NOTICE

The University and its various schools and departments reserve the right to change the rules regulating admission to the University and its schools, and any other regulations affecting the student body, or the granting of degrees, and 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 at any time.
The University Campus, comprising 530 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. Administration Hall is best reached by leaving the car at Fortieth Street and Fourteenth Avenue Northeast.
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THE UNIVERSITY CALENDAR
1921-1922

AUTUMN QUARTER
Registration days ............. Monday and Tuesday, September 26 and 27
Instruction begins ..................... Wednesday, September 28
President's Annual Address .......... Friday, September 30, 10 a.m.
Thanksgiving recess ............. Wednesday, November 23, 6 p.m. to
Monday, November 28, 8 a.m.
Instruction ends .................... Wednesday, December 21, 6 p.m.

WINTER QUARTER
Registration day ............ Wednesday, January 4, 8 to 12 a.m. and 1:30 to 5:30 p.m.
Instruction begins .................. Thursday, January 5, 8 a.m.
Washington's Birthday, holiday .......... Wednesday, February 22
Instruction ends ...................... Wednesday, March 22, 6 p.m.

SPRING QUARTER
Registration day ....... Tuesday, March 28, 8 to 12 a.m. and 1:30 to 5:30 p.m.
Instruction begins ................. Wednesday, March 29, 8 a.m.
Campus Day ................................ Friday, April 21
Junior Day ................................ Saturday, May 27
Memorial Day, holiday ................. Tuesday, May 30
Instruction ends ....................... Friday, June 16, 6 p.m.
Class Day .............................. Saturday, June 17
Baccalaureate Sunday ................. Saturday, June 18
 Commencement and Alumni Day .......... Monday, June 19

SUMMER QUARTER
Registration day ....... Tuesday, June 20, 8 to 12 a.m. and 12:30 to 5:30 p.m.
Instruction begins .................. Wednesday, June 21, 8 a.m.
Independence Day, holiday ........... Tuesday, July 4
Instruction ends ..................... Wednesday, August 6 p.m.

(6)
THE BOARD OF REGENTS

JOHN A. REA, President....................................................Tacoma
  Term ends March, 1922

OSCAR A. FECHTER............................................................Yakima
  Term ends March, 1922

WILLIAM A. SHANNON..........................................................Seattle
  Term ends March, 1923

RUTH KARR McKEE.............................................................Vancouver
  Term ends March, 1923

WINLOCK W. MILLER.............................................................Seattle
  Term ends March, 1926

WILLIAM T. PERKINS.............................................................Seattle
  Term ends March, 1926

WERNER A. RUPP...............................................................Aberdeen
  Term ends March, 1927

WILLIAM MARKHAM, Secretary to the Board

COMMITTEES OF THE BOARD OF REGENTS

March 1921 to March 1922

AUDITING AND FINANCE—Perkins (chairman), Shannon, Fechter.

BUILDINGS AND GROUNDS—Miller (chairman), Perkins, Shannon.

COOPERATIONS—Shannon (chairman), Miller, Perkins.

DEMONSTRATION FOREST—Perkins (chairman), Rupp, Fechter.

EDUCATION—McKee (chairman), Fechter, Rupp.

LANDS—Rupp (chairman), Miller, McKee.

METROPOLITAN BUILDING Co.—Fechter (chairman), McKee, Miller.

PUGET SOUND BIOLOGICAL STATION—Perkins (chairman), McKee, Rupp.

RETIREMENTS AND ANNUITIES—Fechter (chairman), Miller, McKee.

STUDENT WELFARE—Shannon (chairman), McKee, Perkins.
OFFICERS OF ADMINISTRATION

THE UNIVERSITY

HENRY SUZZALLO, Ph. D., LL. D. ............ President of the University
Administration Hall

JOHN THOMAS CONDON, LL. M. ............... Dean of Faculties
Administration Hall

HERBERT THOMAS CONDON, LL. B. .......... Comptroller
Administration Hall

EDWARD NOBLE STONE, A. M. .................. Registrar
Administration Hall

EDWIN BICKNELL STEVENS, A. M. .............. Executive Secretary
Administration Hall

JAMES EDWARD GOULD, A. M. ................. Dean of Men
Administration Hall

ETHEL HUNLEY COLDWELL, A. M. .............. Dean of Women
Administration Hall

WILLIAM ELMER HENRY, A. M. ............... Librarian
Library

FRANK STEVENS HALL ....................... Director of Museum
Museum

JAMES GARFIELD FLETCHER, A. B. ............ Vocational Secretary
Administration Hall

THE COLLEGES AND SCHOOLS

DAVID THOMSON, B. A. ............ Dean of the College of Liberal Arts
Denny Hall

HENRY LANDES, A. M. ............... Dean of the College of Science
Science Hall

STEPHEN IVAN MILLER, LL. B., A. B. .......... Dean of the College of Business Administration
Commerce Hall

FREDERICK ELMER BOLTON, Ph. D. .......... Dean of the College of Education
Home Economics Hall

CARL EDWARD MAGNUSSON, Ph. D. .......... Dean of the College of Engineering
Engineering Hall

IRVING MACKEY GLEN, A. M. .......... Dean of the College of Fine Arts
Meany Hall

JOHN NATHAN COBB .................. Director of the College of Fisheries
Fisheries Hall

HUGO WINKENWERDER, M. F. ........... Dean of the College of Forestry
Forestry Hall

MATTHEW LYLE SPENCER, Ph. D. .... Director of the School of Journalism
Commerce Hall

JOHN THOMAS CONDON, LL. M. ............... Dean of the School of Law
Commerce Hall

WILLIAM ELMER HENRY, A. M. ....... Director of the Library School
Library

MILNOR ROBERTS, A. B. ............... Dean of the College of Mines
Mines Hall

CHARLES WILLIS JOHNSON, Ph. C., Ph. D. .......... Dean of the College of Pharmacy
Bagley Hall

FREDERICK MORGAN PADELFORD, Ph. D. ...... Dean of the Graduate School
Denny Hall

THE EXTENSION SERVICE

EDWIN AUGUSTUS START, A. M. .................. Director
Extension Hall and 1041 Henry Building
OFFICERS OF ADMINISTRATION

OTHER ADMINISTRATIVE OFFICERS

LILLIAN BROWN GETTY, Secretary to the President.
MAX HIPKOS, Assistant Purchasing Agent.
WILLIAM BEACH JONES, A. B. Cashier.
AIMEE WILSON, Secretary to the Comptroller.
SANDY NORMA MARX, A. B., Assistant Registrar.
BETH GILBY, B. B. A., Secretary to the Registrar.
LOIS J. WENTWORTH, Secretary to the Dean of the Graduate School.
MAY WARD, A. B., Assistant Dean of Women.
SARA KAUFMANN PATTERSON, Assistant Dean of Women.

BUILDINGS AND GROUNDS

FREDERICK ELWELL, Superintendent.
SANDY MORROW KAND, Engineer.
L. R. KETTENRING, Electrician.
STANLEY O. CARPENTER, Head Carpenter.
GEORGE WARNER, Head Gardener

UNIVERSITY COMMONS AND RESIDENCE HALLS

RUTH MARGARET LUSBY, A. M. Supervisor of Dining Halls.

UNIVERSITY HEALTH SERVICE

DAVID CONNOLLY HALL, M. D., University Health Officer.
LILIAN COLLISON IRWIN, M. D., Medical Examiner for Women.
JOSPHINE BROWN, B. N., Public Health Nurse.
NELL BROWN, R. N., Resident Nurse.

STATE CHEMIST

CHARLES WILLIS JOHNSON, Ph. C., Ph. D., State Chemist.
JEAN ROBIN WILKES, B. S., Assistant State Chemist and Bacteriologist.
GEORGE HERBERT NEEDHAM, Assistant State Chemist.

ENGINEERING EXPERIMENT STATION

CARL EDWARD MAGNUSON, Ph. D. Director.

UNIVERSITY OF WASHINGTON STATION OF THE UNITED STATES FOREST SERVICE

CONRAD W. ZIMMERMAN, A. B., Engineer in Timber Tests, in charge.

UNITED STATES SHIPPING BOARD SCHOOLS

JAMES E. GOULD, A. M. in charge of Maritime Commerce.
PERRY HERBERT, 1st Officer, Merchant Marine, in charge of Navigation Courses.
E. F. HARWELL, B. S., 1st Officer, Merchant Marine, Associate in Maritime Commerce.
EVERETT O. EASTWOOD, A. M., C. E., in charge of Marine Engineering Classes.

UNITED STATES DEPARTMENT OF AGRICULTURE BUREAU OF PLANT INDUSTRY

JAMES THOMPSON, B. S., Specialist in charge of Medicinal Plants.

UNITED STATES GEOLOGICAL SURVEY

HENRY LANDES, A. M., State Geologist.

UNITED STATES BUREAU OF EDUCATION RESEARCH STATION

CLIFFORD WOODY, PH. D., Supervisor.
FEDERAL BOARD FOR VOCATIONAL EDUCATION

CLAUDE W. ANDERSON, A. B., LL B., District Vocational Adviser.

1 Absent 1920-21.
UNIVERSITY OF WASHINGTON

UNITED STATES ARMY RESERVE OFFICERS TRAINING CORPS

William David Frazee, Major, C. A. C., U. S. A., Assistant Professor of Military Science and Tactics.
Edward Bennett Dennis, Major, C. A. C., U. S. A., Assistant Professor of Military Science and Tactics.
William Platt, Major, C. A. C., U. S. A., Assistant Professor of Military Science and Tactics.
Henry Clinton Kriss Muhlenberg, Major, A. S., U. S. A., Assistant Professor of Military Science and Tactics.
Evan Kirkpatrick Meredith, Captain, Infantry U. S. A., Assistant Professor of Military Science and Tactics.
Keith Sumner Gregory, Captain, Infantry, U. S. A., Assistant Professor of Military Science and Tactics.
James Carolile Gunn, Captain, Philippine Scouts, Retired, Assistant Professor of Military Science and Tactics.

NORTHWEST EXPERIMENT STATION UNITED STATES BUREAU OF MINES

Oliver C. Ralston, Superintendent.
James H. Robinson, Principal Clerk.
Hewitt Wilson, Ceramist.
Clyde E. Williams, Metallurgist.
Albert L. Bennett, Junior Analytical Chemist.
Byron M. Bird, Junior Mining Engineer.
John H. Thompson, Junior Fuel Chemist.
Earl R. McMillan, Assistant Mining Engineer.
Isadore Rosen, Ceramic Assistant.
John G. Schoning, Foreman Miner.
End E. Smith, Mechanic.

LIBRARY STAFF

William Elmer Henry, A. M., (Indiana); Librarian and Director of the Library School.
Charles Wesley Smith, A. B., B. L. S. (Illinois); Reference Librarian and Associate Professor of Library Economy.
Emma Pearl McDonnell, A. B. (Washington); Periodicals Librarian.
Evelyn May Bloquist, A. B. (Vassar); Pratt Institute Library School; Order and Accession Librarian.
Robinson Spencer, A. B. (Wesleyan), B. L. S. (Illinois); Catalogue Librarian and Instructor in Library Economy.
Ellen F. Howe, A. B. (Washington), (Carnegie Library School); Assistant Reference Librarian and Instructor in Library Economy.
Lydia McCutcheon, A. B., (Iowa), (Washington Library School); Assistant Reference Librarian.
Edna White, A. B. (Knox); (Illinois Library School), Circulation Librarian.
Barbara Mabel Bolles, A. B. (Boston), B. S. (Simmons); First Assistant Cataloguer.
Flora Belle Ladington, A. B. (Washington); Assistant in Circulation.
Marg Alphonso, A. B., (Nebraska), Second Assistant in Circulation.

THE MUSEUM

Frank Stevens Hall, Director of the Museum.
Clarence John Albee, A. B. (Iowa); Curator of Zoological Exhibits.
Samuel F. Rathbun, Honorary Curator of Birds.
Martha Flahaut, A. B. Assistant.
UNIVERSITY FACULTY

In this list the names of the faculty are arranged in six groups—professors, associate professors, assistant professors, associates, lecturers, and instructors—followed by the names of the teaching fellows and assistants. In each of the six groups the names occur in the order of academic seniority. An alphabetical list of the faculty is given on pages 14-21.

HENRY SUZZALLO, President of the University, ex-officio Chairman.
EDWARD NOBLE STONE, Registrar, ex-officio, Secretary.

PROFESSORS

HENRY LANDES
EDMUND STEPHEN MEANY
J. ALLEN SMITH
CAROLINE HAVEN OMER
JOHN THOMAS CONDON
TREVOR KINCAID
FREDERICK MORGAN PADLEFORD
MILTON ROBERTS
WILLIAM SAVORY
FREDERICK ARTHUR O'BORNE
DAVID THOMSON
CHARLES WILLIS JOHNSON
PIERRE JOSEPH FREIN
THEODORE CHRISTIAN PAYE
ROBERT EDWARD HOBITS
CARL EDWARD MAGNUSON
HARLEY LANTZ
EVERETT OWEN EASTWOOD
WILLIAM ELMER HENRY
DAVID CONNOLLY HALL
HERBERT HENRY GOWEN
OLIVIA HUNTINGTON RICHARDSON
IVAN WILBUR GOODNER
IRVING MACKERY GLEN
EDWIN AUGUSTUS STANT
CHARLES CHURCH MORE
HENRY KEEFNER BENSON

ASSOCIATE PROFESSORS

LOREN DOUGLAS MILLMAN
SAMUEL LATTIMER BOOTHBIRD
THOMAS KAY SIBLEY
EDWARD McMAHON
CHARLES WESLEY SMITH
ARTHUR WILSON LINTON
GEORGE SAMUEL WILSON
*GEORGE WALLACK UMPhREY
OTTO PATZER
CHARLES WILLIAM HARRIS
VANBUREE CURTIS
EDGAR ALLEN LOWE
JOSEPH DANIELS
*CHARLES EDWIN WEATHER
EDWARD GODDARD COX
ALLEN FULLER CARPENTER

ASSISTANT PROFESSORS

EDWIN JAMES SAUNDERS
GEORGE IRVING GAYETT
ROBERT MAX GARETT
EIL VICTOR SMITH
HARVEY BURCH DENSMORE
CLARENCE RAYMOND CORBY
GEORGE GOLDENA DENT
FRED WASHINGTON KENNEDY

*Absent on leave 1920-1921.
* Resigned March 31, 1921.
* Appointed April 1, 1921.
* Absent on leave Autumn Quarter.
SAMUEL HERBERT ANDERSON  
FRIEDRICH KURT KRISTEN  
SEBBING BURTON CLARK  
MALT MILLMORE GOODFREED  
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JAMES CAROLINE GROSS  
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LILLIAN BLOOM  
WIFRIED SUNDHOLM HAGGETT  
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MILDRED STRUBEL  
JOHN VICTOR FABIAN  
JAMES WEHN  
EUGENIA WORMAN  
HERMANE MULLEMMAN  
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AMBROSE PATTISON  
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MARGOED WHIPPLES  
JAMES McCOMONAZL  
WILLIAM BENNETT HENDERSON  
EMUEL JACOB FORMAN  
CHAUNCEY WHEELOCK  
EDWIN LEONARD STRANDBERG  
PAMELIA JONES  
SYLVIA KERNIGAN  
DOROTHY THOMAS  

GERTRUDE BROWNING  
ALICE BENSON KUNST  
BERTHA ALMEN VENDER  
EDNA DAHLIN  
EARL WEST  
WILLIAM ALBERT HAMILTON  
JAN BURNS ALBERT  
EDNA CHITTIKG  
ELZIBETH SOULS  
HERBERT PHILLIPS  
HELEN MACKINN  
CLARENCE EDMUNDSON  
LEONARD ALLISON  
EDWARD LUNDE  
WILLIS PATCHEN  
JEANNE MERCER  
ALMIRA BONAB  
CARL ZENO DRAVES  
WALDO SIMON  
OLIVER CLINTON MCCABE  
WAYNE BUTTERBAUGH  
PAUL MORGAN GUSTIN  
ALONZO VICTOR LEWIS  
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ELIZABETH WRIGHT  

INSTRUCTORS  

SAMUEL THOMAS BRATTIS  
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JOSEPH GRATTAN O'BRIAN  
HAROLD ODEEN SIKSMITH  
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GEORGE KIRKNER  
WILLIAM RONALD WILSON  
HARRY JOHN MCGINTY  
JOSEPH TAYLOR  
EDMOND CLARENCE MILLER  
JOHN HOWARD THOMPSON  
ROBERT QUINZ DT BOWS  
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LOU EASTWOOD ANDERSON  
ELEANOR CAMPBELL  
ELENDE FROHCE  
GLENN ARTHUR HUGHES  
KARL ELIAS LIEB  
RUTH MARGARET LUSCH  
FREDERICK ANSTEN McMILLIN  
FRANK ARTHUR PATZ  
WILLARD HENRY RILES  

* Died October 19, 1920.  
1 Absent on leave 1920-1921.
### ASSISTANTS, TEACHING AND RESEARCH FELLOWS

<table>
<thead>
<tr>
<th>Name</th>
<th>Title or Position</th>
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<tbody>
<tr>
<td>LOUIS DOW BENSON</td>
<td>Assistant in Music</td>
</tr>
<tr>
<td>ANNA BOYDSTILL</td>
<td>Assistant in Physical Education</td>
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<tr>
<td>CONSTANCE OLDS BURNHAM</td>
<td>Assistant in English</td>
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<tr>
<td>CLYDE MYRON CRAMLETT</td>
<td>Assistant in Mathematics</td>
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<tr>
<td>EMMA DION</td>
<td>Accompanist and Assistant in Music</td>
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<tr>
<td>FRED DOWNING</td>
<td>Assistant in Mechanical Engineering</td>
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<tr>
<td>PTL ELLSWORTH</td>
<td>Assistant in Business Administration</td>
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<tr>
<td>HELEN FISHERMAN</td>
<td>Assistant in Music</td>
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<tr>
<td>BLAINE GIBSON</td>
<td>Assistant in Physical Education</td>
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<td>HELEN HADLST</td>
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<td>RACHEL ELIZABETH HAMILTON</td>
<td>Assistant in French</td>
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<td>MARION HERSHEY</td>
<td>Assistant in Physics</td>
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<tr>
<td>PAUL HOGG</td>
<td>Demonstrator in Physics</td>
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<td>HAROLD HOTSTILL</td>
<td>Assistant in Mathematics</td>
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<tr>
<td>AGNES JACOBSON</td>
<td>Assistant in Nursing and Public Health</td>
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<tr>
<td>EDWARD MILTON LITTLE</td>
<td>Assistant in Physics</td>
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<tr>
<td>BERT McCALLAND</td>
<td>Assistant in English</td>
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<td>JAMES McCONAHAY</td>
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<td>HORACE DONALD McGIN</td>
<td>Assistant in Economics</td>
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<td>LESLIE MARCHELAND</td>
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<td>KURT RACULiffe</td>
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<td>JAMES RUNCHET</td>
<td>Assistant in Golf</td>
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<td>ELA MARIA SICHELZ</td>
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<td>ELIZABETH STARS</td>
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<td>ANNA ALPHEA STORM</td>
<td>Assistant in Design</td>
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<td>CLAYTON SULLIVAN</td>
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<td>HAROLD TULVIN</td>
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<td>MYRON HENRY WETZEL</td>
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<td>MAGGIE WILKINSON</td>
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<td>FLORENCE BROUGH WILSON</td>
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<td>FREDERICK WOODBRIDGE</td>
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<td>MYRTELLA CULVER BAKRY</td>
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<td>Ewan CLAGUE</td>
<td>Teaching Fellow in Political Science</td>
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<td>ELVA CLAUDSON</td>
<td>Teaching Fellow in Psychology</td>
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<td>MARY ELIZABETH DAVIS</td>
<td>Teaching Fellow in French</td>
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<td>JULIA FISHER</td>
<td>Teaching Fellow in Philosophy</td>
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<td>OLIVE REEVES FORSTER</td>
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<td>LENA HARTOG</td>
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<td>GRACE HOWARD</td>
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<td>ANDERSON HUBBARD</td>
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<td>GERTRUDE KRAFFT</td>
<td>Teaching Fellow in German</td>
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<td>OLIVE KUNTZ</td>
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<td>MARGERY McKILLOP</td>
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<td>KIRSTEN LARSEN NEWSBURY</td>
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<td>STEELE LINDSEY</td>
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<td>JOSEPHINE NORLING</td>
<td>Teaching Fellow in Psychology</td>
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<tr>
<td>ECHO PEPPER</td>
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<td>GEORGE SARTORIUS</td>
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<td>DENNIS TOTH</td>
<td>Teaching Fellow in Education</td>
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<td>HELEN WORTH</td>
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<tr>
<td>ARVID ANDERSON</td>
<td>Fellow in Metallurgy</td>
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<tr>
<td>JAMES BONNER</td>
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<tr>
<td>ERNEST GOODNER</td>
<td>Fellow in Ceramics</td>
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</table>

*Other Officers*

- George Whitwell
- SARGENT POWELL
- HENRY STACK
- HERBERT ARTHUR STURGES
- OSCAR ELDERIDGE DRAPER
- JOHN ERALD DRISCOLL, JR.
- MARIE EUGENIE DRISCOLL
- ELLA JANE SINGISON
- WILLIAM WOODBRIDGE EDY
- BYRON TOWNSEND MCINN
- ROBERT HAROLD EDMONDS
- GINO VINCENT MEDICI DE SOLENNI
- VON VALDEAN TARRILL
- ALBERT KALEN
- LESLIE SPEER
- GEORGE LESLIE HOARD
- CLARENCE LESTER WHITE
- ELGIN ROSS WILCOX
- CHARLES GUSTAV STRUBB
- JACK RODERICK TOMASH
- JAMES LANG ELLIS
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Heny SuZZALLO, President of the University.
A. B., Stanford, 1899; A. M., Columbia, 1902; Ph. D., 1905; LL. D., California 1918.

ALBERT PORTER ADAMS, Instructor in Music.

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B. S., Case School of Applied Science, 1907; LL. B., Cleveland Law School, 1910.

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CURT JOHN DUCASSE, Assistant Professor of Philosophy.

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ERNST OTTO EICKELMANN, Assistant Professor of German.
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ANNETTE EDENS, Instructor in Drawing.
New York School of Fine and Applied Arts, Columbia.

ROBERT HAROLD GRAY EDMONDS, Acting Instructor in Mechanical Engineering.
B. S., Whitman, 1915.

CLARENCE EDMUNDS, Associate in Physical Education.
B. S., Idaho, 1910.
<table>
<thead>
<tr>
<th>Name</th>
<th>Degree/Position</th>
<th>University/Institution</th>
<th>Notes</th>
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<tbody>
<tr>
<td>WILLARD HENRY ELLIS</td>
<td>Instructor in Physics</td>
<td>B. S., (B. E.), California, 1914</td>
<td></td>
</tr>
<tr>
<td>JAMES LAND ELLIS</td>
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<td>A. B., Washington, 1920; A. M., 1921</td>
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<tr>
<td>GEORGE CHARLES EMERY</td>
<td>Acting Associate Professor of Fish Culture</td>
<td>B. S., Colgate, 1900. (Autumn.)</td>
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<tr>
<td>ALICE HENSON ELLIS</td>
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<td>A. B., Washington, 1912; A. M., 1913</td>
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<tr>
<td>VICTOR JOHN FARAR</td>
<td>Associate in Historical Research</td>
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<tr>
<td>EMUEL JACOB FORMAN</td>
<td>Extension Lecturer on Water Transportation</td>
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<tr>
<td>WILLIAM DAVID FRASER</td>
<td>Major, C. A. C., U. S. A., Assistant Professor of Military Science and Tactics.</td>
<td>B. S., (C. E.), Michigan Agricultural College, 1900.</td>
<td></td>
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<tr>
<td>GEORGE EARL FREEMAN</td>
<td>Associate Professor of Education</td>
<td>A. B., Kansas Normal, 1900; A. M., Clark, 1913; Ph. D., Clark, 1920.</td>
<td></td>
</tr>
<tr>
<td>PIERRE JOSEPH FERN</td>
<td>Professor of Romance Languages</td>
<td>A. B., Williams, 1882; Ph. D., Johns Hopkins, 1890.</td>
<td></td>
</tr>
<tr>
<td>THEODORE CHRISTIAN FRED</td>
<td>Professor of Botany</td>
<td>B. S., Illinois, 1894; Ph. D., Chicago, 1902.</td>
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<tr>
<td>ROBERT MAX GARRETT</td>
<td>Assistant Professor of English</td>
<td>A. B., Idaho, 1902; A. M., Washington, 1903; Ph. D., Munich, 1908.</td>
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<tr>
<td>GEORGE IRVING GAYETTY</td>
<td>Assistant Professor of Mathematics</td>
<td>B. S., (C. E.) Michigan, 1893.</td>
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<tr>
<td>IRVING MACKERT GLEN</td>
<td>Professor of Music and Dean of the College of Fine Arts.</td>
<td>A. B., Oregon, 1894; A. M., 1897.</td>
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<tr>
<td>HARVY GLENN</td>
<td>Lecturer on Assaying of Bullion</td>
<td>B. S., Iowa State College.</td>
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<td>CHARLES GOGIO</td>
<td>Associate Professor of Romance Languages.</td>
<td>A. B., Harvard, 1910; A. M., Wisconsin, 1914; Ph. D., 1919.</td>
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<tr>
<td>IVAN WILBUR GOODNER</td>
<td>Professor of Law</td>
<td>LL. B., Nebraska, 1897.</td>
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<tr>
<td>FOREST JACKSON GOODRICH</td>
<td>Instructor in Pharmacy</td>
<td>Ph. C., Washington, 1913; B. S., 1914; M. S., 1917.</td>
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<tr>
<td>GEORGE EDWARD GOODPEED, JR.</td>
<td>Assistant Professor of Geology</td>
<td>B. S., (Min. E.), Massachusetts Institute of Technology, 1910.</td>
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<tr>
<td>WILLIAM FRENCH GORBUSH</td>
<td>Professor of Dramatic Art</td>
<td>A. B., Knox, 1895.</td>
<td></td>
</tr>
<tr>
<td>CARL FEELINGHUYSEN GOULD</td>
<td>Associate Professor of Architecture</td>
<td>A. B., Harvard, 1898.</td>
<td></td>
</tr>
<tr>
<td>JAMES EDWARD GOULD</td>
<td>Professor of Maritime Commerce and Dean of Men.</td>
<td>B. Ph., Washington, 1896; B. Ph., 1898; M. A., Harvard, 1907.</td>
<td></td>
</tr>
<tr>
<td>HERBERT HENRY GOWNN</td>
<td>Professor of Oriental History, Literature and Institutions.</td>
<td>St. Augustine's College (Canterbury); D. D., Whitman College, 1912.</td>
<td></td>
</tr>
<tr>
<td>KEN SUMNER GOWON</td>
<td>Captain, Infantry, U. S. A., Assistant Professor of Military Science and Tactics.</td>
<td>Graduate, U. S. Military Academy, 1903.</td>
<td></td>
</tr>
<tr>
<td>BROI LEONARD GONDEL</td>
<td>Assistant Professor of Forestry</td>
<td></td>
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<tr>
<td>GEORGE EDWARD GOODPEED</td>
<td>Assistant Professor of Geology</td>
<td>B. A., Bethany (Kansas), 1910; M. S. F., Washington, 1913.</td>
<td></td>
</tr>
<tr>
<td>MARY EMMA GROSS</td>
<td>Assistant Professor of Physical Education for Women</td>
<td>A. B., Goucher College, 1912; A. M., Columbia, 1916.</td>
<td></td>
</tr>
<tr>
<td>JAMES CAROLINE GUNN</td>
<td>Captain, Philippine Scouts, Retired. Assistant Professor of Military Science and Tactics.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HORACE GUNTHORP</td>
<td>Assistant Professor of Zoology</td>
<td>Ph. B., Hamilton, 1905; A. B., Stanford, 1909; A. M., Kansas, 1912.</td>
<td></td>
</tr>
<tr>
<td>PAUL MORGAN GUTHIN</td>
<td>Extension Lecturer on Fine Arts</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WINNIFRED SUNDIAL HAGGETT</td>
<td>Associate in English</td>
<td>A. B., Olivet, 1897; A. M., Michigan, 1898.</td>
<td></td>
</tr>
<tr>
<td>DAVID CONNOLLY HALL</td>
<td>University Health Officer and Professor of Hygiene</td>
<td>Ph. B., Brown, 1901; Sc. M. Chicago, 1903; M. D., Rush Medical College, 1907.</td>
<td></td>
</tr>
</tbody>
</table>
JAMES BAKER HAMILTON, Instructor in Civil Engineering.
Washington.
WILLIAM ALBERT HAMILTON, Associate in Mathematics.
A. B., College of City of New York, 1901; A. B., Cornell, 1902.
CHARLES WILLIAM HARRIS, Associate Professor of Civil Engineering.
B. S. (C. E.), Washington, 1905; C. E., Cornell, 1905.
JOSEPH BROWN HARRISON, Assistant Professor in English.
FRANK DEMETRIUS HAYDEN, Assistant Professor of Civil Engineering.
B. S., (C. E.), Massachusetts Institute of Technology, 1902.
FRED HARVEY HEATH, Assistant Professor of Chemistry.
B. S., New Hampshire, 1905; Ph. D., Yale, 1908.
CHARLES LOUIS HELMIG, Assistant Professor of Romance Languages.
WILLIAM BENNET HENDERSON, Extension Lecturer on Foreign Trade.
WILLIAM ELWILL HENRY, Librarian and Director of the Library School.
A. B., Indiana, 1891; A. M., 1892.
MAURICE HICKLIN, Instructor in Journalism.
A. B., Missouri, 1909; B. J., 1913.
GEORGE LIDDLE HOARD, Instructor in Electrical Engineering.
JOHN WILLIAM HORSTON, Assistant Professor of Botany.
A. B., McMaster, 1901; A. M., 1902; Ph. D., Harvard, 1913.
ELLEN FORD HOWE, Assistant Reference Librarian and Instructor in Library Economy.
A. B., Washington, 1911; Carnegie Library School.
GLENN ARTHUR HUGHES, Instructor in Dramatic Art.
LILLIAN IRWIN, Lecturer on Physical Education for Women.
M. D., Cooper Medical College, 1908.
GEORGE HENRY JENSEN, Assistant Professor of Vocational Education and Supervisor of Teacher Training in the Trades and Industries.
B. S., Valparaiso, 1906.
CHARLES WILLIS JOHNSON, Professor of Pharmaceutical Chemistry and Dean of the College of Pharmacy.
Ph. C., Michigan, 1890; B. S., 1900; Ph. D., 1903.
PAMELLIA PEARL JONES, Associate in English.
A. B., Iowa, 1906; A. M., 1908.
ROBERT WILLIAM JONES, Assistant Professor of Journalism.
A. B., Missouri, 1906; LL. B., 1913; A. M., South Dakota, 1918.
ALBERT KALIN, Instructor in Electrical Engineering.
B. S., Washington, 1919.
SANDY MOWRIGAN KANE, Instructor in Metalwork.
FRED WASHINGTON KENNEDY, Assistant Professor and Director of the Journalism Laboratories.
SYLVIA FINLAY KENNEDY, Associate in English.
THOMAS LATIMER KIBLER, Professor of Transportation.
TREVOR KINCAID, Professor of Zoology.
B. S., Washington, 1890; A. M., 1901.
GEORGE KIRCHNER, Instructor in Music.
Leipzig.
BURT PERSONS KIRKLAND, Professor of Forestry.
A. B., Cornell, 1905.
FREDERICK KURT KIRSTEIN, Assistant Professor of Electrical Engineering.
B. S., Washington, 1908; E. E., 1914.
MARTHA KOCHEND, Assistant Professor of Home Economics.
A. B., Ohio State University, 1905; A. M., 1910.
HEINZ LANDERS, Professor of Geology and Mineralogy and Dean of the College of Science.
A. B., Indiana, 1892; A. B., Harvard, 1892; A. M., 1893.
HARRY LANTZ, Professor of Law.
Ph. B., De Pauw, 1888; A. M., 1891; LL. B., Kent Law School, 1893.
FRANK JOSEPH LAUBER, Instructor in Economics.
EDWARD OSCAR LEADBETTER, Associate in Physical Education.
KARL ELIAS LEE, Instructor in Business Administration.
MILDRED LEMON, Instructor in Physical Education and Hygiene.
A. B., California, 1918.
ALONZO VICTOR LEWIS, Extension Lecturer on Fine Arts.
HOWARD THOMPSON LEWIS, Professor of Business Administration.
ARTHUR WILSON LINTON, Associate Professor of Pharmacy.
Dr. Highland Park, 1902; B. S., Michigan, 1909; M. S., Washington, 1915.
EDGAR ALLEN LOWE, Associate Professor of Electrical Engineering.
B. S., (E. E.), Wisconsin, 1906.
RUTH MARGARET LUSBY, Instructor in Institutional Management.
ELDIN VERNE LYNX, Assistant Professor of Pharmacy.
HELEN MACKINTOSH, Associate in Physical Education and Hygiene.
A. B., Wellesley, 1917.
OLIVIA CLINTON MCCAIN, Associate in Sociology.
ROBERT FULTON MCCLELLAND, Instructor in Architecture.
Massachusetts Institute of Technology.
JAMES MCCONNELL McCORMICK, Extension Lecturer in Accounting.
HARRY JOHN McINTYRE, Instructor in Mechanical Engineering.
RODERICK DUNCAN McKENZIE, Associate Professor of Sociology.
A. B., Manitoba, 1912; Ph. D., Chicago, 1920.
EDWARD McMAHON, Associate Professor of American History.
THEOSSA SCHMID McMAHON, Assistant Professor of Economics.
FREDERICK ANSTEE McELHERIN, Acting Instructor in Chemistry.
A. B., Willamette, 1916; M. S., 1917.
BUTTAN TOWNE McMINN, Instructor in Mechanical Engineering.
B. S., Oregon Agricultural College, 1918.
CARL EDWARD MAGNUSSON, Professor of Electrical Engineering and Dean of the College of Engineering.
B. S. E., Minnesota, 1906; M. S., 1897; E. E., 1905; Ph. D., Wisconsin, 1900.
SUNNY DERRY MAZUR, Major, U. S. A., Assistant Professor of Military Science and Tactics.
CHARLES CULBERTSON MAY, Assistant Professor of Civil Engineering.
EMMOND STEPHEN MCAVY, Professor of History.
B. S., Washington, 1885; M. S., 1899; M. L., Wisconsin, 1901.
GINO VINCENzo MEDICI DE SOLENNI, Instructor in Roman Languages.
A. B., Ohio State University, 1914; A. M., 1915.
JEANNE ANNIE MENCHET, Associate in French.
B. S., Whitman, 1920.
EVAN KIRKPATRICK MEREDITH, Captain Infantry U. S. A., Assistant Professor of Military Science and Tactics.
Stanford University.
EMMOND CLARENCE MILLER, Instructor in Civil Engineering. (Autumn quarter.)
STEPHEN IVAN MILLER, Professor of Economics and Dean of the College of Business Administration.
LL. B., Michigan, 1890; A. B., Stanford, 1898.
LORETT DOUGLAS MILLIMAN, Associate Professor of English.
A. B., Michigan, 1890.
CHARLES CHUBURH MORR, Professor of Civil Engineering.
C. E., Lafayette, 1898; M. C. E., Cornell, 1899; M. S., Lafayette, 1901.
WILLIAM DANIEL MORRISSEY, Associate Professor of Business Administration.
A. B., Michigan, 1904; A. M., 1905; Ph. D., 1909.
ROBERT EDOUARD MOWETZ, Professor of Mathematics.
B. S., Hastings, 1902; Ph. M., Chicago, 1906; Ph. D., Nebraska, 1901; Ph. N.D., Universität Straßburg, 1902.
HENRY CLINTON KRESS MUEHLENBERG, Major A. S., U. S. A., Assistant Professor of Military Science and Tactics.
Graduate, U. S. Military Academy, 1908.
HERMANCE MULLERMEISTER, Associate in Mathematics.
Ph. Cand. Royal University of Utrecht, Holland, 1910; Ph. D. 1913.
LEWIS IRVING NEHER, Assistant Professor of Mathematics.
B. S., Colorado, 1899; M. S., 1901; Ph. D., Pennsylvania, 1893.
DELMER NICKOS, Assistant Professor of Pathology.
B. S., Wisconsin, 1912; M. D., Oregon, 1917.
CAROLINE HAVEN OBER, Professor of Spanish.

JOSEPH GRANTAN O'BRIAN, Lecturer on Law.
A. B., Jesuit College (Denver), 1898.

FREDERICK ARTHUR OSBORN, Professor of Physics and Director of Physics Laboratories.
Ph. B., Michigan, 1896; Ph. D., 1907.

CORNELIUS OSEWARD, Lecturer on Commercial Pharmacy.
Ph. G., Columbia; Ph. C., Northwestern.

FREDERICK MORGAN PADLEW, Professor of English, and Dean of the Graduate School.
A. B., Colby, 1896; A. M., 1899; Ph. D., Yale, 1899.

ROBERT HARTINGS PALMER, Assistant Professor of Geology.

WILLIAM LOUIS PARKINSON, Professor of English.

WILBUR HARMON PATRICK, Associate in Spanish.

ABERNO PATTERSON, Associate in Fine Arts.

EDWARD SANDIFORD, Associate in Chemistry.

FRANK ARTHUR PATTY, Instructor in Pharmacy.
B. S., Kansas, 1920.

JOHN CHARLES RATHBUN, Assistant Professor of Civil Engineering.
A. B., Washington, 1903; A. M., 1904; B. S., 1908; C. E., 1909.

OLIVER HUNTINGTON RICHARDSON, Professor of European History.
A. B., Yale, 1899; A. M., Ph. D., Heidelberg (Germany), 1907.

GEORGE BURTON RICE, Associate Professor of Botany.

WILLIAM ROBERTS, Assistant Professor of Mining Engineering and Metallurgy and Dean of the College of Mines.
A. B., Stanford, 1899.

MONETZ ROSEN, Assistant Professor of Music.
Graduate, Warsaw Conservatory, Russia.

HARRY REBBY, Associate Professor of Civil Engineering.
B. S., (C. E.), Illinois, 1905.

LUIS SANTANDER, Assistant Professor of Spanish.
B. S., Ph. B., University of Santiago, Chile, 1894; LL. B., 1898; Licenciate in Laws, 1899.

EDWIN JAHBS SANDERS, Assistant Professor of Geology.

WILLIAM SAVORY, Professor of Philosophy.

RICHARD FREDERICK SCHOLZ, Professor of Ancient History.
A. B., Wisconsin, 1902; A. M., 1903; Ph. D., 1911.
WALDO SIMON, Associate in Chemistry.

HAROLD OGDEN SIXSMITH, Instructor in Architecture.
Armour Institute of Technology; Chicago Art Institute.

GORDON RUSSELL SHUCK, Instructor in Electrical Engineering.
B. E., Minnesota, 1908.

THOMAS KAY SIDRIT, Associate Professor of Latin and Greek.
B. A., Toronto, 1891; Ph. D., Chicago, 1900.

ELA JANE SINGHSON, Instructor in Fine Arts.

MACT MILMORE SKINNER, Assistant Professor of Business Administration.
A. B., Harvard, 1894; A. M., 1895; Ph. D., 1897.

LLOYD LOYD SMALL, Instructor in Mathematics.
A. B., Washington, 1911; A. M., 1912; Ph. D., Columbia, 1913.

CHARLES WESLEY SMITH, Reference Librarian and Associate Professor of Library Economy.
A. B., Illinois, 1905; B. L. S., 1906.

ELI VICTOR SMITH, Assistant Professor of Zoology.

J. ALLEN SMITH, Professor in Political Science.
A. B., Missouri, 1888; LL. B., 1887; Ph. D., Michigan, 1894.

GEORGE MOPHAIL SMITH, Professor of Inorganic Chemistry.
B. S., Vanderblit, 1900; Ph. D., Freiburg, 1903.

HARRY EDWIN SMITH, Associate Professor of Business Administration.
A. B., De Pauw, 1908; Ph. D., Cornell, 1912.

STEVENSON SMITH, Professor of Psychology.
A. B., Pennsylvania, 1904; Ph. D., 1909.

ELIZABETH S. SOLE, Associate in Nursing and Public Health, (winter and spring quarters).
Graduate, Malden, Massachusetts, Hospital School of Nursing, 1907.

MATTHEW LYLLI SPENCER, Professor of Journalism and Director of the School of Journalism.
A. B., Kentucky Wesleyan, 1908; A. M., 1904; A. M., Northwestern, 1908; Ph. D., Chicago, 1910.

ROBINSON SPENCER, Catalogue Librarian and Instructor in Library Economy.
A. B., Wesleyan University, 1903; B. L. S., Illinois, 1918.

LESLIE SPEIRS, Instructor in Anthropology.
B. S., College of City of New York. 1916; Ph. D., Columbia, 1920.

HENRY WALTER STAGGER, Instructor in Mathematics.
A. B., Stanford, 1902; A. M., 1906; Ph. D., California, 1909.

EDWIN AUGUSTUS STARK, Director of the Extension Service.
B. S., Turkey, 1884; A. M., Harvard, 1895.

EDWIN LEONARD STRANBURG, Associate in Civil Engineering. (winter quarter)
B. S., (C. E.), Washington, 1912.

CHARLES GUSTAV STRUBE, Acting Instructor in Mechanical Engineering. (winter quarter)

MILDRED STRUBLE, Associate in English.

HERBERT ARTHUR STUDNICK, Instructor in Sociology.
A. B., Oberlin, 1904; A. M., 1905.

VON YALEHAN TAHNH, Instructor in Business Administration.

HERMAN VANCE TARTAR, Assistant Professor of Chemistry.
B. S., Oregon Agricultural College, 1902; Ph. D., Chicago, 1920.

JOSEPH MARION TAYLOR, Acting Instructor in Mathematics.
M. S., Adrian, 1886.

PAUL WASHINGTON TERRY, Assistant Professor of Education.
B. S., Vanderblit, 1900; M. A., Columbia, 1915; Ph. D., Chicago, 1920.

DOROTHY THOMAS, Associate in English. (autumn and winter quarters)

JOHN HOWARD THOMPSON, Acting Instructor in Civil Engineering.
B. S., (Met.), Washington, 1919.

THOMAS GORDON THOMPSON, Assistant Professor of Chemistry.
B. A., Clark, 1914; M. S., Washington, 1915; Ph. D., 1918.

DAVID THOMPSON, Professor of Latin and Dean of the College of Liberal Arts.
B. A., Toronto, 1892.

JACK RODEHOK TOLMID, Instructor in Electrical Engineering. (spring quarter)
B. S., (E. E.), Washington.

GEORGE WALLACE UMFREY, Associate Professor of Romance Languages.

CLINTON LOUIS UTTERMBACK, Instructor in Physics.
B. S., Purdue, 1908; M. S., Washington, 1915.
LOUISE VAN OGLE, Instructor in Music.

Theoretical Work, Dr. Bridge, Chester, England; Richter, Leipzig; Piano, Godowsky, Berlin; Lhevinne, Berlin; Harold Bauer, Paris.

ALBERT FRANZ VENINO, Assistant Professor of Music.

New York Conservatory of Music; Pupil of Leschetizky.

EDWIN JOHN WICKNES, Professor of the Scandinavian Language.

A. B., Minnesota, 1901; A. M., 1902; Ph. D., 1905

BERTHA ALMIA VICKNES, Associate in English.


CHARLES EDWIN WEAVER, Associate Professor of Geology.

B. S., California, 1904; Ph. D., 1907.

JAMES WEHN, Associate in Modeling and Sculpture.

John Whinfield, Professor of Bacteriology.

B. S., Wisconsin, 1898; M. S., 1899; Ph. D., 1906; Dr. P. H., Harvard, 1918.

FRED FALCONER WELD, Associate in Civil Engineering.

B. S., Pennsylvania State College, 1893; C. E., 1902.

CLEMENT WERNECKE, Associate in Civil Engineering (winter and spring quarter).


EUBL DOWNS WEST, Associate in Mathematics.

A. B., Ohio State College, 1900; A. M., Adrian College, 1908.

CLARENCE LESTER WHITE, Instructor in Civil Engineering.

B. S., (C. E.), Iowa, 1909; C. E., 1914.

WALTER BELL WHITTELEY, Instructor in French.


GEORGE WHITWELL, Associate in Chemical Engineering.

B. S., Massachusetts Institute of Technology, 1915.

MARK JORDAN WHIPPLE, Associate in Chemistry.

A. B., Colorado College, 1917.

ELWOOD MORTON WILDE, Instructor in Civil Engineering (autumn quarter.)

B. S., (C. E.), Malmo, 1917.

ELGIN ROCOS WILCOX, Acting Instructor in Civil Engineering (winter quarter).


CURTIS TALLAGE WILLIAMS, Assistant Professor of Education.

A. B., Kansas State Normal, 1913; A. M., Clark, 1914; Ph. D., 1917.

GEORGE SAMUEL WILSON, Associate Professor of Mechanical Engineering.

B. S., Nebraska, 1906.

HEWITT WILSON, Assistant Professor of Ceramics.

Cer. Engr., Ohio State University, 1913.

WILLIAM RONALD WILSON, Instructor in Psychology.

A. B., Washington, 1917; M. S., 1921.

ROY MARTIN WINGER, Assistant Professor of Mathematics.

A. B., Baker, 1900; Ph. D., Hopkins, 1912.

HUGO WINKENWERDE, Professor of Forestry and Dean of the College of Forestry.

B. S., Wisconsin, 1902; M. F., Yale, 1907.

ARTHUR MELVIN WINSLOW, Associate Professor of Mechanical Engineering.

Ph. B., Brown, 1903; B. S., Massachusetts Institute of Technology, 1906.

CARL PAIGE WOOD, Assistant Professor of Music.

A. B., Harvard, 1900; A. M., 1907.

LILLIAN WOOD, Associate in Chemistry.

B. S., Washington, 1910.

CLIFFORD WOOD, Professor of Education.

A. B., Indiana, 1908; A. M., 1913; Ph. D., Columbia, 1916.

HOWARD WOOLSTON, Professor of Sociology.

A. B., Yale, 1898; S. T. B., Chicago, 1901; M. A., Harvard, 1902; Ph. D., Columbia, 1909.

JOHN LOCKE WORCESTER, Associate Professor of Anatomy.

M. D., Birmingham School of Medicine, Alabama., 1900.

EUGENIO HUTCHINSON WORMAN, Associate in Fine Arts. (winter and spring quarters).

Pratt Institute.

SELAH ELIZABETH WRIGHT, Associate in Chemistry.

B. S., Mount Holyoke College, 1918.

CONRAD ZIMMERMANN, Lecturer on Timber Physics.

A. B., Washington, 1908.
UNIVERSITY OF WASHINGTON

BOARDS AND COMMITTEES

1921-1922

ADMINISTRATIVE BOARDS


SUMMER QUARTER—Board of Deans and the Comptroller.


STUDENT WELFARE AND DISCIPLINE—Deans Condon, Gould, Patterson.

SCHEDULE AND REGISTRATION—Stevens, Stone, Fred Ayer, Wilson, Daniels, Rigg, Sexsmith, Barton, Laube, Wood, Gregory, Garrett, W. B. Jones.

CONSULTING ENGINEERS—Eastwood, Magnusson, Harris.

COMMITTEES OF THE FACULTY

The President is ex-officio a member of each standing committee.

ADMISSIONS—The Board of Deans.

ART—Carl Gould, James Gould, Hughes, Ambrose Patterson, Wehn.

ASSEMBLY—Spencer, Glen, Hughes.

ATHLETICS—L. J. Ayer, Hall, Moritz, Dehn, May.


GRADUATION—Thomson, Landes, Magnusson, Lantz, Curtis, Kirkland, Williams, Stone.

HONORS—Padelford, Goodner, Carpenter, Loew, T. S. McMahon, Rathbun, Wood.


LIBRARY—Henry, Thomson, Padelford, Frye, Richardson, Patzer, Loew.

PRE-MEDICAL COURSE—Worcester, Johnson, Welzirli, Kincaid, Hall.

PUBLICATIONS—Henry, Landes, Padelford, Start, Umphrey, Densmore, Bell, Kennedy.

(Catalogue, Directory, the Registrar)

RELATIONS WITH SECONDARY SCHOOLS—Bolton, Thomson, Padelford, Frye, Frelin, Freeland, Stone.

RULES—Benham, Goodner, Bell, More, Stone.

SPECIAL STUDENTS—The Board of Deans.

STUDENT AFFAIRS—Thomson, Winkenwerder, Padelford, Mrs. Patterson, Daniels, McMahon, Loew, Haggett, and eight representatives of student organizations.

STUDENT HEALTH—Hall, James Gould, Mrs. Patterson, Welzirli, Worcester.


GENERAL INFORMATION

HISTORICAL

The foundation for the establishment of the University of Washington was laid in 1854, when Governor Issac Ingalls Stevens, in his message to the first Legislature, recommended that Congress be memorialized to appropriate land for a university. Two townships were subsequently granted and in January, 1861, the Legislature finally located the Territorial University at Seattle.

On February 22 (Washington's Birthday) the Reverend Daniel Bagley, John Webster and Edmund Carr, composing the Board of University Commissioners, met and organized for work. Ten acres of land were donated by Hon. Arthur A. Denny, Charles C. Terry and Edward Lander from their adjoining farms, and on May 21, 1861, the cornerstone of the main building was laid and the building completed in specified time.

On November 4 following the University was opened for students.

GOVERNMENT

Under the constitution and laws of the State of Washington, 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 entirely from the state. As yet the property belonging to the institution as an endowment yields little revenue. The income from this property will some day greatly help to support the University.

The legislative maintenance appropriation for the biennium 1919-1921 will yield $1,633,489, based upon the tax levy of .74 of a mill. This is augmented from sundry receipts from property income.

Besides this, the Legislature appropriated the tuition and endowment receipts for the biennium for a permanent building fund. This was expected to provide for the erection of one or two new buildings.

The Legislature also appropriated $20,000 for the establishment and cooperative maintenance of the Seattle Mining Experiment Station of the United States Bureau of Mines on the University campus; and $7,500 for the expense of cruising the University timber lands throughout the state, looking to the exchange of these lands for a centralized demonstration forest.

(23)
The property of the University includes:

(1) The two townships of land granted by Congress in 1854. There remains of this old grant some 3,000 acres.

(2) The old University site, consisting of the tract of 8.32 acres, donated in 1861 by Arthur Denny and wife; and 1.67 acres donated by Charles C. Terry and wife and Edward Lander. This "ten-acre tract" is situated in the very heart of Seattle, and is rapidly enhancing in value.

(3) In addition to the above, the University was further endowed by the state on March 14, 1893, by the segregation of 100,000 acres of lands.

Bequests

The Board of Regents of the University of Washington is authorized by law to receive such bequests or gratuities as may be given or granted to the University, and to invest or expend the same according to the terms of such bequests or gratuities. The Board of Regents has adopted rules to govern and protect the principal of such gifts and the income therefrom so that the same will be forever applied to the purposes designated by the donors of the gifts.

Those who desire to aid the work of the University of Washington by means of gifts inter vivos or by wills may do so, feeling assured that their wishes as outlined in the deed of gift or will are to be carried into effect as provided by law.

A simple statement in a will as follows:

"I give, devise and bequeath to the Board of Regents of the University of Washington the sum of __________ dollars In Trust, However, for the following uses and purposes to be invested in securities to be approved by said Board and the interest therefrom to be expended in the maintenance of" (scholarship or fellowship subject named), will be sufficient.

These bequests may be applied to the maintenance of scholarships and fellowships in any subject desired by the donor which meets the approval of the Board of Regents.
EQUIPMENT

Grounds

The grounds are ample to meet every need of the University. There are approximately 450 acres, all within the city limits of Seattle, lying between Lakes Union and Washington, with a shore line of over one mile on Lake Washington and about a quarter of a mile on Lake Union.

Buildings

The following buildings are now in use on the University campus: Administration Hall, Aerodynamical Laboratory, Anatomical Laboratory, Architecture Hall, Bagley Hall and Annex, Commerce Hall, Denny Hall, Dormitories (Lewis, Clark, Lander and Terry), Engineering Hall and Annex, Extension Hall, Fisheries Buildings, Forest Products Laboratory (Dry Kiln, Wood Preserving Plant, Dry Shed), Foundry and Shop Building, Gatzert Building, Good Roads Building, Gymnasium, Health Service Building, Home Economics Hall, Hydraulics Laboratory, Library, Meany Hall, Mines Hall, Museum, Observatory, Philosophy Hall, Power House, Practice Cottage, R. O. T. C. Armory and Headquarters Buildings, Science Hall, U. S. Bureau of Mines, U. S. Mines Safety Station.

Mines Laboratory will be completed for occupancy in the autumn quarter and Education Hall will be completed by October, 1922.

Library Facilities

The general library contains 96,644 volumes, and receives 550 current magazines. About 6,000 volumes a year are being added.

The Law School library contains more than 25,000 volumes. All books of both libraries are upon open shelves and are easily accessible to all who care to use them.

In addition to the library facilities upon the campus, the Seattle Public Library, containing approximately 350,000 volumes, is open free to the University.

The Museum

The museum of the University was created as the State Museum by act of the Legislature in 1899. In its function as a Public, a State and a University Museum it aims to be an authority on the natural history and resources of this region, and its collections illustrative of the Northwest Coast and Alaska are already among the most complete and valuable to be found in the United States. The museum is housed at present in the Forestry building, constructed of natural logs and erected by the state of Washington in 1909 for the Alaska-Yukon Pacific Exposition.
The museum collections contain extensive exhibits of the forestry, mineral and horticultural resources of the State. An exhibit of local birds is arranged in systematic order and is illustrated by groups showing the natural habitat. Elaborate habitat groups of large animals, mounted according to modern methods of taxidermy, have been installed or are in process of installation. The marine fauna is represented by a series of mounted fishes of the Northwest coast, corals, crustaceans, sponges and mounted shells. The study or reserve series in the museum laboratories contain an herbarium of over 12,000 specimens; also an extensive collection of bird skins, eggs and nests. The ethnology of the Northwest coast from the Columbia river to the Arctic is represented by collections arranged in tribal sequence. The Philippine collections contain interesting specimens of old Moro brasses, hats, implements of warfare, etc.; and extensive Bagobo collection of illustrative beadwork, together with representative materials from the northern, or more primitive tribes, on the island of Luzon. The Chinese collection though small and principally from northern China, contains many valuable porcelains, embroideries, carvings, scrolls, clothing, Buddhas, etc.

The art section contains paintings, tapestries, and carvings, old laces, engravings, pottery, bronzes, medallions, etc., while the historical section contains interesting relics of the early days of the Northwest and Alaska.

LABORATORIES

The University of Washington has the following laboratories equipped for work in the various science departments:

ANATOMY LABORATORY

The laboratory for human anatomy has been arranged to secure a maximum of light and cleanliness. Besides laboratory tables, study tables have been installed. All necessary equipment in the way of skeletal, chart and model materials are available.

ASTRONOMY LABORATORIES

The observatory is housed in a substantial sandstone structure containing dome for equatorial, room for transit and clocks, office, room for lectures and laboratory work and darkroom. Part of the roof is flat, making an admirable place for evening study of the heavens. The instruments include a six-inch refracting telescope and accessories; a Bamberg transit, Riefler clock, Bond chronometer, Gaetner chronograph, Astro-Petzal objective with accessories, a barometer, sextants, etc. The clock is enclosed in a constant temperature chamber. The minor equipment consists of a good assortment of transparencies and lantern slides, globes, planetarium, and other equipment for experiments in laboratory and lecture work in astronomy.
EQUIPMENT

BOTANY LABORATORIES

The botanical laboratories are on the third floor and in the basement of Science Hall. They occupy about 5,000 feet of floor space divided as follows: Three large laboratories of about 1,000 square feet each; three small laboratories, one for physiology, one for mycology and one for research. The laboratories are fitted with the apparatus and conveniences usual for the work.

CHEMICAL LABORATORIES

The chemical laboratories are housed in a thoroughly modern fireproof building. There are fully equipped separate laboratories devoted to general chemistry, analytical chemistry, food inspection and analysis, organic chemistry, physiological chemistry, industrial chemistry, and pharmaceutical chemistry. All laboratories are equipped with hoods with forced drafts, water, gas, distilled water and air under pressure. The chemical engineering laboratories are equipped with the fundamental types of apparatus used in manufacturing processes, such as filter press, hydraulic press, stills, grinding apparatus, heating furnaces, and vacuo drying oven.

CIVIL ENGINEERING LABORATORIES

The hydraulic laboratory is being transferred to its building located on the shore of Lake Union, where facilities are available for both medium and high head experiments. For medium head, a free water surface, one acre in extent, is provided at an elevation of 100 feet above the laboratory floor. For high heads, connection is made with an 8" pipe leading from an elevated tank 300 feet above the floor.

The materials testing laboratory contains five universal testing machines with capacities from 30,000 to 300,000 pounds, two impact machines with various hammers ranging in weight from 550 to 1500 pounds, with the necessary auxiliary apparatus for general work.

The equipment for testing hydraulic cement is complete for all the ordinary tests as specified by the American Society of Civil Engineers.

The road laboratory is equipped for testing materials used in the construction of roads. The machines for the abrasion and toughness test are of the standard designs adopted by the American Society for testing Materials; other machines are similar to those used by the United States Office of Public Roads.

The surveying equipment consists of an ample supply of all the necessary instruments for plane and topographic surveying.

ELECTRICAL ENGINEERING LABORATORIES

The dynamo laboratory contains seventeen alternating and thirty-four current generators and motors. The machines
are of modern design and have a combined capacity of 300 kilowatts in direct current machines and 225 kilowatts in alternating current machines. Most of the machines are of five- or ten-kilowatt capacity. Power from a storage battery of 130 cells is available at a separate switchboard in the dynamo laboratory. The university power house, containing two steam-driven units of 200 and 100 kilowatts, serves as a commercial laboratory for operating and testing purposes.

Nine smaller rooms are devoted to the following: (a) Instrument making and repairing, (b) grinding room and shop, (c) instrument and stock room, (d) telephone laboratory, (e) electrolysis and special thesis problems, (f) storage battery rooms, (g) three dark rooms for photometry work, (h) radio laboratory, (i) transmission line laboratory. The instrument room contains a large collection of standard indicating and recording ammeters, voltimeters and wattmeters, two three-element G. E. oscillographs, and a Tinsley A. C. potentiometer.

FISHERIES LABORATORIES

Ichthyology Laboratory.—The ichthyology laboratory contains an extensive collection of named fishes, particularly rich in species from Puget Sound and Alaska. By exchange and other means it is hoped to build up a representative series of the fishes found in American waters, with particular reference to forms of economic importance. The foundation has also been established for a collection to illustrate the species of shellfish, crustaceans, and other invertebrate animals constituting the bases for the corresponding industries.

Fish Diseases Laboratory.—The laboratory for fish diseases is equipped for the study of life histories of the various parasites of aquatic animals, including aquaria for live subjects, dark room for studying the effect of various colored lights upon the animals, etc.

Fisheries Laboratories.—The apparatus laboratory is equipped with working models of the larger forms, and fully rigged types of the smaller forms of fishery apparatus, also detailed plans for the construction of same; equipment for the manufacture, repair, care and preservation of nets; models of fishing vessels and boats, and samples of various fishery products prepared for market in the United States.

The canning laboratory is equipped with all the machinery and appliances necessary for canning all varieties of fishery products, and in addition to practical instruction in canning methods, tests are made of various species, while research in food canning is carried on under conditions similar to those prevailing in commercial plants.

The curing laboratory contains all the necessary equipment for the pickling, dry-salting, mild-curing and smoking of fishery products.
Ultimately a small refrigeration and cold storage plant will be installed for the purpose of economic study of the various methods of freezing and preserving fishery products in cold storage.

A smokehouse will be built for the purpose of carrying on experiments in the smoking of various species and their utilization as food either in this condition or canned.

The testing room will have a constant temperature of approximately 98°Fahrenheit, and in it samples of canned fishery products may be incubated, by means of which swells may be separated from the other cans and the sufficiency of the process used in the cannery determined. Various vacuum gauges and can testers will also be available.

Fish Hatchery.—The fish hatchery occupies about seven hundred square feet of floor space in Fisheries Hall No. 2. It is furnished with hatching troughs, baskets, and other essential equipment for the care of 500,000 salmon or trout eggs. A complete equipment consisting of batteries of open-top and closed-top jars is provided for the care of several million of semi-buoyant eggs. Feeding tanks and aquaria are also provided in which experimental work in fish culture may be carried on. A number of cement-lined ponds are available in the College grounds for the rearing of various species of aquatic animals.

Within easy reach of the University are located state and federal fish hatcheries where a study may be made of the actual conditions under which fish culture is carried on.

FOREST AND LUMBERING LABORATORIES

Dendrology.—Individual lockers. Extensive collections of tree seeds, cones and bark specimens. An arboretum is under way.

Logging and Lumbering.—Field work is given at logging camps and sawmills about Seattle. A complete equipment of instruments and tools is available for work in logging engineering. Collections of lumber, showing grades and patterns, charts of lumber grades, exhibits of sawmill and woods saws, logging equipment, such as wire ropes, axes, hooks, blocks, special appliances for donkey engines, saw-mill belts, models of high lead logging, etc.

Mensuration.—Equipment selected to show all principal types of instruments in use. Those adapted for use in the Northwest are provided in quantities sufficient for all practice work in cruising, surveying, volume, growth and yield studies.

Silviculture.—Forests around Seattle offer wide opportunities for practical studies and demonstrations. The extensive forest tree nursery of the College of Forestry affords an excellent opportunity for practice in modern nursery methods.

Timber Physics.—Laboratory work is carried on in the U. S. Forest Service Timber Testing Laboratory, operated in cooperation with the University. The laboratory is magnificently equipped with
seven large testing machines for static and impact loading, cir-
cular and band saws, planer and other shop equipment for wood-
working.

Wood Technology.—Individual lockers, gas, water, compound
microscopes and all apparatus for preparing and sectioning wood
for microscopic study are provided. Hand specimens and planks
of domestic and foreign commercial timbers are provided in large
quantities. These include extensive collections of South Ameri-
can, Australian, Philippine and other foreign hardwoods. Micro-
scopic slides of nearly all American woods are kept on hand for
check specimens.

Forest Products Laboratories.—A building for the forest prod-
ucts laboratory was erected this year at a cost of $85,000. How-
ever, owing to the shortage of class room accommodations on the
campus, the products laboratory will be used to house all of the ac-
tivities of the College of Forestry until the second unit of the For-
nesty Group—a building of approximately 60x120 feet—is erected.
The laboratories for work in forest products now ready on the cam-
pus consist of four distinct units, as follows:

1. General Laboratory.—This is equipped with microtome,
water baths, drying ovens, microscopes, chemical and pulp balances,
all apparatus necessary for technical examination of wood preser-
vatives, standardized thermometers, cameras and other apparatus
required for photomicrography, dark room, and all incidental ap-
paratus required for the detailed study of wood tissues.

2. Wood Preservation Laboratory.—This consists of both an
open tank and a pressure plant. The former is of commercial size
for treating ties. It is composed of two treating tanks and two
storage tanks, one of steel for creosote, the other a wooden tank for
salt solutions and other preservatives. The pressure plant consists
of a 12-foot retort, air compressor and vacuum pumps and a duplex
pressure pump, and is so constructed that it may be used for any
of the different pressure processes.

3. Wood Distillation Plant.—This plant consists of a retort of
one-half cord capacity per charge, gas tank, and refining appara-
tus. The retort has been installed by the U. S. Forest Service for
cooperative work with the University.

4. The Dry Kiln.—This is a plant of about one carload ca-
pacity, and is equipped with a recording hygrometer and thermo-
meter, hygrodeik, and automatic temperature control.

Commercial Plants.—Plants for the manufacture of paper,
wood pipe, cooperage, excelsior, wood conduit, veneers, furniture,
boxes, and numerous other secondary wood products are available
for study. Four large creosoting plants and several smaller pre-
servative plants are also available.
Demonstration Forest and Experiment Station.—This consists of a 60,000-acre tract comprising the Pilchuck-Sultan watersheds formerly a part of Snoqualmie Forest. It is very conveniently reached from Seattle, and offers almost ideal conditions for a school forest. It has a total stand of timber of over a billion and a half feet, representing nearly all species of the Pacific Northwest, but more than three-fourths is composed of Douglas fir, cedar and hemlock. As there is an excellent representation of age classes, it will lend itself readily to scientific forest management. It is estimated that the tract will yield from $20,000 to $25,000 annually on a sustained yield basis. It is expected that title to the tract will be completed in the near future.

GEOLOGY LABORATORIES

The geology laboratories, four in number, are in Science Hall. Two are on the first floor, and consist of large rooms arranged for general geology, physiography, meteorology, mineralogy, petrography and paleontology. Two laboratories are in the basement, in well-lighted rooms at the southwest end of the building.

For work in mineralogy and petrography extensive collections of minerals and rocks are supplied; and for paleontological study collections of fossils and casts represent the principal geological formations. In the study of meteorology practical work is done by the use of a complete set of weather bureau instruments. For the study of earthquake phenomena a Bosch-Omori seismograph has been installed for some years. For general laboratory and lecture work the latest model Bausch & Lomb Balopticon with reflectroscope and polariscope attachments is provided.

JOURNALISM LABORATORY

The journalism laboratory, occupying 30x60 feet in the basement of Commerce Hall, is equipped with chases, imposing stones, type materials, borders, and everything necessary to teach students how to dress a newspaper. For students interested in advertising and commercial printing, other special equipment is provided. A laboratory library of publications from supply houses, is always available, containing the latest information on type, paper, furniture, engravings and all equipment of the publishing and allied trades.

The journalism laboratory opens into the University printing plant, where practically all University printing is done. This makes convenient regular assignment hours on various types of machinery, as the plant has its own slug casting and type setting machines, cylinder, platen and rotary presses, folder, cutter, stitcher, etc.

MECHANICAL ENGINEERING LABORATORIES

The steam and experimental laboratory is fully equipped with steam apparatus, including engines aggregating 900 horse
power, of simple and compound, high speed and Corliss types; steam turbine; jet and surface condensers; injector; centrifugal pump; steam calorimeters; indicators; calibrating appliances; oil testing machine; gas engine of stationary and automobile types; gas producer plant; refrigerating apparatus; compressed air machinery for two stage compression and Westinghouse full train equipment; fuel testing facilities, including Mahler Bomb, Junkers and other colorimeters, with accessories for determining heating value and analysis of solid, liquid and gaseous fuels.

There is a woodworking shop, machine shop, foundry and forge shop. The wood shop is equipped with benches, lathes, band saws, circular saws, planer, and trimmer. The forge and foundry are equipped with down-draft forges, power hammer, punch and shears, cupola, moulding machines, shakers, rattler, riddles, brass furnace, core ovens, and traveling crane. Machine shop is equipped with small and large lathes, drill press, milling machine, planer, sharper, metal saw, grinding machine and complete equipment for bench and vise work.

**MINING, METALLURGICAL AND CERAMIC LABORATORIES**

**Mining and Metallurgical Laboratories.**—The laboratories of the College of Mines are housed in a two-story building of pressed brick. The main portion of the structure, measuring 50 by 60 feet, contains the offices, library, classrooms, drafting rooms and museum, as well as laboratories, desks, stockroom and balance room for assaying and general metallurgy. The rear wing, 40 by 66 feet, with tower, is occupied by mining and milling machinery, electric furnaces, and stocks of ore, coals and clays. An addition contains a steel locker room, shower-bath room and a metallographic laboratory.

The metallurgical equipment includes standard size furnaces fired by six methods—coal, coke, gasoline, gas, fuel-oil and electricity. Electric current to the amount of 280 kilowatts is available for experiments in electric smelting. Other important pieces of equipment are a reverberatory furnace, high temperature electric furnace, pyrometers of several types, cyanide equipment, amalgamating devices, blowers, calorimeters, balances, sampling machines, and exhibits of metallurgical processes and products.

The mining equipment consists of an air compressor, receiver, three rock drills, aerial tram, loading and tamping models, hand tools, full equipment for practice in blasting, models, drawings, blueprints, photographs, lantern with 1,600 slides, and collection of ores and minerals. The College of Mines' mill contains breakers, rolls, 3-stamp battery, feeders, screens, classifiers, jigs, six concentrating tables, flotation cells of six types, Dings magnetic separator, coal washing equipment, and accessory apparatus.

**Ceramic Equipment.**—Structural and Refractory Wares: Crusher, rolls, four-foot dry and wet pan, Meuller auger machine
for brick, tile and hollow building block, steam dryer and kilns. Terra cotta: Plaster molds, De Vilbiss spraying apparatus, transverse and tensile strength machine, engobe and glaze materials, ball mills. Pottery: Patterson clay washing outfit, including double blunger, power screens, agitator, pump and filter press, potter’s pug mill, potter’s wheel, plaster mold and pottery kiln. General testing: Brass sample molds, overflow type of volumeters, pyrometric cone mold, constant temperature electric dryer, gas fired fritt kiln, hygrodeik, Brown radiation pyrometer, carbon resistance electric furnace for high temperatures and a complete series of standard pyrometric cones.

United States Bureau of Mines Northwest Experiment Station.

The United States Bureau of Mines maintains a mining and metallurgical experiment station for the Pacific Northwest and the coast regions of Alaska at the College of Mines. The headquarters of the station, from which all operations in this territory are directed, are in the Bureau of Mines building, between Mines and Bagley halls. An analytical laboratory is in the same building, while the electric furnaces and other equipment used by the bureau in cooperation with the college are housed in the Mines building. At present the principal investigations being conducted by the station are in electro-metallurgy, the treatment and uses of coal and in ceramics. Members of the experiment station staff give occasional lectures to the students of the University on subjects dealing with their special lines of work.

Mines Safety Station.—The Mine Safety Station, occupies a separate building. Several sets of various types of oxygen rescue and resuscitation apparatus are kept on hand for practice as well as for use in mine rescue work. The purpose of the station is to train miners in the use of oxygen helmets, which are used in cases of mine fires and explosions in both coal and metal mines. From ten days to two weeks’ time is required for the course of training. The applicant is taught the construction of the apparatus and is required to wear it for four hours each day, in two periods of two hours each. The practice is carried on in a room filled with gas which cannot be breathed without immediate danger, and the work to be performed is the same as that which would be required in actual mining operations or rescue work. The smokeroom represents a portion of a mine, and is equipped with mine car, track, overcast, timbers and brick. First-aid instruction is also given. Applicants who have completed the course of training receive a certificate from the United States Bureau of Mines.

A one-ton 45-horsepower automobile truck, equipped with rescue apparatus ready for emergency calls, forms part of the equipment of the rescue station.
PHARMACY AND MATERIA MEDICA LABORATORIES

Rooms devoted to pharmacy, and materia medica are located in Bagley hall, a three-story fireproof building. Special sections are provided for pharmacy students in general, organic and qualitative chemistry. Work in prescription practice receives special attention in a room constructed and arranged as a model prescription pharmacy. The materia medica room contains a museum of several hundred samples of official and unofficial crude drugs. It also contains an extensive collection of commercial and biological products manufactured and donated by the H. K. Mulford Company of Philadelphia, Pennsylvania, Parke, Davis & Co., of Detroit, Michigan, and Eli Lilly and Company, of Indianapolis, Indiana. One room is given to drug assaying and food analysis. The examination of official food and drug samples for the state is under the direction of the Dean of the College of Pharmacy. A well equipped laboratory is devoted to this purpose. Pharmacy students taking botany, physiology and bacteriology have well equipped laboratories in Science Hall.

PHYSICS LABORATORIES

The laboratories set apart for the use of the department consist of: (1) A general laboratory for students in arts and sciences, (2) a general laboratory for students in applied science, (3) an electrical laboratory, (4) a heat laboratory, (5) a sound and light laboratory, (6) a photometry room, (7) a battery room.

The laboratories are supplied with apparatus from the best American and European makers. The Bureau of Testing is equipping itself as rapidly as possible to meet the demand for a bureau where scientific instruments may be accurately calibrated and tested. The standards of the bureau will be calibrated by our National Bureau of Standards at Washington, D. C.

The bureau is prepared to calibrate direct and alternating current instruments, to determine candle power of lamps, to measure temperature, both high and low, and to a limited extent standardize weights. Those desiring to have work done should address the director, Frederick A. Osborn.

PSYCHOLOGY LABORATORIES

Psychology.—The psychology laboratory occupies the third floor of Philosophy Hall. The fourth floor of this building which will ultimately be a part of the laboratory, is temporarily occupied by another department.

ZOOLOGY LABORATORIES

Zoology.—The laboratory work of the department of zoology is conducted in six rooms located on the second floor of Science Hall. Here are adequate facilities for pursuing the following lines
of investigation: General zoology, physiology, cytology, parasitology, plankton, entomology and research.

**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 made by Sigmund Schwabacher and by the executor of the will of the late Abraham Schwabacher. The purpose of the foundation is (1) to conduct a laboratory for the mental and physical examination of children in order 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 child welfare agencies and child study laboratories throughout the state, and (3) to carry on research in child psychology.

In December, 1915, the Bailey and Babette Gatzert Foundation for Child Welfare was created a separate department of the University.

**ENGINEERING EXPERIMENT STATION**

The Engineering Experiment Station was formally organized in December, 1917, in order to coordinate the engineering investigations in progress and to facilitate the developments of industrial research in the University.

The scope of the work is twofold:

(a) 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;

(b) To undertake extended research and to publish reports on engineering and scientific problems.

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. Every effort will be made to cooperate 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.

The control of the Engineering Experiment Station is vested in an administrative staff consisting of the president of the University, the dean of the College of Engineering, ex-officio director, and seven members of the faculty.

For administrative purposes, the work of the station is organized into seven divisions: (1) Forests products, (2) mining and metallurgy, (3) chemical engineering and industrial chemistry, (4) civil engineering, (5) electrical engineering, (6) mechanical engineering, (7) physics standards and tests.

Inquiries in regard to the work of the Engineering Experiment Station should be addressed to the director.
ENTRANCE INFORMATION

THE UNIVERSITY ORGANIZATION

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

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

Schools and Colleges and Their Fields.—To carry out its share of this educational responsibility, the University is organized in the following schools and colleges:

(A) The Colleges of Liberal Arts and Science, which provide a liberal education in the fields of arts and of pure science, leading in a course, normally requiring twelve quarters of residence, to the degrees of bachelor of arts and bachelor of science.

(B) The professional and technical schools and colleges, including:

(1) The College of Business Administration, covering in a course of twelve quarters the fundamentals of scientific training for industry and commerce. The degree given is bachelor of business administration.

(2) The College of Education, in a course of twelve quarters, prepares students for careers in the field of education as high school teachers and school administrators. The degree is bachelor of education. Students in the College of Liberal Arts may major in the department of education and take the degree of bachelor of arts.

(3) The College of Engineering has four departments, chemical, civil, electrical and mechanical engineering (including aeronautical and marine), their curricula leading in twelve quarters to the degree of bachelor of science in the special field chosen by the student. The degree of master of science in each field is open to graduate students.

(4) The College of Fine Arts offers curricula of twelve quarters in architecture, vocal, instrumental, or
public school music, or musical theory, painting and design, public school drawing, music and drawing, and dramatic art, leading to the degrees of bachelor of architecture, bachelor of music and bachelor of fine arts or bachelor of liberal arts, with a major in one of the subjects named.

(5) The College of Fisheries, recently established, lays a scientific foundation for work connected with the fisheries industry, one of the chief resources of the Pacific Coast. The degree offered is that of bachelor of science in fisheries.

(6) The College of Forestry offers a curriculum of twelve quarters preparing for work in scientific forestry or in the industry of lumbering. The degree offered is that of bachelor of science. The full professional course is fifteen quarters, with a liberal allowance of electives, giving opportunity for specialization in forest service and state work, logging engineering, forest products, or the lumber business. For this course the degree of master of science may be given in the Graduate School.

(7) The School of Journalism requires for entrance the junior certificate, elsewhere explained, based on the completion of the first two years of college work in arts or science. The curriculum leads to the degree of bachelor of arts in journalism and prepares its students for practical newspaper work.

(8) The School of Law is the standard of approved law schools for admission to the bar of this state. For admission the student must present a junior certificate from the College of Liberal Arts or the College of Science, or its equivalent. The curriculum of the school requires three school years or nine quarters, and leads to the degree of bachelor of laws. The degree of master of laws is also given. Students may carry on work in liberal arts or science and law concurrently, taking both bachelor's degree in six years, or eighteen quarters.

(9) The Library School by means of a technical curriculum extending through three quarters based upon either three or four years of academic study prepares students for service in librarianship. Upon the completion of the library school curriculum (46 credits), when based upon three years of academic study, the bachelor of arts degree is granted. When based upon four years of academic study, for which the student has received the baccalaureate degree in liberal arts.
reate degree, the professional degree of bachelor of science in library science is granted.

(10) The College of Mines offers four-year or twelve-quarter curricula, leading to the degree of bachelor of science in mining engineering, geology and mining, metallurgical engineering, or coal mining engineering. The fields open to graduates of this college are indicated by these divisions. The college also offers a curriculum in ceramics (clay, glass and cement products.) The degree of master of science, with a major in one of these lines, may be obtained in the Graduate School.

(11) The College of Pharmacy offers three-year and four-year courses, the first giving preparation in technical and commercial pharmacy, and the second providing a well-rounded scientific training in this field. The three-year course leads to the degree of pharmaceutical chemist, and the four-year course to that of bachelor of science in pharmacy. A fifth year, taken in the Graduate School offers an opportunity for graduate and research work and leads to the degree of master of science in pharmacy.

(C) The Graduate School offers work leading to the degrees of master of arts, master of science, master of arts or master of science in technical subjects, certain technical or professional master's degrees (as, for example, master of business administration), and doctor of philosophy. A master's degree presupposes at least one year of resident work of high grade and special character, and a doctor's degree at least three years of such work. The University is placing increased emphasis upon its graduate work. Full details are furnished in the bulletin of the Graduate School.

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 taken 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 work of the freshman year and covering twelve quarters; while the work of a school is based upon two or more years of college work.

The four-year programs of the Colleges of Liberal Arts and Science are further divided into the lower division (freshman and
sophomore) and upper division (junior and senior). The junior certificate is given for the completion of the requirements of the lower division in the College of Liberal Arts. The more advanced work of the upper division leads to graduation with the bachelor's degree. The specialized work of the schools is upper division or graduate work and requires the junior certificate as a minimum to enter upon it.

Special Curricula Within the Schools.—There are also given certain semi-professional curricula for which no special school or college is provided. Such is the curriculum in nursing and public health, given in the College of Science.

The University does not give a medical course, but it 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 the 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 is done without interference with the students' regular academic work.

The Four-Quarter System.—The University is now operated on the four-quarter system, each quarter having approximately twelve working weeks. These quarters or terms begin in October, January, April and the latter part of June. The University is closed only through the month of September. A careful reading of the calendar will show the working of this plan in detail. Students may enter at the beginning of any quarter. This 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. This flexible plan is of especial advantage in the University of Washington because the absence of extremes in climatic conditions is favorable to mental work at all times of the year.

Admission to the University

General Statement

Students are admitted to the resident work of the University by certificate or by examination, only graduates of fully accredited four-year secondary schools being admitted on certificate. Students are classified as graduates and undergraduates. Undergraduates are classified as regular students (freshmen, sophomores, juniors, and seniors), unclassified students, and special students.

All correspondence regarding the admission of students to the resident course of the University, as well as the requirements for graduation, should be addressed to the registrar.
SPECIAL NOTICE

As it is highly probable that the number of students who can be cared for by the University during the academic year of 1921-1922 will be limited, the attention of all interested persons is called to the following plan, which has been adopted with a view of affording every applicant a fair opportunity to enroll for the autumn quarter, 1921:

Prospective students (not yet matriculated in this University) must file with the registrar, not later than July 30, applications for admission for the autumn quarter, 1921, together with all necessary credentials and a statement of choice of college or school (and where possible, of prospective major); otherwise their names will be placed on a waiting list.

Students at present in the University, and other old students not at present enrolled, must signify to the registrar, not later than July 15, their hope or intention of enrolling in the University for the autumn quarter, 1921; otherwise their names will be placed on a waiting list.

Both old and new students should file their applications as early as possible. Notifications regarding the acceptance of applications will be sent to students as promptly as is consistent with the necessary checking or records and credentials. In considering applications of old and new students, preference will be given to those with advanced standing.

Admission by Certificate.—A graduate of a four-year accredited secondary school, whose course has covered the requirements for entrance as outlined on pages 15-17 will be admitted upon recommendation of his principal and the presentation of a satisfactory certificate. Since the school diplomas do not give the necessary information, they cannot be accepted for this purpose. The principals of all accredited high schools in the state are furnished with the official blanks, which may also be obtained from the registrar's office.

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.

Scholarship Requirement.—The University has adopted a scholarship requirement of a grade of 80 or better in at least two-thirds of the subjects accepted for graduation from high school and for entrance to the University. This requirement will not be imposed next fall, nor will it be imposed at any time thereafter on students who have graduated from high school, before September, 1921. In the fall of 1922, however, this requirement will have to be satisfied in respect to the subjects taken during the senior year of 1921-1922; in the fall of 1923, in respect to subjects taken during 1921-1922 and 1922-1923, the junior and senior years respectively; in the fall of
1924, in respect to subjects taken in 1921-1922, 1922-1923 and 1923-1924; and in the fall of 1925, in respect to the full course in high school (except such portion of it as may have been completed previous to September, 1921).

