* The psychological basis of secondary education. Prerequisites, Educ. 60, 90, and Psych. 1. Three credits; autumn, winter, spring. Powers.

30. *Washington State Manual.* For out-of-state applicants for teaching certificates from the State Department of Education. Applicants for the University five-year diploma do not register for this course. No credit; autumn, winter spring. Corbally.

60. *Principles of Secondary Education; Problems of the High School Teacher.* Three credits; autumn, winter, spring. Draper.

70. *Introduction to High School Procedures.* Methods and observation of high school teaching. Prerequisites, Educ. 60, 90, and 9. Five credits; autumn, winter, spring. Williams.

71-72. *Cadet Teaching.* Semester basis. Course 72 may precede or follow 71. Prerequisites, Educ. 60, 90, 9, 70 and 75 or approved equivalent. Eight credits. Cadets electing autumn semester register for 71, five credits, fall quarter; 72, three credits, winter quarter. Cadets electing spring semester register

for 72, three credits, winter quarter; 71 five credits, spring quarter. Three successive free hours should be provided in the schedule each quarter for cadet teaching. Cadets registering for autumn semester, report at 114a Education Hall, Monday, September 23 at 8:30 for assignment to Seattle Schools. Corbally, Powers.

71P-72P-73P. *Cadet Teaching for Women Health and Physical Education Majors.* Eight credits; three quarters required. Registration in 71P three credits, 72P two credits; 73P three credits. Teaching arrangements made by the department of Women's Health and Physical Education and the director of cadets. Corbally, Hutchinson.

90. *Measurement in Secondary Education.* The use of tests and scales in secondary education. Prerequisite, Educ. 60 Two credits; autumn, winter, spring. Dvorak.

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.* This course offers the prospective commercial teacher a study of the curriculum, methods of teaching, objectives, standards, grading, examination, and demonstrational problems, with special concentration upon the subjects of shorthand and typewriting. The correlation between the classroom in commerce and business itself is studied from the teacher's point of view. Three credits; spring.

*75G. *Dramatic Art.* (Not offered 1935-36.)

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. Spring. Meisnest.

75M. *History.* Special reference to work of the high school. Prerequisite, History 160. Two credits; spring. McMahon.

75NA. *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 credits (only two of which count toward normal diploma); spring. Raitt.

75NB. *Home Economics.* Organization and methods of instruction for nurses, dietitians, internes, and employees of hospitals and other institutions. Prerequisite, 25 credits in Home Economics. Three credits. (Two credits counted toward normal diploma); autumn. Raitt.

75O. *Geography.* (Prerequisites, Geography 1, and 5 additional credits.) Two credits; winter. Earle.

For teachers' course in journalism, see Jour. 125.

*Not offered in 1935-36.

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. *Health and Physical Education for Women.* Prerequisites, Phys. Edu. 162, 163, 164, at least five credits of which must be in residence. Two credits; autumn. Hutchinson.

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. Intermediate Courses (Upper Division and Graduate Credit)

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.* Five credits; autumn, 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; autumn, winter, spring. Bolton.

130. *Public School Administration.* Designed for superintendents, and principals, or those seeking such positions. Four credits; autumn. Jessup.

133. *Elementary School Organization and Administration.* Four credits; winter.

134. *High School Organization and Administration.* A study of the high school principal as supervisor, administrator, and director of extraclass and intramural activities. Three credits; spring. 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.

141. *Supervision of Elementary School Subjects.* Four credits; winter. Jessup.

*Not offered in 1935-36.

145G. *School Hygiene.* Particular attention is given to 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; winter. Belshaw.

145H. *Books for High School Boys and Girls.* Three credits; autumn. Andrews.

145V. *Principles and Objectives of Vocational Education.* Aims of vocational education, materials of instruction, standards of work, and judging measurement of work. Three credits; winter. Corbally.

146. *Extraclass 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.

153. *Elementary School Curriculum.* Four credits; spring. Jessup.

158A. *Reading: Elementary School.* Scientific studies of elementary school reading. Primarily for administrators and teachers with experience. 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, Educ. 60 and 70 or equivalent. Three credits a quarter; autumn, winter. 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.* Three credits; autumn. Jessup.

191. *Advanced Educational Measurements.* Prerequisite, Educ. 90 or its equivalent. Three credits; winter. Dvorak.

193. *Character Education.* Experimental background of the modern effort toward character development. Three credits; winter. Powers.

III. Advanced Courses (Open to 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. *Seminar in Educational Sociology.* Five credits; spring. Bolton.

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. *Supervision of Secondary School Subjects.* Three credits; winter. Uhl.

245, 246, 247. *Organization of Supervisory and Administrative Programs.* Five credits; autumn, winter, spring. Cole.

260-261. *Seminar in Secondary Education.* Two credits each quarter; winter, spring. Draper.

263. *Junior College.* Three credits; spring. Dvorak.

265. *Seminar in College Teaching.* Three credits; winter. Powers.

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.

For *Health and Physical Education Courses* see pages 101, 102.

ELECTRICAL ENGINEERING

Engineering Hall

Professors Magnusson, Loew; Associate Professors Shuck, G. S. Smith, Hoard; Assistant Professors Austin V. Eastman, Lindblom; Instructor Cochran.

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. 41. Four credits; autumn, winter, spring. Cochran, 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. Hoard, Cochran.

103. *Direct Currents.* A short course in direct current machinery, for civil engineering students. To be taken with E.E. 104. Prerequisites, Physics 98, Math. 41. Three credits; autumn. Cochran, Eastman.

104. *Direct Currents Laboratory.* Direct current machinery, for civil engineering students. To be taken with E.E. 103. Prerequisite, Physics 98. One credit; autumn. Eastman.

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. 41. Four credits; autumn, spring. Cochran, Shuck, Lindblom.

110. *Direct Currents Laboratory.* Direct current mahcinery. Prerequisite, Physics 98. To be taken with E.E. 109. Two credits; autumn, spring. Hoard, Lindblom.

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; autumn, winter. Cochran, Smith Shuck.

112. *Direct Currents Laboratory.* Experimental work on direct current dynamo machinery. To be taken with E.E. 111. Prerequisite, E.E. 110. Four credits; autumn, winter. Hoard, Shuck.

**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. Loew, 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. Lindblom, Shuck, Hoard.

123. *Alternating Currents.* A short course in alternating current machinery for civil engineering students. To be taken with E.E. 124. Prerequisites, E.E. 103, 104. Three credits; winter. Eastman, Lindblom.

124. *Alternating Currents Laboratory.* Alternating current machinery for civil engineering students. To be taken with E.E. 123. Prerequisites, E.E. 103, 104. One credit; winter. Cochran, ———.

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. 152, 163. Four 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; winter, spring. Lindblom, Cochran, Smith.

162. *Alternating Currents Laboratory.* Experimental work with alternating current machinery. To be taken with E.E. 161. Prerequisite, E.E. 112. Four credits; winter, spring. Eastman, Smith, Shuck.

**Will be offered if a sufficient number of students elect the course.

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, spring.
Smith, Loew, Hoard.

164. *Alternating Currents Laboratory.* To be taken with E.E. 163. Prerequisite, E.E. 162. Four credits; autumn, spring. Hoard, Shuck.

171. *Electrio 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.

181. *Vacuum Tubes.* Fundamentals of vacuum tubes; theory of rectifiers and amplifiers; photoelectric cells; thyratrons; applications to the power, communication and other low frequency fields. To be taken with E.E. 182. Prerequisite, E.E. 161. Four credits; autumn, winter, spring. Eastman, Hoard.

182. *Vacuum Tubes Laboratory.* Experimental work with vacuum tubes. To be taken with E.E. 181. Prerequisite, E.E. 162. Two credits; autumn, winter, spring. Eastman, Cochran.

183. *Radio.* Theory of vacuum tube oscillators, modulators, detectors and amplifiers; applications in the radio and other high frequency fields. Prerequisite, E.E. 181. Five credits; winter, spring. Eastman, Hoard.

185. *Telephone Transmission.* Theory of telephone transmission, reflection phenomena; standing and travelling waves; loading; measurement of line constants; filter design. Prerequisite, E.E. 161. Four credits; winter.
Eastman.

184, 186, 188. *Research.* Two to five credits a quarter; autumn, winter, spring. Magnusson.

190. *Seminar.* Prerequisites, E.E. 161, 162. Five credits; autumn.
Magnusson.

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.

194. *Seminar.* For the year 1935-36 this seminar will be in the field of hydro-electric power resources in the State of Washington. Prerequisites, E.E. 163, 164. Five credits; spring. Magnusson.

195. *Electric Transients.* Single and double energy transients; standing and travelling waves; short circuit transients; surges; corona; lightning. Prerequisites, E. E. 163. Three credits; autumn, winter. Magnusson.

196. *Electric Transients Laboratory.* To be taken with E.E. 195. Prerequisite, E.E. 164. Three credits; autumn, winter. Smith.

198. *Electric Transients Laboratory.* Continuation of E.E. 196. Study of electric transient phenomena by means of vibrator and cathode ray oscillographs, klydonograph and voltage impulse recorders. Two to five credits; autumn, winter, spring. Magnusson, Smith.

**Will be offered if a sufficient number of students elect the course.

COURSES FOR GRADUATES ONLY

205. *Seminar.* For 1935-36 this seminar will be held in the field of radio transmission. Prerequisites, E.E. 185 or 175. Three credits; winter. Eastman.

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, 101, 102, 103 and Speech 103.

ENGLISH

Parrington Hall

LITERATURE: *Professors Griffith, Benham, Cox, Harrison, Padelford, Taylor; Associate Professors Milliman, Winther; Assistant Professors Cornu, Eby, Wagenknecht; Lecturer Sperlin; Instructors Ethel, Stirling; Associates Blankenship, Burns, Butterworth, Kahin, Zillman, Savage.* DRAMA: *Professor Hughes; Assistant Professors Conway, James; Associate Weinstein; Assistants.* SPEECH: *Professor Orr; Assistant Professors Rahskopf, Windesheim, Strother; Instructor Bird; Associates Pellegrini, Vandraegen; Assistants and Teaching Fellows.* FRESHMAN COMPOSITIONS *Assistant Professor Lawson; Instructors Gillette, Hall; Associates Beal, Brown, Dressler, Emery, Haggett, Kerrigan, Nix, Norlin, Walters, Vickner; Assistants and Teaching Fellows.* LIBRARY: *Gilchrist, Parrington Branch Librarian.*

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.

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 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 Language (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 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. 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 five 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 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, 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.

37. *Argumentation.* Primarily for students in the College of Economics and Business. Analysis, the use of evidence, and the discovery of fallacies. Five credits; autumn, winter, spring. Stirling in charge.

51, 52, 53. *Advanced Composition.* Composition based upon models from current magazines. May be taken for upper division credit by upper division students. Prerequisite, Comp. 2 or equivalent. Two credits; autumn, winter, spring. Milliman.

54, 55, 56. *Advanced Composition.* Description, narration, and the writing of criticism. Upper division credit for upper division students. Prerequisites, Comp. 1 and 2. Two credits; autumn, winter, spring. Ethel, Burns, Savage, Walters.

61, 62, 63. *Verse Writing.* Prerequisite, Comp. 1, 2. Two credits; autumn, winter, spring. Zillman.

67, 68, 69. *English Prose Style.* A study of composition to develop effective presentation of material. Upper division credit for upper division stu-

dents. 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.

101. *Modern Reading.* A course for students in technology intended to direct their reading in non-technological fields. Conferences, written and oral reports. Students registered in this course may continue directed reading during vacations. Three to five credits; autumn, winter, spring. Hall.

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. Prerequisite, Comp. 100. Three credits; autumn, winter, spring. Hall.

103. *English for Engineers.* A continuation of Comp. 102. Three credits; autumn, winter, spring. Hall.

110, 111, 112. *Advanced Verse Writing.* Given in conjunction with Comp. 61, 62, 63. All the elementary credits must be earned before advanced credit will be given. Two credits; autumn, winter, spring. Zillman.

156, 157, 158. *Advanced Composition: Narration.* Prerequisite, 1 and 2 or equivalent. Five credits; autumn, winter, spring. Savage.

For other courses in composition, see Speech 138; Drama 111, 112, 113; Jour. 173, 174-175.

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, Stirling, Zillman, Kahin, Burns.

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.
Wagenknecht, Zillman, Ethel, Stirling, Burns.

73. *Introduction to Modern Literature.* Essays on European and American thought. Readings in poetry, novel, and drama. Five credits; autumn, winter, spring. Milliman, Blankenship, Burns.

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.
Griffith, Cornu, Ethel, Savage.

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. 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. Butterworth.

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. Griffith, Butterworth.

153, 154. *English Literature: 1476-1642...*The Renaissance, Spenser and his contemporaries, and non-Shakespearean Elizabethan drama. Five credits; autumn, winter, spring. Taylor, Padelford.

161, 162. *American Literature.* From the beginning 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, spring. Benham.

170, 171. *Shakespeare.* Prerequisites, Lit. 64, 65. Five credits; autumn, winter, spring. Padelford, Benham, Taylor, Eby, Wagenknecht.

174, 175. *Late Nineteenth Century Literature.* Poetry, novels, essays, and drama. Five credits; autumn, winter, spring. Winther, Wagenknecht.

*176. *Browning's Longer Poems.*

177, 178. *Early Nineteenth Century Literature.* Poetry, novels, essays, and drama. Five credits; autumn, winter, spring. Cox, Ethel.

180, 181. *Old English Language.* The reading of Anglo-Saxon classics in the original and the study of grammatical forms. Five credits; autumn, winter. Butterworth.

191. *Major Conference.* Individual conferences for guidance in independent study. Three credits; autumn, winter, spring. Staff.

Teachers' Courses. See Education 75H.

For courses in foreign literature taught in English, see Department of General Literature.

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*Not offered in 1935-36.

COURSES FOR GRADUATES ONLY

203. *Literary Criticism.* A brief history of English Criticism. Five credits; autumn. Benham.

204, 205, 206. *Chaucer.* The problems of Chaucerian scholarship. Five credits; autumn, winter, spring. Griffith.

*211, *212, *213. *Seminar in Sixteenth Century Literature: Spenser.* 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; autumn, 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; spring. Harrison.

230, 231. *Old English.* Anglo-Saxon grammar; readings in Old English prose and poetry; Beowulf. Five credits; autumn, winter. Butterworth.

233, 234. *Advanced Old English.* Prerequisites, Literature 230, 231, or equivalent. Five credits; spring. Butterworth.

238, 239, 240. *Seminar in Early Nineteenth Century Literature.* Five credits; autumn, winter, spring. Cox.

241, 242, *243. *Victorian Literature.* Studies in the Late Nineteenth Century writers. Five credits; winter, spring. Winther.

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 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, and Liberal Arts 214, 215, 216.

Drama

47, 48. *Theatre Speech.* To prepare the speech of students for desirable usage in the theatre. Prerequisite, Speech 43. Two credits; autumn, winter, spring. Weinstein in charge.

51, 52, 53. *Elementary Acting.* Theory and practice of the art of acting. Members of class form nucleus for workshop play productions. Prerequisites, 47, 48, Speech 43. Two credits; autumn, winter, spring. Weinstein in charge.

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.

107, 108, 109. *Puppetry.* A practical course in educational and professional puppetry. History and principles of the marionette theatre. Design, construction, costuming, stringing and manipulation of puppets. Portable puppet stage construction. Two credits; autumn, winter, spring. Inverarity.

*Not offered in 1935-36.

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, Weinstein.

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.

181, 182, 183. *Problems in Acting.* Prerequisite, 121, 122, 123. Two credits; autumn, winter, spring. Weinstein.

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. Five credits; autumn, winter, spring. Hughes in charge.

For other courses in Drama, see Lit. 154, 170, 171, 208, 209, 210, 217, 218, 219.

Speech

Work in the division of speech is designed to be both cultural and practical. The cultural aim is based on the fact that an understanding and mastery of speech, as a fundamental activity of civilized life, are essential parts of a liberal education. The practical aim is based on every individual's need for effectiveness in his own speaking. Courses in speech fall into five main groups:

Group I. Public Address and Argumentation.
Courses 38, 39, 40, 41, 101, 103, 139, 188, 218

Group II. Voice Science and Voice Training.
Courses 43, 44, 187, 214.

Group III. Oral Interpretation of Literature.
Courses 79, 179, 215.

Group IV. Speech Pathology.
Courses 191, 192, 193, 216.

Group V. General and Special Courses.
Courses 161, 186, Educ. 75X.

REQUIREMENTS FOR MAJOR IN SPEECH

Courses	*Credits*
Speech 40. Essentials of Speaking	5
Speech 43. The Speaking Voice	3
Speech 191. Speech Correction	3
Speech 186. Backgrounds in Speech	3
Approved lower division electives in Speech	8
Approved upper division electives	18
Comprehensive Senior Examination	0

Speech majors should elect the following courses related to speech work as a part of the University College requirements:

Literature 64, 65	10 credits
Literature 117	5 credits
Psychology 1	5 credits
Philosophy 2	5 credits

38. *Essentials of Argumentation.* Study of the principles of argumentation and their application to practical speech situations. Bibliographies, briefs, and oral arguments required of each student. Upper division credit for upper division students. Five credits; autumn, winter, spring. Bird, Pellegrini.

*39. *Advanced Argumentation and Debate.*

40. *Essentials of Speaking.* An elementary course in the fundamentals of effective speaking. Five credits; autumn, winter, spring. Orr in charge.

41. *Advanced Speaking.* Continuation of Speech 40, with special emphasis on problems of delivery. Upper division credit for upper division students. Prerequisite, Speech 40. Three credits; autumn, winter, spring. Bird, Windesheim, ————.

43. *The Speaking Voice.* A fundamental training course with emphasis on the mental, emotional, and physical coordinations essential to good voice. Upper division credit for upper division students. Three credits; autumn, winter, spring. Orr, Rahskopf, Strother.

44. *Voice and Articulation.* Continuation of Speech 43 with special attention to problems of articulation and to the physiological and acoustic aspects of voice production. Upper division credit for upper division students. Prerequisite, Speech 43. Three credits; winter, spring. Rahskopf.

79. *Oral Reading of Literature.* The purpose of the course is to help the student develop a deeper intellectual and emotional appreciation and more effective oral expression of literary values. Required for a normal diploma in English. Upper division credit for upper division students. Three credits; autumn, winter, spring. Orr, Windesheim, Pellegrini.

101. *Public Discussion.* Only students chosen for the varsity 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. 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 nor to students who have credit in Speech 40. Three credits; spring. Windesheim.

*Not offered in 1935-36.

139. *Forms of Public Address.* Study of the structure and style of the various forms of public address, based on analysis of modern speeches. Practical speaking to develop an effective oral style. Prerequisite, Speech 40. Three credits; winter. Rahskopf.

161. *Radio Speech.* Problems in speaking over the radio, including voice, diction, announcing, continuity and program arrangement. Prerequisite, consent of instructor. Five credits; winter. Bird.

179. *Advanced Interpretation of Literature.* Advanced training in the mental and vocal technique essential to artistic oral interpretation of the various forms of literature. Prerequisite, Speech 79. Five credits; spring. Orr.

186. *Backgrounds in Speech.* Study of speech as a fundamental human activity considered from the biological, acoustic, psychological, and social aspects. Some attention is given to the development of speech as a field of study and the correlation of its various phases. Three credits; spring. Rahskopf.

187. *Advanced Voice Problems.* Advanced training in the use of voice in speech, with investigation of special problems in voice production. Prerequisite, Speech 43. Five credits; winter. Orr.

188. *Advanced Problems in Speaking.* Laboratory and research. Attention to individual needs. Prerequisite, Speech 40. Five credits; spring. Orr.

191. *Speech Correction.* Methods of correcting minor speech defects together with practical application of these methods to specific cases. Three credits; autumn, spring. Rahskopf.

192. *Speech Clinic.* Individual work for students having speech defects they wish to correct. No credit; autumn, winter, spring. Strother, Windesheim.

193. *Speech Pathology.* Study of the etiology, diagnosis, and therapy of the more complex and serious speech defects. Clinical practice. Prerequisite, Speech 191 or consent. Five credits; autumn. Strother.

Teachers' Course. See Education 75X.

COURSES FOR GRADUATES ONLY

214. *Research in Voice.* Five credits; autumn. Orr.

215. *Research in Theory of Interpretation.* Five credits; winter. Orr.

216. *Research in Speech Pathology.* Five credits; spring. Windesheim.

218. *History of Rhetoric.* Five credits; autumn. Rahskopf.

FISHERIES

Fisheries Hall

Professor W. F. Thompson; Associate Professor Lynch; Assistant Professor Schultz; Associate Donaldson

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. *Comparative Anatomy of Fishes.* The morphology of fishes with special emphasis upon the evolution of the various orders. Prerequisites, Zool. 1 and 2. Two laboratory periods, and three lectures a week. Five credits; autumn. Schultz, Donaldson.

102. *The Classification and Identification of the Soft-rayed Fishes.* Special attention is given to salmon and trout. Prerequisite, Fish. 101. Two laboratory periods and three lectures a week. Five credits; winter.
Schultz, Donaldson.

103. *The Classification and Identification of the Spiny-rayed Fishes.* Special emphasis is given to game and food fishes. Prerequiste, Fish. 102. Two laboratory periods and three lectures a week. Five credits; spring.
Schultz, Donaldson.

105, 106, 107. *Commercial Aquatic Invertebrates.* Classification, life histories, and uses 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. *The Spawning Habits of Game and Other Fishes.* Observations of the spawning of salmon and trout are made in the field. Prerequisite, Fish. 101. Two laboratory periods and three lectures a week. Five credits; autumn.
Schultz.

†126. *Early Life History of Fishes.* Sexual maturity, growth, development, and the various environmental factors which influence the growth of fish eggs, larvae, and young fish are studied. Prerequisite, Fish. 102. Two laboratory periods and three lectures a week. Five credits; winter. Schultz.

†127. *The Marine Pelagic Eggs and Larvae of Fishes.* The factors which influence their distribution. Prerequisite, Fish. 102. Two laboratory periods and three lectures a week. Five credits; spring. Schultz.

151. *Natural Fish Foods and Water Supplies.* Fresh-water insects and crustacea and their relations to pond culture. Physical and chemical determinations of the suitability of water. Propagation of salt-water fishes. Prerequisites, Zool. 1 and 2; Chem. 1, 2, or 21 and 22. Three 2-hour laboratory periods and three lectures a week. Five credits; autumn. Lynch, Donaldson.

152. *Propagation of Freshwater Fishes. Methods of Hatching and Rearing.* Methods of feeding and evaluation of efficiency of diets. Design, structure and maintenance of hatcheries, pond systems and aquaria. Prerequisites as for Fish. 151. Three 2-hour laboratory periods and three lectures a week. Five credits; winter. Lynch, Donaldson.

153. *Hatchery Biology.* Algae, higher plants, and miscellaneous invertebrates in relation to fish. Sanitation, disease prevention, control of undesirable plants and animals. Stream improvement. Stocking policies. Culturing of freshwater animals other than fish. Prerequisites as for Fish. 151. Three 2-hour laboratory periods and three lectures a week. Five credits; spring.
Lynch, Donaldson.

154. *Diseases of Fish.* Nature and cause 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. *The Age and Growth of Game and Food Fishes.* Determination by means of scales and otoliths. Prerequisite, Fish. 102. Two laboratory periods and three lectures a week. Five credits; autumn. Schultz.

**158. *The Migrations of Game and Food Fishes.* Marking experiments and racial investigations. Prerequisite, 102. Two laboratory periods and three lectures a week. Five credits; winter. Schultz.

‡159. *Conservation.* Theory of overfishing and statistical methods of observation. Prerequisite, Fish. 106 or 102. Five credits; spring. Thompson.

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†Given in 1935-36 and alternate years thereafter.

**Given in 1936-37 and alternate years thereafter.

‡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 to five 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 to five credits any quarter. Thompson.

FORESTRY AND LUMBERING

Anderson Hall

Professors Winkenwerder, Grondal, Jeffers; Associate Professor Pearce; Assistant Professors Alexander, Harrar

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. Harrar.

1b. *Dendrology.* Continuation of For. 1a. Prerequisite, For. 1a. Three credits; autumn. Harrar.

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 wood in relation to their uses. Prerequisites, Physics 2, For. 1a, Ten 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. Harrar.

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. Pearce.

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. Pearce.

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. Alexander.

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. Pearce.

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. 122. 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. Harrar.

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. Opportunities 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. Alexander.

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 62, 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. Pearce.

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. Pearce.

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. Pearce.

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. Pearce.

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

Education Hall

Associate Professors Wilcox, Warner; Assistant Professors Brown, Rowlands, Tymstra; Instructors Jacobsen, Jensen, Lamson, Engel, Mackey.

1. *Engineering Drawing.* Fundamental principles of orthographic projection; theory of related views; types of graphical representation. Should be preceeded or accompanied by solid geometry. Three credits; autumn, winter, spring. Warner.

2. *Engineering Drawing.* Fundamental requirements of working drawings, including practice in their reading and execution. Prerequiste, 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, spring. 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. 32 or equivalent. 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, 113.

II. Oriental Studies 50, 51, 52, 70, 71, 90, 91.

III. Literature 64, 65, 66, 97.

IV. German 55, 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 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.

GEOGRAPHY

Johnson Hall

Associate Professor Martin; Assistant Professors Earle, Seeman; Instructor Church.

1. *Introductory Regional Geography.* Elements of the natural environment; man's changing relation to his habitat; geographic background for the social sciences. Not open to students who have had Geog. 7. Five credits; autumn, winter, spring. Earle.

2. *Physical Geography.* The science of land forms, soils, and minerals; use and interpretation of topographic maps; map making. Laboratory supplemented by field trips. Five credits; autumn, winter, spring. Seeman.

7. *Economic Geography.* Regional resources of the world; factors locating industries; commodities in international trade. Not open to students who have had Geog. 1. Five credits; autumn, winter, spring. Martin.

11. *Weather and Climate.* World distribution of temperature, pressure, winds, precipitation. Climatic cycles. Construction and interpretation of weath-

er maps. Graphic representation of climatic data. Five credits; autumn, winter, spring. Earle, Seeman.

101. *World Regional Geography.* Same as Geog. 1, but with additional work and readings. Not open to those who have had Geog. 1. Prerequisites, junior standing. Five credits; autumn, winter, spring. Earle.

102. *Geography of North America.* Regional specialization in industry; sectionalism, growth of cities, internal problems. Prerequisites, Geog. 1-101, 7, 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, 7, or permission. Five credits; autumn. Earle.

104. *Geography of Europe.* Survey of development by countries. Localization of manufactures. Geographic bases for commerce. Prerequisites, Geog. 1-101, 7, or permission. Five credits; spring. Martin.

105. *Geography of South America.* Economic and social development; raw materials and potential markets; inter-American relations. Prerequisite, Geog. 1-101, 7, or permission. 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, 7, or permission. 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, Seeman.

112. *Meteorology.* Fundamentals of air physics as applied to climatic and weather phenomena. Prerequisite, Geog. 11 or 111. Five credits; spring. Church.

115. *Geography of Caribbean America.* Regions and resources of Mexico, Central America, and the West Indies; transportation and trade; American policy in the Caribbean. Prerequisites, Geog. 1-101, 7, or permission. Three credits; winter. Martin.

140. *Geography in the High School.* Organization and function in high and junior high school; analysis and presentation of geographic data. Three credits; winter. Mapes.

155. *Influences of Geographic Environment.* The development of geographic theory; type studies of occupance; urbanization; philosophy of geographic adjustment. Prerequisite, 10 credits of geography or permission. Five credits; spring. Earle.

170. *Conservation of Natural Resources.* Public policy in the management of soils, forests, minerals, fisheries, etc. Land reclamation; erosion; flood control; problems in resource utilization. Five credits; winter. Martin.

175. *Problems in Political Geography.* Geographic background of international relations. A reading course with regular conferences and reports. Prerequisite, 10 credits of geography and permission. Five credits; autumn, winter, spring. Seeman, Von Brevern.

199. *Proseminar in Geography.* Training in research methods; preparation and presentation of paper. Permission necessary. Five credits; spring. Martin.

Teachers' Course in Geography. See Education 750.

COURSES FOR GRADUATES ONLY

200. *Seminar.* Winter: Special topic—Japan. Three credits. Earle.
Spring: Preparation and presentation of paper on approved topic; five credits. Martin.

201. *Research.* Credits and hours to be arranged; autumn, winter, spring. Earle.

207. *World Resources and Industries.* Readings and research. Autumn, winter, spring. Martin, Seeman.

*211. *Research in Meteorology.*

GEOLOGY

Johnson Hall

Professors Landes, Weaver, Goodspeed; Associate Professor Fuller; Assistant Professor Mackin; Associate Coombs.

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 112.

(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. Mackin.

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. Mackin.

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.* Systematic study of the physical history of surface forms in the physiographic provinces of the western

United States. The subject matter of the course is regional geology from a geomorphic viewpoint. Prerequisite, Geol. 5, 6, 7. Five credits; autumn. Mackin.

114. *Map Interpretation: Constructional Landforms.* Application of principles of geomorphology to the interpretation of topographic maps, with emphasis on the study of rock structures as reflected in surface form. Prerequisite, Geol. 5 and 6. Three or five credits; spring. Mackin.

*115. *Map Interpretation: Destructional Landforms.*

116. *Glacial Geology.* A course devoted to the study of the mechanism of glacial action and the landforms produced by continental ice sheets and valley glaciers, with emphasis on the glacial history of the Puget Sound region. Prerequisite, Geol. 5 and 6. Three or five credits; autumn. Mackin.

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.* Methods of geologic and topographic surveying and recording in geologic field work. Prerequisites, Geol. 5, 6, 7, 124, 125. Five credits; spring. Mackin.

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 microscopically 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 and 131. 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 nonmetallic 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.

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.

*Not offered in 1935-36.

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.

142. *Structural Geology.* Study of the interpretation of rock structures and their genesis. Prerequisites, Geol. 5, 6, 7. Five credits; winter. Mackin.

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 Geology.* Credits and hours to be arranged. Open to advanced undergraduates upon permission of instructor. Each quarter. Staff.

201. *Advanced Petrography and Petrology of Igneous Rocks.* Credits and hours to be arranged; each quarter. Goodspeed.

202. *Advanced Petrography and Petrology of Metamorphic Rocks.* Credits and hours to be arranged; each quarter. Goodspeed.

212. *Advanced Studies or Field Work in Physiography.* Credits and hours to be arranged. Each quarter. Mackin.

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.

GERMANIC LANGUAGES AND LITERATURE

Denny Hall

Professors Eckelman, Meisnest, Lauer; Associate Professor Groth; Instructor Meyer; Associates Wesner, Ankele, Terzieff, Schertel; Teaching Fellow Wilkie.

Requirements for a departmental major: at least 36 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 College of Education bulletin, 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. German 121 will not be recognized in fulfillment of the twenty-credit undergraduate reading requirement.

Credit is allowed for any quarter in any course except 1-2.

All courses are conducted in German unless otherwise specified.

1-2. *First Year.* Stage pronunciation, grammar, reading of easy prose, oral and aural training. Five credits a quarter; autumn, winter, spring.

Meisnest, Ankele, Meyer, Wesner, Terzieff, Eckelman, Schertel, Wilkie.

3. *First Year Reading.* Reading of modern prose, oral and aural training, composition, continuance of grammar and vocabulary studies. Prerequisite, Ger. 1-2 or one year in high school. Five credits a quarter; autumn, winter, spring. Meisnest, Ankele, Terzieff, Wesner, Eckelman, Wilkie, Schertel, Meyer.