The list of accredited secondary schools in the State of Washington is as follows for the year 1921-1922:

I. PUBLIC HIGH SCHOOLS

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<th>Aberdeen</th>
<th>Endicott</th>
<th>Napavine</th>
<th>Shelton</th>
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<td>Almira</td>
<td>Enumclaw</td>
<td>Newport</td>
<td>Spokane</td>
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<td>Anacortes</td>
<td>Ephrata</td>
<td>Nooqauk</td>
<td>Lewis and Clark</td>
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<td>Everett</td>
<td>North Bend</td>
<td>North Central</td>
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<td>Fairfield</td>
<td>Oakesdale</td>
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<td>Auburn</td>
<td>Full City</td>
<td>Oakville</td>
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II. OTHER SECONDARY SCHOOLS IN WASHINGTON

| Annie Wright Seminary, Tacoma | Spokane College, Spokane (preparatory department) (provisional) |
| Holy Angels Academy, Seattle, (provisional) | St. Martin's College, Lacey (high school department) |
| Forest Ridge Convent, Seattle (provisional) | St. Nicholas School, Seattle |
| Holy Names Academy, Seattle | St. Paul's Academy, Walla Walla (provisional) |
| Holy Names Academy, Spokane | Walla Walla College Academy, Walla Walla (provisional) |
| Moran School, Rolling Bay | Y. M. C. A., Seattle |
| B. A. Lutheran Academy, Parkland | | |
| Mme. Pless School, Seattle (provisional) | | |
| Seattle Pacific College, Seattle (academy) (provisional) | | |

III. SCHOOLS OUTSIDE OF WASHINGTON

Graduates of secondary schools outside of Washington will be admitted on the same terms as graduates of accredited schools of Washington, provided the school in question is fully accredited, (1) by the North Central Association of Schools and Colleges, (2) by the New England College Entrance Certificate Board, or (3) by a leading university whose standards of admission are practically the same as those of the University of Washington.

Graduates of four-year high schools in Alaska that are recommended by the Commissioner of Education for Alaska will be accepted, until further notice, on the same basis as graduates of accredited schools in Washington.
Admission by Examination.—Applicants for admission by examination are required to pass an examination based on a four-year course amounting in the aggregate to fifteen units* and covering the requirements of the college that the student wishes to enter.

Entrance examinations are held at the University on Thursday, Friday and Saturday preceding the opening of each quarter.

Special entrance examinations will be held at the Registrar’s office during the last week of July, 1921.

The schedule of hours for examination may be obtained from the registrar.

Certificates of successful examinations before the College Entrance Examination Board will be accepted in lieu of matriculation examinations conducted by the University of Washington.

Examinations for Exemption in English.—The department of English will give an examination in English composition for those students who wish to attempt it, with the view to being excused from all or a part of the required course in college composition. It is hoped that a large number of entering students will present themselves for this examination, which will be held on the same dates as the regular entrance examinations.

Registration

Registration for all students for the autumn quarter will take place on Monday and Tuesday, September 26 and 27, 1921; for the winter quarter on Wednesday, January 4, 1922; for the spring quarter, Tuesday, March 28, 1922; and for the summer quarter, Tuesday, June 20, 1922.

Applicants for admission who fail to send in full credentials by July 30 cannot be assured of an opportunity to register for the autumn quarter.

Late Registration.—The dates noted above are officially set apart for registration and enrollment, and all students are expected to complete their registration (including payment of all required fees) in those days. Students who fail to do this are charged an additional fee of $2 for the first day’s delay, and a further cumulative fee of $1 for each day thereafter during the first week following the final official registration date. After the first week following the final official registration date, no student will be permitted to register except by special action of the Board of Deans. Registration by proxy is not permitted.

Changes in Registration.—A fee of $1 is charged for each change made by a student in his election of studies after his registration is completed, unless such change is made upon the initiative of University authorities.

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*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 not less than thirty-six weeks.
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, Seattle.

Freshman Standing.—Freshman standing in the University is granted to any recommended graduate of a four-year accredited secondary school who presents fifteen units of credits, distributed as follows:

(a) 8 units of English.
(b) 1 unit of algebra.
(c) 1 unit of plane geometry.
(d) 8 units selected from one of the following groups (or 2 units, if 3 units of mathematics are presented).
  (1) Foreign language, either ancient or modern, (at least 2 units in one language; not less than one unit will be counted in any language).
  (2) History, civics, economics (at least one unit to form a year of consecutive work in history).
  (3) Physics, chemistry, botany, zoology, general biology, physical geography, geology, physiology. (Not less than one unit will be counted in physics, chemistry, or general biology. No science will be counted as applying on this requirement unless it includes a satisfactory amount of work).
  (e) 2 units in subjects presented in the above groups (1)-(3).
  (f) 5 units selected from subjects accepted by an approved high school for its diploma. Not less than one full unit will be counted in physics, chemistry, general biology, or a foreign language. A maximum of 4 units will be counted in vocational subjects, except for admission to the College of Business Administration. For admission to this college only, a maximum of 8 units in vocational subjects will be accepted, of which at least 4 units must be in commercial branches; and a student presenting 8 such vocational units and 2 units in history, and fulfilling requirements (a), (b) and (c), will be given freshman standing in that college without being held for requirements (d) and (e). If the student is transferred later to another college, only 4 vocational units will be counted, and the student will be required to meet the requirements (d) and (e).

A candidate who fulfills these requirements will be admitted to freshman standing in any of the colleges of the University. However, if he has not taken in high school, certain of the subjects recommended for admission to the college that he may decide to enter, he will take in the University, or if they are not offered in the University, he will take them in some accredited secondary school, or with a tutor. Such subjects if taken in the University, may apply toward a degree, as far as elective courses make this practicable. In certain curricula, however, these subjects must be taken in addition to the prescribed subjects.

A student having any such deficiency is required to register so that the deficiency will be removed by the end of his fourth quarter of residence. A student failing to meet this requirement is ineligible for re-admission until the deficiency has been removed.

Entrance with condition, to freshman standing, is not permitted. Excess admission credit does not establish any presumptive claim for advanced standing, unless the student has taken a graduate course in the high school of at least one semester.

††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 not less than thirty-six weeks.

†Beginning with 1921, a student who has not taken in high school the amount of foreign language which may be required for admission to the college that he plans to enter, will make up the deficiency in the University as part of his regular schedule of work, but without receiving college credit for it. For the College of Fine Arts, the requirement may be satisfied by 20 hours of a modern foreign language; for the Colleges of Liberal Arts, Science and Education, by 20 hours in any one foreign language.
Specific Subjects Recommended for Admission to the Several Colleges

COLLEGES OF LIBERAL ARTS AND SCIENCE (GENERAL COURSES)

3 units of English.
1 unit of algebra.
1 unit of plane geometry.
††2 units in one foreign language.

CURRICULUM PREPARATORY TO MEDICINE (COLLEGE OF SCIENCE)

3 units of English.
1 unit of algebra.
1 unit of plane geometry.
1 unit of United States history and civics.
1 unit of medieval and modern history.
1 unit of physics.
††2 units in one foreign language.

CURRICULUM FOR NURSES (COLLEGE OF SCIENCE)

3 units of English.
1 unit of algebra.
1 unit of plane geometry.
1 unit of United States history and civics.
1 unit in medieval and modern history.
††2 units in one foreign language.

COLLEGES OF EDUCATION AND FINE ARTS

3 units of English.
1 unit of algebra.
1 unit of plane geometry.
††2 units in one foreign language (for Fine Arts, modern language).
1 unit in one of the following: physics, chemistry, botany, zoology.
1 unit in a history.
or ½ unit U. S. history, and ½ unit civics.

COLLEGE OF BUSINESS ADMINISTRATION

8 units of English.
1 unit of algebra.
1 unit of plane geometry.
2 units of history, (American and modern history preferred).

COLLEGES OF ENGINEERING AND MINES

3 units of English.
1½ units of elementary and advanced algebra.
1½ units of plane and solid geometry.
1 unit of physics.
½ unit of shopwork.

COLLEGE OF FORESTRY

3 units of English.
1½ units of elementary and advanced algebra.
1½ units of plane and solid geometry.
1 unit of physics.
1 or ½ unit of botany.

COLLEGE OF PHARMACY

For the three-year course:

3 units of English.
1 unit of algebra.
1 unit of plane geometry.

For the four-year course:

3 units of English.
1 unit of algebra.
1 unit of plane geometry.
††2 units in one foreign language.
1 unit in one of the following: physics, chemistry, botany, zoology, physiology, general biology. (Must include satisfactory amount of laboratory work).

††Beginning with 1921, a student who has not taken in high school the amount of foreign language which may be required for admission to the college that he plans to enter, will make up the deficiency in the University as part of his regular schedule of work, but without receiving college credit for it. For the College of Fine Arts, the requirement may be satisfied by 20 hours of a modern foreign language; for the Colleges of Liberal Arts, Science and Education, by 20 hours in any one foreign language.
ENTRANCE INFORMATION

COLLEGE OF FISHERIES

3 units of English.
1 unit of algebra.
1 unit of plane geometry.

SCHOOL OF LAW, LIBRARY SCHOOL AND SCHOOL OF JOURNALISM (See following page.)

Unclassified Standing.—A graduate of a four-year accredited secondary school who does not meet the requirements for admission to freshman standing may, upon recommendation of his principal, be admitted as an unclassified student. Such a student will be allowed to enroll for those courses only for which he has had adequate preparation. By virtue of his classification, he is not a candidate for a degree, but he may ultimately become a candidate for a degree by fulfilling as part of his college prescriptions all the requirements for entrance to and graduation from the college in which he is registered. An unclassified student is required to register, so that all entrance deficiencies will be removed by the end of his fourth quarter of residence. Failure to comply with this requirement will render a student ineligible for readmission until all deficiencies have been removed.

Special Notice.—In view of the probable necessity of limiting enrollment for the academic year 1921-1922, preference will in all cases be given to applicants who fully meet requirements for regular standing over those whose preparation is deficient, and the names of the latter will be placed on a waiting list.

Special Students.—(See special note above). All courses offered by the University are organized for regular students, that is, students who have had the equivalent of a good high school education fully covering college entrance requirements. Under certain regulations, however, a student who cannot be admitted to freshman standing or as an unclassified student, but may be admitted, classified as a special student, and allowed to register for those courses only for which he shows special preparation.

The number of such students admitted is necessarily limited by the facilities of the University. The regulations governing the admission of special students are as follows:

1. For admission to any college or school of the University, a special student must be at least twenty-one years of age.

2. 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.

3. All available certified credits for previous school work must be submitted to the registrar and an application blank for admission as a special student filled out, giving, in addition to other information, the kind of work desired, the reasons for desiring such work, and, when no credits can be presented a detailed statement of any previous educational work and practical experience.
4. Registration as a special student is for one quarter only. Re-registration will be refused if the student has not shown satisfactory earnestness and definiteness of purpose, or if his work has not been good.

5. 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 registered.

6. Special students are not eligible to take part in student activities.

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

In order that applicants for admission as special students may receive full consideration, their applications should be filed with the registrar four weeks, at least, before the beginning of the quarter in which the applicant wishes to attend the University. Applications for the autumn quarter must be filed by July 30.

Advanced Undergraduate Standing.—Students from classes above the first year in other colleges of recognized rank, who present letters of honorable dismissal, may be admitted to the advanced standing for which their training seems to fit them. No advanced credit will be given for work done in institutions whose standing is unknown, except upon examination. Definite advanced standing will not be given until the student has been in residence for at least one quarter.

Admission to the School of Law and the School of Journalism.—clear entrance to the College of Liberal Arts or the College of Science, and 102 hours (two years) of advanced credit in freshman and sophomore courses, covering all prescriptions for the junior certificate, are required for admission to the School of Law and the School of Journalism.

Admission to the Library School.—Students who have qualified for senior standing in the College of Liberal Arts or the elective curricula of the College of Science, having earned 145 credits including ten credits in military science or physical education and all required work except the completion of a major, may be admitted to senior standing in the Library School as candidates for the degree of bachelor of arts, the requirements for which can ordinarily be fulfilled in one academic year.

Graduate students who hold baccalaureate degrees from any college or university in good standing and whose undergraduate work has included the equivalent of at least 20 college credits in each of two modern foreign languages, German and French preferred, may be admitted to the Library School as candidates for the degree of bachelor of science in library science, the requirements for which can ordinarily be fulfilled in one academic year.
Admission of Normal School Graduates to Advanced Standing. — Graduates of the normal schools of this state and of institutions of like standing elsewhere, who have completed at least two full years of normal school work after graduating from a four-year accredited high school, will be admitted to junior standing in the Colleges of Liberal Arts, Science, or Education. For graduation with the degree of bachelor of arts, bachelor of science or bachelor of education, these students are required to earn a minimum of 90 credits in the University, including the satisfaction of such of the requirements for graduation from the respective colleges as have not been fairly covered by previous work. Normal graduates desiring admission to any of the other colleges of the University may be given such exemption or credit as their preparation seems to justify.

Admission to Graduate Standing. — A bachelor's degree from a college or university of good standing is required for admission to the Graduate School.

Auditors. — With the consent of the instructors concerned, any mature person, not registered as a student in the University, may be enrolled at the registrar's office as an auditor in not more than two courses, upon payment of a fee of $10 per quarter. This provision does not apply to laboratory courses, or to any courses offered in the summer quarter.

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

Expenses

Tuition and Fees. — By authority of the special legislative act of the session of 1921, the following tuition and fees will be collected beginning with the autumn quarter of 1921.

General Tuition Fees

Resident Tuition. — Fifteen dollars ($15) general tuition per regular academic quarter from each student who has been domiciled within the state of Washington or the territory of Alaska for the period of one year prior to the date of registration.

Non-resident Tuition. — Fifty dollars ($50) tuition per regular academic quarter from each student who has not been domiciled in the state of Washington or the territory of Alaska for the period of one year prior to registration.

Library Fee. — Five dollars ($5) a quarter will be collected from each regular student, to be known as a library fee.

Associated Student's Fee. — An associated student membership fee of ten dollars ($10) for the year (exclusive of summer quarter) is collected of all regularly enrolled students upon registration.
Exemptions.—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, are exempt from the payment of the general tuition fee, provided they have been domiciled in the state of Washington or territory of Alaska for the period of one year prior to the date of registration. If any such service men have not been domiciled in the state of Washington or territory of Alaska for one year prior to registration they are exempt up to twenty-five dollars ($25) per quarter.

Deserving students who, after a quarter in residence have shown a marked capacity for the work done by them in school, in lieu of paying the general tuition fee, above provided for, may give their promissory notes with interest at the rate of four per cent per annum. All applications for this concession must be presented to the comptroller's office after receiving the endorsement of the dean of men and the dean of women.

Refunding Fees.—Tuition and other general fees are not returnable except in case of sickness or causes entirely beyond the control of the student. No portion of the returnable fees shall be returned for voluntary or enforced withdrawal after thirty (30) days from the date of registration of the students. In no case shall more than one-half of the fees be refunded. Students withdrawing under discipline forfeit all rights to the return of any portion of the fee.

OTHER CHARGES

Auditor's Tuition Fee.—A fee of $10 a quarter will be charged all persons enrolling as auditors.

Part Time Tuition Fee.—A fee of $10 a quarter will be charged persons registering for partial courses not exceeding six (6) credits.

Excess Tuition Fee.—A fee of $1 per credit per quarter will be charged each student registering for excess hours.

High School Subjects.—A year hence all work taken in the University which might have been taken in the high school will be charged for as a special tuition fee.

Extension Service Tuition Fees.—Charges in extension work depend upon the assignments, ranging as follows: for twelve class sessions, $8; eighteen sessions, $12; twenty-four sessions, $16; thirty sessions, $20; and thirty-six sessions, $24, and other courses at the same rate.
Law Library Fee.—Ten dollars ($10) per quarter special law library fee from each student registering in law, in addition to the general tuition fee mentioned above. Students other than majors in law taking work in the School of Law will pay at the rate of one dollar ($1) for each credit hour of law work elected up to a maximum of $10 per quarter.

Short Course Tuition.—Twenty dollars ($20 from each student registering in any short course—mining, forestry, fisheries, etc.

Summer Quarter Tuition.—Twenty dollars ($20) from each student registering in the summer, for the quarter or any part thereof.

Marine Biological Station Tuition.—Thirteen dollars ($13) of which ten dollars ($10) is for tuition and three dollars ($3) is for laboratory fee.

Military Uniform Deposits.—Each student who is held for military drill is required to make a deposit of $15 before he draws his uniform. Thirteen dollars ($13) of this amount is returnable upon the presenting of proper clearance papers from the military headquarters; the two dollars ($2) is retained as a breakage fee. The making of this deposit in no way entitles the student to ownership in any part of the military equipment or clothing issued.

Special Examinations.—A fee of $1 will be charged for all examinations given outside of the regular schedule.

Late Registration.—A penalty of $2 is imposed for the first day's delay in registering and $1 per day additional thereafter up to the close of the week during which registration is permitted.

Changes of Registration.—A fee of $1 will be charged for changes in election, including additions or withdrawals of individual courses after completion of registration.

Diploma Fee.—The fee charged to graduates is $5 for each one receiving a baccalaureate or higher degree, or a diploma in pharmacy, and $5 for each one receiving a teacher's diploma. This teacher's diploma fee does not include the legal registration fee of $1 paid to that county school superintendent who first registers a teacher's diploma.

LABORATORY FEES AND DEPOSITS

The following laboratory fees and deposits will be collected quarterly during the ensuing year, 1921-22. With few exceptions, these fees are not returnable in whole or in part, and in no case can any rebate be allowed after 35 days from the date of registration.
**Anatomy.**—105, 106, 107—$3; 104—$5; 101, 102, 103—$7.50; 108 to be arranged.

**Architecture.**—54, 55, 56, 104, 105, 106, 154, 155, 156—$2; 112, $3.

**Astronomy.**—1, 11, 123, 171—$2.

**Bacteriology and Pathology.**—4, 5, 101, 102, 104, 105—$3; 110, 111, 201, 202, 203, 204, 205, 206—$4.

**Botany.**—8, 9, 10, 271, 272, 273—$1; 1, 2, 3, 11, 12, 13, 14, 26, 53, 105, 106, 107, 111, 119, 130, 140, 141, 142, 143, 144, 145, 200, 233, 250, 251, 252, 253, 254, 261, 262, 263, 279, 280—$2.50.

**Ceramics.**—180—$5; 110, 191, 192, 193—$10; 121, 122, 123—$12; 131, 132, 133,—$5 or $10.

**Chemistry.**—All courses except 52, 200, 216, 221, 222, 223, 224, 225—$7.50; breakage ticket—$5; desk key—$.50.

**Civil Engineering.**—1, 4, 21, 22, 23, 24, 27, 30, 38, 55, 56, 126, 142, 167—$2.

**Economics and Business Administration.**—All courses $1.50 except 81, 82, 83 (Typewriting) and 84, 85, 86, 87 (Shorthand)—$10; 11, 12 (Elementary accounting)—$5.50; 64, 65, 111, 112, 154, 155, 156, 157—$3.50.


**Forestry and Lumbering.**—1—$2.50; 5, 51, 52, 53, 57b, 58, 101, 102, 104, 105, 183, 187, 189, 191, 213, 214—$3.

**Geology.**—11, 12, 112, 113, S.C. 1,—$1; 1, 2, 5, 31, 120, 123, 124, 131, 132, 133, 134, 135 S.C. 2—$2.50; 21—$3.

**Home Economics.**—3, 8, 11, 12, 43, 189, 193, 200, 207—$2; 25, 27, 32, 35, 103, 112, 113, 121, 130, 133, 135, 140, 143, 188, 191, 192, 195, 204, 205, 206—$4; 1, 2, 4, 5, 6, 105, 106, 107, 108—$6.

**Journalism.**—90, 91, 92, 104, 105, 160, 161, 162—$1; 51, 61, 75, 76, 101, 120, 130, 131, 133, 134, 135, 136, 140, 141, 142, 170, 171, 172, 173, 174, 175—$2; (maximum fees for any one student $2.50 per quarter.)

**Library Science.**—One or more courses—$1.50 per quarter.

**Lockers.**—$.50 per year at Mines, Chemistry, Engineering and Home Economics buildings.

**Mechanical Engineering.**—1, 2, 3, 53, 54, 55, 83, 105, 106, 107, 151, 152, 153, 167—$2.

Mining.—S. C. 2, S. C. 3—$3; 101, 151—$5; 152, 176—$10; 153, 154, 155—$5 or $10.

Music.—18, 19, 20, 68, 69, 70, 118, 119, 120, 168, 169, 170—$15 to $27 the quarter for one lesson-hour according to instructor; piano practice rooms $3 an hour per day for the quarter; pipe organ—$12.50 an hour per day for the quarter.

Painting, Sculpture and Design.—5, 6, 7, 9, 10, 11, 53, 54, 55, 103, 104, 157, 158—$2; 56, 57, 58, 72, 73, 74, 107, 108, 109, 160, 161, 162, 163, 164, 165—$3.

Pharmacy.—15—$1; 9, 10, 11, 109, 110—$3; 7—$4.50; 1, 2, 3, 5, 6, 105, 106, 107, 113, 114, 115—$7.50; 121, 122, 123, 129, 130, 131, 201, 202, 203, to be arranged; breakage ticket—$5; desk key—$.50.

Physical Education.—$.50 per quarter, locker and apparatus; paid by all taking one or more courses. Women’s suits, style and cost to be arranged.

Physics.—1, 2, 3, 47, 48, 49, 50, 51, 89, 90, 97, 98, 99, 103, 104, 105, 106, 113, 170, 175, 180, 206—$2.50; 54, 114—$5; 169 to be arranged.

Political Science.—1—$1.

Psychology.—1—$2.

Zoology and Physiology.—1, 2, 3, 4, 5, 7, 8, 51, 101, 103, 106, 107, 155, 156, 157—$2.50; 54, 55, 56, 108—$3; 151, 152—$5; 201, 202, 203 to be arranged.

Board and Room.—The University dormitories consist of Lew­is hall and Clark hall for women and Lander hall and Terry hall for men. During the ensuing year $32 a month will be charged for room and board at these residence halls. The rooms are furnished with necessary articles of plain furniture, but the student is expected to supply his own bed linen, bedding, towels, and rugs. An amount equal to the first month’s account is paid in ad­vance and left on deposit to be applied on the board and room ac­count for the last month of the school year. All remittances should be made in favor of the University of Washington and be addressed to the comptroller of the University of Washington, Seattle. The University also operates The Commons on the campus where students so desiring may secure the best of food at reason­able rates, cafeteria style. Outside the campus, board and room may be secured at rates ranging from $40 to $50 a month.
University Health Service.—A health service is maintained by the University in conjunction with the Associated Students. Ten per cent of the fees collected by the Student Association, for its special activities, is assigned to the health fund, out of which the infirmary is maintained. The University provides a suitable building, with equipment, a corps of two physicians and two nurses. The infirmary contains medical offices for both men and women, nurses’ offices and quarters, and 40 beds. Medical advice and office treatment are available at all times. The disposition of the case is determined on report of visit of the public health nurse. If the patient is a contagious suspect, or if he is in unsatisfactory quarters, he is taken to the infirmary and cared for free of cost, except for board. If serious disease develops he is transferred to one of the Seattle hospitals of his choice, and further responsibility of the University health service ceases. In the event of scarlet fever, or smallpox, the patient is sent to Firlands Sanitarium and cared for by the city. An outside physician may be called in at any time at the patient’s expense.

Student Help.—A considerable number of students who have found it necessary to support themselves, in part or wholly, while at the University, have been enabled to do so by securing occupations of various sorts. There is an employment bureau for men conducted by the Y. M. C. A. to secure work for men who have to make their own expenses, and the dean of men assists in placement. The dean of women renders a similar service for women.

It is necessary, however, to advise caution in entering the University without funds. The University cannot be responsible for finding work for students. During periods of business depression it is especially difficult to secure part time work. It is not advisable for anyone to register unless he has in hand sufficient funds to maintain him for a quarter. This requires a minimum of $200. Students who expect to earn a portion of their support should not register for a full schedule of studies.

Academic and Vocational Guidance

Dean of Men.—The dean of men is held responsible for the welfare and discipline of the men students of the University. He will have supervisory charge of Lander and Terry halls, the men’s dormitories; and will supply lists of approved boarding and lodging places for men.

Advice will be given concerning the courses of study and vocational fields. The dean is always ready to aid students in any of their individual or group problems.

Dean of Women.—The dean of women is always ready to help or advise any woman student who may need assistance. She will supply lists of approved boarding and lodging places, correspond
with parents or guardians who desire to make inquiry concerning their daughters or wards, give advise regarding courses of study, and offer vocational information of a general nature. She acts as counselor to the officers of organizations for women and supervises all student houses of residence.

Vocational Secretary.—The office of vocational secretary assumes the responsibility of all placement work. It is desirable that every student have a conference with the vocational secretary sometime before graduation. The office is also available to undergraduates for the purpose of advisement. The vocational secretary is also the executive secretary of the alumni association of the University. A great mutual service may be rendered by reporting to this office any positions open that would be of interest to University graduates. Offices, Administration Hall.

Student Government

As a result of action taken by the A. S. U. W. and ratified by the faculty, the plan has been adopted of having the student members of the board of control act as a discipline committee to deal with cases of scholastic dishonesty, and other misconduct among students that may be referred to it by the administration.

Degrees

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

Degrees with Honors.—A degree with honors may be conferred upon a student who, upon recommendation of the honors committee and upon vote of the faculty is declared worthy of unusual distinction. Early in May each head of a department brings to the attention of the committee on honors such seniors majoring in his department as he thinks may be eligible for honors. A student is not allowed to take honors in more than one subject.

Normal Diplomas

The University Normal Diplomas.—The University is authorized by law to issue teacher's diplomas, valid in all public high schools of the state. Candidates for these diplomas should register in the department of education as early as possible after the beginning of the sophomore year, and should consult with the department from time to time as to their work for the diploma and their preparation for teaching. Fuller information may be found in the bulletin of the College of Education.

Senior Scholars

Senior Scholars.—In June preceding their senior year, juniors who have 132 or more credits with high grade may be elected senior scholars. A senior scholar may be relieved from attendance at regular lectures or recitations, and may be granted other special
privileges in order that he may devote himself to more intensive and more correlated study than the classroom system permits. His work must be in not less than two or more than four allied subjects and it must be correlated so that it will bear upon some common field.

FELLOWSHIPS, SCHOLARSHIPS, AND AID

Graduate Fellowships.—Three Sarah Loretta Denny fellowships of $500 each for the pursuit of graduate study in any department. Applications for these fellowships should be made to the dean of the graduate school on blanks supplied by him, and must be in his hands on or before March 15, preceding the academic year for which the fellowships are to be granted.

Six Arthur A. Denny fellowships of $500 each, for the pursuit of graduate study in the departments of education, English, history, civil engineering, mining engineering and pharmacy respectively. Awarded on the basis of scholastic excellence and general merit, but only to those who need financial assistance. Applicants must be residents of the state of Washington. Applications for these fellowships should be made to the dean of the graduate school or to the heads of the departments concerned. They must be filed on or before March 15, preceding the academic year for which the fellowships are to be granted.

Fellowships in physics and chemistry, offered by the National Research Council, are open to promising research students, preferably those who have already taken the doctor's degree. A successful candidate can pursue his research at this University. The salary will ordinarily be $1500 for the first year. Fellows are eligible for successive reappointments, ordinarily with increase of salary. For details address the dean of the graduate school or the heads of the departments concerned.

The College of Mines of the University in cooperation with the United States Bureau of Mines offers four fellowships in mining and metallurgical research. The fellowships are open to graduates of universities and technical schools who are properly qualified to undertake research work. The value of each fellowship is $900 per year of twelve months. Fellowship holders are required to register as graduate students and to become candidates for the degree of master of science in mining engineering or metallurgy, unless an equivalent degree has previously been earned. Applications are due not later than May 15, and should be addressed to the dean, College of Mines, University of Washington, Seattle, Washington.

The university honor fellowships are awarded annually, under the same scholarship qualifications as those obtaining for the Denny fellowships.

The Du Pont Fellowship.—The E. I. Du Pont de Nemours & Company of Wilmington, Delaware, offers an annual fellowship
of $700 for the purpose of encouraging advanced students to continue the study of chemistry. The fellowship is to be granted to a graduate student who makes chemistry or chemical engineering his major subject.

The Mars Fellowship.—A research fellowship in astronomy, given by the late Dr. Percival Lowell, of the Lowell Observatory, Flagstaff, Arizona, carrying a stipend of $600, may be awarded annually.

Columbia University Fellowship.—Columbia University offers each year a fellowship of $250, open to students in mining, engineering, and chemistry.

Scholarship in Piano Study.—Mr. A. F. Venino offers an annual scholarship to the candidate showing the greatest proficiency and promise in piano playing. This scholarship carries free tuition for one weekly lesson throughout the autumn, winter and spring quarters. All candidates must submit their application in writing to Dean Glen before September 1.

Isabella Austin Scholarship.—The Isabella Austin scholarship for entering freshman women was established in 1916 from the income of a fund given in memory of Isabella Austin, dean of women, University of Washington, 1909-1915. The award is made annually to a young woman of promise on the basis of scholarship and financial need.

Chemistry Scholarship.—An anonymous donor offers a scholarship of $100 annually to the student doing the best work in chemistry.

The Rosenberg Scholarship.—Mrs. Ella S. Rosenberg of Seattle has established a scholarship in French to be known as the “Samuel Rosenberg Scholarship, endowed in loving memory by his wife, Ella S. Rosenberg.” This scholarship produces $200 a year and is to be awarded annually to the student who, in the opinion of the department, is the most worthy of it. In making this award, account will be taken of the scholarship, personality and needs of the candidates.

Washington Alumnae Scholarship.—The Washington Alumnae offers an annual scholarship of $100 to be awarded to a woman member of the Junior Class on the basis of scholarship, activity in student affairs, personal character and wholesome influence in university life.

Imperial Order of Daughters of British Empire Scholarship.—The Vimy Ridge Chapter of the Imperial Order of the Daughters of the British Empire offers an annual prize of $100 for an essay on some phase of history, politics, philosophy or sociology making distinctly for the maintenance and development of good relations between Great Britain and the United States. It is open to all students.
The Gamma Phi Beta Scholarship.—The Seattle Alumnae of Gamma Phi Beta offers 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.

Prizes

For Excellency in Public Speaking and Debate.—Judge Alfred Battle offers an annual cash prize of $75 to the Washington debating team chosen to meet representative debaters from the University of Oregon.

Each alternate year, beginning with the spring of 1908, the Seattle Bar Association gives the sum of $50 to defray the expenses of a debate between the representatives of the law schools of Oregon and Washington.

For Essays.—The Philo Sherman Bennett prize of $24 annually is "for the best essay discussing the principles of free government."

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

The University State Bank offers an annual cash prize of $25 for the best essay on banking, submitted by a student in the College of Business Administration.

The Judge Kenneth Mackintosh Prize in Debate.—Judge Kenneth Mackintosh offers an annual prize of $75 to the University of Washington debating team, consisting of two men, who compete with Leland Stanford Junior University in debate.

For Scholarship in Italian.—Mr. N. Paolella, of Seattle, offers a gold medal each year, beginning with 1913, for a period of ten years, to the student doing the best work in Italian.

Men's Freshman Latin Prize.—Through the kindness of a friend of the University, a prize of $50 in gold will be awarded to the man in the freshman class who passes the best examination in the Latin work of the year.

For Scholarship in French.—Judge Thomas Burke offers two cash prizes, one of $15 and one of $25, for general excellence in French.

Military Science Prize.—The members of the Non-commissioned Officers Training School have established a fund of $400, the income of which shall be utilized as a prize to be awarded to the student completing his junior year with the highest honors in military science.
The Sigma Delta Chi Prize.—The Sigma Delta Chi fraternity offers a prize of $100 to be awarded to the student who writes the best ten editorials published in the University of Washington Daily during the current year.

The A. B. C. China Club Prize.—The A. B. C. China Club Prize of $25 is awarded annually for the best pamphlet giving in outline a statement of facts concerning China that would be of particular interest to business men.

The Burke China Club Prize.—The Burke China Club Prize of $25 is awarded annually for the best essay on some subject related to the Chinese Literature, History or Language. Competitors are restricted to those who have had at least one term's work in Chinese Literature, History or Language.

The Kellogg Prize in Architecture.—The William W. Kellogg Prize of $20 is awarded annually for competitive work in architecture and design and is open to juniors and seniors.

Prizes in Italian.—The Frank Buty Prize of $20 is offered annually for the best essay on some subject related to the Italian Language and Literature.

The Silvio Risegari Prize.—The Silvio Risegari Prize of $50 is offered annually to the student in the College of Fine Arts who, at the end of the freshman year, shall have given evidence of superior scholarship in Italian.

The Italian Commercial Club Prize.—The Italian Commercial Club of Seattle offers a first prize of $75 and a second prize of $50 to the two students in the University who attain distinction in second-year Italian.

The Felix Rosaia Prize.—The Felix Rosaia Prize of $25 is offered annually to the student who makes the greatest progress in the Italian Language during the freshman year.

The A. Merlino Prize.—The A. Merlino Prize of $25 is offered annually to the student in the College of Science who writes the best essay on "An Italian Scientific Advancement During the Year."

Cattenari Brothers' Prize.—Cattenari Brothers offer an annual prize of $25 to the student in first- or second-year Italian who has made the greatest progress during the year.

Student Loan Funds

Several loan funds have been established which help considerably in the efforts of the University authorities to assist students, both men and women, through financial emergencies. These are placed at a low rate of interest in small amounts for short periods. Students interested in securing this assistance should consult the dean of men or the dean of women as the case may be.
Alumni Association.—The permanent executive secretary of the Alumni Association is J. G. Fletcher, who is also vocational secretary of the University, with offices in Administration hall.

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 students and the $10 fee ($1 for summer term) entitles the student to a subscription to The Daily, free admission to all regularly scheduled athletic, debating and oratorical contests, the annual musical concert, the discounts in the co-operative book store and to all the voting and other privileges of the association.

The management is vested in an annually elected Board of Control, composed of fifteen members, including students, faculty and alumni. Its standing committees are athletic, finance, publication and student interests. This body appoints a graduate manager to direct the activities with the aid of student managers. In 1920-1921 the business transacted amounted to $176,000 besides the Stadium fund. An office is maintained by the graduate manager in room 105, Commerce hall. A manager is also appointed annually to manage the book store. In 1920 the book store sales amounted to $165,930.94.

Christian Associations.—The Young Men's and Young Women's Christian Associations each maintain an organization among the students. They are active in making the new students feel at home and in assisting them in many ways. The "W" book or student handbook will be ready for distribution at registration time. The University Y. M. C. A. is located in the Men's building, and will be glad to assist all men of the University in finding rooms, and part-time employment if desired.

Department Clubs.—The following clubs are connected with the work of different University departments: Chemical Club, Classical Club, Deutscher Verein, English Club, Fisheries Club, Forest Club, French Club, Home Economics Club, Mathematics Club, Pharmacy Club, Political Science Club, Scandinavian Club, Spanish Club.

Debating.—There are four debating and literary societies in the University: Stevens, Badger, Athena and Sacajawea. The first two are for men, the last two for women. Membership in the clubs is limited in order that frequent practice may be afforded.

The Pacific Coast Triangular Debating League, consisting of the Universities of Washington, Oregon, and Stanford, holds an annual triangular debate. Each institution has two teams, representing the affirmative and negative of the question under discussion.
The men of the University also have dual debate leagues with Whitman College, Oregon Agricultural College and British Columbia University.

The women of the University have similar dual leagues with the University of Oregon and Whitman College.

Musical Organizations.—The musical organizations consist of the University Choral Society, Men's Glee Club, Women's Glee Club, Orchestra and Band.

Philological Association.—The Philological Association was organized to encourage scientific investigation in language and literature. Membership is open to all members of the University who are interested in philology.

Honor Societies.—The following honor societies have been established at the University: Phi Beta Kappa, Sigma Xi, Phi Delta Phi, Phi Delta Chi, Phi Delta Kappa, Phi Lambda Upsilon, Tau Kappa Alpha, Theta Sigma Phi, Sigma Delta Chi, Mim Kaph Mim, Tau Beta Pi, Mu Phi Upsilon, Alpha Kappa Psi, Beta Gamma Sigma, Phi Sigma Chi, Phi Lambda Theta, Hammer and Coffin, Pan Xenia, Phi Delta Delta, Phi Alpha Delta.

Washington University State Historical Society.—The Washington University State Historical Society has for its purpose the preserving of the historical documents and records of the Northwest and of the state of Washington, and to preserve or publish the results of all investigations.

General Scholastic Regulations

STUDIES

At the beginning of each quarter, the student arranges his schedule of studies with the advice and assistance of his class officer. A regular course consists of fifteen or sixteen hours of recitations per week.

All women students are required to take three hours of gymnasium work per week throughout the first and second years, ten credits in physical culture being required of women for a degree.

A course of two years in military training is required. All able-bodied male students except those from foreign countries, not intending to become naturalized, must take the course which by regulation of the University is required during the first and second years.

Neither the requirement of physical education for women, nor that of military science for men applies to any student entering as a junior or senior, providing the student has fulfilled the requirements in these subjects laid down by the institution from which he comes. The deans, together with the physical director, or commandant, as the case may be, have authority to allow a student to substitute the proper corresponding amount of scholastic work for gymnasium or military science when it seems advisable. Substitu-
tions to be valid must be signed by the dean concerned and the physical director or commandant, and must be filed in the office of the registrar.

PHYSICAL EXAMINATIONS

All students on entering the University for the first time are required to present themselves for physical examination at the call of the department of physical education. Failure to be examined constitutes a delinquency on the records.

REGULATIONS FOR WITHDRAWAL

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 and his instructor. If he desires to withdraw at a later period, he may do so, as above, but if his work has not been satisfactory he shall be given an "E" instead of a "W"; provided, however, that, if in either case, a withdrawal 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" in the course.

SCHOLARSHIP STANDING

Any student who is reported at any time during a quarter as doing unsatisfactory work in two or more of his subjects, aggregating more than one-third of his registered hours, shall be placed on probation for the remainder of said quarter. If at the end of the quarter he fail in two or more subjects, aggregating more than one-third of his registered hours, he shall not be allowed to re-register except under conditions prescribed by his dean, who shall be his registering officer.

Appeal from the decision of the dean may be taken to the board of deans.

Any student who fails in two or more subjects, aggregating more than one-third of his quarter's work shall be placed on probation for the following quarter. If in said following quarter said student fail in more than one-half of his registered hours, he shall not be allowed to register except on recommendation of the board of deans.

Any student who fails in more than one-half of his registered hours, after the first quarter of residence, will not be allowed to re-register, except by permission of the board of deans.

ELIGIBILITY FOR RE-REGISTRATION IN AUTUMN OF 1921 AND THEREAFTER

To be eligible for re-registration during the autumn quarter, 1921-1922, a student must make grades of A, B or C in two-thirds of his hours for the spring and summer quarters of 1921, if in attendance during one or both of these quarters.
To be eligible for re-registration during the academic year, 1922-1923, or any succeeding academic year, a student must have made grades of A, B or C in two-thirds of his hours for his last academic year; provided, that any student eliminated by this rule shall be eligible for re-registration after an interval of one succeeding autumn, winter or spring quarter.

EXAMINATIONS

The regular quarterly examinations are held during the last week of each quarter.

In certain courses running through two or more quarters the examination on the work of the first quarter is merely qualifying, final credit not being given until the examination for the entire course has been passed.

SYSTEM OF GRADES

1. The following is the system of grades:*  
   A _________________________ Honor  
   B _________________________ Intermediate  
   C _________________________  
   D _________________________  
   E _________________________ Failed  
   I _________________________ Incomplete  

   (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.)

2. Candidates for the bachelor's degrees in the colleges of Liberal Arts, Science, Education, Business Administration, Fine Arts, Forestry, and the Library School and the School of Journalism, must receive grades of A, B, or C in three-fourth of the credits required for their respective degrees. This rule became operative in June, 1913, and does not apply to grades given before the year 1910-11.

FRATERNITY PLEDGING

No fraternity or sorority shall pledge any person for membership whose registration in the University is not complete.

Registration is complete when the election blank has been signed by the student and all required registering officers, when all required fees have been paid, and when all blanks have been left in the registrar's office or other place designated by him.

No student having less than junior standing shall be initiated into a fraternity or sorority until he or she has earned eighteen credits or provisional credits in two quarters, or fifteen in one quarter, at this University. Credits or provisional credits for work taken to remove entrance conditions may not be counted.

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

*These grades correspond approximately to the old marking scheme as follows: A, 100-98; B, 95-99; C, 95-76; D, 75-70; E, 70-0.
COLLEGE OF LIBERAL ARTS

THE FACULTY

HENRY SUZZALLO, Ph. D. (Columbia), LL. D. (California), President
JOHN THOMAS CONDON, LL. M. (Northwestern), Dean of Faculties
DAVID THOMSON, B. A. (Toronto), Professor of Latin; Dean
EMOND STEPHEN MANT, M. S. (Wisconsin), Professor of History.
J. ALLEN SMITH, Ph. D. (Michigan), Professor of Political Science.
CAROLINE HAVEN ORES, Professor of Spanish.
FREDERICK MORGAN PAPKDFORD, Ph. D. (Yale), Professor of English and Dean of the Graduate School.
WILLIAM SAVERTY, Ph. D., (Harvard), Professor of Philosophy.
PHILIP JOSEPH FEIN, Ph. D. (Johns Hopkins), Professor of Romantic Languages.
HERBERT HENRY GOWER, D. D. (Whitman), Professor of Oriental Languages and Literature.
OLIVER HUNTINGTON RICHARDSON, Ph. D., (Heidelberg), Professor of European History.
VERNON LOUIS PARKINGTON, A. B. (Harvard), A. M. (Emporia), Professor of English.
FREDERICK EDGAR BOLTON, Ph. D. (Clark), Professor of Education and Dean of the College of Education.
EDWIN JOHN VICKNES, Ph. D. (Minnesota), Professor of Scandinavian Languages.
ALLEN ROGERS BENJAMIN, Ph. D. (Yale), Professor of English.
STEPHEN IVAN MILLER, Jr., A. B. (Stanford), LL. B. (Michigan), Professor of Economics and Dean of the College of Business Administration.
FRED CARLTON ATER, Ph. D. (Chicago), Professor of Education.
HOWARD B. WOOLSTON, Ph. D. (Columbia), Professor of Sociology.
CLIFFORD WOODY, Ph. D. (Columbia), Professor of Education.
THOMAS KIBLER, Ph. D. (George Washington University), Professor of Transportation.
HOWARD THOMPSON LEWIS, M. A. (Wisconsin), Professor of Business Administration.
LOREN DOUGLAS MILLIMAN, A. B. (Michigan), Associate Professor of English.
THOMAS KAY SIDET, Ph. D. (Chicago), Associate Professor of Latin and Greek.
EDWARD McMAHON, A. M. (Wisconsin), Associate Professor of American History.
GEORGE WALLACE UMPHREY, Ph. D. (Harvard), Associate Professor of Romantic Languages.
OTTO PATZER, Ph. D. (Wisconsin), Associate Professor of French.
VANDERVEER CUSTIS, Ph. D. (Harvard), Associate Professor of Economics.
EDWARD GODFREY COX, Ph. D. (Cornell), Associate Professor of English.
WILLIAM DANIEL MORIARTY, Ph. D. (Michigan), Associate Professor of Business Administration.
HARRY EDWIN SMITH, Ph. D. (Cornell), Associate Professor of Business Administration.
WILLIAM EDWARD COX, A. M. (Texas), Associate Professor of Business Administration.
GEORGE EARL FREELAND, Ph. D. (Clark), Associate Professor of Education.
HOWARD HALL PRESTON, Ph. D. (Iowa), Associate Professor of Business Administration.
CHARLES GOGOI, Ph. D. (Wisconsin), Associate Professor of Romantic Languages.
ROBERT DUNCAN MCKENZIE, Ph. D. (Chicago), Associate Professor of Sociology.
ROBERT MAX GARRETT, Ph. D. (Munich), Assistant Professor of English.
HARRY BUCK DENSEMORE, A. B. (Oxford), Assistant Professor of Greek.
ERNEST OTTO ECKELMAN, Ph. D. (Heidelberg), Assistant Professor of German.
CHARLES LOUIS HELMLINGE, A. M. (Washington), Assistant Professor of Romantic Languages.
Theresa Schmidt Mcmahon, Ph. D. (Wisconsin), Assistant Professor of Economics.
SHERING BOWTON CLARKE, Ph. D. (Harvard), Assistant Professor of Latin and Greek.
MAGGIE MILLMORE SKINNER, Ph. D. (Harvard), Assistant Professor of Business Administration.
CURT JOHN DUCAJSE, PH. D. (Harvard), Assistant Professor of Philosophy.
VICTOR LOVITT CRUTCHFORD, Ph. D. (Harvard), Assistant Professor of English.
GEORGE HENRY JENSEN, B. S. (Valparaiso), Assistant Professor of Vocational Education and Supervisor of Teacher Training in the Trades and Industries.
CARL DAAN, B. S. (Missouri), Assistant Professor of Business Administration.
CURT TALMADGE WILLIAMS, Ph. D. (Clark), Assistant Professor of Education.
JOSEPH BARLOW HARRISON, A. B. (Oxford), Assistant Professor of English.
RUDOLPH HERBERT ERNST, Ph. D. (Harvard), Assistant Professor of English.
PUL-WASHINGTON TERRY, Ph. D. (Chicago), Assistant Professor of Education.

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Louis Peter de Vries, Ph. D. (Wisconsin), Assistant Professor of Romanic Languages.

Victor John Farrar, A. M. (Wisconsin), Associate in Historical Research.

 Mildred Stubble, A. M. (Washington), Associate in English.

Pamela Jones, M. A. (Iowa State University), Associate in English.

Sylvia Finlay Kennigian, A. B. (Washington), Associate in English.

Ella Dazlin, A. B. (Washington), Associate in History.

Wilm Patchin, B. Ed. (Washington), Associate in Spanish.

Olive McCabe, B. A. (Wellesley), Associate in Sociology.

Jeann Mercier, B. S. (Whitman), Associate in French.

Gertrude Brown, M. A. (Columbia), Associate in English.

Herbert Phillips, A. B. (Washington), Associate in Philosophy.

Bertha Allen Vickrey, A. M. (Washington), Associate in English.

Alice Ernst, A. M. (Washington), Associate in English.

Alma Bonham, B. L. (California), Associate in Spanish.

Walter Bell Whitley, A. M. (Washington), Instructor in French.

Frank Laude, A. M. (Washington), Instructor in Political Science.

Max Patan Philbrick, A. B. (Colby), Instructor in Romanic Languages.

Ralph Mason Blake, Ph. D. (Harvard), Instructor in Philosophy.

Hart Ewart Gregory, M. A. (Chicago), Instructor in Business Administration.

Karl Elias Leib, B. A. (Stanford), Instructor in Business Administration.

Herbert A. Stroos, M. A. (Oberlin), Instructor in Sociology.

Oscar Eldridge Dyar, M. Accts. (Vories), Instructor in Business Administration.

John Gerald Driscoll, LL. B. (Stanford Business College), Instructor in Accounting.


Geno Vincent Medici diSolenni, A. M. (Ohio State University), Instructor in Romanic Languages.

Von ValJean Tarbell, M. B. A. (Harvard), Instructor in Business Administration.

Leslie Spier, Ph. D. (Columbia), Instructor in Anthropology.

James Land Ellis, A. B. (Washington), Instructor in History.

Harold Tiffin, Assistant in Business Administration.

Elizabeth Wright, A. B. (Mount Holyoke), Assistant in English.

Constance Bright, B. A. (Wellesley), Assistant in English.

Rachel Hamilton, B. Lit. (Whitman), Assistant in French.

Helen Hadley, B. A. (Smith), Assistant in English.

Beth McCausland, A. B. (Washington), Assistant in English.

Eleanor Maria Sickle, A. B. (Whitman), Assistant in English.

Tewy Kincaid, A. M. (Washington), Professor of Zoology.

Frederick Arthur Osborn, Ph. D. (Michigan), Professor of Physics and Director of the Physics Laboratories.

David Connolly Hall, M. D. (Chicago), University Health Officer and Professor of Hygiene.

Irving Mackey Glen, M. D. (Chicago), Professor of Music and Dean of the College of Fine Arts.

Evelyn Isabel Ratt, M. A. (Columbia), Professor of Home Economics.

Stevenson Smith, Ph. D. (Pennsylvania), Professor of Psychology.

William Pierce Gouge, A. B. (Knox), Professor of Dramatic Art.

James Edward Gould, A. M. (Harvard), Professor of Maritime Commerce.

Samuel Latimer Boothroyd, M. S. (Colorado Agricultural College), Associate Professor of Astronomy.

George Burton Rigg, Ph. D. (Chicago), Associate Professor of Botany.

Allen Fuller Carpenter, Ph. D. (Chicago), Associate Professor of Mathematics.

Edwin James Saunders, A. M. (Harvard), Assistant Professor of Geology.

Fred Harvey Heath Ph. D. (Yale), Assistant Professor of Chemistry.

Mary Emma Ghose, A. M. (Columbia), Assistant Professor of Physical Education and Hygiene.

James George Adbutinot, B. S. (Kansas State College), Assistant Professor of Physical Education.
The College of Liberal Arts provides instruction in the languages, education, economics and business administration, history, philosophy, political science, and sociology. Together with the College of Science, it affords the student an opportunity to acquire a general education which shall serve as a sure foundation for real success in whatever profession he may choose. In the College of Liberal Arts the junior certificate plan is in operation, through which the work of the high school is closely articulated with that of the college. In order to obtain the degree of bachelor of arts, it is necessary for the student first to obtain his junior certificate. This represents the satisfactory completion of the work of the first two years in college, and leads, after two more years of work, to the degree. The details of the plan are set forth below.

It is highly desirable that students entering the college of Liberal Arts from another institution should obtain from the registrar, as soon as possible, a statement of what they must do in order to be granted the junior certificate and later, their bachelor’s degree. Otherwise, by failing to fulfill the requirements, they will find their graduation postponed for a quarter or more, despite the fact that they may have earned credits sufficient in number to entitle them to the degree.

*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, Seattle.

**Freshman Standing.**—Freshman standing in the University is granted to any recommended graduate of a four-year accredited secondary school who presents fifteen units of credit, distributed as follows:

(a) 3 units of English.
(b) 1 unit of algebra.
(c) 1 unit of plane geometry.
(d) 8 units selected from one of the following groups (or 2 units, if 3 units of mathematics are presented).
   (1) Foreign language, either ancient or modern, (at least 2 units in one language; not less than one unit will be counted in any language).
   (2) History, civics, economics (at least one unit to form a year of consecutive work in history).
   (3) Physics, chemistry, botany, zoology, general biology, physical geography, geology, physiology. (Not less than one unit will be counted in physics, chemistry, or general biology. No science will be counted as applying on this requirement unless it includes a satisfactory amount of laboratory work).
(e) 2 units in subjects presented in the above groups (1)-(3).
(f) 5 units selected from subjects accepted by an approved high school for its diploma. Not less than one full unit will be counted in physics, chemistry, general biology, or a foreign language. A maximum of 4 units will be counted in vocational subjects, except for admission to the College of Business Administration. For admission to this college only, a maximum of 8 units in vocational subjects will be accepted, of which at least 4 units must be in commercial branches; and a student

*More detailed information concerning admission is furnished on pages 43-47.

†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 not less than thirty-six weeks.
presenting 8 such vocational units and 2 units in history, and fulfilling requirements (a), (b) and (c), will be given freshman standing in that college without being held for requirements (d) and (e). If the student is transferred later to another college, only 4 vocational units will be counted, and the student will be required to meet the requirements (d) and (e).

A candidate who fulfills these requirements will be admitted to freshman standing in any of the colleges of the University. However, if he has not taken in high school, certain of the subjects recommended for admission to the college that he may decide to enter, he must take them in the University, or if they are not offered in the University, he must take them in some secondary school, or with a tutor. Such subjects if taken in the University, may apply toward a degree, as far as elective courses make this practicable. In certain curricula, however, these subjects must be taken in addition to the prescribed subjects.

A student having any such deficiency is required to register so that the deficiency will be removed by the end of his fourth quarter of residence. A student failing to meet this requirement is ineligible for re-admission until the deficiency has been removed.

Entrance with condition, to freshman standing, is not permitted. Excess admission credit does not establish any presumptive claim for advanced standing, unless the student has taken in high school a graduate course of at least one semester.

Grouping of Subjects in Preparation for Admission.—In addition to the three units of English and two units of mathematics required of all students for admission to the University, the student expecting to enter the college of Liberal Arts is advised to take as many as possible of the subjects specified on a succeeding page among “Requirements of the Lower Division,” under group 2, “Subjects Required Either in High School or College.” He should also note paragraph 4 on the same page entitled, “subjects Conditionally Required in College.” A careful observance of these paragraphs will furnish a more complete preparation for college work, and will give the student correspondingly greater freedom of election in college.

Admission of Normal School Graduates to Advanced Standing.—Graduates of the normal schools of this state and of institutions of like standing elsewhere, who have completed at least two full years of normal school work after graduating from a four-year accredited high school, will be admitted to junior standing in the College of Liberal Arts. For graduation with the degree of bachelor of arts, these students are required to earn a minimum of 90 credits in the University, including the satisfaction of such of the requirements for the degree of bachelor of arts as have not been fairly covered by previous work. Claims for advanced university credit based on excess normal credit will be passed on by a committee consisting of the registrar, the dean of the college and the heads of the departments concerned.
REQUIREMENTS FOR THE DEGREE OF BACHELOR OF ARTS

To secure the degree of bachelor of arts (A. B.) the student must complete not less than a total of 192 credits and must observe the restrictions in regard to major and group requirements, scholarship requirements, and the requirements of the lower division and upper division.

I. MAJOR AND GROUP REQUIREMENTS

(a) From 36 to 60 credits must be in a single department known as the major department (except that with a major in English, 10 credits in English 1-2 may be counted in addition to 60 credits in other English courses).

(b) The number of credits taken in the major and any other single department combined must not exceed a total of 96 (except that when English is combined with the major department for the purpose of this total, credits in English 1-2 may be disregarded).

(c) Not less than 72 credits must be in the group in which the major department falls. For this purpose the departments are grouped as follows:

*Group 1. Language and Literature.—Classical languages and literature, English, German, Oriental literature, Romanic languages and literature, Russian, Scandinavian.*

*Group 2. Philosophical.—Economics and business administration, education, history, philosophy, political science, sociology.*

The group requirement of 72 credits does not apply to majors in home economics.

II. SCHOLARSHIP REQUIREMENTS

Not less than three-fourths of the credits required for graduation must be earned with grades of A, B, or C.

III. REQUIREMENTS OF THE LOWER DIVISION

The work of the lower division comprises the studies of the freshman and sophomore years of the undergraduate curriculum and leads to the junior certificate. This work consists primarily of the elementary or introductory courses of the various departments.*

*Note.—The following (or their equivalents) constitute the courses of the Lower Division:

1. **Modern Foreign Language:** The first two years.
2. **Ancient Language:** Intermediate Latin; the first two years of college work; course in civilization and literature.
3. **English:** Composition; freshman and sophomore literature.
4. **Mathematics and the Natural Sciences:** The elementary courses (1 and 2) or equivalents.
5. **History:** The introductory courses in each line, e. g., medieval and modern (1-2-3), American (57-58-59), English (6 and 8), ancient (71-72-73).
6. **Philosophy and Psychology:** Elementary or introductory course in each line, e. g., general psychology, introduction to philosophy, ethics, logic.
7. **Political and Social Science:** Introducing courses in economics, government, sociology.
8. **Education:** Introductory course, viz., Principles of Education.
Its aim is to supplement the work of the high school, to contribute to a broad general training in preparation for the advanced work of the upper division.

To receive the junior certificate the student must have earned not less than 90 college credits (together with required credits in military science or physical education), and must have completed, in high school and college together, the amount of work specified in the subjects mentioned below. In addition thereto, he must have satisfied the qualitative test prescribed in English composition. The object of these requirements is to secure for the student a knowledge of a wide range of subjects, to distribute his knowledge over the fundamental fields. To this end the high school and college are viewed as essentially a unit.

The required subjects are grouped as follows:

1. **Subjects Required in High School.**
   (a) English, 3 years (3 units).
   In addition to the completion of this amount of work in English, the student must show by a test examination proficiency in English composition, or he must take English composition in the University, as provided under requirement (c) below.
   (b) Elementary algebra, 1 year (1 unit).
   (c) Plane geometry, 1 year (1 unit).
   Subjects (a), (b), and (c) are those required of all students for admission to the University.
   (d) A foreign language, 2 years (2 units or 20 credits). See note 5.

2. **Subjects Required Either in High School or College.**
   (e) U. S. history and civics, 2 quarters (1 unit or 9 or 10 credits). See note 1.
   (f) History, 2 quarters (1 unit or 10 credits). See note 2.
   (g) Physics or chemistry, 2 quarters (1 unit or 10 credits). See note 3.
   (h) Botany, or geology, or zoology, 2 quarters (1 unit or 10 credits). See note 3.

3. **Subjects Required in College.**
   (i) Philosophy, 1 quarter (5 credits).
   (j) Psychology, 1 quarter (5 credits).
   (k) Economics, political science, sociology, 2 quarters (10 credits).
   (l) Physical education or military science, regular freshman and sophomore requirements.

4. **Subjects Conditionally Required in College.**
   (m) Ancient life and literature, 2 quarters, (10 credits). See note 4.

**NOTES**

1. Students who do not take United States history and civics in the high school must take History 57-58-59 in the University.
2. One year of history is required in addition to requirement (e). It may be satisfied in any year (1 unit or 9 or 10 credits) of history.
3. A college course of two quarters, (10 credits) in Introduction to Science will be accepted as fulfilling one of the requirements (g) or (b).
4. Two quarters' work in ancient life and literature is required of all students who have not taken, or do not plan to take, 3 or more years of ancient language. For such students courses are offered in the University on the civilization of the ancients and on the literature in translation.
5. Beginning with 1921, two years of one foreign language will be required for admission to the College of Liberal Arts or the College of Science. If the requirement has not been met in high school, it must be made up in college without credit.
6. English composition is required for the junior certificate except in the case of those persons who show by examination proficiency in that subject. (See University calendar for dates of examination).
Schedule Limitations of the Lower Division.—As a rule students in the lower division must confine their elections to courses designed for such students, viz., courses numbered 1 to 99 in the catalogue. A student, however, who has had the proper prerequisite or who may be deemed in intellectual maturity sufficiently qualified, may, with the consent of the dean and the instructor concerned, register for an upper division course. (In a foreign language a student who has had the proper prerequisite may be enrolled in an upper division course merely with the consent of the class adviser.) Students who are granted this privilege should be careful not to allow it to interfere with the completion of all lower division requirements by the end of the sophomore year; otherwise, an extra quarter of residence in that division may be necessary in order to secure the junior certificate and graduation may be correspondingly postponed.

No student in the lower division shall be registered for more than 16 credit hours per quarter (exclusive of military science and physical education) or for less than 12 credit hours per quarter, except with the consent of the dean.

IV. REQUIREMENTS OF THE UPPER DIVISION

The upper division comprises the studies of the junior and senior years. It consists principally of the advanced work of the undergraduate curriculum, and is therefore differentiated, both in content and method, from that of the lower division.

To be enrolled in the upper division, the student must have completed all the requirements for the junior certificate. The minimum amount of work to be done in the upper division will vary from 90 to 72 hours of credit, according to the number of hours offered for the junior certificate. The student must earn not less than 72 hours of credit while enrolled in the upper division. At least 48 hours of the credit hours taken in the upper division must be in the upper division courses (Courses 100 to 199). Of the 180 academic credits required for graduation at least 60 must be taken in courses numbered 100 or higher and of these 60, eighteen (not counting teacher's courses) must be taken in the major department.

Schedule Limitations of the Upper Division.—No student in the upper division shall be registered for more than 16 or less than 12 credit hours per quarter, except with the consent of the dean. A maximum of 19 hours per quarter may be granted to students who have made an exceptional record in scholarship in the lower division and who maintain that record in the upper division.

Scheme of Electives

For the purpose of election, outside the major department, the College of Liberal Arts, the College of Science, the College of
Education, the College of Business Administration and the School of Journalism are treated as one.

The following courses given outside the College of Liberal Arts may be counted toward a bachelor of arts degree. Not more than 24 such credits altogether shall be counted toward this degree except that from the College of Fine Arts 36 credits may be so counted.

**College of Pharmacy.**—Materia medica, therapeutics, toxicology. Total amount allowed, 12 credits.

**College of Engineering.** — Mechanical drawing, descriptive geometry, surveying, direct currents, alternating currents, engineering problems. Total amount allowed, 18 credits.

**College of Mines.**—General metallurgy.

**College of Fine Arts.**—A total number of 36 credits in the College of Fine Arts may be counted toward the bachelor of arts degree.

**College of Forestry.**—General forestry, characteristics of trees, forest economics, silviculture. The maximum number of hours elective from these subjects is 18.

**School of Law.**—Agency, constitutional law, contracts, general business law, equity, persons, property. From these subjects a total of 18 credits may be counted toward the bachelor of arts degree by a student majoring in the philosophical group; a total of nine credits may be so counted by a student majoring in any other group.

**SIX-YEAR ARTS AND LAW CURRICULUM**

This combined course allows the student with a good record to obtain an A. B. and an LL. B. in six years. It is open only to those students who have maintained a uniformly good record for scholarship during the first three years of collegiate work. At the end of three years, after the student has earned 135 credits, plus required credits in military science or physical education and including all of the required work, together with a major, he may for the fourth year register in the School of Law for the first year's work in law. He must, however, earn in the College of Liberal Arts additional credits sufficient to make the total credits amount to 156. Thirty-six credits in the first year law work may apply toward the A. B. degree, thus making 192 credits required for this degree.

The last two years of this combined course are devoted to completing the rest of the required work in the School of Law.

Students are strongly advised to complete their full 147 credits in the College of Liberal Arts by the end of the third year so that they can enter the law work clear in the fourth year.
Students from other institutions entering this University with advanced standing may take advantage of this combined course, provided they are registered in the College of Liberal Arts for at least one full year of work, and earn at least 45 credits in this University before entering the School of Law.

This privilege will not be extended to normal graduates attempting to graduate in two years, nor to undergraduates of other colleges who enter this University with the rank of senior.

Courses

For description of courses, see Departments of Instruction, printed elsewhere in this catalogue. (See Index.)
COLLEGE OF SCIENCE

THE FACULTY

HENRY SUEZALLO, PH. D. (Columbia), LL. D. (California), President.

JOHN THOMAS CONDON, LL. M. (Northwestern), Dean of Faculties.

HENRY LANDIS, A. M. (Harvard), Professor of Geology; Dean.

THEODORE CHRISTIAN FATE, PH. D. (Chicago), Professor of Botany.

TENNY KINCAID, A. M. (Washington), Professor of Zoology.

FREDERICK JULIN OSBORN, PH. D. (Michigan), Professor of Physics and Director of the Physics Laboratories.

ROBERT EDWARD MORDY, PH. D. (Nebraska), PH. N. D. (Strassburg), Professor of Mathematics.

DAVID COLNALY HALL, Sc. M., M. D. (Chicago), Professor of Hygiene and University Health Officer.

HENRY KINGSLEY BENSON, PH. D. (Columbia), Professor of Industrial Chemistry.

JOHN WHITZ, DR. F. H. (Harvard), Professor of Bacteriology.

EDWIN ISAAC RAYIT, M. A. (Columbia), Professor of Home Economics.

STEVenson Smith, PH. D. (Pennsylvania), Professor of Psychology.

WILLIAM MAURICE DEHN, PH. D. (Illinois), Professor of Organic Chemistry.

GEORGE McPHERSON SMITH, PH. D. (Freiburg), Professor of Inorganic Chemistry.

JACOB EDWARD GORDON, A. M. (Harvard), Professor of Maritime Commerce.

CHARLES EDWIN WEAVER, PH. D. (California), Associate Professor of Geology.

ALLEN FULLER CARPENTER, PH. D. (Chicago), Associate Professor of Mathematics.

SAMUEL LATIMORE BOOTHBOY, M. S. (Colorado Agricultural College), Associate Professor of Astronomy.

HENRY LOUIS BRAKEL, PH. D. (Cornell), Associate Professor of Engineering Physics.

GEORGE BURTON HUGGINS, PH. D. (Chicago), Associate Professor of Botany.

JOHN L. WORCESTER, M. D. (Med. School, University of Alabama), Associate Professor of Anatomy.

EDWIN JAMES SAUNDERS, A. M. (Harvard), Assistant Professor of Geology.

GEORGE IRVING GAYETT, B. S. (C. E.) (Michigan), Assistant Professor of Mathematics.

ELI VICTOR SMITH, PH. D. (Northwestern), Assistant Professor of Zoology.

GEORGE GODFREY DENNY, M. A. (Columbia), Assistant Professor of Home Economics.

JOHN WILLIAM HOLTSON, PH. D. (Harvard), Assistant Professor of Botany.

LOUIS IRVING NICKLIE, PH. D. (Pennsylvania), Assistant Professor of Mathematics.

SAMUEL HERBERT ANDERSON, PH. D. (Illinois), Assistant Professor of Physics.

ROY MARTIN WINGER, PH. D. (Johns Hopkins), Assistant Professor of Mathematics.

HERMAN VANCE TATE, B. S. (Oregon Agricultural College), Assistant Professor of Chemistry.

ERIC TEMPLE BELL, PH. D. (Columbia), Assistant Professor of Mathematics.

EDWIN R. GUTHRIE, PH. D. (Pennsylvania), Assistant Professor of Psychology.

FRED H. HEATH, PH. D. (Yale), Assistant Professor of Chemistry.
THOMAS GORDON THOMPSON, PH. D. (Washington), Assistant Professor of Chemistry.
GEORGE EDWARD GOODPEED, JR., B. S. M. E. (Massachusetts Institute of Technology),
Assistant Professor of Geology.
ELIZABETH AMBRY, B. S. (Wisconsin), Assistant Professor of Home Economics.
VIRGINIA CUNNINGHAM PATTY, (Diploma, Ecole Guerre, Paris), Assistant Professor of Home Economics.
MARY EMMA GROSS, A. M. (Columbia), Assistant Professor of Physical Education.
DELBERT H. NICKSON, M. D. (Oregon), Assistant Professor of Pathology.
JAMES G. ABUTCHINOT, B. S. (Kansas), Assistant Professor of Physical Education.
HORACE W. GUNTHOP, PH. D. (Kansas), Assistant Professor of Zoology.
MARThA KOENNE, A. M. (Ohio), Assistant Professor of Home Economics.
ROBERT H. PALMER, A. M. (Utah), Assistant Professor of Geology.
EARL D. WEST, A. M. (Adrian College), Associate in Mathematics.
ETHEL SANDERS RADERFORD, A. B. (McGill), Associate in Chemistry.
HERMAN MULLENSTEIN, PH. D. (Royal University of Utrecht, Holland), Associate in Mathematics.
LILLIAN BLOOM, (Graduate, Medical Gymnastic Institute, Stockholm, Sweden), Associate in Physical Education.
MARGUERE HELEN WHIPPLE, A. B. (Colorado College), Associate in Chemistry.
CARL ZENO DRAVES, B. S. (Ch. E.) (Washington), Associate in Chemistry.
CLARENCE EDMUNDSON, B. S. (Idaho), Associate in Physical Education.
W. A. HAMILTON, A. B. (Cornell), Associate in Mathematics.
HELEN MACKINNON, A. B. (Wellesley), Associate in Physical Education.
WALDO SEBON, B. S. (Washington), Associate in Chemistry.
LILLIAN WOOD, B. S. (Washington), Associate in Chemistry.
ELIZABETH S. SOULE, R. N. (Malden, Massachusetts, Hospital School of Nursing), Associate in Nursing and Public Health.
LLOYD LEWIS SMALL, PH. D. (Columbia), Instructor in Mathematics.
MARTHA DRESSEL, M. S. (Columbia), Instructor in Home Economics.
JOSEPH M. TAYLOR, M. S. (Adrian College), Acting Instructor in Mathematics.
MILDRED LEMON, A. B. (California), Instructor in Physical Education and Hygiene.
ARTHUR WILLIS BARTON, PH. D. (Northwestern), Instructor in Chemistry.
SARGENT G. POWELL, PH. D. (Illinois), Instructor in Chemistry.
LOU EASTWOOD ANDERSON, Acting Instructor in Physical Education.
WILLARD H. ELLIS, B. S. (B. E.) (California), Instructor in Physics.
F. A. McMillin, M. S. (Willamette), Acting Instructor in Chemistry.
HENRY S. STAGER, PH. D. (California), Instructor in Mathematics.
CLINTON L. UTTERBACK, M. S. (Washington), Instructor in Physics.
GEORGE E. WHITWELL, B. S. (Massachusetts Institute of Technology), Instructor in Chemical Engineering.
The student entering the College of Science may take up one of several curricula, general or specialized, with the emphasis upon pure or applied science. These curricula, set forth in detail in succeeding pages, are:

I. Elective curricula with a major in some one department for students desiring general training in science, and leading to the degree of bachelor of science.

II. Suggested curricula in the various departments for students desiring to specialize in one department or obtain professional training, and leading to the degree of bachelor of science in the respective subjects.
   A. Bacteriology
   B. Biology
   C. Chemistry
   D. Geology
   E. Mathematics
   F. Physics
   G. For prospective science teachers
   H. Combined Science and Law
   I. Library Science

III. Prescribed curricula in vocational subjects.
   A. Pre-medical
   B. Nurses
   C. Home Economics
   D. Physical Education for women

*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, Seattle.

Freshman Standing.—Freshman standing in the University is granted any recommended graduate of a four-year accredited secondary school who presents fifteen units‡ of credit, distributed as follows:

(a) 3 units of English.
(b) 1 unit of algebra.
(c) 1 unit of plane geometry.
(d) 3 units selected from one of the following groups (or 2 units, if 3 units of mathematics are presented).
   (1) Foreign language, either ancient or modern (at least 2 units in one language; not less than one unit will be counted in any language).
   (2) History, civics, economics (at least one unit to form a year of consecutive work in history).
   (3) Physics, chemistry, botany, zoology, general biology, physical geography, geology, physiology. (Not less than one unit will be counted in physics.

*More detailed information concerning admission is furnished on pages 43-46.
†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 not less than thirty-six weeks.
chemistry, or general biology. No science will be counted as applying on this requirement unless it includes a satisfactory amount of laboratory work.

(e) 2 units in subjects presented in the above groups (1) - (3).

(f) 6 units selected from subjects accepted by an approved high school for its diploma. Not less than one full unit will be counted in physics, chemistry, general biology, or a foreign language. A maximum of 4 units will be counted in vocational subjects, except for admission to the College of Business administration. For admission to this college only, a maximum of 8 units in vocational subjects will be accepted, of which at least 4 units must be in commercial branches; and a student presenting 8 such vocational units and 2 units in history, and fulfilling requirements (a), (b), and (c), will be given freshman standing in that college without being held for requirements (d) and (e). If the student is transferred later to another college, only 4 vocational units will be counted, and the students will be required to meet the requirements (d) and (e).

A candidate who fulfills these requirements will be admitted to freshman standing in any of the colleges of the University. However, if he has not taken in high school certain of the subjects recommended for admission to the college that he may decide to enter, he will take them in the University, or if they are not offered in the University, he will take them in some secondary school, or with a tutor. Such subjects if taken in the University, may apply toward a degree, as far as elective courses make this practicable.

In certain curricula, however, these subjects must be taken in addition to the prescribed subjects.

A student having any such deficiency is required to register so that the deficiency will be removed by the end of his fourth quarter of residence. A student failing to meet this requirement is ineligible for re-admission until the deficiency has been removed.

Entrance with condition, to freshman standing, is not permitted. Excess admission credit does not establish any presumptive claim for advanced standing, unless the student has taken a graduate course in the high school of at least one semester.

CURRICULA

I. ELECTIVE CURRICULA WITH A MAJOR IN ONE DEPARTMENT

In this division of the college, in order to secure the degree of bachelor of science, a student must complete a total of at least 192 credits, and must observe the restrictions in regard to a major subject, necessary scholarship and elections in other colleges.

A. REQUIREMENTS IN A MAJOR SUBJECT

A student must earn from 36 to 60 credits in a single department, known as his major department. Not more than 96 credits may be counted in the major and one other department.

B. SCHOLARSHIP REQUIREMENTS

Not less than three-fourths of the credits required for graduation must be earned with grades A, B, or C.

C. ELECTIONS IN OTHER COLLEGES

In engineering, fine arts, fisheries, forestry, law, mines, and pharmacy, electives will be allowed to the extent of 25 credits from any one college, and not to exceed 36 from all.
D. DISTRIBUTION OF REQUIRED WORK
At least 60 of the scholastic credits presented for graduation shall be in courses numbered above 100, of these 60 credits, at least 18 shall be in the major subject. The requirements for graduation and their distribution shall be as follows:

   (a) English, three years.
   (b) Elementary algebra, one year.
   (c) Plane geometry, one year.

2. Subjects Required Either in a Secondary School or in the University.
   (e) United States history and civics, one year (or ten credits).
   (f) History other than (e), one year (or ten credits).
   (g) Mathematics, geology*, or astronomy, one year (or ten credits).
   (h) Chemistry, one year (or ten credits).
   (i) Physics, one year (or ten credits).
   (j) Botany or zoology, one year (or ten credits).
   (k) A certificate of proficiency in English must be obtained either by registration or entrance examination.

3. Subjects Required in the University.
   (m) Economics, history, language and literature, philosophy, political science, psychology, sociology, 20 credits (ten credits only may be taken in any of these subjects).

II. CURRICULA IN THE VARIOUS DEPARTMENTS

A. BACTERIOLOGY

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<td>Mil. Sci. or Phys. Ed. 1 3%</td>
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B. BIOLOGICAL SCIENCES

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</tbody>
</table>

*Physiography (with laboratory work) taken in a high school will be accepted.

*Beginning with 1921, a student who has not taken in high school the amount of foreign language which may be required for admission to the college that he plans to enter, will make up the deficiency in the University as part of his regular schedule of work, but without receiving college credit for it. For the College of Fine Arts, the requirement may be satisfied by 20 hours of a modern foreign language; for the Colleges of Liberal Arts, Science and Education, by 20 hours in any one foreign language.

*Two and one-half years of mathematics required which may be taken in high school or University.
When a student decides to graduate under this curriculum with a major in anatomy, botany, or zoology, he should at once consult with the department concerned, a member of which will act as his advisor. The advisor will then plan a special curriculum for the student, fitting him for his chosen field of work, which curriculum must be submitted to the Dean of the College of Science for approval. Any change in the individual curriculum can only be made with the consent of the advisor and the dean.

### C. CHEMISTRY

#### FIRST YEAR

<table>
<thead>
<tr>
<th>Autumn Quarter</th>
<th>Credits</th>
<th>Winter Quarter</th>
<th>Credits</th>
<th>Spring Quarter</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemistry 1 or 21</td>
<td>5</td>
<td>Chemistry 2 or 22</td>
<td>5</td>
<td>Chemistry 3 or 23</td>
<td>5</td>
</tr>
<tr>
<td>Mathematics 4</td>
<td>5</td>
<td>Mathematics 5</td>
<td>5</td>
<td>Mathematics 6</td>
<td>5</td>
</tr>
<tr>
<td>English 1</td>
<td>5</td>
<td>English 2 or Elective</td>
<td>5</td>
<td>Elective</td>
<td>5</td>
</tr>
<tr>
<td>Mil. Sci. or Phys. Ed.</td>
<td>1½</td>
<td>Mil. Sci. or Phys. Ed.</td>
<td>1½</td>
<td>Mil. Sci. or Phys. Ed.</td>
<td>1½</td>
</tr>
</tbody>
</table>

#### SECOND YEAR

| Chemistry 101 | 5 | Chemistry 112 | 5 | Chemistry 113 | 5 |
| Mathematics 61 | 5 | Mathematics 62 | 5 | Elective | 5 |
| Elective | 2 | Elective | 2 | Mil. Sci. or Phys. Ed. | 1½ |
| Mil. Sci. or Phys. Ed. | 1½ | Mil. Sci. or Phys. Ed. | 1½ |

#### THIRD YEAR

| Chemistry 131 | 5 | Chemistry 132 | 5 | Chemistry 133 | 5 |
| Elective | 5 | Elective | 5 | Elective | 5 |

#### GROUP OPTIONS

(a) General
- Chemistry 221 | 3
- Elective | 2

(b) Industrial
- Chemistry 121 | 5

(c) Physiological Chemistry
- Botany 143 | 5

(d) Sanitary and Food
- Chemistry | 5
- Chemistry 105 | 5

#### GROUP OPTIONS

(a) General
- Chemistry 222 | 3
- Elective | 2

(b) Industrial
- Chemistry 122 | 5

(c) Physiological Chemistry
- Botany 144 | 5

(d) Sanitary and Food
- Chemistry | 5
- Chemistry 106 | 5

---

1 Options: A—Mechanical Drawing, B—Geology or Mineralogy, C—Biology Science.

2 Students expecting to elect the industrial group in junior year will take Chemical Technology (Chem. 52) lectures only, 3 credits, during the sophomore year.

3 In addition to the subjects specifically listed above, 10 credits in either French or German are required, to be completed before the end of the third year.

All electives must be approved by the head of the Department of Chemistry or other registration officer appointed by the Department of Chemistry.
# College of Science

## Fourth Year

<table>
<thead>
<tr>
<th>Autumn Quarter</th>
<th>Credits</th>
<th>Winter Quarter</th>
<th>Credits</th>
<th>Spring Quarter</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemistry 181</td>
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<td>Chemistry 182</td>
<td>5</td>
<td>Chemistry 183</td>
<td>5</td>
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<tr>
<td>Chemistry 224</td>
<td>2</td>
<td>Chemistry 225</td>
<td>2</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**GROUP OPTIONS**

(a) General  
Chemistry 211 or  
Chemistry 212 or  
Chemistry 250  
Electives  

(b) Industrial  
Chemical Engineering 215  
Electives  

(c) Physiological Chemistry  
Chemistry 141  
Chemistry 192  

(d) Sanitary and Food  
Chemistry 141  
Chemistry 102  
Electives

### D. Geology

#### First Year

<table>
<thead>
<tr>
<th>Subject</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Geology 1</td>
<td>5</td>
</tr>
<tr>
<td>English 1</td>
<td>5</td>
</tr>
<tr>
<td>Chemistry 1 or 21</td>
<td>5</td>
</tr>
<tr>
<td>Mil. Sci. or Phsy. Ed.</td>
<td>1/4</td>
</tr>
<tr>
<td>Physics 1</td>
<td>5</td>
</tr>
<tr>
<td>Chemistry 111</td>
<td>4</td>
</tr>
<tr>
<td>Civil Engineering 1</td>
<td>3</td>
</tr>
<tr>
<td>Astronomy 11</td>
<td>5</td>
</tr>
<tr>
<td>Botany or Zoology</td>
<td>5</td>
</tr>
<tr>
<td>Geology 123</td>
<td>3</td>
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<tr>
<td>Geology 124</td>
<td>3</td>
</tr>
<tr>
<td>Geology 125</td>
<td>3</td>
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<tr>
<td>Elective</td>
<td>5</td>
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#### Second Year

<table>
<thead>
<tr>
<th>Subject</th>
<th>Credits</th>
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<tbody>
<tr>
<td>Physics 2</td>
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<tr>
<td>Mathematics 5</td>
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<tr>
<td>Geology 117</td>
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<td>Geology 121</td>
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<tr>
<td>Geology 122</td>
<td>3</td>
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<tr>
<td>Geology 123</td>
<td>3</td>
</tr>
<tr>
<td>Elective</td>
<td>5</td>
</tr>
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#### Third Year

<table>
<thead>
<tr>
<th>Subject</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Geology 129</td>
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<tr>
<td>Mining 51</td>
<td>3</td>
</tr>
<tr>
<td>Thesis</td>
<td>2</td>
</tr>
<tr>
<td>Elective</td>
<td>8</td>
</tr>
</tbody>
</table>

#### Fourth Year

<table>
<thead>
<tr>
<th>Subject</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>Geology 127</td>
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<tr>
<td>Law 158</td>
<td>2</td>
</tr>
<tr>
<td>Thesis</td>
<td>2</td>
</tr>
<tr>
<td>Elective</td>
<td>8</td>
</tr>
</tbody>
</table>

### E. Mathematics

#### First Year

<table>
<thead>
<tr>
<th>Subject</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>English 1</td>
<td>5</td>
</tr>
<tr>
<td>English 2 or Elective</td>
<td>5</td>
</tr>
<tr>
<td>Mathematics 5</td>
<td>5</td>
</tr>
<tr>
<td>Mil. Sci. or Phy. Ed.</td>
<td>1/4</td>
</tr>
<tr>
<td>*Physics 1</td>
<td>5</td>
</tr>
<tr>
<td>*Physics 2</td>
<td>5</td>
</tr>
<tr>
<td>Mil. Sci. or Phy. Ed.</td>
<td>1/4</td>
</tr>
</tbody>
</table>

#### Second Year

<table>
<thead>
<tr>
<th>Subject</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Economics 1</td>
<td>5</td>
</tr>
<tr>
<td>Mathematics 106</td>
<td>5</td>
</tr>
<tr>
<td>Modern Foreign Lang.</td>
<td>5</td>
</tr>
<tr>
<td>Mil. Sci. or Phy. Ed.</td>
<td>1/4</td>
</tr>
</tbody>
</table>

#### Third Year

<table>
<thead>
<tr>
<th>Group I—Secondary School Teachers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Psychology</td>
</tr>
<tr>
<td>Philosophy or Logic</td>
</tr>
<tr>
<td>Astronomy</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Group II—College and University Teachers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Psychology</td>
</tr>
<tr>
<td>Philosophy or Logic</td>
</tr>
<tr>
<td>Astronomy</td>
</tr>
</tbody>
</table>

*Students in Group III take Bus. Ad. 11-12 in place of Physics.*
### F. Physics

#### GROUP I—SECONDARY SCHOOL TEACHERS

<table>
<thead>
<tr>
<th>First Year</th>
<th>Second Year</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mathematics</td>
<td>15</td>
<td>Physics</td>
</tr>
<tr>
<td>*Chemistry or Physics</td>
<td>15</td>
<td>Mathematics</td>
</tr>
<tr>
<td>English 5 or Adv. Electives</td>
<td>10</td>
<td>Chemistry</td>
</tr>
<tr>
<td>Bot., Zool., Geol., or Astron.</td>
<td>10</td>
<td>Psychology</td>
</tr>
</tbody>
</table>

#### GROUP II—COLLEGES AND UNIVERSITY TEACHERS

<table>
<thead>
<tr>
<th>Third Year</th>
<th>Fourth Year</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physics</td>
<td>15</td>
<td>Physics</td>
</tr>
<tr>
<td>Education</td>
<td>5</td>
<td>Education</td>
</tr>
<tr>
<td>Philosophy Group</td>
<td>15</td>
<td>Adv. Electives</td>
</tr>
<tr>
<td>Free Electives</td>
<td>10</td>
<td>Free Electives</td>
</tr>
</tbody>
</table>

#### GROUP III—INDUSTRIAL PHYSICISTS

<table>
<thead>
<tr>
<th>Third Year</th>
<th>Fourth Year</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physics</td>
<td>15</td>
<td>Physics</td>
</tr>
<tr>
<td>Philosophy Group</td>
<td>15</td>
<td>Chemistry</td>
</tr>
<tr>
<td>Chemistry</td>
<td>5</td>
<td>Adv. Electives</td>
</tr>
<tr>
<td>Adv. Electives</td>
<td>5</td>
<td>Free Electives</td>
</tr>
</tbody>
</table>

Advanced electives must be approved by the department.