5. *Second Year Reading.* Pronunciation, vocabulary building, reading of modern prose, oral and aural training. Prerequisite, Ger. 3 or two years high school. Three credits; autumn, winter, spring.
Wilkie, Ankele, Terzieff, Wesner, Eckelman.

6. *Second Year Rapid Reading.* Modern prose, vocabulary building, oral and aural training. Prerequisites, Ger. 5 or 10; Ger. 3, Grade A, or on consent of instructor. Three credits; winter. Wesner.

7. *Second Year Rapid Reading.* Modern prose, vocabulary building, oral and aural training. 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, aural training. Prerequisite as for Ger. 5. Three credits; autumn, winter, spring.
Wilkie, Ankele, Terzieff, Meisnest, Wesner, Schertel.

50. *Second Year Reading.* Intermediate grade prose. Vocabulary building. Grammatical principles reviewed and applied in aural, oral and written work. Prerequisite Ger. 5 or 10 or equivalent. Three credits; autumn. Groth.

55. *Main Currents in German Literature.* From the middle ages to the present time. Literature in translation. Major tendencies and movements as reflected in personalities and masterpieces. Open to freshmen. No knowledge of German required. Lectures, discussion, reports. Five credits; winter. Groth.

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, spring. Schertel, Wilkie, Meyer.

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, Ankele.

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.* Helene Boehlau, L. Thoma and others; Thomas Mann. No knowledge of German required. Three 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. Three credits; winter. Eckelman.

109, 110, *111. *Advanced Composition.* Grammar and syntax, translation and original composition dictation, 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 on reading in his own field in weekly conferences. Prerequisite, Ger. 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.*

*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. Meyer, Meisnest.

*130-131-132. *German Institutions.*

135. *Modern Novels.* From the best prose literature after 1880. *Heimatkunst.* Storm, Frenssen's *Jörn Uhl,* Otto Ernst and others. Literary topics, oral and written reports. Prerequisite, Ger. 100 or equivalent. For majors, minors and advanced students. Three credits; autumn. Eckelman.

137. *Modern Drama.* Contemporaries of Ibsen in Germany. Wilbrandt's *Meister von Palmyra.* Hauptmann, Sudermann and others. Literary topics, oral and written work. Prerequisite, Ger. 100 or equivalent. Three credits; winter. Groth.

*139, *140. *Studies in German Literature.*

*141. *History of German Literature.*

*142. *Lyrics and Ballads.*

*153. *Goethe's Dramatic Works.*

165. *Schiller's Historical Dramas.* Don Carlos, Wallenstein, Maria Stuart. Class reading and assigned topics, 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.

Teachers' Course in German. See Education 75L.

*Not offered in 1935-36.

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. *Interrelations 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 each quarter; six credits only with the consent of the instructor; autumn, winter, spring. Meyer.

*256, 257, 258. *Gothic.*

*259, 260, 261. *Old Saxon.*

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

Denny Hall

Professors McMahon, Richardson, Lucas; Assistant Professors Dahlin, Quainton, Costigan, Dobie; Instructors Boyce, Jensen; Associate Davis.

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 College 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 for

*Not offered in 1935-36.

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 College 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 bulletin 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, 150, 151, 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 or 149, 150, 151, Advanced American History, nine to eleven 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. 106-107 for 6. Five credits a quarter; autumn, winter. Costigan.

8. *Westward Movement in the U. S.* The advance of the frontier and its effect on American ideals. Three credits; autumn. Jensen.

9. *Westward Movement in the U. S.* Three credits; winter. Jensen.

10. *The Westward Movement in the U. S.* Emphasis on the History of the Northwest. Three credits; spring. Jensen.

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.

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; winter, spring. Boyce.

101. *Alexander the Great: His Empire and His Successors.* Three credits; winter. Boyce.

103. *The Roman Republic.* Three credits; winter. Boyce.

104. *The Roman Empire from Augustus to Justinian.* Three credits; spring. ———.

106-107. *English Constitutional History.* Development of legal and governmental institutions of the English people to the present time. Prerequisite, Hist. 5. Five credits a quarter; winter, spring. Costigan.

111. *Greek and Roman Political Institutions.* Five credits; autumn. Boyce.

114. *The Culture of the Renaissance.* Five credits; autumn. Lucas.

115. *The Reformation.* Five credits; winter. Lucas.

117. *France from the Reformation to the French Revolution.* Five credits; autumn. Quainton.

118. *Medieval Civilization: The Dark Ages from the Barbarian Invasions to the Age of Feudalism (350 to 1000).* Prerequisite, Hist. 1-2 or its equivalent. Five credits; spring. Lucas.

*119. *Medieval Civilization: Economic Aspects of the Middle Ages from the Decline of Rome to the Renaissance.*

*120. *Medieval Civilization: Art, Letters, Religion, Education, and Thought.*

*125. *Great European Treaties, 1453-1925.*

129. *The French Revolution and Napoleonic Era.* Five credits; winter. Quainton.

130. *Europe 1814-1870.* 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. Five credits; spring. Quainton.

132. *History of Modern Colonial Empires.* Special emphasis on the French, Dutch, German and Italian colonial empires. Five credits; spring. Dobie.

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.

*Not offered in 1935-36.

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, 150, 151. *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. Three credits a quarter; autumn, winter, spring. Jensen.

155. *History of Canada.* Canadian development to the present time. Open to juniors, seniors and graduates. Three credits; spring. Dobie.

157-158-159. *History of American Diplomacy.* American relations with foreign powers from colonial times to the present. Open to juniors, seniors and graduates. Three credits a quarter; autumn, winter, spring. Dahlin.

170, 171, 172. *Constitutional History of United States.* Three credits a quarter; autumn, winter, spring. Jensen.

180. *History of the British Empire since 1783: Colonies and Dependencies.* Five credits; winter. Dobie.

*181. *History of the British Empire since 1783: Self Governing Units.*

182. *England in the 19th Century.* Important social, religious, intellectual, economic developments. Growth of democracy, changes in political life. Five credits; autumn. Costigan.

185. *Eighteenth Century England, 1689-1789.* Open to juniors, seniors and graduates. Five credits; spring. Costigan.

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. Three credits; autumn.

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*207-208-209. *Seminar in Greek and Roman History.*

*211-212-213. *Seminar in European History (1300-1600).*

*215-216. *Seminar in English History.* Prerequisite, Hist. 185. Three credits each; winter, spring. Costigan.

218. *Seminar in British Empire.* Three credits; autumn. Dobie.

221-222-223. *Seminar in American History.* Three credits a quarter; autumn, winter, spring. McMahon.

225-226. *Seminar in American Colonies.* Three credits a quarter; winter, spring. Dahlin.

229. *Seminar in State History.* Three credits; spring. Jensen.

231, 232. *Seminar in European History (1600-1815).* Three credits a quarter; autumn, winter, spring. Quainton.

*Not offered in 1935-36.

HOME ECONOMICS

Home Economics Hall

Professors Raitt, Denny, Rowntree; Assistant Professors Bliss, Dresslar, Payne; Lecturer Wade; Instructors Terrell, Dodson, Starr, Rogge.

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 47, 109, 141, 144, 145, 148, 245.

Textiles and Clothing. Courses 25, 101, 102, 112, 113, 114, 133, 160, 161, 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; winter, spring. Bliss.

25. *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. Five credits a quarter; autumn, winter, spring. Denny.

47. *Home Furnishing.* Structural art principles applied to treatment of interiors. Cost estimates adapted to various income levels. Prerequisite, Art 9. Saturday excursions. Five credits; autumn, winter, spring. Denny.

Health Education. (See P.E. 8 and 10.) Food selection in relation to nutritive requirements of various age groups. Two credits for 8; five credits for 10; autumn, winter, spring. ———, 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.* Fall quarter, of special interest to social case workers; spring quarter, for men only. Three credits, autumn; two credits, spring. Rowntree.

105. *Nutrition for Nurses.* Principles of human nutrition. Prerequisites, H.E. 9, Chem. 1-2, Physiol. 7. Five credits; autumn, 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. H.E. 107, five credits; 108, three credits; autumn, winter. Rowntree.

109. *Household Budgets.* Survey of cost of living studies. Factors that control expenditures and distribution at different income levels. Of special interest to social case workers. Three 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. Five credits for 112, 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; spring. 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. 116. Five credits; autumn, spring. 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, Econ. 2. 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. 116 or parallel, Econ. 2. Three credits; winter, spring. Terrell.

125. *Institutional 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.

131. *Clothing Selection.* Choice of clothing, emphasizing appropriateness to personality and occasion as well as judgment of quality and cost. Two lectures per week. Two credits; winter. Payne.

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.

141. *Household Management.* Housing standards and laws; principles of scientific management; 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 89-90-91, Chem. 1-2. Five credits a quarter; autumn. ———.

144. *Household Economics.* Economics of the household, personal and household budgets. Standards of living. Purchasing procedures. Consumer information. Prerequisites, Econ. 2, Soc. 1, junior standing. Three credits; fall, winter. Raitt.

145. *Family Relationships.* Organization of the household. Basic principles and desirable attitudes in family relationships. Prerequisites, Econ. 2, Soc. 1, junior standing. Three credits; winter, spring. Raitt.

148. *Home Management House.* Organization, financial management, records, housekeeping, food preparation and service, and hospitality. For home economics majors. Two credits; winter, spring. ———.

160, 161. *Advanced Costume Design and Construction.* Creative designing of costumes and accessories. The social significance of style control. Prerequisites, H.E. 114, Art 169. Three credits a quarter; 160 autumn, winter. 161, winter, spring. Payne.

188. *Advanced Textiles.* Analysis of fabrics. Methods, technique and evaluation of testing. Textile legislation and standardization. Prerequisites, H.E. 25, Econ. 2. Three credits; autumn. Denny.

189. *Hand Weaving.* Study of peasant weaving in various countries, revival of hand weaving, technique of spinning, loom threading, interpretation of

drafts, pattern weaving. Emphasis on design, color, and texture. Cost of materials, $5.00 to $20.00. Prerequisite, Art 9. Two credits; winter.

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. Three credits; spring. Rowntree.

198. *Historic Textiles.* A collection of rare materials is available for study. Prerequisites, H.E. 25, 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. 116. 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. 25, Econ. 2. 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. 2. Credit to be arranged; autumn. Raitt.

JOURNALISM

Commerce Hall

Professors McKenzie, Jones; Laboratory Director Kennedy; Assistant Professors Christian, Benson; Instructor Mansfield

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.*

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.*

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. 130. Five credits; winter. 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-twelve-ten credits. Continuous, autumn, winter, spring. Staff.

150. *Editorial Writing.* Prerequisite, Jour. 51. Three credits; spring. Jones.

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.

191, 192, 193. *Advanced Comparative Journalism.* A research and conference course continuing junior journalism studies in journalistic problems. Prerequisite, Jour. 147-148-149. Registration restricted to 15 students who must have upper division standing. Registration by special permission of instructors only. Two credits; autumn, winter, spring. Christian, Mansfield.

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.

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*Not offered in 1935-36.

LAW

Condon Hall

Professors Shepherd, Ayer, Nottelmann, O'Bryan; Associate Professor Beardsley; Assistant Professors McAllister, Harsch, Shattuck, Sholley, Richards, Ritchie; Lecturer Shefelman.

FIRST YEAR

All first year subjects are required.

100. *Personal Property.* Bigelow, Cases on Personal Property, and supplementary material. Bailments; finders; pledges; adverse possession; accession; bona fide purchaser; gifts; common law and statutory liens, including mechanics' liens; warehousemen's, innkeepers' and loggers' liens, etc. Four credits; autumn. Ritchie.

†101. *Contracts and Rules of Damages, Applicable to Contract Actions.* Costigan, Cases on Contracts. Four credits; autumn, winter, spring. Shepherd.

†102. *Torts.* Bohlen, Cases on Torts, 3rd ed. Three credits; autumn, winter, spring. Richards.

†104. *Real Property.* Fraser, Cases on Property. Three credits; winter, spring. Mechem.

†105. *Criminal Law and Procedure.* Harno, Cases on Criminal Law, supplemented by Washington statutes and cases. Three credits; autumn, winter. O'Bryan.

112. *Agency.* Steffen, Cases on Agency. Four credits; spring. Ayer.

SECOND AND THIRD YEARS

†110. *Sales.* Woodward, Cases on Sales, 3rd ed. Three credits; autumn, winter. Ayer.

111. *Wills and Administration.* Mechem and Atkinson, Cases on Wills and Administration, supplemented by Washington statutes and cases. Four credits; spring. O'Bryan.

113. *Domestic Relations.* Case book to be announced. Three credits; winter. Shattuck.

†114. *Equity.* Cook, Cases on Equity. Three credits; autumn, winter, spring. Nottelmann.

†115. *Evidence.* Morgan and Maguire, Cases on Evidence. Four credits; autumn, winter. Richards.

†116. *Bills and Notes.* Britton, Cases on Bills and Notes. Three credits; winter, spring. Ritchie.

117. *Legal Ethics.* Hicks, Organization and Ethics of Bench and Bar. Satisfactory completion of the course in Legal Ethics is required for graduation. Three credits; autumn. Shefelman.

118. *Conflict of Laws.* Beale, Shorter Selection of Cases on Conflict of Laws, 1928 ed. Five credits; spring. Shattuck.

119. *Constitutional Law, I.* Dodd, Cases on Constitutional Law, with 1934 Supplement. Function of judiciary in enforcing constitutions; personal and religious liberty; protection to persons accused of crime; interstate priv-

†No examination for credit until completion of the entire course.

ileges and immunities 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. McAllister.

120. *Constitutional Law, II.* Dodd, Cases on Constitutional Law, with 1934 Supplement. General scope of federal powers; federal taxation; regulation of commerce; intergovernmental relations. Four credits; winter. McAllister.

121. *Administrative Law.* Frankfurter and Davison, Cases on Administrative Law, 1932. Separation of powers; delegation of powers; judicial review of administrative action in the fields of public utility regulation; taxation; control of aliens; workmen's compensation; federal trade regulation; postal regulation; control of the public domain; veterans' laws; patent and trade mark laws; police regulations. Four credits; winter. McAllister.

†122. *International Law.* Hudson, Cases on International Law. (May receive political science credit.) Three credits; autumn, winter. Martin.

†123. *Conveyancing.* Kirkwood, Cases on Conveyancing. (Students who took Law 104 [Real Property] prior to 1934-35 are not eligible to take this course.) Three credits; autumn, winter. Harsch.

124. *Community Property.* Mechem, 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; spring. McAllister.

125. *Trade Regulation.* McLaughlin, Cases on the Federal Anti-Trust Laws of the United States, 2nd ed. 1933. Sherman Act; Clayton Act; unfair methods of competition under the Federal Trade Commission Act; Codes of fair competition under the National Industrial Recovery Act. Four credits; spring. McAllister.

†126. *Trusts.* Scott, Cases on Trusts. Three credits; autumn, winter. Nottelmann.

127. *Code Pleading.* Hinton, Cases on Code Pleading, 3rd ed. Three credits; winter. Richards.

128. *Damages.* Three credits; autumn. Harsch.

129. *Drafting of Legal Instruments.* The purpose of this course is to afford practice in the drafting of contracts, wills, leases, and other legal instruments in common use. Time of meetings by special arrangement with the instructor. Two credits; spring. Harsch.

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 the briefs on appeal. Four credits. Course will be given in autumn and repeated in spring quarter. Beardsley.

131. *Quasi-Contracts.* Woodruff, Cases on Quasi-Contracts. Three credits; spring. Richards.

133. *Public Utilities.* Case book to be announced. Five credits; spring. Nottelmann.

136. *Insurance.* Patterson, Cases on Insurance. Three credits; autumn. Shattuck.

*137. *Water Rights.*

*138. *Future Interests.*

†No examination for credit until completion of the entire course.
*Not offered in 1935-36.

†139. *Administration of Debtors' Estates.* Sturges, Cases on Administration of Debtors' Estates. 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, winter; four credits, spring. Shattuck.

Law 140. *Mining Law.* Costigan, Cases on the American Law of Mining. Three credits; winter. O'Bryan.