### G. Curriculum for Prospective Science Teachers

Most of those science students who expect to teach must begin in a small high school. In such schools one teacher usually teaches several or all the sciences. It is therefore desirable that such students get a wide range of scientific knowledge, rather than the intensive training secured by three years’ work for a major in some one department. The following course permits the students to prepare in more sciences by not requiring three years of any one science.

*Physics will be taken only when no high school physics is offered.*


**REGULATIONS GOVERNING THIS CURRICULUM**

(a) A student may select any three of the following sciences and must do the amount of work in any particular science, as indicated.

- Botany (exclusive of bacteriology), 20 credits.
- Chemistry, 20 credits.
- Geology, 20 credits.
- Mathematics (exclusive of astronomy), 20 credits.
- Zoology, 20 credits.

(b) Included in or in addition to the work in (a) every student must take 5 credits in physics, 10 credits in chemistry, 10 credits in botany or zoology.

(c) In (a) chemistry and zoology may not be selected in a group together.

(d) If 20 credits of chemistry are taken, only 10 of geology are required.

(e) When mathematics is selected as one of the three sciences, physics must be selected also.

(f) The modern foreign language required shall be either French or German and a continuation of the language taken in high school.

(g) The work in freshman composition shall be 0 to 10 credits.

**H. 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 135 credits, together with the required credits in military science or physical education, including all of the required work, together 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 whenever he completes the required work above specified, together with 9 additional credits in the College of Science and 36 credits in the School of Law; making a total of 190 credits for graduation. The fifth and sixth years of the combined course are devoted to completing the remainder of the required work for graduation from the School of Law.

**I. FIVE-YEAR COURSE IN SCIENCE AND LIBRARY SCIENCE**

This course is for students who are preparing to become professional librarians and who desire to receive degrees of bachelor of science and bachelor of library science. Under this arrangement a student should first complete, all the required work of the course for Science Teachers (outlined above), substituting courses in library science for 12 credits in education, as stipulated for the senior year. A portion of the fourth year and all of the fifth year are devoted to the required subjects in library science. If this plan is carefully followed, a student should earn the degree of bachelor of science at the end of the fourth year, and the degree of bachelor of library science at the end of the fifth year. (See Library School.)
III. PRESCRIBED CURRICULA IN VOCATIONAL SUBJECTS

A. PRE-MEDICAL CURRICULA

TWO AND FOUR-YEAR CURRICULA PREPARATORY TO MEDICINE

The University offers two curricula preparatory to the study of medicine. One of these is for two years, and will meet the requirements of those medical schools which require no more than 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 years college course. The curricula will not reduce the amount of work to be done by the student in the medical school but they are designed to increase its efficiency.

These courses are also well adapted for pre-dental students, as the best dental schools require the same foundation work as the medical schools.

Students entering the pre-medical courses should present the following among the 15 units required for entrance to the University (see Requirements for Admission):

- 8 units of English
- 1 unit of Algebra
- 1 unit of Plane Geometry
- 1 unit of United States History and Civics
- 1 unit of Medieval and Modern History
- 1 unit of Physics
- 2 units of one foreign language

Below is the outline of the four-year curriculum. The first and second years constitute the two-year curriculum:

<table>
<thead>
<tr>
<th>Autumn Quarter</th>
<th>Credits</th>
<th>Winter Quarter</th>
<th>Credits</th>
<th>Spring Quarter</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemistry 1 or 21</td>
<td>5</td>
<td>Chemistry 2 or 22</td>
<td>5</td>
<td>Chemistry 3 or 23</td>
<td>5</td>
</tr>
<tr>
<td>Zool. 3 (Pre-medical)</td>
<td>5</td>
<td>Zool. 4 (Pre-medical)</td>
<td>5</td>
<td>Zool. 5 (Pre-medical)</td>
<td>5</td>
</tr>
<tr>
<td>English 1</td>
<td>5</td>
<td>English 2</td>
<td>5</td>
<td>Psychology 1</td>
<td>5</td>
</tr>
<tr>
<td>Mil. Sci. or Phys. Ed.</td>
<td>1%</td>
<td>Mil. Sci. or Phys. Ed.</td>
<td>1%</td>
<td>Mil. Sci. or Phys. Ed.</td>
<td>1%</td>
</tr>
<tr>
<td>Physics 1</td>
<td>5</td>
<td>Physics 2</td>
<td>5</td>
<td>Physics 3</td>
<td>5</td>
</tr>
<tr>
<td>Chem. 131 (Organic)</td>
<td>5</td>
<td>Chem. 132 (Organic)</td>
<td>5</td>
<td>ScL French or German</td>
<td>5</td>
</tr>
<tr>
<td>English 73</td>
<td>5</td>
<td>Psych. 126 (Abnormal)</td>
<td>5</td>
<td>Ee. 1 or Pol. Sci. 1</td>
<td>5</td>
</tr>
<tr>
<td>Mil. Sci. or Phys. Ed.</td>
<td>1%</td>
<td>Mil. Sci. or Phys. Ed.</td>
<td>1%</td>
<td>Mil. Sci. or Phys. Ed.</td>
<td>1%</td>
</tr>
</tbody>
</table>

SECOND YEAR

<table>
<thead>
<tr>
<th>Autumn Quarter</th>
<th>Credits</th>
<th>Winter Quarter</th>
<th>Credits</th>
<th>Spring Quarter</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anatomy 101</td>
<td>6</td>
<td>Anatomy 102</td>
<td>6</td>
<td>Anatomy 103</td>
<td>6</td>
</tr>
<tr>
<td>Anatomy 105</td>
<td>6</td>
<td>Anatomy 106</td>
<td>6</td>
<td>Anatomy 107</td>
<td>6</td>
</tr>
<tr>
<td>Bacteriology 104</td>
<td>4</td>
<td>Bacteriology 105</td>
<td>4</td>
<td>Bacteriology 106</td>
<td>4</td>
</tr>
<tr>
<td>Zool. 151</td>
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<td>Zoology 152</td>
<td>5</td>
<td>Zoology 153</td>
<td>5</td>
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<tr>
<td>Chemistry 141</td>
<td>5</td>
<td>Chemistry 142</td>
<td>5</td>
<td>Chemistry 143</td>
<td>5</td>
</tr>
<tr>
<td>Bacteriology 110</td>
<td>4</td>
<td>Bacteriology 111</td>
<td>4</td>
<td>Bacteriology 112</td>
<td>4</td>
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<tr>
<td>Anatomy 104</td>
<td>4</td>
<td>Elective</td>
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</table>

THIRD YEAR

FOURTH YEAR

<table>
<thead>
<tr>
<th>Autumn Quarter</th>
<th>Credits</th>
<th>Winter Quarter</th>
<th>Credits</th>
<th>Spring Quarter</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>Zoology 151</td>
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<td>Zoology 152</td>
<td>5</td>
<td>Zoology 153</td>
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<td>Chemistry 142</td>
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<td>Chemistry 143</td>
<td>5</td>
</tr>
<tr>
<td>Bacteriology 110</td>
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<td>Bacteriology 111</td>
<td>4</td>
<td>Bacteriology 112</td>
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<td>Anatomy 104</td>
<td>4</td>
<td>Elective</td>
<td>4</td>
<td>Elective</td>
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</tr>
</tbody>
</table>

B. THREE-YEAR CURRICULUM FOR NURSES

Believing that a broader scientific education is desired by young women entering the nursing profession, the University offers a three-year pre-hospital course which when followed by the two-year hospital course in such hospitals as may be selected by the University, leads to a degree of bachelor of science in nursing and a certificate of nursing.
For admission to this curriculum a student must present 15 units by examination or certificate from an accredited school from which she has graduated. (See Requirements for Admission). These 15 units should include the following:

- 3 units of English
- 1 unit of Algebra
- 1 unit of Plane Geometry
- 1 unit of United States History and Civics
- 1 unit of Medieval and Modern History
- 1 unit of Physics
- 2 units of one foreign language

The curriculum:

<table>
<thead>
<tr>
<th>Autumn Quarter</th>
<th>Winter Quarter</th>
<th>Spring Quarter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home Economics</td>
<td>English</td>
<td>Chemistry</td>
</tr>
<tr>
<td>Nursing</td>
<td>Chemistry</td>
<td>Psychology</td>
</tr>
<tr>
<td>Physics 90</td>
<td>Physics 90</td>
<td>English</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>SECOND YEAR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zoology</td>
</tr>
<tr>
<td>Home Economics</td>
</tr>
<tr>
<td>Physiology 54</td>
</tr>
<tr>
<td>Elective</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>THIRD YEAR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pharmacy 18</td>
</tr>
<tr>
<td>English Literature 72</td>
</tr>
<tr>
<td>Bacteriology 101</td>
</tr>
<tr>
<td>Education 95</td>
</tr>
</tbody>
</table>

---

C. PRESCRIBED CURRICULA IN HOME ECONOMICS

Many fields of activity other than teaching are being offered to women trained in the work given in the department of home economics. In each line of vocational work offered, there is opportunity to put into practice the technical work of the laboratory. In food preparation, the students work in the University Commons, in commercial establishments and in hospitals to gain practical experience. In clothing, students learn first to sew for themselves and then for customers.

Seniors are required to live in the practice cottage located on the campus, where they take full responsibility for the management and care of the house for a family of four during a period of three weeks.

The following grouping is arranged as a guide in selecting the work that will best satisfy the requirements of each individual.
Group I, General, is planned for students who want a liberal college training with emphasis upon the subjects that pertain to the home and home life. Those who are interested in social betterment and who wish to enter definite welfare work may combine home economics and sociology in this curriculum.

Group II, Food and Nutrition, is offered for those students who wish to specialize for the purpose of teaching this phase of the work in institutions of higher education, for laboratory or research workers, and for students who wish to become dietitians in hospitals, sanitoria or private work. Those who intend to become sanitary and food inspectors are also advised to take the course.

Group III, Teachers' Curriculum. There is always a demand for the well-trained home economics teacher. This group combines some liberal arts subjects in other departments, chemistry, physics, bacteriology, fine arts, physiology and economics. The courses are especially arranged to meet in the most efficient manner the particular needs of home economics students. Practice teaching extending through one quarter in the Seattle schools is required. Graduates of this course will upon application to the State Board of Vocational Educations receive a Smith-Hughes certificate.

Group IV, Institutional Management. In this course there are combined the fundamental sciences, technical and business courses, with practice work. Young women with initiative and ability find positions that offer increasingly attractive returns when trained in this line of work. Institutions operating for groups of people are seeking trained women to manage the commissary and housekeeping departments.

Group V, Textiles, Clothing and Fine Arts. This curriculum requires a minimum of science but gives ample opportunity for combining work in design with clothing and textiles for the purpose of general culture or for use in a commercial field.

A teaching major in home economics consists of: H. E. 4, 5, 6, 8, 25, 107, 112, 113, 143, 144, 145, 146, 147—with their prerequisites.

Any one of the five lines may lead to the degree of bachelor of science in home economics. Students who fulfill all entrance requirements of the College of Liberal Arts may use home economics as a major for the degree of bachelor of arts.

Students eligible to freshman standing in any college of the University are eligible to enter any one of the above five curricula in home economics; 180 + 12 credits are required for graduation from any of these curricula. For students who complete H. E. 5-6 or H. E. 105-106, 183 + 9 credits are required.

"Preferred elective" means that these requirements must be satisfied before any other course is taken.
GROUP I—GENERAL CURRICULUM

To provide a liberal college training, also for those students who wish to fit themselves for the following vocations:

1. Homemaking.
2. Social Service. (Elect economics and sociology.)

### FIRST YEAR

<table>
<thead>
<tr>
<th>Autumn Quarter</th>
<th>Winter Quarter</th>
<th>Spring Quarter</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>English 1</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Zool. 1 or Bot. 1</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Home Economics 7</td>
<td>2</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Elective</td>
<td>8</td>
<td>1</td>
<td>1%</td>
</tr>
<tr>
<td>Phys. Ed.</td>
<td></td>
<td></td>
<td>1%</td>
</tr>
</tbody>
</table>

Preferred electives—H. E. 4, 8, 25, 48; Nursing 5.

### SECOND YEAR

| Language       | 5             | 5             | 5       |
| History        | 5             | 5             | 5       |
| Phys. Ed.      | 1             | Phys. Ed.     | 1%      |

Preferred electives—H. E. 5, 6; P. S. D. 3; Bact. 101.

### THIRD YEAR

| Philosophy 2   | 5             | Sociology 1   | 5       |

Preferred electives—H. E. 105-106, 112, 118; Physics 89-90.

### FOURTH YEAR

Preferred electives—H. E. 144-146, 148, 149, 150; Arch. 1-2.

GROUP II—FOOD AND NUTRITION

### FIRST YEAR

<table>
<thead>
<tr>
<th>Autumn Quarter</th>
<th>Winter Quarter</th>
<th>Spring Quarter</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>English 1</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Home Economics 7</td>
<td>2</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Phys. Ed.</td>
<td>1%</td>
<td>Phys. Ed.</td>
<td>1%</td>
</tr>
</tbody>
</table>

Preferred electives—H. E. 4, 8, 25; P. S. D. 3.

### SECOND YEAR

| Lang., Lit., or Hist. 5 | Lang., Lit., or Hist. 5 | Lang., Lit., or Hist. 5 |
| Bacteriology 101        | Bacteriology 102        | Psychology 1            |
| Chemistry 106           | Chemistry 104           | Chemistry 104           |

Preferred electives—H. E. 5-8.

### THIRD YEAR

| Economics        | 5             | Chemistry 104 | 4       |

Preferred electives—H. E. 107-108; Nursing 5; Physics 89-90.

### FOURTH YEAR

Preferred electives—H. E. 103, 148, 150, 100, 101 and related sciences.

GROUP III—SMITH-HUGHES TEACHER TRAINING

### FIRST YEAR

<table>
<thead>
<tr>
<th>Autumn Quarter</th>
<th>Winter Quarter</th>
<th>Spring Quarter</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>English 1</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Physiology 8</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Home Economics 7</td>
<td>2</td>
<td>Phys. Ed.</td>
<td>1%</td>
</tr>
<tr>
<td>Phys. Ed.</td>
<td></td>
<td></td>
<td>1%</td>
</tr>
</tbody>
</table>

Preferred electives—H. E. 4, 8, 25; P. S. D. 3.

If H. E. 4 and 8 are carried in high school, substitute H. E. 48 and Nursing 5.

### SECOND YEAR

| Lang., Lit., or Hist. 5 | Lang., Lit., or Hist. 5 | Lang., Lit., or Hist. 5 |
| Bacteriology 101        | Bacteriology 102        | Psychology 1            |
| Chemistry 106           | Chemistry 104           | Chemistry 104           |

Preferred electives—Bacteriology 101.

Home Economics 5        | 5             | Home Economics 6   | 6         | Bacteriology 101 | 5 |
### Autumn Quarter Credits
- Education 75...5
- Preferred electives—
  - Physics 89...5
  - Home Economics 112...5

### Winter Quarter Credits
- Education 85...8
- Physics 90...5
- Home Economics 113...5
- Home Economics 146...8

### Spring Quarter Credits
- Economics 1...5
- Education 119...3
- Sociology 1...5
- Home Economics 107-108...
- Home Economics 143...

### Fourth Year
- Home Economics 146...3
- Preferred electives—
  - Home Economics 148...2
  - Architecture 101-102

### GROUP IV—INSTITUTIONAL MANAGEMENT
To be taken by those who wish to fit themselves for the following vocations:
1. Dietitians.
3. Managers of tearooms, lunchrooms, cafeterias.
4. Food service in state, municipal, or charitable institutions.

### First Year

<table>
<thead>
<tr>
<th>Autumn Quarter</th>
<th>Credits</th>
<th>Winter Quarter</th>
<th>Credits</th>
<th>Spring Quarter</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>English 1</td>
<td>5</td>
<td>English 2</td>
<td>5</td>
<td>Chemistry 5</td>
<td>5</td>
</tr>
<tr>
<td>Physiology 8</td>
<td>5</td>
<td>Chemistry 5</td>
<td>5</td>
<td>Lang., Lit. or Hist.</td>
<td>5</td>
</tr>
</tbody>
</table>

- Preferred electives—H. E. 4, 25; P. S. D. 3; Law 54.

### Second Year

| Lang., Lit. or Hist. | 5 | Lang., Lit. or Hist. | 5 | Lang., Lit. or Hist. | 5 |
| Phys. Ed. 1         | 5 | Phys. Ed. 1         | 5 | Psychology 1        | 5 |

- Preferred electives—H. E. 5-6; Bact. 101.

### Third Year

| Economics 1         | 5 | Sociology 1         | 5 |
| Preferred electives—H. E. 107-108, 124, 143; Chem. 108, 144; Physics 89-90. |

### Fourth Year

- Preferred electives—H. E. 121, 122, 128, 125, 144, 145, 189, 190; B. A. 11; Arch. 1-2

### Group V—Textiles, Clothing and Fine Arts

#### Summary

<table>
<thead>
<tr>
<th>Credits</th>
<th>Credits</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>College requirements</td>
<td>64</td>
<td>Free electives</td>
</tr>
<tr>
<td>Fine Arts</td>
<td>81</td>
<td>Home Economics</td>
</tr>
<tr>
<td>Total</td>
<td>192</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Credits</th>
<th>Credits</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>College Requirements</td>
<td>10</td>
<td>Fine Arts</td>
</tr>
<tr>
<td>English</td>
<td>10</td>
<td>P. S. &amp; D. 8-10.11</td>
</tr>
<tr>
<td>Lang., Lit. or Hist.</td>
<td>20</td>
<td>P. S. &amp; D. 16-17-18</td>
</tr>
<tr>
<td>Labor. Science</td>
<td>10</td>
<td>P. S. &amp; D. 160-170</td>
</tr>
<tr>
<td>Physiology</td>
<td>5</td>
<td>Arch. 1-2</td>
</tr>
<tr>
<td>Economics</td>
<td>5</td>
<td>P. S. &amp; D. 111-112</td>
</tr>
<tr>
<td>Sociology</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Psychology</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Philosophy</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

- Total | 64 | Total | 81 | Physical Education | 12 |

- Total | 57 |
**D. PHYSICAL EDUCATION FOR WOMEN**

**FIRST YEAR**

<table>
<thead>
<tr>
<th>Autumn Quarter Credits</th>
<th>Winter Quarter Credits</th>
<th>Spring Quarter Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>English 1 .............. 5</td>
<td>Lang., Lit., History ... 5</td>
<td>English .............. 5</td>
</tr>
<tr>
<td>Lang., Lit., Hist., or Chemistry 5 .............. 5</td>
<td>Lang., Lit., Hist., or Elective 5</td>
<td></td>
</tr>
<tr>
<td>Elective .............. 5</td>
<td>Zoology 4 .............. 5</td>
<td>Elective .............. 5</td>
</tr>
<tr>
<td>Zoology 3 .............. 5</td>
<td>Phys. Ed. .............. 1½</td>
<td>Chemistry ............. 5</td>
</tr>
</tbody>
</table>

**SECOND YEAR**

| Phy. Ed. 54 .............. 5 | Phy. Ed. 55 .............. 5 | Sociology .............. 5 |
| Lang., Lit., Hist. or Elective .............. 5 | Anatomy 102 .............. 5 | Anatomy 103 .............. 5 |
| Phys. Ed. .............. 1½ | | |
| Preferred Electives | | |
| Physical Education 111. 3 | Physical Education 112. 3 | Physical Education 113. 3 |

**THIRD YEAR**

| Physics 89 .............. 5 | Physics 90 .............. 5 | Education ............. 85 |
| Preferred Electives | | |
| Phys. Ed. 104 (Dancing) 2 | Phys. Ed. 105 (Dancing) 2 | Phys. Ed. 106 (Dancing) 2 |
| Phys. Ed. 101 (Gymn.) 3 | Phys. Ed. 102 (Gynms.) 3 | Phys. Ed. 103 (Gymnms.) 3 |
| Phys. Ed. 103 (Correc.) 4 | Phys. Ed. 102 (Correc.) 4 | Phys. Ed. 103 (Correc.) 4 |

**FOURTH YEAR**

| Education 145 .............. 3 | Education 146 .............. 2 | Elective .............. 7 |
| Elective .............. 3 | Education 119 .............. 3 | |
| Preferred Electives— | | |
| Phys. Ed. 164 (Dancing) 2 | Phys. Ed. 154 (Dancing) 2 | Phys. Ed. 166 (Dancing) 2 |

If chemistry and physics have been taken in high school, Chemistry 5 and 6 and Physics 89 and 90 may be eliminated.

Of the preferred electives in physical education, the minimum is 58 and the maximum 64 credits.

A student may also use physical education as a major, following the prescriptions outlined under group I (curricula with major in one department).

**Courses**

For description of courses, see Departments of Instruction, printed elsewhere in this catalogue. (See Index.)

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**General Note.**—Each student is to be held either for the admission and graduation requirements of the catalogue under which he enters, or for those of the catalogue under which he graduates.
The Faculty

HENRY SITZALLO, Ph. D. (Columbia), LL. D. (California), President.

JOHN THOMAS CONDON, LL. M. (Northwestern), Dean of Faculties.

FREDERICK ELMER BOLTON, Ph. D. (Clark), Professor of Education; Dean.

FRED CARLETON AYER, Ph. D. (Chicago), Professor of Education.

*CLIFFORD WOODY, Ph. D. (Columbia), Professor of Education.

GEORGE EARL FREELAND, A. M. (Clark), Associate Professor of Education.

GEORGE HENRY JENSEN, B. S. (Valparaiso), Assistant Professor of Vocational Education and Supervisor of Teacher Training in the Trades and Industries.

CURTIS TALMAGE WILLIAMS, Ph. D. (Clark), Assistant Professor of Education.

PAUL WASHINGTON TERRY, Ph. D. (Chicago), Assistant Professor of Education.

HARLAN CAMERON HINES, Ph. D. (Iowa), Assistant Professor of Education.

DENNIS C. TROTHT, A. M. (Washington), Teaching Fellow in Education.

CAROLINE HAYEN OBER, Professor of Spanish.

TREVOR KINGCAID, A. M. (Washington), Professor of Zoology.

FREDERICK MORGAN PADELPOUL, Ph. D. (Yale), Professor of English; Dean of the Graduate School.

FREDERICK ARTHUR OSBORN, Ph. D. (Michigan), Professor of Physics; Director of the Physics Laboratories.

WILLIAM SAVETZ, Ph. D. (Harvard), Professor of Philosophy.

DAVID THOMSON, B. A. (Toronto), Professor of Latin; Dean of the College of Liberal Arts.

PETER JOSEPH FREIN, Ph. D. (Johns Hopkins), Professor of French.

THEODORE CHRISTIAN FRYE, Ph. D. (Chicago), Professor of Botany.

ROBERT EQUANID MORITZ, Ph. N. D. (Strassburg), Professor of Mathematics.

DAVID CONNOLLEY HALL, Sc. M., M. D. (Chicago), University Health Officer.

IRVING MACKENT GILLEN, A. M. (Oregon), Professor of Music; Dean of the College of Fine Arts.

JOHN WINZHEL, Dr. P. H. (Harvard), Professor of Bacteriology.

EDWIN JOHN VICKNES, Ph. D. (Minnesota), Professor of Scandinavian Languages.

EDWIN ISABEL RAITT, A. M. (Columbia), Professor of Home Economics.

WILLIAM PIERCE GOSSBACH, A. B. (Knox), Professor of Public Speaking and Debate.

STEVENSON SMITH, Ph. D. (Pennsylvania), Professor of Psychology.

STEPHEN IVAN MILLER, A. B. (Stanford), LL. B. (Michigan), Professor of Economics; Dean of the College of Business Administration.

HOWARD WOOLSTON, Ph. D. (Columbia), Professor of Sociology.

EDWARD McMAHON, A. M. (Wisconsin), Associate Professor of American History.

GEORGE WALLACE UMBREIT, Ph. D. (Harvard), Associate Professor of Spanish.

EDWIN JAMES SAYDEES, A. M. (Harvard), Assistant Professor of Geology.

ROBERT MAX GABRETT, Ph. D. (Munich), Assistant Professor of English.

HARVEY BRUCE DENSMORE, A. B. (Oxford), Assistant Professor of Greek.

ALLEN FULLER CARPENTER, Ph. D. (Chicago), Assistant Professor of Mathematics.

ERNST OTTO EUCKELMAN, Ph. D. (Heidelberg), Assistant Professor of German.

FRANCES DICKER, A. M. (Columbia), Assistant Professor of Music.

EDWIN R. GUTHRIE, Ph. D. (Pennsylvania), Assistant Professor of Psychology.

MAY EMMA GROSS, A. M. (Columbia), Assistant Professor of Physical Education.

WILLIAM WILSON, A. B. (Washington), Instructor in Psychology.

* Resigned.
Scope and Aims.—The curriculum of the College of Education assumes that teachers should have a broad and liberal education, supplemented by professional training which gives a knowledge of the pupils to be taught, the problems to be met, and new meaning to the subjects of instruction, as well as fundamental principles of teaching; and, that they should be masters of some special subject which they expect to teach.

The college is especially fitted to provide teachers of the following types: (1) high school teachers; (2) high school principals; (3) superintendents of public schools; (4) grammar school principals; (5) supervisors of primary schools; (6) supervisors and teachers of music, drawing, manual and industrial arts, home economics, physical training and other special subjects; (7) normal school and college instructors in education; (8) experts in educational research; (9) specialists in the education of defectives; (10) playground directors; (11) Y. M. C. A. and Y. W. C. A. workers; (12) juvenile court workers.

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

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

Professional Work.—The requirements for the academic major and minors secure a proper distribution of the academic subjects. The professional work consists (a) of the courses given in the department of education, (b) the teachers’ courses given in the various academic departments, and (c) the courses in zoology, psychology, and sociology, fundamental to those in education.
Special Teachers' Courses.—Many of the academic departments have teachers' courses for the purpose of studying the problems of teaching their subjects in the high schools. Work in special methods relating to particular subjects is given by those dealing most directly with the subject matter. Foundation principles of general methods as based upon the laws of learning and teaching are developed in the department of education.

Observation and Supervised Teaching.—By an arrangement between the University and the schools of Seattle students in the department of education may observe the regular work in certain schools (at present twelve are used) and do supervised teaching under direction of the regular teachers of the school and the university professor in charge of that work. In this way students have an opportunity to observe and gain valuable experience under exceptionally favorable conditions.

Industrial Arts.—While no separate department of industrial arts is maintained during the regular year, special attention has been devoted to this work during the summer quarter. A good curriculum may be secured during the regular academic year by selecting from the courses in engineering, fine arts, and education. Because of the excellent industrial arts work in the Seattle public schools, students have unusual facilities for observing the best organization and equipment. A large number of industrial centers and pre-vocational classes are maintained in various parts of the city.

Under the terms of the Smith-Hughes act "the training of teachers for trades and industries in resident work and extension work shall be conducted through the University of Washington, under the supervision of the State Board of Vocational Education, with the approval of the Federal Board."

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

Public School Music.—Not only is there a demand for specially trained supervisors of music in the schools, but every school needs teachers who can give some assistance in the general musical activities of the school and the community. Every teacher who has any musical ability ought to secure some training in music and participate in some of the musical organizations of the University.

Debating, Dramatics, Public Speaking.—Every teacher will be called upon to assist in the incidental work of the school. The small towns cannot afford special teachers of public speaking and debate and consequently the teacher who can assist in these lines
increases his usefulness. Every student should participate in some of these lines all through the college course and definite courses in them should be taken.

*Journalism in High Schools.*—Newspaper writing is being introduced in some of the best high schools as a part of the English course. It seems to afford a valuable incentive to many pupils in their English work. The teacher who undertakes this work needs to be especially well trained professionally as well as in English and journalism. For a proper combination of courses the student should consult the departments of education, English, and journalism.

*Commercial Subjects.*—At present the demand upon the University for teachers of commercial subjects far exceeds the supply. To prepare for this line of work the student should include courses in bookkeeping, stenography, commercial law, commercial policies, commercial geography, besides courses in economics, and the professional training in education.

*Teaching of Technical Subjects in College.*—Many students of engineering, forestry, law and other technical subjects ultimately plan to teach those subjects in colleges or technical schools. An increasing number of such students desire professional training in educational theory and methods as a part of their preparation.

*The Study of Education and Citizenship.*—Courses in education are valuable, not only for those who expect to teach, but also for those who expect to be citizens of any community. Many of the courses in education, therefore, are rightly coming to be pursued by students not expecting to become teachers.

*Extension Service.*—The department of education is glad to render service to the cause of education in many ways besides through the regular courses of instruction. Members frequently give addresses at teachers' institutes, parent-teachers' associations, educational associations, community centers, school dedications, school commencements, etc. They are also glad to conduct educational surveys as far as time will permit.

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

*Vocational Secretary.*—The University maintains a vocational secretary for the purpose of assisting students to secure desirable positions. The services of this officer are entirely free to students and graduates of the University and to employers.
Lines of Work.—Three lines of work are provided in the College of Education: (a) The course leading to the degree of bachelor of education; (b) the courses leading to the degrees of master of arts in education and master of science in education; (c) work leading to the degree of master of arts or master of science with education as a major subject; (d) work leading to the normal diploma and life diploma in connection with a degree from the College of Liberal Arts, the College of Science or the College of Education.

The College of Education is so organized that the student shall begin to think of the profession of teaching immediately upon entering the University. While the main work in education does not come until the junior and senior years, the student receives guidance and counsel from the outset in selecting his courses and is helped to get in touch with the professional atmosphere that should surround a teachers' college. The foundation work in zoology and psychology will be given as far as possible with the teaching profession in mind. It is planned to give some work of a general nature in education during the two first years that will serve as vocational guidance and will assist the student to arrange his work most advantageously and to accomplish it most economically. By the more prolonged individual acquaintance between students and the faculty of the College of Education it is hoped that the student will receive greater professional help and the faculty will be better able to judge of the teaching qualities of the students.

Under the new plan the student does not take so many required courses as formerly. The specific requirements in foreign language, physical science, mathematics, history and a half year of philosophy have been omitted. The student may elect these if he chooses. By this means the curriculum will be much more flexible and the student will be given the important educational privilege of choosing largely his own courses. This is in harmony with the idea of the greater vocationalizing of education.

The work of education and allied courses has been so extended that adequate professional preparation can now be secured. The courses in zoology, psychology, and sociology are all directly contributory to knowledge and interpretation of the courses in education.

A degree may be obtained at the end of the fourth year, but the standard which the University encourages and hopes to establish for high school teaching is the five-year course, consisting of thorough professional work combined with advanced academic work. Students expecting to teach are encouraged on entering to plan their courses for the master's degree in education. While the extended combined course is preferred it is possible for students with adequate preparation to secure the master's degree in a year of graduate work.
COLLEGE OF EDUCATION

REQUIREMENTS FOR ADMISSION

Full information regarding requirements for admission, registration, and expenses may be found on pages 45-51.

REQUIREMENTS FOR GRADUATION WITH THE DEGREE OF BACHELOR OF EDUCATION.

To secure the degree of bachelor of education the candidate must fulfill the following conditions:

1. Comply with the admission regulations as stated above.
2. Complete the requirements in college subjects as follows:

<table>
<thead>
<tr>
<th>Subject</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zoology, botany or geology</td>
<td>10</td>
</tr>
<tr>
<td>Psychology</td>
<td>5</td>
</tr>
<tr>
<td>Sociology</td>
<td>12</td>
</tr>
<tr>
<td>Physical education</td>
<td>36</td>
</tr>
<tr>
<td>Education</td>
<td>10</td>
</tr>
<tr>
<td>English</td>
<td></td>
</tr>
<tr>
<td>Teaching subjects:</td>
<td></td>
</tr>
<tr>
<td>(a) Two academic majors</td>
<td></td>
</tr>
<tr>
<td>(b) One academic major</td>
<td></td>
</tr>
<tr>
<td>and two academic minors</td>
<td></td>
</tr>
<tr>
<td>Free electives, depending upon the foregoing selections.</td>
<td></td>
</tr>
<tr>
<td>Total for graduation</td>
<td>192</td>
</tr>
</tbody>
</table>

1. An academic major consists of from 35 to 45 credits in some subject other than education. At the option of the major professor this may include the teachers' course.

2. An academic minor consists of from 20 to 30 credits in some subject other than education.

3. The distribution of the work in the academic majors and minors is under the advice of the dean of the College of Education and the head of the department in which the academic major is selected. The distribution of the majors and minors is considered in the light of the actual calls for teachers year by year.

Not later than the beginning of his junior year, each student in the College of Education is required to file with the Registrar,

* Students who have had one year in zoology in the high school may be excused from the laboratory work in zoology in the University, but shall be required to take the courses in evolution and eugenics. The distribution of the required work in zoology shall be determined by the head of the department of zoology.

If a student has taken one of these subjects (zoology, botany or geology) in the high school, he shall either take an advanced course in the given subject in college or an elementary course in one of the other subjects.

† All freshmen are given an opportunity to take an examination in English on entrance to the College of Education. Those whose standings are especially high in the examination may be excused from a part of the required ten credits.

‡ The student's free elective will vary from 15 to 60 credits, according to the exemption in English and the number of credits secured in the major and minor subjects.

††Beginning with 1921, a student who has not taken in high school the amount of foreign language which may be required for admission to the college that he plans to enter, will make up the deficiency in the University as part of his regular schedule of work, but without receiving college credit for it. For the College of Fine Arts, the requirement may be satisfied by 20 hours of a modern foreign language; for the Colleges of Liberal Arts, Science and Education, by 20 hours in any one foreign language.
a statement of his choice of majors (or major and minors) bearing
the written approval of the dean of the college and the heads of the
departments concerned.

4. The teachers' course in the academic major is required, if
offered.

5. The teaching subjects may be selected from any subjects
now recognized in the Colleges of Liberal Arts, Science, Fine Arts,
or Business Administration, and regularly taught in high schools.
Students may minor (but not major) in journalism.

6. The 36 credits in education required for the degree of
bachelor of education should include as foundation work the 18
credits required for the normal diploma. The work should also in­
clude a course in the history of education and one in childhood or
adolescence. The remainder of the work should be selected so as
to emphasize the line of special interest, as, for example, adminis­
tration, secondary education, educational psychology, child study,
etc.

7. Candidates for the bachelor's degree in the College of Edu­
cation must receive grades of A, B, or C in at least three-fourths
of the credits required for the degree. This rule does not apply to
grades given before the year 1910-1911.

8. Students are allowed to combine, in preparation for teach­
ing, courses from the departments of political science, sociology
and economics, for the academic majors or the academic minors.
Such combinations must be approved by the dean of the College of
Education and the head of the department in which the academic
major is selected.

9. Courses in manual and industrial arts, or in those com­
bined with drawing, will be accepted as a minor toward the degree
of bachelor of education.

10. Students in the College of Liberal Arts have the right to
major in the department of education. Students majoring in educa­
tion must take at least 36 credits. Students in the Colleges of
Science, Engineering, Forestry, Mines, Law, Pharmacy, Fine Arts,
and Business Administration may elect courses in education accord­
ning to conditions fixed by those colleges.

FRESHMAN YEAR

During the freshman year the student should aim to take ap­
proximately the following work:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td>10</td>
</tr>
<tr>
<td>Zoology, botany or geology</td>
<td>10</td>
</tr>
<tr>
<td>Physical education</td>
<td>5</td>
</tr>
<tr>
<td>Psychology</td>
<td>5</td>
</tr>
<tr>
<td>Sociology</td>
<td>5</td>
</tr>
<tr>
<td>Introduction to education (How to study)</td>
<td>5</td>
</tr>
<tr>
<td>Probable academic major</td>
<td>10</td>
</tr>
</tbody>
</table>
COLLEGE OF EDUCATION

ELECTIVES OPEN TO FRESHMEN

Languages: English, French, German, Italian, Scandinavian, Spanish.

Sciences: Astronomy, botany, chemistry, geology, home economics, mathematics, physics, zoology.

Social and Philosophical Subjects: Economics, education, history, journalism, philosophy, political science, psychology, sociology.

Fine Arts: Drawing, design, music, painting, dramatic art.


SOPHOMORE YEAR

During the sophomore year the student should continue physical education. If psychology and sociology have not been taken in the freshman year they should be taken during the first quarter of the sophomore year. Principles of Education should be taken during the sophomore year, the academic major should be continued, and at least one academic minor begun. The range of electives open to sophomores is very wide. For limitations see the departmental statements.

JUNIOR AND SENIOR YEARS

During the junior and senior years about five hours of work in education will be necessary each quarter. The academic major and minors should also be completed. The remainder of the work is elective.

ADMISSION OF NORMAL SCHOOL GRADUATES TO ADVANCED STANDING

Graduates of the normal schools of this state and of institutions of like standing elsewhere, who are likewise graduates of accredited four-year high schools, are admitted to full junior standing in the College of Education. For graduation with the degree of bachelor of education, these students are required to earn a minimum of 90 credits in this University, including the satisfaction of such of the requirements for graduation as have not been fairly covered by previous work. The distribution of the majors and minors is considered in the light of actual calls for teachers year by year. The presumption is that they will take all the required subjects in the College of Education for which they have not had a fair equivalent elsewhere. Requests for modification of this procedure will be considered by the committee on graduation only when recommended by the dean of the college.

Graduates from the approved normal schools who major in education in the College of Liberal Arts may be exempted from such portions of the work in education as they have completed satisfactorily in the normal school, such exemption to be granted only upon the recommendation of the head of the department of education. Claims for advanced university credit based on excess normal credit will be passed on by a committee consisting of the registrar, the dean of the College and the heads of the departments concerned.
Requirements for Normal Diplomas and Life Diplomas

The University is authorized by law to issue teachers' diplomas, valid as teachers' licenses in all public schools of the state, as described below. Candidates for these diplomas should consult with the dean of the College of Education as early as possible regarding their work for the diploma and their preparation for teaching.

1. The University Five-Year Normal Diploma, valid for a period of five years from date of issue, is granted on the following conditions:

   1. (a) Graduation from this University from the Colleges of Liberal Arts, Science, Education, Fine Arts, or Business Administration, (see also following paragraph); (b) Completion of at least 18 credits (quarter hours) in the department of education; (c) completion of a teachers' course in the major academic subject, if offered, maximum, 9 credits; (d) general psychology, 5 credits; (e) evidence of such general scholarship and personal qualities as give promise of success and credit in the profession of teaching. Legible handwriting, good spelling, and correct English are indispensable. Active interest in the prospective work of a teacher will be considered.

   Graduates of the professional schools and colleges are eligible to the University normal diplomas and the life diplomas, provided they have completed the requirements in psychology and education and a teachers' course in some academic subject and give evidence of fitness to teach.

   The courses in education include the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Principles of Education</td>
<td>5</td>
</tr>
<tr>
<td>Educational Sociology</td>
<td>3</td>
</tr>
<tr>
<td>High School curriculum</td>
<td>3</td>
</tr>
<tr>
<td>Methods of teaching</td>
<td>3</td>
</tr>
<tr>
<td>Practice of teaching</td>
<td>5</td>
</tr>
</tbody>
</table>

   The department reserves the right to adjust these requirements in education subject to individual cases. Variations will sometimes need to be made in the case of normal school students, persons who have taken education courses in summer sessions, and teachers with considerable experience. No deviations will be permitted except on approval of the dean of the College of Education.

   2. Persons who have received the master's or doctor's degree from this University are eligible to the University five-year normal diploma, provided they have fulfilled the specific requirements exacted of those with the bachelor's degree.

   3. Graduates of other accredited colleges or universities than the University of Washington who desire the University five-year normal diploma are required to be in residence in this University at least one quarter subsequent to graduation and to earn not less
than 15 credits in approved subjects. Of these 15 credits 5 credits must be in courses in education approved by the dean of the College of Education, and 10 credits in teaching subjects, in courses approved by the major professor. They must have earned here or elsewhere at least 5 credits in psychology, a total of 18 credits in education, and have completed a teachers' course in an academic subject. Probably most persons coming as graduates from other accredited colleges or universities who wish to earn a Washington teacher's certificate in one quarter would do better to complete the required 18 credits in education, and then have the credits certified to the State Board of Education who will issue a five-year state certificate entitling the holder to teach in Washington.

4. The use of education as the only teaching subject (or major subject) is (for normal diploma) limited to cases of men and women in administrative positions whose undergraduate work shows a fair preparation in two or more high school subjects.

5. Graduates of the advanced courses of state normal schools who subsequently graduate from this University and who become candidates for the University five-year diplomas must earn at least 12 credits in education in this University.

6. Normal school graduates must qualify for the University normal diploma or life diploma to be eligible to teach in high schools. The diplomas from the normal schools qualify the holders for elementary schools only. The work in the University must include courses 75, Principles of Education; 85, Educational Sociology; 119, High School Curriculum. Any deviation must be approved by the dean of the College of Education.

II. The University Life Diploma is granted to candidates who fulfill the requirements for the University five-year diploma and also give satisfactory evidence of having taught successfully for at least twenty-four months.

Education

Sociology and zoology as well as psychology are very desirable as a foundation for the study of education. The courses in principles of education and social foundations of education are fundamental to all other courses in education. Students should take psychology during the freshman or the sophomore year, and principles of education in either the last half of the sophomore year or the first half of the junior year. This should be followed by educational sociology, the high school curriculum, and methods of teaching; practice teaching should be taken in the senior year. Students who major in the department should take all of the fundamental courses required for the normal diplomas and then select enough to total 36 credits in the department. Major students in edu-
cation must take course 186, Educational Measurements or 171, Experimental Education. They should also include child study or adolescence.

Psychology 1 is prerequisite to all courses in education except Education 1. In exceptional cases Psychology 1 may be taken concurrently, but only on the approval of the dean of the College of Education.

The dean of the College of Education may accept as the equivalent of such a fundamental course in psychology the incidental psychological training which may have been received by experienced teachers, with the understanding that they are eventually to take psychology as part of the professional work.

Requirements for Academic Majors and Minors and Recommendations for the Normal and Life Diplomas

"An academic major consists of from 35 to 45 credits in some subject other than education. At the option of the major professor this may include the teachers' course.

"An academic minor consists of from 20 to 30 credits in some subject other than education.

"The teachers' course in the academic major is required, if offered."

The foregoing means that in order to fulfill the requirements for the academic major the student must secure a minimum of 35 credits and may count for the academic major a total of 45 credits. The major professor may require in addition the teachers' course.

For the academic minor the student must secure a minimum of 20 credits and may offer 30 credits toward the academic minor. The student determines whether more than 35 credits are to be earned for the major or more than 20 credits for the minor. The departments may require additional work for recommendations to teach the subjects or for the normal or life diploma recommendations.

Below are listed the courses specified by the various departments for the academic majors and minors in the College of Education. Those who expect major or minor recommendations by the academic departments for teaching or on the normal or life diplomas, as required by the State Board of Education, should comply with the requirements made by the various departments. However, the academic major or minor graduation requirements will be fulfilled with the minimum of 35 or 20 credits respectively. For descriptions of the courses see the respective department statements.
ASTRONOMY

*Academic Minor* (major not offered): Courses 1, 2, 112, 123, 131. It is recommended that students who wish to combine astronomy with mathematics or physics add course 172.

BACTERIOLOGY

*Academic Major*: Courses 101, 102, 103, 201, 202, 203, and 9 hours selected from 210-211-212, 213-214-215; total 36 credits.

*Academic Minor*: Courses 101, 102, 103, and from numbers above 200 enough to total 20 credits.

BOTANY

*Academic Major*: Minimum 35 credits, including courses 105, 106, 107, and 140, 141, 142, or 143, 144, 145.

*Academic Minor*: Minimum 20 credits of which at least 15 credits should be in courses above 100. For a minor recommendation to teach botany at least 25 credits.

Major students in botany should take at least a year of chemistry.

CHEMISTRY

*Academic Major*: Courses 21-22-23, 101, 111, 131-132; minimum 35 credits.

*Academic Minors* Courses 21-22-23, 101, 111, or (131-132); or course 5-6, 135-136; minimum 20 credits. To be recommended to teach the subject the student must add 23 or 101; total 25 credits.

For the minor, students should have had at least high school physics; for the major they should have a year of college physics. Grades must average at least C to secure a recommendation for teaching chemistry.

CIVICS

*Academic Major*, combining Political Science, Sociology and Economics: Political Science 1, Sociology 1, Economics 1, and one of the following groups: Political Science, 10, 60, 100, Political Science, electives; Sociology 29, 51, 55, 56, 60; Economics 57, 61, 105, 160; minimum 35 credits.

*Academic Minor*: Political Science 1, Economics 1, Sociology 1, and 5 (for teaching recommendation 10) additional from one of the three subjects; minimum 20 credits.
CLASSICAL LANGUAGES AND LITERATURE

**Academic Major in Latin**: Latin 4, 5, 6, Greek 1 and 2, Latin 50 or 60 or 70, and Latin 103-104-105; total 39 credits.

**Academic Minor in Latin**: Latin 4, 5, 6; and two of 50, 60, 70; or 103-104-105; total 25 or 24 credits.

**Academic Major in Greek**: Greek, 1, 2, 3, 4, 5, 11, 101-102-103, Latin 10 credits; total 40 credits.

**Academic Minor in Greek**: Greek 1, 2, 3, 4, 5, 11; total 26 credits.

COMMERCIAL TEACHING

See Economics and Business Administration.

DRAMATIC ART

**Academic Major**: Courses 1-2-3, 21-22-23, 101-102-103, 111-112-113; total 45 credits.

**Academic Minor**: Courses 1-2-3, 21-22-23, 101-102-103; total 30 credits.

DRAWING

**Academic Major**: Courses 5-6-7, 9-10-11, 16-17-18, 101, 153, and either 53-54-55, or 103-104 or 105-106; total 36 to 42 credits.

**Academic Minor**: Courses 5-6-7, 9-10-11, 16-17-18, 101, 153; total 30 credits.

ECONOMICS AND BUSINESS ADMINISTRATION

**Academic Major**: Courses 1, 57, 61, 105, 160; electives to total minimum of 35 credits.

**Academic Minor**: Courses 1, 57, 61; electives to total minimum of 20 credits.

See also Civics for combinations with Political Science and Sociology.

COMMERCIAL TEACHING

**Academic Major**: Courses 11, 12, 54, 55, 65, 182; minimum 35 credits.

If more are elected 101-102 is recommended.

**Academic Minor**: Courses 11, 12, 64, 65; minimum 20 credits.

Shorthand and typewriting are almost absolutely necessary for commercial teaching in high school and should be taken although no college credit is given.
ENGLISH

Academic Major: Freshman composition, teachers' course 188-180-190, senior conference 191-192-193, electives to total 35 credits, exclusive of freshman composition.

Academic Minor: 20 credits exclusive of freshman composition.

For either a major or a minor it is desirable to divide the time between the extensive courses which give broad surveys and the intensive courses which deal critically with limited periods or movements.

FINE ARTS

(See Drawing and Music.)

GEOLOGY

Academic Major: Courses 1 or 12, 2, 10, 11, 21, 31, 116, 120; minimum 36 credits.

Academic Minor: Courses 1 or 12, 2, 21; minimum 20 credits.

GERMANIC LANGUAGES AND LITERATURE

Academic Major: Minimum 35 credits. Must include or add course 160-161-162.

Academic Minor: Minimum 20 credits.

Major Recommendation for teaching, at least 30 credits in courses above 100, and include or add course 160-161-162.

HISTORY

Academic Major: Minimum 35 credits, including course 1-2. Electives on advice of the head of the department.

Academic Minor: Minimum 20 credits, including 1-2, or 5-6, or 57-58. Electives on advice of the head of the department.

HOME ECONOMICS

Academic Major: Courses 4, 5-6, 7, 8, 25, 107-108, 112-113, 143, 144-145, 146-147, 148; total 56 credits.

Academic Major in Food and Nutrition: Courses 4, 5-6, 7, 43 or 144, 107-108, 145, 146-147, 148; total 39 credits.

Academic Minor in Food and Nutrition: Courses 5-6, 7, 107-108, 145, 146-147; total 28 credits.
**Academic Minor** in Textiles and Clothing: Courses 7, 8, 25, 112-113, 143, 146; total 26 credits.

**Academic Major** in Textiles and Clothing: In addition to the minor 148, and at least 8 credits from 130, 133, 135; total 36 credits.

**Journalism**

**Academic Minor:** Courses 51-52-53, 101-102-103, 120-121-122, 150-151; total 30 credits.

**Academic Major** in Journalism not offered in the College of Education.

**Mathematics**

**Academic Major:** Minimum 35 credits, including courses 5, 109, 127.

**Academic Minor:** Minimum 20 credits, including courses 4, 5.

**Music: (Public School)**

**Academic Major:** Courses 1-2-3, 4-5-6, 7-8-9, 14-15-16, 51-52-53, 54-55-56, 113-114-115; total 45 credits.

**Academic Minor:** Courses 1-2-3, 7-8-9, 14-15-16, 54-55-56; total 24 credits.

**Philosophy**

**Academic Major:** Minimum 35 credits, including course 101-102-103.

**Academic Minor:** Minimum 20 credits, including course 101-102-103.

**Physical Education for Women**

**Academic Major:** Total of 45 credits including 101-102-103, 104-105-106, 111-112-113, 131, 154-155-156, 170. Education 140 additional in all cases unless excused. Electives will be chosen to suit different needs under advice of the head of the department of physical education, and the dean of the college of education. Anatomy 101-102-103, and Physiology 54-55 are prerequisite to certain of the foregoing courses. The courses in physiology or anatomy may be offered as an academic minor in physiology.

Students desiring to prepare for **Community Recreation and Leadership** may select the following combination for an academic major in the Department of Physical Education:

**Academic Major:** Dramatic Art 31; Sociology 1, 55, 57, 62; Drawing 169, 170, 171; Physical Education 104-105-106, 111-112-113, 154-155-156, 167, 169, 170-171-172, 179; minimum 34 credits.

(Anatomy or other Sciences not required for the courses in physical education mentioned in the foregoing paragraph.)
**PHYSICS**

*Academic Major*: Courses 1, 2, 3, and not less than 20 credits from other courses under 200; minimum 35 credits.

*Academic Minor*: Courses 1, 2, 3, and not less than 5 credits from other courses under 200; minimum 20 credits.

Recommendation as a major or minor for the normal diploma same as the foregoing with all grades above C.

**POLITICAL SCIENCE**

*Academic Major*: Courses 1, 10, 60, 100, and electives to make minimum of 35 credits.

*Academic Minor*: Courses 1, 10, 60, 100, minimum 18 credits.

For teaching civics, courses in history, economics and sociology are desirable as supporting subjects. See also "civics" for combination with economics and sociology.

**PSYCHOLOGY**

*Academic Major*: Courses 1, 101, 106, 109, 111, 112, 114, 124 and electives to make a minimum of 35 credits.

*Academic Minor*: Courses 1, 106, 112, 114, and electives to make a minimum of 20 credits.

Recommendations for the normal diploma are made on the basis of quality rather than merely the required number of credits. Only high grade students can be recommended because of the specialized character of psychology work as a teaching subject.

**ROMANIC LANGUAGES AND LITERATURE**

*Academic Major*: Minimum of 35 college credits in one language.

*Academic Minor*: Minimum of 20 college credits in one language.

*Recommendation for Teaching French*: Courses 1-2-3, 4-5-6, 7-8-9, 41, 101-102-103, 191-192-193, electives from literary course 10 credits; total 58 credits.

*Recommendation for Teaching Spanish*: Courses 1-2-3, 4-5-6, 7-8-9, 101-102-103, electives from literary courses 10 credits; total 55 credits.

In many cases a part of the French or Spanish courses may have been taken in high school.

The distinction between major and minor recommendations for teaching French or Spanish are determined upon the basis of quality rather than quantity.
SCANDINAVIAN LANGUAGES AND LITERATURE

*Academic Major*: Minimum 35 credits.

*Academic Minor*: Minimum 20 credits.

Suggested minors in Swedish: Courses 1-2-3, 23-24-25, 103-104-105; minimum 21 credits.

Because of the diversity of previous preparation it will be necessary to consult the head of the department in each case.

**SOCIOLoGY**

*Academic Major*: Courses 1, 29, 51, 55, 56, 60, and electives to make a minimum of 35 credits.

*Academic Minor*: Courses 1, 29, 51, and electives to make a minimum of 20 credits.

Electives may be along one of three lines, viz: anthropology, social theory or social problems. Important basic and supplementary subjects, zoology, psychology, statistics, political science.

See civics for combination with economics and political science.

**ZOOLOGY**

*Academic Major*: Courses 1-2 or 54-55 and electives to make a minimum of 35 credits.

*Academic Minor*: Courses 1-2 or 54-55 and electives to make a minimum of 20 credits.

**Courses**

For description of courses, see Departments of Instruction, printed elsewhere in this catalogue. (See Index.)
LIBRARY SCHOOL

THE FACULTY

HENRY SUZALLO, PH. D. (Columbia), LL. D. (California), PRESIDENT.

JOHN THOMAS CONDON, LL. M. (Northwestern), DEAN OF FACULTIES.

WILLIAM EMER HENRY, A. M. (Indiana), Professor of Library Science; DIRECTOR.

CHARLES WEBLEY SMITH, A. B., B. L. S. (Illinois), Associate Professor of Library Science.


ROBINSON SPENCER, A. B. (Wesleyan University), B. L. S. (Illinois), Instructor in Library Science.

EVELYN MAY BLODGETT, A. B. (Vassar), (Pratt Institute School of Library Science), Instructor in Library Science.

THE LIBRARY SCHOOL

The Library School is a professional school offering opportunity for education in librarianship.

Being an educational institution, the library should not be entrusted to persons of merely elementary acquirements. Its conduct requires a larger and more comprehensive educational equipment and outlook than can be had with less than that signified by the bachelor's degree.

The technical curriculum extends through three quarters—short in comparison with the academic curriculum, because the general educational equipment of the librarian is of larger significance than the technical education, but neither is sufficient without the other.

Graduates of the School are competent to take charge of a small public library or to take an assistant's place in any department of the larger libraries. After a reasonable experience in either of these positions, they have shown themselves competent to conduct libraries of medium size with excellent success.

ADMISSION

Admission 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 the equivalent of at least twenty college credits in each of two modern foreign languages, German and French preferred. Slight deficiencies in the languages, however, may be accepted as conditions, but must be removed within the period of study in the Library School. Upon the completion of forty-six credits in library science, and the removal of any language conditions, the candidate will be granted the degree of bachelor of science in library science.
2. To students who have qualified for senior standing in the College of Liberal Arts or in the elective curricula in the College of Science—having earned 147 credits, including 12 credits in military science or physical education and including all required work. Such students may finish the curriculum in three quarters, provided they meet the language requirements prescribed in paragraph one above. The completion of forty-six credits in library science shall constitute and satisfy the requirements for the degree of bachelor of arts.

ADVISORY SUGGESTIONS

Before entering the School the student should be able to operate a typewriting machine with accuracy and fair speed.

No one with serious physical defects or in ill health can readily secure a position in library service, therefore such persons should not ask admission to the School.

Persons beyond thirty years of age are advised not to enter the School unless they have already had experience in library service.

CURRICULA IN LIBRARY SCIENCE

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Order, accession and trade bibliography</td>
<td>1</td>
</tr>
<tr>
<td>Circulation administration</td>
<td>1</td>
</tr>
<tr>
<td>Classification and subject headings</td>
<td>3</td>
</tr>
<tr>
<td>Cataloging</td>
<td>6</td>
</tr>
<tr>
<td>Reference</td>
<td>6</td>
</tr>
<tr>
<td>History of books and libraries</td>
<td>2</td>
</tr>
<tr>
<td>Organization and extension</td>
<td>2</td>
</tr>
<tr>
<td>Administration</td>
<td>2</td>
</tr>
<tr>
<td>Subject bibliography</td>
<td>2</td>
</tr>
<tr>
<td>Book selection</td>
<td>7</td>
</tr>
<tr>
<td>Work with children and schools</td>
<td>2</td>
</tr>
<tr>
<td>Special lectures</td>
<td>1</td>
</tr>
<tr>
<td>Special study of specific libraries</td>
<td>1</td>
</tr>
<tr>
<td>Practice (300 clock hours)</td>
<td>10</td>
</tr>
</tbody>
</table>

Each recitation or lecture period presupposes two hours preparation and twelve such periods are counted as one credit, and thirty clock hours of practice are counted as one credit.

Practice.—Practice under careful supervision covers 300 clock hours, fifteen hours per week through ten weeks each during the winter and spring quarters.

The practice time is divided about equally between the University Library and the Seattle Public Library.

The Seattle Public Library offers rather unusual opportunities for students to practice in varied phases of work under careful supervision of trained librarians of large experience.

COURSES

For description of courses, see Departments of Instruction, printed elsewhere in this catalogue. (See Index.)
COLLEGE OF BUSINESS ADMINISTRATION

THE FACULTY

HENRY SUZZALLO, PH. D. (Columbia), LL. D. (California), President.

JOHN THOMAS CONDON, LL. M. (Northwestern), Dean of Faculties.

STEPHEN IVAN MILLER, JR., A. B. (Stanford), LL. B. (Michigan), Professor of Economics; Dean.

LESLIE JAMES AYES, B. S., J. D. (Chicago), Professor of Law.

THOMAS L. KIBLER, PH. D. (George Washington University), Professor of Business Administration.

HOWARD T. LEWIS, M. A. (Wisconsin), Professor of Business Administration.

JAMES E. GOULD, A. M. (Harvard), Professor of Navigation; Dean of Men.

VANDERVEER CUSTIS, PH. D. (Harvard), Associate Professor of Business Administration.

HARRY E. SMITH, PH. D. (Cornell), Associate Professor of Business Administration.

WILLIAM D. MOSAERTY, PH. D. (Michigan), Associate Professor of Business Administration.

WILLIAM E. COX, A. M. (Texas), Associate Professor of Business Administration.

HOWARD H. PRESTON, PH. D. (Iowa), Associate Professor of Business Administration.

THERESA S. MCMAHON, PH. D. (Wisconsin), Assistant Professor of Business Administration.

MAGY M. SKINNER, PH. D. (Harvard), Assistant Professor of Business Administration.

CARL S. DAKAN, B. S. (Missouri), Assistant Professor of Business Administration.


HOMER E. GREGORY, A. M. (Chicago), Instructor in Business Administration.

OSCAR E. DRAFES, Instructor in Business Administration.

KARL LEID, A. B. (Stanford), Instructor in Business Administration.

V. V. TARRILL, M.B.A. (Harvard), Instructor in Business Administration.

J. G. DRISCOLL, A. B., LL. B. (Stanford), Instructor in Business Administration.

HAROLD TURNER, Teaching Assistant in Business Administration.

HORACE D. McGUIRE, Teaching Assistant in Business Administration.

FREDERICK W. WOODRIDGE, Teaching Assistant in Business Administration.

PAUL ELSWORTH, Teaching Assistant in Business Administration.

FREDERICK M. PADELFORD, PH. D. (Yale), Professor of English; Dean of the Graduate School.

EDWARD McMAHON, A. M. (Wisconsin), Associate Professor of American History.

WILLIAM SAVERT, PH. D. (Harvard), Professor of Philosophy.

ROBERT EDUARD MORITZ, PH. D. (Nebraska), Ph. n.D. (Strassburg), Professor of Mathematics.

HENRY KREITZER BENSON, PH. D. (Columbia), Professor of Chemical Engineering.

CARL EDWARD MAGNUSON, PH. D. (Wisconsin), E. E (Minnesota), Professor of Electrical Engineering; Dean of the College of Engineering.

FREDERICK ELMER BOLTON, PH. D. (Clark), Professor of Education; Dean of the College of Education.

EFFIE ISABEL RAITT, A. M. (Columbia), Professor of Home Economics.

STEVENVSON SMITH, PH. D. (Pennsylvania), Professor of Psychology.

(105)
Modern business has reached that stage where internal and external economies must be realized. The industrial management of today seeks to reduce waste in materials and labor, and to promote the most effective organization of the factors of production. Such a task requires not only special knowledge, but also vision of the highest order.

A knowledge of accounting, statistics, labor efficiency, resources, credit, insurance, business law and organization, is fundamental for a proper understanding and an intelligent direction of our modern industrial system. Such studies as psychology, sociology, government, ethics, and history provide the larger equipment necessary for dealing with this industrial system in its proper perspective and its social relationships.

The establishment of a well-ordered plant is the basis of a strong position in production. Just as important is the problem of successfully moving the product to the consumer. Markets are no longer local, but national and even international. Every business man has occasion to study salesmanship, advertising, transportation routes and rates, banking, exchange, tariffs and government regulation. The more extended state control of industry especially is calling for unusual ability to cooperate.

The College of Business Administration aims to train students to meet the general as well as the specific problems of modern industry.

**Requirements for Admission**

Full information regarding requirements for admission, registration, and expenses may be found on pages 39-51.

*Additional Requirements.*—The faculty of the College of Business Administration reserves the right to ask for additional work from students who present such irregular or specialized credit as to constitute an insufficient basis for high standard in their college subjects.

**Graduation**

*Degrees.*—The College of Business Administration is a professional college, and its graduates receive the degree of bachelor of business administration. The degree of bachelor of business administration will be conferred upon any student who has fulfilled the entrance requirements and who presents 192 credits in subjects required or approved by the faculty of the College of Business Administration.

The degree of master of business administration will be conferred upon students who continue their work for an additional year, after completing the requirements for the degree of bachelor
of business administration. Students will not be advised to do graduate work unless they have shown unusual ability in their previous courses. All graduate work must be selected after a consultation with the instructor in charge of the special department in which the student is interested, and after the approval of the dean of the College of Business Administration.

Students entering from other colleges and universities must satisfy not only the general requirements of the University, but also the requirements of the College of Business Administration.

Not less than three-fourths of the credits required for graduation must be earned with grades of A, B, or C.

Curricula.—All students in the College of Business Administration must have their selection of courses approved each quarter by a member of the college faculty. The college requires the following courses:

<table>
<thead>
<tr>
<th>FIRST YEAR</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>B. A. 1 General Economics. Autumn, winter, spring, summer. Lecture and discussion groups. Five hours.</td>
<td>5</td>
</tr>
<tr>
<td>B. A. 7 Economic Resources of the World. Autumn, winter, spring, summer. Five hours.</td>
<td>5</td>
</tr>
<tr>
<td>B. A. 11-12 Elementary Accounting. Autumn, winter, spring, summer. Two quarters.</td>
<td>10</td>
</tr>
<tr>
<td>Math. 11-12 Mathematical Theory of Investments. Autumn, winter, spring, summer. Two quarters.</td>
<td>10</td>
</tr>
<tr>
<td>Eng. 1-2 *Written and Oral English. Autumn, winter, spring, summer. Two quarters</td>
<td>10</td>
</tr>
<tr>
<td>Psych. 1 Elements of Psychology. Autumn, winter, spring, summer. Five hours.</td>
<td>5</td>
</tr>
</tbody>
</table>

*If not credited, substitution of approved electives in College other than the College of Business Administration.

<table>
<thead>
<tr>
<th>SECOND YEAR</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>History Nine or ten hours. Two quarters required</td>
<td>9 or 10</td>
</tr>
<tr>
<td>B. A. 57 Money and Banking. Autumn, winter, spring, summer.</td>
<td>5</td>
</tr>
<tr>
<td>B. A. 54-55-56 Business Law. Autumn, winter, spring, summer. Three quarters required.</td>
<td>9</td>
</tr>
<tr>
<td>B. A. 61 Social and Economic Standards of Living or Sociology I. Autumn, winter, spring, summer.</td>
<td>5</td>
</tr>
<tr>
<td>Math. 13 Theory of Statistics. Autumn, winter, spring, summer. (Or five hours of approved electives in any College other than that of Business Administration.)</td>
<td>5</td>
</tr>
<tr>
<td>Approved Electives. Ten hours of accounting or equal number of hours in other colleges than that of Business Administration.</td>
<td>11 or 12</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>THIRD YEAR</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pol. Sci. 1 Elements of Government. Autumn, winter, spring, summer. One quarter required</td>
<td>5</td>
</tr>
<tr>
<td>Approved electives. 40 hours.</td>
<td>40</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>FOURTH YEAR</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phil. 2 Introduction to Social Ethics. Autumn, winter, spring, summer. One quarter required.</td>
<td>5</td>
</tr>
<tr>
<td>B. A. 160 Advanced Economics. Autumn, winter, spring, summer. One quarter required.</td>
<td>5</td>
</tr>
<tr>
<td>Research Five hours in selected major department.</td>
<td>5</td>
</tr>
<tr>
<td>80 credits of approved electives</td>
<td>80</td>
</tr>
</tbody>
</table>

The requirements of the first two years are made sufficiently broad to establish a foundation for the profession of business, regardless of the particular field in which the student may later be interested.
No student is allowed to enter the junior-senior courses of the College of Business Administration unless he has (a) reached at least junior standing and (b) satisfied the prerequisites to these courses.

The prerequisites to the junior-senior courses have been established after the most careful consideration of (a) the standard of efficiency and performance aimed at in the course, and (b) the educational value which the course might have for the student. It has been decided that to admit students who have not completed the carefully arranged prerequisites would imperil not only the quality of the work of the instructor, but also would make it impossible for the students to gain the full benefit of the course. But the college realizes that certain just claims to exceptions from the above rules could be presented, and has decided that exceptions can be granted to those 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 upon by the dean of the college of Business Administration.

The junior and senior years are, in large part, reserved for the student's selected field of business interest. Each student or group of students will be guided and assisted by the instructor designated for that department of work, under the general direction of the dean of the College of Business Administration.

Fields of Training.—The following fields of business training are suggested:

1. Accounting
2. Business Finance
3. Industrial and Employment Management
4. Marketing and Sales
5. Merchandising
6. Advertising
7. Transportation
8. Maritime Commerce
9. Foreign Trade
10. Insurance
11. Secretarial Work
12. Commercial Teaching

Suggested Courses for the Professional Fields

In the first year the student fulfills the standardized requirements (see pages 43-44).

For the second, third and fourth years the following courses are suggested.*

**Accounting**

**Second Year** Accounting, 10 credits.

<table>
<thead>
<tr>
<th>Autumn Quarter</th>
<th>Winter Quarter</th>
<th>Spring Quarter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advanced Accounting</td>
<td>5</td>
<td>Advanced Accounting</td>
</tr>
<tr>
<td>Business Organization</td>
<td>5</td>
<td>Corporation Finance</td>
</tr>
<tr>
<td>Political Science</td>
<td>5</td>
<td>Banking Practice and Accounting</td>
</tr>
<tr>
<td>Cost Accounting and Installation</td>
<td>5</td>
<td>Auditing Practice and Professional Ethics</td>
</tr>
<tr>
<td>Corporation and Railroad Accounting</td>
<td>5</td>
<td>Income Tax and C.P.A.</td>
</tr>
<tr>
<td>Social Ethics</td>
<td>5</td>
<td>Advanced Economics</td>
</tr>
<tr>
<td>Office Management</td>
<td>5</td>
<td>Research in Accounting</td>
</tr>
</tbody>
</table>

*No student will be permitted to specialize in a field of work without having had his schedule approved by the major professor in charge of that field.
### COLLEGE OF BUSINESS ADMINISTRATION

#### BUSINESS FINANCE

**SECOND YEAR**  
Second Year Accounting, 10 credits.

<table>
<thead>
<tr>
<th>THIRD YEAR</th>
<th>Autumn Quarter</th>
<th>Credits</th>
<th>Winter Quarter</th>
<th>Credits</th>
<th>Spring Quarter</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Business Organization</td>
<td>5</td>
<td>Corporation Finance</td>
<td>5</td>
<td>Investments and Speculation</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Foreign Exchange</td>
<td>5</td>
<td>Banking Practice</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Political Science</td>
<td>5</td>
<td>Social Ethics</td>
<td>5</td>
<td>Commercial Credits</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Business Statistics</td>
<td>5</td>
</tr>
</tbody>
</table>

**FOURTH YEAR**  
Economics of Transportation | 5 | Railroad Finance | 5 | Advanced Money and Banking | 5 |
Risk and Social Insurance | 5 | | 5 | Research in Business Financing | 5 |
Approved Electives | 5 | | 5 | Research in Business Finance | 5 |

### INDUSTRIAL AND EMPLOYMENT MANAGEMENT

**SECOND YEAR**  
Second Year Accounting, 10 credits.

<table>
<thead>
<tr>
<th>THIRD YEAR</th>
<th>Autumn Quarter</th>
<th>Credits</th>
<th>Winter Quarter</th>
<th>Credits</th>
<th>Spring Quarter</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Business Organization</td>
<td>5</td>
<td>Corporation Finance</td>
<td>5</td>
<td>Business Statistics</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Economics of Markets</td>
<td>5</td>
<td>Sales Management</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Economics of Advertising</td>
<td>5</td>
<td>Advanced Accounting</td>
<td>5</td>
<td>Advanced Accounting</td>
<td>5</td>
</tr>
</tbody>
</table>

**FOURTH YEAR**  
American Labor Problems | 5 | Industrial and Employment | 5 | Commercial Credits | 5 |
Cost Accounting | 5 | Management | 5 | Investments and Speculation | 5 |
Plant Construction | 5 | Ethics | 5 | |  |
Advanced Economics | 5 | | 5 | Research in Industrial and Employment Management | 5 |

### MARKETING

**THIRD YEAR**  

<table>
<thead>
<tr>
<th>Autumn Quarter</th>
<th>Credits</th>
<th>Winter Quarter</th>
<th>Credits</th>
<th>Spring Quarter</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Economics of Transportation</td>
<td>5</td>
<td>Corporation Finance</td>
<td>5</td>
<td>Business Statistics</td>
<td>5</td>
</tr>
<tr>
<td>Economics of Marketing</td>
<td>5</td>
<td>Sales Management</td>
<td>5</td>
<td>Commercial Credits</td>
<td>5</td>
</tr>
<tr>
<td>Economics of Advertising</td>
<td>5</td>
<td>Political Science</td>
<td>5</td>
<td>Electives</td>
<td>5</td>
</tr>
</tbody>
</table>

**FOURTH YEAR**  
Advanced Money and Banking | 5 | Advanced Economics | 5 | History of Economic Thought | 5 |
Trade of War and Near East | 5 | Trade of Europe | 5 | History of Economic Electives | 5 |
Research in Marketing and Advertising | 5 | Industrial Management | 5 | Trade of Americans | 5 |

### MERCHANDISING

**FIRST YEAR**  

<table>
<thead>
<tr>
<th>Autumn Quarter</th>
<th>Credits</th>
<th>Winter Quarter</th>
<th>Credits</th>
<th>Spring Quarter</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Economics</td>
<td>5</td>
<td>English</td>
<td>5</td>
<td>English</td>
<td>5</td>
</tr>
<tr>
<td>Psychology</td>
<td>5</td>
<td>Approved Electives</td>
<td>5</td>
<td>Approved Electives</td>
<td>5</td>
</tr>
</tbody>
</table>

**SECOND YEAR**  

<table>
<thead>
<tr>
<th>Autumn Quarter</th>
<th>Credits</th>
<th>Winter Quarter</th>
<th>Credits</th>
<th>Spring Quarter</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business Law</td>
<td>3</td>
<td>Business Law</td>
<td>3</td>
<td>Business Law</td>
<td>3</td>
</tr>
<tr>
<td>Money and Banking</td>
<td>6</td>
<td>Social and Economic Standards</td>
<td>6</td>
<td>Theory of Statistics</td>
<td>5</td>
</tr>
<tr>
<td>Industrial History</td>
<td>5</td>
<td>Industrial History</td>
<td>5</td>
<td></td>
<td>4</td>
</tr>
</tbody>
</table>

**THIRD YEAR**  
Economics of Marketing | 5 | Sales Management | 5 | Ethics | 5 |
Economics of Advertising | 6 | Political Science | 5 | Sociology | 5 |
Approved Electives | 5 | Approved Electives | 5 | Approved Electives | 5 |

**FOURTH YEAR**  

During the senior year the student will spend alternate quarters on full time in the merchandising field in which he desires to specialize. (See general statement of Apprenticeships in Marketing, Merchandising and Advertising.) The program for the other two quarters of the senior year will be made up of approved electives chosen with reference to his special field, only advanced economics being required of all.
### Third Year

#### Autumn Quarter Credits
- Advanced Composition ... 5
- Economics of Marketing ... 5
- Electives .......................... 2

#### Winter Quarter Credits
- Advanced Composition ... 5
- Sales Management ... 5
- Electives .......................... 2

#### Spring Quarter Credits
- Business Statistics ... 5
- Commercial Credits ... 5
- Political Science ... 5

### Fourth Year

#### Autumn Quarter Credits
- Trade of Far and Near Trade of Europe ... 5
- Advanced Money and Banking ... 5
- Typography of Advertising 2
- Research in Marketing and Advertising 3

#### Winter Quarter Credits
- Trade of Europe ... 5
- Typography of Advertising 2
- Research in Marketing and Advertising 3

### Transportation

#### Third Year

#### Autumn Quarter Credits
- Economics of Transportation: Ralls, Water, Ports ... 5
- Political Science ... 5
- Economics of Markets ... 5

#### Winter Quarter Credits
- Business Administration ... 5
- Corporation Finance ... 5
- Railroad Finance and Administration ... 5

#### Spring Quarter Credits
- Second Year Accounting ... 5
- Social Ethics ... 5

#### Fourth Year

#### Autumn Quarter Credits
- Corporation and Railroad Accounting ... 6
- Exporting and Importing ... 5
- Advanced Economics ... 5

#### Winter Quarter Credits
- Industrial and Employment Management ... 5
- Research in Transportation ... 5
- Ship Operation and Management ... 5

### Maritime Commerce

This suggested curriculum in Maritime Commerce is intended to give preliminary training for the position of general manager and foreign representative in firms engaged in foreign trade, for port managers, auditors, and deck officers in shipping organizations. The courses after the first year will be taken on the alternating quarter system, quarters of office practice and sea service being coordinated with the academic work.

#### First Quarter Credits
- Elementary Economics ... 5
- Elementary Accounting ... 5
- Ship Operation ... 5
- Electives ... 2

#### Second Quarter Credits
- Business Law ... 3
- Money and Banking ... 5
- Electives ... 2

#### Third Quarter Credits
- Economics of Markets ... 5
- Ship Operation ... 5
- Electives ... 2

#### Fourth Quarter Credits
- Business Correspondence ... 5
- General Psychology ... 5
- Business Law ... 3

#### Fifth Quarter Credits
- History ... 5
- Electives ... 5

#### Sixth Quarter Credits
- Risk and Insurance ... 5
- Electives ... 5

#### Seventh Quarter Credits
- Rail and Marine Rates ... 5
- Economics of Advertising ... 5
- Electives ... 5

#### Eighth Quarter Credits
- Terminal Costs and Management ... 5
- Electives ... 5

#### Ninth Quarter Credits
- Management ... 5

#### Tenth Quarter Credits
- Industrial and Employment Electives ... 10

#### Eleventh Quarter Credits
- Electives ... 10

#### Twelfth Quarter Credits
- Electives ... 10

**Notes**
- In so far as opportunities are available students will be assigned to business apprenticeships at the end of the first college year. Assignments will be made according to scholastic grades and general ability. Reasonable facility in the use of the typewriter must be shown before assignment. To retain an apprenticeship beyond the second year, a student must learn shorthand.
- The hours devoted to electives are intended to permit compliance with requirements for graduation and specialization along chosen lines.
- Consult the Maritime Commerce bulletin for information concerning the apprenticeship plan.
*FOREIGN TRADE*

**THIRD YEAR**

<table>
<thead>
<tr>
<th>Autumn Quarter</th>
<th>Credits</th>
<th>Winter Quarter</th>
<th>Credits</th>
<th>Spring Quarter</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Economics of Transport-</td>
<td>5</td>
<td>Marine Insurance</td>
<td>5</td>
<td>Commercial Credits</td>
<td>5</td>
</tr>
<tr>
<td>ation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Economics of Markets</td>
<td>5</td>
<td>Political Science</td>
<td>5</td>
<td>Economics of Advertising</td>
<td>5</td>
</tr>
<tr>
<td>Foreign Exchange</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**FOURTH YEAR**

| Exporting and Importing | 5       | Trade of Far and Near  | 5       | Rail and Marine Rates | 5       |
|                        |         |                        |         |                        |         |
| Commercial Policies    | 5       | East                   | 5       | Trade of Americas      | 5       |
| Advanced Economics     | 5       | Trade of Europe        | 5       | Social Ethics          | 5       |
| Research in Foreign Trade |       |                        |         |                        |         |

*At least two years of a modern foreign language will be required of all majors in Foreign Trade unless they are specifically exempted from the requirement.*

**INSURANCE**

**SECOND YEAR**

<table>
<thead>
<tr>
<th>Autumn Quarter</th>
<th>Credits</th>
<th>Winter Quarter</th>
<th>Credits</th>
<th>Spring Quarter</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Risk and Insurance</td>
<td>5</td>
<td>Political Science</td>
<td>5</td>
<td>Life Insurance</td>
<td>5</td>
</tr>
<tr>
<td>Business Organization</td>
<td>5</td>
<td>Office Management</td>
<td>5</td>
<td>Business Statistics</td>
<td>5</td>
</tr>
<tr>
<td>Social and Economic Standards of Living or Sociology</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**THIRD YEAR**

<table>
<thead>
<tr>
<th>Autumn Quarter</th>
<th>Credits</th>
<th>Winter Quarter</th>
<th>Credits</th>
<th>Spring Quarter</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fire Insurance</td>
<td>5</td>
<td>Marine Insurance</td>
<td>5</td>
<td>Miscellaneous Property Insurance</td>
<td>5</td>
</tr>
<tr>
<td>Advanced Economics</td>
<td>5</td>
<td>Corporation Finance</td>
<td>5</td>
<td>Business Administration</td>
<td>5</td>
</tr>
<tr>
<td>Social Ethics</td>
<td>5</td>
<td>Research in Insurance</td>
<td>5</td>
<td>Business Administration</td>
<td>5</td>
</tr>
</tbody>
</table>

**SECRETARIAL WORK**

**THIRD YEAR**

<table>
<thead>
<tr>
<th>Autumn Quarter</th>
<th>Credits</th>
<th>Winter Quarter</th>
<th>Credits</th>
<th>Spring Quarter</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Political Science</td>
<td>5</td>
<td>Office Management</td>
<td>5</td>
<td>Social and Economic Standards of Living or Sociology</td>
<td>5</td>
</tr>
<tr>
<td>Business Organization</td>
<td>5</td>
<td>Electives</td>
<td>10</td>
<td>Electives</td>
<td>10</td>
</tr>
</tbody>
</table>

**FOURTH YEAR**

| Advanced Economics | 5 | Business Administration | 5 | Electives | 15 |
| Research in Secretarial Ethics | 5 |
| Training | 5 | Elective | 5 |

**COMMERCIAL TEACHING**

**SECOND YEAR**

<table>
<thead>
<tr>
<th>Autumn Quarter</th>
<th>Credits</th>
<th>Winter Quarter</th>
<th>Credits</th>
<th>Spring Quarter</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Political Science</td>
<td>5</td>
<td>Office Management</td>
<td>5</td>
<td>Business Organization</td>
<td>5</td>
</tr>
<tr>
<td>Principles of Education</td>
<td>5</td>
<td>Electives</td>
<td>10</td>
<td>Business Statistics</td>
<td>5</td>
</tr>
<tr>
<td>Secretarial Training</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

**THIRD YEAR**

<table>
<thead>
<tr>
<th>Autumn Quarter</th>
<th>Credits</th>
<th>Winter Quarter</th>
<th>Credits</th>
<th>Spring Quarter</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social Ethics</td>
<td>5</td>
<td>Advanced Economics</td>
<td>5</td>
<td>Practice Teaching</td>
<td>5</td>
</tr>
<tr>
<td>Commercial Teacher's Course</td>
<td>5</td>
<td>Electives</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elective</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**FOURTH YEAR**

<table>
<thead>
<tr>
<th>Autumn Quarter</th>
<th>Credits</th>
<th>Winter Quarter</th>
<th>Credits</th>
<th>Spring Quarter</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elective</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**GENERAL INFORMATION**

*Textbooks—Syllabus Fees.*—Many courses in the College of Business Administration require a textbook, and in a few instances more than one. It is the aim of the faculty to keep the textbook expense as low as is consistent with a high standard of class work.