Law 141. *Admiralty.* Sayre, Cases on Admiralty. Four credits; spring. Shefelman.

Law 142. *Practive and Procedure I.* Hinton, Cases on Trial Practice, supplemented by Washington Code of Procedure and Washington cases. Process; service; officer's return; constructive service; appearance; judgments by default; trial to jury and to the court. Three credits; autumn. O'Bryan.

In Law 142, 143 and 144, Moot Court meets once each week. Each student is required to bring his case to issue, introduce the evidence and try the case before the court or jury. In the spring quarter the trials involve questions of probate law.

Law 143. *Practice and Procedure II.* This is a continuation of the preceding course and completion of Law 142 is required for registration. Three credits; winter. O'Bryan.

Law 144. *Practice and Procedure III.* Mechem and Atkinson, Cases on Wills and Administration, supplemented by the Washington Probate Code and Washington cases; complete procedure of probate of decedents' estates, testate and intestate. Three credits; spring. O'Bryan.

†Law 145. *Credit Transactions.* Sturges, Cases on Credit Transactions. Accommodation contracts; mortgages; pledges; conditional sales; dealers' financing; security holders' documents, protection and priorities; enforcement proceedings and rights to redeem. Three credits; autumn, spring; four credits, winter. Ritchie.

Law 146. *Taxation.* Rottschaefer, Cases on Taxation, 2nd ed. 1932. Power to tax; purposes for which taxes may be levied; distribution of the tax burden; jurisdiction to tax; income taxes; inheritance and estate taxes; franchise and excise taxes; property taxes. Four credits; autumn. McAllister.

*Law 147. *Municipal Corporations.*

†Law 149. *Business Associations.* Clark and Douglas, Cases on Partnership; Case book on Private Corporations to be announced; Uniform Business Corporation Act. Additional critical study will be made of recent legislation. Four credits; autumn, winter, spring. Ayer.

Law 198. *Research Problems in Law.* Properly qualified third year students may, with the consent of a member of the law faculty and dean of the Law School, receive from one to three credits for individual research in any of the major fields covered by the curriculum. One to 3 credits; hours by special arrangement. Autumn, winter and spring quarters.

Seminars

The following seminars are open to properly qualified third year students, with the consent of the instructor and the dean of the Law School. Hours by arrangement with instructor.

*Not offered in 1935-36.

†No examination for credit until completion of the entire course.

199A. *Trusts.* Treatment in detail of some problems of trust administration and of rights of beneficiaries. Problems and materials to be selected. Three credits; winter. Nottelmann.

199B. *Banking Law.* (Prerequisite: Negotiable Instruments.) An examination of the legal aspects of the relation between Bank and Customer, including a study of the various types of deposits; the certified check; the certificate of deposit; the banker's lien; problems arising out of deposits for collection, etc. Excluded are matters relating to bank organization, general powers, liquidation, etc. Three credits; spring. Ritchie.

199C. *Public Law.* Research problems and study of current decisions of the Supreme Court of the United States in the field of constitutional law, administrative law, taxation, trade regulation and other public law fields. Three credits; spring. McAllister.

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

Philosophy Hall

Professor Cory; Associate Lutey.

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, Lutey, Savery.

11. *Introduction to the Study of the Fine Arts.* Five credits; winter, summer. (Upper division students may obtain upper division credits on the basis of extra reading and conferences.) Cory, Lutey, Savery.

214, 215, 216, 217. *Recent Aesthetic Theory and Literary Criticism.* Two to eight credits a quarter; autumn, winter, spring, summer. Cory.

LIBRARIANSHIP

Library

Associate Professor Worden; Professors C. W. Smith, Librarian; Henry, Librarian Emeritus; Assistant Professor Alfonso; Instructor Andrews.

‡170. *Introduction to Children's Work.* A basic course. Three credits; autumn, winter. 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. *Cataloging, 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.

†Open only to students registered in the school.

‡Open to seniors and graduates who wish to qualify for teacher-librarian positions in high schools of five hundred or less.

†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. Open to P.E. majors in autumn and winter. (Consult executive officer on electives.) Three credits; autumn, winter, †spring. Andrews.

†181. *Advanced Children's Work.* Organization of a children's department; problems of book buying and administration. Prerequisite, 170 and 183. (Consult executive officer on electives.) Two credits; spring. Andrews.

‡182. *School Library Administration.* (Consult executive officer on electives.) Two credits; autumn, spring. Andrews.

†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. Worden.

†192. *Administration.* Problems of library management, buildings, equipment, finance, and publicity. Two credits; spring. Worden.

‡195. *Book Selection for School Libraries.* Three credits; winter, spring. Andrews.

The following courses are open to Library School graduates only, on permission of the executive officer of the school. The work will be a coordination of theory and practice, the theory to be taken at the University and the practice to be taken in half-time positions at Seattle Public Library. All courses are required and must be taken in the prescribed order. The following courses, outside of the Library School, 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.*

*204, 205, 206. *Administration of Children's Librarian.*

*207, 208, 209. *Traditional Literature.*

*210, 211, 212. *School Work.*

*213, 214, 215. *Field Work.*

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‡Open to seniors and graduates who wish to qualify for teacher-librarian positions in high schools of five hundred or less.

†Open only to students registered in the school.

*Not offered in 1935-36.

MATHEMATICS

Philosophy Hall

Professors Moritz, Carpenter, Winger; Associate Professors Gavett, Neikirk, Ballantine, Cramlet, McFarlan; Assistant Professors Jerbert, Mullemeister, Jacobsen; Instructors Haller, Hostetter.

MINIMUM REQUIREMENTS OF THE DEPARTMENT

For a major in mathematics, 36 credits; including courses 4, 5, 6, 107, 108, 109, plus six additional approved 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.

Candidates for a master's degree in education with mathematics as a minor must complete 12 or more credits in approved upper division courses in mathematics, which shall be at least the equivalent of an undergraduate major in mathematics.

1. *Advanced Algebra.* Algebra from quadratics on. Prerequisite, one year of high school algebra. Five credits; autumn, winter, spring. Sections in autumn quarter are open to engineering students only. Staff.

2. *Solid Geometry.* Prerequisite, one year of plane geometry. Five credits; winter, spring. Staff.

3. *Introduction to Mathematics.* Introduction to mathematical thought and procedure. Synoptic treatment of the elementary processes and their applications both within and without the field of mathematics. Fundamental concepts and their human significance. Students who expect to continue with mathematics should begin with Math. 4. Five credits; spring. Carpenter.

4. *Plane Trigonometry.* For students in the University College. Prerequisite, one and a half years of algebra and one year of plane geometry. Five credits; autumn, spring. Staff.

5. *College Algebra.* Prerequisite, Math. 1 or one and one-half years of high school algebra. Five credits; winter. Staff.

6. *Analytic Geometry.* For students in the University College. Prerequisites, Math. 1 and 4. Five credits; spring. Staff.

11. *Theory of Investment.* Interest and annuities; annuities, amortization, capitalization and depreciation, sinking funds, etc. Prerequisites, one year algebra, one year geometry. Five credits; autumn, winter, spring. Staff.

12. *Mathematics of Finance and Insurance.* Prerequisite, Math. 11. Five credits; spring. Staff.

13. *Elements of Statistical Method.* Prerequisite, one year algebra, one year plane geometry. Five credits; autumn, winter, spring. Gavett.

31, 32, 33. *Engineering Freshman Mathematics.* For students in the College of Engineering. Prerequisites, one and one-half years algebra and one year plane geometry. Five credits; autumn, winter, spring. Staff.

41, 42. *Engineering Calculus.* Prerequisites, Math. 2 and 33. Three credits; autumn, winter, spring. ———.

54, 55, 56. *Mathematics for Architects.* Prerequisite, one and one-half years algebra, one year plane geometry. Three credits; autumn, winter, spring. Neikirk.

101. *Advanced Trigonometry.* Trigonometric series, DeMoivre's and Euler's theorems, hyperbolic functions. The elements of spherical trigonometry. Prerequisites, Math. 2 and 4. Two credits; autumn. Moritz.

102. *Advanced Analytical Geometry.* Poles and polars, the general conic, abridged notation. Prerequisite, Math. 6. 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. Two credits; spring. Moritz.

107, 108, 109. *Calculus.* Differential and integral calculus, primarily for students in science. Prerequisite, Math. 6. Five credits; 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, Cramlet.

116. *Advanced Calculus.* Prerequisites, Math. 114, 115. Five credits; spring. Ballantine.

*117, 118, 119. *Projective Geometry.*

*124, 125, 126. *Algebraic Curves.*

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.*

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.* Two lectures and one seminar period per week, with readings from Wilson's and Goursat's treatises in the calculus. Three credits; autumn, winter, spring. Moritz.

217, 218, 219. *Finite Collineation Groups.* Groups of linear transformations in the binary and ternary domains with applications to geometry. The structure of the principal groups, together with their invariant configurations

*Not offered, 1935-1936.

and invariant curves. Prerequisite, Math. 117 or permission. Two credits; autumn, winter, spring. Winger.

*221, 222, 223. *Higher Plane Curves.*

224, 225, 226. *Functions of a Real Variable.* Theory of Integration with special reference to integrals of Riemann, Lebesque, Stieltjes, measurable functions, properties of functions of a real variable with necessary basic theory of real number systems, transfinite numbers, point sets and their metric properties. Prerequisites, Math. 114, 115 or equivalent. Three credits; autumn, winter, spring. McFarlan.

*227, 228, 229. *Theory of Numbers.*

*231, 232, 233. *Theory of Infinite Processes.*

*234, 235, 236. *Analytical Dynamics.*

237, 238, 239. *Invariant Theory.* The classical invariant theory of binary forms, tensor algebra, invariants and tensors or n-ary forms, differential invariants. Three credits each quarter; autumn, winter, spring. Cramlet.

*241, 242, 243. *Functions of Complex Variables.*

*244, 245, 246. *Calculus of Variation.*

247, 248, 249. *Metric Differential Geometry.* Method of vectors applied to the study of properties of curves and surfaces. Two credits; autumn, winter, spring. Carpenter.

251, 252, 253. *Harmonic Analysis.* The solution of Laplace's and related partial differential equations with boundary conditions in terms of Fourier's series, and spherical, cylindrical and ellipsoidal harmonics. Prerequisite, Math. 114. Two credits; autumn, winter, spring. Neikirk.

MECHANICAL ENGINEERING

Guggenheim Hall

Professors Eastwood, Wilson, Winslow; Associate Professors McIntyre, Schaller, McMinn, Edmonds; Instructor Sullivan.

53. *Manufacturing Methods.* Principles of the founding of ferrous metals. One credit; autumn, winter, spring. Schaller, Sullivan.

54. *Manufacturing Methods.* Mechanical and heat treatment of steel; gas and electric welding. One credit; autumn, winter, spring. Schaller, Sullivan.

55. *Manufacturing Methods.* Fundamental theory and practice of machining operations on iron and steel. One credit; autumn, winter, spring. Sullivan, Schaller.

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.

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.

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.

*Not offered in 1935-36.

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 in architecture. 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, Edmonds.

115. *Steam Engine Design.* Computations and drawings for the design of a steam engine. Prerequisite, M.E. 114. 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.

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. 82, junior standing in engineering. 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. 83, 123. Five credits; spring. Winslow.

185. *Naval Architecture.* Theory of naval architecture. Displacement; stability; strength; construction. Junior standing. Three credits; spring. Rowlands.

191, 192, 193. *Research.* Two to five credits. Staff.

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. Staff.

METALLURGY

See Mining, Metallurgy and Ceramics.

MILITARY SCIENCE AND TACTICS

The Armory

Colonel Kimmel; Lieutenant Colonel Woodbury; Major Gardner; Captain Lawrence; Captain Daughtry; Captain Stiley; Captain Wiltamuth; First Lieutenant Gregory; Staff Sergeants Bailey, Hogwood; Sergeant Collins; Private 1st Class Honeas, Roberts, Whitchurch.

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.

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. Lawrence.

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. Woodbury.

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. Gardner.

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. Gregory.

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. Wiltamuth.

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. Wiltamuth.

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. Wiltamuth.

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.

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. Daughtry.

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. Daughtry.

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. Daughtry.

164. *Advanced Coast Artillery.* Leadership; military history and policy; military law; administration. Five hours a week. Three credits; any quarter. Woodbury.

165. *Advanced Coast Artillery.* Leadership; combat orders; tactical employment of heavy, seacoast and anti-aircraft artillery. Five hours a week. Three credits; any quarter. Woodbury.

166. *Advanced Coast Artillery.* Leadership; motor transportation; coast artillery material; field engineering. Five hours a week. Three credits; any quarter. Woodbury.

MINING, METALLURGY AND CERAMICS

Mines Laboratory

Professors Roberts, Daniels, Wilson; Associate Professor Corey;

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 inspection 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 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.

*Not offered in 1935-36.

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 the College 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.

271. *Cooperative Research with U. S. Bureau of Mines.* Investigations by holders of cooperative fellowships in College of Mines and Northwest Experiment Station. Six credits; autumn. Staff.

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. Prerequisite, Chem. 26. Three recitations. Three credits; spring. Corey.

101. *Fire Assaying.* Testing of reagents, crushing, sampling, and assaying of ores, furnace, and mill products. Prerequisite, Chem. 26. 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. 26. 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 and (for ceramics and geology students) 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, junior 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.

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 recitatons. 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 nonmetallic 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

Music Building

Professors Dickey, Rosen, Venino, Werner, Wood; Associate Professors Van Ogle, Lawrence, McKay; Assistant Professors Hall, Munro, Wilson, Woodcock; Instructors Canfield, Bostwick, Kirchner, McCreery, Oliver, Terry, Welke, Associates Beck, Heeremans

Music Materials and Composition. Courses 15, 16, 51, 53, 61, 101, 109, 112, 117, 143, 157, 163, 197.

Music Literature and History. Courses 22, 23, 24, 72, 73, 74, 104, 105, 106, 151, 152, 153, 190, 191, 192.

Music Education. Courses 40, 41, 42, 113, 116, 154, 155, 140, 141, 142, 165, 166, 167, 204, 205, 206.

Choral Ensembles. Courses 10, 11, 12, 25, 26, 27, 28, 29, 30, 65, 66, 67, 127, 128, 129.

Instrumental Ensembles. Courses 31, 32, 33, 130, 131, 132, 133, 134, 135.

Conducting. Courses 136, 180, 195.

Vocal and Instrumental. Courses 1, 2, 3, 7, 8, 9, 18, 19, 20, 48, 49, 50, 68, 69, 70, 118, 119, 120, 168, 169, 170, 218, 219, 220.

Students may 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 student who registers for two credits may reregister under the same course number for one additional credit. Elementary work in piano and voice is also given through group instruction. 2 credits. Fee $10 a quarter. The various branches of vocal and instrumental music will be designated by capital letters immediately following the course number:

**Will be offered if a sufficient number of students elect the course.

A. *Piano.* Venino, Van Ogle, McCreery.
AX. *Class Piano.* Bostwick.
B. *Violin.* Rosen, Oliver.
C. *Voice.* Werner, Lawrence.
CX. *Class Voice.* Wilson.
D. *Violoncello.* Kirchner, Canfield.
E. *Organ.* Heeremans.
F. *Wind Instruments.* Welke.
G. *Harp.* Beck.

For detailed description of the courses in the various branches of vocal and instrumental music, see page 87.

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 5). Two or three credits a quarter. Staff.

1AX, 2AX, 3AX. *Elementary Piano.* Class instruction and ensemble. Designed for music students specializing on other instruments or in voice and for other students who by examination are found to qualify to elect elementary piano. Two credits; autumn, winter, spring. Bostwick.

Music 1CX, 2CX, 3CX. *Elementary Voice.* Class instruction in small groups. For music majors specializing on an instrument and for other students who upon recommendation of an examining committee, qualify for beginning vocal instruction. Two credits a quarter; autumn, spring. Wilson.