In all, except research courses, it will be necessary to ask from each student a syllabus or consultation fee. The service rendered in
either case is a necessary and valuable one and will prove ofconsiderable benefit to the student's work. This fee has been fixed at $1.50 a course. As the shorthand and typewriting courses do not form a part of the regular curriculum and are expected to finance themselves, a fee of $10 will be asked for any one quarter of instruction in either subject.

Library Facilities.—The college is placing in the library a large number of supplementary books. 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 by the college. Each student is expected to make use of the material and to report from time to time on current topics of interest.

Student Organizations.—Three professional societies with national affiliations have been established at the College of Business Administration. Beta Gamma Sigma and Alpha Kappa Psi are professional fraternities for men which at present count chapters in many eastern institutions. Membership is based upon high scholarship. Their aim is to further serious study of business problems. Phi Sigma Chi is a similar organization among the women majoring in business administration. Its purpose is not social, but professional, and membership is restricted to candidates for the B. B. A. degree. A number of prominent business women in Seattle and eastern cities are counted among its honorary members. The parent chapter of Pan Xenia, an honor society for majors in foreign trade, was founded two years ago at the University of Washington and bids fair to play an important part in the future of our foreign trade department.

Required Military Science and Physical Education.—The University requirements in military science, physical education and hygiene are satisfied as follows:

Men students.—Freshmen and sophomores: five hours of military science per week.

Women students.—Physical education, five times per week for two years.

Correspondence.—Inquiries in regard to the College of Business Administration may be addressed to the dean of the college. All correspondence regarding admission should be sent to the registrar of the University.

Contact with Actual Business.—The business men of the state and especially of the city of Seattle are cooperating in a most genuine way with the College of Business Administration. Students
are encouraged to avail themselves of the many opportunities to do part-time work in local concerns along their chosen lines, thereby combining practical experience with scientific training.

In addition to this part-time employment an alternating quarter system of office practice and academic work has been established in the division of maritime commerce. The office practice work is made a definite part of the training. Students are referred to the Maritime Commerce bulletin for further information.

During their senior year, or during a year of graduate work, students specializing in marketing, merchandising, or advertising are given the 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 year. These apprenticeships are made possible by the active cooperation of Seattle and Tacoma business houses and will not only give the student the benefit of a more favorable introduction to the best business practice than he might secure for himself but will give him this introduction while he is still in college in order that his theories may be vitalized by supervision of both 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.

This apprenticeship system is to be extended until it includes students in all of the departments of the College. One interesting phase of the plan, already worked out, is that of placing Chinese students of the College of Business Administration in Seattle business houses, which are either already engaged in trade with the Orient or contemplate entering that field. The China Club of Seattle has shown its usual fine desire to cooperate with the University, in securing twenty or more such apprenticeships. Much benefit is expected to accrue both to the Chinese students who are thus initiated into actual American business methods as well as to the firms which will now receive advice as to the needs of the market in China and will later have native representatives in China who will know their goods, their methods, or their business standing.

Advisory Boards.—The College of Business Administration has already formed advisory boards of business men throughout the state for foreign trade, money and banking, merchant marine management, and insurance. Other boards for transportation, employment management and executive management, sales management, accounting, commercial teaching, secretarial training and merchandising are being formed. The purpose of these boards is to create a direct cooperation between education and industry, principle and practice.

The Students' Advisory Council.—The B. A. Council, organized in the autumn quarter of 1919 by the students of the College, 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 standard 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. The regular Business Administration assemblies are organized and conducted under the direction of the Council.

The Council has been instrumental in inculcating a keener student conception of the honor system throughout the University; cases of student discipline are investigated and reviewed, and the council renders service as a court of appeals.

The mentor system is the conception of the Council and with its inception in the spring quarter of 1921 a larger field of responsibility was entered upon. The mentor plan provides for the appointment of a group of senior and graduate students who will meet the freshmen of the College at certain appointed times in three conferences during the quarter. It is the Big Brother and Sister movement made concrete. 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. The mentors have been of great aid to the Council in helping to achieve the ends for which that body was created.

*International Relations.*—Plans are now being completed to establish exchange scholarships with China and with some of the South American republics. The opportunities which are thus afforded for American students to study abroad and for foreign students to gain a better understanding of American life and thought will be of a great educational value.

*Fellowships.*—The college is now in a position to grant several fellowships with opportunity for assisting in the instruction. Address, Dean of the College of Business Administration.

*Outside Lectures.*—It is the policy of the College of Business Administration to supplement as far as possible the work given 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 and a still more extended use of this outside assistance is a definite part of plans for linking up the College of Business Administration with actual business.

**Courses**

For description of courses, see Departments of Instruction, printed elsewhere in this catalogue. (See Index.)
SCHOOL OF JOURNALISM

THE FACULTY

HENRY SUZZALLO, PH. D. (Columbia), LL. D. (California), PRESIDENT.

JOHN THOMAS CONDON, LL. M. (Northwestern), DEAN OF FACULTIES.

MATTHEW LYLE SPENCER, PH. D. (Chicago), Professor of Journalism, DIRECTOR.

FRED WASHINGTON KENNEDY, Assistant Professor of Journalism, DIRECTOR of the Journalism Laboratories.

RALPH D. CASEY, A. B. (Washington), Assistant Professor of Journalism.

ROBERT WILLIAM JONES, A. B., LL. B. (Missouri), A. M. (South Dakota), Assistant Professor of Journalism.

MAURICE HICKLIN, A. B., B. J. (Missouri), Instructor in Journalism.

EDMOND STEPHEN MBANY, M. L. (Wisconsin), Professor of History.

WILLIAM SATHERE, PH. D. (Harvard), Professor of Philosophy.

PIERRE JOSEPH FREIN, PH. D. (Johns Hopkins), Professor of Romance Languages.

STEVENVON SMITH, PH. D. (Pennsylvania), Professor of Psychology.

LESLIE JAMES AYER, J. D. (Chicago), Professor of Law.

FRED CARLETON AYER, PH. D. (Chicago), Professor of Education.

WILLIAM DANIEL MORENTY, PH. D. (Michigan), Associate Professor of Business Administration.

ROBERT MAX GARRETT, PH. D. (Munich), Assistant Professor of English.

HORACE HARDY LESTER, PH. D. (Princeton), Instructor in Physics.

AMBROSE PATTERSON, Associate in Fine Arts.

HAROLD L. TURPIN, Assistant in Business Administration.

THE SCHOOL AND ITS EQUIPMENT

The first courses in journalism in the University of Washington were given in 1907. A department of journalism was established in 1909. In March, 1918, the department was formally made a school.

The professional courses in the School of Journalism and those prescribed in the colleges of Liberal Arts and Science are planned with two aims in view—to offer instruction and practice in all the important details of newspaper work, and to provide such studies as are best adapted to give the broad training necessary for the successful pursuit of journalism as a profession. In the first the courses include reporting, copy reading, editorial writing, advertising, cartooning, trade journalism, the mechanics of printing and publishing, and the practical work of the business and administrative

1 Absent on leave.
offices. In the second are history, economics, political science, sociology, philosophy, psychology, language, literature, and similar subjects necessary in developing the broader scholarship indispensable in modern journalism.

This double ideal of the School of Journalism curriculum has justified itself in the increasing demands of Pacific coast editors for University graduates. Requests to date have exceeded the supply to such an extent that the School has been compelled to recommend students who have not completed their training. Ultimately the School hopes to meet the demand with graduates only.

Equipment.—Journalism and printing take up the entire first floor of Commerce Hall, 208 x 70 feet, occupied first in September, 1917. On this floor are the class rooms, the exchange room, the journalism library and reading room, the faculty offices, the University of Washington Daily offices, the Columns, Sun Dodger, and Tyee quarters, the printing and stock rooms, and all the mechanical equipment for teaching practical journalism. The printing laboratory of the School does practically all the printing and publishing work required on the University campus.

Frederick A. Churchill Junior Memorial Library.—In March, 1918, a separate journalism library and reading room was opened, known as the Frederick A. Churchill Junior Memorial Library, in memory of a brilliant student of the School who died in 1916 while doing newspaper work in New York. The Memorial Library contains carefully selected books and periodicals relating to printing, advertising, current events, short story, and all phases of the editorial side of the newspaper.

Journalism “Morgue.”—In the Memorial Library has been installed a journalism “morgue,” for newspaper and periodical clippings on current topics classified for instant reference. This contains biography, book reviews, and dramatic criticism, besides the continuous chronicle of events.

Student Publications.—The editorial and business offices of the University of Washington Daily, Sun Dodger, Columns, and Tyee are on the first floor of Commerce Hall. Ownership of The Daily and Tyee is vested in the student body. Ownership and control of The Columns and Sun Dodger are held by corporations of students. None of these is supervised by the School of Journalism, though the staff members of each are recruited mainly from the School. All these publications offer opportunities for practical experience in journalistic work. Places on the editorial and business staffs of each, awarded for the most part on a basis of literary and executive ability, are open to all students in the School of Journalism. Opportunity for wide experience in reporting, copy reading, editorial writing, and advertising is offered on The University of Washington Daily, published as a four to six-page paper by the students.
Journalistic Clubs.—Three national organizations are maintained by students in the School of Journalism. Junior and senior men have a chapter of Sigma Delta Chi, one of the two national journalistic fraternities. Junior and senior women maintain a chapter of Theta Sigma Phi, the national journalistic sorority founded at the University of Washington in 1910. Members of the Sun Dodger staff have also a chapter of Hammer and Coffin, the national comic-magazine fraternity.

Opportunity for Self-Help.—The director of the School of Journalism has frequent calls from business managers and publishers for students with some experience to do part time work in advertising, publicity, and reporting. All the local newspapers and many of the more important dailies in neighboring cities maintain special reporters and correspondents at the University. Remuneration for this work ranges up to $50 a month, according to the services given. Promise of employment, however, cannot be made in advance. Positions usually are given those on the ground who are able to show by actual experience that they can do the work required.

ADMISSION TO THE SCHOOL OF JOURNALISM

Pre-Journalism Majors.—The director of the School of Journalism is the advisor for all students in journalism from the beginning of the freshman year. Registration of pre-journalism majors at the beginning of each quarter is held in the director’s office. To him should be taken requests for leave of absence from the University, questions about co-ordinating courses in other schools, and any matters touching the scholastic work of journalism majors.

Journalism Curriculum.—From the beginning of the freshman year a specific curriculum of studies (see page 119) is required of students expecting to major in journalism. Courses in news writing, the country newspaper, and elements of publishing are open to students of sophomore rank. Entrance to the School of Journalism is granted on the ability shown by the individual in these courses to do newspaper work successfully. Formal admission is not permitted until the junior year.

Admission.—On the successful completion of 90 plus 12 credits of prescribed and elective work at the University of Washington, or an equivalent amount from another institution of accredited standing, students are granted the junior certificate, which admits to the School of Journalism. (See page 43.)

Fees.—In certain courses in journalism laboratory fees are charged. These go toward purchase of textbooks, student materials, community typewriters—of which the School has nineteen—and toward subscriptions for newspapers and periodicals, of which the School takes forty or fifty annually, in addition to a large number of
weeklies that come to the director's desk on exchange. The number of courses requiring fees varies from year to year. In 1921-22 the maximum laboratory fees in journalism, in addition to the regular University fees, will not be more than $2.50 a quarter for any student, regardless of the number of courses taken.

**Shorthand and Typewriting.**—All written work in the School of Journalism must be done on a typewriter. Both shorthand and typewriting are required for graduation. Prospective students may save themselves much time, however, by learning shorthand and typing before entering the University. Tests in each are given quarterly. Those passing the tests successfully are excused from the University courses.

**Graduation.**—The curriculum of the School of Journalism leads to the degree of bachelor of arts in journalism, for which 180 credits must be obtained, plus 12 hours in physical training or military science. Sixty of these credits must be in journalism, and a minimum of 90 plus 12 hours must have been earned before the student is formally registered in the School of Journalism. An oral examination before the journalism faculty is required of seniors not less than two weeks before the end of the quarter in which they expect to graduate.

**Graduate Study.**—Advanced courses in journalism, history, economics, political science, sociology, and English are offered students wishing to take graduate study in preparation for newspaper work or teaching journalism. A wide demand exists in high schools, colleges, and universities for instructors adequately trained to teach journalism. The University library contains a large collection of bound newspapers and magazines and furnishes unusual opportunity for a historical study of American journalism. Special provision is made for directing the work of graduate students interested in historical, political, psychological, or language studies in journalism. The courses required will be determined by the nature and amount of undergraduate work the candidate has done in journalism and the phase of it in which he wishes to specialize, such as advertising, the business office, trade journalism, or the purely editorial field. A thesis constitutes one of the requirements. On completion of the requisite number of hours, the degree of master of arts in journalism is granted by the University.

**Specialization.**—Students looking forward to specialized branches of journalistic work, such as trade or class journalism, advertising, or the business office, will find the School of Journalism equipped to aid them. While emphasis is laid on the editorial side of the newspaper field, provision is made in the curriculum for practical training in other departments as well.
## CURRICULUM

Requirements for the degree of bachelor of arts in journalism are scheduled below. The courses are arranged in the order in which they normally follow each other. Those starred are required. Those marked with a dagger are regarded as essential. Others are suggested electives.

**FIRST YEAR**

<table>
<thead>
<tr>
<th>Architecture</th>
<th>Credits</th>
<th>First Year</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>10-11-12. Freehand Drawing</td>
<td>3</td>
<td>History</td>
<td>5-6. English Political and Social History</td>
</tr>
<tr>
<td><strong>Economics</strong></td>
<td></td>
<td><strong>Military Science</strong></td>
<td></td>
</tr>
<tr>
<td>6. Business Correspondence</td>
<td>5</td>
<td><strong>Political Science</strong></td>
<td></td>
</tr>
<tr>
<td><strong>English</strong></td>
<td></td>
<td>10. <em>American Government</em>*</td>
<td>3</td>
</tr>
<tr>
<td>64-65. <em>Great English Writers</em>*</td>
<td>10</td>
<td><strong>Science</strong></td>
<td>15</td>
</tr>
<tr>
<td><strong>Foreign Language</strong></td>
<td>15</td>
<td><strong>Sociology</strong></td>
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</table>

**SECOND YEAR**

<table>
<thead>
<tr>
<th>Economics</th>
<th>Credits</th>
<th>Second Year</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>84. <em>Shorthand</em>*</td>
<td></td>
<td>4-5-6. History of Music</td>
<td>6</td>
</tr>
<tr>
<td>137-138. Advertising</td>
<td>10</td>
<td><strong>Painting</strong></td>
<td></td>
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<tr>
<td><strong>English</strong></td>
<td></td>
<td><strong>Philosophy</strong></td>
<td></td>
</tr>
<tr>
<td>67-68-69. *Great American Writers...</td>
<td>6</td>
<td>5. <em>Introduction to Logic</em>*</td>
<td>5</td>
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<tr>
<td>70-71-72. Shakespeare</td>
<td>9</td>
<td><strong>Political Science</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Foreign Language</strong></td>
<td>10</td>
<td>52. <em>Political Parties</em>*</td>
<td>3</td>
</tr>
<tr>
<td>67-56-59. *History of the United States 9</td>
<td></td>
<td><strong>Psychology</strong></td>
<td></td>
</tr>
<tr>
<td>71-72-73. Ancient History</td>
<td>9</td>
<td>1. <em>General Psychology</em>*</td>
<td>5</td>
</tr>
<tr>
<td><strong>History</strong></td>
<td></td>
<td><strong>Science</strong></td>
<td>15</td>
</tr>
<tr>
<td>51. <em>News Writing</em>*</td>
<td>5</td>
<td><strong>Sociology</strong></td>
<td></td>
</tr>
<tr>
<td>75-76. <em>Elements of Publishing</em>*</td>
<td>2</td>
<td>55. Community Organization</td>
<td>3</td>
</tr>
<tr>
<td><strong>Military Science</strong></td>
<td>6</td>
<td>56. The Family</td>
<td>3</td>
</tr>
<tr>
<td>51-52-53. *Practical and Theoretical **</td>
<td></td>
<td>60. Social Psychology</td>
<td>3</td>
</tr>
<tr>
<td><strong>Military Science</strong></td>
<td>6</td>
<td>63. <em>Municipal Sociology</em>*</td>
<td>3</td>
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</tbody>
</table>

**THIRD YEAR**

<table>
<thead>
<tr>
<th>Architecture</th>
<th>Credits</th>
<th>Journalism</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>101-102-103. History of Architecture</td>
<td>6</td>
<td>120. <em>Copy Reading</em>*</td>
<td>5</td>
</tr>
<tr>
<td><strong>Astronomy</strong></td>
<td></td>
<td>130. *Fundamentals of Advertising...</td>
<td>5</td>
</tr>
<tr>
<td>1. Introduction to Astronomy</td>
<td>1</td>
<td>131. <em>Display Advertising</em>*</td>
<td>5</td>
</tr>
<tr>
<td><strong>Economics</strong></td>
<td></td>
<td>133-134-135. Advertising Typography</td>
<td>6</td>
</tr>
<tr>
<td>118. Business Statistics</td>
<td>5</td>
<td>138. Comparative Journalism</td>
<td>3</td>
</tr>
<tr>
<td><strong>English</strong></td>
<td></td>
<td>139. <em>History of Journalism</em>*</td>
<td>3</td>
</tr>
<tr>
<td>08-09-100. *The Bible as Literature</td>
<td>6</td>
<td>140-141-142. <em>Business Office</em>*</td>
<td>6</td>
</tr>
<tr>
<td>194-195-196. Contemporary Literature</td>
<td>9</td>
<td><strong>Latin</strong></td>
<td></td>
</tr>
<tr>
<td>147-148-149. The English Novel</td>
<td>9</td>
<td><strong>Law</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Foreign Language</strong></td>
<td>10</td>
<td>54-55-56. <em>Business Law</em>*</td>
<td>9</td>
</tr>
<tr>
<td><strong>Greek</strong></td>
<td></td>
<td><strong>Philosophy</strong></td>
<td></td>
</tr>
<tr>
<td><strong>History</strong></td>
<td></td>
<td>114-115-116. History of Religion</td>
<td>9</td>
</tr>
<tr>
<td>130. Europe, 1814-1870</td>
<td>3</td>
<td><strong>Political Science</strong></td>
<td></td>
</tr>
<tr>
<td>131. Europe since 1870</td>
<td>5</td>
<td>100. <em>Municipal Government</em>*</td>
<td>5</td>
</tr>
<tr>
<td>147. The Civil War Period</td>
<td>3</td>
<td>102. Municipal Problems</td>
<td>5</td>
</tr>
<tr>
<td>148. The Reconstruction Period</td>
<td>3</td>
<td>125. Public Finance</td>
<td>5</td>
</tr>
<tr>
<td><strong>Journalism</strong></td>
<td></td>
<td><strong>Psychology</strong></td>
<td></td>
</tr>
<tr>
<td>90. <em>Current Events</em>*</td>
<td>3</td>
<td>111. History of Psychology</td>
<td>2</td>
</tr>
<tr>
<td>104. <em>Newspaper Administration</em>*</td>
<td>2</td>
<td><strong>Science</strong></td>
<td>15</td>
</tr>
<tr>
<td>105. The Sporting Page</td>
<td>2</td>
<td><strong>Sociology</strong></td>
<td></td>
</tr>
<tr>
<td>109. Literary and Dramatic Reviewing</td>
<td>2</td>
<td>108. American Social Conditions...</td>
<td>2</td>
</tr>
<tr>
<td><strong>History</strong></td>
<td></td>
<td>129. The Social Survey</td>
<td>3</td>
</tr>
</tbody>
</table>

1. Students who have not had science in high school are required to take ten hours of chemistry or physics and ten of botany or geology or zoology in the University. Students entering without foreign language are required to take twenty hours of a modern foreign language in the University without credit.

2. Students who have taken, or who plan to take, three or more years of ancient language may omit this requirement.
### University of Washington

#### Fourth Year

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Architecture</strong></td>
<td></td>
</tr>
<tr>
<td>157-158-159. Freehand Drawing</td>
<td>6</td>
</tr>
<tr>
<td><strong>Economics</strong></td>
<td></td>
</tr>
<tr>
<td>105. Trusts and Combinations</td>
<td>3</td>
</tr>
<tr>
<td>120. Business Administration</td>
<td>3</td>
</tr>
<tr>
<td>121. Corporation Finance</td>
<td>5</td>
</tr>
<tr>
<td>153. Railroad Administration</td>
<td>2</td>
</tr>
<tr>
<td>161. American Labor Movement</td>
<td>3</td>
</tr>
<tr>
<td>162. Modern Labor Problems</td>
<td>3</td>
</tr>
<tr>
<td><strong>English</strong></td>
<td></td>
</tr>
<tr>
<td>171-172-173. Romantic Poets</td>
<td>9</td>
</tr>
<tr>
<td>174-175-176. Victorian Poets</td>
<td>9</td>
</tr>
<tr>
<td>183-184-185. General Literature</td>
<td>9</td>
</tr>
<tr>
<td><strong>Foreign Language</strong></td>
<td>10</td>
</tr>
<tr>
<td><strong>History</strong></td>
<td></td>
</tr>
<tr>
<td>154. Development of the Pacific</td>
<td>3</td>
</tr>
<tr>
<td>163-164-165. Northwestern History</td>
<td>6</td>
</tr>
<tr>
<td><strong>Journalism</strong></td>
<td></td>
</tr>
<tr>
<td>150. *Editorial Writing</td>
<td>5</td>
</tr>
<tr>
<td>160-161-163. Trade Journalism</td>
<td>6</td>
</tr>
<tr>
<td>170-171-172. Magazine and Feature Writing</td>
<td>6</td>
</tr>
<tr>
<td>173. The Short Story</td>
<td>3</td>
</tr>
<tr>
<td>174-175. Short Story Writing</td>
<td>6</td>
</tr>
<tr>
<td>188. News Writing for Teachers</td>
<td>2</td>
</tr>
<tr>
<td><strong>Political Science</strong></td>
<td></td>
</tr>
<tr>
<td>110. International Law</td>
<td>3</td>
</tr>
<tr>
<td>111. International Politics</td>
<td>3</td>
</tr>
<tr>
<td><strong>Science</strong></td>
<td></td>
</tr>
<tr>
<td>155. Modern Philanthropy</td>
<td>3</td>
</tr>
<tr>
<td>156. Criminology</td>
<td>3</td>
</tr>
<tr>
<td><strong>Sociology</strong></td>
<td></td>
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<tr>
<td>135. Modern Philanthropy</td>
<td>3</td>
</tr>
</tbody>
</table>

#### Courses

For description of courses, see Departments of Instruction, printed elsewhere in this catalogue. (See Index.)
COLLEGE OF ENGINEERING

THE FACULTY

HENRY SUZZALLO, Ph. D. (Columbia), LL. D. (California), President.

JOHN THOMAS CONDON, LL. M. (Northwestern), Dean of Faculties.

CARL EDWARD MAGNUSSON, Ph. D. (Wisconsin), E. E. (Minnesota), Professor of Electrical Engineering; Director of Engineering Experiment Station; Dean.

EVERTT OWEN EASTWOOD, C. E., M. A. (Virginia), S. B. (Massachusetts Institute of Technology), Professor of Mechanical Engineering.

CHARLES CHURCH MORE, M. S., C. E. (Lafayette), M. C. E. (Cornell), Professor of Civil Engineering.

WILLIAM FRANKLIN ALLISON, B. S., C. E. (Purdue), C. E. (Cornell), Professor of Municipal and Highway Engineering.

HENRY KEENNER BENSON, Ph. D. (Columbia), Professor of Chemical Engineering.

GEORGE SAMUEL WILSON, B. S. (Nebraska), Associate Professor of Mechanical Engineering.

CHARLES WILLIAM HARRIS, C. E. (Cornell), Associate Professor of Civil Engineering.

EDGAR ALLEN LOW, B. S. (E.E.) (Wisconsin), Associate Professor of Electrical Engineering.

ARTHUR MELVIN WINSLow, Ph. B. (Brown), B. S. (Massachusetts Institute of Technology), Associate Professor of Mechanical Engineering.

HARRY RUBBY, B. S. (C. E.), (Illinois), Associate Professor of Civil Engineering.

FREDERICK KURT KIRSTEN, B. S., E. E. (Washington), Assistant Professor of Electrical Engineering.

LESLIE FOREST CURTIS, B. S. (Tufts), M. S. (E.E.) (Washington), Assistant Professor of Electrical Engineering.

FRANK DEMETERUS HAYDEN, B. S., (C. E.) (Massachusetts Institute of Technology), Assistant Professor of Civil Engineering.

IRA LEONARD COLNER, B. S. (C. E.) (Washington), Assistant Professor of Civil Engineering.

CHARLES CULBERTSON MAY, B. S. (C. E.) (Washington), Assistant Professor of Civil Engineering.

JOHN CHARLES RATHBUN, JR., A. M., B. S., C. E. (Washington), Assistant Professor of Civil Engineering.

FRED FALCONER WELD, C. E. (Pennsylvania State College), Associate in Civil Engineering.

SAMUEL THOMAS BEATTIE, Instructor in Woodwork.

SANDY MORROW KANE, Instructor in Metal Work.

CLARENCE LESTER WHITE, C. E. (Iowa), Instructor in Civil Engineering.

GORDON RUSSELL SHUCK, E. E. (Minnesota), Instructor in Electrical Engineering.

JAMES BAKER HAMILTON, Instructor in Civil Engineering.

HARRY J. MCINTYRE, B. S. (M.E.) (Washington), Instructor in Mechanical Engineering.

EDMOND CLARENCE MILLER, B. S. (E.E.) (Washington), Instructor in Civil Engineering.

ROBERT QUIXOTE BROWN, B. S. (C.E.) (Washington), Instructor in Civil Engineering.

CHRIS GREENSIDE DOBSON, B. M. (Montana School of Mines), Instructor in Civil Engineering.

FOREST CHARLES DANA, B. S. (C.E.) (Washington), Instructor in Civil Engineering.

ALBERT KAHN, B. S. (E.E.) (Washington), Instructor in Electrical Engineering.

BYRON TOWN McMINTN, B. S. (Oregon Agricultural College), Instructor in Mechanical Engineering.
Curricula and Degrees.—The College of Engineering offers two four-year curricula in each of the departments of chemical, civil, electrical and mechanical engineering. One of these leads to the degree of bachelor of science in the respective branches of engineering, as B. S. in civil engineering. The other is offered to meet the need for a more general training than is given in the regular four-year curricula. This curriculum leads to the degree of bachelor of science (B.S.), and should be followed by a year of graduate work which, under the university regulations for advanced degrees, leads to the degree of master of science (M.S.) in the respective lines.

In arranging the curricula the aim has been: To keep the work fundamental in character; to introduce the student into an engineering atmosphere as soon as possible; to direct the methods of work and study and to provide for a certain amount of flexibility in the selection of subjects.

A distinctive feature is the engineering problems (C. E. 11-12-13) given by engineering instructors in two three-hour periods a
week and consisting chiefly of problems taken from engineering work, and analyzed from an engineering standpoint.

The freshman work in the departments of chemical, civil, electrical and mechanical engineering, is identical, thus making it possible for a student to delay the definite choice until the beginning of the sophomore year.

All freshman and sophomore work is repeated each quarter. Additional courses will be repeated whenever practicable, provided the demand is sufficient to warrant full sections, but not for less than six students. The plan provides a possibility for taking desirable elective courses, or for engaging in practical work for one or more quarters before completing the curriculum.

Degree with Honors.—A degree with honors in engineering may be conferred upon any student of the College of Engineering who, upon recommendation of the engineering faculty of the honors committee and upon vote of the university faculty, may be declared worthy of unusual distinction.

Advanced Degrees.—The degrees of master of science in civil engineering (M. S. in C. E.), master of science in electrical engineering (M. S. in E. E.), master of science in mechanical engineering (M. S. in M. E.), and master of science in chemical engineering (M. S. in Ch. E.), respectively, will be conferred upon graduates of this college, or other engineering colleges of recognized standing, who complete a year (45 credit hours) of graduate work, including a satisfactory thesis, with the grade of A, B or C. 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.

The professional degrees, chemical engineer (Ch. E.), civil engineer (C. E.), electrical engineer (E. E.), and mechanical engineer (M.E.), will be conferred in three years on graduates of this college holding the degree (B. S.) in their respective lines, who give evidence of having been engaged continuously in acceptable engineering work and who present satisfactory theses.

Thesis.—The graduating thesis will consist of research or design in some branch of engineering, or the review of some existing construction. The subject must be approved by the professor in charge of the department under which it is classified.

Requirements for Admission

Full information regarding requirements for admission, registration, and expenses may be found on pages 39-51.
Students entering the College of Engineering must have a working knowledge of the fundamentals of arithmetic, algebra and geometry. It is therefore desirable for the student to review his preparatory mathematics just before entering college. By such a step much time will be saved and the work of the college will be rendered more valuable to him.

**Curricula of the College of Engineering**

**For the Freshman Year in All Departments**

**Freshman**

<table>
<thead>
<tr>
<th>Autumn Quarter</th>
<th>Credits</th>
<th>Winter Quarter</th>
<th>Credits</th>
<th>Spring Quarter</th>
<th>Credits</th>
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<tr>
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<td>Gen. Chem. 2 or 22</td>
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<td>Gen. Chem. 3 or 23</td>
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<td>Drawing, C. E. 1</td>
<td>3</td>
<td>Drawing, C. E. 2</td>
<td>3</td>
<td>Surveying, C. E. 21</td>
<td>3</td>
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<tr>
<td>Mil. Sci. or Phys. Ed.</td>
<td>1 1/2</td>
<td>Mil. Sci. or Phys. Ed.</td>
<td>1 1/2</td>
<td>Mil. Sci. or Phys. Ed.</td>
<td>1 1/2</td>
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</table>

**In Chemical Engineering**

Leading to the degree of Bachelor of Science in Chemical Engineering

**Freshman**

The same for all curricula. See above.

**Sophomore**

<table>
<thead>
<tr>
<th>Autumn Quarter</th>
<th>Credits</th>
<th>Winter Quarter</th>
<th>Credits</th>
<th>Spring Quarter</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physics 97</td>
<td>5</td>
<td>Physics 98</td>
<td>5</td>
<td>Physics 99</td>
<td>5</td>
</tr>
<tr>
<td>Qual. Chem. 101</td>
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<td>Quant. Chem. 112</td>
<td>5</td>
<td>Steam Eng.—M. E. 82</td>
<td>3</td>
</tr>
<tr>
<td>Mechanism—M. E. 61</td>
<td>3</td>
<td>Steam Eng.—M. E. 82</td>
<td>3</td>
<td>Steam Eng.—M. E. 83</td>
<td>3</td>
</tr>
<tr>
<td>Diff. Cal.—Math. 61</td>
<td>3</td>
<td>Int. Cal.—Math. 62</td>
<td>3</td>
<td>Chem. Tech. Ch. 120</td>
<td>3</td>
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<td>Mil. Sci. or Phys. Ed.</td>
<td>1 1/2</td>
<td>Mil. Sci. or Phys. Ed.</td>
<td>1 1/2</td>
<td>Mil. Sci. or Phys. Ed.</td>
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</table>

**Junior**

| Ind. Chem. 121 | 5 | Ind. Chem. 122 | 5 | Ind. Chem. 123 | 5 |
| English 4      | 3 | Org. Chem. 128 or 132 | 5 | Org. Chem. 129 or 133 | 5 |
| Org. Chem. 131 or Ther. & Refrig.—M. E. | 5 | Mechanics—C. E. 131 | 3 | D. O. Lab.—E.E. 102 | 2 |
| Metalwork—M. E. 54 | 1 | Metalwork—M. E. 54 | 1 | Metalwork—M. E. 54 | 1 |
| 16              |         | 16             |         | 16            |         |

**Senior**

| Phys. Chem 161 | 5 | Phys. Chem. 182 | 5 | Metallurgy 102 | 5 |
| Alt. Cur.—E.E. 121 | 4 | Chem. Eng. 216 | 5 | Thesis 2 | 2 |
| A.C. Lab.—E.E. 122 | 2 | Ind. Seminar Ch. | 2 | Chem. 217 | 5 |
| Elective      | 5 | Thesis 3 | 5 | Elective | 8 |
|               | 10 | Elective | 5 |               | 15 15 |

Electives must in all cases be approved by the head of the department.
COLLEGE OF ENGINEERING

IN CIVIL ENGINEERING

Leading to the degree of Bachelor of Science in Civil Engineering

FRESHMAN

The same for all curricula. See page 124.

SOPHOMORE

<table>
<thead>
<tr>
<th>Autumn Quarter</th>
<th>Credits</th>
<th>Winter Quarter</th>
<th>Credits</th>
<th>Spring Quarter</th>
<th>Credits</th>
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<tbody>
<tr>
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<td>Mech.—C.E. 132</td>
<td>3</td>
<td>Mech.—C.E. 133</td>
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<td>St. Eng. Lab.—M.E. 83</td>
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<td>Economics</td>
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<td>5</td>
<td>Physics 99</td>
<td>5</td>
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<td>Higher Surv.—C.E. 23</td>
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<td>Field Eng.—C.E. 24</td>
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<td>Mil. Sci. or Phys. Ed.</td>
<td>1%</td>
<td>Mil. Sci. or Phys. Ed.</td>
<td>1%</td>
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</table>

16% 18% 18%

JUNIOR

| Water Sup.—C.E. 183 | 3       | BUSINESS LAW—B. A. 54 | 3       | BUSINESS LAW—B. A. 55 | 3       |
| Geology 5          | 5       | Elective                  | 5       | Elective                  | 5       |

14 16 16

Electives must in all cases be approved by the head of the department.

IN ELECTRICAL ENGINEERING

Leading to the degree of Bachelor of Science in Electrical Engineering

FRESHMAN

The same for all curricula. See page 124.

SOPHOMORE

<table>
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<tr>
<th>Autumn Quarter</th>
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<th>Winter Quarter</th>
<th>Credits</th>
<th>Spring Quarter</th>
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<tr>
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<td>Physics 98</td>
<td>5</td>
<td>Physics 99</td>
<td>5</td>
</tr>
<tr>
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<td>Mech.—C.E. 132</td>
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<td>Mech.—C.E. 133</td>
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<td>Shop—M.E. 54</td>
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</tr>
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<td>Mil. Sci. or Phys. Ed.</td>
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<td>Mil. Sci. or Phys. Ed.</td>
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JUNIOR

| D. C. Lab.—E.E. 110 | 2       | D. C. Lab.—E.E. 112 | 2       | A. C. Lab.—E.E. 162 | 4       |
| English 4       | 5       | Hydraulics—C.E. 142 | 5       | St. Mat.—M.E. 167 | 5       |
| Elective        | 4       | Elective       | 4       | Elective       | 4       |

10 16 16 16

Electives must in all cases be approved by the head of the department.
### University of Washington

#### IN MECHANICAL ENGINEERING

Leading to the degree of Bachelor of Science in Mechanical Engineering

**FRESHMAN**

The same for all curricula. See page 124.

**SOPHOMORE**

<table>
<thead>
<tr>
<th>Autumn Quarter</th>
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<th>Winter Quarter</th>
<th>Credits</th>
<th>Spring Quarter</th>
<th>Credits</th>
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<td>Cal.—Math. 62</td>
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<td>Physics 98</td>
<td>5</td>
<td>Physics 99</td>
<td>5</td>
</tr>
<tr>
<td>Mechanism-M.E. 61</td>
<td>3</td>
<td>Elect. Steam-M.E. 82</td>
<td>3</td>
<td>Steam Lab.—M.E. 83</td>
<td>3</td>
</tr>
<tr>
<td>Shop-M.E. 68</td>
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<td>Shop-M.E. 54</td>
<td>1</td>
<td>Shop-M.E. 55</td>
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<td>Mil. Sc. or Phys. Ed.</td>
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**JUNIOR**

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<th>Alt. Cur.—E.E. 121</th>
<th>4</th>
<th>Hydraulics—C.E. 142</th>
<th>5</th>
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</thead>
<tbody>
<tr>
<td>Mechanics—C.E. 131</td>
<td>3</td>
<td>Eng. Mat.—M.E. 167</td>
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<td>Metalwork—M.E. 105</td>
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**SENIOR**

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<tr>
<td>Thermo. &amp; Ref.—M.E. 183</td>
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<td>Mach. Des.—E. 182</td>
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<td>Mach. Des.—E. 179</td>
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</table>

Electives must in all cases be approved by the head of the department.

#### IN NAVAL ARCHITECTURE AND MARINE ENGINEERING

**FRESHMAN**

The same for all curricula. See page 124.

**SOPHOMORE**

<table>
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<tr>
<th>Autumn Quarter</th>
<th>Credits</th>
<th>Winter Quarter</th>
<th>Credits</th>
<th>Spring Quarter</th>
<th>Credits</th>
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<tbody>
<tr>
<td>Cal.—Math. 61</td>
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<td>Cal. Math. 62</td>
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<td>Cal.—Math. 63</td>
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<tr>
<td>Physics 97</td>
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<td>Physics 98</td>
<td>5</td>
<td>Physics 99</td>
<td>5</td>
</tr>
<tr>
<td>Mechanism—M.E. 61</td>
<td>3</td>
<td>Elect. Steam—M.E. 82</td>
<td>3</td>
<td>Steam Lab.—M.E. 83</td>
<td>3</td>
</tr>
<tr>
<td>Shop-M.E. 68</td>
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<td>Shop-M.E. 54</td>
<td>1</td>
<td>Shop-M.E. 55</td>
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<tr>
<td>Mil. Sc. or Phys. Ed.</td>
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<td>Mil. Sc. or Phys. Ed.</td>
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<th>Credits</th>
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**JUNIOR**

<table>
<thead>
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<th>Dir. Cur.—E.E. 101</th>
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<th>Alt. Cur.—E.E. 121</th>
<th>4</th>
<th>Hydraulics—C.E. 142</th>
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<tbody>
<tr>
<td>Mechanics—C.E. 131</td>
<td>3</td>
<td>Eng. Mat.—M.E. 167</td>
<td>5</td>
<td>Metalwork—M.E. 108</td>
<td>1</td>
</tr>
<tr>
<td>Metalwork—M.E. 105</td>
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<tbody>
<tr>
<td>Thermo. &amp; Ref.—M.E. 183</td>
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<td>Mach. Des.—M.E. 182</td>
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<td>Steam Turb.—M.E. 179</td>
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<td>Eng. Mat.—M.E. 167</td>
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<td>Thesis 210</td>
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</table>

Electives must in all cases be approved by the head of the department.
IN COMMERCIAL ENGINEERING

Leading to the degree of Bachelor of Science

The student must register in the chemical, civil, electrical or mechanical engineering department of the College of Engineering.

<table>
<thead>
<tr>
<th>Subject</th>
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<tr>
<td>Chemistry 1, 2, 3, or 21, 22, 23</td>
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<tr>
<td>Military Science or Physical Education</td>
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<tr>
<td>Civil Engineering 1, 2, 11, 12, 13, 21, 131, 132</td>
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<tr>
<td>Electrical Engineering 101, 102, and 121, 122 or 161, 162</td>
<td>12</td>
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<tr>
<td>Mechanical Engineering 81, 82, 83, 91, 92, 93</td>
<td>15</td>
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<tr>
<td>Business Administration 1 or 2, 11, 12, 118, 156, 167, 168</td>
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<tr>
<td>Technical Electives (Department in which the student is registered)</td>
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<tr>
<td>General Electives</td>
<td>27</td>
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<td><strong>Total</strong></td>
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</table>

Electives must in all cases be approved by the dean of the College of Engineering.

IN AERONAUTICAL ENGINEERING

Students who desire to major in aeronautical engineering should include the following courses in the technical and general electives of the curriculum for the bachelor of science degree in the College of Engineering. These courses may also be taken as electives in the curricula for the bachelor of science degree in chemical, civil, electrical and mechanical engineering.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>101. Aerodynamics</td>
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<tr>
<td>111. Aerial Propellers</td>
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<tr>
<td>121. Airplane Design</td>
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</tr>
<tr>
<td>141. Airships</td>
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<tr>
<td>161. Aerial Transportation</td>
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</table>

Electives must in all cases be approved by the dean of the College of Engineering.

COURSES

For description of courses, see Departments of Instruction, printed elsewhere in this catalogue. (See Index.)

ENGINEERING EXPERIMENT STATION

THE STAFF

HENRY SUZZALLO, PH. D. (Columbia), LL. D. (California), PRESIDENT.

JOHN THOMAS CONDON, LL. M. (Northwestern), DEAN OF FACULTIES.

CARL EDWARD MAGNUSSON, PH. D. (Wisconsin), E. E. (Minnesota), Electrical Engineering; DIRECTOR.

HUGO WINKENWERDER, M. F. (Yale), Forest Products.

MILNOR ROBERTS, A. B. (Stanford), Mining and Metallurgy.

HARRY KULITZER HINSON, PH. D. (Columbia), Chemical Engineering and Industrial Chemistry.

CHARLES WILLIAM HARRIS, B. S. (C. E.) (Washington), C. E. (Cornell), Civil Engineering.

EVERETT OWEN EASTWOOD, C. E., A. M. (Virginia), S. B. (Massachusetts Institute of Technology), Mechanical Engineering.

FREDERICK ARTHUR OSBORN, PH. D. (Michigan), Physics Standards and Tests.

For description of the work of the Experiment Station see page 35.
COLLEGE OF FINE ARTS

THE FACULTY

HENRY SUZALLO, PH. D. (Columbia), LL. D. (California), President.

JOHN THOMAS CONDON, LL. M. (Northwestern), Dean of Faculties.

LYLE MACKET GLEN, A. M. (Oregon), Professor of Music, Dean.

WILLIAM PIERCE GORSUCH, A. B. (Knox), Professor of Dramatic Art.

CARL FREILINGHUYSEN GOULD, A. B. (Harvard), Associate Professor of Architecture.

FRANCES DICKEY, A. M. (Columbia), Assistant Professor of Music.

HORST ROHREN, Graduate (Warsaw Conservatory), Assistant Professor of Music.

ALBERT FRANZ VENINO, (New York College, Stuttgart Conservatory, Leschetizky), Assistant Professor of Music.

CARL PAIGE WOOD, A. M. (Harvard), Assistant Professor of Music.

FRANZES DIOKEY, A. M. (Columbia), Assistant Professor of Music.

LIONETT ROSEN, Graduate (Warsaw Conservatory), Assistant Professor of Music.

ALBEN FRANZ VENINO, (New York College, Stuttgart Conservatory, Leschetizky), Assistant Professor of Music.

CARL FREDERICK GONZALO, A. B. (Knox), Professor of Dramatic Art.

WILLIAM PIERCE GORSUCH, A. B. (Knox), Professor of Dramatic Art.

ALWYN MACKEY GLEN, A. M. (Oregon), Professor of Music, Dean.

JOHN THOMAS CONDON, LL. M. (Northwestern), Dean of Faculties.

HORST ROHREN, Graduate (Warsaw Conservatory), Assistant Professor of Music.

ALBERT FRANZ VENINO, (New York College, Stuttgart Conservatory, Leschetizky), Assistant Professor of Music.

CARL PAIGE WOOD, A. M. (Harvard), Assistant Professor of Music.

FRANZES DIOKEY, A. M. (Columbia), Assistant Professor of Music.

LIONETT ROSEN, Graduate (Warsaw Conservatory), Assistant Professor of Music.

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LIONETT ROSEN, Graduate (Warsaw Conservatory), Assistant Professor of Music.
COLLEGE OF FINE ARTS

This college comprises the departments of architecture, dramatic art, music, and sculpture, painting and design. In the department of architecture a curriculum of four years is offered leading to the degree of bachelor of architecture; in music there are curricula of four years leading to the degree of bachelor of music, with major in applied music, composition, or public school music, and to the degree of bachelor of arts in music. Curricula of four years are offered leading to the degree of bachelor of fine arts, with a major in painting and design, interior decoration, public school drawing, or music and drawing. Two-year curricula lead to certificates of proficiency for supervisors of art and music. The department of dramatic art offers major courses in the study of the drama and dramatic interpretation.

Normal Diploma.—Graduates in music may receive in addition to their bachelor of music degree a normal diploma, entitling them to teach music in the public schools, by meeting the requirements of the department of education and such departmental requirements as the department of music may see fit to institute. This will necessitate a total of at least 192 credits.

Certificates of Proficiency for Music Supervisors.—These may be issued by the head of this college to students who may not have completed the requirements for the degree, but who have satisfactorily completed certain stipulated courses at the discretion of the department. These courses include history of music, elementary harmony, public school music, ear training and melody writing, school music and music education, vocal music, education and drawing or some other approved elective. Only students of advanced standing can complete this course in less than two years.

Requirements for Admission

Full information regarding requirements for admission, registration, and expenses may be found on pages 39-51.

It is advisable that students intending to enter the course in architecture present credits for preparatory work in trigonometry and freehand drawing. Beginning in 1921, two years of a modern foreign language will be included among specific entrance requirements, to be made up in the University without credit, if they have not been taken in high school.

Students intending to enter any of the music courses leading to a degree must satisfy the head of the department that they have completed in addition to the usual high school preparation the equivalent of four years' work in piano, showing that they are familiar with the rudiments and can play well scales and chords in all positions, the smaller sonatas of Haydn, Mozart and Beethoven,
and easier compositions representative of the best literature for the piano.

CURRICULA

FOR THE BACHELOR OF MUSIC DEGREE WITH A MAJOR IN

APPLIED MUSIC

(Piano, Violin, Voice, Violoncello, Organ)

FIRST YEAR

<table>
<thead>
<tr>
<th>Autumn Quarter</th>
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THIRD YEAR

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FOR THE BACHELOR OF MUSIC DEGREE WITH A MAJOR

IN COMPOSITION

FIRST YEAR

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*As a substitute for the senior program, the student may have the option of offering an approved original composition or work in an elective course approved by the advisor and the dean.
<table>
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FOR THE BACHELOR OF MUSIC DEGREE WITH A MAJOR IN PUBLIC SCHOOL MUSIC

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FOR THE DEGREE OF BACHELOR OF ARTS IN MUSIC

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A total of forty hours of modern foreign language pursued either in the high school or in the University is required for a degree in the College of Fine Arts. If a student has finished this work in the high school, he shall substitute approved electives in the University. If he presents no foreign language for admission to the University, he must supply the deficiency in addition to the hours demanded by the respective curricula, without credit. If he presents on entrance two years of Latin, he may be excused from ten hours of the modern language requirement at the discretion of the dean.

Students of the public school music course are required to take Education 145 in the senior year. This practice teaching substitutes for the senior thesis.

CURRICULA IN ARCHITECTURE LEADING TO THE DEGREE OF BACHELOR OF ARCHITECTURE

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<th>AUTUMN QUARTER</th>
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<td>Shades &amp; Shadows</td>
<td>8</td>
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*(1) Among the music courses indicated above the following are required: 1, 2, 3, 4, 5, 6, 7, 8, 9, 51, 52, 55, 101, 102, 103.
*(2) Liberal Arts electives for junior and senior years must be chosen from courses in the senior college, except with the consent of the dean.
## Second Year

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Note.—Students electing structural option will, in spring quarter, junior year, omit Arch. 103, 114, and register for Physics 3-5 hours.

## Third Year

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<td>Heat. &amp; Vent. (M.E.) 182</td>
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<td>Pl. Survey (C.E.) 21</td>
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<td>Spec. &amp; Office Prac. (Archt. 117)</td>
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## Fourth Year

### (Design Option)

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<td>Bridges (C.E.) 161</td>
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## For the Degree of Bachelor of Fine Arts with a Major in Painting and Design

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### Second Year

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*The course in art structure comprises the following: Freshman, principles of design; sophomore, needle designing, woodblock printing, design; junior, pottery, interior decorating, posters; seniors, jewelry, landscape composition, design.*
### Third Year

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<th>Winter Quarter</th>
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### For the Degree of Bachelor of Fine Arts with a Major in Public School Drawing

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#### Second Year

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#### Third Year

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#### Fourth Year

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### For the Degree of Bachelor of Fine Arts with a Major in Interior Decoration

#### First Year

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<th>Autumn Quarter</th>
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*Among the courses in Education, Practice Teaching must be included in the senior year.*
### COLLEGE OF FINE ARTS

#### FOR THE DEGREE OF BACHELOR OF FINE ARTS WITH A MAJOR IN MUSIC AND DRAWING

##### FIRST YEAR

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<td>P.S.D. 5 (Drawing)</td>
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<td>Modern Language</td>
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<td>Music 8 (Sight Singing)</td>
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<tr>
<td>P.S.D. 5 (Drawing)</td>
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<td>Modern Language</td>
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<td>English Composition</td>
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<tr>
<td>Phys. Ed. or Mill. Sci.</td>
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##### SECOND YEAR

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<td>P.S.D. 18 (Art Appr.)</td>
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<td>P.S.D. 103 (Pottery)</td>
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<tr>
<td>Music 144 (Mus Ed.)</td>
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<td>P.S.D. 17 (Art Appr.)</td>
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<tr>
<td>Music 154 (Music Sup.)</td>
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<tr>
<td>P.S.D. 103 (Pub School)</td>
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<tr>
<td>P.S.D. 57 (Illus &amp; Life)</td>
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##### THIRD YEAR

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<td>Music 115 (Mus Ed.)</td>
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<td>P.S.D. 55 (Art Struc.)</td>
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<td>Music 155-6 (Mus Sup.)</td>
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<tr>
<td>P.S.D. 58 (Impl. &amp; Life)</td>
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CURRICULUM IN ART LEADING TO CERTIFICATES OF PROFICIENCY
FOR SUPERVISORS OF ART

FIRST YEAR

Autumn Quarter Credits Winter Quarter Credits Spring Quarter Credits
P.S.D. (Art Struc.) 9... 4 P.S.D. (Art Struc.) 10... 4 P.S.D. (Art Struc.) 11... 4
P.S.D. (Freehand) 5... 3 P.S.D. (Freehand) 6... 3 P.S.D. (Freehand Cast) 7... 3
English Composition ..... 3 English Composition ..... 3 English Composition ..... 3
Art Appreciation 18 ..... 1 Art Appreciation 17 ..... 1 Art Appreciation 18 ..... 1
Elective ..... 5 Elective ..... 5 Elective ..... 5

Total 16 16 16

SECOND YEAR

P.S.D. (Art Struc.) 53... 4 P.S.D. (Art Struc.) 54... 4 P.S.D. (Art Struc.) 55... 4
P.S.D. (Freehand) 56... 3 P.S.D. (Freehand) 57... 3 P.S.D. (Freehand) 58... 3
Psychology ..... 6 Education ..... 6 Education ..... 6
Methods of Teaching Art 3 Elective ..... 5 Public School Draw. 101 3

Total 15 15 16

CURRICULUM LEADING TO THE DEGREE OF BACHELOR OF ARTS IN
DRAMATIC ART

FIRST YEAR

Dramatic Art, elective ..... 3 Dramatic Art, elective ..... 3 Dramatic Art, elective ..... 3
English Composition ..... 3 English Composition ..... 3 English Composition ..... 3
Modern Language ..... 5 Modern Language ..... 5 Modern Language ..... 5
Chem., Botany or Zool... 5 Chem., Botany or Zool... 5 Elective ..... 5
Phys. Ed. or Mil. Sci... 1 3/4 Phys. Ed. or Mil. Sci... 1 3/4 Phys. Ed. or Mil. Sci... 1 3/4

Total 17 1/2 17 1/2 17 1/2

SECOND YEAR

Dramatic Art, elective ..... 5 Dramatic Art, elective ..... 5 Dramatic Art, elective ..... 5
Arch. (Hist.) 1 ..... 2 P.S.D. (Textile) 170... 2 P.S.D. (Textile) 171... 2
P. S. D. (Textile) 160... 2 Arch. (Hist.) 2 ..... 2 Arch. (Hist.) 3 ..... 2
Mod. Language ..... 5 Elective ..... 5 Elective ..... 5
Elective ..... 2 Mil. Sci. or Phys. Ed... 1 3/4 Political Science ..... 5
Mil. Sci. or Phys. Ed... 1 3/4 Mil. Sci. or Phys. Ed... 1 3/4

Total 17 1/2 16 3/4 15 3/4

THIRD YEAR

Dramatic Art, elective ..... 6 Dramatic Art, elective ..... 6 Dramatic Art, elective ..... 6
Liberal Arts, elective ..... 10 Liberal Arts, elective ..... 10
Psychology ..... 5 Liberal Arts, elective ..... 10
Liberal Arts, elective ..... 5

Total 16 16 16

FOURTH YEAR

Dramatic Art, elective ..... 5 Dramatic Art, elective ..... 5 Dramatic Art, elective ..... 5
Liberal Arts, elective ..... 10 Liberal Arts, elective ..... 10
Liberal Arts, elective ..... 10

Total 15 15 15

COURSES

For description of courses, see Departments of Instruction, printed elsewhere in this catalogue. (See Index.)

*Among the courses in Education, Practice Teaching must be included in the senior year.
COLLEGE OF FISHERIES

THE FACULTY

HENRY SUZZALLO, PH. D. (Columbia), LL. D. (California), PRESIDENT.

JOHN THOMAS CONDON, LL. M. (Northwestern), DEAN OF FACULTIES.

JOHN N. COBB, Professor of Fisheries, DIRECTOR.

CLARENCE L. ANDERSON, B. S. (Washington), Instructor in Fisheries.

EDMOND STEPHEN MANY, M. L. (Wisconsin), Professor of History.

TERRY KINCAID, A. L. (Washington), Professor of Zoology.

JOHN N. COBB, Professor of Fish Culture.

CLALLBNCB L. ANDBB80N, B. S. (Washington), Instructor in Fisheries.

EDMOND STEPHEN MANY, M. L. (Wisconsin), Professor of History.

TIRGO KINCAID, A. L. (Washington), Professor of Zoology.

FMMmuK 1[onGAN PADBLlrORD, PH. D. (Yale), Professor of English and Dean of the Graduate School.

FMMmuK AnTlIlJR OSBonN, PH. D. (l£lchlgan), Professor of Physics and Director of the Physics Laboratories.

CHARLES WILLIS JOHNSON, PH. C., PH. D. (Michigan), Professor of Pharmaceutical Chemistry, and State Chemist.

THEODOR CHRISTIAN FAYE, PH. D. (Chicago), Professor of Botany.

ROBERT ESOUARD MONITZ, PH. D. (Nebraska), PH. n.D. (Strassburg), Professor of Mathematics.

HARVEY LANTZ, A. L. (De Pauw), LL. B. (Kent), Professor of Law.

EVERETT OWEN EASTWOOD, C. E., A. L. (Virginia), S. B. (Hnssnchusetts Institute of Technology), Professor of Mechanical Engineering.

HENRY KREITZER BENSON, PH. D. (Columbia), Professor of Chemical Engineering.

JOHN WINTHEL, PH. D. (Wisconsin), Dr. P. H. (Harvard), Professor of Bacteriology.

STEPHENVSON SMITH, PH. D. (Pennsylvania), Professor of Psychology.

LESLID JAMES ATES, J. D. (Chicago), Professor of Law.

STEPHENVAN MILLER, A. B. (Stanford), LL. B. (Michigan), Professor of Economics and Dean of the College of Business Administration.

GEORGE McPHAIL SMITH, PH. D. (Freiburg), Professor of Inorganic Chemistry.

WILLIAM MAURICE DEHN, PH. D. (Illinois), Professor of Organic Chemistry.

ARTHUR WILSON LINTON, M. s. (Washington), Associate Professor of Pharmacy.

GEORGE BURTON RIGG, PH. D. (Chicago), Associate Professor of Botany.

WILLIAM DANIEL MODARTY, PH. D. (Michigan), Associate Professor of Business Administration.

GEORGE SAMUEL WILSON, B. S. (Nebraska), Associate Professor of Mechanical Engineering.

JOHN LOCKS WORCESTER, M. D. (Medical School, University of Alabama), Associate Professor of Anatomy.

WILLIAM EDWARD COX, A. M. (Texas), Associate Professor of Business Administration.

EDWIN JAMES SAUNDERS, A. M. (Harvard), Assistant Professor of Geology.

ELI VICTOR SMITH, PH. D. (Northwestern), Assistant Professor of Zoology.

FRED HAVERTY HEATH, PH. D. (Yale), Assistant Professor of Chemistry.

HERMAN VANCE TATLAB, B. S. (Oregon Agricultural College), Assistant Professor of Chemistry.

HORACE GUNTHORP, A. M. (Kansas), Assistant Professor of Zoology.

THOMAS G. THOMPSON, PH. D. (Washington), Assistant Professor of Chemistry.

ARTHUR WILLIS BARTON, PH. D. (Northwestern), Instructor in Chemistry.

JEAN ROBIN WILKES, PH. C., B. S. (Washington), Assistant State Chemist and Bacteriologist.

ADVISORY BOARD

E. A. SIMs, Chairman, State Fisheries Board, Port Townsend.

L. H. DArWIN, State Supervisor of Fisheries, Seattle.

HENRY O'MALLEY, Pacific Coast Agent United States Bureau of Fisheries, Seattle.

MILLER FREEMAN, Publisher Pacific Fisherman, Seattle.

P. E. HARRIS, P. E. Harris & Company, Seattle.

WM. J. CALVERT, Jr., San Juan Fishing & Packing Company, Seattle.

EDWARD CUNNINGHAM, Pacific Net & Twine Company, Seattle.

E. B. DEMING, Pacific American Fisheries, South Bellingham.

G. P. HALFETY, Pioneer Packing Company, Aberdeen.

HENRY S. McGOWAN, P. J. McGowan & Sons, McGowan.

W. A. LOWMAN, Coast Fish Company, Anacortes.

(137)
The College of Fisheries was established in 1919. It has a two-fold purpose: First, to afford instruction in the principles and practices of fishery; second, to promote the interest of fisheries in the state of Washington and in the United States by encouraging the right use of fishery resources.

The college has exceptional advantages in its location. The university campus is located on the shores of Lakes Washington and Union, which bodies of water are connected by canals with each other and with Puget Sound. In the latter are carried on extensive commercial fisheries for fishes, oysters, clams, crabs, etc., while fleets of vessels with headquarters at Seattle and other cities on the Sound, carry on extensive fisheries in the ocean adjacent to the Washington coast, and on the fishing banks along the Alaska coast. Numerous canneries, smokehouses, cold storage plants, fertilizer plants, etc., are to be found in Seattle and other places on the Sound. A number of fish hatcheries are owned and operated in the state of Washington by the federal, state and county governments. At Friday Harbor the University owns and operates an excellent marine biological station. These many advantages present unrivaled opportunities for the studying of the fisheries, aquatic life and fish culture.

Requirements for Admission

Full information regarding requirements for admission, registration, and expenses may be found on pages 39-51.

Degrees.—The four-year curricula in the College of Fisheries lead to the degree of bachelor of science (B. S.) in fisheries.

The degree of master of science (M. S.) in fisheries will be conferred upon any graduate of the four-year curricula who has completed at least one year of graduate work and has presented a satisfactory thesis with the grade of A, B, or C. A graduate of any other institution of equal rank will be given full graduate standing, but the candidate must have a satisfactory knowledge of zoology, chemistry, bacteriology and botany. The selection of work for this degree must, in each case, be approved by the director of the College.

Advanced Standing.—Credit will be given for subjects pursued at other colleges of recognized rank upon presentation to the registrar of certificates that such subjects have been satisfactorily completed. Graduates of this institution and others of similar rank are admitted to graduate standing.

Facilities for Study

Shellfish Culture.—On Puget Sound and in Hood Canal are located numerous private oyster beds where cultivation has been practiced for some years. The state also owns certain oyster re-
serves which will be utilized for experimental purposes. These are all within reasonable distance of Seattle and are available for study purposes by the students of the college.

*Fishery Operations.*—Trap netting, purse and haul seining, gill netting, trolling, hand and long-line fishing, oyster gathering, clam digging, kelp harvesting, and other forms of commercial fishing, are carried on either in the harbor of Seattle, or waters adjacent, during the proper seasons, and can be observed and studied on the ground.

*Commercial Plants.*—In or near Seattle and available for study are plants for the canning of salmon, pilchards, clams, etc.; the mildcuring of salmon; the pickling of salmon, herring, sablefish, etc.; the freezing and cold storage of salmon, halibut, sablefish, herring, steelhead trout, and smelt; the smoking of salmon, sablefish, herring, sturgeon, etc.; the extraction of oils from fishery products and the preparation of fish meal and fertilizer from the residue; and the extraction of chemical products from kelp and other aquatic plants. Two large can-making establishments, several plants manufacturing canning machinery, and a number of others supplying various machines and supplies for the fisheries, are also located in Seattle. Such of these industries as are not in Seattle are conveniently situated on Puget Sound, and the transportation costs to them would be very low.

*Aquarium.*—In the Fisheries building of the State Fisheries Board, at Fourth avenue and Seneca street, Seattle, a working aquarium is available for study purposes.

*Field Excursions.*—Much of the instruction in fish culture and fisheries technology is given in the field, necessitating frequent excursions to nearby hatcheries, fishing camps, oyster beds, and industrial plants. The expenses of these excursions will be comparatively small.

*Summer Work.*—Students of fisheries are urged to spend their summer vacation in some line of practical work connected with the fishery industry. As the college is convenient to the more important fisheries and hatcheries of the Northwest coast, ample opportunity is afforded for summer employment. Students not only acquire valuable experience in this way, but earn a considerable portion of their university expenses.

*Fishery Club.*—The Fishery Club is an organization open to all students of the College of Fisheries. It aims: (1) To secure full acquaintance and good fellowship among students and instructors; (2) to keep in touch with everyday problems in fisheries, and the men who are doing things worth while in this industry, and (3) to interest the public in the College of Fisheries and in the fishery problems of the state and nation.
Short Courses for Fishermen and Fish Culturists.—These courses will be given during each winter quarter, providing there are a sufficient number of applicants. Applicants must be at least twenty years old and show ability to carry the work with profit to themselves. Admission to courses is without examination. Examinations will be given in the various subjects at the close of the course and a certificate showing the work satisfactorily covered issued to each student.

Outline for Curricula

Choice of Electives.—In the 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 advisors unless such deviation is imperative.

For specialization in fisheries administration, the following electives are recommended: Fisheries 4, 5; business law (B.A. 54, 55); money and banking, (B.A. 57); economics of markets (B.A. 106); business organization (B.A. 105); plant management (B.A. 167); advertising (B.A. 137); accounting (two quarters, B.A. 11-12); admiralty law (Law 165); psychology 1 and 121; modern language (Spanish or German preferred); business statistics (B.A. 118).

For specialization in fisheries technology and fish culture: Fisheries 4, 5; engineering drawing (C.E. 1, 2); mechanical engineering 82, 198; chemistry and food analysis 105-106-107; industrial chemistry 123; physiological chemistry 144; chemistry of nutrition 193; refrigeration (M.E. 183); economic marine botany 130; public hygiene (Bacteriology 103); modern language (Spanish or German preferred); trigonometry (Mathematics 4); elements of statistical methods (Mathematics 13); business statistics (B.A. 118); oceanography (Geology 114); aquatic botany; parasitology (Zoology 107).

I. Fish Culture

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Second Year

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<th>Fisheries 3</th>
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Third Year

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*If the student has taken one year of physics in high school he will substitute electives for Physics 47 and 48.
FOURTH YEAR

<table>
<thead>
<tr>
<th>Autumn Quarter</th>
<th>Credits</th>
<th>Winter Quarter</th>
<th>Credits</th>
<th>Spring Quarter</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Fisheries 150</td>
<td>5</td>
<td>Fisheries 151</td>
<td>5</td>
<td>Fisheries 152</td>
<td>5</td>
</tr>
<tr>
<td>Fisheries 117</td>
<td>5</td>
<td>Electives</td>
<td>10</td>
<td>Electives</td>
<td>10</td>
</tr>
<tr>
<td>Electives</td>
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II. FISHERIES TECHNOLOGY

FIRST YEAR

<table>
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<tr>
<th>Autumn Quarter</th>
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</thead>
<tbody>
<tr>
<td>Zoology 1</td>
<td>5</td>
<td>Zoology 2</td>
<td>5</td>
<td>Economics 2</td>
<td>3</td>
</tr>
<tr>
<td>Fisheries 1</td>
<td>2</td>
<td>Fisheries 2</td>
<td>2</td>
<td>Chemistry 23</td>
<td>5</td>
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<tr>
<td>Chemistry 1 or 21</td>
<td>5</td>
<td>Chemistry 2 or 22</td>
<td>5</td>
<td>Fisheries 6</td>
<td>2</td>
</tr>
<tr>
<td>English 4</td>
<td>3</td>
<td>English 5</td>
<td>3</td>
<td>Electives</td>
<td>5</td>
</tr>
<tr>
<td>Mil. Sci. or Phys. Ed.</td>
<td>1%</td>
<td>Mil. Sci. or Phys. Ed.</td>
<td>1%</td>
<td>Mil. Sci. or Phys. Ed.</td>
<td>1%</td>
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SECOND YEAR

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<tbody>
<tr>
<td>Chemistry 128</td>
<td>5</td>
<td>Chemistry 129</td>
<td>5</td>
<td>Chemistry 111</td>
<td>5</td>
</tr>
<tr>
<td>Fisheries 3</td>
<td>5</td>
<td>*Physics 45</td>
<td>5</td>
<td>Electives</td>
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</tr>
<tr>
<td>*Physics 47</td>
<td>5</td>
<td>Electives</td>
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<td>Mil. Sci. or Phys. Ed.</td>
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<td>Mil. Sci. or Phys. Ed.</td>
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THIRD YEAR

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<tr>
<td>Bacteriology 101</td>
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<td>Bacteriology 102</td>
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<td>Fisheries 107</td>
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<td>Fisheries 106</td>
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<td>Fisheries 164</td>
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<td>Fisheries 105</td>
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<td>Pharmacy 16</td>
<td>1</td>
<td>Fisheries 115</td>
<td>3</td>
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<td></td>
<td></td>
<td>Electives</td>
<td>5</td>
<td>Electives</td>
<td>3</td>
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FOURTH YEAR

<table>
<thead>
<tr>
<th>Autumn Quarter</th>
<th>Credits</th>
<th>Winter Quarter</th>
<th>Credits</th>
<th>Spring Quarter</th>
<th>Credits</th>
</tr>
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<tbody>
<tr>
<td>Fisheries 155</td>
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<td>Fisheries 156</td>
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<td>Fisheries 157</td>
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<td>10</td>
<td>Electives</td>
<td>10</td>
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</table>

Courses

For description of courses, see Departments of Instruction, printed elsewhere in this catalogue. (See Index).
COLLEGE OF FORESTRY

THE FACULTY

HENRY SUZZALLO, PH. D. (Columbia), LL. D. (California), PRESIDENT.
JOHN THOMAS CONDON, LL. M. (Northwestern), DEAN OF FACULTIES.
HUGO WINKENWERDER, M. F. (Yale), Professor of Forestry; DEAN.
HERB PERSONS KIRKLAND, A. B. (Cornell), Professor of Forestry.
ELIAS TREAT CLARK, M. F. (Yale), Associate Professor of Forestry.
BROR LEONARD GONDAK, M. S. F. (Washington), Assistant Professor of Forestry.
CONRAD W. ZIMMERMANN, A. B. (Washington), Lecturer in Timber Physics.

THEOYR KINCAID, A. M. (Washington), Professor of Zoology.
HENRY KERZER BENSON, PH. D. (Columbia), Professor of Chemical Engineering.
GEORGE SAMUEL WILSON, B. S. (Nebraska), Associate Professor of Mechanical Engineering.
GEORGE IRVING GAVETT, B. S. (C. E.) (Michigan), Assistant Professor of Mathematics.
JOHN WILLIAM HUTSON, PH. D. (Harvard), Assistant Professor of Botany.
DAVID CONNOLLY HALL, M. D. (Chicago), University Health Officer; Professor of Hygiene.
CLINTON LOUIS UTTENBAC, M. S. (Washington), Instructor in Physics.
FRANK DEMETRIUS HAYDEN, B. S. (Massachusetts Institute of Technology), Assistant Professor of Civil Engineering.

ADVISORY BOARD

R. W. VINNEDGE, North Bend Lumber Co., Edgewick, Chairman.
ROBERT B. ALLEN, Secretary-Manager West Coast Lumbermen’s Association, Seattle.
THORPE BABCOCK, North West Lumber Co., Hoquiam.
W. E. CROSBY, Editor West Coast Lumberman, Seattle.
H. A. HUNNEM, Cascade Lumber Co., Yakima.
HOWARD JAYNE, Willapa Lumber Co., Portland, Ore.
HON. MARL REED, Simpson Logging Co., Shelton.
W. G. WIGGLE, Supervisor Snoqualmie National Forest, Seattle.

PURPOSE AND LOCATION

The College of Forestry was established in 1907. It has exceptional advantages in its location. The University campus comprises 530 acres, 40 of which are in timber, and offer splendid opportunities for field work in silviculture and forest measurements. Other excellent forests are within walking distance of the campus. The University also 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 the art of forest management. The
city of 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.

Short Courses for Forest Rangers and Lumbermen—Applicants must be at least twenty years old and show ability to carry the work with profit to themselves. Admission to classes is without examination.

Field Observations.—Much of the instruction in technical forestry is given in the field, necessitating frequent excursions in nearby forests, logging camps and sawmills. The expenses of these excursions never exceed $10 for the freshman year, $15 for the sophomore year, $20 for the junior year, $50 for the senior year, and usually are much less.

Summer Work

Students of forestry are urged to spend their summer vacation in some line of practical work connected with the forest industry. Situated as the school is in the heart of a great lumbering section and near extensive national forests, ample opportunity is offered for summer employment. Students not only acquire valuable experience in this way, but earn a considerable portion of their university expenses.

Forest Club

The Forest Club is an organization open to all students of the College of Forestry. It aims: To secure acquaintance and good fellowship among students and instructors; to keep in touch with everyday problems in forestry and lumbering, and the men who are doing things worth while in these industries; to interest the public in the college and in the forestry and lumbering problems of the state.

Officers of the club for the year 1920-21 are: President, Seldon Andrews; vice-president, Russell Mills; secretary-treasurer, Elwood Hogan.

The club issues every May "The Forest Club Annual," a publication which contains articles and illustrations descriptive of the school, of scientific interest, and a complete roster of students, ex-students, and alumni. A special College of Forestry page is also published each month in the West Coast Lumberman.

Requirements for Admission and Graduation

Admission.—Full information regarding requirements for admission may be found on pages 39-51.
Courses and Degrees.—Beginning with September, 1914, the College of Forestry abandoned its fixed four-year groups of study and has since then offered only one five-year course with a liberal allowance for electives. As technical forestry has reached a stage where some specialization is almost necessary, this arrangement gives the student ample opportunity for specialization along four distinct lines: (1) Forest service and state work, (2) logging engineering, (3) forest products and (4) the lumber business. The course may, however, be pursued for only four years, and on the completion of four years of work the student will be awarded the degree of bachelor of science in forestry. It should be emphasized that this arrangement will allow the student to receive practically as broad a training in four years as heretofore, but that if he desires to specialize he should pursue the work for five years.

Undergraduate Work.—For the degree of bachelor of science in forestry (B.S.F.) the student shall have completed in addition to the required subjects outlined in the curriculum, at least 46 credits in subjects selected from forestry, lumbering, engineering, or the botanical, chemical, zoological, geological or economic sciences, the subjects to be approved by the student's class advisor, but in no case shall more than 23 in any department other than forestry be allowed toward graduation. The total number of credits required for graduation shall be 180 exclusive of shop and military science. Candidates for the degree must furthermore receive grades of A, B, or C in at least three-fourths of the credits required for the degree.

Graduate Work.—For the degree of master of science in forestry (M. S. F.), the student in addition to being a graduate of this University or other institution of equal rank, and having a satisfactory knowledge of botany, geology, physics, chemistry, mathematics, and surveying, shall have been credited at this University with 225 credits, of which at least 78 are in technical forestry subjects, including silviculture, dendrology, wood technology, mensuration, management, lumbering, wood preservation, forest economics, and thesis. Only grades of A, B, and C can be counted toward a graduate degree.

Special Opportunities for Advanced Work

Attention is called to the equipment and to the special advanced courses for graduate students. The physical equipment of the College of Forestry and the exceptional advantages of its location should prove particularly attractive to graduate students. The advanced courses include dendrology, silviculture, management, wood technology, timber physics, wood preservation, advanced forest products, the business of lumbering, and research. Special facilities and apparatus are provided for this advanced work. Emphasis is placed upon the fact that a graduate from a college of forestry
of equal rank with the College of Forestry of this University may complete the requirements for the advanced degree in one year. Graduates from other institutions of equal rank, but giving no courses in technical forestry, may complete the required work in two years, providing they have training in the fundamental sciences.

**OUTLINE FOR CURRICULA**

*Choice of Electives.*—In the 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.

The curriculum of the College is practically identical for all students during the first two years, but provides for specialization in the upper division courses in (1) Forest Management, (2) Logging Engineering, (3) Forest Products, and (4) Milling and Marketing or the Business of Lumbering. Students should decide by the end of their sophomore year in which field they desire to specialize. The student should be especially careful to register for the electives required for his advanced specialized courses as no student will be admitted to the advanced subjects who has not had the necessary prerequisites. These are definitely stated in connection with the course descriptions.

**LOWER DIVISION**

It will be the aim to prepare students who cannot go farther than the end of the Lower Division for forest ranger service, and as assistants to logging engineers. Upon approval of the dean they will be allowed to substitute certain of the subjects of the junior year for some of the required freshman and sophomore work.

### FIRST YEAR

<table>
<thead>
<tr>
<th>Autumn Quarter</th>
<th>Winter Quarter</th>
<th>Spring Quarter</th>
</tr>
</thead>
<tbody>
<tr>
<td>For. 1 (Dend.) ... 5</td>
<td>Bot. 11 ... 5</td>
<td>Bot. 12 ... 5</td>
</tr>
<tr>
<td>For. 2 (Gen. For.) ... 3</td>
<td>For. 3 ... 3</td>
<td>Math. 56 ... 3</td>
</tr>
<tr>
<td>Math. 54 (Foresters) ... 3</td>
<td>Math. 55 ... 3</td>
<td>For. 4 (Protection) ... 3</td>
</tr>
<tr>
<td>English ... 3</td>
<td>C. E. 1 ... 3</td>
<td>C. E. 56 ... 5</td>
</tr>
<tr>
<td>For. 5 (Woodcraft) ... 2</td>
<td>C. E. 55 ... 2</td>
<td></td>
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<td>Phys. Ed. or Mill. Sci. ... 1%</td>
<td>Phys. Ed. or Mill. Sci. ... 1%</td>
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<td>Shop</td>
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### SECOND YEAR

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<tr>
<th>Autumn Quarter</th>
<th>Winter Quarter</th>
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<tbody>
<tr>
<td>For. 53 (Const.) ... 3</td>
<td>Chem. 2 ... 5</td>
<td>For. 52 (Mensurat.) ... 5</td>
</tr>
<tr>
<td>For. 57 (Silvics) ... 3</td>
<td>For. 51 (Mensurat.) ... 5</td>
<td>For. 58 (Silvicul.) ... 5</td>
</tr>
<tr>
<td>Chem. 1 ... 5</td>
<td>English ... 3</td>
<td>Geol. 5 (Forestry) ... 5</td>
</tr>
<tr>
<td>Econ. 1 (Gen.) ... 5</td>
<td>Elective ... 2</td>
<td></td>
</tr>
<tr>
<td>Phys. Ed. or Mill. Sci. ... 1%</td>
<td>Phys. Ed. or Mill. Sci. ... 1%</td>
<td>Phys. Ed. or Mill. Sci. ... 1%</td>
</tr>
</tbody>
</table>

### UPPER DIVISION

Beginning with the Upper Division, the student should carefully consider the electives with reference to the specialty he intends to make his life work.

### THIRD YEAR

<table>
<thead>
<tr>
<th>Autumn Quarter</th>
<th>Winter Quarter</th>
<th>Spring Quarter</th>
</tr>
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<tbody>
<tr>
<td>For. 101 (Technol.) ... 5</td>
<td>For. 158 (Util.) ... 5</td>
<td>For. 105 (Preserva.) ... 5</td>
</tr>
<tr>
<td>Physics 92 (For.) ... 5</td>
<td>Physics 93 ... 5</td>
<td>Elective ... 5</td>
</tr>
<tr>
<td>M.E. 82 (Steam Engs.) ... 3</td>
<td>Recreation</td>
<td>For. 104 (Tim. Tests) ... 5</td>
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<td>Recreation</td>
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**Suggested Electives**

<table>
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<tr>
<th>Autumn Quarter</th>
<th>Winter Quarter</th>
<th>Spring Quarter</th>
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<tbody>
<tr>
<td>Chem. 101 ... 5</td>
<td>Chem. 111 (Organic) ... 5</td>
<td>Bot. 111 (Pathology) ... 5</td>
</tr>
<tr>
<td>B.A. 11 (Accounting) ... 5</td>
<td>B.A. 12 (Accounting) ... 5</td>
<td>B.A. 56 (Bus. Law) ... 3</td>
</tr>
<tr>
<td>C.E. 22 (Log. R.R.) ... 5</td>
<td>B.A. 55 (Bus. Law) ... 3</td>
<td></td>
</tr>
<tr>
<td>B.A. 106 (Markets) ... 5</td>
<td>B. A. 128 (Salesmanship) ... 5</td>
<td></td>
</tr>
<tr>
<td>B.A. 54 (Bus. Law) ... 3</td>
<td>M.E. 88 ... 8</td>
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### UNIVERSITY OF WASHINGTON

#### FOURTH YEAR

<table>
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<tr>
<th>Autumn Quarter</th>
<th>Credits</th>
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<th>Spring Quarter</th>
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<tbody>
<tr>
<td>For. 151 (Management)</td>
<td>5</td>
<td>For. 128 (Econ.)</td>
<td>5</td>
<td>All elective.</td>
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</tr>
<tr>
<td>For. 153 (Gen. Lumber)</td>
<td>5</td>
<td>For. 152 (Management)</td>
<td>5</td>
<td>Recreation</td>
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</tr>
<tr>
<td>Recreation</td>
<td></td>
<td>Recreation</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Suggested Electives**

| For. 185 (Log. Eng.) | 4       | For. 165 (Log. Eng.) | 4       | For. 187 (Log. Eng.) | 16     |
| For. 183 (Milling) | 6       | For. 184 (Marketing) | 3       | For. 188 (Adv. Prod.) | 5      |
| For. 110 (Admn.) | 3       |                      |         |               |         |

**GRADUATE**

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 is, strictly speaking, required, but the student will elect all those belonging to one specialty as determined upon consultation with his class adviser. A sufficient number will have to be taken to fulfill the requirements for the master's degree.

| For. 202 (Thesis) | 3       | For. 202 (Thesis) | 3       | For. 202 (Thesis) | 3      |
| For. 201 (For. Geog.) | 3       | For. 200 (Seminar) | 2       | For. 223 (Adv. Manage.) | 8      |
| For. 208 (Seminar) | 2       | Elective | 10      | For. 224 (Adv. Milling and Marketing) | 5      |
| For. 221 (History) | 2       |                   |         |               |         |

### COURSES

For description of courses, see Departments of Instruction, printed elsewhere in this catalogue. (See Index).
SCHOOL OF LAW

THE FACULTY

HENRY SUZZALLO, PH. D. (Columbia), LL. D. (California), PRESIDENT.

JOHN THOMAS CONDON, LL. M. (Northwestern), Professor of Law, DEAN.

HARVEY LANTZ, A. M. (De Pauw), LL. B. (Kent), Professor of Law.

IVAN WILBUR GOODNER, LL. B. (Nebraska), Professor of Law.

CLARK PRESCOTT BISSETT, A. B. (Hobart), Professor of Law.

LESLIE JAMES ATER, B. S., J. D. (Chicago), Professor of Law.

JOSEPH GRATAN O'BRYAN, A. B. (Jesuit College), Lecturer on Law.

ORGANIZATION AND EQUIPMENT

General Statement.—The Law School of the University of Washington was established in 1899. The case system is generally used and is designed to give an effective knowledge of legal principles and to develop the power of independent legal reasoning. A thorough legal training is offered to students of maturity and with previous preliminary education, and the courses offered are adapted to train and fit the student for practice in any state or jurisdiction. Special attention and emphasis is given to the law of the state of Washington, and in the illustrations and development of legal principles, cases and statutes are largely cited from the state of Washington and other Northwestern and Pacific states. The Law School is a member of the Association of American Law Schools.

The Law Building.—The Law School occupies the entire upper floor of Commerce Hall. This building, which is one of the largest of the University buildings and is in the center of the campus, in the Liberal Arts Quadrangle, represents the best in modern construction and equipment. The law library occupies the entire end, and an idea of its roominess may be gained from its dimensions, which are, exclusive of stacks, forty by seventy feet. In addition to this general reading room, there is a large consultation room, twenty-five feet square, adjoining. There are three large lecture or recitation rooms, and a large room fitted and used exclusively for the trial court. These are all readily accessible to each other, and every convenience and improvement tending to add to the efficiency of the student, from an equipment standpoint, is present.

The Libraries.—The University Law Library consists of about 25,000 volumes. It contains the reports of all the courts of last resort, the reported lower courts of several states and the English
courts. The latest revisions of all the state statutes and a large collection of the session laws of the various states, including a complete set of each of the Pacific Coast states, are important features.

The library is catalogued and indexed by the Library of Congress cards.