7, 8, 9. *Elementary Instrumental Music.* Two or three credits a quarter. Staff.

7AX, 8AX, 9AX. *Elementary Piano.* Class instruction. Two credits. Bostwick.

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 equivalent. 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, Heeremans.

†25-26-27. *Men's Choral Ensemble.* For freshmen. Audition required. (Auditions, first week autumn quarter, every afternoon, Room 102-B Meany Hall.) Two credits a quarter; autumn, winter, spring. Lawrence.

†28-29-30. *Women's Choral Ensemble.* Tryouts every afternoon first week autumn quarter, 105 Music Building. Two credits a quarter; autumn, winter, spring. Wilson, Terry.

†Students enrolled in men's and women's Glee Club are automatically members of University Chorus. See Music 10-11-12.

31, 32, 33. *Elementary Orchestra.* Three rehearsals a week, one of which may be spent in chamber music or other recommended ensemble groups. One credit a quarter; autumn, winter, spring. Welke.

40, 41, 42. *Elementary Orchestral Instruments.* Fundamental playing principles of each instrument. Wind instruments autumn and winter; strings, spring. Three credits; autumn, winter, spring. Welke.

48, 49, 50. *Vocal or Instrumental Music.* First year for voice or instrumental majors. Two or three credits a quarter. Staff.

51. *Elementary Harmony.* Nature and use of primary harmonies and non-harmonic tones. Prerequisite, Mus. 16. 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. Wood.

61. *Advanced Ear Training.* Designed to parallel and supplement Mus. 53. Not required of students receiving grade of A or B in Mus. 51. Three credits; autumn, spring. Terry.

65-66-67. *Men's Choral Ensemble.* Not open to freshmen. Audition required. (Auditions held first week autumn quarter, Room 102-B Meany Hall.) Two credits; autumn, winter, spring. Lawrence.

68, 69, 70. *Vocal or Instrumental Music.* Second year for voice or instrumental majors. Two or three credits a quarter. Staff.

72. *Introduction to Music, Literature and History.* Study of style, general design, historical background of standard concert repertoire with emphasis on current programs. Not open to students who have had Mus. 4, 5, 6. Prerequisite, Mus. 15. Three credits; autumn. Woodcock.

73, 74. *Music Literature and History.* Historical survey of music literature. Prerequisite, Mus. 72 or 4. Not open to students who have had Mus. 4, 5, 6. Three credits; winter, spring. Woodcock.

101. *Advanced Harmony.* Chromatic harmonies and modulations. Prerequisite, Mus. 53. Five credits; autumn, winter, spring. McKay, Wood.

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 Dubussy 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, winter. Wood, McKay.

112. *Musical Forms.* Analysis of many examples and simple exercises in composition. Prerequisite, Mus. 53. Five credits; autumn, winter. Wood, Woodcock.

113. *Elementary School Music.* Application of educational principles to the teaching of music in grades 1 to 6. Prerequisite, Mus. 51 and 127. Five credits; autumn, spring. Dickey, Munro.

116. *Junior High School Music.* A study of the adolescent and the contribution of music to his needs. Prerequisite, Mus. 113. Three 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; winter, spring. McKay.

118, 119, 120. *Vocal or Instrumental Music.* Third year for voice or instrumental majors. Two or three credits a quarter. Staff.

127, 128, 129. *Choral Literature.* A cappella singing with emphasis upon skill in part-singing, style and interpretation. Two credits; autumn, winter, spring. Hall, Munro.

130, 131, 132. *University Band.* Study and production of more diffcult compositions for band. One credit a quarter; autumn, winter, spring. Welke.

133, 134, 135. *University Symphony Chamber Music Group.* Study and production of more difficult orchestral compositions. Players admitted only upon examination. (Auditions every afternoon, first week autumn quarter, 100 Meany Hall.) Daily rehearsals. Two credits a quarter; autumn, winter, spring. Welke, Rosen.

136. *Technique of Conducting.* Study of the principles of conducting with practical experience in directing groups. Prerequisite Mus. 128. Not open to students who have had Mus. 115. Two credits; autumn, winter. Munro.

138. *Art of Accompanying.* Practical course in study of musical works of different types and periods for piano in combination with voice or instruments. Permission of instructor required. Two credits; spring. Woodcock.

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 of the high school problem in relation to music. Prerequisite, Mus. 116. Three credits; winter, spring. Munro.

155. *Music Supervision.* Problems related to the organization and supervision of school music. Prerequisite, Mus. 154. Three credits; winter, spring. Dickey.

157. *Free Composition.* Pieces in the smaller forms for voices and for instruments. Prerequisite, Mus. 117. Five credits; autumn. McKay.

163. *Advanced Counterpoint.* The invention, canon, fugue, etc. Analysis and composition. Prerequisite, Mus. 109. Five credits; spring. 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 voice or instrumental majors. Two or three credits a quarter. Staff.

180. *Orchestral Conducting.* Technique of conducting as applied to instrumental groups. Practical experience afforded, and suitable school repertoire studied by combining with Elementary Orchestra three days per week, with discussion groups remaining two days. Prerequisite, Music 136. Daily. Three credits; autumn, winter, spring. Welke.

190. *Bach and His Forerunners.* Detailed study of music literature through student performance. Prerequisite, senior standing. Four credits; winter. Munro.

191. *Eighteenth and Nineteenth Century Music.* Study of the music of these periods through ensemble performance. Prerequisite, Mus. 190. Four credits; autumn. Wilson, Woodcock.

192. *Contemporary Music.* Twentieth century music literature, its idioms and tendencies, through performance. Prerequisite, Mus. 191. Four credits; spring. McKay, Wilson.

195. *Choral Conducting.* Analysis of choral compositions with practical experience in conducting. Prerequisite, Mus. 136. 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, Wood.

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. 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. Staff.

COLLEGE COURSES IN VOCAL AND INSTRUMENTAL MUSIC

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. Quarterly 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.

Students enrolled in these courses will be given opportunity on demonstration of the required ability, to participate in the public recitals of the department.

Six of the required credits in instrumental music may be earned in advanced orchestral instrument classes. (Mus. 140, 141, 142.)

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, Golly-wogs' 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 classwork.

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 play 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 Hadyn, 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.

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.

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 the romantic and modern composers.

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

Music 1, 2, 3, 7, 8, 9, 18, 19, 20-B are intended for students who have had no previous instruction in violin.

1B, 2B, 3B. Violin Methods, bks. 1 and 2, Rosen; exercises, op. 45, bk. 1, Wohlfahrt; bk. 1, DeBeriot, exercises, op. 68.

1B, 2B, 3B. Scales, Hrimlay; studies, Blumenstengal, op. 33; Mazas, bks. 1 and 2; Concerto, Accoly; Scene de Ballet, De Beriot.

7B, 8B, 9B. Scales; exercises; etudes, Kreutzer, Fiorillo; Concerto 9 and 7, DeBeriot; one sonata by Handel.

18B, 19B, 20B. Scales, Rosen; etudes, Dancla; etudes Fiorillo; Rovelli, Concerto de Beriot 7.

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; Rode, 12 studies.

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; op. 35, Dont.

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; 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; Tschaikowsky, Concerto; Spohr, Concerto No. 7; Wieniawski, Concerto in F sharp minor; Paganini, 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, 2; 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; Concertino 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 2, Book 2 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.

48E, 49E, 50E. Manual and pedal exercises. Selections from Bach's Organ Works (Schirmer ed., vols. 1 and 2) including the "Eight Short Preludes and Fugues" complete. Various movements from Mendelssohn's Organ Sonatas.

68E, 69E, 70E. Continuation of Bach and Mendelssohn. Choral Preludes from Bach's "Orgelbuchlein" (Novello ed., vol. XV). Selections from Sonatas by Rheinberger, pieces by Vierne and other works of a similar nature.

118E, 119E, 120E. Selected Symphonies of Widor and Vierne. 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.). More difficult works of Cesar Franck, Karg-Elert and contemporary composers.

Note: Organ majors must elect Music 163, Advanced Counterpoint.

NAVAL SCIENCE AND TACTICS

Good Roads Building

Captain Riebe, Commander Kelley, Major Hall, Lieutenant Knapp, Lieutenant Davis, Lieutenant Brown, Chief Gunner's Mate Hamilton, Chief Turret Captain King, Chief Quartermaster Harmony, Chief Yeoman Littell.

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 or 2nd Lieut., U.S.M.C. Reserve.

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, plane trigonometry. 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 TRAINING

The Navy Department offers to Seniors or University graduates a complete course in Naval Aviation.

This training is divided into three phases:

(a) Elimination flight training at the Naval Air Station, Sand Point; four weeks.

(b) Preliminary and advanced flight training at the Naval Air Station, Pensacola, Florida; one year.

(c) Active duty as Aviation Cadet in the Aircraft Squadron, U. S. Fleet; three years.

Enrollment in the Naval R.O.T.C. is not necessary.

For particulars apply to the Professor of Naval Science and Tactics, Good Roads Building.

NURSING EDUCATION

Home Economics Hall

Professor Soule; Assistant Professors Adams, Leahy, Felton; Instructors Olcott, Coolidge; Lecturer Newsom.

1. *History of Nursing and Survey of Field.* Open to any woman student in the University. Three credits; autumn, spring. Soule.

5. *Home Care of the Sick and Child Hygiene.* Three credits; spring. Coolidge.

OPEN ONLY TO BASIC STUDENTS AT HARBORVIEW AND PROVIDENCE HOSPITALS

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; autumn, spring. 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; autumn, 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, spring. Nursing Instructor and Department Heads.

68. *Practice of Nursing in Acute Communicable Diseases.* Six credits; autumn, winter, spring. Adams.

70. *Principles of Surgery and Nursing in General Surgical Diseases.* Lecture, demonstrations, clinics. Three credits; winter. Surgeon and Sears.

71. *Principles of Surgery and Nursing in Surgical Specialties.* Includes gynecology, urology, orthopedics, and operating room technique. Three credits; autumn, spring. Surgical Specialists and Sears.

72. *Hospital Practice in Surgical Nursing.* Six credits; autumn, winter, spring, summer. Sears.

73. *Operating Room Practice.* Six credits; autumn, winter, spring, summer. Dowler.

75. *Hospital Practice in Clinical Diagnosis.* Demonstration, clinics, and two months' practice in out-patient department and diagnostic laboratory. Six credits; autumn, winter, spring. Cross and Olcott.

76. *Principles of Otology, Ophthalmology, and Neurology.* Two credits; winter. Cross.

80. *Principles of Pediatrics and Pediatric Nursing.* Five credits; winter. 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.* Five credits; autumn, spring. ———.

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; winter. 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.

101. *Introduction to Public Health Nursing.* Two credits; autumn, spring. Soule.

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.

110. *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; autumn, winter, spring, summer. Coolidge.

111. *Supervised Field Work in School Nursing.* Prerequisite, graduate registered nurse. Three credits; autumn, winter, spring. Coolidge.

150. *Teaching in Nursing Schools.* Principles of teaching applied to nursing procedure. Five credits; autumn, spring. Adams, Soule.

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 Olcott.

154. *Cadet Teaching and Ward Administration in Hospitals.* Prerequisites, Nurs. Edu. 150, 152, graduate registered nurse. Ten credits; autumn, winter, spring, summer. Adams.

160. *Methods of Supervision in Public Health Nursing.* Prerequisite, graduate registered nurse and Nurs. Edu. 102, 103, 150. Three credits; winter. Soule.

COURSES FOR GRADUATES ONLY

*200. *Seminar.*

201-202, 203. *Problems.* Prerequisites, graduate registered nurse, 30 credits in nursing. Credits to be arranged. Soule, Adams.

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.

*Not offered in 1935-36.

OCEANOGRAPHIC LABORATORIES

Professors Thomas G. Thompson, Rigg, Guberlet, Utterback; Associate Professors Robert C. Miller, Norris; Assistant Professor Robinson; Instructors Henry, Phifer.

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.

Chem. 166. *Biochemical Preparations.* Extraction, separation, and purification of biochemical products from marine sources. Prerequisite, Chem. 162. Two or three credits; autumn, winter, spring. Norris.

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.

Bact. 201. *Physiology of Bacteria.* Environmental factors influencing bacteria, bacterial metabolism and activities. Open to qualified students after consultation. Two to five credits; autumn. Henry.

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

Denny Hall

Associate Professor Pollard; Professor Gowen; Instructors Spector, Tatsumi.

Approximately one-half of the work of the department falls within the field of the humanities, the other half being in the social science field. For the convenience of students seeking a major sequence along these lines, the following groupings are suggested:

Language and literature: 1-2, 3, 7-8, 9, 50, 51, 52, 70, 71, 101-102-103, 104-105-106, 107, 108, 109, 130, 140, 141, 142, 152, 153, 154.

History and civilization: 10, 40, 41, 90, 91, 114, 115, 116, 120, 136.

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 50, 51, 52, 70, 71, 90, 91 by doing special work under the direction of the instructor.

For an academic major in the department, at least 40 hours of credit must be earned, including O.S. 10. Of this total, at least one-half must be in courses carrying upper division credit, including O.S. 114, 115, and 116.

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, conversation, composition; readings from the Russian classics. Five credits; autumn, winter, spring. Spector.

10. *Culture of Asia.* General survey of the political, philosophical, religious, literary, and social aspects of Asiatic life, yesterday and today. Designed especially for freshmen. Five credits; autumn, winter, spring. Gowen.

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. Tatsumi.

*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. Gowen.

†51. *Literature of the Euphrates Valley and Egypt.* Survey of literary discoveries in Sumerian, Babylonian, Assyrian, and Egyptian archaeology. Five credits; winter. Gowen.

†52. *Literature of Persia.* Persian literature from Zoroaster to the present day, including Muhammad and the Qu'ran. Five credits; spring. Gowen.

†70. *Literature of China.* The Chinese classics; the great poets and philosophers; the novel and other 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.

*Not offered in 1935-36.
†Upper division students may receive upper division credit by doing special work.

†90. *History of China.* An introduction to Chinese history, with special emphasis on the period since 1842. Not open to students having credit for O.S. 26. Five credits; winter. Pollard.

†91. *History of Japan.* An introduction to Japanese history, with special emphasis on the modern period. Not open to students having credit for O.S. 27. Five credits; spring. Pollard.

101A-102A-103A. *Hebrew.* First year course. Instructor's permission necessary. Five credits; autumn, winter, spring. Spector.

*101B-102B-103B. *Arabic or Aramaic.*

104-105-106. *Sanskrit.* First year course. Instructor's permission necessary. Five credits; autumn, winter, spring. Gowen.

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. Gowen.

115. *History of Religion.* The religions of the Ancient Empires, and the religions of the Orient. Three credits; winter. Gowen.

116. *History of Religion.* A survey of Judaism, Christianity, and Muhammadanism. Three credits; spring. Gowen.

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.*

International Relations of the Far East. See Pol. Sci. 129.

130. *Russian Literature.* Representative novels and plays from 1782 to 1930; special reference to the works of Vonvisin, Pushkin, Gogol, Turgenev, Dostoyevsky, Tolstoy, Tchekhov, Gorky, Andreyev. Five credits; spring. Spector.

136. *History of Russia.* From the earliest times to the present day, with special attention to recent developments. Three credits; winter. Spector.

140, 141, 142. *Russian Language.* Second-year course. Prerequisite, O.S. 9 or equivalent. Three credits a quarter; autumn, winter, spring. Spector.

152A, 153A, 154A. *Sanskrit.* Second-year course. Prerequisite, O.S. 106 and permission of instructor. Five credits; autumn, winter, spring. Gowen.

152B, 153B, 154B. *Hebrew or Arabic.* Second-year course. Prerequisite, O.S. 103 and permission of instructor. Five credits; autumn, winter, spring. Spector.

190. *West Asia Reading Course.* Directed reading, following the student's special needs and interests, covering the history and literature of the Near East; book reviews. Instructor's permission necessary. Three credits; autumn. Spector.

*Not offered in 1935-36.