The University General Library contains 96,644 volumes and is especially strong in reference works.

The Public Library of the city of Seattle is open to the free use of our students and is within easy distance of the campus by street car.

**General Information**

The four quarter system is adopted in the Law School. Each quarter is approximately for twelve weeks, and credit for work is usually on the basis of one credit representing a recitation or lecture course one hour per week for one quarter. In adopting this system the total hour values of courses prevailing in the schools of the Association of American Law Schools have been generally retained—e.g., courses formerly given two hours per week per semester are under the quarter system given three hours per week per quarter. This makes possible a better sequence of courses in the first year and permits students to enter at the opening of any quarter. However, students beginning the study of law cannot be registered for the full fifteen-hour course except when entering at the first, or autumn quarter.

**Fees.**—A fee of fifteen dollars ($15) per quarter for persons who have been domiciled in the state of Washington or territory of Alaska, for at least one year prior to date of registration, and of fifty dollars ($50) per quarter for all others, is charged in the Law School, payable at the beginning of each quarter. A law library fee of ten dollars ($10) per quarter is also charged all law students, payable at the beginning of each quarter. A diploma fee of five dollars ($5) is charged all students to whom diplomas are issued.

For information on other general University fees and expenses applicable to all students, see pages 47-51.

**Admission to the Bar.**—The Law School of the University of Washington is by law made the standard of approved law schools for the purpose of admission to the bar of this state. Students intending to practice in the state of Washington should consult the dean of the Law School upon entering the Law School, and register in accordance with the rules of the State Board of Law Examiners.
ADMISSION AND GRADUATION

To be admitted to regular standing in the Law School students must present acceptable credits or pass examination entitling them to admission to this University and in addition thereto present a junior certificate from the College of Liberal Arts or the College of Science of this University, or present acceptable credits or pass examinations equivalent to the junior certificates. The entrance requirements are stated fully in the section of the catalogue relating to Entrance Information.

Advanced Standing.—If, in addition to satisfying the entrance requirements for regular standing in the Law School, the student has earned credits in another law school of satisfactory standing, by regular attendance for at least one academic year of not less than eight months, 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. Not more than two years' credit will be allowed for such work. The right is reserved to refuse advance credit in law in whole or in part, save upon examination. Candidates for a degree, with advanced standing, must spend at least one full college year in the Law School.

Special Students.—No person will be admitted as a special student in law, unless he is twenty-one years of age and his general education is such as to entitle him to take the state bar examination. Special students who comply with these requirements and with the regulations for admission of special students (see Entrance Information, page 45) will be admitted to take such work in law as their previous preparation enables them to carry successfully, and upon satisfactory completion of sufficient law work to entitle them to take the state bar examination, will be given a certificate or affidavit entitling them to apply for examination. Students who intend to take this method must file notice of their intention to study law with the clerk of the Supreme Court as required by law.

Special Students Becoming Candidates for Degree.—Special students may become candidates for a degree upon complying with all the entrance requirements as above set forth in reference to regular students. If a special student intends to become a candidate for a degree by clearing up his entrance requirements during his law studies, he must notify the dean of the Law School upon registration. Such students will be permitted to carry a limited amount of work in the College of Liberal Arts or the College of Science to enable them to clear up their entrance requirements in law.

Combined Curriculum in Arts and Law.—This combined course allows the student with a good record to complete the requirements for the degrees of bachelor of arts and bachelor of laws in six years.
It is open only to those students who have maintained a uniformly good record for scholarship during the first three years of Liberal Arts.

The student is enrolled in the College of Liberal Arts during the first three years. If at the end of three years he has uniformly good record for scholarship and has earned 135 or more credits, including all the required work, he may for the fourth year register in the Law School for the first year's work in law and must earn in the College of Liberal Arts additional credits sufficient to make his total of arts and science credits amount to 144, and earn in the Law School at least 36 credits in the first year law work, to apply on his bachelor of arts degree, thus making his 180 credits required for the degree of bachelor of arts. The degree of bachelor of arts may be granted upon the completion of the fourth year.

The last two years of this combined course are devoted to completing the rest of the work in the Law School.

Students are advised to complete their full 144 credits in Liberal Arts by the end of the third year, so they can enter the law work clear in the fourth year.

Students from other schools entering this University with advanced standing may take advantage of this combined course, provided they are registered in the College of Liberal Arts for at least one full year's work and earn at least 45 credits in the University before entering the law work.

This privilege will not be extended to normal graduates attempting to graduate in two years nor to undergraduates of other colleges who enter this University with the rank of senior.

Thesis.—It is the desire of the faculty to encourage original investigation and research by the students. Each candidate for a degree is required to prepare and deposit with the dean of the Law School, before the beginning of the spring vacation of his senior year, a thesis of not less than thirty folios in length, upon some legal topic selected by the student and approved by the faculty. The student will be examined by the faculty upon this thesis. It must be printed or typewritten, and is to be kept permanently in the library of the Law School.

The Jaggard Prize.—Miss Anne Wright Jaggard, daughter of the late Edwin Ames Jaggard, LL. D., Justice of the Supreme Court of Minnesota, offers an annual prize of $50 for the best thesis submitted by members of the senior class, candidates for the degree of bachelor of laws, upon a subject in the courses of history of the law or jurisprudence.

Summer Session of the Law School.—Courses are offered each summer by the Law School for both beginning and advanced students. Different courses are offered successive summers. This
work counts toward a degree as a part of the regular instruction of the Law School. By increasing the number of periods per week, the equivalent of a quarter's work in the regular session is completed in each of the offered courses.

_Instruction in Other Departments._—Students in the Law School may pursue studies, for which they are prepared, in other departments of the University without charge, other than the prescribed fee for excess hours, except that in the laboratory courses the usual laboratory deposits will be required.

_Degrees._—The degree of bachelor of laws (LL. B.) will be conferred on all students who comply with the entrance requirements for regular students stated hereinbefore, remain in residence in the Law School for three school years, successfully complete all the law work in the Law School, aggregating 135 credits, and comply with all the rules and regulations of the faculty and board of regents of this University.

Students admitted to advanced standing based upon credits earned at another law school may count that work toward graduation, subject to the restrictions heretofore stated.

_Examination._—The members of each class are examined daily throughout the year in their studies, and may be subjected to written examinations at any time in the discretion of the faculty without notice. At the end of each quarter the members of each class are subject to written examination on the courses during the year, and their promotion is dependent on successfully passing such examination.

To receive the degree of bachelor of laws it is necessary to pass satisfactory examinations in the entire course of three years. Students who pass these examinations with distinguished excellence will receive the degree of bachelor of laws _cum laude._

_Courses_

For description of courses, see Departments of Instruction, printed elsewhere in this catalogue. (See Index).
COLLEGE OF MINES

THE FACULTY

HENRY SUZZALLO, Ph. D. (Columbia), LL. D. (California), President.

JOHN THOMAS CONDON, LL. M. (Northwestern), Dean of Faculties.

MILTON ROBERTS, A. B. (Stanford), Professor of Mining Engineering and Metallurgy; Dean.

JOSEPH DANIELS, S. B. (Massachusetts Institute of Technology), M. S. (Lehigh), Associate Professor of Mining Engineering and Metallurgy.

CLARENCE RAYMOND COBET, E. M. (Montana State School of Mines), A. M. (Columbia), Assistant Professor of Mining Engineering and Metallurgy.

HAWITT WILSON, C. E. (Ohio State University), Assistant Professor of Ceramics.

HARVEY L. GLENN, B. S. (Iowa State College), Lecturer on Assaying of Bullion.

FREDERICK POWELL, E. M. (Columbia), Lecturer on Gold Dredging.


LWY J. MERRILL, Assistant in Metallurgy.

OSCAR A. GLAESER, Assistant in Mining.

JAMES MCKIN, Assistant in Ore Dressing.

JOHN THOMAS CONDON, LL. M. (Northwestern), Professor of Law.

HENRY KREITZEN BENSON, Ph. D. (Columbia), Professor of Chemical Engineering.

TAYOR KINCAID, A. M. (Washington), Professor of Zoology.

FREDERICK ARTHUR OSBORN, Ph. D. (Michigan), Professor of Physics.

ROBERT EDWARD MORITZ, Ph. D. (Nebraska), Ph. N. D. (Strassburg), Professor of Mathematics.

CARL EDWARD MAGNUSON, E. E. (Minnesota), Ph. D. (Wisconsin), Professor of Electrical Engineering and Dean of the College of Engineering.

EVERETT OWEN EASTWOOD, C. E., A. M. (Virginia), S. B. (Massachusetts Institute of Technology), Professor of Mechanical Engineering.

DAVID CONNOLLY HALL, Sc. M., M. D. (Chicago), Professor of Hygiene.

CHARLES CHURCH MORE, M. S., C. E. (Lafayette), M. C. E. (Cornell), Professor of Civil Engineering.

WILLIAM FRANKLIN ALLISON, C. E. (Cornell), Professor of Municipal and Highway Engineering.

CHARLES LEONARD PHILLIPS, Colonel C. A. C., U. S. A. (U. S. Military Academy), A. B. (Colby), C. E. (Maine), Professor of Military Science and Tactics.

LOREN DOUGLAS MILLIMAN, A. B. (Michigan), Associate Professor of English.

CHARLES WILIAM HARRIS, C. E. (Cornell), Associate Professor of Civil Engineering.

VANDEVERE CUSTIS, Ph. D. (Harvard), Associate Professor of Economics.

GEORGE SAMUEL WILSON, B. S. (Nebraska), Associate Professor of Mechanical Engineering.

EDGAR ALLEN LOW, B. S., E. E. (Wisconsin), Associate Professor of Electrical Engineering.

HENRY LUTIS BRADL, Ph. D. (Cornell), Associate Professor of Engineering Physics.

CHARLES EDWIN WRAVER, Ph. D. (California), Associate Professor of Geology.

ALLEN FULLER CARPENTER, B. S., C. E. (Chicago), Associate Professor of Mathematics.

GEORGE IRVING GAYLIT, B. S., C. E. (Michigan), Assistant Professor of Mathematics.

GEORGE E. GOODEPEED, S. B. (Massachusetts Institute of Technology), Assistant Professor of Geology.

FRED HARVEY HEATH, Ph. D. (Yale), Assistant Professor of Chemistry.

SAMUEL THOMAS BEATTIE, Instructor in Woodwork.

SANDY MOREW KANE, Instructor in Metal Work.

CHRIS. G. DORSON, E. M. (Montana State School of Mines), Acting Instructor in Civil Engineering.

ADVISORY BOARD COLLEGE OF MINES

UNIVERSITY OF WASHINGTON

ROY H. CLARK, mining engineer, Payton Building, Spokane.

JOHN ERIKSON, mine operator, Erikson Building, Seattle.

J. T. HEFFERNAN, president of the Heffernan Engine Works, mine operator, 106 Railroad Avenue South, Seattle.

CHARLES HUSSEY, general manager of estate of John A. Finch, mine operator, Empire State Building, Spokane.

W. R. RUST, founder of the Tacoma Smelter, president of Tacoma Exploration Company, Box 1464, Tacoma.

NATHANIEL D. MOORE, General Manager of Pacific Coast Coal Company, Seattle.

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SCOPE AND FACILITIES

Degrees.—The College of Mines offers specialized training in mining engineering, metallurgy, and ceramics. The four-year curricula lead to degrees as follows:

I. Bachelor of science in mining engineering, B. S. (Min. E.)
II. Bachelor of science in geology and mining, B. S. (Geol. and Min.)
III. Bachelor of science in metallurgical engineering, B. S. (Met. E.)
IV. Bachelor of science in coal mining engineering, B. S. (Coal Mine E.)
V. Bachelor of science in ceramics, B. S. (Ceramics)

The degree of engineer of mines (E. M.) is given to graduates in mining engineering who have practiced their profession for at least three years and who present a satisfactory thesis. Graduates in metallurgy may receive the degree of metallurgical engineer (Met. E.) under similar conditions, and the appropriate advanced degrees are open to graduates of the other curricula.

Mining and Metallurgical Industries Available for Study.—Excellent opportunities for becoming familiar with mining and metallurgical operations are open to students in the College of Mines. Mining machinery of the best type is in operation within easy reach of the University. Much of the heavy mining machinery used in the neighboring states and Alaska is built in the city of Seattle, while patented machines, such as drills and concentrating tables of all makes, are kept in stock and as working exhibits by the firms that supply the North Pacific coast regions. More than 40 eastern firms dealing in mining equipment make their Seattle branches the distributing center for the Pacific Northwest, British Columbia and Alaska. Methods important to the mining engineer are the operations of the steam shovels, which are now used largely in iron, copper and gold mining. The engineers in charge of these plants have given the mining students every opportunity to become familiar with the methods of planning and carrying on the work, and the same statement applies to the mine operators throughout the state.

A partial list of the other available works of interest includes coal mines and coke ovens, with the largest production west of the Rocky mountains; metal mines of gold, silver, copper, arsenic, antimony, iron, etc.; cement plants, several stone quarries and dressing works; clay mines, clay and pottery works; gravel and sand pits with large production and approved methods; a region of varied geology with many economic minerals; the Tacoma smelters and
refineries; the U. S. assay office; the West Seattle steel plant of the Pacific Coast Steel Co., and several plants engaged in electrometallurgical work.

Mining Society.—The Mining Society, affiliated with the American Institute of Mining and Metallurgical Engineers, has a membership composed of all students in the College. At the monthly meetings of the society addresses are made by prominent mining engineers, and papers descriptive of their summer work are presented by the student members.

MINING AND METALLURGICAL RESEARCH

The purpose of this department is to stimulate and 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 which has fitted them to undertake investigations, are eligible to enroll in mining and metallurgical research. The degree of master of science may be granted to those students who, holding a suitable bachelor of science degree, 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 which are of special importance to this region.

Research Fellowships.—In connection with the department, four research fellowships of $900 annual value have been established. These fellowships are open to qualified graduates of scientific or technical courses in institutions of recognized standing. Applicants should send a copy of their record from the registrar's office of the college where they have been, or will be, graduated, and the names and addresses of at least three references who know their character, training and ability. Applications for these fellowships are due not later than June 1, and should be addressed to the Dean, College of Mines, Seattle, Washington.

Appointees to the fellowships report for duty on July 1, and are required to be on duty during the entire year, except that in case of reappointment for a second year, the fellowship holder is given a vacation from June 15 to July 1.

Fellowship holders are required to register as graduate students in the University of Washington and to become candidates for the degree of master of science in mining engineering, metallurgy or ceramics, unless an equivalent degree has previously been earned.
Arthur A. Denny Fellowship.—In addition to the foregoing, a fellowship of $500 annual value is open to students in the College of Mines who are residents of the state of Washington. This fellowship is awarded on the bases of scholastic excellence and general merit, but only to those who need financial assistance. Applications must be made to the Dean of the College before March 15 preceding the academic year for which the fellowships are to be granted. The purpose of the fellowship is to encourage graduate work in the College.

Investigations of Problems.—The University will, under certain conditions, permit mining and metallurgical 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 Bureau's experts are not undertaken. The research work shall be under the direction of the department, and complete records of all the data obtained in the investigation of the problems shall be filed with the department, which shall have the right to publish this information for the benefit of the mining and metallurgical industry.

Instruction for Coal Mining Men.—Miners taking the rescue training also receive instruction in the College of Mines on the subjects of mine gases, explosions and the origin and distribution of Pacific Coast and Alaska coals. Laboratory experiments are carried on to show the methods of analyzing coals and determining the uses to which they may be put. The methods of testing for permissible explosives at the Pittsburg station and the safe methods of charging, tamping, and firing are explained. Coal men interested in the washing of coals are given full practice with the several types of apparatus used for this purpose.

Requirements for Admission

Full information regarding requirements for admission, registration, and expenses may be found on pages 39-51.

Curricula of the College of Mines

Mining Engineering (Option I)

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¹Practice in mining, metallurgy, geology or ceramics, accompanied by a report on the work performed is required of all students during a summer vacation following the sophomore or junior year.
## UNIVERSITY OF WASHINGTON

### SECOND YEAR

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‡Mining practice in summer vacations.

### FOURTH YEAR

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### GEOLOGY AND MINING (OPTION II)

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‡Mining Practice in Summer Vacations.

### FOURTH YEAR

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### METALLURGY (OPTION III)

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‡Practice in mining, metallurgy, geology or ceramics, accompanied by a report on the work performed is required of all students during a summer vacation following the sophomore or junior year.
## College of Mines

### Second Year

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### Third Year

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### Fourth Year

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### Coal Mining (Option IV)

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### Ceramics (Option V)

#### First Year

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*practice in mining, metallurgy, geology or ceramics, accompanied by a report on the work performed is required of all students during a summer vacation following the sophomore or junior year.*
### UNIVERSITY OF WASHINGTON

#### SECOND YEAR

<table>
<thead>
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<th>Course</th>
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‡Mining Practice in Summer Vacations.

### FOURTH YEAR

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<tr>
<td>Electives</td>
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### Courses

For description of courses, see Departments of Instruction, printed elsewhere in this catalogue. (See Index).

#### WINTER SESSION FOR MINING MEN

The twenty-fifth annual short session for mining men will open on January 5, 1922, and continue until March 22. During this period each year twelve of the instructors in mining engineering offer a course for the benefit of persons who are interested in prospecting, mining, milling, assaying or smelting. Admission to the class is without examination. No previous preparation, training, or mining experience is necessary to enter the course, other than ability to read and write English. Many practical men with an interest in some branch of mining but without much education have obtained satisfactory results from the course; others with a college education and mining experience have gained much up-to-date training and information. The past experience and future aims of each student are taken into consideration, and the character of his work arranged accordingly. Prospectors and mining men may bring in their own ores and minerals for study, for assay, or for concentration tests, by ordinary wet methods or by flotation.

Instruction is given by lectures, laboratory exercises, and visits to mines and plants in operation. Each year a group of mining men is engaged to give special lectures during the period of the short session. These men represent the fields of coal, quartz and placer mining, dredging, milling and smelting.

Three general groups of studies are offered: (1) quartz mining; (2) placer mining; (3) coal mining.

*Practice in mining, metallurgy, geology or ceramics, accompanied by a report on the work performed is required of all students during a summer vacation following the sophomore or junior year.*
1. **Quartz Mining.**—For men interested in quartz or lode mining, the course outlined consists of geology, mineralogy, mining, milling, field trips, mining law, surveying, chemistry and fire assay­ing. Optional subjects are forge and foundry, mine timber fram­ing, and mine rescue and first-aid training.

2. **Placer Mining.**—The placer mining group embraces sur­veying, hydraulic mining, placer mining, geology, mineralogy, min­ing, milling, mining law, and forge and foundry.

3. **Coal Mining.**—For coal miners the courses consist of coal analysis, coal washing, gas and lamp testing, mine rescue and first­aid training, chemistry, geology, mineralogy and surveying.

For more detailed information apply to the dean of the College of Mines.
COLLEGE OF PHARMACY

THE FACULTY

HENRY SUZZALLO, PH. D. (Columbia), LL. D. (California), PRESIDENT.

JOHN THOMAS CONDON, LL. M. (Northwestern), DEAN OF FACULTIES.

CHARLES WILLIS JOHNSON, PH. C., PH. D. (Michigan), Professor of Pharmaceutical Chemistry; DEAN AND STATE CHEMIST.

ARTHUR WILSON LINTON, B. S. (Michigan), M. S. (Washington), ASSOCIATE PROFESSIONAL CHEMISTRY.

ELDIN VERNE LYNN, PH. D. (Wisconsin), Assistant Professor of Pharmacy.

FREDERICK MORGAN PADELFORD, PH. D. (Yale), Professor of English and Dean of the Graduate School.

FREDERICK ARTHUR OSBORN, PH. D. (Michigan), Professor of Physics.

PIERRE JOSEPH FEHER, PH. D. (Johns Hopkins), Professor of French.

THEODORE CHRISTIAN FRYE, PH. D. (Chicago), Professor of Botany.

ROBERT EDOUARD MORITZ, PH. D. (Strassburg), Professor of Mathematics.

LESLIE J. ATER, J. D. (Chicago), Professor of Law.

STEPHENV ANNA MILLER, JR., A. B. (Stanford), LL. B. (Michigan), Professor of Economics and Dean of the College of Business Administration.

GEORGE BURTON RIGS, PH. D. (Chicago), Associate Professor of Botany.

ERNEST OTTO ECKELMAN, PH. D. (Heldelberg), Assistant Professor of German.

JOHN WEINZIEB, PH. D. (Wisconsin), Professor of Bacteriology.

ELI VICTOR SMITH, PH. D. (Northwestern), Assistant Professor of Zoology.

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COLLEGE OF PHARMACY

The College of Pharmacy was organized in 1894 for the purpose of offering an opportunity to young men and women to become well trained practical pharmacists. The work of the two year course as first organized has been extended to three, four and five year courses. In the two and three year courses a complete training is offered in technical and commercial pharmacy; in the four year course an opportunity for training in more advanced scientific...
pharmacy together with a liberal training in other sciences and in languages. The five year or graduate course offers an opportunity to do research work in one of the most fertile fields of modern science.

The students in pharmacy share the advantage and enjoy the spirit of one of the foremost educational institutions of the Pacific Coast.

**Requirements to Practice Pharmacy in the State of Washington**

The Administrative Code passed by the 1921 legislature abolished the Board of Pharmacy and placed the registration of pharmacists under a new department created by the Code and called the Department of Licenses.

It is expected that the Department of Licenses will continue to enforce the requirements for registration as pharmacists that have been enforced by the Board of Pharmacy since 1914.

These requirements are:—1. Graduation from an approved College of Pharmacy.

2. (a) Graduates of two-year courses are required to have two years of practical experience.

(b) Graduates of three-year courses are required to have 18 months of practical experience.

(c) Graduates of four-year courses are required to have 12 months of practical experience.

Graduates of the University of Washington College of Pharmacy are registered *without examination* upon payment of a fee of $8. Graduates who have not had the required amount of practical experience are registered as assistant pharmacists and upon completing the required amount of practical experience obtain full registration as pharmacists.

**Higher Standards in Pharmacy.**—The minimum course of study in the College of Pharmacy is one of three years. The aim of this course is to give thorough scientific training for retail pharmacists and, if the student desires, he may elect certain studies in the College of Business Administration that will better prepare him for the business side of retail pharmacy.

It is recognized that retail pharmacy is both a profession and a business. The College of Pharmacy desires to meet as far as possible these two conditions. Special attention will be given, in the first place, to a thorough scientific training for the compounding and dispensing of drugs and medicines, and such business training will be included as time will permit in the three year course. Students desiring further business training can complete, in one more year, the four year combined scientific and business course. In
this four year course the student will get training in economics, psychology, business law, accounting, advertising, salesmanship and business management. All of this training is useful in the everyday life of the business side of retail pharmacy.

Students desiring more extensive training in scientific pharmacy can complete the three year course by including advanced work in Prescriptions—manufacturing pharmacy, toxicology, physiological chemistry and bacteriology. Graduates of this course are trained for positions in strictly prescription stores and for work in clinical diagnosis.

Graduates of the four year scientific course are trained for positions as expert laboratory workers in both State and Federal Laboratories, bacteriologists for physicians, City Boards of Health, and for State and Federal laboratories, manufacturing pharmacists and chemists for large pharmaceutical houses, and as teachers in the College of Pharmacy.

It should be noted therefore that the College sets a high standard for pharmaceutical training and that a number of opportunities are open to graduates who take the time to thoroughly prepare themselves for responsible positions.

Preparation for Medicine.—Students taking the four year scientific course have the opportunity of electing studies that will give them clear entrance to the best medical colleges. Pharmaceutical training is an excellent preparation for medicine. It gives the student a knowledge of drugs and medicines that can be obtained in no other way. In addition the graduate in pharmacy who finally completes medicine has the benefit of the two professions.

The American Conference of Pharmaceutical Faculties.—The College of Pharmacy is a member of the American Conference of Pharmaceutical Faculties. The objects of the conference 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.

General Information

Garden of Medicinal Plants.—For several years the College of Pharmacy has maintained on the campus a garden in which plants of pharmaceutical importance have been cultivated. The area and scope of this garden have been gradually extended, until the college now has a very complete collection of medicinal plants which furnishes valuable material for classes in botany, materia medica and drug assay.

A specialist in medicinal plant cultivation, formerly associated with the U. S. Bureau of Plant Industry, is a member of the staff of the College of Pharmacy and is in charge of the garden of
Persons interested in medicinal plant cultivation are urged to write Mr. James Thompson, College of Pharmacy, University of Washington, Seattle, for desired information.

Service to Pharmacists of the State.—It is the desire of the college to render every possible service to the pharmacists of the state. We therefore invite the pharmacists to write us in regard to their prescription difficulties. Many pharmacists are now availing themselves of this privilege, and it is our wish to extend this service to the entire profession. Send your prescriptions with a history of difficulties encountered to Professor A. W. Linton, who is in charge of prescription courses in the College of Pharmacy.

Food and Drug Analysis.—The enactment of the Food and Drug Act by Congress, and of similar legislation by most of the states (Washington included), has given great importance to pharmaceutical education. It is at once apparent that a knowledge of drugs is equally important with chemistry in the administration and enforcement of this legislation. The graduate in chemistry is not wholly qualified to act as a food and drug inspection chemist for the government, states, private individuals, and corporations, if he is not trained in those subjects included in the collective name of pharmacy. These allied subjects are: Theory and practice of pharmacy, manufacturing pharmacy, drug assaying, pharmaceutical botany, study of the United States Pharmacopoeia and National Formulary, pharmacognosy, materia medica and therapeutics, etc. A great many pharmaceutical chemists are needed to carry out the analytical processes involved in the enforcement of this legislation, but the number of men adequately trained is very limited. Students with high school training are urged to consider these opportunities and to prepare themselves for such positions. The Dean of the College of Pharmacy is chemist for the Washington State Department of Agriculture and is also in close touch with the government food and drug work. Courses are offered that will fit students for this line of work.

Women in Pharmacy.—The opportunities for women in pharmacy are just as great as for men. Women are finding a place in retail pharmacy and are becoming noted for the satisfaction they give in both the scientific and business side of the average drug store. Women graduates of the four year course are also giving excellent satisfaction as food and drug chemists, bacteriologists and as teachers in colleges of pharmacy.

Library Facilities.—A branch of the university library containing books and current publications on pharmacy and chemistry is maintained in the pharmacy building. Practically all the domestic and some foreign journals on pharmacy are received by the college. The student is expected to make use of the library and to report from time to time on current topics of interest.
Fees.—For information on University fees and expenses applicable to all students see page 47.

The Arthur A. Denny Fellowship.—The College of Pharmacy is indebted to the Arthur A. Denny estate for a fellowship that will pay $500 per year to the student selected for this honor. The fellowship will be granted each year to a graduate of the four-year course in pharmacy. The graduate will be selected on the basis of excellence in scholarship and promise of ability to do research work in some subject of pharmaceutical importance. The fellowship is granted for the first time for the year 1921-1922.

Observation Trips.—The observation visits made each year by the classes in pharmacy to the various large manufacturing and wholesale establishments of Seattle and to the large retail stores are an important feature of the work of the college. Among the places visited during the year 1920-1921 were Stewart & Holmes Drug Company, branch houses of Parke, Davis & Co., H. K. Mulford Company and some of the leading prescription and commercial pharmacies of the city. Also to the hydrastis and ginseng farm of Mr. C. E. Thorpe, situated near the University campus.

Requirements for Admission

1. Admission to the Three-Year Course Leading to the Degree of Pharmaceutical Chemist.
   For admission to the three-year course, no subjects are prescribed beyond the general requirements for freshman standing in the University. (See page 39).

2. Admission to the Four-Year Course, Leading to the Degree of Bachelor of Science in Pharmacy.
   For admission to this course a candidate must present the following credits, in the fifteen units required for freshman standing in the University:
   2 units in one foreign language.
   1 unit in one of the following sciences: physics, chemistry, botany, zoology, physiology, general biology.

3. Admission to the Five-Year Course Leading to the Degree of Master of Science in Pharmacy.
   Candidates for the degree of master of science, must have received the bachelor's degree from this college or from some other college of equal rank maintaining a four-year course which is the equivalent of the course at this institution.

4. Students Not Candidates for Degrees.
   Persons over twenty-one years of age, who present evidence of adequate preparation, may be admitted as special students. In general a student from an accredited high school will not be admitted as a special if he has been in attendance at high school during the previous year.
Applicants for admission as specials should file their applications and credentials with the Registrar at least four weeks before the beginning of the quarter in which they wish to attend. Blanks for this purpose may be obtained from the Registrar at any time.

**DEGREES**

1. The degree of pharmaceutical chemist (Ph. C.) will be conferred upon any student who has complied with the entrance conditions and has completed the three-year course.

2. The degree of bachelor of science (B. S.) will be conferred upon any student who has fulfilled the entrance requirements and has completed either the four-year scientific course or the combined scientific and business course. This degree with honors may be conferred upon a student of the College of Pharmacy if recommended for this distinction by the pharmacy faculty.

3. The degree of master of science in pharmacy (M. S.) will be conferred upon any graduate of the four-year course who has completed at least one year of graduate work and has presented a satisfactory thesis.

**NOTE—**Students who have entered as candidates for the two-year degree of Graduate in Pharmacy (Ph. G.) have the right to complete the requirement for this degree.

**CURRICULA REQUIRED FOR GRADUATION**

1. A three-year course which prepares its graduates for responsible positions as practical pharmacists. Opportunity is given in this course for training in business law, advertising, accounting, advanced work in pharmacy, bacteriology and chemistry.

2. A four-year scientific course which offers a well-rounded scientific and liberal training. Graduates of this course are prepared for positions as, (a) practical and manufacturing pharmacists; (b) manufacturing and technical chemists; (c) bacteriologists; (d) teachers in colleges of pharmacy; (e) food and drug inspection chemists and bacteriologists in the United States Civil Service; (f) pharmaceutical journalism. Graduates of the four-year course have clear entrance to the best medical colleges and are well equipped to carry on their medical studies.

3. A four-year combined scientific and business course which includes the regular pharmacy work of the three-year course together with advanced training in pharmacy, and courses in the College of Business Administration and Schools of Journalism and Law which will insure the student a thorough business training. Special attention will be given to courses in business law, advertising, accounting, salesmanship, insurance, money and banking and business organization. This course is designed to produce well trained men for either retail or wholesale pharmacy.
4. A five-year course offers opportunity to the four-year graduate to do graduate and research work in some line of scientific pharmacy and graduate work in some branch of allied science. Graduates of this course are prepared for responsible positions in many different lines of work.

1. WITH DEGREE OF PHARMACEUTICAL CHEMIST. (Three-Year Course).

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<tr>
<th>FIRST YEAR</th>
<th>Autumn Quarter</th>
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<tr>
<td>Pharmacy 1</td>
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<td>Pharmacy 2</td>
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<tr>
<td>Chemistry 8</td>
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<td>Chemistry 10</td>
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<tr>
<td>Physiology 7</td>
<td>5</td>
<td>Botany 13</td>
<td>Botany 14</td>
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<th>SECOND YEAR</th>
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<td>Pharmacy 10</td>
<td>Pharmacy 11</td>
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<tr>
<td>English 1</td>
<td>3</td>
<td>Pharmacy 12</td>
<td>Pharmacy 13</td>
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<td>Pharmacy 101</td>
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Total Scholastic Hours for Graduation—135 plus 12 hours Military or Physical Training. Electives in Junior Year may be arranged to meet requirements of either four-year course.

2. WITH DEGREE OF BACHELOR OF SCIENCE. (Four-Year Scientific Course).

<table>
<thead>
<tr>
<th>FIRST YEAR</th>
<th>Autumn Quarter</th>
<th>Winter Quarter</th>
<th>Spring Quarter</th>
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<tbody>
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<td>Pharmacy 11</td>
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<tr>
<td>English 1</td>
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<td>Pharmacy 103</td>
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<td>Laboratory Science</td>
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The student is required to take 25 hours of one modern foreign language or 30 hours (15 each) if two languages are taken.

The elective work in science may be varied so as to prepare students for: (a) Entrance to colleges of medicine; (b) manufacturing pharmacists and chemists; (c) food and drug chemists; (d) bacteriologists; or (e) physiological chemists.

A total of 180 hours plus two years of military training or physical education (12 credits) are required for graduation.
3. WITH DEGREE OF BACHELOR OF SCIENCE. (Four-Year Combined Scientific and Business Course.)

**FIRST YEAR**

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<tbody>
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<td>Pharmacy 1</td>
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**SECOND YEAR**

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**THIRD YEAR**

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**FOURTH YEAR**

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Total scholastic hours for Graduation 180 plus 12 hours in Military or Physical Training.

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 22 credits allowed outside of the department of pharmacy. Election may be made in one or more of the following studies: Bacteriology, 8 to 22 credits; botany, 4 to 22 credits; physics, 10 to 22 credits; chemistry, 5 to 22 credits; zoology, 4 to 12 credits.

Not less than 23 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.

**Courses**

For description of courses, see Departments of Instruction, printed elsewhere in this catalogue. (See Index).
GRADUATE SCHOOL

THE FACULTY

HENRY SUZZALLO, Ph. D. (Columbia), LL. D. (California), President.

JOHN THOMAS CONDON, LL. M. (Northwestern), Dean of Faculties.

FREDERICK MORGAN PADELFOORD, Ph. D. (Yale), Professor of English; Dean.

HENRY LANDER, A. M. (Harvard), Professor of Geology and Mineralogy; Dean of the College of Science.

EDMOND STEPHEN MEANY, M. L. (Wisconsin), Professor of History.

J. ALLEN SMITH, Ph. D. (Michigan), Professor of Political Science.

CAROLINE HAVEN ONEI, Professor of Spanish.

TREVOR KINGAID, A. M. (Washington), Professor of Zoology.

MILNOR ROBERTS, A. B. (Stanford), Professor of Mining Engineering and Metallurgy; Dean of the College of Mines.

FREDERICK ARTHUR OSBORN, Ph. D. (Michigan), Professor of Physics; Director of Physical Laboratories.

WILLIAM SAVERS, PH. D. (Harvard), Professor of Philosophy.

DAVID THOMSON, B. A. (Toronto), Professor of Latin; Dean of the College of Liberal Arts.

CHARLES WILLIS JOHNSON, Ph. D. (Michigan), Professor of Pharmaceutical Chemistry; Dean of the College of Pharmacy.

THEODORE CHRISTIAN FRYE, Ph. D. (Chicago), Professor of Botany.

ROBERT EDOUARD HOUTZ, PH. D. (Nebraska), PH. N. D. (Strassburg), Professor of Mathematics.

CARL EDWARD MAGNUSON, E. E. (Minnesota), Ph. D. (Wisconsin), Professor of Electrical Engineering; Dean of the College of Engineering.

EVERETT OWEN EASTWOOD, C. E., M. A. (Virginia), S. B. (Massachusetts Institute of Technology), Professor of Mechanical Engineering.

WILLIAM ELMER HENRY, A. M. (Indiana), Librarian and Director of the Library School.


OLIVER HUNTINGTON RICHARDSON, Ph. D. (Heidelberg), Professor of European History.

CHARLES CHURCH MORE, M. S., C. E. (Lafayette), M. C. E. (Cornell), Professor of Civil Engineering.

HARRY KREITZER BENSON, Ph. D. (Columbia), Professor of Chemical Engineering.

JAMES NELSON BENHAM, Ph. D. (Wisconsin), Professor of Bacteriology.

HUGO WINKENWIDER, M. F. (Yale), Professor of Forestry; Dean of the College of Forestry.

VERNON LOUIS PARRINGTON, A. B. (Harvard), A. M. (Emporia), Professor of English.

FREDERICK ELMER BOLTON, Ph. D. (Clark), Professor of Education; Dean of the College of Education.

EDWIN JOHN VICKNES, Ph. D. (Minnesota), Professor of Scandinavian Languages.

EFFIE ISABEL BARTT, B. S. (Columbia), Professor of Home Economics.

WILLIAM FRANKLIN ALLISON, B. S., C. E. (Cornell), Professor of Municipal and Highway Engineering.

STEVENVSON SMITH, Ph. D. (Pennsylvania), Professor of Psychology.

ALLEN ROGERS BENHAM, Ph. D. (Yale), Professor of English.

STEPHEN IVAN MILLER, Jr., A. B. (Stanford), LL. B. (Michigan), Professor of Economics; Dean of the College of Business Administration.

FRED CARLETON AYER, Ph. D., (Chicago), Professor of Education.

WILLIAM MAURICE DEHN, Ph. D. (Illinois), Professor of Chemistry.

HOWARD WOOLSTON, Ph. D., (Columbia), Professor of Sociology.
MATTHEW LYLE SPENCER, PH. D. (Chicago), Professor of Journalism; Director of the School of Journalism.

GEORGE McPHERSON SMITH, PH. D. (Freiburg), Professor of Inorganic Chemistry.

THOMAS LATTIMER KIDDER, PH. D. (George Washington University), Professor of Transportation.

HOWARD THOMPSON LEWIS, A. M. (Wisconsin), Professor of Business Administration.

D. (Chicago), Professor of Forestry.

THOMAS KAY SIDAY, PH. D. (Chicago), Associate Professor of Latin and Greek.

EDWARD McMATHON, A. M. (Wisconsin), Associate Professor of American History.

GEORGE SAMUEL WILSON, B. S. (Nebraska), Associate Professor of Mechanical Engineering.

GEORGE WALLACH UMPHREY, PH. D. (Harvard), Associate Professor of Spanish.

OTTO PATZER, PH. D., (Wisconsin), Associate Professor of French.

GEORGE WALLACE UPHERET, PH. D. (Harvard), Associate Professor of Spanish.

THOMAS L. KIBLER, PH. D. (George Washington University), Professor of Transportation.

J. D. (Cornell), Professor of Chemistry.

ROBERT MAX GARELZ, PR. D. (Munich), Associate Professor of English.

FREDERICK KURT KIRSTEN, B. S. (B. E.) (Washington), Associate Professor of Electrical Engineering.

JOHN LUCKE WORCESTER, M. D. (Birmingham School of Medicine), Associate Professor of Anatomy.

EDWIN H. HEATH, PH. D. (Yale), Assistant Professor of Chemistry.
SPECIAL NOTE.—For detailed information concerning special facilities for graduate work in the various departments, consult the bulletin issued by the Graduate School.

The Aims of Graduate Study.—The principal aims of graduate study are the development of intellectual independence through the cultivation of the scientific attitude of mind, and the 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 upon 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 includes:

1. All heads of departments which offer graduate work to major students and all full professors in such departments.

2. All associate professors, assistant professors and instructors offering graduate work for major students; provided no department shall have more than four representatives. If more than that number are eligible, the departmental representatives below the rank of full professor shall be elected by the members of the department.

Fees.—Graduate students pay a tuition fee of $15 per quarter for the autumn, winter and spring quarters, if residents of the State of Washington or of Alaska, or $50 per quarter for each of these quarters if non-residents. The regular fee for the summer quarter is $20 for students working at the University; $15, including a $3 laboratory fee, for students working at the Biological Station.

Members of the staff on a full-time teaching schedule are relieved of all tuition. Teaching fellows, graduate scholars—formerly known as graduate assistants and graduate readers,—and non-instructional employees of the University pay a tuition fee of one dollar per quarter for each credit hour on the election blank.

The incidental fees, such as library and laboratory fees, are required from all who receive graduate instruction.

GRADUATE FELLOWSHIPS AND SCHOLARSHIPS

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

National Research Fellowships.—Fellowships in physics and chemistry, offered by the National Research Council, are open to promising research students, preferably those who have already taken the doctor's degree. A successful candidate can pursue his research at this University. The salary will ordinarily be $1500 for the first year. Fellows are eligible for successive reappointments, ordinarily with increase of salary.

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.

University Teaching Fellowships.—There are also a number of teaching fellowships yielding $540 each. Teaching fellows are expected to give about half time to such work as the head of the department may assign. An applicant for a teaching fellowship should apply directly to the head of the department in which he is interested.

Research Fellowships in Mining and Metallurgy.—The College of Mines of the University in cooperation with the United States Bureau of Mines offers four fellowships in mining and metallurgical research. The fellowships are open to graduates of universities and technical schools who are properly qualified to undertake research work. The value of each fellowship is $900 per year of twelve months. Fellowship holders are required to register as graduate students and to become candidates for the degree of master of science in mining engineering or metallurgy, unless an equivalent degree has previously been earned. Applications are due not later than May 15, and should be addressed to the Dean, College of Mines, University of Washington, Seattle, Washington.
Du Pont Fellowship.—Through its chemical department, Du Pont de Nemours & Co. offer a scholarship of $700 in chemistry, known as the "Du Pont Scholarship," open to a senior student or graduate student in chemistry or chemical engineering.

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

Rosenberg Scholarship.—A scholarship of $200, known as the "Samuel Rosenberg Scholarship, endowed in loving memory by Ella S. Rosenberg, his wife," is open to graduate students in French.

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.

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 equal rank, will be given full graduate standing. 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 are 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 twofold:

(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.
After having been approved by his advisory committee, a candidate for a degree must file with the dean of the Graduate School an outline of his proposed work, on a blank provided for that purpose. When it has received the approval of the graduate council and the student has been notified, he will be regarded as a candidate for a degree.

Students on the Staff.—Assistants, associates, or others in the employ of the University are normally permitted to carry three hours of graduate work if full-time employees, and ten to eleven hours if half-time employees. Permission to exceed these hours must be secured from the dean of the Graduate School and the president.

Graduate Study in the Summer.—As the summer offers leisure for advanced study to a large number of teachers, the University lays special emphasis on graduate work during the summer quarter. Graduates of colleges or universities in attendance then are urged to enroll for the strictly graduate courses, as these courses give an opportunity to work with a select group of mature students toward the acquisition of an advanced degree.

Graduate students will enroll with the dean of the Graduate School.

Attendance during three summer quarters will satisfy the residence requirement for the master's degree. A fair amount of credit toward the doctor's degree may also be earned in the summer quarter.

DEGREES

The Doctor's Degree.—Graduate students will be received as candidates for the degree of doctor of philosophy in such departments as are adequately equipped to furnish requisite training. Each department introduces its program of courses with a specific statement of the graduate training that it is prepared to direct, and of the distinctive opportunities that it offers for graduate work. This degree is conferred only on those who have attained proficiency in a chosen field and who have demonstrated their mastery by preparing a thesis which is a positive contribution to knowledge.

The requirements for the degree of doctor of philosophy are as follows:

1. At least three years of graduate work, of which not less than one year must be spent in residence at the University of Washington. If a candidate is otherwise engaged in any regular employment, a correspondingly longer period of study will be required.

2. Completion of courses of study in a major and two minor subjects, the work in the minors to constitute approximately one-third of this work. The marks for graduate students shall be "passed" or "failed". In courses open to undergraduates and graduates, the passing grade for a graduate student shall be "B" or
above if the course is his major subject, "C" or above, if the course is in his minor subject. Before being recognized as a candidate for the degree, a student must be approved by a committee as provided above.

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, and normally the candidate will wish to take this degree incidentally; 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 candidate expects to take the degree, the major and minor departments, supplemented by a representative from the graduate council, shall submit the candidate to a careful oral and written examination, to determine whether he has the native equipment and the scholarship to warrant him in continuing.

3. The preparation of a thesis, as stated above, embodying the results of independent research. This 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, and also by a special committee from the graduate council.

4. Examinations as follows:

The Preliminary Examination.—An oral and written examination, covering the major and minor subjects. 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 of the minor departments, and a representative of the graduate council. The preliminary examination will normally be taken not less than two quarters before the final examination.

The Final Examination.—An oral, or oral and written examination, covering the work of the candidates, and especially that part of it in which the thesis falls. The examination shall be given by a committee appointed by the dean including, so far as feasible, all of the instructors with whom the student has worked and a representative of the graduate council. 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. Such evidence must be filed with the dean and approved by him at least one academic year before the degree is granted. Only in rare cases shall the requirement of a reading knowledge of scientific French and German be waived and then only when, in the judgment of the council, substitutions for either or both of these languages will be to the advantage of the student's training.

6. One copy of the thesis in typewritten form (or library hand) shall be bound at the expense of the candidate and deposited with the librarian for permanent preservation in the University archives, at least four weeks before the date on which the candidate expects to take the degree.

The thesis, or such parts thereof, or such a digest as may be designated by the council, shall be printed. The candidate shall contribute $100 to a fund for printing of theses, whether his thesis appears in the University series or elsewhere. From this fund the library is provided with 150 copies and the candidate with 50 copies.

7. A card 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 card must bear the signatures of all major and minor instructors in charge of the student's work, of the committee appointed by the major department to pass on the thesis, and of the librarian or his appointed representative.

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 the degrees and master of arts and master of science 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 the examination, and shall not reduce the residence requirement at this University.

2. Completion of courses of study in a major and one or two minor subjects, the whole to total not less than 36 hours, of which 24 are normally in the major.
The requirements of a minor or minors may be waived, but only on recommendation of the head of the major department and with the consent of the graduate council.

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, which in no case shall be less than eighteen hours.

Elementary or lower division courses may not count toward the minor requirement, and teachers' courses may not count toward either the major or minor requirement.

3. The preparation of a thesis, as defined above.

4. An oral, or written, or an 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, one copy of the thesis in typewritten form or printed form (or library hand, in case the thesis is of such 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, and the cost of binding must be deposited with the thesis.

6. A card 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 card must bear the signatures of all instructors in charge of the student's work, of the instructor in charge of the thesis, and of the librarian or his appointed representative.

Master of Science in Technical Subjects.—The degree of master of science is given in technical subjects as follows:

Master of Science in Chemical Engineering
Master of Science in Civil Engineering
Master of Science in Electrical Engineering
Master of Science in Mechanical Engineering
Master of Science in Ceramics
Master of Science in Coal Mining Engineering
Graduate School

Master of Science in Geology and Mining.
Master of Science in Metallurgical Engineering
Master of Science in Mining Engineering
Master of Science in Forestry
Master of Science in Fisheries
Master of Science in Pharmacy

The requirements for these degrees are essentially the same as those for the degrees of master of arts and master of science.

Master's Degrees in Technical Subjects.—Master of forestry; master of business administration.

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 may be in the major.

Professional Degrees

Professional Degrees.—The professional degrees of chemical engineer, civil engineer, electrical engineer, mechanical engineer, metallurgical engineer and engineer of mines may be conferred in three years on those who hold the bachelor of science degree in their respective lines from the University of Washington, who give evidence of having engaged continuously in acceptable engineering work and who present satisfactory theses.

Courses

For description of courses, see Departments of Instruction, printed elsewhere in this catalogue. (See Index).
DEPARTMENTS OF INSTRUCTION

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 the withdrawal of a course, no fee will be charged.

Courses bearing numbers 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," being based on the class periods 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 a * are not given in 1921-1922.
AERONAUTICAL ENGINEERING

Engineering Hall

101. Aerodynamics.—Use of the wind tunnel in the determination of the characteristics of aerofoils; selection of aerofoils for a given purpose. Prerequisite, junior standing. Three credits.

111. Aerial Propellers.—A study of the theory and design of airscrews including a review of the methods of calculating thrust and efficiency. Prerequisite, junior standing. Three credits.

121. Airplane Design.—Selection of the type and construction of an airplane for a given purpose; computation and of performance from aerodynamic data; design of flying boats and seaplanes; the distribution of weights and the proportioning of parts. Prerequisite, A. E. 101. Three credits.

141. Airships.—Aerostatics, including a study of lighter-than-air machines. Prerequisite, A. E. 101, 121. Three credits.

161. Aerial Transportation.—The design and layout of landing fields and aircraft terminals. Aerial transportation as an industrial factor and as an instrument of warfare. Prerequisite, A. E. 111, 121, 141. Three credits.

ANATOMY

Science Hall and Anatomy Laboratory
Associate Professor Worcester

GROSS ANATOMY

101-102-103. General Human Anatomy.—A thorough study of the human body. The dissecting material is prepared after the most modern methods. Osteological collections are loaned to the students. Especially intended for students taking the pre-medical, nurses' or physical education courses, but open to others. Prerequisites, Zool 3 and 4 or their equivalent. Six credits per quarter; autumn, winter, spring.

104. Topographic Anatomy.—Cross and sagittal sections for correlation. Prerequisites, courses 101-102-103. Four credits; autumn, winter, spring.

108. Special Dissections.—For physicians or students who have completed the above courses in gross anatomy. Hours and credits to be arranged; autumn, winter, spring.

MICROSCOPIC ANATOMY

105-106. Histology and Embryology.—The microscopic anatomy of developing and adult mammals studied both in their fresh
and fixed conditions. Especially for students in pre-medical and nurses' courses but open to others. Prerequisite, Zool 3 and 4 or their equivalent. Six credits per quarter; autumn, winter.

Worcester

107. Neurology.—The dissection of the human brain and cord and special organs of sense, also the comparative developmental history of the central nervous system, followed by a microscopic study of the nuclei and fiber tracts. Prerequisites, courses 105 and 106 or their equivalents. Especially for pre-medical students but open to others. Six credits per quarter; spring.

Worcester

200. Research.—Graduate and research work in anatomy for those qualified. Credits and time arranged; autumn, winter, spring.

Worcester

ARCHITECTURE

Architecture Building

ASSOCIATE PROFESSOR GOULD; INSTRUCTORS, MCCLELLAND, SIXSMITH

A student should have some previous training in free hand drawing and he will be required to confer with the head of the department as to his special qualifications for taking the subject. It is desirable that a student have credits in plane geometry, algebra through quadratics, trigonometry, physics, and at least two years of modern language. Forty hours of modern language will be required before graduation. Twenty hours are provided for in the curriculum.

1-2. History and Elements of Architecture.—Illustrated lectures giving an historic survey of domestic architecture. Exercises given in drawing the simpler elements of buildings. Excursions to buildings and building supply companies. Two credits per quarter; autumn, winter.

Gould

3. History and Elements of Architecture.—General survey of the important periods of architectural history studied, wherever possible, in terms of present-day conditions. Two credits; spring.

Gould

4-5-6. Architectural Drawing.—Presentation of problems in architectural drawing based on the Greek and Roman Orders. Studies in plan, elevation, and section. Three credits per quarter; autumn, winter; spring.

Sexsmith

7. Descriptive Geometry.—Theoretical and practical problems. Orthographic projection. Emphasis on draftsmanship. Two credits per quarter; autumn.

Sexsmith

8. Shades and Shadows.—Construction by descriptive geometry of shades and shadows found in architectural renderings. Pre-
requisite, Arch. 7. Two three-hour laboratory periods per week. Two credits; winter.

9. **Perspective Drawing.**—The theory of architectural perspective from simple problems in single point perspective up to and including the more complicated problems. Office methods and short-cut methods will be studied and compared with the theory. Two three-hour laboratory periods. Prerequisite, Arch. 7. Two credits; spring.

10-11-12. **Free-hand Drawing.**—The fundamentals of free-hand drawing and free-hand perspective. Drawing in charcoal or crayon from cast or architectural ornament and from still life. One credit per quarter; autumn, winter, spring.

13-14-15. **Dimension Drawing.**—Fundamentals of draftsmanship; orthographic projection, shades and shadows, perspective, brief study of the classic orders and mouldings. Majors in Painting, Sculpture and Design. Two credits per quarter; autumn, winter, spring.

47-48. **Statics.**—Analysis of fundamental structural problems by application of the laws of equilibrium. Five credits per quarter; autumn and winter.

51. **History and Elements of Architecture.**—Egyptian—Greek—Roman. Two credits per quarter; autumn.

52. **History and Elements of Architecture.**—Byzantine—Romanesque—Gothic. Two credits per quarter; winter, spring.

53. **History and Elements of Architecture.**—Principals of design in terms of structural elements. Study and theory of planning. Two credits; spring.

54-55-56. **Architectural Design.**—Problems in design and planning. Society of Beaux Arts Architects program will be used and work sent to New York City for judgment in competition with work from leading architectural schools. Laboratory fee, $2. Five credits per quarter; autumn, winter, spring.

60-61-62. **Building Construction and Inspection.**—Lectures on building construction methods. Full size and large scale studies of detail. Inspection trips. Two credits per quarter; autumn, winter, spring.

72. **Modeling.**—Studies in clay of architectural ornament. One credit; autumn.
73-74. **Free-hand Drawing.**—Studies of architectural ornament and cast of the human figure. One credit per quarter; winter, spring. McClelland

101-102-103. **History of Architecture.**—The Renaissance. A comparative study of the period in Italy, France and England. Two credits per quarter; autumn, winter, spring. McClelland

104-105-106. **Architectural Design.**—Advanced problems in ornamental design and planning as applied to different materials. Laboratory fee, $2. Five credits per quarter; autumn, winter spring. McClelland

112. **Modeling.**—Design of simple architectural forms. One credit; autumn. Wehn

113-114. **Water Color.**—Still life studies, out-door subjects and architectural rendering. One credit per quarter; autumn, spring. McClelland

115. **Sanitation and Plumbing.**—Methods of sewage disposal and water supply in modern buildings; modern appliances and office practice; specifications. Two credits; autumn. Sexsmith

117. **Specifications and Office Practice.**—Two credits per quarter; winter. Sexsmith

151-152-153. **History of Architecture.**—Modern architecture; city and industrial planning. Prerequisite Arch. 103. Two credits per quarter; autumn, winter, spring. Gould

154-155-156. **Architectural Design.**—Beaux Arts Class A projects first two quarters; third quarter, thesis. Laboratory fee $2. Five credits per quarter; autumn, winter, spring. McClelland

157-158-159. **Free-hand Drawing.**—Studies from life. Not offered 1921-1922, substitute Painting, Sculpture and Design 5-6-7, Section A. Three credits per quarter; autumn, winter, spring.

166-167-168. **Art Appreciation.**—A survey of the history of art, principles of composition and arrangement. Not offered 1921-1922, substitute Painting, Sculpture and Design 16-17-18. One credit per quarter; autumn, winter, spring.

**ASTRONOMY**

**The Observatory**

Owing to Professor Boothroyd's resignation and the necessity on the part of the University to curtail expenses wherever possible, only courses 1 and 2 will be offered for the year, all other courses being temporarily suspended.

The work in astronomy is planned for two classes of students:
(a) Those who desire some knowledge of astronomy as a part of a liberal education; (b) engineers and navigators who need some knowledge of the science as a part of their technical training.

In the College of Science, courses 11 and 12 satisfy the science requirements.

In the College of Liberal Arts, courses 11 and 131 are recommended for those electing astronomy for the science requirement. Those who want only five hours may take courses 11 or 1, 2 and 31.

1. Introduction to Astronomy.—Lectures illustrated by planetarium lantern slides and by views of the more interesting of the heavenly bodies with the equatorial telescope. Use of charts in the study of the sky with the unaided eye. Open to all students of the University. Laboratory deposit, $1. One credit; autumn, winter, spring.

2. Elements of Astronomy.—A brief descriptive course designed to give clear ideas regarding our place in the universe, the succession of the seasons, tidal phenomena, phases of the moon, etc., as well as some conception of the scope of astronomy and a clear idea of the scientific method. Two credits; autumn, winter, spring.

*11. The Solar System.—Observation and study of the real and apparent motions of the various bodies which make up the Solar System. Study of the fundamental principles of mechanics which are revealed through the science of astronomy. Five recitations and laboratory periods per week and three laboratory periods to be arranged. Laboratory deposit, $1. Five credits; autumn, winter.

*112. The Sun and Stars.—Prerequisite, course 11 and at least high school physics. Five recitations periods per weeks. Five credits; spring.

*123. Nautical Astronomy.—Actual determination of time, latitude and azimuth from observations made by the student with the sextant. Prerequisites, Math. 52 and course 1 or the equivalents. Laboratory deposit, $2. Two laboratory periods per week. Two credits; autumn.

*131. History of Astronomy.—An exposition of the scientific method as illustrated by the progress of astronomy. Prerequisites, course 11 or 2, Physics 47, 48, 49 or equivalent. Two lecture and recitation periods per week. Two credits; spring.

*171. Engineering Astronomy.—Actual determination of time, latitude and azimuth from observations made on the sun and stars by the student with the surveyor’s transit. Prerequisite. Math. 52, C. E. 21, and must be preceeded or accompanied by course 1 or its equivalent. Two laboratory hours per week. Two credits; autumn. Laboratory fee, $2.

*Not offered in 1921-1922.
*172. Geodetic Astronomy.—The precise determination of
time, latitude and azimuth. Prerequisites, course 171, Math. 62.
Ten hours laboratory work per week. Five credits; winter. Lab-
atory deposit, $5.

Bacteriology and Pathology

Professor Weinzirl; Assistant Professor Nickson;
Assistant Miss Starl

With the exception of general bacteriology all the courses of­
fered are applied in one of the following fields: (a) medicine; (b)
sanitation; (c) industry. Laboratory work forms an important part
of all courses.

SUGGESTED ELECTIONS

For majors in bacteriology:
Sophomore year --------------------------- 101, 102, 103
Junior year ----------------------------- 201, 202, 203
Senior year ----------------------------- 210, 211, 212
213, 214, 215
For pre-medical students and nurses: --------- 103, 104, 105
110 111, 112
For home economics students ---------------101, 102, 103
For fisheries students ---------------------101, 102, 103
For pharmacists and engineers -------------- 5 or 101
For graduates: ------------------------- All courses above 100

4. S. C. Fisheries.—A brief study is made of the technique of
handling bacteria. Most of the time is given to the bacteriology of
fermentation, putrefaction, sterilization, sanitation, and canning.
Laboratory deposit, $3. winter.

5. Pharmacy Bacteriology.—A general course with emphasis
upon pharmaceutical problems such as sterilization, disinfectants,
and biological products. Prerequisite, sophomore standing and gen­
eral chemistry. Laboratory deposit, $3. Four credits; spring.

101. General Bacteriology.—Technique in growing and exam­
ing bacteria, their structure, functions and distribution; identifi­
cation of species; study of common disease bacteria. Prerequisite,
junior standing except for bacteriology majors. A knowledge of
biology and general chemistry is desirable. Laboratory deposit, $3.
Five credits; autumn, summer.

102. Sanitary Bacteriology.—Consideration of water supplies
and sewage disposal; milk, meat and other foods; certain industrial
applications; inspection trips. Prerequisite, Bact. 101. Laboratory
deposit, $3. Five credits; winter, summer.

*Not offered in 1921-1922.
103. Public Hygiene.—The conservation of health; prevention of diseases; school hygiene; industrial hygiene, etc. Prerequisite, junior standing except for bacteriology majors. Two or four credits, lectures only, spring quarter. Weinzirl

104. Medical Bacteriology.—The technique and principles of general bacteriology; identification of species; theories of infectious disease and immunity. Prerequisites, general chemistry, histology, and junior standing. Laboratory deposit, $3. Four credits; autumn. Weinzirl and Assistant

105. Infectious Diseases.—A detailed study of the pathogenic bacteria, and methods for the diagnosis of infectious diseases. Prerequisite, course 104. Laboratory deposit, $3. Four credits; winter. Weinzirl and Assistant

110. Pathology.—A gross and microscopic study of tumors. Class limited to ten students. Prerequisites, course 101, Anatomy 105. Laboratory deposit, $4. Three credits; autumn. Nickson

111. Pathology.—A gross and microscopic study of inflammation and degeneration. Prerequisite, course 110. Laboratory deposit, $4. Three credits; winter. Nickson

112. Pathology.—Pathology applied to the systems of the body. Prerequisite, course 111. Laboratory deposit, $4. Three credits; spring. Nickson

GRADUATE COURSES

201. Serology.—A consideration of the types of immunity; immunization of animals and man; study of immune products. Prerequisite, courses 5, 102 or 105, and senior or graduate standing. Laboratory deposit, $4. Four credits; autumn. Weinzirl

202. Bacteriological Diagnosis.—The diagnosis of infectious diseases. Intended for those specializing in bacteriology. Prerequisite course 102. Laboratory deposit, $4. Four credits; winter quarter. Weinzirl

203. Clinical Diagnosis.—The examination of sputum, urine, blood, gastric and intestinal contents, parasites, etc. Prerequisite, 105, or 102 and 103. Laboratory deposit, $4. Four credits; spring. Weinzirl

204-205-206. Advanced Bacteriology.—The student may pursue work along the following lines: 1. technique; 2. physiology; 3. enzymes; 4. special groups of bacteria; 5. analysis; 6. diagnosis; 7. serology; 8. other topics on consultation. Not more than two topics may be taken during any one quarter. Laboratory work, written reports and conferences. Prerequisite, graduate standing. Laboratory deposit, $4. Five credits; autumn, winter, spring. Weinzirl and Assistants
207-208-209. *Applied Bacteriology.*—By special arrangement the student may spend not less than 18 hours per week in the State and City laboratories. The student may do analysis one term, bacterial diagnosis a second term, and complement fixation a third term. Credit will depend upon a satisfactory statement from the director in charge of the laboratory. Prerequisite, graduate standing. Five credits; autumn, winter, spring.

210-211-212. *Seminar.*—A consideration of topics not included in the regular courses; also reports on recent investigations and of research work done by the members. Prerequisite, senior or graduate standing, and course 102 or 105. Two credits per quarter; autumn, winter, spring. Weinzirl

213-214-215. *Research.*—Investigation of assigned problems. Open to qualified students after consultation. Credits and time to be arranged; autumn, winter, spring, summer quarters. Weinzirl

**BOTANY**

*Science Hall*

Professor Frye; Associate Professor Rigg; Assistant Professor Botron

**SUGGESTED SELECTIONS**

For the required biological science in the Colleges of Liberal Arts and Science, only courses 1, 2, 3, 11, 12, 105, 106, 107 will be accepted.

For a major: Courses 105, 106, 107, 140, 141, 142, 143, 144, 145 of which 105 and 106 are required unless 11 and 12 were taken in the freshman year.

For teaching botany: 105, 106, 107, 140, 141, 142, 143, 144, 145.

For pharmacy students: 13, 14.
For forestry students: 11, 12, 111, 140, 141, 142.
For fisheries students: 53, 130.

1. *Elementary Botany.*—The structure and functions of roots, stems, leaves and seeds. Only to those who have had no botany in the high school. Five credits; autumn. Riggs and Assistants

2. *Elementary Botany.*—Types of the great groups of plants from the highest to the lowest. Open to students entering the second quarter without any previous botany. Five credits; winter. Frye and Assistants

3. *Elementary Botany.*—Plant analysis; field work with local flora. Open to students entering the third quarter without any previous botany. Five credits; spring. Frye, Rigg and Assistants

8, 9, 10. *Ecology and Taxonomy.*—For city teachers. Field trips every other Saturday, with noon campfire talks. Laboratory fee, $. Two or three credits per quarter; autumn, winter and spring quarters. Frye
11-12. Foresters' Botany.—A study of types of plants to illustrate the advance in complexity. For forestry students. Prerequisite course 7. Five credits per quarter; winter and spring. Hotson and Assistant

13-14. Pharmacy Botany.—Gross structure of vegetative and reproductive parts of seeds; brief study of spore plants; microscopy of powdered drugs. Five credits, winter; four credits, spring. Rigg and Assistant

26. School Garden.—Prerequisite courses 1, 2, or 10. Five credits; spring quarter.

53. Aquatic Botany.—A course on the plants of fresh water habitats especially those involved in the study of fishes and their culture. Five credits; spring.

105-106. Morphology and Evolution.—A morphological study of types to show advances in complexity. Required for all majors unless courses 11 and 12 were taken in the freshman year. Prerequisite, courses 2 or 10, or Zool. 1 and 2. Sophomore standing, or senior standing without prerequisites. Five credits per quarter; autumn and winter. Frye and Assistant

107. Taxonomy.—The flowering plants. Prerequisite one year high school botany or 10 credits in the University. Five credits; spring.

111. Forest Pathology.—The recognition and treatment of common wood-destroying fungi. Prerequisite, courses 10 or 105. Five credits; spring. Hotson and Assistant

119. Plant Histology.—Preparation of slides for the compound microscope. Prerequisite, courses 12 or 106. Three credits; any quarter. Frye

130. Economic and Marine Botany.—Economic marine plants, their condition, the products derived therefrom and the process of manufacture. Prerequisite one year of chemistry and junior standing. Four credits; autumn. Frye

140-141-142. General Fungi.—Morphology and classification of fungi as a basis for plant pathology. Prerequisite, course 11 or 105, junior standing. Five credits per quarter; autumn, winter and spring. Hotson

143, 144, 145. Plant Physiology.—Prerequisite, two quarters of botany and Chem. 21, junior standing. Five credits per quarter; autumn, winter and spring. Rigg

187. Journal Club.—Reviews of articles in current journals suggested for seniors, graduates and instructors in the department. Prerequisite, junior standing; two years of botany. No credit; each quarter. Frye
GRADUATE COURSES

200. **Proseminar.**—Semi-independent work by students. Open only on consultation with the head of the department. Credit to be Frye, Rigg, Hotson

233. **Research.**—Credit to be arranged; any quarter. Frye, Rigg, Hotson

250. **Algae.**—Prerequisite, course 11 or 105. Five credits; any quarter. Frye

251. **Bryophytes.**—Prerequisite, course 12 or 106. Five credits; any quarter. Frye

252. **Pteridophytes.**—Prerequisite, course 12 or 106. Five credits; any quarter. Frye

253. **Gymnosperms.**—Prerequisite, course 12 or 107. Five credits; any quarter. Frye

254. **Angiosperms.**—Prerequisite, course 12 or 107. Five credits; any quarter. Frye

261, 262, 263. **Plant Pathology.**—A study of the diseases of plants and the fungi which produce them. Prerequisite, course 142. Five credits per quarter; autumn, winter, spring. Hotson

271, 272, 273. **Experimental Morphology.**—Prerequisite is course 12 or 106, one year chemistry, graduate standing. Two credits per quarter. Frye

279. **Colloidal Biology.**—Prerequisite, course 143, Chem. 32, senior standing. Five credits; any quarter. Rigg

280. **Micrometabolism.**—Prerequisite, courses 12 or 107, 148 senior standing. Five credits; any quarter.

CERAMICS

*Mines Hall*

**ASSISTANT PROFESSOR WILSON**

90. **Ceramic Materials.**—Origin, occurrence, physical properties and preparation of clays, feldspar, limestone, magnesite, silica, and other materials used in the ceramic industry. Prerequisite, sophomore engineering or mining standing. Three lectures and recitations. Three credits; spring. Wilson

100. **Ceramic Products.**—Principles governing the shaping of structural, refractory and fine ceramic wares. Prerequisite, Ceramics 90. Three lectures. Three credits; autumn. Wilson

101. **Drying and Burning.**—The principles of drying and burning; the operation and control of commercial dryers and kilns. Prerequisite, Ceramics 100. Three lectures and recitations. Three credits; winter. Wilson
102. **Ceramic Decoration.**—The preparation and characteristics of vapor, natural clay slip, raw lead, bristol, terra cotta, porcelain and fritted glazes, bright and mat, with methods of coloring. Prerequisite, Ceramics 101. Three lectures and recitations. Three credits; spring.

Wilson


Wilson

110. **Ceramic Physical-Chemical Measurements.**—Laboratory testing of clays and other ceramic materials. Determination of fineness of grain, shrinkage, porosity and specific gravity; the study of plasticity, bonding power, vitrification and fusion, chemical purification and action of colloids. Prerequisite, Ceramics 105. Laboratory deposit, $10 per quarter. Two laboratory periods. Two credits; spring.

Wilson

121, 122, 123. **Ceramic Products Laboratory.**—Laboratory production of structural wares, stoneware, yellow ware, porcelain and refractories. Practice in blending of ceramic materials, molding, drying, firing and glazing ceramic products. Prerequisite, Ceramics 101. Laboratory deposit, $12 per quarter. Three laboratory periods and two recitations. Five credits per quarter; autumn, winter, and spring.

Wilson

125, 126, 127. **Ceramic Plant Design.**—Design of ceramic plants. Arrangement of machinery and construction of storage bins, dryers and kilns. Prerequisite, Ceramics 101. Two laboratory periods and one recitation. Three credits; autumn, winter, and spring.

Wilson

131, 132, 133. **Ceramic Thesis.**—An original investigation, bearing principally on the ceramic problems of the Pacific Northwest. Laboratory deposit, $5 to $10 per quarter. Laboratory and conference. Three credits, autumn and winter; two credits, spring.

Wilson

140. **Pottery.**—Occurrence, winning and preparation of materials used in pottery manufacture. Processes used in molding, drying, firing, glazing, and decorating of pottery. Two lectures and recitations. Two credits; autumn.

Wilson

150. **Lime, Plasters and Cements.**—The raw materials, manufacture and testing of lime, calcined gypsum, sand-lime brick, and Portland cement. Prerequisite, Chem. 3. Three lectures and recitations. Three credits; winter.

Wilson
160. **Glass Technology.**—Theory and factory practice of glass manufacture. Prerequisite, Ceramics 105. Two lectures and recitations. Two credits; autumn. Wilson

170. **Metal Enamels.**—Theory and practice of metal enameling. Prerequisite, Ceramics 105. Two lectures and recitations. Two credits; autumn. Wilson

180. **Refractories.**—Origin, occurrence and physical properties of fireclays and other refractory materials. The manufacturing problems of fireclay, silica, magnesia, chromite brick, electric furnace products and special refractories. Prerequisite, junior standing. Two recitations and one laboratory period. Laboratory deposit, $5. Three credits per quarter; autumn, winter or spring.

191, 192, 193. **General Ceramics**—Occurrence, winning and preparation of materials used in ceramics. Processes used in preparation of raw materials, shaping, drying and firing of ceramic products. One recitation and two laboratory periods. Laboratory deposit, $10. Three credits; autumn, winter and spring.

**GRADUATE COURSES**

221, 222, 223. **Ceramic Resources.**—A study of the ceramic resources of Washington and the Pacific Northwest, or of some particular area in this region. Prerequisite, graduate standing. Hours and credits to be arranged. Wilson

231, 232, 233. **Ceramics Manufacture.**—Studies in the manufacture of clay products, especially the utilization of raw materials found in the Pacific Northwest. Prerequisite, graduate standing. Hours and credits to be arranged. Wilson

**CHEMISTRY**

_Bagley Hall_

PROFESSORS BENSON, JOHNSON, DEHN, SMITH, TARTAR; ASSISTANT PROFESSORS HEATH, THOMPSON, LYNN, BARTON; INSTRUCTORS McMILLIN, WHITWELL AND POWELL; ASSOCIATES, RADFORD, WHITFELL, WOOD, SIMON, BEAVES

The instruction in this department is designed to satisfy, as far as possible, the requirements of those students who desire to study chemistry as a means of culture and as a necessary complement of a liberal education. It is realized that the subject is eminently practical; hence it is the desire of those in charge so to guide the student that he may fit himself for work in those lines in which chemistry has become an applied science.

**REQUIREMENTS OF THE DEPARTMENT**

Students desiring to specialize in chemistry may select one of the three courses: (1) the elective curriculum designed for those who wish to take a general course in chemistry and leading to the degree of B. S. in the College of Science (see page 74); (2) the suggested curriculum designed for those who intend to make use of
DEPARTMENTS OF INSTRUCTION

chemistry as a vocation and leading to the degree of B. S. in Chemistry (see page 76); (3) the prescribed curriculum in chemical engineering designed for those who plan to engage in the manufacturing industries and leading to the degree of B. S. in Chemical Engineering (see page 124).

The fee for each laboratory course is $7.50 per quarter. This deposit covers the general expenses of the laboratories such as gas, water, depreciation, etc. For the purchase of chemicals and apparatus, each student is required to buy a breakage ticket when he obtains his locker key. The cost of this ticket is $5, of which $1 is charged for acids and chemicals placed in the laboratory for the convenience of the student. Any unused portion of the breakage ticket will be refunded.

1-2. General Inorganic Chemistry.—Fundamental chemical theory and the chemistry of the non-metallic elements. Open only to students not having had an accredited high school course in chemistry. Three lectures and two laboratory periods per week. Five credits per quarter; any quarter. Smith, Tartar, Thompson

4. General Chemistry.—For short course miners. Three lectures and one four-hour laboratory period per week. No credit; winter. Benson

5-6. General Chemistry.—Open only to women in the departments of home economics and physical education. Three lectures and two laboratory periods per week. Five credits per quarter; winter, spring. Tartar

8-9-10. General Chemistry and Qualitative Analysis.—Open only to students in the College of Pharmacy. The work in the spring quarter is qualitative analysis. Three lectures and two laboratory periods per week. Five credits per quarter; autumn, winter, spring. Lynn

21-22. General Inorganic Chemistry.—Fundamental chemical theory and the chemistry of the non-metallic elements. Open only to students having had an accredited high school course in chemistry. Three lectures and two laboratory periods per week. Five credits per quarter; any quarter. Smith, Tartar, Thompson

23. Elementary Qualitative Analysis.—Two lectures per week deal with the chemistry of the metallic elements. One lecture per week and the entire laboratory time is devoted to qualitative analysis. Prerequisite courses 2, 22 or equivalent. Three lectures and two laboratory periods per week. Five credits; any quarter. Smith, Tarter, Thompson

37-38-39. Organic Pharmaceutical Chemistry.—A study of the organic chemicals of the U. S. Pharmacopoeia. Open only to students in the College of Pharmacy. Prerequisite, course 10 or its equivalent. Three lectures and two laboratory periods per week. Five credits per quarter; autumn, winter, spring. Johnson
51. Engineering Chemistry.—An elective for engineering students. The course deals with the chemistry of fuels and construction materials. Two lectures and one laboratory period per week. Prerequisite, course 23. Three credits; autumn. Benson, Whitwell

52. Chemical Technology.—A lecture course for chemists and engineers designed to make application of the preceding courses to chemical manufacturing practice. Prerequisites, course 23, physics 97, math. 62. Three lectures. Three credits; spring. Whitwell

53. Sanitary Chemistry.—Materials and processes used in the purification of water, sewage, and in sanitation. Two lectures, one laboratory period per week. Prerequisite, course 23. Three credits; autumn. Benson

55. Forest Products.—Wood distillation, tanning, wood pulp, alcohol, viscose, vulcanized fibre and wood oils. An elective for students in forestry and chemical engineering. Two lectures and one laboratory period per week. Prerequisite, course 23. Three credits; winter. Benson

56. Road Materials.—Bitumens and methods of testing. An elective for students in civil and chemical engineering. One lecture and one laboratory period per week. Prerequisite, course 23. Two credits; spring. Benson

101. Qualitative Analysis.—For students of chemistry and chemical engineering. Two lectures and three laboratory periods per week. Prerequisite, course 23 or its equivalent. Five credits; autumn, winter, spring. Thompson

104. Food Chemistry.—For students in the department of home economics. Methods of analysis of various foods and federal and state laws studied. Two lectures and two laboratory periods per week. Four credits; spring. Lynn

105-106-107. Food Chemistry.—Laboratory and class work in analysis of food products and the study of federal and state laws regulating the sale of food products and drug products. Five credits per quarter; autumn, winter, spring. Lynn

111. Quantitative Analysis.—A brief course which deals with both gravimetric and volumetric methods. This course is intended for students in general science. Prerequisite, Chem. 23 or its equivalent. Two lectures and three laboratory periods per week. Five credits; autumn, winter, spring. Heath

112. Quantitative Analysis.—A course in gravimetric analysis. Prerequisite, course 23 or its equivalent. Two lectures and three laboratory periods per week. Five credits; autumn, winter, spring. Heath
113. Quantitative Analysis.—A course in volumetric analysis. Prerequisite, course 23 or its equivalent. Two lectures and three laboratory periods per week. Five credits; autumn, winter, spring.

Heath

114. Quantitative Analysis.—An advanced course in quantitative methods. Prerequisite, course 23, and either 112 or 113. Two lectures and three laboratory periods per week. Five credits; spring.

Heath

121-122-123. Industrial Chemistry.—The first quarter deals with fuels, gases, cements, refractories, iron and steel, and alloys with special reference to technical testing. The second quarter deals with organic industrial chemistry, particularly with the technology of oils, fats, paints, rubber and cellulose products. The work of each quarter may be undertaken independently. Three lectures and two laboratory periods per week. Prerequisite, course 111 or equivalent. Five credits per quarter; autumn, winter, spring.

Benson, Whitwell

128-129. Organic Chemistry.—Designed for medical, chemical engineering and technical students desiring a briefer course. Prerequisite, course 23 or its equivalent. Three lectures and two laboratory periods per week. Five credits per quarter; winter, spring.

Benson, Whitwell

131-132-133. Organic Chemistry.—Designed especially for major students in chemistry and for students in the College of Science. Prerequisite, course 23 or its equivalent. Three lectures and two laboratory periods per week. Five credits; autumn, winter, spring.

Dehn

134. Manufacture of Industrial Organic Chemicals.—A laboratory course in the preparation of organic chemicals on a semi-commercial scale which may be taken independently or in lieu of the regular laboratory work in course 129 or 133. Two laboratory periods per week. Two credits; spring.

Dehn

135-136. Organic Chemistry.—For students in the department of home economics. Only women are admitted. Three lectures and two laboratory periods per week. Prerequisite, course 6 or its equivalent. Five credits per quarter; autumn, winter. Powell

141-142. Physiological Chemistry.—A general course for students of medicine, biology and bacteriology. Chemical composition of foods, tissues, secretions and excretions, their physiological and pathological changes. Prerequisite, courses 111 or 113 and 233. Three lectures and two laboratory periods. Five credits; autumn, winter.

Barton

144. Physiological Chemistry.—A brief course for fisheries and other technical students. Prerequisite, course 129 or its equiv-
alent. Two lectures and two laboratory periods per week. Four credits; spring. Barton

146. **Urinary Analysis.**—A study of normal and pathological urine. A course intended for pre-medical students, nurses and clinical technicians. Prerequisite, courses 111 or 113 and 129. One lecture and two laboratory periods. Three credits Barton

150. **Industrial Seminar.**—A special course for advanced students will be given each year by members of the staff especially qualified for some particular subject. During 1921-22 the subject will be Synthetic Dye-stuffs. Lectures and laboratory periods will be arranged. Two credits; winter. Dehn

181-182. **Physical and Theoretical Chemistry.**—A course dealing with the fundamental theories of chemistry based upon physical week. Prerequisite, Physics 2 and courses 113, 133. Five credits per quarter; autumn, winter. Tartar

183. **Electro Chemistry.**—Theories and laws of voltaic currents and laboratory work with electro-chemical processes and measurements. Three lectures and two laboratory periods per week. Prerequisite, course 182. Five credits; spring. Tartar

184. **Chemistry of Colloids.**—This course is designed to acquaint the student with the fundamental properties of substances in the colloidal state. It will also include a consideration of surface phenomena in general, such as surface tension, adsorption, etc. Two lectures and one laboratory period per week. Three credits; autumn. Tartar

192. **Chemistry of Plants and Animal Tissues.**—The application of physiological chemistry to the study of biology. Prerequisite, courses 111 or 113 and 133. One lecture and two laboratory periods. Three credits, autumn. Barton

193. **Chemistry of Nutrition.**—A study of enzyme and chemical reactions involved in digestion and metabolism. Prerequisite, courses 111 or 113 and 133. Two lectures and one laboratory period per week. Autumn. Barton

200. **Journal Seminar.**—Advanced students may register for assigned readings and reports on the chemical literature. Different members of the staff will have charge of the course during the various quarters. One credit per quarter; autumn, winter, spring.

**GRADUATE COURSES**

*203. Advanced Physical Chemistry.

211. **Inorganic Preparations.**—The preparation of special substances involving representative laboratory methods. Two laboratory periods per week. Two credits per quarter; autumn, winter, spring. Thompson

*Not offered in 1921-1922.*
212. **Organic Preparations.**—This course and 211 are required of all candidates for the degree of doctor of philosophy. Two laboratory periods per week. Two credits per quarter; autumn, winter, spring. Dehn

213. **Organic Analysis.**—The special methods used in the analysis of organic substances. Two laboratory periods per week. Prerequisite, courses 133 and 113. Two credits; autumn. Dehn

215-216-217. **Chemical Engineering.**—For seniors and graduates in chemical engineering. In the autumn quarter the course consists of selected chemical processes with special emphasis on the factors of control and inspection. The winter quarter deals with the preparation of drawings and specifications of fundamental apparatus such as driers, coolers, grinders, conveyors, evaporators, and stills, together with computations of heat interchange, etc. The spring quarter deals with the evolution of a chemical process from assigned raw materials quantitatively and experimentally tested. This quarter’s work may be reported in the form of a thesis for the bachelor’s degree. Prerequisite, courses 123, C. E. 2 and M. E. 90. Five credits per quarter; autumn, winter, spring. Benson, Whitwell

219. **Chemical Engineering.**—The design, construction, equipment and operation of a plant for semi-commercially testing the results of laboratory experiments. The results may be reported as a thesis for an advanced degree. Prerequisite, course 217. Credit to be arranged; autumn, winter, spring. Benson, Whitwell

221-222-223. **Advanced Inorganic Chemistry.**—A comprehensive course based on the periodic system of the elements, with illustrative applications of various laws and theories. Two quarters are devoted to the study of the elements and their ordinary compounds, and one quarter to the chemistry of the higher order compounds. Recommended for all majors and graduate students. Two credits per quarter; autumn, winter, spring. Smith

224-225. **History of Chemistry.**—Lectures and assigned reading. Prerequisite, course 133, 182. Two credits; autumn, winter. Smith

231-232-233. **Advanced Organic.**—A detailed study of special fields of organic chemistry. Prerequisite, courses 133, 182. Five credits per quarter; autumn, winter, spring. Dehn

250. **Research.**—The work in research offered by the department is of three types: (1) Special investigations by advanced students may be carried on under the direction of members of the staff. (2) Research for the master’s degree. The maximum credit is nine hours. (3) Research for the doctor’s degree. Work for this degree may be carried on under the direction of any member of the regular staff of the department. The maximum credit is forty-five hours.
1. **Engineering Drawing.**—Lettering; engineering sketching, fundamental principles of working drawings; mapping, map conventions. Laboratory fee, $1. Three credits; autumn, winter, spring. White

2. **Engineering Drawing.**—Detail and assembly drawings; readings of drawings; use of instruments; tracing; standards and conventions. Prerequisite, C.E. 1. Three credits; autumn, winter, spring. White

4. **Topographic Surveys.**—Field and office collection of information and plating of field notes for topographic surveys. For geology students. Three credits per quarter; spring. Heyden

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. Some acquaintance with practical situations through the solution of problems chosen from different fields of engineering activities. The work in this course deals mainly with the dynamic side of the problems. Three credits; autumn, winter, spring. Dana

12. **Engineering Problems.**—A continuation of the work in C. E. 11 but devoting most of the time to statics. Prerequisites, C.E. 1, C.E. 11 and Math. 51. Must be preceded or accompanied by Math. 52. Three credits; autumn, winter, spring. Dana

13. **Engineering Problems.**—Detailed analysis and solution of numerous engineering problems dealing with space and dimensions by the use of graphic methods. Prerequisites, C. E. 1 and C. E. 2. Three credits; autumn, winter, spring. Dana

21. **Plane Surveying.**—Surveying methods, instruments, computations, mapping. U. S. public land surveys. Prerequisites, C. E. 1 and Math. 51. All freshmen engineers. Laboratory fee, $1.50. Three credits; autumn, winter, spring. Rubey


23. **Higher Surveying.**—Meridian observations; triangulation and base line measurements; computations and adjustment of measurements; plane table surveying. Prerequisite, C. E. 21. Laboratory fee, $1.50. Four credits; winter. Hayden
24. Field Engineering.—Field practice in the survey and construction of highways, railroads, canals, etc. Prerequisites, C. E. 21 and C. E. 22. Laboratory fee, $1.50. Four credits; spring. Hayden

27. Mine Surveying.—Surface and underground practice; observation for meridian; topography; mining claim survey; tunnels, and vertical shaft work and connections; mapping. Prerequisite, C. E. 21. Sophomore mining engineers. Laboratory fee, $1.50. Three credits; winter. Hayden

30. Surveying.—(Short session in Forestry). Laboratory fee, $2.00. Five credits; winter. Hayden

38. Surveying.—(Short session in Mining). Laboratory fee, $2.00. Five credits; winter. Hayden

55. Forest Surveying.—For students in Forestry. Laboratory fee, $1.50. Two credits; winter. Hayden

56. Forest Surveying.—Chain, compass, transit and level surveying, with reference to work in forestry. Laboratory fee, $1.50. Five credits; spring. Hayden

112. Railway Construction.—Railway construction methods, machinery and tools; details of track, and terminal structures. Prerequisite, C. E. 24. Three credits winter. Hayden

115. Railway Economics.—The economic theory of railway location, operation and maintenance. Prerequisite, C. E. 24. Three credits; spring. Hayden

122. Highways.—Location and construction of standard types, with application to local conditions. Prerequisite, C. E. 22. Three credits; spring. Allison

126. Roads and Pavements.—Materials, construction and maintenance. Laboratory study of materials used in pavements. Prerequisite, C. E. 122. Laboratory fee, $1.50. Five credits; autumn. Allison

131. Mechanics.—Algebraic and graphic application of elementary principles of statics. Prerequisites, C. E. 12 and Math. 62. Three credits; autumn, winter, or spring. More

132. Mechanics.—Application of elementary principles of dynamics. Prerequisite, C. E. 131. Three credits; autumn, winter or spring. More

133. Mechanics.—Continuation of C. E. 131 and C. E. 132; and mechanics of materials. Prerequisite, C. E. 132. Three credits; autumn, winter, spring. More
134. **Framed Structures.**—Application of mechanics to analysis of structural details and simple framed structures. Prerequisite, C. E. 133. Three credits; autumn. Rathbun

135. **Advanced Mechanics.**—General theories of flexure. Problems in indeterminate structures. Senior and graduate engineers. Prerequisite, C. E. 133. Five credits; spring. More

137. **Mechanics.**—Analytical study of problems in mechanics. Prerequisite, C. E. 133 and Math. 62. Three credits; spring. Rathbun

139. **Reinforced Concrete.**—Fundamental principles of reinforced concrete. Prerequisite, C. E. 133. Three credits spring. More

142. **Hydraulics.**—Flow of water through pipes, orifices, over weirs, and in open channels; energy and reaction of jets with application to impulse wheels; review of hydrostatics. Prerequisite, C. E. 131. Laboratory fee, $1.50. Five credits; autumn, winter, spring. Harris

143. **Hydraulic Engineering.**—Complete problems presenting hydraulic engineering. Prerequisite, C. E. 142. Three credits; winter. Harris

144. **Hydraulic Mining.**—A course of two recitation periods per week on the theory and practice of hydraulic mining. For short course students in mining. Two credits; winter. Allison

145. **Hydraulic Machinery.**—Development and theory of water wheels and turbine pumps; design of a reaction turbine; reference to hydrostatic machinery and dredging equipment. Prerequisite, C. E. 142. Senior and graduate E. E. and M. E. Three credits; winter. Harris

147. **Hydraulic Power.**—Generation of power; penstock and turbines; types of installations. Prerequisite, C. E. 142. Senior and graduate C. E. Five credits; autumn. Harris

153. **Water Supply.**—The principal engineering operations necessary to secure suitable water supplies for cities, towns and industrial plants. Senior and graduate C. E. Prerequisite, C. E. 142. Three credits; autumn. Allison

154. **Sewerage and Drainage.**—The design and construction of sewerage and drainage systems for cities and towns. Senior and graduate C. E. Prerequisite, C. E. 142. Three credits; winter. Allison

155. **Water Supply Problems.**—Methods used in overcoming difficulties in obtaining a suitable supply; purification of water used for domestic and industrial purposes. Senior and graduate C. E. and Ch. E. Prerequisite, C. E. 142. Three credits; winter. Allison
157. Irrigation Engineering.—Investigation regarding duty of water and methods of obtaining it for irrigation purposes. Design and construction of irrigation works. Prerequisite, C. E. 142. Three credits; autumn. Allison

158. Sewage Treatment.—Supplementary to C. E. 154, with special problems relating to public health; sewage disposal; garbage collection and destruction. Senior and graduate C. E. and Ch. E. Three credits; spring. Allison

160. Building Construction.—A study of construction problems from the standpoint of the builder. Three credits; spring. Weld

161. Structural Design.—Relation of theory of structures to engineering practice. Special application to roof and bridge trusses. Prerequisite, C. E. 134. Five credits; winter. Rathbun

164. Advanced Structural Design.—Arches, swing bridges, statically indeterminate stresses. Prerequisite, C. E. 161. Five credits; spring. Rathbun

167. Materials of Construction.—The properties of materials used in engineering construction, such as timber, concrete, steel, etc. Recitations and laboratory. Prerequisite, C. E. 133. Laboratory fee, $1.50. Five credits; autumn. Collier

169. Engineering Relations.—Consideration of the construction and operation of projects, and of the involved business relations. Prerequisite, senior standing. Five credits; autumn.

171. Engineering Astronomy.—(See Astronomy 171).

172. Geodetic Astronomy.—(See Astronomy 172).

173. Geodesy.—(See Astronomy 173).

198. Thesis.—Five credits.

GRADUATE COURSE

211. Research.—Time to be arranged. Two to five credits.

CLASSICAL LANGUAGES AND LITERATURE

Donny Hall

Professor Thomson; Associate Professor Sidet; Assistant Professors Denbom, Clark

Requirements for a major; at least 36 hours in the department, chosen from the courses other than Greek 11 and 13-14; Latin, 1, 2, 3, 11; 14-15-16. A student specializing in Greek must take at least nine hours of Latin; one specializing in Latin must take at least ten hours of Greek.
I. GREEK

1-2-3. Elementary Greek.—Exercises and translations in a wide range of authors from Homer to the New Testament. The method of supervised study is followed to insure proper adaptation to the ability of the student. Five credits a maximum per quarter; any quarter. Densmore

4-5. The Times of Socrates.—Extracts from the Memorabilia of Xenophon and the most noted Socratic dialogues of Plato. Three credits; autumn, winter. Densmore

*6. The Persian War Period. Densmore


8-9-10. Greek Art.—Autumn, architecture; winter, sculpture; spring, painting, numismatics, and the minor arts. This course alternates with that in Roman art. Primarily for students of fine arts but open to all students. One credit per quarter. Densmore

11. Greek Civilization.—An institutional and cultural survey of the Greek world from the earliest times to the Roman conquest. Illustrated lectures, conferences and discussions. Knowledge of Greek not required. Five credits; autumn. Sidey

12. Greek Civilization.—A continuation of course 11 for a limited number of students; admission by consultation with the instructor. Five credits; winter, spring. Densmore

13. Greek Literature.—The masterpieces in English translations. Knowledge of Greek not required. Five credits; autumn, winter, spring. Sidey

14. Greek and Roman Literature.—A continuation of course 13 but may be elected by those who have not had course 13. Five credits; autumn, winter, spring. Sidey

15-16. Greek Civilization and Literature.—A duplication of course 11, but including the literature in translation as a fundamental expression of the Greek genius. Five credits per quarter; winter, spring. Densmore

101-102-103. The Periclean Age.—An intensive study of Greek civilization from the founding of the Delian confederacy to the death of Socrates. Readings, conferences, and reports. Prerequisites, courses 4-5 or their equivalents. Three credits per quarter; autumn, winter, spring. Densmore

104-105-106. Greek Poetry.—Epic, lyric, dramatic, pastoral. Prerequisite, courses 4-5. Two credits per quarter; autumn, winter, spring. Densmore

*Not offered in 1921-1922.

*151-152-153. Plato Densmore

II. LATIN

1-2-3. Elementary Latin.—This course covers the first and second years of high school Latin. It is designed to help those who have previously had little or no Latin to an appreciation of the sources of the English and Romanic languages, as well as to enable those who desire to study Latin more thoroughly to bring their preparation up to the college requirements. It will be given if any considerable number of students desire it. Five credits per quarter; autumn, winter, spring.

4. Cicero De Senectute.—A comparison of Cicero's work with similar essays. Exercises in grammar and composition. Prerequisite, three and one-half years of high school Latin. Five credits; autumn.

Clark

5. Ovid.—Selections, chiefly from the Metamorphoses, with some study of the same myths as they appear in English literature. Grammar and composition. Prerequisite, three and one-half years of high school Latin. Three or five credits; winter.

Clark

6. Catullus.—The Latin lyric. Emphasis upon finished translation and comparison of the best English versions; grammar and compositions. Prerequisite, three and one half years of high school Latin. Three or five credits; spring.

Clark

11. Roman Civilization.—The part played in history by the Romans and their contributions to modern civilization. Lectures, illustrated, when possible; collateral reading and reports. Five credits; autumn, winter, spring.

Clark

13. Roman Literature.—(See Greek 13-14.)


Sidey

50. Livy.—One book and selections from the other books. Prerequisite, courses 4, 5, 6, or special permission. Three credits; autumn.

Thomson

60. Horace: Odes; Vergil: Eclogues.—Prerequisite, courses 4, 5, 6, or special permission. Five credits; winter.

Thomson

70. Tacitus: Agricola; Martial: Epigrams.—(Selections). Prerequisite, courses 4, 5, 6, or special permission. Five credits; spring.

Thomson

*100. Cicero's Letters.


Clark

*Not offered in 1921-1922.
*102. Tacitus' Annals.  
Clark

103-104-105. Teachers' Course.—Caesar, Cicero, and Vergil; methods, practice teaching, and observation. Prerequisite, courses 50, 60, or 70. Three credits per quarter; autumn, winter, spring.

110. Lucretius.—A reading of selected portions of the De Rerum Natura, with a discussion of Lucretius' philosophical system. Prerequisite, courses 50, 60 or 70. Two credits; autumn.

111. The Roman Epic.—The development of the Roman Epic will be traced, with readings of selections from the principal poets, especially the last six books of the Aeneid. Prerequisite, courses 50, 60, or 70. Two credits; winter.

112. Short Stories from Apuleius.—Readings from the Golden Ass of Apuleius with a study of the development of this literary form among the Greeks and Romans, and some attention to the Latinity of the period. Prerequisite, courses 50, 60 or 70. Two credits; spring.


152. Seneca.—Moral Essays. Two credits; winter.


Sidey

Norm: For courses in Comparative Philology, see the department of Scandinavian Languages and Literature.

Dramatic Art

Denny Hall
Professor Gorshuch; Instructor Hughes

The work in this department is planned for three classes of students: (a) those who desire some knowledge of dramatic art as part of a liberal education; (b) those who need some knowledge of dramatic art as part of their technical training; and (c) those who wish to pursue the subject more intensively than either of the former groups, except courses 101-102-103.

For a major the department requires 38 to 60 credits, of which 24 must be in the department, including courses 1-2-3 and 21-22-23. Courses 1-113 (inclusive) may be entered at the beginning of the first, second or third quarters.

1-2-3. Dramatic Literature.—Introductory course. Selected plays of the great dramatists are studied with the purpose of in-

*Not offered in 1921-1922.
creasing the student's power of analysis and appreciation. Three credits per quarter; autumn, winter, spring.

21-22-23. Shakespeare.—Dramatic reading and interpretation of selected plays. Courses 21-22-23 have as their general purpose the interpretation of the drama. Selected plays are used as exercises in dramatic delivery and for the study of effectiveness in the reading of lines. The special aims are to correct personal mannerisms of vocal expression and to encourage habits of speech that are right and natural; to cultivate proper instinctive expression, and the use of imagination in conceiving the situation, relation and characterization as these are manifested in utterance. Three credits per quarter; autumn, winter, spring.

27-28-29. Contemporary Drama.—Dramatic reading and interpretation of selected plays. For further information see courses 21-22-23.

31. Practical Public Speaking.—An introductory course. Principles of public speaking are studied and short, original talks are prepared and delivered. Prerequisite, English 1. Three credits per quarter; autumn, winter, spring.

32-33-34. Practical Public Speaking.—Prerequisite, course 31, or junior standing. Three credits per quarter; autumn, winter, spring.

101-102-103. Play-acting and Play-producing.—A practical course in the art of acting, with some time given to the problems of producing. Includes work in interpretation of both standard and original plays. Four credits; autumn, winter only.

111-112-113. Play-writing.—A study of the principles of dramatic composition, together with experimental creative work. Five credits per quarter; autumn, winter, spring.

ECONOMICS AND BUSINESS ADMINISTRATION

Commerces Hall

PROFESSORS MILLER, KIBLER, LEWIS, GOULD; ASSOCIATE PROFESSORS CURTIS, SMITH, MERRIPE, COX, FRETON; ASSISTANT PROFESSORS McMAHON, SKINNER, DAKAN; LECTURER, McCONAHEY; INSTRUCTORS, GREGORY, DRAPE, DRISCOLL, TARULL; ASSISTANTS, TURF, McGEE, WOODBRIDGE, ELLSWORTH, WERNER, TROW, HALLERSON.

(Required and Elective)

1. General Economics.—Introductory course covering the general principles of economics. This course is a prerequisite to all sophomore, junior and senior courses in business administration. Syllabus fee, $1.50. Five credits; autumn, winter, spring, summer.

Miller and staff
2. General Economics.—Open only to majors in engineering, chemistry, pharmacy, forestry and fisheries. Syllabus fee, $1.50. Three credits; spring. Miller and staff

6. Business Correspondence.—Principles of business writing; theory and practice of various types of letters; sales, adjustments, credit, collection, etc.; installation of correspondence supervision. Laboratory fee, $1.50. Five credits; autumn, winter, spring, summer. Leib

7. Economic Resources of the World.—A study of the principal agricultural and mineral resources of the world; their geographical distribution and development; governmental policies of conservation; world commerce, trade routes. Syllabus fee, $1.50. Five credits; autumn, winter, spring, summer. Skinner and Lewis

11. Elementary Accounting.—The principles of debit and credit; various books of original entry; different forms of ledgers; balance sheets; profit and loss statements; and a detailed study of business papers. Three lectures and two laboratory periods per week. Laboratory fee, $5.50. Five credits beginning autumn, winter, spring, summer. Dakan, Gregory, Draper, Tarbill

12. Elementary Accounting.—(Continued) The classification of ledger accounts; controlling accounts and subsidiary ledgers; accounting problems of partnerships and corporations, etc., from the point of view of the business manager as well as the accountant. Three lectures and two laboratory periods per week. Laboratory fee, $5.50. Five credits, beginning autumn, winter, spring, summer. Dakan, Gregory, Draper, Tarbill


COURSES 50-59. PREREQUISITE, SOPHOMORE STANDING

52. Ship Operation.—Coast navigation, positions at sea, trade routes, ship's papers, status of officers. Five credits; spring. Gould

54. Business Law.—This course covers the fundamental principles of law. The more general and practical principles are developed from problems and selected cases, particularly as related to the law of contracts, property, agency, negotiable papers, insurance, partnership and corporations, with special lectures on the statutory regulations pertaining thereto. Three credits; autumn. Consultation fee $1.50. Ayer
55. **Business Law.**—Continuation of B. A. 54. Three credits; winter. Consultation fee, $1.50. Ayer

56. **Business Law.**—Continuation of B. A. 55. Three credits; Consultation fee $1.50.

57. **Money and Banking.**—An introductory course outlining the nature and functions of money; the history of money; monetary standards; principles of coinage; government paper issue and legal tender; the value of money; principles of banking and functions of the various types of financial institutions; the banking system of the United States with special emphasis on the Federal Reserve system, foreign and domestic exchange. Prerequisite, B. A. 1. Syllabus fee, $1.50. Five credits; autumn, winter, spring, summer. Preston

61. **Social and Economic Standards of Living.**—An historical study of standards of living; racial differences in habits and ideals of consumption; economic and social influence in industry; conflict of standards and racial survival. An analysis of class standards of consumption in the United States; their economic and social background; new standards in their evolutionary development. Syllabus fee, $1.50. Prerequisite, B. A. 1. Five credits; autumn, winter, spring. McMahon

64. **Second Year Accounting.**—General principles of valuation; depreciation; different types of assets and liabilities; capital and revenue charges; prerequisite, B. A. 11-12 or their equivalent. Three lectures and two laboratory periods per week. Laboratory fee, $3.50. Five credits; autumn, winter, spring, summer. Cox, Dakan, Gregory, Draper, McConahey

65. **Second Year Accounting.**—(Continued) Surplus and reserves; sinking funds; combinations and consolidations; liquidations and reorganizations; bankruptcy accounts and reports; branch house and agency accounting. Prerequisite, B. A. 11-12 and 64. Three lectures and two laboratory periods per week. Laboratory fee, $3.50. Five credits; autumn, winter, spring, summer. Cox, Dakan, Gregory, Draper, McConahey

COURSES 100-199. **PREREQUISITE, JUNIOR AND SENIOR STANDING**

101. **Secretarial Training.**—The purpose of this course is to give useful information concerning the duties of the secretary, and the systematizing of ordinary office routine. It includes a study of the use of office appliances, indexing, filing, reference work, interviewing, and general practical details of office work, and indicates the principles of business ethics as they concern the secretary. Shorthand and typewriting not prerequisites but desirable. Laboratory fee, $1.50. Five credits; autumn. Draper
102. Office Management.—A general survey, from the point of view of the office manager, of the problems of office administration. It deals with the principles of office layout and equipment, and attacks the problem of office control by first segregating the various activities and then studying each in its relation to all the others. Laboratory fee, $1.50. Five credits; winter. Draper

103. Risk and Social Insurance.—Study of the risk factor in its economic and social consequences; ways of meeting risk. General discussion of life and property insurance. Detailed consideration of social insurance, covering employers' liability, workman's compensation, unemployment, and old age insurance. Prerequisite, B. A. 1. Syllabus fee, $1.50. Five credits; autumn. Smith

104. Economics of Transportation, Railroad, Water and Ports.—Economic basis for study of transportation; relation to industry and society; development and present status of the American transportation system; the organization of the service; traffic associations; routes, ports and terminals and terminal facilities; traffic agreements; rates and services and their regulation; international arrangements; navigation laws. Prerequisite, B. A. 1. Syllabus fee, $1.50. Five credits; autumn. Kibler

105. Business Organizations.—A study of business corporations, associations, combinations and the like, with special reference to their formation, operation, advantages and disadvantages, and their relation to the anti-trust laws. Prerequisite, 10 hours of economics and business administration, including B. A. 1. Syllabus fee, $1.50. Five credits; autumn. Custis

106. Economics of Markets.—An application of the principles of economic theory to the problems of marketing, and a general survey of modern marketing methods in both raw and manufactured products. Prerequisite, B. A. 1. Syllabus fee, $1.50. Five credits; autumn. Lewis

111. Advanced Accounting.—Detailed study of accounting theory and practice; analysis of balance sheets and profit and loss statements; preparation of reports indicating financial and operating conditions; solution of accounting problems with a special emphasis on correct form and speed. Prerequisites, B. A. 11-12, 64-65. Five credits; autumn, winter, spring. Laboratory fee, $3.50.

Cox, Gregory, Draper

112. Advanced Accounting.—(Continued) Accountancy of investment; preparation of credit statements; special partnership and corporation problems. Prerequisite, B. A. 11-12, 64-65, 111. Laboratory fee, $3.50. Five credits; autumn, winter, spring, summer.

Cox, Gregory, Draper

118. Business Statistics.—The collection, presentation, and interpretation of statistical data of value in business operations, in-
cluding a consideration of business barometers, market analysis, sales and advertising. Prerequisite, mathematics 13. Laboratory fee, $1.50. Five credits; spring.

121. Corporation Finance.—The financial problems connected with the promotion of corporations, the underwriting and sale of their securities, their management under ordinary conditions, their expansion through growth of consolidation of business, and the reorganization of those that are unsuccessful. Prerequisites, B. A. 1, 11-12. Syllabus fee, $1.50. Five credits; winter.

122. Railroad Finance and Administration.—A study of the administration of American railroads with comparative study of administration in foreign countries; consideration of the organization and administration of typical systems; comparison of divisional and departmental systems; problems in administrative efficiency; statistical control; critical study of federal supervision; lessons from the experience of federal control; railway finances, capitalization, earnings, receiverships, federal control of securities; valuations. Problems assigned. Prerequisite, B. A. 104. Syllabus fee, $1.50. Five credits; winter.

123. Investments and Speculation.—The distinction between investment and speculation, the principles governing the selection of sound investments, the way in which investments are made, the character of the investment market with some of the pitfalls it contains, the character of speculation, the work of the stock exchange, the relation to it of the money market. Prerequisite, B. A. 121. Syllabus fee, $1.50. Five credits; spring.

125. Banking Practice and Accounting.—A practical survey of the methods and machinery of bank operations. The internal organization of the bank; the relation of the different functions; the bank as an accounting machine; the general ledger; finding costs for the bank and other problems of bank administration. Prerequisites, B. A. 11-12; 57. Laboratory fee, $1.50. Five credits; winter.

126. Commercial Credits.—This course includes a practical study of the essential factors to be considered in the extension of credit; the organization and operation of a credit department; the important sources of information; the analysis of credit statement; credit associations and bureaus; credit insurance; the exchange of ledger information and other practical problems form a part of the course. Prerequisite, B. A. 57. Syllabus fee, $1.50. Five credits; spring.

127. Foreign Exchange and International Banking.—The theory of international exchange; rates of exchange; financing imports and exports; specie movements; exchange with silver and paper standard countries; foreign money market factors; the monetary
and banking systems of the leading nations; foreign banking by American institutions; financing foreign trade under the provisions of the Edge Act; the present status of the foreign exchange situation. Prerequisite, B.A. 57. Syllabus fee, $1.50. Five credits; autumn.


141. Fire Insurance.—Theory and practice of fire insurance; study of clauses in standard fire policies; apportionment of losses; rate making; fire prevention. Prerequisite B.A. 103. Syllabus fee, $1.50. Five credits; autumn. Moriarty

142. Life Insurance.—Functions of life insurance; premiums, reserves; kind of companies and policies; dividends; lapses. Disability, group and industrial insurance. State regulations of life insurance business. Prerequisites, B.A. 103. Syllabus fee, $1.50. Five credits; spring. Smith

144. Marine Insurance.—History, principles, and practice of marine insurance as applied to ships, freight and cargo. Prerequisite, B.A. 103. Syllabus fee, $1.50. Five credits; winter. Smith

151. Rail and Marine Rates.—Principles governing the making of rates; influence of competitive forces; comparison of conditions affecting land and water rates; jurisdiction of the Interstate Commerce Commission and of the United States Shipping Board; rate structures; local and joint tariffs; class and commodity rates; state vs. federal control of railway rates; cases dealing with authority, jurisdiction, and conditions determining, or affecting, rate adjustments. Prerequisites B.A. 104. Syllabus fee, $1.50. Five credits; spring. Kibler

154. Corporation and Railroad Accounting.—Detailed analysis of a dozen selected industrial and railroad corporation reports with special emphasis on accounting practices involved and financial conditions indicated. Prerequisites, B.A. 11-12, 64-65, 111-112. Laboratory fee, $1.50. Five credits; autumn. Cox

155. Cost Accounting and Installation of Accounting Systems. —Elements of cost, general methods of cost finding, factory routine, distribution of overhead, compiling and summarizing of cost records, and ledger control of factory accounts. Methods of business analysis and installation of appropriate accounting systems, including departmental and branch office budgets. Prerequisites, B.A. 11-12, 64-65, 111-112. Laboratory fee, $3.50. Five credits; autumn. Gregory
156. **Auditing Practice and Professional Ethics.**—Auditing procedure, balance sheet and detailed audits, analysis of asset and liability values, profit and loss statements, certificates and reports. Special lectures on professional ethics by certified public accountants engaged in private practice. Prerequisite, B. A. 11-12, 64-65, 111-112. Laboratory fee, $3.50. Five credits; winter.


158. **Advanced Money and Banking.**—A critical study of selected topics in monetary science and business finance. The value of money and suggested remedies for changing purchasing power. The effect of the European War upon money standards and financial relationship. The Federal Reserve System; business cycles, their history and theory; analysis of the various business barometers for forecasting the probable trend of business conditions. Agricultural credit in America; the Federal Farm Loan System; rural credit in the various states. Prerequisite, B. A. 57. Syllabus fee, $1.50. Five credits; spring.

159. **Advanced Economics.**—This course is especially intended to give seniors and graduate students a more thorough training in economic theory and its applications to concrete problems. Prerequisite, B. A. 1 and senior standing. Syllabus fee, $1.50. Five credits; autumn, winter, spring, summer.

160. **American Labor Problems.**—This course aims to show the relation between the development of the American Labor Movement and free lands, immigration, economic organization, prices and industrial crises. Prerequisite, B. A. 1 Syllabus fee, $1.50. Five credits; autumn.

161. **European Labor Problems.**—A comparative study of the labor movements of modern Europe; their economic and political backgrounds; in relation to types of labor organizations. Prerequisite, B. A. 1. Syllabus fee, $1.50. Five credits; winter.

162. **Women in Industry.**—A study of the evolution of women's work; the relative importance of women in industry; social reaction in labor legislation. Prerequisite, B. A. 1. Syllabus fee, $1.50. Five credits; spring.

163. **Industrial and Employment Management.**—Organization and administration of industrial enterprises. Factors in plant location types of factory building; the equipment of the plant; the organization of the various departments; executive control; labor
policy from the standpoint of management service and welfare features; wage systems; scientific management and labor, employee representation. Study of the practice in representative business establishments. This course should be preceded by B. A. 105 and 161. Students without these courses will be required to do some extra reading. Syllabus fee, $1.50. Five credits; winter.

Preston and Leib

168. History of Economic Thought.—A study of the chief contributors to economic theory from Adam Smith to Bohm- Bauer as a basis for a more adequate understanding of present economic problems. Prerequisite, B. A. 160. Syllabus fee, $1.50. Five credits; winter.

Moriarty

*169. Plant Construction.

Gould

170. Miscellaneous Property Insurance and Real Estate.—Credit, title, fidelity, automobile, steam boiler, plate glass, tornado insurance. Factory determining urban and rural land values; methods of operation and administration of the real estate business. Prerequisite, B. A. 103. Syllabus fee, $1.50. Five credits spring.

Smith

171. Exporting and Importing.—The technique of exporting and importing; the administration and operation and administration of exporting and importing departments; analysis of markets; preparation of documents and calculation of values of staples and of manufactured products and the financing of shipments. Prerequisite, B. A. 1, 7. Five credits; autumn. Syllabus fee, $1.50. Lewis

*172. Terminal Construction and Management.

Gould

173. Commercial Policies.—The commercial policies of the nations of the world in connection with the development of American foreign trade. Syllabus fee, $1.50. Five credits; autumn.

Skinner

174. International Commercial Relations.—A study of the rules and regulations of states applying to foreign commerce; conflicts of commercial interests; peaceful settlement of international controversies; commercial treaties; effect of war upon commerce, with neutrals; and belligerents. Syllabus fee, $1.50. Five credits; winter.

Driscoll

177. Trade of Far and Near East.—An intensive study of the resources and trade of China, Japan, Siberia, the Philippines, French-Indo China, Siam, India, the Malay-Peninsula, the Dutch East Indies, Australasia, Persia, Mesopotamia, Syria, Arabia, Turkey and the Balkan States. Prerequisite, B. A. 7. Syllabus fee, $1.50. Five credits winter.

Skinner

*Not offered in 1921-1922.
178. Trade of Europe.—An intensive study of the resources of Europe and Africa, and of the trade relations of these sections with the rest of the world, especially the United States. Prerequisite, B. A. 7. Syllabus fee, $1.50. Five credits; winter. Lewis

180. Trade of the Americas.—An intensive study of the resources and trade of Mexico and the Central American and South American countries. Prerequisite, B. A. 7. Syllabus fee, $1.50. Five credits; spring. Skinner

182. Commercial Teachers' Course.—A course dealing with the high-school commercial curriculum, involving a study of the development of commercial education. Typical business courses are examined, and made the basis for discussion in relation to the needs of local business conditions. The course presupposes a thorough knowledge of the subjects which the student expects to teach. Laboratory fee, $1.50. Five credits; winter. Draper

183. Commercial Teachers' Course.—(Continued.) A study of the content of high-school commercial courses, and of texts. Field work in the form of practice teaching done under the direction of the department or the dean of the College of Education. Prerequisite, a senior standing. Laboratory fee, $1.50. Five credits; spring. Draper

184. Economic Problems.—A more intensive and concrete study of special economic problems than is possible in B. A. 160. Intended not only to provide a more intensive study of economic theory as such but to give seniors and graduate students a more adequate basis for discussing fundamental economic problems with men of wider experience in business and political life. Prerequisite, B. A. 160. Laboratory fee, $1.50. Five credits; spring. Moriarty

187 ABC. Research in Secretarial Training.—Autumn, winter, spring. Two-five credits. Hours to be arranged. Draper

191. ABC. Research in Accounting.—Autumn, winter, spring. Two-five credits. Hours to be arranged. Cox

192. ABC. Research in Insurance.—Autumn, winter, spring. Two-five credits. Hours to be arranged. Smith

193. ABC. Research in Transportation.—Autumn, winter, spring. Two-five credits. Hours to be arranged. Kibler

194. ABC. Seminar in Labor.—Autumn, winter, spring. Two-five credits. Thursday 4-6. McMahon

195. ABC. Research in Foreign Trade.—Autumn, winter, spring. Two-five credits. Hours to be arranged. Lewis

196. ABC. Research in Business Administration and Industrial Management.—Autumn, winter, spring. Two-five credits. Hours to be arranged. Preston
197. **ABC. Research in Business Finance.**—Autumn, winter, spring. Two-five credits. Hours to be arranged.  

198. **ABCD. Research in Marketing and Advertising.**—Autumn, winter, spring, summer. Two-five credits. Hours to be arranged.  

199. **ABC. Industrial Research.**—Autumn, winter, spring. Two-five credits. Hours to be arranged.  

**COURSES 200, PREREQUISITE, GRADUATE STANDING**  

201. **ABC. Seminar in Economics and Business Administration.**—Autumn, winter, spring. Two-five credits. Hours to be arranged.

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**Typewriting.**—Autumn, winter, spring, summer. Laboratory fee, $10. No credits. Hours to be arranged. Draper and staff

**Shorthand.**—Autumn, winter, spring, summer. Laboratory fee, $10. No credit. Hours to be arranged. Draper and staff

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**NOTES**

No University credit will be given for courses (typewriting, shorthand). They will be scheduled according to arrangement at hours between 4 and 10 p. m.

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**EDUCATION**

*Home Economics Hall*

Professors Bolton, Ayer, Woody; Associate Professor Freeland; Assistant Professors Jensen, Williams, Terry, Hines, Teaching Fellow, Trott

Courses 75, 85, 119, 140, 145 are specifically required for the normal diploma. Graduates of state normal schools must take courses 75, 85, 119. Any variation must be approved by the head of the department of education.

The department of Education is now authorized by the graduate faculty to offer work leading to the degree of doctor of philosophy as well as the master's degree. Courses listed below in groups III and IV may be offered toward higher degrees by graduate students complying with the regulations specified.

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**I. COURSES FOR UNDERGRADUATES**

1. **How to study.**—Following a consideration of how to study effectively, an attempt is made to help students to apply this knowledge in their work. Required of all freshmen in the College of Education. Elective for students of other colleges. Counted toward a major in education but ordinarily not toward the normal diploma. Five credits; autumn or winter. Freeman, Williams

Courses 3, 4, 5, 6 (See Smith-Hughes Courses, Page 217.)

75. **Principles of Education.**—A consideration of the fundamental principles of education, based upon biology, psychology, neurology, and ethics. Special consideration of such topics as the
study and evaluation of the educational theories and methods of meaning of education; educational bearings of the development of the nervous system, instinct, heredity, habit, individual differences, memory, imagination, sensory training, motor training, apperception, the emotional life, interest, will, formal discipline. Practical applications to everyday schoolroom procedure. Five credits; autumn, winter, spring or summer.

Bolton

85. Educational Sociology I: Social Foundations.—Introductory course treating social factors in the development of the individual and in school administration, and educational functions of appropriate education, imitation, play, imagination, language. A typical social groups. Three credits; autumn, winter, spring, or summer.

Ayer

95. Child Study.—Development of humanitarian and scientific interest in children; scope, methods, problems relating to education in the home, school and society. Illustrative topics: Physical, intellectual, emotional, moral and religious growth-periods and great leaders in child study including Froebel, Pestalozzi, Hall, Dewey, Montessori. Five credits; autumn, winter or summer.

Williams

II. INTERMEDIATE COURSES

To be admitted to courses in this group (II) students must have upper division classification or the equivalent and have earned at least eight credits or the equivalent in education.

119. High School Curriculum.—Secondary school curricula and closely related problems. Three credits; autumn, winter, spring or summer.

Terry

130. Individual Differences.—A consideration of the significance, amount and methods of determining individual differences in school children together with their pedagogical applications. Five credits; spring.

Williams

140. Methods of Teaching.—Designed primarily to meet requirements for the normal diploma. Problems of beginning teachers especially emphasized. The following topics will be taken up: The high school situation in the state of Washington, classroom economics, discipline, study lesson, drill lesson, inductive and deductive lesson, lesson for appreciation, reviews, examinations, lesson plans and assignments, teacher's questions, grading and measuring the results of high school teaching. Illustrations from the high school field. Three credits; autumn, winter, spring or summer.

Freeland

145. Practice Teaching.—One lecture each week, conferences with the instructor, assigned readings, and one period each day
during the quarter devoted to observation and practice teaching under supervision in the Seattle city schools. As far as possible the details of the course are arranged to meet individual needs. Five credits; autumn, winter or spring. Freeland

146. Practice Teaching II.—A second quarter of practice teachings may be elected. Five credits; autumn, winter or spring. Freeland

III. COURSES FOR ADVANCED UNDERGRADUATES AND GRADUATES

To be admitted to courses in this group (III) students must have upper division standing or the equivalent and have earned at least ten credits or the equivalent in education. Credits may be counted toward a master's degree by college graduates who have earned eighteen credits in education.

151. Educational Sociology II: Cooperative Agencies.—Evolution of the school curriculum with reference to social organization; the social and school survey; relation of the school to other educational agencies. Prerequisite, course 85. Five credits; winter. Ayer

154. The Junior High School.—History of the movement for reorganization; functions and relations of this new organization. Prerequisite, course 119. Two credits; autumn, spring or summer. Terry

156. High School Administration.—Organization and administration of the modern public high school; legal basis, financial support, student organization and government, classification of students, publicity, etc. Two credits; winter. Terry

161. History of Education; Ancient and Medieval.—Social interpretation of the historic beginnings of education, the contributions of the Greeks and Romans, the development of Christianity, medievalism, and the beginning of modern education. Five credits; autumn. Terry

162. History of Education; Modern.—Development of educational practices since the Renaissance. The growth of democracy in and through education will be traced. Five credits; winter. Terry

163. Development of Education in the United States.—Beginnings of American education, rise and extension of the public school system; modern movements for reorganization and expansion. Five credits; spring. Terry

167. Improvement of Teaching.—This course is offered as a substitute for practice teaching for experienced teachers. (Also offered as a five-hour course in the summer.) Supervised teaching and self-supervision will be emphasized. Credits to be arranged; autumn, winter, or spring. Freeland
171. *Experimental Education.*—Designed to show the possibility and value of experimental work in education to give first hand knowledge in the technique of properly conducting experiments in connection with school work. Three double periods per week. Required of all majors in College of Education. Laboratory fee, $2. Three credits; autumn or winter. Hines

172. *Psychology of Common School Subjects.*—Survey of experimental studies which furnish the basis for current methods in reading, spelling, arithmetic, penmanship, language, etc., and their bearing. Three credits; spring. Hines

173. *Psychology and Measurement of High School Subjects.*—Relation of psychology of the different subjects and measurement, desirable outcomes to be derived from each subject; psychological foundations for special school room practices such as direct teaching of languages, oral composition, projects in science, etc.; measurement of results of high school teaching involving the giving, scoring, and evaluation of such standardized tests as the Rugg Algebra Tests, Minnick Geometry Tests, Henmon Latin Tests, etc., Laboratory fee, $1. Five credits; spring. Hines

176-177-178. *Vocational Guidance.*—A critical study of vocational and educational guidance in the public schools. Two credits per quarter; autumn, winter and spring. Ayer

181. *Educational Problems of Adolescence.*—A critical consideration of the physical, intellectual, emotional, moral and social characteristics of adolescence, and the educative activities suited to the period of secondary school education. Five credits per quarter; spring, summer. Williams

*185. *Educational Statistics.*—Statistics needed by the graduate student in conducting research or by the teacher, principal, or superintendent in meeting the every day problems of the school room. An introduction to the course in educational measurements and other courses in which statistics are needed. Laboratory fee, $2. Two credits; autumn. Hines

186. *Educational Measurements.*—Lectures, discussions, reading, class experiments, and projects. Primarily for experienced teachers, principals or those preparing for such positions. Prerequisite, course 185. Laboratory deposit, $2. Five credits; autumn, winter or summer. Hines

191. *State and County School Administration.*—A study of state and county educational problems including a study of rural life and its educational needs and supervision. Five credits; autumn. Ayer

*Not offered in 1921-1922.*
192. Educational Administration; City Schools.—For those preparing for superintendencies, principalships, and other supervisory positions, as well as those desiring an acquaintance with the large problems of city school administration. Five credits; spring or summer.  
Ayer

195-196-197. Applied Principles of Education.—An analysis of the various principles of education involved in particular educational processes. Special emphasis upon the psychological principles and growth stages that should be recognized and followed in teaching school subjects. Two credits per quarter; autumn, winter, spring.  
Bolton

IV. COURSES FOR GRADUATES ONLY

To be admitted to courses in this group (IV) students must be college graduates, and must have earned at least 18 credits or the equivalent in education. The following courses may be counted toward the master's and doctor's degrees:

201-202-203. Child Accounting and School Adjustment.—A consideration of individual differences and school progress. Methods of determining various ability-levels and demonstration of application and interpretation of experimental procedure and results with special reference to differential teaching in normal and special classes. Laboratory fee $2. Two credits per quarter; autumn, winter, and spring.  
Williams

*211-212-213. Comparative Education.—The critical study of modern educational organization and practice in foreign countries, especially in Germany, France, England, Norway, Sweden and Canada. Brief consideration of their development. Relations between social ideals of nations and their educational systems. Particular emphasis regarding their influence upon the development of the educational theories and practices in America. Two credits per quarter; autumn, winter, spring.  
Bolton

231-232-233. Advanced Educational Psychology.—A survey of the latest contributions to educational psychology, with especial emphasis upon the experimental contributions. Two credits per quarter; autumn, winter, spring.  
Hines

*261-262-263. Seminar in Educational Sociology.—A survey of recent contributions to educational sociology and study of special problems. Two credits per quarter; autumn, winter, spring.  
Ayer

*271-272-273. Seminar in Educational Surveys.—The course will include a consideration of the purpose and method of the school survey and a study of the principles of educational practice exhibited in the reports of typical school surveys. Two credits per quarter; autumn, winter, and spring.  
Ayer

* Not offered in 1921-1922.
275-276-277. Seminar in Secondary Education.—A research course in the problems of high-school administration. Two credits per quarter; autumn, winter, spring.

Terry

285-286-287. Seminar in Educational Statistics and Measurements.—Arranged especially for teachers of Seattle and vicinity. Laboratory fee, $2. Two credits per quarter; autumn, winter, and spring.

Hines

298-299-300. Individual Research or Thesis Work.—Intensive study and original investigation of special problems. Results are usually reported in one of the seminars and when especially meritorious may be published. The special problems are directed by the members of the department representing the fields of work chosen by the students. Credits to be arranged.

Hines

SMITH-HUGHES COURSES IN TRADES AND INDUSTRIES

The following courses conforming to the methods of teaching trades and industries will be credited toward the bachelor's degree in education if all other requirements for admission and graduation are fulfilled:

3. Industrial Education.—The purpose, history, organization, and the promotion of industrial education and its articulation with the traditional school system, with industry and with the Smith-Hughes Law. The continuation school, prevocational school and vocational guidance. Three credits; autumn.

Jensen

4. Methods of Teaching Trades and Class Management.—General principles of education that apply particularly to trade education and methods in teaching trade subjects. Development of lesson plans as an outgrowth of the study of methods of trade teaching. (Thirty-six hours in class room.) Three credits; winter.

Jensen

5. Trade Analysis and Teaching Program.—Each member of the class will develop a teaching program or detailed course of study following the analysis of the trade that he expects to teach. (Thirty-six hours in class room.) Three credits; spring.

Jensen

6. Practice Teaching in Trades and Industries.—Practice teaching under conditions as nearly as possible like those in their respective trades. (Thirty-six hours in class room.) Not a substitute for the regular required practice teaching, Education 145. Three credits; autumn, winter, or spring.

Jensen

ELECTRICAL ENGINEERING

Engineering Hall

Professor Magnusson; Associate Professors Logw, Kirsten; Assistant Professor Curtis; Instructors, Shuck, Kalin, Hoard, Tolmie.

101. Direct Currents.—A short course in continuous current machinery for non-electrical students, to be taken in connection
with E. E. 102. Prerequisite, Physics 98. Four credits; autumn, winter, spring.

102. Direct Currents Laboratory.—A short laboratory course in continuous current machinery for non-electrical students. Prerequisite, Physics 98. Laboratory deposit, $4. Two credits; autumn, winter, spring.

109. Direct Currents.—Theory of the electric and magnetic circuits; construction, operation and characteristics of direct current generators and motors. Prerequisite, Physics 98. Four credits; autumn, winter, spring.

110. Direct Currents Laboratory.—Laboratory work on direct current machinery. Prerequisite, Physics 98. Laboratory deposit, $4. Two credits; autumn, winter, spring.


112. Direct Currents Laboratory.—Experimental work on direct current dynamo machinery and on storage batteries. Prerequisite, E. E. 110. Laboratory deposit, $4. Four credits; autumn, winter, spring.

15. Elementary Direct Currents.—(Night Class). The laws of the electric and magnetic circuits with application to direct current machinery without the aid of advanced mathematics. For electricians having at least two years of practical experience with electrical machinery. Laboratory deposit, $6.


121. Alternating Currents.—A short course in alternating currents for non-electrical students. To be taken in connection with course 122. Prerequisite, E. E. 101. Four credits; autumn, winter, spring.

122. Alternating Currents Laboratory.—Experimental work on alternating current machinery. Prerequisite, E. E. 102. Laboratory deposit, $4. Two credits; autumn, winter, spring.

131. Electric Communication.—Wire and radio telephone and telegraph. Theory, construction and operation of electric com-
munication systems. Central telephone station practice. Junior or senior elective. Prerequisite, E. E. 109, 110. Four credits; autumn, spring.

132. *Telephones and Telegraphs.*—Details of automatic and manual switchboards; testing and locating faults; multiplex telegraphy; railway signal systems. Junior or senior elective. Prerequisite, E. E. 131. Laboratory deposit, $2. Three credits.

Kalin

141. *Illumination.*—Electric lamps; commercial photometry; adaptation of electric lighting to commercial requirements. Junior or senior elective. Prerequisite, E. E. 109, 110. Laboratory deposit, $2. Four credits; spring.

Tolmie

152. *Electrical Machine Design.*—Complete design of one direct current generator or motor. Prerequisite, E. E. 111, 112. Five credits; autumn, winter, spring.

Hoard


Kirsten

161. *Alternating Currents.*—The theory of singlephase and polyphase system; energy storage in magnetic and dielectric fields; vector diagrams and the symbolic methods of analysis; power factor and power measurements; hysteresis and eddy currents; theory of the transformer, singlephase and polyphase induction motors. Prerequisite, E. E. 111. Five credits; autumn, winter, spring.

Kirsten

162. *Alternating Currents Laboratory.*—Experimental work with alternating current machinery. Prerequisite, E. E. 112. To be taken in connection with E. E. 161. Laboratory deposit, $4. Four credits; autumn, winter, spring.

Curtis, Loew, Kalin

163. *Alternating Currents.*—The theory of alternators, rotary converters, synchronous and commutator motors and transmission lines; high tension phenomena; corona; commercial wave forms; unbalanced and inter-linked systems. Prerequisite, E. E. 161. Five credits; autumn, winter, spring.

Loew, Curtis

164. *Alternating Current Laboratory.*—Prerequisite, E. E. 162. Laboratory deposit, $4. Autumn, winter, spring.

Curtis, Loew, Hoard


Curtis

173. *Central Stations.*—Location, design and operation of electric central stations. Prerequisite, E. E. 161, 162. Three credits; spring.

Kirsten
175. Power Transmission.—Theory, design and operation of electric power transmission lines. Prerequisite, E. E. 163, 164. Four credits; winter. Kirsten

181, 182. Radio.—Radio systems; lineal, open and complex oscillations; coupled circuits; resonance; transmitters; receivers; vacuum tubes in radio work; quenched and undamped oscillations. Prerequisites, E. E. 161, 162. Laboratory deposit, $2. Five credits per quarter; winter. Kalin

186, 188. Thesis.—After consultation with the head of the department the student selects a suitable topic for investigation. Reports of progress are made weekly to the instructor in charge of the work selected. A complete report of the work is typewritten and bound and a copy deposited in the University library. Two to five credits per quarter; autumn, winter, spring. Magnusson, Loew, Kirsten, Curtis

191. Engineering Equations.—A mathematical investigation of electrical phenomena with quantitative solutions of typical engineering problems. Prerequisite, E. E. 161, 162. Three credits; winter. Loew

195. Electric Transients.—The exponential law of simple transients; single and double energy transients; current oscillations and traveling waves; natural period of transmission lines; short circuit transients; surges; corona; lightning phenomena. Prerequisite, E. E. 161, 162. Two credits; autumn, winter, spring. Magnusson

196. Electric Transients Laboratory.—To be taken in connection with E. E. 195. Prerequisite, E. E. 162. Laboratory deposit, $2. Two credits; autumn, winter, spring. Kalin

198. Electric Transient Laboratory.—A continuation of E. E. 196. Laboratory deposit, $2. Two credits; autumn, winter spring. Kalin

GRADUATE COURSE

210, 212, 214. Research.—Two to five credits per quarter; autumn, winter, spring. Magnusson, Loew, Kirsten, Curtis

ENGLISH

Donny Hall

PROFESSORS PADELFORD, PARRINGTON, BENHAM; ASSOCIATE PROFESSORS MILLIMAN, COX, GARRETT; ASSISTANT PROFESSORS CHITTICK, HARRISON, ERNST; ASSOCIATES, HAGGERTY, STRUBLE, JONES, BROWNING, ELLIS, MRS. ERNST, VICKNER, WRIGHT, KERRIGAN, THOMAS; ASSISTANTS, SIEKELS, BURNHAM, HADLEY, McCaUSLAND.

REQUIREMENTS FOR MAJOR STUDENTS

The plan of work for major students consists of normally of, (1) a minimum of 27 hours work in lecture and recitation courses, and (2) a course of individual reading in English and American literature under departmental tutors, extending throughout the senior year.
At the conclusion of the senior year all major students are required to take an examination in the history of English literature and the plan of work should be designed to that end.

Candidates for the teacher's diploma are required to take courses 188, 189 and 190.

1-2-3. **Freshman Composition.**—A course in the principles and practice of composition, with conferences for personal criticism. The word done in this course is regarded as belonging rather to the high school than to the University. Those whose preliminary training has been superior are excused from the course on examination. A grade of "A" in course 1 excuses a student from course 2. Five credits for two quarters. For students in Fine Arts, three credits; autumn, winter, spring.

Freshman Composition.—For students in Engineering, Forestry and Fisheries. Students are required to repeat the course if their work is not of high quality. Three credits for one quarter.

5. **Freshman Composition.**—A second quarter's work for students in Fisheries. Three credits per quarter. Padelford in charge

7, 8, 9. **Freshman Composition and Literature.**—A course combining practice in writing with the study of modern authors. Primarily for students intending to major in English. Five credits; autumn, winter, spring.

**21. An Introduction to Poetry.**—Three credits; autumn. Parrington

24, 25, 26. **Victorian Essayists.**—A study of the Victorian background of contemporary thought as found in the prose work of Macauley, Herbert Spencer, J. S. Mill, Newman, Carlyle, Ruskin, Arnold, Huxley, Morris, Pater, Stevenson. Two credits per quarter; autumn, winter, spring.

37. **Argumentation.**—Prerequisite, course 1. Five credits; autumn.

38. ** Debating.**—Prerequisite, course 37. Three credits; winter.

39. ** Debating.**—Prerequisite, course 38. Three credits; spring.

40-41. **Development of the Oration.**—A study of the oration as a distinct type of literature. Analysis of modern orations, and the development of original orations. Two credits per quarter; winter, spring.

*Not offered in 1921-1922.*
51, 52, 53. Advanced Composition.—Composition based upon model English and American essays. Prerequisite, courses 1-2. Three credits per quarter; autumn, winter, spring. Two sections.

Millman

54, 55, 56. Advanced Composition.—A practical course in criticism and style designed to give a critical and philosophical basis to one's judgments on men, affairs, literature and art. Prerequisite, courses 1-2. Three credits per quarter; autumn, winter, spring. Cox

57-58-59. Dramatic Composition.—(Dramatic Art 111-112-113. See Dramatic Art for description.) Three credits per quarter; autumn, winter, spring. Hughes

*61-62-63. Versification.—A study of the principles of English versification, with practice in verse writing. Prerequisite, courses 1-2-3 or 7-8-9. Two credits per quarter; autumn, winter, spring.

Parrington

64, 65. Great English Writers.—A study of important works in English Literature. Open to all. Required in the freshman year of pre-journalism majors. Five credits; autumn, winter. Garrett

67, 68, 69. Great American Writers.—Studies in the works of Emerson, Hawthorne, Longfellow, Lowell, Whitman, Poe, Bryant, Whittier, Mark Twain, and others. Two credits per quarter; autumn, winter, spring.

Milliman

70-71. Shakespeare.—A detailed study of a few plays, with rapid reading of the remainder. Open any quarter. Three credits per quarter; autumn, winter.

73, 74, 75. Lower Division Contemporary Literature.—Essay studies of European and American thought during the nineteenth century and later; followed by readings in poetry, novel and drama involving similar ideas. Open any quarter. Three or five credits; autumn, winter, spring.

Milliman, Harrison, Ernst

81, 82, 83. Literature of the English Colonies.—The autumn quarter will be devoted to the study of the literature of Canada, the winter quarter to the literature of Australasia and of South Africa, and the spring quarter to the English literature of India. Two credits per quarter; autumn, winter, spring.

Garrett

98. The Bible as Literature.—A study of the literature of the Old Testament. Open any quarter and to all students. Three credits per quarter; spring.

Padelford

104-105-106. Contemporary Literature.—Special studies in contemporary literature for advanced students. Three credits for quarter; autumn, winter, spring.

Cox, Ernst

*Not offered in 1921-1922.
DEPARTMENTS OF INSTRUCTION

*123. Philosophy in English Literature of the Nineteenth Century.—(Philosophy 123. See Philosophy for description.) Savery

124. Chaucer.—A study of the poetical works of Chaucer. Three credits; autumn quarter.

125. Mediaeval Literature.—The life and the ideals of the Middle Ages studied through the literature. Some of the texts read are Piers Plowman, Aucassin and Nicolette, Little Flowers of St. Francis, The Pearl, Everyman, Malory's Morte D'Arthur. Three credits; winter quarter.

126. The Mediaeval Revival in English Literature.—The revival of interest in mediaeval life and literature will be traced through Walpole, Scott, Carlyle, Ruskin, the Pre-Raphaelites, William Morris, to the present day. Three credits; spring quarter.

127, 128, 129. Milton and His Contemporaries.—A study of English literature from Bacon to Locke, the works of Milton forming the central theme. Three credits per quarter; autumn, winter, spring.

130-131-132. The English Drama.—A study of plays representative of the origin and development of English drama. Three credits per quarter; autumn, winter, spring.

133, 134, 135. Main Tendencies in English Literature I.—A study in English national ideals, from the beginning to 1642, with consideration of significant literary figures and works. Open to sophomores who are expecting to major in English. Three credits per quarter; autumn, winter, spring.

136, 137, 138. Main Tendencies in English Literature, II.—A study in English national ideals from 1642 to the present. Open to sophomores who are expecting to major in English. Three credits per quarter; autumn, winter, spring.

*141-142-143. Growth of the Democratic Ideal in English Literature.

144, 145, 146. Romantic Revolt.—The conflict of classical and romantic tendencies in English and Continental literature. Three credits per quarter; autumn, winter, spring.


150, 152, 153. Old and Middle English Language and Literature.—The grammar of the early English. Readings in Old and Middle English authors. Three credits per quarter; autumn, winter, spring.

*Not offered in 1921-1922.
161, 162, 163. American Literature from the Beginnings to the Year 1870.—The autumn quarter deals with the period before 1800; the winter quarter, with Irving, Brown, Cooper, Bryant, Poe, and the slavery controversy; the spring quarter, with the New England group. Any quarter may be taken separately. Three credits per quarter; autumn, winter, spring.

164-165-166. American Literature from the Year 1870 to the Year 1914.—The autumn quarter deals with Whitman, Mark Twain and the Post New England group; the winter quarter, with Howells and the rise of realism; the spring quarter, with late tendencies in fiction and poetry. Three credits per quarter; autumn, winter, spring.


174-175-176. Nineteenth Century English Poetry.—Wordsworth, Shelley, Keats, Tennyson, Browning; Swinburne, Morris, Arnold, Rossetti. Three credits per quarter; autumn, winter, spring.

*187. Philosophy in Contemporary Drama.—(Philosophy 126.) Social and philosophical ideas in the contemporary drama. Five credits; spring.

183, 184, 185. General Literature.—Readings in European literature, with conferences and reports. Three credits per quarter; autumn, winter, spring.

*187. Philosophy in Contemporary Drama.—(Philosophy 126.) Social and philosophical ideas in the contemporary drama. Five credits; spring.

188, 189, 190. Teachers’ Course.—Methods and problems in the teaching of English in the high school. Two credits per quarter; autumn, winter, spring.

191-192-193. Major Conference.—For senior students. Individual conferences for the purpose of effecting a correlation of studies and for guidance in individual reading. Each student is expected to meet his instructor once a week in conference. Three credits per quarter; autumn, winter, spring.

194-195-196. Studies in Romance.—A study of transmission and diffusion of stories. A certain number of literary motifs which are popular today are traced through various lands and ages and their manifestations are observed. Consent of the instructor must be obtained for enrollment in this course. Two credits per quarter; autumn, winter, spring.

COURSES FOR GRADUATES ONLY

*204, 205, 206. Chaucer.

207, 208, 209. English Literature from Chaucer to Dryden.—Studies in English Renaissance and Reformation and in the Puritan

*Not offered in 1921-1922.
Revolution. Methods of historical research and criticism. Editing. Two to eight credits per quarter; autumn, winter, spring. Benham

211-212-213. English Literature of the Tudor Period.—For the coming year the class will study the poetry of Edmund Spenser as a fusion of classical, mediaeval and Renaissance impulses and traditions. This course may be taken to advantage by students who have already studied Spenser during a summer session. Two to eight credits per quarter; autumn, winter, spring. Padelford

221, 222, 223. Modern English Literature.—Studies in modern English and American literature from the mid-nineteenth century period to the present day. Two to eight credits per quarter; autumn, winter, spring. Parrington

*224, 225, 226. American Literature. Parrington

*227, 228, 229. Literary Criticism. Cox

COURSES IN FOREIGN LITERATURES TAUGHT IN ENGLISH

(For details see foreign language departments.)

German, 70-71; Greek, 13-14; Italian, 181-182, 184; Oriental Languages, 50-5-52; Scandinavian, 180-181-182.

NOTE: For courses in Comparative Philology, see the department of Scandinavian Languages and Literature.
For courses in The Short Story, see department of Journalism.

FISHERIES
Fisheries Hall

PROFESSORS COBB, KINCAID; INSTRUCTOR, ANDERSON

1-2. Introduction to Fisheries.—A general review and history of the world's fisheries. Two credits per quarter; autumn, winter. Cobb

3, 4, 5. Ichthyology.—The structure, classification and habits of economic fishes. Course 5 will also include other economic marine animals particularly oysters and clams. Prerequisite, Zoology 1, 2. Laboratory deposit, $3. Five credits per quarter; autumn, winter, spring. Kincaid, Anderson

6. Pacific Fisheries.—A general review and history of the fisheries of the Pacific. Winter quarter is open to short course students. Two credits; winter, spring. Cobb

50. Elements of Fisheries.—A general review of fishery science, stressing the economic and cultural aspects of the subject.

*Not offered in 1921-1922.
Lectures and demonstrations. For students in Business Administration and other colleges of the University. Five credits; autumn. Cobb, Kincaid, Anderson

101-102-103. Fish Culture.—The developmental history and artificial propagation of economic fishes, lobsters, etc. Prerequisite, Fisheries 3, and Zoology 5. Laboratory deposit, $3. Five credits per quarter; autumn, winter, spring.

104-105. Fishery Methods.—The construction and uses of apparatus; handling and transportation of products, etc. Three lectures and two laboratory periods. Laboratory deposit, $3. Five credits per quarter; winter, spring. Cobb

106-107. Preparation of Fishery Products.—The curing and preservation of fishery products. Prerequisite, Fisheries 3 and 5. Three lectures and two laboratory periods. Laboratory deposit, $4. Five credits per quarter; autumn, spring. Cobb, Anderson

112. Oyster and Clam Culture.—The development and propagation of oysters and clams. Prerequisite, course 5. Laboratory fee, $3. Five credits per quarter; autumn. Kincaid

115. The Economic Fishery Resources of North America.—A study of the fishery resources of the North American continent and adjacent seas, their development and commerce, and government policies of conservation. Three credits; spring. Cobb

117. Diseases of Fish.—A study of the nature and causes of disease in fishes. Prerequisite, Fisheries 3-4-5. Laboratory deposit, $3. Five credits; autumn.

150, 151, 152. Problems in Fish or Shellfish Culture.—Students with the proper preparation, which should include at least 15 hours’ work in fish culture or 15 hours’ work in shellfish culture and course 5, will be assigned special topics to be worked upon under the direction of one of the instructors. Five credits per quarter; autumn, winter, spring. Kincaid

155, 156, 157. Problems in Fisheries.—Students with the proper preparation, which should include at least 15 hours’ work in fishery methods and preparation of fishery products, will be assigned special topics to be worked upon under the direction of the instructor. Five credits per quarter; autumn, winter, spring. Cobb
1. Elementary Dendrology.—Nomenclature, classification and identification of trees. A detailed study of all northwest species and of one type species of each genus of the important timber trees of North America. Prerequisite, high school botany. Required of freshmen. Two recitations, one quiz and two 3-hour laboratory periods per week, field trips additional. Laboratory deposit $2.50. Five credits; autumn or spring. Winkenwerder and assistant.

1s. S. C. Dendrology.—Identification, distribution and use of northwest tree species. Two recitations; one-half day field trip. Three credits. Winkenwerder.

2. General Forestry.—A general survey to familiarize the student with the field of work he is about to enter. Required of freshmen. Three credits per quarter; autumn, winter. Winkenwerder.

3. General Forestry—A continuation of Forestry 2 but need not be preceded by it. Winkenwerder.

4. Forest Protection.—Its economic importance; forest fires, their prevention and control. Required of freshmen. Three credits; spring. Winkenwerder.

4s. S. C. Protection.—Forest fire, insect, fungi, and other destructive agents of the forest; nature, damage, prevention and control. Winkenwerder.

5. Woodcraft.—Food and clothing, camp equipment and sanitation, packing a horse, and general woodcraft. A section will be arranged for students not enrolled in forestry if not less than six apply. Two lectures per week; demonstrations and practice work additional. Laboratory deposit, $3. Two credits; autumn. Clark.

51-52. Forest Mensuration.—Principles and methods of computing, scaling, cruising, mapping; volume, growth and yield tables. Required of sophomores. For 51 open to short course students. Three recitations, two 3-hour laboratory periods. Laboratory deposit $3. Five credits per quarter; winter and spring. Winkenwerder, Clark.

51s. Short Course Mensuration—Same as Forestry 51. Students take this with regular long course class. Clark.

53. Construction.—Trails, roads, logging railroads, telephone lines, wooden bridges, cabins, barns, and fences; clearing from the standpoint of United States Forest Service improvement work, and logging construction. Required of sophomores. Laboratory deposit $3. Three credits; autumn. Clark.
57a. *Silvics.*—Lectures and Quiz. The climate, soil and life factors which determine character of forest vegetation. Form and character of the individual tree. Life history of the forest. Silvical characteristics of the tree species. Required of sophomores. Prerequisite 10 hours botany, Forestry 1 and 52. Three credits. Autumn. Kirkland

57b. *Field Methods in Silviculture.*—To accompany 57a. One 3-hour laboratory period. Elective. Laboratory deposit $3. One credit. Kirkland

58. *Silviculture.*—Regeneration of forests by natural reproduction, seeding or planting. Care of young, middle-aged and older stands. Required of sophomores. Prerequisite 57a. Laboratory deposit $3. Five credits; spring. Kirkland

101. *Wood Technology.*—Prerequisite to all courses in Forest Products. Wood structure, leading to identification of the commercial timbers of the United States; physical properties of woods. Each student is required to prepare permanent microscopic mounts of fifty species. Required of juniors. Prerequisite college botany, Forestry 1, 10 hours chemistry and general physics. Laboratory deposit, $3. Five credits; spring. Grondal

102. *Wood Identification.*—This course includes the laboratory work only of Forestry 101. Open to students in other departments. Prerequisite, college botany, 8 hours. Laboratory deposit $3. Two credits; autumn. Grondal

103. *Wood Analysis.*—Identification, physical properties and characteristics of woods used in building construction. Open only to students in architecture. Two credits; spring. Grondal


105. *Wood Preservation.*—Nature of decay of timber and methods and economics of preservation. Laboratory work with the college treating plant and reports on local creosoting plants. Required of juniors and graduates. Prerequisites, Forestry 101 and one year of chemistry. Laboratory deposit $3. Five credits; spring. Grondal

109. *General Forestry.*—A general survey, lectures, assigned readings, and reports. Occasional field trips. Offered only to students not enrolled in the College of Forestry, and may be taken at the University or as an extension course by correspondence. Two credits; autumn. Winkenwerder
110. Characteristics of Trees.—The identification, distribution, life habits, and uses of trees of the Pacific Northwest. Offered only to students not enrolled in the College of Forestry, and may be taken at the University or as an extension course by correspondence. Two lectures weekly and occasional field trips. Two credits; spring. Winkenwerder

112. Properties and Uses of Woods.—Offered only as a correspondence course. Grondal

119. Forest Administration.—Objects, principles and methods of administering private and public forests and forest industries. Prerequisite, Forestry 126 or may be taken concurrently. Three credits; winter. Kirkland

126. Forest Economics.—The forests of the United States, their uses, their relation to industries and resources. Required of juniors or seniors in forestry and open to students in other departments. Prerequisite B. A. 1. Two credits; winter. Kirkland

151. Forest Finance and Valuation.—Mathematics of forest finance; compound interest calculations applied to forest operations; application of financial tests to silvicultural and other forest measures; cost of growing timber; valuation of land for forest production; valuation of mature or immature timber and of damage to forests. Required of students in senior or graduate year. Prerequisites, Forestry 52 and 58. Five credits; autumn. Kirkland

152. Forest Organization.—Principles of forest organization and regulation of the cut; advantages of foresight and planning in forest operations for a term of years in advance; sustained yield management of forests; forest working plans. Required of students in senior or graduate year. Prerequisite, Forestry 151. Five credits; winter. Kirkland

153. General Lumbering.—Prerequisite to all courses in logging and milling. Comparative methods of logging on the Pacific Coast and in other lumbering regions of the United States. Required of juniors. Prerequisites, Forestry 51-52. Five credits; autumn. Clark

158. Forest Utilization.—Pulp and paper manufacture, tannic acid, naval stores and other secondary forest products; lumber and its economic uses in construction. Required of juniors and graduates. Prerequisite, Forestry 101, and one year in chemistry. Five credits; winter. Grondal

158s. The Manufacture and Uses of Lumber.—Kiln drying and the manufacturing of lumber. Open only to short course students. Four credits; winter. Grondal
159. **Scientific Management.**—Fundamental principles of scientific management, with special reference to the lumber industry. Given in alternate years, not in 1921-22. Two credits; autumn. 

Kirkland

183. **Milling.**—The sawmill; yard arrangements; practical operation. For seniors and graduates. Prerequisites, M. E. 82, Forestry 153, 158, 104. Five credits; autumn. 

Grondal

184. **Marketing.**—Territorial consideration, technical trade requirements, problems of wholesaler and retailer, line yards, rail and cargo problems, financing, accounting, advertising. Prerequisites B. A. 1 and 56. Three credits; winter. 

Grondal

185-186-187. **Logging Engineering.**—Logging machinery and equipment, organization of logging companies, construction of railroads, camps, etc. Lectures, demonstrations at plants manufacturing logging machinery, and field work in nearby logging camps. During the third quarter the work is transferred to the field, where extensive work in logging engineering is carried on. No credit is given for 186 unless followed by 187. Primarily for seniors and graduates. Prerequisites, Forestry 52, 53, 58, 104, 153, M. E. 82, C. E. 22. Laboratory deposit for 187, $3. Four credits per quarter, autumn and winter; sixteen credits; spring. 

Clark

186s. S. C. **Logging.**—Logging machinery, methods of logging by high lead, sky-lines, etc., planning operations, topographic mapping. Open only to short course men presenting a certificate showing at least six months employment in a logging operation. Five credits. 

Clark

188, 189. **Advanced Forest Products.**—Advanced studies in wood technology and utilization, with individual problems. A laboratory course. Prerequisite, Forestry 101, 158. Laboratory deposit $3. Five credits. Any quarter. 

Grondal

**GRADUATE COURSES**

201. **Forest Geography.**—Advanced dendrology. Silvicultural regions, their relation to regional industrial development and the general problems of lumbering and management. Prerequisite, senior or graduate standing. Three credits; autumn. 

Winkenwerder

208, 209. **Seminar.**—Reviews, assigned readings, reports, and discussions on current periodical literature and the more recent Forest Service publications. Prerequisite, senior or graduate standing. Two credits per quarter; autumn, winter. 

Winkenwerder, Kirkland, Grondal

213, 214, 215. **Senior or Graduate Research.**—Credits to be arranged, any quarter. Laboratory deposit, $3. Instructors assigned according to nature of work. Not open to students below senior standing.
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; autumn. Kirkland

223. *Advanced Forest Management.*—About one week of field work on a tract of 50,000 to 100,000 acres on which data concerning different soil classes, forest types, etc., and the volume of timber is already available. This work will be followed by the actual formation of a working plan providing for regulation of the yield and organization of all forest work on the area, with estimates of outlay and income. Prerequisite, Forestry 151-152. Eight credits; spring. Kirkland

224. *Advanced Milling and Marketing.*—Sawmill design and a detailed study of special problems in sawmill operation and management. Prerequisites, senior or graduate standing, Forestry 183, 184. Five credits, spring quarter. Grondal

### GEOLOGY

*Science Hall*

**Professor Landes; Associate Professor Weaver; Assistant Professors Saunders, Goodspeed**

Courses in the department are grouped to lead into the different fields of geological work, as follows:

1. *General Geology.*—Physical. Geological agencies and processes affecting the earth. Lectures and laboratory work, with occasional half-day field trips. Laboratory fee, $2.50. Five credits; autumn or winter. Goodspeed

2. *General Geology.*—Historical. Continuation of course 1, dealing with the origin and evolution of the earth. Lectures and laboratory work, with some field excursions. Prerequisite, 1, 5, or 12. Laboratory fee, $2.50. Five credits; winter or spring. Saunders or Weaver

3. *Principles of Geology.*—Physical. The fundamental facts and principles of geology. Lectures, assigned readings and field trips but no laboratory work. Three credits; autumn. Saunders

4. *Principles of Geology.*—Historical. The earth's origin and the general history of the continent. Lectures, recitations and field trips, without laboratory work. Three credits; winter. Saunders
5. **Engineering Geology.**—A survey of the field of general geology, for the special needs of students in civil and chemical engineering and forestry. Laboratory deposit, $2.50. Five credits; autumn or spring. Goodspeed

10. **Modern Geography.**—An introductory study of the problems of modern geography; the scientific investigation of geographic environment and its influence use of maps and charts; geographic control of production and trade; study of the major geographic features of the continents. Five credits; autumn. Saunders

11. **Meteorology and Elementary Climatology.**—Weather elements and controls; causes and effects of atmospheric conditions; principles and methods of weather forecasting and use of instruments. With or without laboratory work. Laboratory fee, $1. Three or five credits; winter. Saunders

12. **Physiography.**—Land forms or earth's features with reference to origin and characteristic changes under different agencies during the geographic cycles. Occasional field trips. With or without laboratory work. Laboratory fee, $1. Three or five credits; spring. Saunders

21. **Mineralogy.**—A brief study of crystallography followed by descriptive mineralogy and blowpipe methods. At least a high school course in chemistry is essential as a prerequisite, and a quarter in general geology is desirable. Laboratory fee, $3. Five credits; winter. Goodspeed

31. **General Paleontology.**—A consideration of the broad principles of paleontology. An elementary course open to all students. Prerequisite, course 1 or 5. Laboratory fee, $2.50. Five or three credits; spring. Weaver

107. **Geology of Washington.**—Lectures with assigned readings and laboratory study. Prerequisite, one quarter of general geology or physiography. Two credits; spring. Landes

110. **Teachers' Course in Geography.**—The teaching of geography, physical geography, and commercial geography in the schools. Prerequisites, one term of geology, physiography and geography. Two credits; winter. Saunders

111. **Climatology.**—The broader aspects of climate controls and characteristics of different climates and climatic provinces, with special references to United States and the Pacific Coast. Prerequisite, courses 10 or 11. Three credits; spring. Saunders

112. **Physiography of the United States.**—The physiographic regions of the United States and their effects on development and history of the country. Lectures and map study. Prerequisite, courses 10 or 12, or 1, 3, or 5. Laboratory fee, $1. Three credits; autumn. Saunders
113. *Physiography of Europe.*—The physiographic regions of Europe and effects of topography and climate on development and relations of different countries. Lectures and map study. Prerequisite, courses 10 or 12 or 1, 3, or 5. Laboratory fee, $1. Three credits; winter. Saunders

114. *Oceanography.*—Study of the ocean, oceanic circulation and temperatures in their geographic relations and influence. Prerequisite, course 11 or equivalent work. Two credits; spring. Saunders

116. *Economic Geography of Washington.*—The economic and industrial development of the state, based on the geological, physiographic and climatic conditions. Three credits; autumn. Landes

117. *Geography of Asia.*—A study of the continent by natural regions based on topography and climate. Prerequisite desirable, course 10 or 12. Three credits; spring. Saunders

118. *Geography of South America.*—Physiographic features, climate and resources of the continent and their effects on development and relations of different countries. Prerequisite desirable, course 10 or 12. Three credits; winter. Saunders

120. *Petrology.*—A study of rocks, their components, occurrence and structural relations. Occasional field trips. Laboratory deposit, $2.50. Prerequisite, courses 21 and either 1, 5, or 12. Three credits; spring. Goodspeed

121. *Advanced Mineralogy.*—A study of opaque, metalliferous minerals with the use of the reflecting microscope, or "mineralography"; the relation of the latter to geologic, mining and metallurgical problems. Prerequisite, course 21. Three credits; spring. Goodspeed

122. *Field Methods.*—Principles and methods of geologic surveying and mapping. Detailed field work in small areas, with field trips. Prerequisite, courses 1 and 2, or 5 with 21 and 120. Two credits; spring. Goodspeed

123. *Optical Mineralogy.*—The use of the polarizing microscope in the examination of minerals and rocks in thin sections. Prerequisite, courses 1 or 5, and 21. Laboratory fee, $2.50. Three credits; autumn. Goodspeed

124. *Petrography.*—The principles of petrography and petrographic methods in the systematic study of igneous, sedimentary and metamorphic rocks. Prerequisite, course 123. Laboratory fee, $2.50. Four credits; winter. Goodspeed
125. *Advanced Petrography.*—A continuation of the work in petrography for majors in mining and geology. Prerequisite, course 124. Two credits with additional credits optional; spring.

Goodspeed

126. *Economic Geology.*—Economic deposits of non-metallic minerals, their production and use. Lectures and discussions of papers. Prerequisites, courses 1 or 5, and 21. Three credits; autumn.

Landes

127. *Economic Geology.*—Economic deposits of metallic minerals, their production and use. Lectures and discussion of papers. Prerequisite, course 1 or 5, and 21, 124. Five credits; winter. Landes

128. *Economic Geology.*—An intensive study of certain economic minerals or of particular areas of great importance. Prerequisite, course 126 or 127. Two or more credits; spring. Landes

131-132. *Invertebrate Paleontology.*—A detailed and systematic biologic study of fossil and living representatives of the Mollusca. Autumn quarter, Pelecypoda; winter quarter, Gastropoda. Prerequisite, course 31. Laboratory fee, $2.50. Three credits; autumn, winter.

Weaver

133. *Stratigraphic Paleontology.*—A study of the fundamental principles of stratigraphy and the characteristic fossils by means of which the geologic formations of the continent may be determined. Prerequisites, courses 1 or 2, 12 or 31. Laboratory deposit, $2.50. Five credits; spring. Weaver

134. *Vertebrate Paleontology.*—A study of the anatomy and structures of the more important groups of extinct vertebrates and their relationships to living vertebrates. Laboratory fee, $2.50. Prerequisite, course 31. Five credits; winter. Weaver

135. *Paleobotany.*—A systematic biologic study of the structure and classification of the plant life which formerly inhabited the earth, and the application of paleobotany to correlation problems in historical geology. Laboratory fee, $2.50. Prerequisite, Botany 11-12 or 106-107 and Geology 2 or 3. Five credits; autumn. Weaver

**GRADUATE COURSES**

200.—Field studies or advanced work in general geology. Credits and hours to be arranged.

210.—Advanced or research work in geography, climatology or physiography. Credits and hours to be arranged. Each quarter.

220.—Advanced or research work in mineralogy, petrography and metamorphism. Credits and hours to be arranged. Each quarter.
225.—Advanced or research work in economic geology. Credits and hours to be arranged. Each quarter.

SPECIAL SHORT COURSES

S. C. 1. Geology.—Two lectures per week. Laboratory fee, $1. Winter. Landes

S. C. 2. Mineralogy.—A laboratory course in physical determination of minerals and the use of blowpipe methods. Three laboratory periods per week. Laboratory fee, $2.50, winter. Landes

GERMANIC LANGUAGES AND LITERATURE

Denny Hall

ASSISTANT PROFESSOR ECKELMAN; TEACHING FELLOW, KRAFFT

REQUIREMENTS OF THE DEPARTMENT

For a major: 35 to 60 credits, including at least 30 credits in courses above 100.

For the normal diploma: The same as for a major, including courses 160-161-162.

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 and verse, conversation. Five credits per quarter; autumn and winter, winter and spring, spring and summer.

Eckelman and Krafft

3. First Year Reading.—Reading of modern prose, conversation, composition, continuation of grammar. Prerequisite, course 1-2 or one year in high school. Five credits per quarter; autumn, spring. Eckelman and Krafft

5. Second Year Reading.—Pronunciation, review of grammar with emphasis on syntax, reading of modern prose, simple conversation. Prerequisite, course 3 or two years high school. Three credits, autumn; five credits, winter. Eckelman, Krafft

6. Second Year Rapid Reading.—Special sections with suitable prose for students in colleges of Science, Engineering and Forestry. Prerequisite, course 5 or two and one-half years high school. Three credits; spring. Krafft

10. Second Year Supplementary Reading.—Modern prose, simple conversation. Prerequisite as for course 5. Two credits; autumn. Eckelman

*60-61-62. Lower Division Scientific German.

*Not offered in 1921-1922.
70-71. *Modern German Literature in Translation.*—The reading and discussion of significant works illustrating the social and industrial development in the nineteenth century. No knowledge of German required. Two credits; winter and spring. Eckelman

*100-102. Schiller and Goethe.*

103-104-105. *Recent Writers.*—Social problems as represented in the works of Hauptmann, Sudermann, Fulda, Schnitzler, Paul Ernst. Prerequisite, courses 5 or 6, or three years high school. Three credits; winter, spring. Eckelman and Krafft

*110-111. Advanced Grammar and Composition.*

112-113-114. *Upper Division Scientific German.*—Scientific essays, monographs and technical periodicals. Each student does private reading in his own field under the guidance of the instructor and major professor. Conference work. Prerequisite, courses 6, 10, 60 or 61, or three years in high school. Two or three credits per quarter; autumn, winter, spring. Eckelman

*116-117-118. German Prose Reading.*

*120. Phonetics.*

*130-131-132. German Institutions.*

*133-134-135. Modern Novels.*

*136-137-138. Modern Drama.*

140. *Studies in German Literature.*—A general survey. Thomas Anthology. Assigned reading from the best historical fiction to illustrate periods. For advanced students. Three credits, graduate students may exceed this credit; winter. Eckelman

142. *Lyrics and Ballads.*—The Romanticists, Uhland, Heine, Moerike, Storm and others. Prerequisite, course 105. Three credits, graduate students may exceed this credit; autumn. Eckelman

*151. Lessing.*

*152. Goethe's Faust.*

*160-161. Teachers' Course.*

180. *Nineteenth Century Literature.*—Study of the drama and novel to 1880. Kleist, Grillparzer, Hebbel, Ludwig, Raabe, Keller, Storm, C. F. Meyer. For advanced students. Three credits, graduate students may exceed this credit; spring. Eckelman


*203-204-205. Storm and Stress Period.*

*Not offered in 1921-1922.*
DEPARTMENTS OF INSTRUCTION

*220-221-222. Inter-relations of German and English Literature.
*250-251-252. History of the German Language.
*253-254-255. Middle High German.
*256-257-258. Gothic.
*259. Old Saxon.

NOTE: For courses in Comparative Philology, see the department of Scandinavian Languages and Literature.

HISTORY

Denny Hall and Philosophy Hall

PROFESSORS MEANY, RICHARDSON; ASSOCIATE PROFESSOR McMAHON;
ASSISTANT PROFESSORS LUCAS, LARSEN; INSTRUCTORS, EDDY, FARRAR; ASSOCIATE, DAHLIN
PROFESSOR GOWEN OF THE DEPARTMENT OF ORIENTAL LANGUAGES AND LITERATURE

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. This course is repeated beginning with each quarter.


English Political and Social History (5-6). Open without prerequisites to freshmen, sophomores and upperclassmen.

Ancient History (71-72-73). Open without prerequisites to sophomores and upperclassmen.

For a major at least eighteen credits shall be obtained in the most advanced undergraduate courses. 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, political and social science, philosophy, modern languages, and English literature. Medieval Latin is desirable for those who intend to study history for advanced professional purposes.

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

*Not offered in 1921-1922.
The work in undergraduate courses consists of lectures, papers, assigned and collateral readings, with quiz sections organized for the larger classes. Graduate courses are devoted to research work and reports thereon.

1-2. Medieval and Modern European History.—A general survey from the Roman world empire of Augustus to our own times. Five credits per quarter; autumn, winter. Lucas, Larsen, Eddy

The above course is repeated beginning with the winter quarter.