191. *Reading Course in India.* Directed reading, following the student's special needs and interests, covering the history and literature of India. Instructor's permission necessary. Three credits; winter. ———.

192. *East Asia Reading Course.* Directed reading, following the student's special needs and interests, covering the general field of the Far East. Instructor's permission necessary. Three credits; spring. Pollard.

COURSES PRIMARILY FOR GRADUATE STUDENTS

*220. *Seminar on Eastern Asia.*

221. *Sources in East Asia.* Methods of research; an introduction to the standard primary and secondary sources for the study of Chinese and Japanese history, diplomacy, and literature. Required of all graduate majors. Two credits; autumn. Pollard.

222. *Sources in West Asia and India.* An introduction to the standard primary and secondary sources for the study of West Asiatic and Indian history, religion, and literature. Required of all graduate majors. Two credits; winter. Gowen.

*225, 226, 227. *Seminar in Oriental Diplomacy.*

280, 281, 282. *Research.* Research work in Oriental Studies for those qualified. Credits and time arranged; autumn, winter, spring. Staff.

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 relating to the Oriental field are:

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

Bagley Hall

Professors Johnson, Langenhan, Goodrich; Associate Professor Rising; Instructors Cain, Dial, Evans, Fischer, Jorgensen, and Assistants.

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. Cain.

6. *Volumetric Quantitative Analysis.* Two lectures, one quiz and two 4-hour laboratory periods a week. Five credits; winter. Cain.

*Not offered in 1935-36.

7. *Urinalysis.* One lecture and one laboratory period a week. Two credits; spring. Cain.

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. Cain.

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, Jorgensen.

51. *Elementary Pharmacy.* A brief survey of the fundamental knowledge of dispensing which the nurse should have. Two credits; autumn, spring. 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. Goodrich.

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, Jorgensen.

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, one quiz, and two 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. Langenhan, Goodrich, Johnson, Rising, Cain.

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. Two lectures and three laboratory periods. Five credits; autumn, winter, spring. Rising.

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. Johnson, Rising.

204. *Investigation in Pharmaceutical Chemistry.* Maximum credit, forty-five credits. Any quarter. Johnson, Rising, Cain.

205. *Investigation in Pharmacology.* Maximum credit forty-five credits. Any quarter. Goodrich.

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

Philosophy Hall

Professor Savery; Associate Professor Nelson; Assistant Professors Rader, Phillips

Philosophy 2 or 3, 5, and 101-102-103 are required of majors.

Psychology 1 is required of majors in philosophy.

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, Phillips.

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.

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. Gowen.

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.

*Not offered in 1935-36.

133. *Ethical Theory.* An advanced course in the fundamental concepts and principles of ethics. Prerequisite, Phil. 2 or 3. Two credits; spring. Phillips.

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. Nelson.

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.

234-235-236. *Seminar in Descartes, Spinoza, Leibnitz.* Reading and discussion of their works. Prerequisite, Phil. 101-102-103. Three or four credits a quarter; autumn, winter, spring. Rader.

*237-238-239. *Seminar in Locke, Berkeley, Hume.*

*241-242-243. *Seminar in Plato and Aristotle.*

*244-245-246. *Seminar in Hume and Kant.*

*247-248-249. *Seminar in 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.

PHYSICAL EDUCATION AND HYGIENE FOR MEN

Athletic Pavilion

Associate Professor Foster; Assistant Professor Belshaw; Instructors Auernheimer, Torney, Kunde; Associates, Edmundson, Graves, Ulbrickson, Clark, Phelan, Wilcox; Assistant Jefferson.

Requirements for Graduation. All men students (except as otherwise exempt) are required to take five quarters of physical education and satisfy the requirement of a two-credit course in personal health. These requirements should normally be satisfied during the first six quarters of university residence.

PHYSICAL EDUCATION ACTIVITY COURSES FOR MEN

1, 2, 3. *Individual Physical Education.* Individual gymnastics, games and sports. Work adapted to meet the needs of the individual. One credit a quarter; autumn, winter, spring. Kunde.

16, 17, 18. *Physical Education.* Organized class work in gymnastics, games, sports and posture training. Self-testing activities, combat, self-defense and practice of fundamental skills. One credit a quarter; autumn, winter, spring. Staff.

15. *Personal Health.* The approaches to healthful living. The laws of hygiene as they apply to the individual problem of adjustment. Health infor-

mation that affords a basis for intelligent guidance in the formation of health habits and attitudes. Two academic credits; autumn, winter, spring.

Foster, 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 103.

Those who expect to major or minor in physical education should take P.E. 107 instead of P.E. 15.

PHYSICAL EDUCATION AND HYGIENE FOR WOMEN

Gymnasium

Associate Professor Hutchinson; Assistant Professors Davidson, deVries, McGownd; Instructors Glover, Maydahl, Horton, Rulifson; Assistants Jefferson, Mahan.

The physical education requirement for graduation consists of the health education lecture course and physical education activity courses as follows:

P.E. 4, 6, 8. Health Education.....6 credits
or
P.E. 10. Health Education .....5 credits
Physical Education Activity Courses.....5 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 the first week of each quarter.

(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, Archery, Fencing, Badminton.
2. *Team Group:* Volleyball, Basketball, Hockey, Baseball.
3. *Rhythmic Group:* Folk Dancing, Character Dancing, Interpretative Dancing.
4. *Swimming Group.* (Unless student passes swimming test.)
5. *Posture Group.* (Unless student passes posture test.)

No credits received in activity courses, however, may be counted as part of the 180 academic credits required for graduation.

Credits received in the health education courses are academic.

(c) *Professional Physical Education Courses.* Courses leading to a major in physical education are listed under professional courses. For curricula in physical education see Colloge of Education announcements.

Health Education Lecture Courses

4. *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. Davidson.

6. *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. Coolidge.

8. *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. Bliss.

10. *Health Education.* (Equivalent of P.E. 4, 6, 8.) Five credits; autumn, winter, spring. Bliss, Coolidge, Davidson.

Physical Education Activity Courses for Women

1, 2. *Posture Education.* One credit; autumn, winter, spring. McGownd.

11-12-13. *Physical Education Activities for Freshmen Majors.* (Required of all freshman major students.) Practice in folk dancing, character dancing, hockey, basketball, tennis, soccer, archery, baseball, volleyball, interpretative dancing, swimming. One credit each; autumn, winter, spring. Horton, 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, interpretative dancing, swimming. One credit each; autumn, winter, spring. Horton, Rulifson, deVries, Glover, Maydahl.

57 to 98. *Physical Education Activities.* Course 57, fencing; 61, folk dancing; 62, character dancing; 63, advanced character dancing; 64, hockey, 65, basketball; 67, tennis; 69, advanced tennis; 75, archery; 82, volleyball, 83, baseball; 84, badminton; 85, canoeing; 87, golf; 88, advanced golf; 91, interpretative dancing; 92, advanced interpretative dancing; 94, equitation; 95, elementary swimming; 96, intermediate swimming; 97, advanced swimming. One credit each; autumn, winter, spring. For section, see time schedule.

Auernheimer, Horton, Rulifson, deVries, Glover, Jefferson, Maydahl, Mahan.

Professional Courses for Men and Women

101. *Survey of Gymnastics.* (For women.) Classification of gymnastic material. Principles and technique of teaching. Prerequisites or accompanying courses, Anat. 100 and Physiol. 50. One hour lecture and two hours practice. Three credits; winter. Davidson.

107. *Personal and General Hygiene.* (For men.) An advanced course designed primarily for professional students in physical education. This course also satisfies the general university requirement P.E. 15. Three credits; autumn.

110. *First Aid and Athletic Training.* (For men and women.) This course will consider athletic training and conditioning with practice in the use of tests to determine condition. A study will be made of safety measures for the prevention of injuries, with practice in the recognition and treatment of injuries common to the playgrounds, gymnasium and athletic field. Three credits; autumn. Kunde.

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. Two credits; autumn. Horton.

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. Observation of work in the city. 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. A study of muscular efficiency, fatigue, recovery, chemical changes, and neuro-muscular control with special reference to games, sports, corrective work and posture. Prerequisites, Anat. 100 and Physiol. 50 or the equivalent. Five 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 and Physiol. 50. Three credits; spring. McGownd.

127. *Tests and Measurements.* (For men and women.) The place and possibilities of measurement in physical education. Study of statistical method and principles involved in construction of tests. Practical problems will be assigned to class for experimental study. Prerequisite, senior standing. Three credits; autumn. Belshaw.

131-132-133. *Principles and Methods in Posture Education.* (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 defects. Prerequisites, P.E. 122, Anat. 100, and Physiol. 50. Three credits; autumn, winter, spring. McGown.

135. *Individual Gymnastics.* (For men.) This course will consider physical abnormalities of the most frequent occurrence; relation of postural defects to organic function; methods of prevention and improvement with practice in the selection and application of corrective exercise to actual cases under supervision. Prerequisites, P.E. 115, 122, and Physiol. 50. Three credits; winter. Kunde.

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. Organization and class management. Participation in the activities of the program including wrestling, boxing, fencing, body contact activities, stunts, tumbling, dancing and the fundamental skills of athletic sports. Prerequisite, five quarters in physical education activity courses, or equivalent. Three credits a quarter; autumn, winter, spring. Auernheimer and Staff.

145. *Principles of Health and Physical Education.* (For men and women.) Social, biological, and educational foundations. A study of significant movements, shaping the trend of health and physical education both past and present. The place of health and physical education in the school program. Aims, objectives, content, criteria, and standards. Five credits; autumn. Foster.

150. *Physical Education Administration.* (For men.) Organization and administration of the physical education program in secondary schools. Admin-

istrative problems of the director, supervisor and instructor. Relationship of the department to other departments. Office routine and management. Care of facilities and equipment. Prerequisite, P.E. 145. Five credits; winter.
Foster and Staff.

152. *Organization and Administration of Physical Education in Elementary and Secondary Schools.* (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. 145, 162, 163, 164, and Edu. 75V. Two hours a week. Two credits; spring.
Hutchinson.

153. *Methods in Health Education.* (For men and women.) The place of health education in the school program, the general program of health teaching, subject matter and methods in health teaching in both the elementary and high school. Two credits; winter. Hutchinson.

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. 51-52-53. Five credits; autumn, winter, spring. deVries, Glover, Rulifson, Horton, 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; spring. 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.

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

201, 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. Two to five credits; autumn, spring. Hutchinson.

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. Hutchinson.

205. *Organization and Administration of Physical Education in Colleges and Universities.* (For women.) Philosophy of education in institutions of higher learning; relation to the physical education program. Objectives, organization, classification of students, activities, means of evaluation, relation to health service. Prerequisite, 20 credits in physical education. Three to five credits; winter. Glover.

PHYSICS

Physics Hall

Associate Professor Brakel; Professors Osborn, Kennedy, Utterback; Assistant Professors Henderson, Loughridge; Instructors Kenworthy, Higgs; Associate Sanderman.

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: 1, 2, 3 or 4, 5, 6; 101, 102, 105, 106, 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 natural science requirement in the University College, and may be taken by students in forestry and pharmacy. Prerequisite, a year of high school physics. Five credits; autumn, winter. Osborn, Kenworthy.

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. Loughridge.

6. *General Physics, Electricity.* This course will satisfy the same requirements as Physics 3. Prerequisite, Physics 5. Five credits; spring. Kenworthy.

10. *Introduction to Physics.* To be offered 1936-1937.

50. *Sound and Music.* 5 credits; spring. Kenworthy.

54. *Elementary Photography.* The principles and practice of the elementary photographic processes. Prerequisite, elementary physics or chemistry. Three credits; winter. 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, Kenworthy.

98. *Physics for Engineers—Electricity.* Prerequisite, Physics 97. Five credits; winter, spring. Brakel, Kenworthy.

99. *Physics for Engineers—Light and Heat.* Prerequisite, Physics 97. Five credits; autumn, spring. Brakel, Kenworthy.

101-102. *Introduction to Modern Physics.* Prerequisite, Physics 3 or 6. Three credits; autumn, winter. Utterback.

105-106. *Electricity.* Prerequisite, Physics 3 or 6. Three credits; autumn, winter. Brakel.

107. *Electricity and Magnetism.* Prerequisite, Physics 106 and calculus. Two credits, spring. Brakel.

109. *Pyrometry.* Prerequisite, 3 or 6. Three credits, spring. Utterback.

*110. *Heat and Introduction to Thermodynamics and Kinetic Theory.*

115. *Photography.* A quantitative study of the more important photographic processes and the application of photography to the sciences and arts. Prerequisite, Physics 54 or permission. Three credits; spring. Higgs.

*154. *Electrical Measurements.*

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.* Prerequisite, Physics 3 or 6. Two credits; winter. Osborn.

191, 192. *Theoretical Mechanics.* Prerequisite, 20 credits of physics, and calculus. Three credits; autumn, 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 physics, constituting a thorough foundation for subsequent specialization and more intensive study. Prerequisite, 40 credits of physics and taking Math. 114. Six credits; autumn, winter, spring. Kennedy, Loughridge.

*204. *Thermodynamics.*

*205. *Kinetic Theory.*

208. *Theoretical Optics.* The theories of Physical Optics. Prerequisite, Physics 202. Four to six credits; spring. Kennedy.

*210. *Mathematical Theory of Sound.*

*211. *Statistical Mechanics.*

*Not offered in 1935-36.

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; winter. Henderson.

*213, 214, 215. *Electrostatics and Magnetostatics.*

*216. *X-Rays and Radioactivity.*

219. *Hydrodynamics.* Prerequisite, Physics 200, Math. 116. Four credits; autumn. Utterback.

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, 232. *Atomic Structure.* Prerequisite, Physics 202. Four credits; autumn, winter, spring. Utterback.

239, 240. *Wave Mechanics.* Development of the wave mechanical viewpoint and its applications to atomic problems. Matric mechanics and perturbation theory. Prerequisite, Physics 202. Four credits; autumn, winter. Loughridge.

*241, 242, 243. *Relativity.*

250, 251, 252. *Seminar.* Prerequisite, graduate standing. Credit arranged. Staff.

256, 257, 258. *Research.* Credits arranged; autumn, winter, spring. Staff.

POLITICAL SCIENCE

Condon Hall

Professors Martin, Wilson; Associate Professors Cole, Mander; Instructors Bergerson, von Brevern; Teaching Fellows.

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.

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 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.

*Not offered in 1935-36.

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. Five 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. Five 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: Europe.* The traditional policies of the nineteenth century. New problems after 1914. Relations with the League, the World Court. War debts. Non-recognition doctrines. The national defense. U. S. and international organization. Three credits; winter. Mander.

122. *The Foreign Service.* Department of state; diplomatic and consular services; American diplomatic practice and procedure. Three credits; spring. Martin.

123. *Foreign Relations of the United States: The Americas.* The Monroe Doctrine; Pan-Americanism; imperialism; the recognition problem. Our special position in relation to Mexico, Central America, and the Caribbean Area. Canadian-American relations, including fisheries, boundaries, waterways, tariffs, foreign investments, and the maintenance of peace. Three credits; autumn. von Brevern.

124. *International Relations of Post-War Europe.* Effects of peace treaties in Europe. National policies of Great Britain, France, Germany, Russia, Italy. The regional movement—little entente. Baltic and Balkan agreements. Problems of revision. Austria. Economic and political attempts at European understanding. Three credits; spring. Mander.

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; winter. von Brevern.

127. *International Organization and Administration.* International unions, conferences, commissions, and especially the League of Nations. Five 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; winter. Pollard.

130. *The Middle and Near East.* The New Moslem World and the coming of nationalism. The New Turkey: Egypt, Palestine, Iraq, Syria, Arabia. New forces in Persia, Afghanistan; India, in the British Commonwealth. 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.)

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 Public Service.* Governmental employment in the United States, Great Britain, France, Germany, including the problems of training for public employment, analysis of positions and compensatory plans, recruitment, promotion, discipline, control and employee organization. Five credits; winter. Barthell.

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. *Parliamentary Governments in Europe.* The governments of Northern and Western Europe, especially England, France, Norway and Sweden, The Netherlands, Belgium, Switzerland, which have retained their parliamentary institutions. Five credits; spring. von Brevern.

157. *The New Governments of Europe.* Democracy and dictatorship in the Post-War Europe. Germany, Italy, Russia, Poland, Spain, Czecho-Slovakia, Jugo-Slavia, the Baltic provinces. The probable trends of government. Five credits; autumn. Mander.

158. *Governments and Politics of the Far East.* The political institutions of Japan, including a study of the monarchy, the constitution, the ministry and the Diet; local government, and imperialism. The establishment of the Chinese Republic; the Kuomintang; the political theory of Sun Yat Sen; Chinese problems today. Five credits; autumn. von Brevern.

159. *The British Commonwealth.* The dominions and legal relations: India, the Colonies; problems of unity. Five credits; spring. Mander.

162. *Municipal Administration.* Civil service, finance, city planning, zoning, police, traffic, health, water, sewerage, public works, utilities, etc. Five credits; autumn. Barthell.

163. *State Government and Administration.* Constitutions, governor, legislature, administrative organization, state activities, counties, parties, elections. Five credits; winter. Harris.

164. *Legislation and Bill Drafting.* Principles, procedures and problems of statute law making, with emphasis upon mechanics of bill drafting. Five credits; autumn. 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.

221-222. *Seminar in International Organization.* Three to five credits; autumn, winter. 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: The New Federalism. Three to five credits; winter. Cole.

Seminar in Oriental Diplomacy. (See O.S. 225, 226, 227.)

Constitutional Law. (See Law 119, 120.)

Administrative Law. (See Law 121.)

PSYCHOLOGY

Philosophy Hall

Professors Smith, Guthrie, Wilson, Esper; Assistant Professor Gundlach; Instructor Horton; Associate Hermans

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.* A survey of the science as a whole. No prerequisites. Five credits; course repeated every quarter. Wilson and 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. Wilson, Horton.

102. *The Neural Basis of Behavior.* Contemporary neurological theory concerning action, the emotions, the regulatory functions, learning, thinking. Prerequisite, Psych. 1. Five credits; autumn. Esper.

106. *Experimental Psychology.* Training in laboratory methods. Prerequisite, Psych. 1, 2 lectures, 6 hours laboratory. Five credits; winter. 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.* The contributions of living psychologists and a critical consideration of current 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.

*Not offered in 1935-36.

114. *Current Psychological Literature.* Reading and discussion in recent books and journals. Prerequisite, ten credits in psychology. Two credits; winter. Guthrie.

116. *Animal Behavior.* The psychology of animals in the laboratory and under natural conditions. 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.

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.

121. *Applied Psychology.* Psychology of personal efficiency, vocational guidance, scientific management, social work, law, medicine, athletics, business. Prerequisite, Psych. 1. Five credits; winter. Gundlach.

122. *Thinking and Voluntary Action.* Review of the experimental work and a theoretical analysis of the conditions determining judgment, choice, indecision, intention, etc.; the relations between language and thinking. Prerequisite, Psych. 1. Two credits; autumn. Guthrie.

124. *Psychology of Learning.* How habits are formed. Efficiency in learning, transfer of training, recent experimental findings. Prerequisite, Psych. 1. Five credits; spring. 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 do experimental work under direction. Research in animal behavior will be under the direction of Dr. Horton. 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

Denny Hall

Professors Frein, Umphrey, Patzer; Associate Professors Goggio, deVries, Helmlingé, Chessex, Garcia-Prada; Assistant Professors Whittlesey, W. Wilson, Simpson; Instructor C. Wilson; Associate Hamilton.

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 or Spanish in high school needs to enter French 2 or Spanish 2, he will be given University credit therefor, but he will be required to finish French 3, 4 and 7, or Spanish 3, 4 and 7, in fulfillment of the language requirement.

Students who have done two years of French or Spanish 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, or Spanish 4 and 7, with full credit. Credit is sometimes withheld in a foreign language which is taken to satisfy an entrance deficiency for the University College. (For detailed information in this regard consult the bulletin of the University College.) Full credit will be allowed for all other courses in elementary language taken in University classes.

Students may not begin French 1 and Spanish 1 (nor Italian) during the same quarter; and it is better to have three quarters of one Romanic language before beginning another. In instances where a foreign language must be taken without credit to satisfy an entrance deficiency of two units, courses 1, 2, 3, 4 and 7 in any of the Romanic languages must be completed in fulfillment of this requirement. Freshmen and sophomores may enter any course, except graduate, for which they have the prerequisites. Graduate students working for the master's degree and offering a minor in French or Spanish will do not less than is required of majors for the bachelor of arts degree in this department.

No student may have Romanic languages for a major; he must specify French, Italian or Spanish.

I. French

Requirements of the department: Majors and all who wish to be recommended to teach French shall be required to take French 41, 101, 102, 103 or 107, 158, 159, Edu. 75K, and electives amounting to nine or ten credits in French literature numbered above 117. At least six of the nine or ten credits shall be in courses in literature conducted in French.

1-2, 3. *Elementary.* As much as possible French will be used in the classroom. Each of the courses 1, 2, 3, is repeated each quarter. No credit will be given for French 1 until 2 has been completed. Five credits a quarter; autumn, winter, spring. ———.

4, 5, 6. *Reading of Modern Texts.* Each of the courses 4, 5, 6, is repeated each quarter. French 4 may be combined with 7, making a five-hour course. The same is true of 5 and 8, 6 and 9. Prerequisite to French 4 is 3, or equivalent. Three credits a quarter; autumn, winter, spring.

7, 8, 9. *Grammar and Composition.* Each of the courses 7, 8, 9 is repeated each quarter. Must be taken by majors in French, unless they have done the equivalent in high school. French 7 may be combined with 4. The same is true of 8 and 5, 9 and 6. Prerequisite to French 7 is 3, or equivalent. Two credits a quarter; autumn, winter, spring. ———.

34, 35, 36, or 134, 135, 136. *Comparative Literature of France, Italy, and Spain, in English Translation.* The main purpose of this course, besides being a brief survey of the three Romanic literatures, is to show the influence of each upon our modern thought and upon the other two respectively. (Lower division students must use the numbers 34, 35, 36; upper division students must use 134, 135, 136.) Lectures in English and collateral reading of English translations. No knowledge of French, Italian or Spanish necessary. For students choosing any of the Romanic languages for their major, all credits in this course may be counted toward the total of 36 to 60 credits required for the fulfillment of the major, but only three may be counted as part of the required nine hours in literature. Courses may be entered any quarter. The credits of any one quarter may be counted in one language only. Three credits a quarter; autumn, winter, spring. Goggio.

**41. *Phonetics.* Prerequisite, French 3. Three credits; repeated each quarter. Frein.

71, 72, 73, or 137, 138, 139. *Scientific French.* Reading in their special lines will be assigned to students majoring in the several sciences. Students of the lower division should register for French 71, 72, 73; those of the upper division should register for French 137, 138, 139. Prerequisites, French 4 and 7 or equivalent. Two credits a quarter. Whittlesey.

101, 102, 103. *Advanced Composition and Conversation.* With each of these courses is offered (at the same hour, but not on the same days) a course in advanced reading. See French 104, 105, 106. Courses 103 and 106 are not offered in the autumn. Prerequisites, French 9, or 3 or more years of high school French. Three credits a quarter; autumn, winter, spring.
Patzer, Helmlingé, Chessex, Whittlesey.

104, 105, 106. *Advanced Reading.* Courses to be taken with 101, 102, 103, if so desired, to make five-hour courses. Prerequisite, French 6. French 101 and 104, 102 and 105, are offered each quarter; 103 and 106 are not offered in the autumn quarter. Two credits a quarter.
Patzer, Helmlingé, Chessex, Whittlesey, Simpson.

107*, 108. *Themes.* Writing of original compositions upon assigned topics. Prerequisite, French 101. Those taking French 107 or 108 are not required to take 103. This course is numbered 107 and 108 in alternate years, so that students may receive credits for two quarters of this work if they wish; for 1935-1936 the number is 108. Hours to be arranged for individual conferences. Three credits; spring. Helmlingé.

118, 119, 120. *Survey of French Literature.* Lectures in English and collateral reading of English translations. Those who have studied French sufficiently will be assigned French texts to read. No prerequisites. Three credits a quarter; autumn, winter, spring. (See above under "Requirements of the department.") deVries.

121, 122, 123. *The French Novel.* Course conducted in French. Development of the novel from its beginning. Prerequisites, French 6 and 9. Two credits a quarter; autumn, winter, spring. Helmlingé.

*124, 125, 126. *The Short Story.*

127, 128, 129. *Advanced Conversation for Majors.* Careful preparation for each day's exercise will be required, and full credit given. Prerequisite, French 101, or equivalent. Two credits a quarter; autumn, winter, spring.
Helmlingé.

131, 132, 133. *Lyric Poetry.* Conducted in French. The best lyrics since the sixteenth century, especially those of Lamartine, Hugo and Musset. Prerequisite, French 104 or equivalent. Three credits a quarter; autumn, winter, spring. Helmlingé.

*Not offered in 1935-36.
**May be taken by upper division students for upper division credit.

134, 135, 136. *Comparative Literature of France, Italy and Spain in English Translation.* See French 34, 35, 36.

141, 142, 143. *The French Drama.* History of the French drama from its beginning. Lectures in French and assigned reading to be done outside of class. Prerequisites, French 6 and 9 or equivalent. Three credits a quarter; autumn, winter, spring. Chessex.

151, 152, 153. *History of the French Literature of the Nineteenth Century.* Lectures in French. Assignments of reading to be done outside of class. Prerequisites, French 6 and 9, or equivalent. Three credits a quarter; autumn, winter, spring. Simpson.

154, 155, 156. *Contemporary French Literature.* A survey of French literature from 1900 to date. Lectures and assigned reading. Conducted in English. Assigned reading in French for those who can read French; in English translation for those who do not read French. Prerequisite: any student may enter this class if he has junior standing; any freshman or sophomore may enter if he has had French 6 and 9 or equivalent. Three credits a quarter; autumn, winter, spring. Patzer.

158, 159. *Advanced Syntax.* French syntax from the teacher's standpoint. If possible these courses should precede the teachers' course. Prerequisite, French 103 or 107. Two credits a quarter; winter, spring. Frein, Chessex.

*161, 162, 163. *Eighteenth Century Literature.*

171, 172, 173. *Seventeenth Century Literature.* Lectures in French. Assigned reading and reports. Reports may be written in English, but the discussions 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 as 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 Theses.* Graduates at work upon a thesis will arrange their conferences individually with the instructor in charge. Frein, Patzer.

*Not offered in 1935-36.

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. (See also regulations under Romanic Languages, and French, applying to French, Italian and Spanish.)

1-2, 3. *Elementary.* No credit will be given for Italian 1 until 2 has been completed. Italian 1 is repeated in winter and Italian 2 in the spring. Five credits a quarter; autumn, winter, spring. ———.

*111, 112, 113. *Modern Italian Literature.*

121, 122, 123. *The Italian Novel.* History of the novel from its beginning. Prerequisite, Italian 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 Michiavelli, Castiglione, Cellini, Ariosto, and Tasso. Lectures in English and collateral reading. No knowledge of Italian is necessary. Two credits; spring. Goggio.

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.* Selections from Boccaccio, Petrarch, and Dante. Early Italian. Two to five credits a quarter; autumn, winter, spring. Goggio.

*231, 232, 233. *The Works of Dante.*

*243. *Italian Historical Grammar.*

III. Provençal

**223. *Old Provençal.* Readings, mostly lyric. Three credits; spring. Goggio.

IV. Spanish

Requirements of the department: Spanish 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. Not more than two credits from courses 118, 119, 120, will be accepted for the requirement of nine hours of literature. Freshmen and sophomores may enter any course, except graduate, for which they have the prerequisite. See also regulations under Romanic languages, and French, applying to French, Italian and Spanish.

1-2, 3. *Elementary.* No credit will be given for Spanish 1 until 2 has been completed. Five credits a quarter; each course repeated every quarter.

4, 5, 6. *Reading of Modern Authors.* Spanish 4, 5, 6, may be combined with Spanish 7, 8, 9, making a five-hour course each quarter. Prerequisite to Spanish 4 is 3 or equivalent. Three credits a quarter; autumn, winter, spring. ———.

**Will be offered if sufficient students elect the course.

7, 8, 9. *Grammar, Composition, Conversation.* May be combined with Spanish 4, 5, 6, making a five-hour course each quarter. Prerequisite to Spanish 7 is 3. Spanish 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, Spanish 9. Three credits a quarter; 101 repeated in spring quarter. W. 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. Not more than two of these six credits will be accepted for the requirement of nine credits in literature. Two credits a quarter; autumn, winter, spring. W. Wilson.

121, 122, 123. *The Novel.* Course conducted in Spanish. The history of prose fiction in Spain from its beginning to the present day. Selected texts, lectures, collateral reading and reports. Prerequisite, Spanish 6 and 9 or equivalent. Two credits a quarter; autumn, winter, spring. W. Wilson.

*131. *Lyric Poetry.*

*141, 142, 143. *Spanish Drama.*

*151, 152, 153. *Spanish Literature of the Nineteenth Century.*

159. *Advanced Syntax.* Problems in syntax studied from the teacher's point of view. Prerequisite, Spanish 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, Spanish 6 and 9 or equivalent. Two credits a quarter; autumn, winter, spring. W. Wilson.

184, 185, 186. *Spanish-American Literature.* Representative writings of Spanish-American authors. Collateral reading and reports. Lectures. Prerequisites, Spanish 6 and 9, or equivalent. Three credits; autumn, winter, spring. Umphrey.

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 Theses.* Graduates at work upon a thesis will arrange their conferences individually with the instructor in charge. Umphrey.

*Not offered in 1935-36.

SCANDINAVIAN LANGUAGES AND LITERATURE

Denny Hall

Professor Vickner

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.

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.*

*Not offered in 1935-36.

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 or 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

Physics Building

Professor Steiner, Woolston; Associate Professor Hayner; Instructor Guthrie; Associates Cohen, Harris.

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.

Sociology 1 or its equivalent is required of those taking advanced work. Sociology 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 should 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. Guthrie and 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.

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 in 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.*

*90. *Social Change.*

112. *The Family.* The changing home; family and marriage customs; family interaction and organization; analysis and treatment of domestic discord. Prerequisite, Soc. 1. Not open to students who have had 56. Five credits; winter. Hayner.

124. *Play and Leisure Time.* Theories and functions of play; traditional and commercialized forms of recreation; social utilization of leisure. Prerequisite, Soc. 1. Not open to students who have had Soc. 62. Three credits; spring. Hayner.

*Not offered in 1935-36.

128. *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. Not open to students who have had Soc. 64. Three credits; winter. ———.

131. *Social Statistics.* Methods and sources for quantitative investigation, as applied to sociology and related fields. Prerequisite, Soc. 1. Five credits; autumn, spring. Cohen.

132. *Methods of Social Research.* Concerns planning and conducting investigations of communities, institutions, social conditions. Each student is expected to carry on a primary investigation under the personal supervision of the instructor. Prerequisite, 131, or approved equivalent. Not open to students who have had Soc. 130. 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.* General survey of race problems and the conditions associated therewith. Special attention given to race contacts on the Pacific Rim. Prerequisite, five credits in sociology or five credits in economics. Three credits; spring. Steiner.

147, 148, 149. *Conservatism, Liberalism, Radicalism.* A critical examination of the principles and programs of contemporary schools of social thought. Prerequisite, ten hours of social science. Two credits, autumn; three credits, winter, 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.* Analysis of the technique and process by which changes in individual and collective actions are effected. Prerequisite, Soc. 1. Two credits; spring. Guthrie.

153. *Problems of Poverty.* History and ecology of poverty; causes underlying destitution; methods of prevention and relief. Prerequisite, Soc. 1. Three credits; winter. Hayner.