5-6. English Political and Social History.—A survey of the political, social, economic and intellectual development of the English people from the Saxon conquest to the present time. Five credits per quarter. (By performance of special work under direction of the instructor upper division students may receive upper division credit.) Autumn, winter. Richardson

21-22. History of China.—From the earliest time to the present. Three credits per quarter; autumn, winter. Gowen

23. History of Japan.—Three credits per quarter; spring. Gowen

57-58. History of the United States.—A general survey with emphasis upon political and economic history. Not open to freshmen. Five credits per quarter; autumn, winter. McMahon

60-61-62. Makers of the Nations.—American history through the biographies of prominent characters. Not open to freshmen. Two credits per quarter; autumn, winter, spring. Meany

71-72-73. Ancient History.—A survey of the history of the ancient world to the times of Justinian. Not open to freshmen. Three credits per quarter; autumn, winter, spring. Larsen

81-82. England Since the Accession of George I.—The course deals with the construction of the British commonwealth of nations and with Imperial problems. It emphasizes also internal economic and institutional developments, especially those related to the growth of democracy. Prerequisite, course 1-2 or 5-6. Three credits per quarter; winter, spring. Eddy

85-86-87. History of the Middle Ages, Advanced.—The course emphasizes the economic, institutional and cultural phases of the period. (By performance of special work under direction of the instructor upper division students may receive upper division credit), Prerequisite, course 1-2. Three credits per quarter; autumn, winter, spring. Lucas

90. History of Alaska: Russian Period, 1720-1820.—Two credits; autumn. Farrar
91. History of Alaska: Diplomatic Complications, 1820-1867. —Two credits; winter. Farrar


105-106-107. English Constitutional History. —The development of the legal and governmental institutions of the English people to the present time. A course valuable for students of political science and law as well as history. Prerequisite, 5-6, except for upper division students who are majoring in economics, sociology and political science, or who are taking course 5-6. Open also to pre-law sophomores who have taken 5-6 in freshman year. Pre-law sophomores who elect this course and have not taken course 5-6 are required to take course 108-109-110. Three credits per quarter; autumn, winter, spring. Richardson

108-109-110. English Political History, Pre-law. —Open only to those pre-law sophomores and majors in political science who are taking course 105-106-107. All pre-law sophomores who are taking course 105-106-107 and who have not taken course 5-6 are required to take this course. Two credits per quarter; autumn, winter, spring. Richardson

*114-115-116. Renaissance and Reformation. Richardson

*117-118-119. France from the Reformation to the French Revolution. Richardson

*121-122-123. Prussia and Northern Europe. Richardson

125. Turkey and the Near East, 1453-1921. —This course deals with the Near Eastern question: the rise, expansion and decline of the Ottoman Empire and the awakening and modern development of the Balkan nations. Prerequisite, course 1-2, or 131. Five credits; spring. Eddy

129. The French Revolution and Napoleonic Era. —Prerequisites, course 1-2. Three credits; autumn. Eddy

130. Europe, 1814-1870. —European development from the Congress of Vienna to the foundation of the German Empire at the close of the Franco-German war. Prerequisite, course 1-2. Three credits; winter. Eddy

131. Europe since 1870: The War and Its Background. —The historical background, fundamental causes and progressive development of events and issues in the world war. Prerequisite, course 1-2, or upper division standing. Not open to freshmen. Five credits; spring. Richardson

*Not offered in 1921-1922.
139. The Southern Colonies.—Open only to juniors, seniors and graduates. Three credits; autumn. McMahon

140. The New England Colonies.—Open only to juniors, seniors and graduates. Three credits; winter. McMahon

141. American Revolution.—Open only to juniors, seniors and graduates. Three credits; spring. McMahon

*143-144-145. History of the United States.—Three credits. McMahon

147. History of the Civil War Period.—Open only to juniors, seniors and graduates. Three credits per quarter; autumn. McMahon

148. History of the Reconstruction Period.—Open only to juniors, seniors and graduates. Three credits per quarter; winter. McMahon

149. History of National Development.—The development of the American nation from the close of the reconstruction period to the present time. Open to juniors, seniors, graduates and to such sophomores as have completed course 57-58. Five credits per quarter; spring. McMahon

153. The Pacific Rim.—History of the countries bordering upon the Pacific Ocean with especial reference to recent changes. Open to juniors, seniors and graduates. Three credits per quarter; autumn. Meany

154. Spain in America.—The rise and fall of Spanish power in America, and an outline of the history of the Spanish-American republics. Three credits per quarter; winter. Open to juniors, seniors and graduates. Meany

155. History of Canada.—Canadian development to the present time. Open to juniors, seniors and graduates. Three credits per quarter; spring. Meany

157-158-159. History of American Diplomacy.—American relations with foreign powers from colonial times to the present. Open to juniors, seniors and graduates. Two credits per quarter; autumn, winter and spring. Meany

163-164-165. Northwestern History.—From the earliest voyages to the Pacific Northwest to the organization of the present form of government. Open to juniors, seniors and graduates. Two credits per quarter; autumn, winter and spring. Meany

*171-172-173. Hellenism.

*Not offered in 1921-1922.
*175. Ancient Imperialism.

*176. History of Ancient Law.

196. Methods of Teaching History.—Required of advanced students who expect to teach history. Five credits per quarter; spring. (See requirements of department.) McMahon

GRADUATE COURSES

*201-202-203. Historical Criticism and Historiography.—Two credits per quarter; autumn, winter and spring.

*215-216-217. Seminar in English History. Richardson

218-219-220. Seminar in Historical Background of World War.—Prerequisite, ability to read German or French. Open to graduate students, and to seniors who obtain consent of the instructor. Two to four credits per quarter; autumn, winter, spring. Richardson

221-222-223. Seminar in American History.—Two credits per quarter; autumn, winter and spring. McMahon

227-228-229. Seminar in State History.—Two credits per quarter autumn, winter and spring. Meany

HOME ECONOMICS

Home Economics Hall

Professor Raitt; Assistant Professors Denny, Patty, Amery, Korine; Instructors, Dresslar, Lushy

(For curricula in Home Economics see page 81)

1. Cookery.—General elective for students who do not major in this department. It includes study of marketing, cookery, meal planning and service. Laboratory work to accompany Home Economics 54, 55, and 56. Laboratory fee, $6. Three credits; autumn or winter. Dresslar

2. Elements of Nutrition.—General elective for students who do not major in this department. It includes studies of choice of food for the individual, the family group, children, and diet for the sick and convalescent. Family food budgets. Laboratory work to accompany H. E. 54, 55, 56. Laboratory fee, $6. Three credits; spring. Dresslar

3. Elements of Home Management.—General elective for students who do not major in this department. A study of household textiles, clothing budgets, home furnishing, household accounts and budgets. Laboratory fee, $2. Three credits; winter. Denny

*Not offered in 1921-1922.
4. Foods: Principles and Practice of Food Preparation.—Students who have credit for cookery in high school are exempt from this course. Laboratory fee, $6. Three credits; autumn.

      Dresslar

5-6. Foods: Selection and Preparation.—Prerequisite, course 4 or one year high school cookery or equivalent, Chem. 5-6, Physiology 8. Laboratory fee, $6. Five credits per quarter; autumn, winter, spring.

      Dresslar

7. Home Economics Survey.—Analysis of the subject. Relation to supporting courses. Budgets and accounts. Required of all freshmen majoring in home economics. Two credits; autumn, winter or spring.

      Raitt

8. Clothing:—Elements of hand and machine sewing. Study of materials, design and construction. Comparison with factory made garments. Problems of garment making. Students who have credit for high school clothing are exempt from this course. Laboratory fee, $2. Three credits; spring.

      Denny


      Denny

27. Non-Textiles.—A study of merchandise from non-textile sources, such as leather, rubber, paper and metals. Raw materials, sources of supply, manufacture, methods of judging. A classification of retail stores' departmental stock. Laboratory fee, $4. Three credits; winter.

      Denny

32. Clothing.—General elective for students who take no other work in this subject. Designing and making of simple dresses, study of accessories, clothing budgets. Laboratory fee, $4. Three credits; autumn.

      Patty

35. Clothing.—General elective for students who take no other work in this subject. Designing and making of simple dresses. Study of clothing accessories. Clothing budgets. Laboratory fee, $4. Two credits; winter.

      Patty

43. Housewifery.—Selection, sanitation and care of the equipment and material of the household. Laboratory deposit. $2. Three credits; autumn or winter.

      Dresslar

54-55-56. Food and Nutrition. —A study of food in relation to health. Required of all second year women. One lecture per week. Course 1 and 2 are laboratory courses to parallel or follow these lectures. One credit; autumn, winter, spring.

      Amery
101-102. Needlework:—History of lace and needlecraft. Application of principles of design to modern needlework. Prerequisite, course 8 and P. S. & D. 3. Laboratory fee, $2. Two credits per quarter; winter, spring. Denny

103. Foods:—Comparative studies of Food Materials and Cooking Processes. Prerequisite, course 5-6. Laboratory fee, $4. Three credits per quarter; spring. Dresslar

105-106. Nutrition: Elementary Dietetics.—Function and nutritive value of foods. An elementary course for nurses, social service students and for those wishing to obtain a practical knowledge of nutrition as a part of a liberal education, but who will not teach this subject. Prerequisite, course 4, Chem 5-6, Physiology 8. Laboratory fee, $6. Four credits; autumn and winter. Koehne

107-108. Nutrition:—Dietetics.—Principles of Human Nutrition. For those expecting to teach home economics or to enter professions related to food and nutrition. Prerequisite, course 5-6, Chem 135-136. Laboratory fee, $6. Breakage ticket $4. Five credits; autumn, winter. Koehne

112-113. Clothing.—Costume design and construction.—Principles of design applied to dress and dress accessories. Practice in selection and construction. Prerequisite, course 8 and P. S. & D. 3. Laboratory fee, $4. Five credits, autumn, winter, spring. Patty

121. Large Quantity Cookery.—Preparation of food in large quantities for cafeterias, tea rooms, dormitories, hospitals and camps. Prerequisite, course 5-6. Laboratory practice. Laboratory deposit, $4. Four credits; winter. Lusby

122. Buying and Dietaries.—Marketing, buying, institution equipment and supplies. Planning menus for dormitories, hospitals, cafeterias and tea rooms. Prerequisites, course 5-6 and 107-108. Three credits; spring. Lusby

123. Institutional Management.—A study of the problems of various types of institutions, relating to their organization and operation, relation to the state and community, employment of help. Three lectures. Prerequisites, course 5-6, 107-108 and 122. Three credits; spring. Raitt

124. Practice Work I.—At least nine hours per week spent in the different departments of the University Commons and University dormitories, under supervision of the instructor in charge. Conferences, service in food preparation. Prerequisites, course 5-6, 107-108. Three credits; autumn, winter or spring. Lusby
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University of Washington

125. Practice Work II.—Eight hours' work off the campus among the following: tea rooms, cafeterias, school lunch rooms, hospitals. Conferences, services in food preparation. Prerequisite, course 124. Three credits; autumn, winter or spring. Lusby


133. Clothing: Costume Design.—Development of fashion from ancient times to the present with emphasis upon the best art periods. Adaptation to the present mode. Prerequisites, course 112-113, P. S. & D. 3 & 169. Three credits, spring. Laboratory fee, $4. Patty


143. Home Furnishing.—Application of structural art principles to choice and arrangement of household furnishings. Comparative costs. Prerequisite, P. S. & D. 3. Laboratory fee, $4. Three credits; autumn, spring. Denny

144-145. Household Management.—Organization of the household. Application of scientific principles to the household. A study of scientific management. Household budgets. Household accounts. Prerequisites, course 5-6, 105-106 or 107-108, Arch. 101-102, Physics 89-90, Bact 101, Econ 1, Sociology 1. Three credits; winter, spring. Raitt

146-147. Teacher’s Course.—Curricula, methods of teaching and equipment. Prerequisite, course 5-6, 107, 112-113, 143, 144, 145; P. S. &. D. II, 1; Physics 89-90; Bact 101. Three credits; autumn, winter. Raitt, Denny

148. Practice Cottage.—Seniors are required to live in Practice Cottage three weeks. Two credits. Amery


189. Special Food Problems.—Investigation of food products, nutrition, individual assignments. Prerequisite, course 106 or 107. Laboratory fee, $2. Three credits; autumn. Raitt

191. Advanced Nutrition.—A study of normal and abnormal metabolism. Two lectures and one or two laboratory periods. Open to senior and graduate students. Prerequisite, course 107-108. Laboratory fee, $4. Three to four hours credit; winter. Koehne

192. Advanced Nutrition.—An intensive study of the dietary deficiency diseases. Two lectures and one or two laboratory periods. Open to seniors and graduate students. Prerequisite, course 107-108. Laboratory fee, $4. Three to four hours credit; winter. Koehne

193. Advanced Nutrition.—A special study of the undernourished child. Two lectures and one or two laboratory periods. Open to seniors and graduate students. Also open to nurses and social service students. Prerequisite, H. E. 105-106-107-108. Laboratory deposit, $2. Three to four hours credit; spring. Koehne

GRADUATE COURSES

200. Special Food Problems.—Investigation of local food products. Prerequisite, courses 5-6, 107, 189, Chem 108. Laboratory fee, $2. Three credits, spring. Raitt

202. Seminar.—A study of the present status of home economics education with special attention to the work in the elementary and high schools of the state of Washington. Prerequisite, 30 credits in home economics, including course 146-7. Four credits. Raitt

203. Research.—Investigation of recent discoveries in the biological or physical sciences of immediate value to the housewife and consideration of methods for their utilization. Credits to be arranged. Raitt

204-205-206. Research in Nutrition.—Animal experimentation on some special problem. Open to graduate students. Prerequisites, course 107-108. It is highly desirable that this course be accompanied by 191, 192, & 193. Open all three quarters. Two to three credits per quarter. Laboratory fee, $4. Koehne

207. Research in Textiles.—Prerequisite, course 25, Economics 1. Laboratory fee, $2. Denny
61. The Country Newspaper.—The country newspaper field; makeup of the country paper; problems peculiar to the country weekly. Two lecture hours and one laboratory period a week. Required in the sophomore year of pre-journalism majors. Laboratory fee, $2 per quarter. Two credits per quarter; autumn. Jones

75-76. Elements of Publishing.—Head styles, construction, and harmony; proof-reading; binding, engraving, press work, and modern appliances; problems of production; actual practice in the journalism laboratory. Required in the sophomore year of pre-journalism majors. Laboratory fee, $2 per quarter. One credit per quarter; winter, spring. Kennedy

90-91-92. Current Events.—Current state, national, and world movements; extensive readings in current periodicals. One quarter required of majors in journalism. Prerequisite, Journalism 51. Laboratory fee, $1. One credit per quarter; autumn, winter, spring. Jones

101. Reporting.—Study of all types of stories covered by a reporter; practical assignments. Required of majors in journalism. Prerequisite, Journalism 51. Laboratory fee, $2. Five credits per quarter; spring. Hicklin

104. Newspaper Administration.—Newspaper organization, administration, and management; activities and relations of the various departments. Prerequisite, Journalism 51. Laboratory fee, $1. Two credits per quarter; winter. Spencer

105. The Sporting Page.—Duties and responsibilities of the sporting editor; practical experience in covering athletic events. Prerequisite, Journalism 51. Laboratory fee, $1. Two credits per quarter; spring. Hicklin

109. Literary and Dramatic Reviewing.—Routine work of the literary and dramatic editors; study of successful book reviews and dramatic criticisms; practical assignments. Prerequisite, Journalism 51. Two credits per quarter; spring. Jones

120. Copy Reading.—Copy reading; head writing; rewriting; general desk work. Required of majors in journalism. Prerequisite, Journalism 101. Laboratory fee, $2. Five credits per quarter; autumn, winter, spring. Hicklin

130. Fundamentals of Advertising.—Fundamentals of newspaper and periodical advertising; advertising ethics. Laboratory fee, $2. Five credits per quarter; autumn. Jones
131. Display Advertising.—Study of successful advertisements; preparation of copy; the layout; retail advertising and the newspaper. Prerequisite, Journalism 130. Laboratory fee, $2. Five credits per quarter; winter.

133-134-135. Advertising Typography.—Type families; application of type; advertising type units; type problems. Laboratory fee, $2 per quarter. Two credits per quarter; autumn, winter, spring.

136. Comparative Journalism.—Types of English-language newspapers; style; makeup; heads; policies. Prerequisite, Journalism 101 and 120. Laboratory fee, $2. Two credits per quarter; winter.

138. History of Journalism.—Problems of newspaper editing and publishing in the light of their origin and development; history of American journalism. Required of majors in journalism. Prerequisite, Journalism 51. Three credits per quarter; autumn.

140-141-142. The Business Office.—Cost finding, estimating, and simplified accounting for newspaper plants; selling commercial printing; business office management. Required of majors in journalism. Laboratory fee, $2 per quarter. Two credits per quarter; autumn, winter, spring.

150. Editorial Writing.—Editorial policy; newspaper ethics; theory and practice of interpreting current news by means of the editorial; daily assignments. Required of majors in journalism. Prerequisite, Journalism 101 and 120. Five credits per quarter; spring.

160. Trade Journalism (I).—Agricultural, horticultural, poultry, and general farm publications. Prerequisite, Journalism 51. Laboratory fee, $1. Two credits per quarter; autumn.

161. Trade Journalism (II).—Business and trade publications. Prerequisite, Journalism 51. Laboratory fee, $1. Two credits per quarter; winter.

162. Trade Journalism (III).—Class publications and house organs. Prerequisite, Journalism 51. Laboratory fee, $1. Two credits per quarter; spring.

170-171-172. Magazine and Feature Writing.—Practice in writing special newspaper and magazine articles; study of current magazines and newspaper supplements. Articles are graded according to their probable marketability. Prerequisite, Journalism 51. Laboratory fee, $2 per quarter. Two credits per quarter; autumn, winter, spring.
173. The Short Story.—Critical appreciation of the short story; extensive readings. Laboratory fee, $2. Three credits per quarter; autumn. 

Spencer

174-175. Short Story Writing.—Prerequisite, Journalism 173. Laboratory fee, $2 per quarter. Three credits per quarter; winter, spring. 

Spencer

188. News Writing for Teachers.—Methods and problems of teaching news writing in high schools. Two credits per quarter; spring. 

Jones

GRADUATE COURSE

250. Research in Journalism.—Admission only by consent of the instructor. Three to five credits per quarter; autumn, winter, spring. 

Spencer

LAW

Commerce Hall

PROFESSORS CONDON, LANTZ, GOODNER, BISSETT, AYER; LECTURER O'BRYAN

FIRST YEAR

All first year courses required

100. Agency.—Wambaugh’s Cases. Five credits; spring. 

Ayer

103-104. Contracts.—Williston’s Cases. Five credits per quarter; autumn and winter. 

Lantz


O'Bryan


Goodner


Bissett

116. Property II.—Real.—Bigelow’s Cases, Vol. II. Five credits; spring. 

Bissett

117-118. Torts.—Bohlen’s Cases. Four and two credits respectively; autumn and winter quarters.

SECOND YEAR

125-126. Equity.—Ames’ Cases in Equity Jurisdiction, Vol. I and II. Three credits per quarter; autumn and winter. 

Ayer
128. Damages.—Beale’s Cases on Damages, supplemented by Washington Cases. Three credits; spring. O’Bryan

129-130. Evidence.—Wigmore’s Cases. Five and four credits, respectively; autumn and winter. Condon

133. Insurance.—Vance’s Cases. Three credits; spring. Lantz

137. Negotiable Instruments.—Huffcut’s Cases. Three credits; winter. Bissett

138. Quasi-Contracts.—Woodruff’s Cases. Three credits; spring. Lantz

139-140. Property II. (continued).—Aigler’s Cases, Vol. III, and Kale’s Cases, Vol. IV; autumn and winter quarters, four and two credits, respectively. Bissett

142-143. Public Utilities.—Beale and Wyman’s Cases. Three credits per quarter; winter and spring.

146-147. Sales.—Woodward’s Cases. Three credits per quarter; winter and spring. Ayer

161. Procedure IV.—This course relates to procedure in civil actions in the Superior Court of Washington. Five hours. Three credits; autumn. Goodner

179. Partnership.—Gilmore’s Cases. Three credits; spring. O’Bryan

THIRD YEAR


159. Wills.—Costigan’s Cases. Three credits; autumn. Goodner

163. Procedure VI.—A course in Probate Proceedings, covering administration of estates, probate of wills, appointment of guardians, etc. Five hours. Four credits; winter. Goodner

165. Admiralty.—Ames’ Cases. Three credits; autumn. Lantz

166. Office Practice.—Conveyancing and examination of abstracts, care of a law office generally, drawing wills and contracts, preparation of briefs and office accounts. Five credits; spring. Condon

168. Conflict of Laws.—Lorenzen’s Cases. Five credits; winter. Lantz
170-171. Constitutional Law.—Hall’s Cases. Three credits per quarter; autumn, winter.

188. Private Corporations.—Canfield and Wormser’s Cases. Three credits per quarter; autumn and winter.

191. Property: Community.—Washington Statutes and selected cases on community property. Five credits; spring. Bissett

196. Trusts.—Kenneson’s Cases. Five credits; spring. Goodner

Note—Fifteen hours or credits in each quarter are required, making a minimum total of 135 hours or credits for completion of the law course.

Students are limited to fifteen hours per quarter, except upon special permission of the dean, and payment of an additional fee of $1 per credit hour in excess of fifteen.

Library Science

Library

Professor Henry; Associate Professor Smith; Instructors, Howe, Spencer, Blodgett

1. Use of the Library.—An elective course open to any student in the University, but especially designed as an introduction for those who expect to enter the Library School. Lectures will be given on the arrangement of the library, on classification and cataloging of the books, on some of the general reference material, and on library organization and usage. One hour per week; repeated each quarter. Staff

Registration in any quarter limited to thirty, preference given to those expecting to enter the Library School.

The following courses are not open to students not registered in the Library School.

173. Order, Accession and Trade Bibliography.—In this course the routine of ordering, receiving, checking, accessioning and mechanical preparation of books, and the elements of trade bibliography are treated. One credit; autumn. Blodgett

174. Circulation Administration.—Covers charging systems, registration of borrowers, circulation of books and circulation records. One credit; autumn. Howe

175. Classification and Subject Headings.—The Decimal classification is studied in detail, followed by a brief survey of the Expansive and the Library of Congress classifications. The use of subject headings is considered early in the quarter and much of the prepared work consists of the classification and assignment of subject headings to specified books. Three credits; autumn. Spencer

176, 184. Cataloging.—The subject is taught largely by means of examples illustrating cataloging rules. Some attention is also given to the subjects of book numbers, shelf-listing, authorities, and
alphabeting. Much of the work is done in periods of supervised study, but some unsupervised work is also required. Three credits per quarter; autumn and winter.  

177, 185, 193. Reference.—The purpose of these courses is to give a working knowledge of important types of reference books and to develop the power of research. Lectures cover books and methods. Practical problems are assigned and worked out. These courses include also the work with government documents. Two credits per quarter; autumn, winter, spring.  

194. Subject Bibliography.—Practical work in the preparation of bibliographic lists; lectures on sources and methods of work. Problems cover arrangement and form of entry. One piece of independent bibliographic work is required of each student. Two credits; spring.  

186, 195. Practice.—Each student is expected to do 300 hours of practice or laboratory work under expert personal supervision as a test of practical ability and as an opportunity to exhibit personality in service. The practice work is given in both the University Library and the Seattle Public Library, and consists of 15 hours per week for twenty weeks. Five credits per quarter; winter, and spring.  

178. History of Books and Libraries.—Lectures, readings and reports. Two credits; autumn.  

187. Library Organization and Extension.—In this course such subjects are treated as legalization and organization of a general library system for city, county or state, as the unit of organization; also the organization of various types of libraries with varying degrees of equipment. Two credits; winter.  

179, 188, 196. Book Selection.—Designed to cultivate taste and good judgment in the evaluation of books through a study of the principles of book selection, annotation and book reviewing. Three credits autumn. Two credits; winter and spring.  

197. Library Administration and Library Literature.—Lectures, readings and discussions upon library legislation, local taxation, library budget, and all means and instruments for realizing the educational and social functions of the library. Reading and class discussion of the literature of libraries and librarianship, including library periodicals and the publications of library organizations, with special emphasis upon the best papers in the A.L.A. Proceedings for recent years. Two credits; spring.  

189. Work with Children and Schools.—This course is planned to meet the needs of general library assistants and librarians in charge of small libraries. It deals with principles of book selection.
with special attention to choice of books for children of various ages. Students read and discuss children’s books with these ideals in mind. Two credits; winter. 

198. **Special Lectures by Active Librarians.**—Ten lectures are given by as many persons, each upon some vital problem of library service or administration. These persons are selected because of their experience and success in dealing with the problems treated. One credit; spring.

199. **Study of a Selected Public Library.**—Each student is required to make a study of some specific public library reasonably near Seattle, and to write a report upon its general policy and plans of organization, extension and administration. One credit; spring.

### Mathematics

**Philosophy Hall**

Professor Moritz; Associate Professors Carpenter, Winger, Bell; Assistant Professors Gavett, Neikirk; Instructors, Small, West, Stager; Associates, Mullemeste, Hamilton, Cramlet, Taylor

**Requirements of the Department**

For a major in mathematics, 36 credits, including courses 5 and 109.

Candidates for the normal diploma must complete course 127 (teachers’ course) in addition to the major requirement.

Candidates who are not majors in mathematics but wish to teach mathematics as a minor subject must have earned at least 15 credits in mathematics, including courses 4 and 5, 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 and take solid geometry (Math. 2) in their freshman year.

1. **Advanced Algebra.**—Algebra from quadratics on. Prerequisite, one year of high school algebra. Five credits autumn, winter.

2. **Solid Geometry.**—Prerequisite, one year of plane geometry. Five credits; winter, spring.

4. **Plane Trigonometry.**—For students in the Colleges of Liberal Arts, Science, Education, Fisheries, Law, and Pharmacy. Prerequisites, one year of algebra and one year of plane geometry. Five credits; each quarter.

5. **College Algebra.**—Prerequisite, course 1 or one and one-half years high school algebra. Five credits; winter.

Winger, Mullemeste
6. **Analytical Geometry.**—Primarily for students in the College of Science. Prerequisite, courses 1, 2, and 4. Five credits; spring.

11-12. **Theory of Investments.**—Primarily for students in commerce. A two quarter course. The first quarter's work deals with the preliminary processes of algebra, together with applications to problems in interest and annuities. The second quarter's work deals with annuities, amortization, capitalization and depreciation, sinking funds, bond values, building and loan associations. This is followed by a brief study of life contingencies, applied to the computation of single and annual premiums on life policies. Prerequisite, one year algebra, one year geometry. Five credits per quarter; autumn, winter, spring.

13. **Elements of Statistical Methods.**—Data obtained by observation, enumeration or estimate, and their application to interpreting social and natural phenomena. Prerequisite, one year algebra, one year plane geometry. Five credits each quarter.

51. **Higher Algebra.**—Primarily for students in the Colleges of Engineering and Mines. Prerequisite, one and one-half years algebra, one year plane geometry. Five credits; each quarter.

52. **Trigonometry.**—Primarily for students in the Colleges of Engineering and Mines. Prerequisite, course 51. Four credits; each quarter.

53. **Analytical Geometry.**—Primarily for students in the Colleges of Engineering and Mines. Prerequisite, course 52. Four credits; each quarter.

54, 55, 56. **Mathematics for Foresters.**—A study of advanced numerical and graphical methods and solution of plane triangles by trigonometric methods. Prerequisite, one and one-half years algebra, one year plane geometry. Three credits per quarter; autumn, winter and spring.

57, 58, 59. **Mathematics for Architects.**—Algebra through quadratic equations and plane trigonometry through solutions of triangles. Advanced topics in algebra; the elements of analytical geometry; elementary differential and integral calculus. Prerequisite, one year algebra, one year plane geometry. Three credits per quarter; autumn, winter, spring.

61, 62, 63. **Calculus.**—Primarily for students in the Colleges of Engineering and Mines. Prerequisites, courses 2 and 53. Three credits per quarter; autumn, winter, spring.
101. **Spherical Trigonometry with Applications.**—Prerequisite, course 2 and 4. Two credits; autumn.  
Smail

102, 103. **Solid Analytical Geometry.**—Prerequisite, course 8 or 63. Two credits per quarter; winter, spring.  
Smail

107, 108, 109. **Calculus.**—Elements of differential and integral calculus, primarily for students in the College of Science. Prerequisite, course 6. Five credits per quarter; autumn, winter, spring.  
Moritz

115, 116. **Ordinary and Partial Differential Equations.**—With applications to problems in physics, chemistry, astronomy and engineering. Prerequisite, course 108 or 63. Three credits per quarter; winter, spring.  
Neikirk

117, 118, 119. **Projective Geometry.**—An analytic treatment. The relation of projective to metric geometry is emphasized. Prerequisite, course 8 or 61. Two credits per quarter; autumn, winter, spring.  
Winger

127. **Teachers' Course.**—Required of those who make mathematics their major study and who are applicants for the teachers' certificate. Prerequisite, course 109. Five credits; autumn.  
Winger

151. **Mathematical Theory of Finance.**—This course is especially designed to meet the needs of expert accountants, of majors in business administration, and of majors in mathematics who wish to turn their mathematics to account in business. The course includes a comprehensive study of the theory of interest and discount symmetrically developed; valuation of annuities; determination of rates of income; valuation of redeemable and irredeemable securities; capitalization and depreciation; sinking funds and amortization of debentures and of options; construction and use of bond tables; Makeham's Formula. Prerequisite, a thorough working knowledge of algebra. Three credits; autumn.  
Moritz

152. **Mortality Tables.**—Various methods of graduation of tables; probabilities of life; expectations of life; force of mortality; probabilities of survivorship; DeMoivre's, Gompertz and Makeham's formulas for the law of mortality. Lubbock's summation formula; the life table and its uses. Prerequisite, a thorough working knowledge of algebra. Three credits; winter.  
Moritz

153. **Insurance—Premiums and Reserves.**—Life annuities and assurances; single and annual premiums with and without premiums returns; commutation columns; conversion tables; joint life annuities and assurances; relation between annuities and assurances; varying benefits; policy values; surrender values; life interest and reversions. Prerequisite, course 151 and 152. Three credits; spring.  
Moritz
161, 162, 163. Analytical Mechanics.—The aim of the course is to familiarize the student with the foundation principles—D’Alembert’s, Hamilton’s, Lagrange’s—necessary to read intelligently the literature of the subject. Specific applications will be prominent throughout the course. Prerequisite, course 109. Two credits per quarter; autumn, winter, spring.

GRADUATE COURSES

201, 202, 203. Introduction to Projective Differential Geometry.—Projective theory of plane and space curves, surface and line congruences, as developed from certain differential equations and their invariants. Prerequisites, courses 119 and 116. Three credits per quarter; autumn, winter, spring.

204, 205, 206. Modern Algebra.—An introduction to the theories of linear dependence, matrices, linear transformations, invariants and covariants, trilinear and quadratic forms, and elementary divisors and equivalence of matrices. Three credits per quarter.

*207, 208, 209. Infinite Series.
*211, 212, 213. Foundations of Mathematics.
*221, 222, 223. Higher Plane Curves.
*224, 225, 226. Real Variables.

251, 252, 253. Mathematical Journal and Research Club.—Meets on the second Thursday of each month in Philosophy Hall, room 137, at 5 p. m. The club consists of advanced students and teachers in the department of mathematics. The purpose of the club is primarily to discuss the research work carried on by members of the club, and secondarily to review important recent mathematical literature. Prerequisite, open to all graduate students in mathematics. No credit; autumn, winter, spring.

MECHANICAL ENGINEERING

Engineering Hall

Professor Eastwood; Associate Professors Wilson, Winslow; Instructors, McIntire, Beattie, Kane, McMinn, Edmonds, Strube

1, 2, 3. Woodwork.—Bench work; cabinet work; pattern making. Laboratory deposit, $2. One credit per quarter; autumn, winter, spring.

*Not offered in 1921-1922.
53, 54, 55. Metalwork.—Foundry; forge; machine work. Laboratory deposit, $2. One credit per quarter; autumn, winter, spring. Kane

70. Marine Gas Engines.—Arranged for the short course in fisheries. Two credits; winter.

71. Airplane Gas Engines.—Arranged for military science department. Two credits; spring.

81. Mechanism.—The operation of machines involving the transmission of forces and the production of determinate motions. Prerequisite, C. E. 2, Math. 52. Three credits; autumn, winter, spring. Wilson, Winslow, McIntyre, McMinn

82. Steam Engineering.—The various forms of steam apparatus used in modern steam plants; their construction, use, and reason for their installation. Not open to freshmen. Prerequisite, C. E. 2. Three credits; autumn, winter, or spring. Eastwood, Winslow, McMinn

83. Steam Engineering Laboratory.—Calibrations of thermometer, gages, indicator springs, etc.; tests of the simple steam engine; one complete engine and boiler test with report. Preceded or accompanied by M. E. 82. Laboratory deposit, $2. Three credits; autumn, winter, spring. Wilson, Winslow, McIntyre

91, 92, 93. Machine Design.—The design of machine details. Preceded or accompanied by M. E. 81. Prerequisite, C. E. 2. Two credits per quarter; autumn, winter or spring McIntyre, Edmonds

101, 102, 103. Machine Design.—The design of hoisting and pumping machinery; special machines. Prerequisite, M. E. 93, C. E. 132. Two credits per quarter (103, three credits); autumn, winter, spring. Winslow

105, 106, 107. Metalwork.—Advanced machine shop practice. Prerequisite, M. E. 55. Laboratory deposit, $2. One credit per quarter; autumn, winter, spring. Kane

108. Metalwork.—Manual arts for teachers. Prerequisite, M. E. 107. One credit; autumn, winter, or spring. Kane

109. Woodwork.—Manual arts for teachers. Prerequisite, M. E. 3. One credit; autumn, winter or spring. Beattie

123, 124. Engines and Boilers.—The generation and use of steam in various types of boilers and engines. Three lectures per week first quarter; two lectures and three laboratory periods per week, second quarter. Prerequisite, M. E. 82, 93, C. E. 131. Three credits per quarter; autumn, winter. Winslow
151, 152, 153. **Experimental Engineering**—A continuation of M. E. 83, involving more extended and complete investigations. Prerequisite, M. E. 83. Laboratory deposit, $2. Three credits per quarter; autumn, winter, spring. Wilson, Winslow

167. **Engineering Materials**—The properties of the various materials used in engineering construction, including iron, steel, reinforced concrete, timber, etc. Recitation and laboratory. Prerequisite, C. E. 132. Junior mechanical engineers. Laboratory deposit, $2. Three credits; winter and spring. Winslow, McMinn

179. **Steam Turbines**—The theory, construction and design of steam turbines. Prerequisite, M. E. 82. Three credits; autumn. Eastwood

182. **Heating and Ventilation**—The various systems of heating and ventilating, methods or design and tests. Prerequisite, M. E. 82. Three credits; autumn, winter. Eastwood

183. **Thermodynamics and Refrigeration**—The fundamental principles underlying the transformation of heat into work, with special application to engineering. Prerequisite, M. E. 82. Five credits; autumn. Eastwood

184. **Power Plants**—The design of steam power plants, involving their location, buildings, prime movers, power transmission, etc. Prerequisite, M. E. 123, 83. Three credits; spring. Eastwood

185, 186, 187. **Naval Architecture**—The theory of naval architecture, as pertains to displacement, stability and strength, and the usual calculations involved in construction. Not open to freshmen. Three credits per quarter; autumn, winter, spring. Eastwood

188, 189. **Ship Design**—Application of the principles of naval architecture to the design of a ship for a definite purpose. Prerequisite, M. E. 186. Two credits per quarter; autumn and winter. Eastwood

190. **Marine Engineering**—The power plant equipment of ships, including boilers, engines, auxiliaries and propellers. Prerequisite, M. E. 82, 185. Three credits; spring. Eastwood

198. **Gas Engineering**—The development of gas engineering, including stationary, marine, automobile and airplane motors, and gas producer plants. Prerequisite, M. E. 82. Three credits; autumn and winter. 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
GRADUATE COURSES

210. Thesis.—An investigation, design or experiment under the direction of the professor in charge. Three credits; senior year. Eastwood, Wilson, Winslow

211. Research.—Time to be arranged. Three credits per quarter. Eastwood, Wilson

MILITARY SCIENCE AND TACTICS

The Armory

Colonel Phillips; Lt. Colonel Platt; Lt. Colonel Maize; Major Esty, Major Muhlenberg, Major Fraser, Major Dennis, Major Gregory; Captain Meredith, Captain Priest; First Sergeants Thomas, McGinley; Staff Sergeant White; Sergeants Lang, Boyle, Bailey, Rogers, Kent, Linton, Aaron, Beckett, Palm; Privates Payne, Skinner, Hinschei

All male students in the University who are American citizens, and not physically disqualified, are required to take military training throughout the first two years of attendance. The present requirement is five hours per week.

The instruction of these two years, together with that provided for the third and fourth years, constitute the courses prescribed by the War Department for institutional units of the Reserve Officers Training Corps. Three of these units have been established in this University, an Infantry Unit, a Coast Artillery Unit and an Air Service Unit, each leading to commissions as Reserve Officers in the appropriate Corps. The Advanced Courses, those of the third and fourth years, are open to all students who have completed the first two years—Basic Course—of instruction and training.

Much of the instruction and mental development acquired by the student from his regular college course is of the highest importance in his preparation to perform the duties of a military officer. This has been kept in mind in outlining the schedules of instruction and training for the several R. O. T. C. units to the extent of restricting such schedules to subject essentially military and which are not generally included in the curricula leading to graduation. It is evident, however, that in certain cases, there will be subjects requisite to his proper preparation for military duty which may not be included in the student’s regular course for graduation. As to such subjects the University has authorized their listing as University electives whenever they are not included in the student’s required subjects. To meet these requirements, the student desiring to complete the R. O. T. C. courses must present recorded collegiate credit in each such subject.

The following courses are listed as electives required under the conditions stated:

Coast Artillery Unit.—Algebra, Math. 51-Trigonometry, Math. 11-12-13, Surveying, C. E. 21—Higher Surveying, C. E. 23.

These courses may be taken by the student at his convenience except that Surveying, C. E. 21, is prerequisite to higher surveying, C. E. 23.

Military History and Policy of the United States, Special Course, Department of History, and Military Law, Special Course, School of Law, must be registered for by the student taking fourth year's course R. O. T. C. for the second and third quarters respectively and with the respective departments named.

With the foregoing exceptions, all assignments for instruction and training will be made at the time of registration with the Military Department.

In addition to the above courses, the University has provided for those students who desire to major in Military Science a four-year curriculum which will give a good general college education upon which any line of professional or technical study may be based and which will give to the graduate the degree of B. S. in Military Science, and at the same time enable him to obtain a commission as second lieutenant in the Officers Reserve Corps of the United States Army in accordance with the provisions of the National Defense Act.

FIRST YEAR

One and two-thirds credits per quarter, five hours per week.

BASIC COURSE—ALL UNITS


Summer Basic Camp—Optional after completion of first or second year's course.

SECOND YEAR

One and two-thirds credits per quarter, five hours per week.

BASIC COURSE—ALL UNITS

51-52-53. Practical.—Organization, leadership, nomenclature and care of U. S. service pistol, small arms practice.

SPECIAL COURSE—INFANTRY

61-62-63. Practical.—Bayonet, automatic rifle, machine guns, trench mortar, 37-mm. gun, grenades, musketry, minor tactics.

SPECIAL COURSE—COAST ARTILLERY

71-72-73. Coast Artillery Materiel.
SPECIAL COURSE—AIR SERVICE

81-82-83. Air Service Materiel.

THIRD YEAR

Three credits per quarter

BASIC COURSE—ALL UNITS

101. Company Administration.—First quarter, one hour per week.

102. Field Engineering.—First quarter, one hour per week.

103-104-105. Leadership.—Practical. Two hours per week.

SPECIAL COURSE—INFANTRY

111-112. Minor Tactics.—Second and third quarters, two

hours per week.

121. Theoretical Military Service & Coasl Artillery

SPECIAL COURSE—COAST ARTILLERY


Two hours per week.

SPECIAL COURSE—AIR SERVICE

129-130. Air Service Material.—Second and third quarters.

Two hours per week.

Summer Advanced Camp.—Required of all under contract for

Advanced Course; requisite for commission in Officers' Reserve

Corps, U. S. army.

FOURTH YEAR

132. Theoretical Mil. Sci., C. A.

133. Theoretical Mil. Sci., Coast Artillery

Three credits per quarter

BASIC COURSE—ALL UNITS

152. Military History and Policy, U. S.—Second quarter, one

hour per week.

153. Military Law.—Third quarter, one hour per week.

161-162-163. Leadership.—Two hours per week.

SPECIAL COURSE—INFANTRY

151. Minor Tactics.—First quarter, two hours per week.

164-165. Minor Tactics.—Second and third quarters, one

hour per week.

SPECIAL COURSE—COAST ARTILLERY

171. Coast Artillery Gunnery.—First quarter, one hour per week.
174. Organization of Artillery.—First quarter, one hour per week.

175. Ordnance.—Second quarter, one hour per week.

176. Tactical Problems.—Artillery. Third quarter, one hour per week.

SPECIAL COURSE—AIR SERVICE

172. Air Service Materiel.—First quarter, two hours per week.

173-174. Air Service Materiel.—Second and third quarters, one hour per week.

METALLURGY

Mines Hall
Professor Roberts; Associate Professor Daniels, Corey; Assistant, Merrill.

101. Fire Assaying.—The testing of reagents, the crushing, sampling and assaying of ores, furnace and mill products. Prerequisite, Chemistry 111. One recitation and three laboratory periods. Laboratory deposit, $20. Five credits; autumn.

Corey, Glenn, Merrill

102. General Metallurgy.—The properties of metals and alloys, fuels, refractory materials; furnaces; and the extraction of the common metals from their ores. Visits to smelters. Prerequisite, junior standing. Three recitations and two laboratory periods. Laboratory deposit $10. Five credits; spring.

Corey

103. Metallurgical Fuels.—The analysis of fuels and a consideration of the most effective utilization of the country’s present supplies. Prerequisite, junior standing. Two recitations and one laboratory period. Laboratory deposit, $5. Three credits; winter.

Daniels

104. Non-ferrous Metallurgy.—The metallurgy of copper, lead, gold and silver, especially the methods of roasting, smelting, lixiviation and refining. Prerequisite, Met. 102. Five recitations. Five credits; autumn.

Corey

153. Wet Assaying.—Technical methods for the determination of copper, lead, zinc, etc., in ores and furnace products. For students in ceramics, the analysis of clays and ceramic products. Prerequisite, course Met. 102, Chemistry 111. One recitation and two laboratory periods. Laboratory deposit, $12. Three credits; winter.
155. Iron and Steel.—The metallurgy and manufacture of commercial iron and steel, with especial reference to their properties and uses in engineering work. Prerequisite, junior standing. Three recitations. Three credits; autumn. Daniels

157. Design of Plant.—The design of a piece of equipment or a structure for mining, milling, or metallurgical purpose. Prerequisite, senior or graduate standing. Three drafting periods. Three credits; spring. Roberts, Daniels

158. Minor Metals.—The metallurgy of zinc, antimony, tin, aluminum, nickel, etc.; a study of the plant required, the methods and costs of treatment. Three credits; spring. Corey

160. Metallurgical Analysis.—Technical methods of analysis of slags and industrial products. Prerequisite, Met. 153. Two laboratory periods. Laboratory deposit, $12. Two credits; spring. Corey

162. Metallography.—The constitution and microstructure of metals and alloys, especially iron and steel. Prerequisite, senior standing. Two recitations. Two credits; autumn. Corey

163. Metallography.—The preparation and study of metal sections, photomicrography and the use of the microscope in testing industrial alloys. Two laboratory periods. Laboratory deposit, $5. Two credits; winter. Corey

165. Metallurgy Calculations.—Physical chemistry for the metallurgist, slag calculations, etc., illustrated by figures quoted from the present practice at a number of smelting plants. Prerequisite, senior standing. Two credits; winter. Corey

166. Electro-Metallurgy.—A study of methods and practice with special consideration of the possibilities of electrometallurgical industries in the Pacific Northwest. Prerequisite, senior or graduate standing. Three credits; spring. Corey

211, 212, 213. Metallurgical Research.—A study of methods applicable to the development of metallurgical processes for special ores and metals. Prerequisite, graduate standing. Hours and credits to be arranged. Corey

221, 222, 223. Electro-Metallurgy.—The application of electro-chemical and electro-metallurgical knowledge to the solution of the particular problems of the Pacific Northwest. Prerequisite, graduate standing. Hours and credits to be arranged. Corey
DEPARTMENTS OF INSTRUCTION

MINING

Mines Hall

PROFESSOR ROBERTS; ASSOCIATE PROFESSORS DANIELS, COREY;
ASSISTANT PROFESSOR WILSON; LECTURERS, GLENN, POWELL; ASSISTANTS,
SCHONING, MERRILL, GLASSER, MCKIM

NOTE—Mining, metallurgical, geological, or ceramic experience. Each student is re-
quired to spend at least one summer vacation, or its equivalent, in practical contact with the
industry, and to submit upon his return to college a detailed report of his observations. Work
of this nature offers an opportunity to secure data and material for the graduation thesis.

51. Elements of Mining.—A general study of the field of min-
ing, considering prospecting, boring, drilling, explosives, rock break-
ing, timbering, methods of development and working, transportation
and drainage. Prerequisite, sophomore standing. Three recitations.
Three credits; autumn. Daniels

101. Milling.—A preliminary course designed to familiarize
all students in the department with the principles and uses of the
various types of crushing, sampling, concentrating and washing
machinery in the Mines Building. Prerequisite, junior standing.
Two recitations and one laboratory period. Laboratory deposit,
$5. Three credits; autumn. Roberts, Daniels

103. Mine Rescue Training.—Twenty-five hours of instruc-
tion. Practice in the care and use of oxygen rescue apparatus,
smokeroom training, and first-aid-to-the-injured work in the U.
S. Bureau of Mines Safety Station. Required of all students in the
College of Mines. One credit; winter Daniels, Schoning

106. Mining Excursion.—A ten-day excursion taken in the
spring of each year to a neighboring mining region; detailed exam-
inations of mining and metallurgical industries. Expense varies
from $25 to $50. Two credits; spring. Roberts, Daniels, Corey

122. Coal Mining Methods.—Prospecting and development. A
detailed study is made of a nearby mine. Prerequisite, Min. 51.
Three recitations. Three credits; winter. Daniels

151. Mining Engineering.—Lectures on exploration, mine de-
development, power generation, air compression, hoisting and trans-
portation. Practice with air compressors, machine drills, and
mine equipment in laboratories and local plants. Prerequisite, sen-
or standing. Two recitations, one laboratory period. Laboratory
deposit, $5. Three credits; autumn. Roberts

152. Ore Dressing.—A detailed study of certain branches of
ore dressing accompanied by mill tests of ores checked by assays.
Prerequisite, senior standing. Three recitations and two labora-
tory periods. Laboratory deposit, $10. Five credits; spring.
Roberts, Daniels

153, 154, 155. Thesis.—The preparation of a graduation
thesis, including outline, gathering of material, making of drawings,
maps, tests, etc. The laboratory work is supplemented by consulta-
tion and conferences. A deposit of $5 or $10 per quarter will be
required to cover cost of materials in thesis work involving the
use of mining or metallurgical equipment. Completed thesis must
be submitted at least one month before graduation. Prerequisite,
senior standing. Five laboratory periods. Total of five credits
required.

Roberts, Daniels, Corey.

158. Mining Law.—A series of lectures on the mining laws
of the United States and Alaska; illustrated by diagrams and mine
maps. Two lectures. Two credits; winter. O'Bryan

162. Mining Methods.—A detailed study of mining methods
and costs. Prerequisite, senior mining standing. Three recitations.
Three credits; winter. Roberts.

163. Mine Operation.—The complete operations at a few
typical mines, including mining, transportation and treatment of
ore, disposal of products, company finances, and management. Illus-
trated by ores and products, maps and photographs, cost sheets,
engineering and financial reports of the mines studied. Prerequi-
site, senior mining standing. Three recitations. Three credits;
winter and spring. Roberts.

170. Coal Mining Machinery.—Study of coal cutting ma-
chines, mine locomotives, fans, hoists, and pumps with especial
reference to application to coal mining. Prerequisite, senior stand-
ing. Three recitations. Three credits; autumn. Daniels

171. Mine Gases and Ventilation.—Composition and prop-
eties of mine gases, methods of testing; lighting of mines; principles
of ventilation; ventilating machinery. Prerequisite, Min. 122. Three
recitations. Three credits; winter. Daniels.

172. Coal Mining Plant.—Design of plant and machinery em-
ployed in mining and preparing coal for market. Prerequisite,
senior standing. Three drafting periods. Three credits; spring.
Daniels.

176. Coal Preparation.—Methods of preparing coal for mar-
et, together with laboratory tests and runs on various coals, to
determine best methods of preparation. Prerequisite, Min. 101,
Met. 103. Two recitations and three laboratory periods. Labora-
tory deposit $10. Five credits; winter. Daniels.

178. Coal Preparation Machinery.—Machines and equipment
used in tipples and washeries for the screening and washing of coal.
Prerequisite, Min. 176. Two recitations. Two credits; spring.
Daniels.

182. Mine Management.—The organization and administra-
tion of engineering plants, involving the keeping and interpretation
of cost accounts, the efficiency of labor and methods, the financial,
legal and social aspects of engineering operation. Prerequisite, senior standing. Three recitations. Three credits; spring. Daniels

201, 202, 203. Seminar.—Lectures and discussions by Bureau of Mines staff, College of Mines faculty and fellows. Required of Bureau of Mines fellowship holders. Prerequisite, senior or graduate standing. One credit; autumn, winter, spring.

Roberts, Daniels, Corey, Wilson

211, 212, 213, 214. Graduate Thesis.—Preparation of a thesis in mining engineering, metallurgy or ceramics. Prerequisite, graduate standing. A deposit will be required if the work involves the use of laboratory materials or equipment. Hours and credits to be arranged.

Roberts, Daniels, Corey, Wilson

221, 222, 223. Mine Development.—Preparation of a plan of development for a metal mine, including studies of the geological conditions, surface and underground explorations, mining methods, layout of plant. Prerequisite, graduate standing. Hours and credits to be arranged.

Roberts

231, 232, 233. Mill Design.—Design of a plant for ore dressing purposes. Prerequisite, graduate standing. Hours and credits to be arranged.

Roberts

241, 242, 243. Coal Mining.—Methods which may be applied to the solution of problems in the coal mining industry such as a higher recovery of minable coal; economical layout of mine and plant; application of improved methods and machinery. Prerequisite, graduate standing. Hours and credits to be arranged.

Daniels

251, 252, 353. Coal Preparation.—An advanced study of methods of coal preparation based on careful preliminary studies of character of coal and impurities in any locality. Laboratory testing will be emphasized. Prerequisite, graduate standing. Hours and credits to be arranged.

Daniels

261, 262, 263. Utilization of Coal.—Investigation of the possibilities of use of coals of low rank and quality. Briquetting, pulverization, and distillation will be given especial attention. Prerequisite, graduate standing. Hours and credits to be arranged.

Daniels

MINING AND METALLURGICAL RESEARCH

Class work will be directed by members of the instructional staff of the University. The research work is under the joint direction of the United States Bureau of Mines and the College of Mines. The subjects of research relate to the mining and metallurgical industries of the state and adjacent regions.
During the coming year investigations are contemplated in the following subjects:
1. The preparation and utilization of coal.
2. Ceramics.
3. Electrometallurgy.

Music

1, 2, 3. Music Appreciation.—This course is planned to aid not only music students but also all interested in music to become intelligent and discriminating listeners. Musical masterpieces, both instrumental and vocal, of different periods and forms, will be presented and discussed. Two credits per quarter; autumn, winter, spring.

4, 5, 6. History of Music.—The progress of musical development from the primitive period to the modern. Two credits per quarter; autumn, winter, spring.

7, 8, 9. Sight Singing.—For prospective grade supervisors and for music students. Two sections—one for beginners and the other for students who have had some experience in sight singing. Two credits per quarter; autumn, winter, spring.

*10, 11, 12. Choral Study.—The university chorus provides the opportunity, for those qualified, to study the more serious as well as the lighter forms of choral composition. Candidates must satisfy the director as to the extent of their musical ability. One credit; autumn or winter.

13, 14, 15, 16. Ear Training and Melody Writing.—Principles of melodic invention and training in hearing accurately; study in notation. Two credits per quarter; autumn, winter, spring.

14D. Ear Training.—An intensive course for qualified students. Equivalent to courses 14, 15, 16. Five credits per quarter; autumn.

17. Choral Study.—Part songs for men's voices. Candidates admitted only upon examination. Two credits; autumn.

18, 19, 20. Applied Music (Freshman).

68, 69, 70. Applied Music (Sophomore).

118, 119, 120. Applied Music (Junior).

*Only those who have successfully completed the work in course 11 will be eligible for registration in course 12.
DEPARTMENTS OF INSTRUCTION

168, 169, 170. Applied Music (Senior).

Students of other colleges and schools may earn one or two credits per quarter in the applied music courses. Students of the College of Fine Arts carry a larger number of credits—one and one-half to three—as indicated in the set courses. Students enrolled in these courses will be given opportunity, upon demonstration of the required ability, to participate in the public recitals of the department.

Unless excused by reason of advanced standing upon entrance, students who major in courses in applied music will require two lessons a week, ordinarily, in order to cover the work necessary for a degree. One to three credits per quarter.

(a) Piano.—Venino, Van Ogle, Ferryman.
(b) Violin.—Rosen.
(c) Voice.—Glen, Albert.
(d) Violoncello.—Kirchner.
(e) Pipe Organ.—Chittick.

31, 32, 33. University Orchestra.—The University orchestra affords to qualified students an unusual opportunity for the study of the better grades of orchestral composition. No one is eligible to enter the course unless the director is satisfied of the ability of the applicant. One credit per quarter; autumn, winter, spring. Glen

22, 23, 24. University Band.—Competent players of band instruments are admitted to the band upon consent of the bandmaster. Two credits per quarter; autumn, winter, spring. Adams

25, 26, 27. Chamber Music.—Advanced study of the musical literature for string trios, quartets and quintets. One credit per quarter; autumn, winter, spring. Rosen

28, 29, 30. Ensemble Singing.—A choral course for women. Only advanced students will be admitted. One credit per quarter; autumn, winter, spring. Glen

34, 35, 36. Voice Training.—A course presenting the principles of correct breathing and tone production essential to good singing. Two credits per quarter; autumn, winter, spring. Wood, Wilson

51, 52, 53. Harmony.—Ear training, analysis, and keyboard practice. Prerequisite, courses 7, 8, 9, and 14, 15, 16. Three credits per quarter; autumn, winter, spring. Wood, Wilson

51D, 52D. Harmony.—An intensive course for qualified students. Equivalent to courses 51, 52, 53. Prerequisite, courses 14, 15, 16, or 14D. Five credits per quarter; winter and spring. French

54, 55, 56. School Music.—A course for supervisors. Prerequisite, courses 7, 8, 9, and 14, 15, 16. Two credits per quarter; autumn, winter, spring. Dickey
57, 58, 59. **Advanced Sight Singing.**—Study of choral forms. Prerequisite, courses 7, 8, 9, or permission of instructor. Two credits per quarter; autumn, winter, spring. Dickey

101, 102, 103. **Advanced Harmony.**—Prerequisite, courses 51, 52, 53. Three credits per quarter; autumn, winter, spring. Wood

104, 105, 106. **History of Music, Advanced.**—A detailed study of important periods and composers of modern music. Two credits per quarter; autumn, winter, spring. Van Ogle

107, 108, 109. **Counterpoint.**—Prerequisite, courses 51, 52, 53. Two credits per quarter; autumn, winter, spring. Wood

110, 111, 112. **Instrumental Form.**—Analysis of many examples and simple exercises in composition. Prerequisite, courses 51, 52, 53. Two credits per quarter; autumn, winter, spring. Wood

113, 114, 115. **Music Education.**—Psychological and pedagogical principles and their application to the teaching of music. Prerequisite, courses 54, 55, 56. Two credits per quarter; autumn, winter, spring. Dickey

130, 131, 132. **University Band (advanced).**—A continuation of the work of the freshman and sophomore years in the study and production of more difficult compositions for band. One credit per quarter; autumn, winter, spring. Adams

151, 152, 153. **Musical Appreciation.**—An appreciative study of some modern composers and schools. Two credits per quarter; autumn, winter, spring. Van Ogle

154, 155, 156. **Music Education and Supervision.**—This course is for seniors and students of experience. High school, normal school and institute music. Prerequisite, courses 113, 114, 115. Two credits per quarter; autumn, winter, spring. Dickey

157, 158, 159. **Free Composition.**—Choral work, piano accompaniment idioms, vocal and instrumental solos and pieces in the smaller forms. Prerequisite, courses 101, 102, 103. Two credits per quarter; autumn, winter, spring. Wood

160, 161, 162. **Polyphonic Forms.**—Free counterpoint applied to the invention, canon, fugue, etc. Analysis and composition. prerequisite, courses 107-108-109. Two credits per quarter; autumn, winter, spring. Wood

180, 181, 182. **University Band (advanced).**—Prerequisite of courses 130, 131, 132 or their equivalents required. One credit per quarter; autumn, winter, spring. Adams
The courses outlined are not arbitrary. They indicate the amount and character of the work that the student is expected to cover for his musical degree. Credit will be given for equivalent courses pursued elsewhere prior to entering the University.

Students not wishing to offer work in applied music as a major, may receive credit for applied music work done under the supervision of others than the instructional staff of the department, upon satisfying departmental and University requirements by examination. Approved equivalents of applied music courses in piano, voice and violin may also be credited.

PIANO

Scholarship in Piano Study.—Mr. A. F. Venino offers an annual scholarship to the candidate showing the greatest proficiency and promise in piano playing. This scholarship carries free tuition for one weekly lesson throughout the autumn, winter and spring quarters. All candidates must submit their application in writing to Dean Glen before September 1. The competitive examination preliminary to the award will be held in Room 106 Meany hall at 2 p.m. of the Saturday before registration day.

Freshman and Sophomore Years.—Major and minor scales and arpeggios; studies selected from Czerny, Cramer, Loeschorn, Kullak, Hiller and Krause; sonatos by Scarlatti, Haydn, Clementi, Mozart and Beethoven; shorter compositions and inventions by Bach; and works from the classic and romantic schools.

Junior and Senior Years.—Scales in thirds, sixths and tenths; studies by Czerny, Clementi, Chopin, Brahms, MacDowell and Moszkowski; well-tempered Clavichord and suites by Bach; sonatas, pieces including at least one concerto, taken from the classic, romantic or modern composers. At least one recital program must be played from memory from the repertoire studied.

VOCAL MUSIC

The course in vocal music is even more flexible than that outlined for piano study. The purpose is to develop the voice and musical understanding so that the best in vocal music may be faithfully interpreted. The fact of having studied vocal music for four years will not necessarily entitle a student to graduation.

Freshman.—Practical work in voice placing, breathing studies, from among the following: Concone, Op. 9; Marchesi, Op. 1; Panofka, Op. 85; Vaccai, Book I; simple Italian and English songs.

Sophomore.—Progressive tone work; Bordogni, Concone, Marchesi, Panofka, simple Italian arias, Italian and English songs.
Junior.—Tone work; advanced technique. Arias from Italian, French and German operas. German song classics; modern French and English songs.

Senior.—Tone work and technique. Repertoire in opera and oratorio; recitals; senior program.

VIOLIN


Sophomore.—Scales, Hrimaly; Studies, Blumenstengel Op. 33, Mazas, Books I and II; Concerto, Accoly; Scene de Ballet, De Beriot.

Junior.—Scales, Book II, Baillot; Exercises, Books I and II, Schraedieck; Etudes, Kreutzer, Fiorillo, Rode, Rovelli; Concerto, 9 and 7, De Beriot; Concerto, 2 and 8, Spohr also one sonata by Handel.

Senior.—Scales, Rosen; Etudes, Dancla; Op. 73, Gavini; Op. 35, Dont; Sonata for violin alone, Bach; Concerto, Bruch, Mendelssohn, D-Minor, Wieniaski and No. 4 Vieuxtemps.

In the last semester the student is obliged to memorize one sonata by Bach for violin alone and one of the concertos given in the fourth year.

FEES

Since most of the work in the courses in applied music must necessarily be of the character of individual instruction, the student will be required to pay tuition fees for this work in addition to the general University tuition fee.

All fees are payable in advance to the Comptroller of the University. The following quotations of regular fees are based on one lesson per week. More than one lesson per week will be charged for at the same rate. All lessons are one-half hour in length.

Piano.—Mr. Venino, $22 per quarter; Mrs. Van Ogle, $22 per quarter; Miss Ferryman, $15 per quarter.

Vocal Music.—$22 per quarter.

Dean Glen will give individual instruction in singing and repertoire to a maximum number of ten students. The fee will be at the rate of $27 per quarter for one lesson weekly.

Violin.—Mr. Rosen, $22 per quarter.

Pipe Organ.—Mrs. Chittick, $22 per quarter.

Band and Orchestra Instruments.—Mr. Adams, $15 per quarter.

Arrangements may be made for individual instruction in other musical courses if necessary or desirable.
Piano for practice may be rented at the music department at the following rates:
One hour daily, $3 per quarter.
Two hours daily, $5 per quarter.
Pipe Organ for practice; one hour daily, $12.50 per quarter.
All rental charges must be paid in advance. No rebate in these charges will be allowed. Lessons lost through enforced absence may not be made up unless the teacher in charge has been previously notified of the intended absence and is willing to accept the excuse for the absence.

NURSING

_Home Economics Hall_

_ELIZABETH S. SOULE_

1. _History of Nursing._—An historical and informational study of nursing from the earliest times; the traditions of nursing as a profession, and the development and opportunities open to college women in this field. Open to any woman student in the University. Five credits; autumn.

2. _Ethics of Nursing._—A course designed to introduce the student to those recognized principles which govern her relationship to the patient, the physician, the hospital and the public. Three credits; winter.

3. _Home Care of the Sick._—A practical course for women students. Instruction given in baths and bed making, care of patients ill with common contagious diseases, care of chronics, invalids and babies. Two credits; autumn, winter, spring.

51-52-53. _Public Health and Social Problems._—Lectures on various phases of public health work in relation to social problems. Case plans discussed and study of records made. Two credits; autumn, winter, spring.

102. _Principles of Public Health Nursing._—Lectures on social and nursing technique in public health nursing. Discussion and observation of infant welfare, school, industrial, tuberculosis, and general visiting nursing. Theoretical and practical work required. Prerequisite, graduate registered nurse. Three credits; autumn, winter.

103. _Administration of Public Health Nursing._—Course deals with the organization and administration of societies organized for visiting nursing, methods of collecting funds, boards of directors, and various committees of these associations, office equipment, records, vital statistics, and supervision of staff nurses will be dealt with. Prerequisite: Open to public health nurses who have had one year of public health nursing. Three credits; winter, spring.
110. Public Health Nursing.—The field work is intended to give a practical knowledge of the entire field of public health nursing. Discussion of family problems, demonstration in nursing technique, culture taking, milk modification, maternity care, discussion of general district problems, current events, home visiting in relation to communicable diseases, including tuberculosis, sick and well babies, pre-natal cases, general visiting nurse work, free and pay cases and follow-up work of the schools. Prerequisite, course 102. Eight to sixteen credits; time to be arranged.

Soule

Oriental History, Literature and Languages

Philosophy Hall
Professor Gowen

The requirement of one year's work in ancient languages and literature may be satisfied by courses 50, 51 and 52. Courses 1, 2 and 3 count for credits in the department of history; courses 40, 41 and 42 in the College of Business Administration; and courses 114, 115 and 116 in the department of Philosophy. Courses above 100 are for juniors, seniors and graduates.

1. History of China I.—History of China from the earliest times to the Manchu Conquest. Three credits; autumn. Gowen

2. History of China II.—History of China from the Manchu Conquest to the present day. Three credits; winter. Gowen

3. History of Japan.—Japan from the earliest times to the present. Three credits; spring. Gowen

30-31-32. Semitic Literature.—A study of the literature of the Old Testament. Continuous through the three quarters, but each course independent and self-contained. One credit per quarter; autumn, winter, spring. Gowen

40-41-42. Oriental Institutions.—Japan, Russia, and China.—The physical geography, social character and commercial resources of the Orient. Two credits per quarter; autumn, winter, spring. Gowen

50. Literature of India.—Five credits; autumn. Gowen

51. Literature of Egypt, Babylonia, and Palestine.—Five credits; winter. Gowen

52. Literature of Arabia and Persia.—Five credits; spring. Gowen

100-101-102. Hebrew or Arabic.—The giving of these courses depends upon registration. Five credits per quarter; autumn, winter, spring. Gowen
104-105-106. Sanscrit.—The giving of these courses depends upon registration. Five credits per quarter; autumn, winter, spring.


PAINTING, SCULPTURE AND DESIGN

Philosophy Hall

INSTRUCTORS, EDENS, CAMPBELL; ASSOCIATES, PATTERSON, WORMAN, WEHN; ASSISTANTS, SARGENSON, STORM

Advanced students applying for credit must present work to head of department.

3. Principles of Design.—The principles of design in line, dark and light, and color. For students in home economics. Four credits; autumn, winter, spring. Sirgenson

5-6-7. Free-hand Still Life and Cast.—The technique of drawing from elementary forms, with all mediums—water color, oil, pen, etc. Prerequisite for any subsequent course in drawing and painting; cast drawing from models of antique and modern sculpture, preparatory to drawing from living model. Laboratory deposit, $2. Three credits per quarter; autumn, winter, spring. Sirgenson

9-10-11. Art Structure.—A study of the principles of design in line, dark and light, and color, to develop power of appreciation and creation of good design. Prerequisite for any subsequent course in art structure. Laboratory deposit, $2. Four credits per quarter; autumn, winter, spring. Edens, Sirgenson, Storm

16-17-18. Art Appreciation.—Historical development, from the art of primitive man to the present day. One credit per quarter; autumn, winter, spring.

53. Art Structure.—Batik and tie-dyeing. Laboratory deposit, $2. Four credits; autumn. Storm

54. Art Structure.—Bookbinding and woodblock printing. Laboratory deposit, $2. Four credits; winter. Storm

55. Art Structure.—Textile design. Laboratory deposit, $2. Four credits; spring. Storm

56-57-58. Illustration.—Drawing and painting, from the model in various mediums, for reproductive processes such as magazines, newspapers and commercial work. Prerequisite, freshman free-hand. Laboratory deposit, $3. Three credits per quarter; autumn, winter, spring. Patterson
59-60-61, *Household Design.*—Designs for tiles, leaded glass, metal-works, fixtures and embroidery. Three credits per quarter; autumn, winter, spring. 

Campbell

72-73-74. *Sculpture—Clay Modeling.*—Construction of plaster moulds, elementary construction; modeling in clay and wax. Laboratory deposit, $3. Three credits; autumn, winter, spring. 

Wehn

101. *Public School Drawing.*—For drawing supervisors. The working out of such drawings as would be used in the public schools. Three credits; spring. 

Edens

103-104. *Art Structure.—Pottery.*—Advanced students will be allowed to work for advanced credits. Laboratory deposit, $2. Three credits per quarter; winter, spring. 

Worman

105. *Art Structure.—Design as applied to lettering, advertising, and posters.* Three credits; autumn. 

Edens

106. *Art Structure.—Posters.* Three credits; winter. 

Edens

107-108-109. *Portrait.*—Portraiture in all mediums. Prerequisite, freshman free hand. Laboratory deposit, $3. Three credits per quarter; autumn, winter, spring. 

110-111-112. *Art Structure.—Interior decoration.* Three credits per quarter; autumn, winter, spring. 

Campbell

113-114-511. *Furniture Design.*—Lectures on the history of furniture and the working out of original designs in furniture. Two credits per quarter; autumn, winter, spring. 

Campbell

*151-152. *Landscape.*—Interpretations of landscape in design. Three credits per quarter; winter, spring. 

Edens

153. *Methods of Teaching Art.*—Courses of study, methods and material. Three credits; autumn. 

Storm

154. *Practice Teaching.*—Teaching under supervision in city schools. Five credits; winter. 

Edens

157. *Art Structure.*—Simple metal work—etching, sawing, and hammering of copper and brass. Laboratory deposit, $2. Three credits; autumn. 

Edens

158. *Art Structure.*—Jewelry. Laboratory deposit, $2. Three credits; winter. 

Edens

159. *Art Structure.*—Landscape composition. Three credits; spring. 

Edens

160-161-162. *Life.*—Laboratory deposit, $3. Three credits per quarter; autumn, winter, spring. 

Patterson

*Not offered in 1921-1922.*
163-164-165. **Mural Decoration.**—Decorative compositions done in oil, applied to the beautifying of wall spaces, in harmony with the scheme of architecture. Prerequisite, junior standing. Laboratory deposit, $3. Three credits per quarter; autumn, winter, spring.

Patterson

*166. **Landscape.**

169-170-171. **Textile and Costume Drawing.**—Two credits per quarter; autumn, winter, spring.

Edens

172-173-174. **Interior Decoration.**—Advanced problems in interior decoration in elevation and prospective. Five credits per quarter; autumn, winter, spring.

Campbell

**PHARMACY, PHARMACEUTICAL CHEMISTRY, MATERIA MEDICA AND FOOD CHEMISTRY**

Bagley Hall

Professor Johnson; Associate Professor Linton; Assistant Professor Lynn; Instructors, Goodrich, Patty, Linton, Osseward and Assistants

1, 2, 3. **Theoretical and Manufacturing Pharmacy.**—The study of the principles of pharmaceutical operations, and the manufacture of Pharmacopoeial and National Formulary preparations. Three lectures and two laboratory periods per week. Deposit $7.50 per quarter. Five credits per quarter; autumn, winter, spring.

Goodrich, Patty

4. **Commercial Pharmacy.**—A lecture course covering the commercial problems of the practical pharmacist. Two credits. Spring.

Osseward

5, 6, 7. **Drug Assaying.**—Experiments in gravimetric and volumetric analysis are given with the idea of training the student in the fundamental principles of quantitative analysis, and at the same time making them familiar with the analysis of substances of pharmaceutical importance. Alkaloid assay of crude drugs and assay of volatile oils are a part of the course. Two lectures and three laboratory periods per week in autumn and winter quarters. One lecture and two laboratory periods per week in spring quarter. Five credits; autumn, winter. Three credits; spring. Deposit $7.50 autumn and winter; $4.50, spring.

Goodrich

9, 10, 11. **Prescriptions.**—A study of dispensing and laboratory practice in the same. Students criticise and compound approximately two hundred selected prescriptions. One lecture and one laboratory period per week. Deposit $3.00 per quarter. Two credits per quarter, autumn, winter, spring.

Linton, Goodrich

*Not offered in 1921-1922.*
12, 13. Materia Medica.—A study of crude organic drugs, their source, methods of collecting and preserving, identification, active constituents and adulterations. Three lectures per week. Three credits; winter, spring. Linton, Goodrich.

15. Field Materia Medica.—A study of the native medicinal plants of Washington and also of plants under cultivation in the drug garden. One laboratory period per week, consisting largely of work in the drug garden and field trips. Laboratory deposit, $1. One credit; spring. Linton

16. Food Laws.—National, state and foreign food laws. For students in the department of fisheries. One credit; winter. Lynn

101, 102, 103. Pharmacology and Toxicology.—The physiological actions of drugs in health and disease; the therapeutic uses and posology. The symptoms and treatment in cases of poisoning. Two credits; autumn, winter, spring. Lynn

105, 106, 107. Chemistry and Analysis of Food.—Methods of analysis of food products and the study of federal and state laws regulating the sale of foods and drug products. Methods of the Association of Official Agricultural Chemists are used. Laboratory deposit, $7.50 per quarter. Five credits per quarter; autumn, winter, spring. Lynn

109, 110. Prescriptions.—A continuation of prescription study and practice. Special attention given to incompatibility and to the newer remedies. One recitation and one laboratory period per week. Deposit $3. Prerequisites, 9, 10, 11. Two credits; autumn, winter. Lynn

113, 114, 115. Advanced Prescriptions.—Extensive practice in difficult and incompatible prescriptions, also a study of special problems in dispensing. Credit to be arranged. Laboratory deposit $7.50. Autumn, winter, spring. Linton

117, 118. United States Pharmacopoeia and National Formulary.—A study of the chemistry and pharmacy of the U. S. P. and N. F. preparations and inorganic chemicals. Two recitations per week. Two credits; autumn, winter. Linton

121, 122, 123. Toxicology.—A laboratory course in the separation, identification and estimation of inorganic and organic poisons and in the analysis of alkaloids. Laboratory deposit according to credit. Credit to be arranged; autumn, winter, spring. Johnson

125, 126, 127. Current Problems.—A lecture and recitation course in current pharmaceutical problems, commercial and scientific. Use is made of the current number of most of the pharmaceutical journals published in the United States, also of several medical journals. One credit; autumn, winter, spring. Linton
129, 130, 131. Manufacturing Pharmacy.—An advanced course in pharmaceutical manufacturing, including the manufacture of some of the more difficult of the Pharmacopeial and National Formulary preparations, as well as a number of organic and inorganic compounds used in pharmacy and medicine. Laboratory deposit according to credit. Credit to be arranged; autumn, winter, spring.

Goodrich, Patty

GRADUATE COURSE

201, 202, 203. Investigation.—Senior and graduate students may undertake some original investigation in pharmacy, pharmaceutical chemistry or chemistry of foods under the direction of one of the instructors. Laboratory deposit according to credit. Credit to be arranged; autumn, winter, spring.

PHILOSOPHY

Philosophy Hall
Professor Savery; Assistant Professor Ducasse; Instructor Blake
Associate, McGill; Teaching Fellow, Miss Fisher

The Liberal Arts requirement is five credits in philosophy. This requirement may be satisfied by any one of the following courses: Philosophy 1, 2, 3, 5. (None of these has any prerequisites).

Philosophy 2 is required of seniors in the College of Business Administration.
Philosophy 1, 2 and 5 are suited to arts-law students.
Psychology 1 is required of majors in philosophy.

1. Introduction to Philosophy.—Five credits; autumn, winter, spring.
   Savery, Ducasse, Blake, McGill

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. Five credits; winter.
   Savery and assistants

3. Introduction to Ethics.—Ethical principles and their application to the problems of life. Five credits; spring.
   Blake and assistants

5. Introduction to Logic.—The conditions of clear statement, adequate evidence, and valid reasoning, and their establishment in the mental processes of the student. Five credits; winter. Ducasse

101-102-103. History of Philosophy.—Ancient, medieval and modern. Three credits per quarter; autumn, winter, spring. Blake

104-105-106. Metaphysics.—A course in metaphysics, with special reference to the concepts and principles of science. For advanced students in philosophy or in the physical or biological sciences. Three credits per quarter; autumn, winter, spring. Savery
113. Philosophy of Religion.—(1) The religious experience: the origin, nature and types of religion, and its effect on individual happiness and morality. The social aspect of religion and the religion of democracy. Study of mystical experiences. (2) The truth of religion: the proofs of the existence of God, the basis of faith, pessimism, optimism and meliorism, immortality. Discussion of agnosticism. Prerequisite, course 1. Five credits; spring.


*123. Philosophy in English Literature of the Nineteenth Century.—From Wordsworth to Shaw, Wells and Chesterton, and including Emerson, Whitman and Masters. (Alternates with course 126 as requirement for seniors in the Library School.) Prerequisite, course 1. Five credits; spring.

*126 Philosophy in Contemporary Drama.—(English 187.) Social and philosophical ideas in the contemporary drama. (Alternates with course 123 as requirement for seniors in the Library School.) Five credits, spring.

129. Esthetics.—The origin and motives of art and the aesthetic principles of the different forms of art. Five credits; spring.

132. Social Ethics.—(For description, see course 2). Five credits; winter.

133. Ethical Theory.—An advanced course in the fundamental concepts and principles of ethics. Prerequisite, course 2 or 3. Two credits; spring.

141-142-143. Contemporary Philosophy.—Readings from authors representing the main tendencies in contemporary philosophy. Two credits per quarter; autumn, winter, spring.

GRADUATE COURSES

144-145-146. Hume and Kant.—A critical study. Open to students upon approval of instructor. Two or three credits per quarter; autumn, winter, spring.

207-208-209. Philosophy of Science.—An account of scientific method; and of the fundamental principles and concepts of the sciences—mathematical, physical and biological. Interpretation...
tion of the scientific view of the world and its place in the human economy. Open to students upon approval of instructor. Two or three credits per quarter; autumn, winter, spring. Savery

247-248-249. Post-Kantian Idealism.—A study of the post-Kantian systems with special reference to the philosophy of Hegel. Prerequisite, course 103. Two or three credits per quarter; autumn, winter, spring. Blake

PHYSICAL EDUCATION AND HYGIENE FOR MEN

Gymnasium

Professor Hall, University Health Officer; Assistant Professor Arbuthnot

Requirements for Graduation.—All students, both men and women, are required to take a prescribed amount of directed physical training and hygiene or military science and tactics.

Military Training.—Requirements in military science and tactics take precedence over the requirements in physical education. (See Military Science and Tactics.)

Physical Examination.—Upon entering college each student is given a physical examination. On the basis of their examination students are segregated in three divisions: A, B, and C.

All able bodied men shall satisfy all requirements in this department with two years of military science and tactics. Students exempt from military training for any reason must take the same number of hours in physical training.

1-2-3. Calisthenics and Gymnasium.—Introductory course for freshmen. Two credits per quarter; autumn, winter, spring.

4-5-6. Hygiene.—Required of all first year men. Credits included in first year's work in both physical education and military science and tactics.

11-12-13. Gymnasium Tactics.—Two credits; autumn, winter, spring.

14. Play-ground Supervision.—Two credits; spring. Arbuthnot

16-17-18. Intramural Sports and Games.—For freshmen. Two credits per quarter; autumn, winter, spring.

51-52-53. Calisthenics and Gymnastics.—For sophomores. Two credits per quarter; autumn, winter, spring.

57-58-59. Intramural Sports and Games.—For sophomores. Two credits per quarter; autumn, winter, spring.
61a-61b-61c-61d. Boxing, Wrestling, Fencing, Swimming.—Taught to large classes for physical development. Two credits per quarter; autumn, winter, spring.

71-72-73. History of Athletics.—One credit; autumn, winter, spring.

101-102-103. Advanced Gymnastics and Calisthenics.—For juniors. Two credits per quarter; autumn, winter, spring.

107-108-109. Intramural Sports and Athletics.—Small group leadership. For juniors. Two credits per quarter; autumn, winter, spring.

151-152-153. Class Leadership Calisthenics and Gymnastics—For seniors or graduates. Two credits per quarter; autumn, winter, spring.

PHYSICAL EDUCATION AND HYGIENE FOR WOMEN

Gymnasium

Professor Hall, University Health Officer; Assistant Professor Gross, Director; Assistant Professor Amey; Instructor, Aid; Acting Instructor, Anderson; Lecturer, Irwin; Associate, Bloom; Assistant Forchemer.

There are two kinds of classes in this department.

a—Those required for graduation. All women, during two years of college attendance are required to participate two hours a week in some form of healthful exercise. The kind of exercise is determined by the medical and physical examination, and the amount of physical education the student has had in accredited high schools. The course in Personal Hygiene is required of freshmen; the course in Nutrition and Food is required of sophomores. Ten credits, six in healthful and recreational exercise, two in Hygiene and two in Nutrition and Food, are required for graduation.

b—Those leading to a major in physical education in the College of Science, or in the College of Education.

Teachers well trained in all phases of physical education are in demand, the most frequent calls being for school supervisors and recreation leaders. Students interested in courses in recreational and community leadership should see announcement for Colleges of Liberal Arts and Education.

Intramural Athletics.—Intramural contests, under the supervision and control of the department, are conducted in the following sports: baseball, hockey, tennis, basketball, archery, field events and volley ball. The Women’s Athletic Association co-operates with the department in the conduct of these activities. All students are urged to come out for at least one sport.
Uniforms.—A uniform, consisting of serge tunic, white blouse and black gymnasium shoes is required of all students, and may be purchased at the University Book Store. The cost is $14.25. No part of the uniform should be purchased before entering college.

Courses.—Courses 1-2-3 and 7-8-9 are open to freshmen who have had less than two years of physical education. Hygiene is required of all freshmen. Courses 10-11-12 are open to freshmen who have had two years or more of physical education. Courses 51 to 99 are open to sophomores who have had three quarters of freshman work. Course 54-55-56, Food and Nutrition, is required of all sophomores. Courses 100 to 200 are open to major students; these courses carry academic credit.

1-2-3. Healthful Activities.—A general course, includes gymnastics, dancing, athletics. For students who have had less than two years in high school, two hours practice a week. One credit per quarter; autumn, winter, spring. Gross, Anderson

4-5-6. Hygiene.—One hour of lecture. Two-thirds credit per quarter; autumn, winter, spring. Irwin

57-58-59. Corrective Gymnastics.—Two hours of practice. One credit per quarter; autumn, winter, spring. Bloom

10-11-12. Healthful Activities.—Gymnastics, dancing, and athletics. Open to freshmen who have had at least two years' physical education in high school. Autumn, winter, spring. Gross, Anderson

13-14-15. Limited Healthful Activities.—Light gymnastics, the less strenuous games and athletic activities, the lightest forms of dancing. Open, upon the recommendation of the examining physician, to students for whom the regular classes are too strenuous. Two hours per week. One credit per quarter; autumn, winter, spring. Anderson

51-52. Gymnastics.—Second year women. Two hours per week. One credit per quarter; autumn, winter.