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. Prerequisite, ten credits of sociology or equivalent. Three credits; autumn. Hayner.

158. *Social Factors in Personality.* Survey of the literature on personality; case studies of personality problems. Prerequisite, Soc. 1. Three credits; spring. Guthrie.

159. *Juvenile Delinquency.* Special attention to the juvenile court, probation, and programs for prevention. Prerequisite, Soc. 156 or ten credits of sociology. Five credits; autumn. Hayner.

164. *Social Education.* Purpose, content and method of course intended to promote good citizenship. Recommended for teachers of social science subjects. Prerequisite, fifteen credits in social science. Two credits; spring. Woolston.

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.

196. *History of Social Theory.* Background and trends of sociological theory from Comte to the present. Prerequisite, ten credits sociology or equivalent. Five credits; winter. 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. Credit to be arranged; 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.

GRADUATE DIVISION OF SOCIAL WORK

(See page 132, for curriculum.)

Professor Steiner; Associate Professor Johnson; Associates Harris, ———; Field Work Supervisors Dorman, Rollins; Lecturers Hall, Hoedemaker; Members King County Medical Society.

S.W. 155. *Social Legislation.* An historical and critical analysis of the programs of social legislation in relation to child welfare, factory legislation; the adjustment of government to changing social conditions. Open to seniors with ten hours advanced credit in sociology, economics, or political science. Five credits; spring. Johnson.

S.W. 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. Open to seniors with ten credits in sociology. Five credits; winter. Steiner.

S.W. 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. Four hours class work and four hours laboratory. Prerequisites, Soc. 1 and Soc. 128, or equivalent, or permission of instructor. Five credits; spring. ———.

S.W. 176. *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. Open to seniors with ten credits in sociology. Five credits; spring. Steiner.

S.W. 178. *The State and Social Welfare.* A general survey of social services organized under governmental auspices in the United States and Europe. Open to seniors with ten hours advanced credit in sociology, economics, or political science. Five credits; autumn. Johnson.

FOR GRADUATE STUDENTS

S.W. 200. *Social Case Work I.* Principles of social case work and their application. Discussion of social investigation, diagnosis, treatment and recording, will be based on case material and on field work experience. Two hours

*Not offered in 1935-36.

class work, sixteen hours supervised field work with accredited agencies. Open only to professional students except with consent of instructor. Six credits; autumn, spring. Harris, ———, Dorman, Rollins.

S.W. 202. *Social Case Work II.* A continuation of Social Case Work I, with special emphasis on the causative factors in human relationships. Special attention is given to interviewing and treatment methods. Two hours class work, sixteen hours supervised field work with accredited agencies. Prerequisite, S.W. 200, or equivalent. Six credits; winter. Harris, ———, Dorman, Rollins.

S.W. 204. *Psychiatry in Case Work.* Some applications of psychiatry to the treatment of behavior problems. Two hours class work, sixteen hours supervised field work. Prerequisite, S.W. 200, 202, and 231, or equivalent. Six credits; spring. Harris.

S.W. 208. *Child Welfare Case Work.* Principles of case work as applied to the problems of children who for any reason require care away from their own families. Two hours class work, sixteen hours supervised field work with child welfare agencies. Prerequisite, S.W. 200 and 218, or equivalent. Six credits; autumn. ———.

S.W. 218. *Child Welfare.* Rights of childhood to health, education, recreation, protection; measures used to secure them. Three credits; winter. ———.

S.W. 222. *Social Control of the Handicapped.* Social factors involved and methods of dealing with the physically and mentally handicapped. Three credits; spring. ———.

S.W. 228. *Medical Information for Social Workers I.* Lectures presenting elementary concepts of health, medicine, and the diseases which most frequently incapacitate individuals of various age groups; the significance of symptoms and effects of disease upon social treatment. Two credits; autumn, spring. Mrs. Dorman and lecturers from King County Medical Society.

S.W. 229. *Medical Information for Social Workers II.* Continuation of lecturers on concepts of health, medicine, and disease, and the significance of symptoms and effects of disease upon social treatment. Acquaintance with medical and public health sources and procedures. Prerequisite, S.W. 228. Two credits; winter.

Mrs. Dorman and members of the King County Medical Society.

S.W. 231. *Psychiatric Information for Social Workers I.* Factors affecting the growth and development of personality from infancy to old age. The interrelationships of the physical, emotional, intellectual, and environmental factors in human behavior and some of the social psychiatric principles involved. Two credits, autumn, spring. Hoedemaker.

S.W. 232. *Psychiatric Information for Social Workers II.* Causes, diagnosis, and treatment of the mental and nervous disorders and deficiencies with emphasis upon the purposiveness of behavior and the interaction of organic, emotional, and environmental factors. Prerequisite S.W. 231. Two credits; winter. Hoedemaker.

S.W. 242. *Public Welfare Administration.* The nation, state, county, and city in relation to social work. Organization and functions of state boards of charities, departments of public welfare and local public agencies that serve dependent and delinquent groups. Relationship between state and local public units and between public and private agencies. Prerequisite, S.W. 178 or Pol. Sci. 155, or equivalent. Five credits; winter. Johnson.

S.W. 243. *Problems of Public Assistance.* Discussion of such problems as types of administrative set-up, relief standards, work relief; relationship to

*Not offered in 1935-36.

permanent programs of public welfare, to private agencies, to sources of support. Three credits; autumn, spring. Johnson.

S.W. 256. *Administration of Social Agencies.* Problems of administration as they relate to executive, staff and board; policy making; budgeting; public relations; committee management. Three credits; autumn. Hall.

S.W. 270. *Research in Public Welfare.* A course for students competent to carry on research dealing with special problems in public welfare administration. Prerequisite, permission of instructor. Hours and credits to be arranged; winter. Johnson.

ZOOLOGY AND PHYSIOLOGY

Johnson Hall

Professors Kincaid, Guberlet; Associate Professors Miller, Hatch, Smith; Associate Goodsell.

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.

Zool. 8. *Introduction to Zoology.* Elementary facts and principles basic to the field of zoological science. Special emphasis upon the relation of zoology to the economic and social welfare of man. Students who expect to continue with zoology should begin with Zool. 1 or 3. Five credits; spring. Kincaid.

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.

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, adaptions and inter-relationships 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 inter-relationship 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.

*Not offered in 1935-36.

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 maphibians, 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 detemination of contents of fish stomachs. Prerequisites, Zool. 5, 106 and 126. Three credits; autumn, winter, spring. Guberlet.

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.

*Not offered in 1935-36.
**Will be offered if sufficient students elect the course.

53-54. *Intermediate Physiology.* Adapted for students expecting to teach the subject in high school. Required of nursing majors; recommended for students in dietetics and sanitary science. Five credits; autumn, winter. Smith.

**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 1935-36.

SUMMER QUARTER

(See Summer Quarter bulletin for detailed information.)

Henry A. Burd, Ph.D.....*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.

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 1936 may be completed on or before noon, Saturday, June 13. Students expecting to be in attendance during the second term only may register on or before Friday, July 24, 4:30 p. 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 55.

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 the 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.

University College. Summer Quarter instruction is provided in all the liberal arts and science departments. Beginning or fundamental courses are repeated each summer. Advanced and graduate courses are changed from summer to summer so that a 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.

Education. The curriculum of the College 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.

Economics and Business. 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.

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 are 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, 210 Education Hall.

UNIVERSITY OF WASHINGTON OCEANOGRAPHIC LABORATORIES

(See Oceanographic bulletin for detailed information.)

SEATTLE AND FRIDAY HARBOR

The Staff

Thomas G. Thompson, Ph.D.....*Director; Professor of Chemistry*
Lyman D. Phifer, Ph.D.....*Assistant Director; Instructor in Oceanography*
John E. Guberlet, Ph.D.....*Professor of Zoology*
Bernard S. Henry, Ph.D.....*Instructor in Bacteriology*
Robert C. Miller, Ph.D.....*Associate Professor of Zoology*
Earl R. Norris, Ph.D.....*Associate Professor of Chemistry*
George B. Rigg, Ph.D.....*Professor of Botany*
Rex J. Robinson, Ph.D.....*Associate Professor of Chemistry*
Clinton L. Utterback, Ph.D.....*Professor of Physics*
Forrest Fuller.....*Curator*
Mary Bardue.....*Secretary*
Mary Grier, B.S.....*Librarian*
Ethel D. Williams.....*Dietitian*

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 484-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

(See Extension bulletin for detailed information.)

Harry Edwin Smith, 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 1935-1936 the following activities:

1. Evening Campus Classes.
2. Off Campus Classes (Seattle, Everett, Tacoma).
3. Home Study.
4. Graduate Medical Lectures.

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 35 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 Nineteenth Graduate Medical Lectures were held July 15 to 19, 1935, inclusive.

SUMMARY OF DEGREES, DIPLOMAS AND CERTIFICATES CONFERRED

1934

Bachelor's Degrees

Bachelor of Arts	333
Bachelor of Arts in Education	93
Bachelor of Arts in Journalism	7
Bachelor of Arts in Librarianship	18
Bachelor of Arts in Music	6
Bachelor of Architecture	10
Bachelor of Business Administration	169
Bachelor of Fine Arts	24
Bachelor of Laws	68
Bachelor of Music	12
Bachelor of Science	85
Bachelor of Science in Aeronautical Engineering	17
Bachelor of Science in Anatomy	3
Bachelor of Science in Bacteriology	4
Bachelor of Science in Botany	3
Bachelor of Science in Ceramic Engineering	2
Bachelor of Science in Chemical Engineering	19
Bachelor of Science in Chemistry	11
Bachelor of Science in Civil Engineering	25
Bachelor of Science in Commercial Engineering	23
Bachelor of Science in Education	25
Bachelor of Science in Electrical Engineering	37
Bachelor of Science in Forestry	18
Bachelor of Science in Geology	1
Bachelor of Science in Geology and Mining	7
Bachelor of Science in Home Economics	32
Bachelor of Science in Mathematics	2
Bachelor of Science in Mechanical Engineering	21
Bachelor of Science in Mining and Metallurgy	3
Bachelor of Science in Naval Science	1
Bachelor of Science in Nursing	20
Bachelor of Science in Pharmacy	21
Bachelor of Science in Physical Education	8
Bachelor of Science in Physics	2
Bachelor of Science in Zoology	2
Total	1132

Advanced and Professional Degrees

Master of Arts	72
Master of Business Administration	7
Master of Education	6
Master of Fine Arts	3
Master of Forestry	1
Master of Music	3
Master of Science	25
Master of Science in Aeronautical Engineering	1
Master of Science in Ceramic Engineering	1
Master of Science in Chemical Engineering	2
Master of Science in Electrical Engineering	3
Master of Science in Forestry	1
Master of Science in Metallurgy	1
Master of Science in Mining Engineering	1
Master of Science in Pharmacy	1
Master of Science in Physical Education	3
Professional Degree in Aeronautical Engineering	1
Professional Degree in Civil Engineering	1
Juris Doctor	2
Doctor of Philosophy	16
Total	151

Diplomas and Certificates

Certificate in Library Work with Children	2
Certificate in Nursing Supervision	25
Certificate in Public Health Nursing	30
Life Diplomas	65
Normal Diplomas	126
Pharmaceutical Chemist	7
Total	255

SUMMARY OF ENROLLMENT, 1934-35

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
Econ.&B.A.	125	112	131	1282	1276	1120	1461
Men.....	90	84	94	1058	1071	928	1217
Women...	35	28	37	224	205	192	244
Education...	563	330	604	91	99	135	127
Men.....	124	108	134	48	45	58	59
Women...	439	222	470	43	54	77	68
Engineering	35	22	40	994	973	841	1097
Men.....	33	21	38	992	969	839	1094
Women...	2	1	2	2	4	2	3
Forestry....	4	4	4	245	271 271	232	295
Men.....	4	4	4	245		232	295
Grad. School	915	629	993	655	704	647	857
Men.....	398	313	428	364	404	362	460
Women...	517	316	565	291	300	285	397
Law.....	76	74	76	289	269	247	295
Men.....	67	66	67	267	250	229	273
Women...	9	8	9	22	19	18	22
Library.....	31	2	31	30	28	35	33
Men.....	3	..	3	3	3	4	4
Women...	28	2	28	27	25	31	29
Mines.....	..	..	..	76	74	73	83
Men.....	..	..	..	76	74	73	83
Pharmacy...	13	9	13	170	171	159	179
Men.....	6	5	6	130	136	124	137
Women...	7	4	7	40	35	35	42
Univ. Coll...	809	653	847	4916	4767	4417	5527
Men.....	231	210	239	2105	2076	1859	2388
Women...	578	443	608	2811	2691	2558	3139
Totals.....	2571	1835	2739	8748	8632	7906	9954
Men.....	956	811	1013	5288	5299	4708	6010
Women...	1615	1024	1726	3460	3333	3198	3944

*NOTE: The number of individuals in column 7, is based upon the classification ot the autumn quarter to which is added the new students entering the same classification for the first time for the winter and spring quarters. In this column, students who have changed their classification during the year are counted as of their first classification.

SUMMARY OF ENROLLMENT, 1934-35

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...	978	663	1056	781	817	764	989
Men.....	429	340	459	457	487	444	557
Women...	549	323	597	324	330	320	432
Seniors.....	449	373	462	1275	1450	1436	1393
Men.....	189	175	195	773	879	863	843
Women...	260	198	267	502	571	573	550
Juniors.....	493	375	516	1556	1572	1496	1732
Men.....	134	129	142	948	974	896	1053
Women...	359	246	374	608	598	600	679
Sophomores	159	137	164	1984	1979	1803	2201
Men.....	73	65	77	1205	1210	1058	1331
Women...	86	72	87	779	769	745	870
Freshmen...	93	81	96	3100	2761	2356	3555
Men.....	43	35	44	1876	1719	1421	2181
Women...	50	46	52	1224	1042	935	1374
Specials.....	18	15	18	52	53	51	84
Men.....	9	7	9	29	30	26	45
Women...	9	8	9	23	23	25	39
Transients..	381	191	427	..	..	..	..
Men.....	79	60	87	..	..	..	..
Women...	302	131	340	..	..	..	..
Totals.....	2571	1835	2739	8748	8632	7906	9954
Men.....	956	811	1013	5288	5299	4708	6010
Women...	1615	1024	1726	3460	3333	3198	3944

*NOTE: The number of individuals in column 7 is based upon the classification of tne autumn quarter to which is added the new students entering the same classification for the first time for the winter and spring quarters. In this column students who have changed their classification during the year are counted as of their first classification.

TOTAL STUDENTS IN RESIDENCE

During regular academic year			9,954
During summer quarter			2,739
Total			12,693
Deduct summer quarter duplicates:			
Men	244		
Women	301		545
			12,148

EXTENSION STUDENTS

Classes			
Men	695		
Women	2,399	3,094	
Home Study:			
Men	304		
Women	298	602	3,696

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UNIVERSITY PUBLICATIONS

The University of Washington Bulletin (general series) includes the general catalogue, bulletins of the colleges and schools, University Directory (price 50 cents), Extension Service, General Information, Oceanographic Laboratories, Summer Quarter, Time Schedule, Vocational (price 50 cents). The general catalogue is limited to exchange purposes; the college bulletins are distributed without charge.

The following series are published at irregular intervals and are sold for stated charges. Persons wishing to obtain any of these publications are requested to correspond with the publications editor. Libraries or institutions offering material of equivalent value may secure exchanges by corresponding with the University librarian.

The University of Washington Publications contain the results of research work in various departments of the University. These publications include the following series: Anthropology, Biology, Geology, Language and Literature, Mathematics and the Social Sciences.

The Publications of the Engineering Experiment Station include bulletins of information and investigation concerning engineering and scientific problems.

The Publications in Oceanography are based on the investigational work carried on at the Friday Harbor Station, as well as on the University of Washington campus.

The Extension Service Series includes monographs of interest and value to the layman. While authentic, they are not written in highly technical terms with which the general public is unfamiliar.

HARRIETT WESTMORELAND, *Publications Editor*