54-55-56. Food and Nutrition.—(See Home Economics 54-55-56.) Required of second year women. Amery, Koehne

57-58-59. Corrective Gymnastics.—Two hours of practice. One credit per quarter; autumn, winter, spring. Bloom

61-62-63. Dancing.—Two hours of practice. One credit per quarter; autumn, winter, spring. Gross

64-66. Hockey.—Two hours of practice. One credit; autumn, spring.
65. *Basketball.*—Two hours of practice. One credit; winter. Anderson

67-69. *Tennis.*—Two hours of practice. One credit; autumn, spring. Anderson

75. *Archery.*—Two hours practice. One credit; spring. Aid

81. *Baseball.*—Two hours practice. One credit; spring. Anderson

82-83-84. *Limited Healthful Activities.*—A continuation of courses 13-14-15. For students for whom regular work is too strenuous. Two hours practice. Autumn, winter, spring. Anderson

94-95-96. *Dancing.*—Two hours of practice. Prerequisite, courses 61-62-63. One credit; autumn, winter, spring. Lemon

101-102-103. *Methods of Gymnastics.*—Drill in gymnastics. Gymnastic terminology and survey and classification of gymnastic material. Principles and technique of teaching. Prerequisites, or accompanying courses, Anatomy 101-102 and Physiology 54-55. Two hours lecture and two hours practice per week. Three credits per quarter for a year. Aid


104-105-106. *Methods of Folk Dancing.*—Dances of the nations arranged for teaching in schools. Technique, methods of teaching, relation of music to dancing, costuming, school festivals, etc. Prerequisite, 1 year of dancing or course 111-112-113. One hour lecture and two hours practical work per week. Two credits per quarter; autumn, winter, spring. Gross

*109. *History of Physical Education.*

131-132-133. *Theory and Practice in Corrective Gymnastics.*—Study of deviations from the normal, remedial gymnastics and application of exercises for correction, kinesiology. Two hour lectures and four hours practice. Prerequisites, Anatomy 101-102 and Physiology 54-55. Two lectures per week. Four credits per quarter; autumn, winter, spring. Bloom

151-152. *Administration of Physical Education.*—Study of curricula for grades and high schools; school administration. Value

*Not offered in 1921-1922.
of various types of activities. Prerequisite, courses 101-102-103, and 104-105-106. Two credits per quarter; autumn, winter. Gross

153. Health Instruction.—Material and methods in teaching hygiene in the grades. Two hours per week. Spring. Gross

154-155-156. Advanced Dancing.—Prerequisite, course 104-105-106. Technique of natural dancing, based on natural movements. Composing of dance dramas. One hour lecture and two hours practice. Two credits per quarter; autumn, winter, spring.

161. Normal Diagnosis.—Diagnosis of the normal and deviations from the normal. Prerequisite, Anatomy 101-102 and Physiology 54-55. Two credits; spring. Irwin

162. Anthropometry.—Methods in physical examinations, standards of efficiency in measurements. Two credits for autumn quarter.

164-165. Advanced Methods in Gymnastics.—Advanced gymnastics. Development of lesson plan. Gymnasium problems. Adaptation to schoolroom. One hour lecture and two hours practical work. Prerequisite, course 101-102-103. Two credits per quarter; autumn, winter.

167-169. Athletic Coaching.—Methods of coaching, hockey, tennis, archery. Prerequisites, Psychology 1, and knowledge of and participation in the above named athletics. One hour lecture and two hours practice. Two credits; autumn, winter, spring.

170-171-172. Advanced Athletic Coaching.—Coaching in basketball, baseball. Students will take charge of classes in sports. Prerequisite, psychology 1 and knowledge of game. Two hours of practice. One credit; autumn, winter, spring.

*173-174-175. Swimming...

179. Public Recreation.—Problems in civic and community recreation with practice in field houses and playfields. Prerequisites, courses 104-105-106 and 111-112-113. Three credits; winter. Gross

**PHYSICS**

_Denny Hall_

Professor Osborn; Associate Professor Brakel; Assistant Professor Anderson; Instructors, Utterbach and Eller; Demonstrator, Hogg.

1-2 General Physics.—Courses 1-2 will satisfy the physical science requirement in the colleges of Liberal Arts and Science. Prerequisite, high school physics or 47, 48, 49. Five credits per quarter; autumn, winter. Osborn

* Not offered in 1921-1922.
3. **General Electricity.**—This course is required of physics majors; of mathematics majors taking physics as a minor, and of all pre-medical students. Prerequisite, course 1-2. Five credits; spring. Osborn

47-48-49. **High School Physics.**—For students without any physics, these courses will satisfy the physical science requirement in colleges of Liberal Arts and Science and the entrance requirement in other colleges. Five credits per quarter; autumn, winter, spring. Eller

50-51. **Sound and Music.**—For students in College of Fine Arts only. Five credits per quarter; winter, spring. Anderson

54. **Photography for Amateurs.**—Open to students who have had elementary physics or chemistry. Three credits; spring. Higgs

89-90. **Physics of the Home.**—For students in Home Economics. Five credits per quarter; autumn, winter. Osborn

97. **Physics for Engineers.**—Mechanics. Prerequisites high school physics or 47-48-49, and fifteen hours of mathematics. Five credits; autumn, winter or spring. Brakel

98. **Physics for Engineers.**—Electricity. Prerequisite, course 97. Five credits; autumn, winter or spring. Brakel, Anderson, Utterbach

99. **Physics for Engineers.**—Heat, light. Prerequisite, course 97. Five credits; autumn, winter, spring. Brakel, Anderson, Utterbach

101. **Modern Physics Theories.**—Prerequisite, course 3. Five credits; autumn. Anderson

102. **Mechanics.**—Prerequisite, fifteen hours of college physics and ten hours of college mathematics. Five credits; autumn. Anderson

103. **Heat.**—Prerequisite, course 2. Five credits; winter. Utterbach

104. **Light.**—Prerequisite, course 2 and ten hours of mathematics. Five credits; spring. Osborn

105. **Electricity.**—Prerequisites, course 3 and ten hours of mathematics. Five credits; winter. Brakel

106. **Physics of AC and DC Circuits.**—Prerequisite, course 105. Five credits; spring. Brakel

113. **Acoustics and Illumination.**—A course for students in architecture. Prerequisite, course 2. Four credits; spring. Osborn
114. Electrical Measurements.—A course for students in engineering. Prerequisite, courses 97, 98, 99. Three credits; autumn or spring. 

Brakel

169. Special Problems.—Students admitted after consultation with instructors. Credit arranged; autumn, winter, spring.

170. Spectroscopy.—Prerequisite, course 2 and ten hours of chemistry or astronomy. Three credits; spring or autumn.

Osborn

175. High Temperature Measurements.—Prerequisite course 103. Three credits; autumn or spring.

Utterbach

180. Vibratory Motion and Sound.—Prerequisite course 102 and calculus. Five credits; winter.

Osborn

GRADUATE COURSES

201, 202. Dynamics.—Three credits; autumn. Two credits; winter.

Anderson

203, 204. Theoretical Electricity and Magnetism.—Two credits; autumn. Three credits; winter.

Brakel

206. Advanced Optics.—Three credits; spring.

Osborn

209. Thermo-dynamics and Kinetic Theory.—Two credits; spring.

Utterbach

210. Seminar.—Credits arranged; autumn, winter, spring.

212. Investigation.—Credits arranged; autumn, winter, spring.

NOTES: The laboratory deposit for courses 1, 2, 3, 47, 48, 49, 50, 51, 89, 90, 97, 98, 99, 103, 104, 105, 106, 118, 170, 175, 180, 206 is $2.50; 54, 114—$5.

Graduate students may elect any course from 114 and on as a part of their major work in physics.

POLITICAL SCIENCE

Denny Hall

Professor J. Allen Smith; Instructor Laubs

The work in the department of political science is designed to give a scientific account of the activities of the state and of the functioning of the electorate and legislative bodies in determining state action. Some of the courses are planned to give that knowledge of public affairs which ought to be part of a liberal education, while others lead to a special study and investigation of problems and methods in the different branches of the government. The aim is to train the powers of observation and reasoning, to develop correct methods of research, and to apply the knowledge gained to the solution of practical problems.
1. **Elements of Government.**—An introductory course in which special attention is given to the citizen's part in government. Laboratory deposit, $1. Five credits; autumn, winter or spring.  
Smith

10. **American Government.**—A general study of the American system of national government. Prerequisite, course 1. Three credits; winter.  
Smith

11. **State Government.**—A general study of the American system of state government. Prerequisite, course 1. Three credits; spring.  
Smith

50. **Comparative Government.**—The constitutional organization of the principal governments of Europe; with emphasis on political parties and current questions. Prerequisite, course 1. Five credits; winter.  
Laube

*51. **Principles of Political Science.**—

52. **Political Parties.**—Organization and methods of modern political parties; growth and theory of the party system. Prerequisite, course 1. Three credits; spring.  
Laube

60. **Public Finance and Taxation.**—Prerequisite, course 1. Econ. 51. Five credits; autumn.  
Laube

61. **Problems in Taxation.**—With special reference to the state of Washington. Prerequisite, course 60. Three credits; winter.  
Laube

62. **Municipal Finance.**—Prerequisite, course 60. Three credits; spring.  
Laube

100. **Municipal Government.**—Municipal organization and administration in the United States and Europe with some consideration of functions and problems. Prerequisite, eight credits in political science. Three credits; autumn.  
Laube

102. **Municipal Problems.**—Problems of city government, with special attention to municipal utilities. Prerequisite eight credits in political science. Three credits; autumn.  
Laube

*110. **International Law**

111. **International Politics.**—Prerequisite, eight credits in political science. Three credits; spring.  
Laube

120. **Governmental Functions.**—A study of regulation with reference to individual liberty; the individualistic and the socialistic theory of governmental functions; influence of political democracy on state interference. Open to upper division students

* Not given in 1921-1922.
who have had eight hours in political science, and to graduates. Three credits; autumn.

150, 151, 152. Reading Course.—Discussions based on selective readings in political theory. Prerequisites, junior standing and eight credits in political science. Two credits per quarter; autumn, winter and spring.

181, 182, 183. Research in Public Finance.—Two credits per quarter; autumn, winter, spring.

GRADUATE COURSE


PSYCHOLOGY

The Liberal Arts requirements are five credits in psychology. For psychology as prerequisite to education, see announcement of department of education.

Majors in psychology may count five hours in Philosophy 1, or in 101-102-103 toward satisfying their major requirement.

1. General Psychology.—A survey of the science as a whole. No prerequisites. Three lectures, one discussion section, and one two-hour laboratory a week. Five credits; course repeated every quarter.

101. Physiological Psychology.—Man's behavior viewed as a result of his neurological mechanism. Students who so desire will be offered an opportunity for individual work in dissection and microscopic study. Prerequisite, Psychology 1. Three credits; winter.

106. Experimental Psychology.—Students taking this course receive training in laboratory methods, are made familiar with the more important kinds of psychological apparatus, and perform many of the classical experiments in psychology. Prerequisite course 1. Three credits; spring.

109. Mental Tests.—Training in applying tests for intelligence and for mental analysis. The principles of experimental procedure, methods of measurement, and statistical treatment of results. The course is essential to work in clinical psychology. Prerequisite, ten credits in psychology. Three credits.

111. History of Psychology.—The origin and development of psychology, beginning with the primitive conceptions of mind, and
including a comprehensive view of the sources of scientific psychology. Prerequisite, course 1. Three credits; spring. Guthrie

112. Modern Psychological Theory.—A criticism of psychological theories in the light of recent experimental findings. The significance of behaviorism and the concept of the unconscious in psychology. Prerequisite, course 1. Three credits; spring. Guthrie

114. Current Psychological Literature.—This course offers each student the opportunity of reading and discussion in the direction of his particular interests, and at the same time makes him familiar with a wide range of subjects treated in recent journals and with the new developments in psychology. Prerequisite, course 1. Two credits; winter. Guthrie

116. Animal Behavior.—The mind of animals as shown by their behavior under natural conditions and in the laboratory. Prerequisite, course 1. Three credits; autumn. Guthrie

118. Folk Psychology.—A psychological study of social human nature, language, custom, public opinion, morals, war, family, caste, nationalism, religion. Prerequisite, course 1. Two credits; autumn. Guthrie

121.—Applied Psychology.—Psychology as applied to personal efficiency, vocational guidance and the measurement of vocational fitness, scientific management, the psychology of advertising, legal testimony and the mental states affecting its reliability. The significance of sex and individual differences in practical life. Prerequisite, course 1. Five credits; winter. Wilson

124. Psychology of Learning.—The principles of learning and the transfer of training. Prerequisite, ten credits in psychology. Two credits; spring. Smith

126. Abnormal Psychology.—The explanation of unusual behavior. Prerequisite, ten credits in psychology. Five credits; winter. Guthrie

131. Child Psychology.—A study of mental development from infancy to adult age with the purpose of giving the student a scientific understanding of childhood. Prerequisite, course 1. Three credits; autumn. Wilson

132. Psychology of Exceptional Children.—The nature and cause of mental defects and peculiarities of children, with special reference to methods of diagnosis and to physical pathology. Prerequisite, course 1. Three credits; spring. Smith

151, 152, 153, 154. Undergraduate Research.—Prerequisites, course 1 and 106. Each quarter. Smith, Guthrie, Wilson
GRADUATE COURSES

201, 202, 203, 204. Graduate Research.

Smith, Guthrie, Wilson

Seminar.—Open to students doing research in the department. Weekly meetings on Monday evening.

PUBLIC SPEAKING

Donny Hall

(See Dramatic Art)

ROMANIC LANGUAGES AND LITERATURE

Donny Hall

PROFESSORS FRIEN, OBER; ASSOCIATE PROFESSORS UMPHREY, PATZER, GOOGIO; ASSISTANT PROFESSORS HEIMLINGS, DE VRIES; INSTRUCTORS, WHITTLESEY, PHILBRICK, DE SOLENNI; ASSOCIATES, PATCHIN, MEROLO, BONHAM; ASSISTANTS, HAMILTON, DAVIS.

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. Exceptional cases will be determined by the head of this department.

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. If the entrance requirement in foreign language has not been fulfilled, no credits will be given for courses 1, 2, 3, 4, and 7 in any of the Romanic languages.

I. FRENCH

Requirements of the department.—Courses 41, 101, 102, 103, 191, 192, 193, and at least nine credits in literature are required of majors and those who wish to be recommended to teach.

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 credits will be given for course 1 until course 2 has been completed. Five credits per quarter; autumn, winter, spring.

4-5-6 Reading of Modern Texts—One section of the class will be devoted to translation, exclusively, while the other sections will read and be questioned in French. Each of the courses 4, 5, 6, is repeated each quarter. Course 4 may be combined with 7, making a five-hour course. The same is true of 5 and 8, 6 and 9. Prerequisite to course 4 is course 3, or equivalent. Two credits per quarter; autumn, winter, spring.

7-8-9. Grammar and Composition.—These courses must be taken by those who intend to major in French, unless they have already done the equivalent in high school. Course 7 may be combined with
course 4. The same is true of 8 and 5, 9 and 6. Prerequisite to course 7 is course 3, or equivalent. Two credits per quarter; autumn, winter, spring.

41. Phonetics.—This course is intended to furnish the student an opportunity to acquire a reasonably correct pronunciation, and to bring more order out of what seems a mass of exceptions. Prerequisite, course 3. Three credits; repeated each quarter. Frein

71-72-73. Scientific French.—For students in science courses; reading in their special lines will be assigned by the head of their department, but the examinations will be given by this department. Credits according to work done.

101-102-103. 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 under the same instructor who gives these courses. See Courses 104, 105, 106. Prerequisites, courses 6 and 9. Three credits per quarter; autumn, winter, spring. Patzer, Helmlinge, Goggio, De Vries, Whittlesey

104-105-106. Advanced Reading.—These courses are planned so that they may be taken with courses 101, 102, 103. Courses 101 and 104, 102 and 105, 103 and 106 may be taken together as five hour courses. The instructor will give occasional talks in French, upon the authors read, the interesting literary, social and other topics of their day, so as to prepare the student to enter courses given by lectures in French. Prerequisite, course 6. Two credits per quarter; autumn, winter, spring. Patzer, Goggio, Helmlinge, De Vries, Whittlesey

107-108. Themes.—Writing of original compositions upon assigned topics. Given in connection with course 124-125, which will be used as suggestive material for this course. Prerequisite, 103. Two credits per quarter; winter, spring. Helmlinge

115. Outline History of French Literature.—Lectures in English, and collateral reading of English translations of French literature. Those who have studied French sufficiently will be assigned French texts to read. No prerequisites. Five credits; autumn. De Vries

*121. The French Novel.

124-125. The Short Story.—History of the short story, and reading and discussion of some of the best authors. Given in connection with courses 107, 108. Prerequisite, course 103. Three credits per quarter; winter, spring. Helmlinge

*131. Lyric Poetry.

*141-142-143. The French Drama.

* Not given in 1921-1922.
151-152. **History of the French Literature of the Nineteenth Century.**—Lectures in French, and assignments of reading to be done outside of class. Intended to give an opportunity to hear French spoken connectedly, though slowly. Students may enter at the beginning of either quarter. Prerequisite, courses 6 and 9, or equivalent. Five credits per quarter; winter, spring. De Vries

161-162. **History of the French Literature of the Eighteenth Century.**—Lectures in French, and assignments for outside reading. Prerequisite, courses 6 and 9. Three credits per quarter; autumn, winter.

171. **History of the French Literature of the Seventeenth Century.**—Lectures in French, and assignments for outside reading. Prerequisite, courses 6 and 9. Three credits; spring. Patzer

191-192-193. **Teachers' Course.**—Emphasis on the methods of teaching pronunciation and syntax; review of phonetics and syntax, with students conducting the recitations. Prerequisite, courses 41, 101, 102, 103. Two credits per quarter; autumn, winter, spring. Frein

**GRADUATE COURSES**

**201-202-203. Middle and Sixteenth Century.**—The masterpieces of the fourteenth, fifteenth and sixteenth centuries will be read, and their influence upon later French literature studied. Open to graduates and seniors who have studied French at least four years. Two credits per quarter, autumn, winter, spring. Frein

**221-222-223. Old French Readings.**—One of the most helpful courses for teachers of French. Open to graduates and seniors who have studied French at least four years. Three credits per quarter; autumn, winter, spring. Frein

**231-232-233. History of Old French Literature.**—Lectures and assigned readings. Open only to those who can read Old French. Three credits per quarter; autumn, winter, spring. Frein

**241-242-243. French Historical Grammar.**

**251-252-253. Seminar.**—The study will be centered upon the drama of the sixteenth century. Open only to advanced students of French. Two credits per quarter; autumn, winter, spring. Frein

**II ITALIAN**

Requirements of the department: No student will be allowed to begin Italian and French or Spanish the same year. Beginning with 1922-1923 enough courses will be offered for a major in Italian.

* Not given in 1921-1922.
* * Either courses 201-202-203 and 221-222-223 or 231-232-233 and 251-252-253 will be offered in 1921-1922. It will depend upon the preparation of the students desiring advanced work.
123. Elementary.—No credit will be given for courses 1 and 2 until course 3 has been completed. Five credits per quarter; autumn, winter, spring.


*121-122-123. The Italian Novel.

181-182. Dante.—In this course the Divine Comedy of Dante will be read and studied with the purpose of bringing out the character of the imaginative and philosophical ideas contained in it, and the relations of these ideas to medieval thought. Knowledge of Italian not necessary. Two credits per quarter; autumn and winter.

184. Renaissance Literature of Italy.—In this course stress will be laid upon the works of Petrarch and Boccaccio especially, and on those of Machiavelli, Castiglione, Ariosto, Cellini and Tasso. Lectures in English and collateral reading. Knowledge of Italian not necessary. Two credits; spring.

GRADUATE COURSE

201. Research in Italian Literature.—For graduates only. The number of credits will be determined by the amount of work done.

III SPANISH

Requirements of the department: Courses 191, 192 and at least 9 credits of literature are required for majors and of all who wish to be recommended as teachers. (After June, 1922, courses 101-102-103 also will be required.)

1-2-3. Elementary.—No credit will be given for course 1 until course 2 has been completed. Each of the courses 1, 2, 3 is repeated each quarter. Five credits per quarter; autumn, winter, spring.

4-5-6. Reading of Modern Authors.—Reading of some of the best works of the nineteenth century. If desired, courses 4, 5, 6 may be combined with courses 7, 8, 9 making a five-hour course each quarter. Prerequisite to 4 is 3, or equivalent. Three credits per quarter; autumn, winter, spring.

7-8-9. Grammar, Composition, Conversation.—These courses may be combined with courses 4, 5, 6 making a five hour course. Prerequisite to course 7 is course 3. Course 7 is prerequisite to course 8. Two credits per quarter; autumn, winter, spring.

*101-102-103. Advanced Composition.

112. Commercial Spanish.—Commercial terms and business correspondence. Prerequisite, course 9, five credits; spring. Umphrey

* Not given in 1921-1922.
DEPARTMENTS OF INSTRUCTION

*115. Outline History of Spanish Literature.
121-122-123. The Novel.—The origins of the Spanish novel and its development. Reading of selected texts; collateral readings and reports. Prerequisite, courses 6 and 9. Three credits per quarter; autumn, winter, spring. Umphrey

*131-132. Lyrics and Ballads.

*141-142-143.—Drama.

184-185-186. Spanish American Literature.—Representative writings of Spanish American authors. Collateral reading and reports. Lectures. Prerequisite, course 6 and 9. Two credits per quarter; autumn, winter, spring. Umphrey

191-192. Teachers' Course.—Methods of teaching Spanish; practice teaching; observation; review of linguistic difficulties. Open to major students. Two credits per quarter; winter, spring. Ober

GRADUATE COURSES

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.—Study of the epic material as a unifying factor in the literature of Spain. Five credits; winter. Umphrey

241. Spanish Historical Grammar.—Five credits; spring. Umphrey

Note: For courses in Comparative Philology, see the department of Scandinavian Languages and Literature.

SCANDINAVIAN LANGUAGES AND LITERATURE

Denny Hall

Professor Vickner

1-2-3. Elementary Swedish.—Grammar and reading; composition and conversation. Course, 1,2,3, are so arranged that they may be taken with courses 4, 5, 6 making a five-hour course. Three credits per quarter; autumn, winter, spring. Vickner

4-5-6. Swedish Reading Course for Beginners.—Reading of easy texts. These courses are supplementary to courses 1, 2, 3, but may also be taken separately by students desiring a reading knowledge of Swedish with a minimum of grammatical study. No previous knowledge of Swedish necessary. Courses 4, 5, 6 are especially adapted to meet the needs of students in the Colleges of Science, Education, Business Administration, and the Library School. Two credits per quarter; autumn, winter, spring. Vickner

* Not given in 1921-1922.
10-11-12. Elementary Norwegian-Danish.—Grammar and reading; composition and conversation. Courses 10, 11, 12, are so arranged that they may be taken with courses 13, 14, 15, making a five-hour course. Three credits per quarter; autumn, winter, spring.

Vickner

13-14-15. Norwegian-Danish Reading Course for Beginners.—Reading of easy texts. These courses are supplementary to courses 10, 11, 12, but may also be taken separately by students desiring a reading knowledge of Norwegian-Danish with a minimum of grammatical study. No previous knowledge of Norwegian-Danish necessary. These courses are especially adapted to meet the needs of students in the Colleges of Science, Education, Business Administration and in the Library School. Two credits per quarter; autumn, winter, spring.

Vickner

20-21-22. Norwegian-Danish Literature.—Representative authors are read in connection with a survey of the Norwegian-Danish literature. Prerequisite, ability to read easy Norwegian-Danish. Course may be entered at the beginning of any quarter. Two credits per quarter; autumn, winter, spring.

Vickner

23-24-25. Swedish Literature.—Representative authors are read in connection with a survey of the Swedish literature. Prerequisite, ability to read easy Swedish. Course may be entered at the beginning of any quarter. Two credits per quarter; autumn, winter, spring.

Vickner

*30. Scandinavian Culture and Institutions.—Vickner

*31-32-33. Reading Course in Norwegian and Swedish.

Vickner

40, 41, 42. Great Scandinavian Writers in English Translation.—The reading and discussion of significant works of recent Scandinavian literature; papers; lectures on the social, political and cultural life of Scandinavia. Course may be entered at the beginning of any quarter. Five credits; autumn, winter, spring.

Vickner

103-104-105. Recent Swedish Writers.—Representative writers of the nineteenth and twentieth centuries are read, including Strindberg, Fröding, Selma Lagerlöf. Study of cultural movements and social problems of modern Sweden. Course may be entered at the beginning of any quarter. Two credits per quarter; autumn, winter, spring.

Vickner

*106-107-108. Recent Norwegian-Danish Writers. Vickner

*109-110-111. Modern Scandinavian Authors in English Translation. Vickner

* Not given in 1921-1922.
180-181-182. Recent Scandinavian Literature in English Translation.—The principal writers of recent Scandinavian literature will be read with special attention to literary and social movements and to the interrelation of English and Scandinavian literature. Lectures, reports, and discussion. For advanced students. Course may be entered at the beginning of any quarter. Two credits per quarter; autumn, winter, spring.

*201-202. Old Norse, Scandinavian and Comparative Philology.
*203. History of the Swedish Language.
*207. Scandinavian Lyric Poetry.
*209. History of Scandinavian Literature.

COMPARATIVE PHILOLOGY

190-191. Introduction to the Science of Language.—A study of the general principles of linguistic development with special reference to English. Lectures and discussions. Prerequisite, some knowledge of one of the classical languages and of one modern foreign language or Old English. Two credits per quarter; autumn, winter.

192. Life of Words.—Etymology and semasiology; growth of vocabulary; word values. Lectures, discussions and exercises. Prerequisites; same as for courses 190-191. This course is a continuation of courses 190-191 but may be taken separately. Two credits per quarter; spring.

Sociology

Sociology treats of the development, organization and functions of human groups. Its general purpose is to explain the relations of institutions; to stimulate a critical and constructive attitude toward programs of reform and to furnish a sound basis of information for intelligent citizenship. Its practical outcome lies in preparation for advanced study, field investigation, teaching and administration in such lines as community and industrial welfare, law, diplomacy, journalism, public health and institutional management; and also in supplementing the specialized training along such lines.

Sociology is related to many problems treated in biology, psychology, history, economics, politics, education, home economics.

* Not offered in 1921-1922.
literature and philosophy. Students choosing sociology as a major or minor subject are urged to consult members of the department staff regarding their elections. Work in other departments may be essential for success in this field, and may, when approved, be credited toward advanced requirements.

The following basic and supplementary courses are particularly recommended.—Mathematics 13, zoology 16, 17, psychology 109, 118, education 151, economics 61, 162, political science 51, 100, history 71-2-3, 131, 149, English 73-4-5, 133-4-5, 164-5-6, philosophy 2.

Students are advised to postpone work in sociology until lower division requirements in biology, psychology, economics, and political science are completed. Sociology 1 or its equivalent is prerequisite throughout, and satisfies minimum requirements in this subject. Further work is arranged along three lines:

1. Anthropology, courses 51, 52, 91, 92, 93, 141, 142, 143, 204, 205, 206.

For a major in sociology 36 credits are required. The following are fundamental for advanced work: Courses 29, 60, 51, 55, 56. Upper division courses should not be elected before completing such elementary work as instructors in special fields may suggest. Courses numbered over 200 are primarily for graduates. Qualified seniors may be admitted by permission of the instructor in charge. Advanced students are required to secure the approval of their program by the head of this department before completing their registration.

COURSES

1. Introductory Sociology.—A general survey of the field of social relations, with some discussions of the forces at work, the practical problems presented and the methods of solution suggested. Five credits; autumn, winter, spring. Required of all students in the department. Woolston and assistants

29. Social Statistics.—Methods and sources of quantitative investigation. Prerequisite, Math. 13. Three credits; winter. Sturges

51. Growth of Culture.—The origin and development of social institutions, industrial activities, and arts. Basic to courses in anthropology. Five credits; autumn, spring. Spier

52. Primitive Social Life.—The social institutions and folkways of primitive peoples. Five credits; winter. Spier
55. *Community Organization.*—A study of the principles of community organization, forms of community action, essentials of leadership. Three credits; autumn. McKenzie

56. *The Family.*—The origin of marriage, the family and its status, the effects of the industrial revolution, and the functions of the modern family. Three credits; autumn. McCabe


58. *Neighborhood Resources.*—A study of national, state and local organizations which deal with practical social problems; e. g., The Children’s Bureau, American Red Cross, National Federation of Settlements, Community Service. Three credits; spring. McCabe

59. *Social Psychology.*—The instinctive and reflective side of man, and his adjustments to civilization. Prerequisite, psychology 1. Three credits; autumn. Woolston

60. *The Church as a Social Agency.*—The social psychology of religious groups: the relation of organized religion to philanthropy and social reform. Three credits; autumn. McKenzie

61. *Public Recreation.*—Organization of indoor and outdoor amusement; public morality and the use of leisure. Three credits; winter.

62. *Municipal Sociology.*—A study of the social conditions and problems of modern social life in American cities, and a discussion of the various agencies developed to deal with them. Three credits; spring.

63. *History of Sociology.*—The principal contributions to sociological science, from the standpoint of their background. Three credits; spring. Woolston

64. *Cultural Determinants.*—Factors that determine growth of civilization, as illustrated by the North American Indians. Three credits; autumn. Spier

65. *Peoples of Europe and Africa.*—Racial types and languages of the Old World; origins of historic cultures; the background of American immigrants. Three credits; winter. Spier

66. *Peoples of Asia and Oceania.*—Cultures and racial types in Eastern Asia, the Philippines, and the Pacific Islands. Three credits; spring. Spier

67. *Problems of Maladjustment.*—An examination of the biological, psychological, pathological, and economic factors involved in the various types of social maladjustment. Three credits; autumn. McKenzie
104. American Social Conditions.—An analytical and descriptive study of social conditions in America today and their relation to social progress. Primarily for teachers. Three credits; winter. McKinzie

105. Industrial Welfare.—A study of the problems relating to the industrial group. Designed especially for students expecting to enter the fields of industrial welfare or employment management. Prerequisites, sociology 1 and at least 5 credits in economics. Three credits; spring. McKenzie

130. The Social Survey.—Methods of planning, conducting, and presenting results of investigations of communities and institutions. Three credits; winter. McKenzie

141. Primitive Religion.—Religious institutions in primitive life; rise of theological systems. Three credits; autumn. Spier

142. Communication.—Modes of communication from the standpoint of beginnings and social relations. Three credits; winter. Spier

143. Art and Recreation.—Leisure time activities; development in art, literature, and pastimes. Three credits; spring. Spier

155. Poverty and Philanthropy.—Care of dependents and prevention of destitution; discussion of causes of poverty and methods of relief. Three credits; autumn. McKenzie

156. Criminology.—A study of the social, economic, and hereditary causes of crime; various theories and plans of prison reform; the relations of prisons and criminals to society. Three credits; winter. McKenzie

157. Care of Defectives.—Causes of disease and degeneracy; methods of treatment, education and prevention. Three credits; spring. McKenzie

160. Programs of Social Reform.—A critical examination of individualism, conservatism, philanthropy, social justice, liberalism, unionism, the co-operative movement, the single tax, socialism and syndicalism. Three credits; autumn. McKenzie

161. Theories of Social Progress.—A discussion of the factors involved in improving society and an estimate of their efficiency. Three credits; autumn. Woolston

162. Social Ideals.—A review of the great conceptions of social purpose and destiny. Three credits; spring. Woolston

171-172-173. Methods of Social Service.—Field experience under supervision at local social work organizations. Eight hours
field work, one hour conference. Permission of instructor necessary for registration. Prerequisites 56, 57, 155. Five credits; autumn, winter, spring.

181. The Mind of America.—An investigation of characteristic traits and tendencies shown in the population of the United States. Prerequisite, course 60. Three credits; autumn. Woolston

182. The Urban Habit of Mind.—A study of typical reactions shown by city-dwellers. Prerequisite, course 60. Three credits; winter.

GRADUATE COURSES

204-205-206. Anthropological Methods and Theories.—The analysis of culture; historical and psychological methods; theories of culture growth. Open to qualified seniors. Each quarter may be taken separately. Three credits per quarter; autumn, winter, spring. Spier

207-208-209. Community Research.—Original investigation of special community problems. Emphasis will be placed upon methodology and the interpretation of data. Prerequisite, graduate standing or special permission. Two credits per quarter; autumn, winter, spring. McKenzie

211-212-213. Case Work Principles and Practice.—A training course for social work. Eight hours field work, one hour conference. Permission of instructor necessary for registration. Prerequisites, courses 171-172-173. Five credits per quarter; additional credit by special arrangement. Autumn, winter, spring. McCabe

221-222-223. Seminar.—For graduate students who are candidates for higher degrees and for approved major students in the department, when recommended by an instructor in charge of their special work. The purpose is to train in methods of original research and investigation. Two credits; autumn, winter, spring. Woolston and associates

ZOLOGY

Science Hall

Professor Kincaid; Assistant Professors E. V. Smith, Gunthorp

1-2. Elements of Zoology.—A general review of zoological science, stressing the economic and philosophic aspects of the subject. Laboratory deposit, $2.50. Five credits per quarter; autumn, winter, repeated winter, spring. Kincaid, Gunthorp and assistants

3. Pre-Medical Zoology.—For students entering upon a medical course. Laboratory deposit, $2.50. Five credits; autumn. Gunthorp
4. *Vertebrate Zoology.*—The structure of vertebrates, with emphasis on mammalian organization. For students in medicine and physical education. Prerequisite, course 3 or 1. Laboratory deposit, $2.50. Five credits; winter. Gunthorp

5. *General Embryology.*—The comparative developmental history of animals, with emphasis on vertebrate forms. For students in medicine, pharmacy and fisheries, but open to others. Prerequisite, course 1-2 or 3-4. Laboratory deposit, $2.50. Five credits; spring. Gunthorp

16. *Evolution.*—A series of lectures upon the more important biological problems related to the general theory of evolution. Two credits; autumn. Kincaid

17. *Eugenics.*—The principles of evolution in their relation to human welfare. Two credits; spring. Kincaid

51. *Elementary Entomology.*—The structure, classification and economic relations of insects. Prerequisite, course 1-2 or its equivalent. Laboratory deposit, $2.50. Five credits; spring. Kincaid

101. *Cytology.*—The anatomical, physical and chemical properties of the animal cell with special reference to the problems of development and inheritance. Prerequisite, course 1-2 or 3-4. Laboratory deposit, $2.50. Five credits; winter. Gunthorp

106. *Plankton.*—The classification, adaptations and interrelationships of the microscopic fauna of the fresh and salt water. Field work in the neighboring lakes and in Puget Sound. Prerequisite, course 1-2. Laboratory deposit, $2.50. Five credits; autumn. Kincaid

107. *Parasitology.*—Study of animal parasites. For students in medicine but open to others. Prerequisite, course 1-2 or 3-4. Laboratory deposit, $2.50. Five credits; spring. Smith

108. *Aquatic Biology.*—Distribution, adaptations and interdependence of the several categories of aquatic organisms. For students in fisheries, but open to others. Prerequisite, course 1-2. Laboratory deposit, $3. Five credits; spring. Kincaid

154. *Advanced Entomology.*—The morphology and ecology of insects, with emphasis on forms of economic importance. Prerequisite, course 51. Five credits; winter. Kincaid

155-156-157. *Elementary Problems.*—Students will be assigned minor problems which will be worked upon under the direction of one of the instructors in the department. Prerequisite, twenty hours in zoology or physiology. Laboratory deposit, $2.50. Three credits; autumn, winter, spring. Kincaid, Smith, Gunthorp
GRADUATE COURSE

201-202-203. Research.—Students capable of carrying on independent research will be assigned problems to be worked upon under the direction of one of the instructors. Prerequisite, twenty-five hours of zoology or physiology. Credit to be arranged.

Kincaid, Smith, Gunthorp

PHYSIOLOGY

7. Elementary Physiology.—A general survey of the functions of the human body with special emphasis on metabolism, the nervous and vascular systems. Primarily for pharmacy students. Laboratory deposit, $2.50. Five credits; autumn.

Smith

8. Elementary Physiology.—A general survey of the structure and functions of the human body. Special emphasis will be placed on the digestive system and metabolism. A course especially designed for students in home economics, but open to others. Laboratory deposit, $2.50. Five credits; winter, spring.

Smith

54-55. General Physiology. Adapted to meet the needs of students expecting to teach the subject in high school. Required of students majoring in physical education; recommended for students majoring in home economics who desire more extended training than is offered in course 7, and for students in sanitary science. Laboratory deposit, $3. Five credits; autumn, winter.

Smith

56. Principles of General Physiology.—The application of the laws of physics and chemistry to physiological problems. Prerequisites, course 55, Chem. 3 and Physics 3. Laboratory deposit, $3. Five credits; spring.

Smith

151-152-153. Advanced Physiology.—Designed to meet the needs of students in medicine. Open to others prepared to carry the work. Prerequisites, Zoology 3, Chemistry 33 and Physics 3. Laboratory deposit, $5. Five credits autumn, winter, spring.
SUMMER QUARTER
JUNE 21-AUGUST 30, 1921

DIRECTOR
FREDERICK F. BOLTON, Ph. D., University of Washington

Facilities—The summer quarter is an integral part of the university year and its courses coordinate with the other quarters. It thus offers especial opportunities for teachers and others whose regular work is suspended during the summer months.

By the four-quarter plan regular students will be able to take their vacations during any quarter of the year, or by attending the four quarters each year they may complete their college course in three years. Regular work will be offered in the Colleges of Liberal Arts, Science, Law, Education, Fine Arts, Business Administration, the Graduate School, and in the Pre-medical Course. The Puget Sound Biological Station at Friday Harbor maintains a session of six weeks beginning June 20 and ending July 30. The laboratories, libraries and museum are open and the various departments offer both undergraduate and graduate work equal in quality to that maintained during the rest of the year. In most departments three grades of work are offered: (a) courses for beginners in the subject, (b) courses for advanced undergraduates, and (c) courses for graduate students. In a very large number of cases, heads of departments are in charge of the work. In addition to regular members of the faculty several prominent teachers from outside the University give courses.

For whom intended.—In addition to the regular undergraduate work in the various colleges exceptional opportunities are afforded for the following classes of persons:

1. College and university graduates who wish to specialize in some particular field or to work for advanced degrees.

2. Superintendents and principals who wish to acquaint themselves with recent progress in education or to study special problems.

3. High school teachers who wish to advance in their special lines of work.

4. Supervisors and teachers of music, domestic science, drawing and other special fields of work, who will find many courses suited to their needs.

5. School teachers who wish to work toward college degrees.

6. Directors of gymnasiums and teachers of physical education and playground work. The university campus offers unusual opportunities for playground demonstration, and special emphasis

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will be placed on this important phase of education. The city of Seattle and the public school afford splendid objective illustrations of playground and recreation centers.

7. Undergraduates who for some good reason find it desirable to shorten the period of their college course.

8. Recent high school graduates who expect to enter the University in the fall who wish to get in touch with the University before that time. High school pupils find this a very advantageous plan.


10. County superintendents who desire to study problems of rural school organization and social center and community center work.

11. Candidates for certificates who need special courses in education and psychology or other subjects.

12. Persons who are preparing to become specialists in college and normal school positions.

13. Persons who desire practical field work in botany, geology and zoology in a region possessing unique facilities.

14. Students who wish regular courses in law or special courses in law in preparation for teaching the commercial branches.

Registration.—Registration for the summer quarter will take place on Tuesday, June 21. Students expecting to be in attendance during the last six weeks only may register on or before Wednesday, July 27. Students should go first to Administration Hall, where notices will be posted giving the order of procedure in registration.

Students desiring to be enrolled in any college or school of the University will be assigned by the registrar to the deans of the respective divisions for assistance in making out their election of studies; those not intending, at this time, to become candidates for graduation will be assigned to the director of the summer quarter.

Admission.—The courses of the summer quarter are open to all persons eligible for admission to the University as either regular, unclassified or special students. As far as possible, all credentials for prospective students and applications for admission as special students should be in the hands of the registrar before the opening of the session.

Credits.—Students desiring university credit will be required to pass the examinations given during the closing week of each term. A maximum of nine quarter hours of credit may be obtained during each term.
Persons who expect to be candidates for any degree or the normal diploma at the close of the quarter should make application through the registrar on registration at the beginning of the session.

**Fees.**—The regular tuition fee of twenty dollars ($20.00) is required of all students, and admits to all the privileges of the summer quarter, except certain laboratory courses and to special music courses requiring individual instruction. See the statements of these courses for the special fees. No reduction of fees will be made because of late registration or early withdrawal. Open lectures are free to all students regularly registered in the summer quarter and also to the public.

**Masters' Degrees Through Summer Quarters.**—At each succeeding summer quarter a larger number of graduate students are in attendance. Last summer more than a third of the whole number of attendants were graduate students. Many were planning definitely to apply their work toward higher degrees. The University will accept 36 credits earned during at least 30 weeks of residence in summer quarters as a fulfillment of the year of required residence, provided the student does work between the sessions under regulations prescribed by the graduate faculty and the departments concerned.

**Correspondence Courses.**—The University has established correspondence courses in many departments. These will be of special advantage to students who have been in attendance at summer quarters and who wish to go forward to the bachelor's degree. The correspondence work can be very advantageously planned as a continuation of the regular summer quarter. For detailed information concerning correspondence courses write to the Extension Service.

**Education.**—The summer quarter and the College of Education stand in very close relations to each other. Doubtless a large number who plan to secure a degree, or a normal diploma, through the College of Education will accomplish much in summer quarters. The work of the summer quarter being especially arranged for teachers will make it possible to accomplish this.

**Business Administration.**—An interesting curriculum of business courses is offered in the summer quarter for students who contemplate going into business. These courses will be along lines of business organization, corporation, finance, employment management, and kindred subjects. Teachers of commercial subjects will also find subjects of special importance in preparation for their work.

For bulletin of the summer quarter address the Registrar, University of Washington. For other information address Frederick E. Bolton, Director of the Summer Quarter.
Station and Surroundings.—The Puget Sound Biological Station is situated in a sheltered bay near the town of Friday Harbor, the county seat of San Juan County, with a population of approximately 800. It is between Bellingham and Victoria, about 25 miles from the former and about 20 miles from the latter.

San Juan County consists of an archipelago of something like 100 islands, separated by channels cut by glacial action. The northern islands of the county are composed of sandstone, comparatively easy eroded, and wearing into potholes and peculiarly pock­ eted walls. In the sandstone are occasional beds of fossils, notably on the Sucia Islands. On Waldron Island and the Sucia Islands the sandstone is being cut for paving blocks for city streets.

Some of the islands are partly limestone, notably the north end of San Juan and the west side of Orcas. The largest lime works in Washington is at Roche Harbor, at the northwest corner of San Juan Island. However, comparatively little of the shore line of the archipelago is limestone.

Most of the islands are composed of metamorphic rock, which is very resistant to weathering and therefore changes very little. This is one of the reasons for the remarkable wealth of fauna and flora. Here and there are beaches of glacial material, or of sand, or flats of mud. There are no large streams on the islands, and therefore the water is exceptionally free from river detritus. Through the channels between the islands the tides rush at times with a velocity of seven to ten miles an hour, filling and again draining the Gulf of Georgia. This gulf is a body of water roughly 100x20 miles, and the spring tides are about twelve feet. The channels in the Friday Harbor region are the chief points of entrance and escape for this immense volume of water. Thus the rocky points are swept clean from erosion deposits, the water is constantly aerated and changed, and a good habitat for water forms insured. Some of the channels are over 100 fathoms deep, thus affording opportunity for the study of forms of life to a considerable depth. Those who have been at the station have again and again attested to the abundance of marine life. A 12-foot tide exposes a wide beach, and gives excellent opportunity for the study of shore life.
The site of the station is on a steep, rocky hillside, forested with conifers. The land was donated by Mr. Andrew Newhall, and is about a quarter of a mile from the village. A road runs through the grounds to the village. The village contains about a dozen stores, and any ordinary purchases may be made there.

The University of Washington also holds a lease on 485 acres about one mile from the present site, and expects to move there when suitable buildings have been erected.

*Building and Equipment.*—The zoological laboratory was built in the spring of 1910. It is about 30x60 feet, two stories and attic. The building is just above high tide on a steep shore. Material can therefore be landed from a small floating dock anchored to the pillars of the laboratory itself. On the first floor are laboratory tables and stock room. The attic is a general storeroom and drying loft. A dark room is fitted up for photography. Both fresh and salt water are piped to all parts of the building.

The botanical laboratory was built as a part of the dining hall in the spring of 1913. It has fresh water piped into it, and there is a dark room adjacent.

Compound microscopes are taken up from the University of Washington; some general glassware is supplied. Certain ordinary glassware, containers, and preservatives may be secured at the stock room. It is the aim to have in the stock room the things ordinarily called for. Unusual things cannot be supplied. Those wishing special apparatus should write the Director. Usually the station hires a shrimp trawler for one month. Rowboats are on hand for general use.

*Supply Departments.*—A supply department has been established for the purpose of providing material for class use and for investigators at the station; also for supplying museums and schools with zoological and botanical material for their exhibits or classes. A price list will be furnished on application to the Director of the Station. Those who attend the station may have a reasonable amount of material for their own laboratories put up at very nearly cost. This will permit scientists to put their whole time on class work investigation. Teachers who wish to make small collections for their own use are not discouraged in their endeavors. Those who are looking forward to collecting large quantities of material should first correspond with the station authorities. Scientists are urged to co-operate with the station in its endeavor to earn part of its running expenses through its supply department.

*Library.*—The library contains about 500 volumes, of which about 160 are bound volumes of reprints. A limited number of books are shipped to the station every summer from the University.

*Lectures.*—General lectures by the station staff or by visitors are given as the occasion arises.
Registration.—Experience has shown that it is wise to register for one full course only. Six weeks is a very short time to give to any course, even though one's whole time be put on the work. Advanced students have found it profitable to begin some line of investigation in the same field in which they are carrying a course.

Credit.—Students giving their whole time to the work may earn one semester-credit or one and one-half quarter-credits per week.

Expenses.—For one person for six weeks the cost is about as follows:

<table>
<thead>
<tr>
<th>Item</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Station fee</td>
<td>$13.00</td>
</tr>
<tr>
<td>Tent, two in a tent</td>
<td>5.00</td>
</tr>
<tr>
<td>Board (estimate)</td>
<td>36.00</td>
</tr>
<tr>
<td>Books (estimate)</td>
<td>5.00</td>
</tr>
<tr>
<td>Incidentals (estimate)</td>
<td>4.00</td>
</tr>
<tr>
<td>Total</td>
<td>$61.00</td>
</tr>
</tbody>
</table>

The station fee of $13 goes toward paying the running expenses of the station. There is no laboratory fee. For persons occupying research rooms the station fee is $50, instead of $13.

The tents are 10x12 feet, on board platforms with three-foot board wall, making the lowest part about five feet. They are rented during the season for $1.50 per week per tent, including bed springs, mattresses, lamp, broom, camp chairs, buckets, wash basins, and drinking cups. During the time before and after the session the rental is $1 per week. Stoves may be rented for $1.50 for the season. Bedclothes and pillows are not furnished, although they may be bought at the village. Persons coming to the station should bring a sufficient supply of bedding for cold nights. The whole lodging system is merely self-supporting over a term of years.

Meals are served in the dining hall at six dollars per week. The service is merely self-supporting over a term of years, and as nearly co-operative as the conditions permit. The dining hall is about 75 feet above the sea level, and commands a splendid view of channels and islands in the foreground, with Mount Baker lifting its ice-covered peak 12,000 feet high in the distance.

For bulletin of the Puget Sound Biological Station address the Registrar, University of Washington. For other information address T. C. Frye, Director of the Puget Sound Biological Station.
UNIVERSITY EXTENSION SERVICE

OFFICERS OF ADMINISTRATION AND INSTRUCTION

HENRY SUZZALLO, Ph. D. (Columbia), LL. D., (California), President of the University.
JOHN THOMAS CONDON, LL. M., (Northwestern), Dean of Faculties.
EDWIN AUGUSTUS START, A. M., (Harvard), Director of the Extension Service.

ADMINISTRATIVE BOARD

DIRECTOR START, Chairman

DEAN THOMSON, Liberal Arts
DEAN LANDER, Science
DEAN BOLTON, Education

DEAN MILLER, Business Administration
PROFESSOR RAITT, Home Economics
COMPTROLLER CONDON

THE FACULTY

The Extension faculty is composed of members of the general faculty who give extension courses and of the following instructors on the Extension staff.

ALLETA MARA GILLETTE, A. B., (Smith), A. M., (Washington), Instructor in English.
JAMES M. McCONAHEY, LL. B., (Northwestern), C. P. A., Lecturer in Accounting.
WILLIAM B. HENDERSON, Lecturer in Foreign Trade.
EMUEL J. FOXMAN, Lecturer in Water Transportation.
WAYNE E. BUTTERDAUGH, A. B., (Pennsylvania), Lecturer in Industrial Traffic.
P. MORGAN GUSTIN, Lecturer in Fine Arts.
VICTOR ALONZO LEWIS, Lecturer in Fine Arts.
IRENE EWING DAVIS, Lecturer in Fine Arts.

OFFICE STAFF

MARY C. GRADY, Office Manager.
CORINNE B. BABCOCK, Secretary in charge of Seattle city office.
EDNA HINEMAN, A. B., (Washington), Secretary for Correspondence Study.
HARRIETTE R. BAILEY, Stenographer.
BLANCHE L. BINGHAM, Stenographer.

OFFICES

The general offices of the Extension Service are on the University campus, in a small building devoted exclusively to their use. It is the third building on the right from the Fortieth Street entrance.

A city office is maintained in the Henry Building, in the heart of the business district of Seattle.

THE EXTENSION SERVICE

The Extension Service of the University of Washington (known as the Extension Division until 1917) was organized in 1912, as an integral part of the University to promote and administer its work outside the campus. At the present time its field embraces university teaching by correspondence and in classes for those who cannot attend the University.

DIVISION OF INSTRUCTION

Extension teaching is primarily for adults and for those who cannot attend the University. Many of the subjects offered may be taken for credit toward a university degree, but this is a secon-
The primary object being to make university instruction available to as many persons as possible who could not otherwise obtain it.

This teaching is carried on by correspondence, which is available to anyone, anywhere, at any time; and by classes conducted at different places.

Correspondence courses are offered in the departments of astronomy and navigation, botany, classical languages and literature, (Greek, Latin), economics and business administration, education, English, forestry and lumbering, geology, history, home economics, philosophy, physics, political science, psychology, Romanic languages and literature (French, Italian, Spanish), sociology, and zoology.

Class work is offered in Seattle, and in other cities as far as practical, in many of these departments and in some others. Both lists are subject to change from time to time, as courses are added or withdrawn.

The greater number of the extension courses parallel the resident university work and may be taken by qualified persons for credit toward a university degree. Some are planned to meet vocational needs of those who have no university degree in view.

Announcements of the Extension Service are published in bulletins issued at intervals of one or two months.

In Seattle the Extension Service maintains a city office and downtown classrooms, where a program of classes in various subjects is annually carried on. This schedule varies somewhat from year to year but usually includes general economics, accounting (three full year courses), advertising, business correspondence, business law, employment management, foreign trade, water transportation, French, Italian, Spanish, subjects in home economics, philosophy and psychology.

Extension classes have been conducted in Aberdeen, Bellingham, Everett, Hoquiam, Olympia, Spokane, Tacoma, and Yakima. On account of time and distance it has not been possible to develop this work on the same basis of permanence and regularity as that in Seattle, but as much is done as possible and any real local demand is generally met.

Fees.—In accordance with the wishes of the Legislature of 1921 all university extension work must hereafter be entirely self-supporting. The fees hitherto charged have therefore had to be increased. They are still very moderate, being kept low enough to cover only the actual cost. The cost of courses varies according to their length from eight to twenty-four dollars.
GRADUATE MEDICAL LECTURESHIP

In 1916 the Extension Service, with the cooperation of the Washington State Medical Society and the King County Medical Society, instituted a Graduate Medical Lectureship. The King County Medical Society annually appoints a committee which works with the representatives of the Extension Service in planning the course. The lectures are held in the early summer, and occupy five days. They are open to graduate physicians and surgeons. A fee is charged and any surplus over the expenses of the year goes into a special fund to be used as a reserve fund for the maintenance of this lectureship, or for the extension of medical education. The lectureship has proved of great value to the physicians and surgeons of the Pacific Northwest, bringing to them each year some of the best thought of the medical education centres of the country.

The lecturers have been:

1916. Dr. Charles L. Mix, Chicago, Northwestern University.
1917. Dr. Martin H. Fischer, University of Cincinnati.
       Dr. Allen B. Kanavel, Chicago, Northwestern University.
1918. Omitted on account of the war.
1919. Dr. Charles Lyman Greene, St. Paul.
       Dr. Dean Lewis, Chicago.
       Dr. Barton Cooke Hirst,, Philadelphia, University of Pennsylvania.
1921. Dr. Charles F. Hoover, Cleveland, Western Reserve University.
       Dr. Carl A. Hamann, Cleveland, Western Reserve University.
       Dr. Harris P. Mosher,, Boston, Harvard University.
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PHARMACY

PATTY, FRANK ARTHUR

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PHYSICS

ANDERSON, S. HERBERT


PSYCHOLOGY

SMITH, STEVENSON

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ROMANIC LANGUAGES

UMFRED, GEORGE W.

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Co.

Spanish-American Poets of Today and Yesterday. II Jose Santos Chocano. el Poeta

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October, 1920.


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WOOLSTON, HOWARD B.


ZOOLOGY

GUNTHORP, HORACE

To Kill Cats for Laboratory Uses.—Science, 51:87. 1920.


Note on Distribution and Spermatogenesis of Myriapoda.—Science, 52: 36-37. 1921.


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SMITH, ELI VICTOR

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DEGREES

DEGREES CONFERRED JUNE 21, 1920

BACHELOR DEGREES

COLLEGE OF LIBERAL ARTS

Bachelor of Arts

Allen, Helen Frances
Anderson, Hilma Emelie\(^1\) (cum laude)
Armstrong, Ruth Anne
Arnzen, Edward Jargo (magna cum laude)
Bates, Bernard Rheldafter
Bagardus, Aluon Eugene
Bollman, Dean Stanley\(^1\)
Bragdon, Ruth Alwin
Brown, Ford Keeler (cum laude)
Brown, Lois Elsa
Bruce, Helen Roslyn
Brown, Ford Keeler (cum laude)
Burnside, Mary Frances
Butler, Benjamin Fox
Cage, Mary
Campbell, Florence Elizabeth
Campbell, Kenneth (cum laude)
Campbell, Mary\(^2\)
Carlin, Agnes Adele
Chamberlain, Elizabeth
Christensen, Agnes Briditta\(^2\)
Clyde, Paul Dean
Coehan, Velma (cum laude)
Coe, Curtis Parre\(^3\)
Coffin, Geraldine
Coffin, Margaret (magna cum laude)
Collins, Claude Chester\(^2\)
Council, Elizabeth
Crall, Margaret Cumming\(^2\)
Crouley, Anne Claire
Cunningham, Theresa
Dahl, Victor Vinjje
Devlin, Mary Elmah
Dirimple, Bell\(^1\)
Eichner, Isabel
Ellsworth, Paul Theodore (cum laude)
Erle, Una Beatrice\(^2\)
Evans, Leol Lacey\(^1\)
Ferguson, Frances Patricia
Finley, Sylvia Elfreda\(^2\) (cum laude)
Fisher, Julia Euphemia\(^2\) (cum laude)
Franklin, Allice Virginia
Gardner, Jessie
Gardner, Raymond Locke\(^1\)
Gilbert, Elon James
Gillett, Frank Richard
Gleason, Dorothy\(^2\)
Glover, Oscar Kern\(^2\)
Greene, Lew Abrams
Greiner, Ruth Helen
Haeker, Mary Mendota\(^2\)
Hammarberg, Agnes Elizabeth
Hayner, Mirlan Marjorie
Hayner, Norman Lancaster
Henderson, Ruby Jean
Hevly, Martin Bernard
Holmes, Raymond David
Hoover, Glen Edwin\(^2\)
Hossack, Myra Louise
House, Olseola Louise
Hughes, Ina Belle
Jensen, Arne Sigurd\(^2\)
Kaufman, Edith Rachel (cum laude)
Kitamura, Mornmita (cum laude)
Krohn, Violet Lucile
Krue, Mildred Margaret\(^2\)
Lamberson, Frances Garner
Lawrence, Edna May (cum laude)
Logg, David Gladstone\(^1\)
Loomis, Minerva Udell\(^3\)
Lucas, Harriett Yeder
McCaustland, Elizabeth
McConahe, Aimee Katherine\(^2\)
McComb, Mollie Jerome
McCrea, Mary Helen
McHugh, Edward Robert\(^2\)
McKay, Eloise
McKillop, Marjorie\(^1\)
Maclean, Maude
Maui, Leonard Goroku
Mathen, George Eugene
Merchant, Jessie
Mills, Marjorie
Milton, Fletcher Roberts
Morehouse, Dorothy\(^2\)
Morton, Lucie Wellington\(^1\)
Munger, Ruth Willard
Nelson, Earl Calvin
Newton, Cornelia Elizabeth
Nichols, Walter Robert\(^2\)
Nicol, Philia
Norwood, Annie
Owen, Evelyn Claire
Packard, Mollie Davy\(^3\)
Parker, George Burnett
Parker, John Allen
Peterson, Clarence Walter
Peterson, Phillip Leland
Phillips, Herbert Joseph\(^1\)
Pickrell, Evelyn Ann
Playter, Mollie Denison
Powell, Lucile Alice
Preston, Frank Manley
Rasmussen, Violet Mary\(^4\)
Rutagun, Thomas\(^2\)
Rhoades, Luke Caldwell\(^2\)
Rice, Edith Allegra
Rice, Margaret Dorothea
Richards, Winifred Violet\(^1\)
Richardson, Margaret\(^2\)
Sibley, Gladys Florence
Robinson, Besse May\(^2\)
Russell, Pearl Elizabeth\(^3\)
Saunders, John Monk\(^2\)
Scott, Burton Foote\(^2\)
Shannon, James Francis
Simpson, Louise Violet (cum laude)
Slanson, Ruth Irvine (cum laude)
Smith, Priscilla Margaret
Stegner, Guy Trent\(^3\)
Taylor, Grace Gladys
Tidball, Ben Watson
Thomas, Irving Wheat\(^2\)
Walker, Charles Hall
Wallace, Dorothy Eleanor

Notes: The persons whose names are followed by the superior figures \(^1\), \(^2\), \(^3\) received their degrees in the quarters of 1919-1920 ending in August, December and March, respectively; all others in June, 1920.

For degrees conferred at the end of the summer quarter, August 30, 1920, see page 324.

(317)
<table>
<thead>
<tr>
<th>Name</th>
<th>Degree</th>
</tr>
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<tbody>
<tr>
<td>Walthew, Winifred Edna</td>
<td>Bachelor of Science in Home Economics</td>
</tr>
<tr>
<td>Watson, Anna Elizabeth</td>
<td>Bachelor of Science in Home Economics</td>
</tr>
<tr>
<td>Watson, Jean Ferguson</td>
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<tr>
<td>Whitehead, Virgil</td>
<td>Bachelor of Science in Home Economics</td>
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<tr>
<td>Wilbur, Edward Perry</td>
<td>Bachelor of Science in Home Economics</td>
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<tr>
<td>Wilson, Doris Glasgow</td>
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</tr>
<tr>
<td>Winter, Katherine</td>
<td>Bachelor of Science in Home Economics</td>
</tr>
<tr>
<td>Wolff, Katherine</td>
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</tr>
<tr>
<td>Wolkow, Ruth</td>
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</tr>
<tr>
<td>Young, Ruth Evelyn</td>
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</tr>
<tr>
<td>Zimmerman, Chloe Anice</td>
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</tr>
<tr>
<td>Carey, Robert Lincoln</td>
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<tr>
<td>Chamberlain, Percy Ira</td>
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<td>Colman, Kenneth Burwell</td>
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<td>Dannmann, Marjorie Luse</td>
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<td>Eagleson, Helen Elizabeth</td>
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<td>Garratt, Eugenia Enid</td>
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</tr>
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<td>Gilliland, William Lester</td>
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<td>Gunn, Marjorie</td>
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<td>Hall, Maude</td>
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<td>Hamm, Verda</td>
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<td>Heist, Lulu</td>
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<td>Kellner, Frank Everts</td>
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<td>Klopfner, Henrietta Johanna</td>
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<td>Larrsen, Kirsten</td>
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<td>Lundstrom, Margaret</td>
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<td>MacClain, Albert Lewis</td>
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<td>MacDougall, John Brock</td>
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<td>Abel, Lena Blanche</td>
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<td>Allen, Mabel Derry</td>
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<td>Anderson, Rachel Dorothy</td>
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<td>Barlow, Hertilla</td>
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<td>Bentlen, Elise Marie</td>
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<td>Bjorklund, Ellen Margaret</td>
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<td>Burgess, Henrietta</td>
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<td>Countryman, Eva</td>
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<td>Faubert, Alice</td>
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<td>Heywood, Carrie</td>
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<table>
<thead>
<tr>
<th>Name</th>
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<tr>
<td>Abel, Marjory</td>
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<td>Forrester, Louise</td>
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<td>Kelly, (Mrs.) Ruth Haslett</td>
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<td>Morris, Letta Genevieve</td>
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<td>Stanton, (Mrs.) Blythe Bradley</td>
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<td>Speer, Ernest Dewitt</td>
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<td>Spieske, Daisy Marietta</td>
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<td>Troth, Dennis</td>
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<td>Van Horne, Esther</td>
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<td>Wease, Avery Dudley</td>
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<td>Wong, Hising</td>
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<td>Worthen, Clifton Boyd</td>
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</tr>
</tbody>
</table>
DEGREES

COLLEGE OF FINE ARTS

Bachelor of Arts in Music

Gardner, Mirian Neely
McPhee, Aletha Sophia

Bachelor of Music

Carroll, Geneve North
Donohue, (Mrs.) Merle Childs
Freyd, Bertha Irene (cum laude)
Gerry, Lillian Gertrude
Honey, Katherine

Bachelor of Fine Arts

Blatt, Maurine
Klocke, Rosetta Pink
Foss, Mary Loretta

Certificate in Art

French, Phil Eugene

Bachelor of Architecture

COLLEGE OF ENGINEERING

Bachelor of Science in Chemical Engineering

Bennett, Albert Lee
Carlander, Clarence Henry
Clifton, Clarence Cathcart
Clulow, John William
Clune, Felix John
Crell, Edward, Jr.
Freeman, Wood
Garrison, Clarence Willbur
Gill, Stanley Harold (cum laude)

Bachelor of Science in Civil Engineering

Chittenden, Hiram Martin, Jr.
Dickerman, Elmer
Douglas, Norval Durham
Egvedt, Clairmont
Fransen, Walter Clarence
Goffe, James Burwell

Bachelor of Science in Electrical Engineering

Angove, Clarence Virden
Bach, Roy Odell
Catlett, James Theodore
Colesworthy, Joseph Blacknell
Cowgill, Lester Blaine
Delong, Abe
DeSellem, George Wesley
Heakons, Hugo Raymond
Havel, Fred
Hunt, Orso Harold
Kalin, Albert (cum laude)

Bachelor of Science in Mechanical Engineering

Blake, Buel Beecher
Burque, LeRoy Arthur
Dunaway, Robert Edward
Evans, Thomas Phillips

Bachelor of Science

Bibb, John Taylor, Jr.
Faubert, Edward Henry
Hardy, William Agee
Hudloff, Arthur George

COLLEGE OF MINES

Bachelor of Science in Mining Engineering

Nelson, Eugene Gerald
Bachelor of Science in Geology and Mining

Brown, Walter Franklin

Bachelor of Science

College of Forestry

Bachelor of Science in Forestry

Bever, Arthur (cum laude)
Brown, Edward
Corbitt, Willis Gregg
Gamm, Irvin William Otto
Garrett, Clarence Burnwood
Kline, Charles Weldon

Morgan, William Edward
Oss, Alf
Powers, Victor
Renner, Frederic George
Sylven, Helge
Van Wickie, James Morgan

Bachelor of Science

College of Pharmacy

Bachelor of Science

Oross, Maria
Sells, Anthony Joseph
Wilkes, (Miss) Jean Robin

Pharmaceutical Chemist

Graduate in Pharmacy

Heron, George
LeWallen, Marjorie Frances
Loghorn, Frederick Valentine
McGahn, Ellen Dolores
Middleton, Eldorn
Millard, Bertha Newhouse
Molin, Morris James
Roberts, (Mrs.) Mary Elizabeth
Sears, George Lester
Shone, Déselle
Stalberg, Doris Ethel
Tiemens, George
Turnaliffe, Lucile

School of Law

Bachelor of Laws

Abel, Donald George
Anderson, Otto Duncan
Beardsley, George Orville
Benz, Fritz Rudolph
Black, Wendell Wilson
Cass, Randall Stacey
Coffee, John Main
Dumett, Ray Ephraim
Dysart, Lloyd Butler
Fulkner, Judson Paine
Haught, Gilbert Pierce
Horwich, George Sarachi
Johnson, Esther Victoria

Johnson, Ofell
Langesbach, John Joseph
Morlarity, Charles Patrice
Newton, Arthur Moreland
Ostrand, Raymond Everett
Preston, Frank Manley
Ryan, Raymond Francis
Savage, Lloyd Reuben
Stant, Stanley Wallace
Swale, Jack Bruce
Tucker, Glyde Lynne
Zelasko, Josef

Library School

Bachelor of Science in Library Science

Hazeltine, Leila

Bachelor of Arts

Bergquist, Charlotte
Fuller, Myrtle Margaret
Hall, Mary Lee
Hawkins, Elma
Hopkins, Doris Fernald
Lopp, Weyna
Ludington, Flora Belle

Martin, Leonora Ruth
Mason, Myrtle Lucile
Platt, Gladys Hope
Rensberg, Helen
Richards, Dorothy Ward
Welty, Consuelo

College of Business Administration

Bachelor of Business Administration

Armstrong, Spencer
Arthum, Amber Bertha
Bailey, Margaret Edna
Beauchamp, Owen William

Bigelow, Ernest Carleton
Blumenfeld, Herman Naphtoll
Burlingham, Frank Wilfred
Cuddy, George Asbury
Dahl, Aad Joel
Gardner, Ray
Hansen, Helen Marguerite
Hartman, Robert Nathaniel
Harvitz, Barnett
Hopping, William Daniel
Keyes, Arthur Clarence
MacLean, Elizabeth (cum laude)
Mahony, Mary Agnes
Parker, William Arthur
Pressentin, Marie Olga

Ratcliffe, Kent
Sangster, Reid George
Smith, Ralph Ryan
Sutthoff, Helen Katherine
Sutthoff, John Russell
Taylor, Roy Franklin
Thelen, Arthur Leonard
Thompson, Richard Aldwin
White, Frank Isman
Williams, Ross Perry
Winter, Charlotte Lucile

SCHOOL OF JOURNALISM

Bachelor of Arts

Bath, Gerald Horton
Bevis, Dorothy True
Cardwell, Frances
Foley, Kathryn
Dobbs, Thomas Erwin
Hass, Mark Leo
Hughes, Mary Monica

Leghorn, Frances Marie
Landsay, Francis Steele (cum laude)
Lundy, Iris Rachel
Reynolds, Rex
Rogers, Florence Alleen
Rosenthal, Roy Gilbert
Weston, Alvah Towlie

GRADUATE DEGREES

Chemical Engineer

Addison Gardinar Bisell
B. S. in Ch. E., University of Washington, 1915
Thesis: The Application of Electric Arc Welding to Steel Ship Construction

Electrical Engineer

Henry Godfrey Cordes
B. S. in E. E., University of Washington, 1906
Thesis: Theory of Linear-Sinoidal Oscillations

Master of Arts

Eugene Christian Baltzer (German)
Eden Theological Seminary, 1913
Thesis: Gewisse Grundzüge der Religion Gottfried Kellers

David Barber (Education)
A. B., University of Washington, 1917
Thesis: The School System of British Columbia

Anna Marie Brueggerhoff (Economics)
A. B., University of Washington, 1918
Thesis: Recent Changes in the Trade of the Pacific with Reference to the Port of Seattle

Iva Luella Buchanan (Ancient History)
A. B., University of Wisconsin, 1897
Thesis: Municipal Administration and Government in Rome and Italy

Louise Downer Eager (English)
A. B., University of Louisville, 1914
Thesis, A Comparison of the Nietzschean Philosophy and the Philosophy of the Prose Dramas of Ibsen

Herbert Clay Fish (History)
B. L., University of Wisconsin, 1903
Thesis: The Early Development of the Northern Route from the Dakota Land to the Pacific

Gaylard Greene (Education)
A. B., University of Washington, 1916
Thesis: A Comparison of Grades in the Seattle High Schools made by Graduates of Industrial and Regular Schools

Mamie Ishii (English)
A. B., Waseda University, 1916
Thesis: Rabindranath Tagore

Tenney Algodt Lind (Education)
A. B., University of Washington, 1912
Mary Elizabeth McKee (English)  
A. B., University of Washington, 1917  
Thesis: The Political and Social Philosophy of Samuel Butler

Isogaya Meisen (English)  
A. B., Doshisha University, 1916  
Thesis: Naturalism and Mr. Thomas Hardy

Sarah Patience Sutton (French)  
A. B., University of Washington, 1911  
Thesis: The Sources of Rotrow's Antigene

Dennis Throth (Education)  
B. Ed., University of Washington, 1910  
Thesis: The Development of American Educational Policies in the Philippine Islands

Herman Porter Williams (Philosophy)  
A. B., University of Iowa, 1895  
Thesis: The Doctrines of Man and Their Significance In the History of Religion

Shichiro Yugo (Political Science)  
A. B., Meiji University, 1916  
Thesis: Labor and the League of Nations

Master of Arts in Education

Edgar Adolphus Stanton  
A. B., University of Washington, 1911  
Thesis: Not Required

Master of Science

Osman Horace Cady (Chemistry)  
B. S., University of Washington, 1915  
Thesis: Influence of Gelatine upon the Transference Number and Conductivity of Copper Sulphate Solutions

Theodore Edward Dunlap (Chemistry)  
B. S., University of Puget Sound, 1918  
Preparation of Perchlorates

Max Freyd (Psychology)  
A. B., University of Washington, 1918  
Thesis: Tests for Journalistic Aptitude

Grace Alma Hill (Bacteriology)  
A. B., University of Washington, 1913  
Thesis: The Bacteriology of Candy

Grace Elizabeth Howard (Botany)  
A. B., University of Washington, 1911  
Thesis: Extraction and Separation of the Pigments of Nereocystis Luetkeana

Wilbert Sherwood Simmons (Bacteriology)  
B. S., University of Washington, 1917  
Thesis: A study of Intestinal Bacteria and their Protein Metabolism

Catharine Wright Smith (Botany)  
B. S., University of Washington, 1919  
Thesis: Variation in the Number of Ribs In Costaria Costata

Lillian Wood (Chemistry)  
B. S., University of Washington, 1919  
Thesis: The Hydrolysis of the Phosphates of Calcium

Master of Science in Forestry

Thomas Dearborn Burleigh  
B. S., Pennsylvania State College, 1919  
Thesis: Economic Value of Bird Life to the Forests

Frederick Malcom Knapp  
B. S., New York State School of Forestry, 1919  
Thesis: Logging by Motor Truck

Oscar Helge Sylven  
B. S. In Forestry, University of Washington, 1920  
Thesis: Compilation of our Knowledge of the Douglas Fir
DEGREES

Doctor of Philosophy

Floyd Whitney Gall (Botany)
A. B., University of Nebraska, 1911
Thesis: Hydrogen Ion Concentration and Other Factors Affecting the Distribution of Fucus

Curtis Willard Thing (Chemistry)
A. B., Lenox College, 1914
M. S., University of Washington, 1917
Thesis: Passivity of Cobalt

NORMAL DIPLOMAS

University Life Diplomas

Abel, Lena Blanche
Alberts, Florence
Allen, Mabel Derry
Anderson, Isabelle May
Armstrong, Ruth
Arntzen, Edward Jargo
Barlow, Hertilla
Baxter, Leah Merle
Bjorklund, Ellen Margaret
Bollman, Dean Stanley
Brown, Beatrice Katharine
Bruce, Helen Roslyn
Burns, Fern Elizabeth
Burnside, Mary Frances
Bush, Florence Wright
Campbell, Mary Veronica
Christensen, Agnes Brigitta
Coehran, Velma
Cook, Lois Ford
Counell, Elizabeth
Countryman, Eva
Crab, Margaret Cumming
Cunningham, Theresa
Dammann, Marjorie Luse
Dibble, Alice Rachel
Dibble, Frances
Dillon, Margaret Winans
Driscoll, Marie
Eidle, Una Beatrice
Fallis, Irene Crawford
Fawbert, Alice
Ferguson, Frances Patricia
Finley, Sylvia Elfreda
Foley, Venora McKinley
Forrester, Louise
Gardner, Jessie
Gardner, Miriam Neely
Gleson, Dorothy
Greiner, Ruth Helen
Guenther, Chrystel
Gwinn, Alice Elizabeth
Hallin, Ruth Marjorie
Hammarberg, Agnes Elizabeth
Hardwick, Freda Phyllis
Harrowman, Gertrude
Hayner, Marian Marjorie
Hayner, Norman Sylvester
Henderson, Ruby Jean
Hoare, Julia Katharine
Honey, Katherine
Jorgensen, Margarette
Kelly, (Mrs.) Ruth Hasset
Lawless, Grace Theo
Legg, Lois Cornelia

Lewis, Anna
Lonke, Lillian Jennie
Ludwigs, Flora Emma
McCauland, Elizabeth
McConine, Aimee Katherine
Marchiden, Maria
Merchant, Jesse
Michea, Marie Antoinette
Miller, Helen Marie
Minnis, Marjorie Elizabeth
Mitchell, Ruby
Moore, Felix Enoch
Morris, Josephine Mae
Munger, Ruth Wilard
Myer, Thelma Anna Cecilia
Ness, Nels Arthur Bernhardsen
Norwood, Annie
Olson, Selma
Parchman, Alice DeSommer
Perkins, Gwendelyn Goff
Pheips, Vera May
Pickrell, Evelyn Ann
Pierrot, Marjorie
Pitt, Mildred Esther
Powlison, Lucile Alice
Presley, Dorothea
Rader, Grace McDonald
Reeves, Marie Adele
Rice, Edith Allegra
Rohden, Elizabeth Helen
Sanden, Arthur Gustav Andrew
Scott, Burton Foote
Seton, Imogene Hurbut
Shumway, Ruth Katherine
Simpson, Lurline Violet
Skagerland, Frances Louise
Slaison, Ruth Irene
Spleake, Dalay Marletta
Steele, Elsie
Stephenson, Marlan Lucile
Stewart, Isabel Clarissa
Taylor, Grace Gladys
Todd, Mareele Ruth
Turner, Laura Anna
Van Horn, Esther
Watson, Ruth Elizabeth
Watt, Mabel
Wease, Averey Dudley
Weaver, Grace Elizabeth
Whippes, Carol Louise
Williamson, Mary Agnes
Wilson, Doris Glasgow
Woff, Katherine Christina
Worthen, Clifton Boyd
Young, Ruth Evelyn
Zickler, Irma Pauline

University Life Diplomas

Burr, Margaret
Burton, Jennie Lind
Campbell, Mary
Carlin, Agnes Adele
Carpenter, Beatrice Hale
Coe, Curtis Pearre
Collins, Claude Chester
Cornell, Gladys
Cremer, Henry
Culver, Evelyn Louise
Davis, Martha Jane
Devin, Mary Emanu
Eckhart, Freda Louisa
Engler, Doris Dean
Eriksen, Genevra Antoinette
Everton, Clara
Fay, Helen Frances
Floyd, Ruth Marion
George, Dagmar
Gibson, Grant McDonald
Gibson, Ruth
Glover, Oscar Kern
Grove, Maude Tarleton
Guilaine, Edan Mabel
Hanson, Helen Rosanna
Hemenway, El'lyn
Hevly, Martin Bernard
Holbrook, Ray
Hopkins, Olive Fay
Hoppock, Gertrude Cornelia
Ingalls, Estelle Margaret
Jacobson, Julia Anna
Jensen, Arne Sigurd
Jolliffe, Ellen Mary
Jones, Margaret Cornwell
Jones, Zola Martha
Jordan, (Mrs.) Ruth Ratcliffe
Kane, Susan Mary
Kauffman, Edith Rachel
Kizer, Dorothy
Kraus, Ethel Margaret
Lovey, Josephine Monica
McAllaster, Marion
McCabe, Lucile Marguerite
McKee, Mary Elizabeth
McLean, Victoria

Majors, Irene
Mathews, William Peters
Matzen, (Mrs.) Marjorie
Merriman, Euegne Duette
Miller, Alice
Morehead, Elizabeth
Morgan, Mona Margaret
Mykland, Albert
Newton, Cornelia Elizabeth
Nich, Alice
Parr, Marie Flowers
Parsons, Elvy Tillman
Patten, Anna Marie
Pheals, Vera May
Phibrook, Madge Hiller
Platt, Annie C.
Platt, Lucilla Bash
Price, Frances Mary
Pritchard, Grace Montana
Pugh, Louise Katherine
Rambeau, Florence Maude
Reed, Jennie Mabel
Rehmke, Antonia
Rice, (Mrs.) Ruth Henry
Roberts, Mary Christina
Robinson, Maude Isobel
Schumaker, Elizabeth
Selbert, Marjorie
Shannon, James Francis
Silverstone, Libbie
Steendahl, Anna Serine
Twinkel, Ruth Merl
Tift, Lillian Bryce
Trotz, Dennis
Vinsonhaler, Sara Rose
Wainwright, Mary Tripler
Welby, Mamie Mathilda
White, Gladys Lauthers
Wester, Grace Margaret
Wintler, Ella
Young, James Arthur
Young, Wesley George

DEGREES CONFERRED AUGUST 30, 1920

BACHELOR DEGREES

COLLEGE OF LIBERAL ARTS

Bachelor of Arts

Alberts, Hazel Estella
Bell, Bonnie
Bemis, Catherine
Bothwell, Belle
Collins, Kenneth Roger
Cooper, Isabel Donkin
Cope, Harvey Franklin
Crain, Leota
Ellis, James Land
Ewing, Richard Howe
Ford, Clara Louise
Guie, Helster Dean
Heathorne, Oril Else
Hone, Marie Curran
Kershaw, William Earnest
Klemle, Katherine
Kilgore, Owen
Kyn, Margaret Stewart
Kooper, Isabel Elizabeth
Rosling, Edward Lincoln
Shepherd, (Mrs.) Esther Maria
Smith, Virgil
Stahurat, Yerna
Stevens, Anna Leach
Tucker, Josephine Olive
Webster, Jessie Elizabeth

COLLEGE OF SCIENCE

Bachelor of Science

Claypool, John Cowles
Holbrook, William Paul
Jones, Effie Dora
Scougall, Laura
Starr, Elizabeth Anita
Sterns, Josephine
Watrous, Genie Ida
Williams, Lowell Eugene

Bachelor of Science in Home Economics

Cutter, Susan Ethel

COLLEGE OF EDUCATION

Bachelor of Education

Allen, Mildred Alice
Anderson, Frances Bertine
Austin, George Ray
Bursell, Blanche Gertrude
<table>
<thead>
<tr>
<th>Name</th>
<th>Degree and Field</th>
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<tbody>
<tr>
<td>Carlson, Joseph Emanuel</td>
<td>Bachelor of Arts in Music</td>
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<td>Carr, Nell</td>
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<td>Coleman, John Edward</td>
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<tr>
<td>Carr, Howard Maynard</td>
<td>Bachelor of Science in Chemical Engineering</td>
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<td>Nelson, George Earl</td>
<td>Bachelor of Science in Mining Engineering</td>
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<td>Warsbuhl, Adolph</td>
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<td>Baldwin, David Edward</td>
<td>Bachelor of Business Administration</td>
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<td>Calvert, Lawrence Craigin</td>
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<td>Johnson, William Emanuel</td>
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<td>McGirr, Horace Donald</td>
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<td>Smith, Albert Earl</td>
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<td>Smith, John Allauade</td>
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<td>Tremper, Edward Payson, Jr.</td>
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<tr>
<td>Bar, William Lawrence</td>
<td>Bachelor of Laws</td>
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<td>Brown, Vaughn</td>
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<td>Dow, Neal Ellis</td>
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<td>Lind, Fred Ainard</td>
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<td>Matson, Joseph</td>
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<td>Miller, Sylvia Alice</td>
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<td>Robbins, Morris Allen</td>
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<td>Toomey, Floyd Francis</td>
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<td>Pettit, Mabel Florence</td>
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<tr>
<td>Ray Keizaburo Otaka</td>
<td>Bachelor of Arts</td>
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<tr>
<td>B. Ed., University of Washing</td>
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<tr>
<td>George Henry Deane (History)</td>
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<tr>
<td>Charles Henry Deane (History)</td>
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<tr>
<td>A. B., LL. B., University of</td>
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<tr>
<td>A. B., University of Washington, 1912</td>
<td>Thesis: The Boxer Uprising in China</td>
</tr>
<tr>
<td>George Meade McKee (Education)</td>
<td></td>
</tr>
<tr>
<td>A. B., University of Washington, 1910</td>
<td>Thesis: A Survey of the Old Ethun Schools</td>
</tr>
<tr>
<td>George Watson MacKinnon (Education)</td>
<td></td>
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<tr>
<td>A. B., Queen's University</td>
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<tr>
<td>Thesis: The Development of the School System of British Columbia</td>
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<tr>
<td>Ray Keizaburo Otaka (English)</td>
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<tr>
<td>B. Ed., University of Washing</td>
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<tr>
<td>Thesis: The Drama as Wish Fulfillment</td>
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</tbody>
</table>
Master of Science
Mudge Watson Wilkinson² (Psychology)
A. B., University of Washington, 1919
Thesis: A Method of Determining Mental Age

NORMAL DIPLOMAS

University Life Diploma

<table>
<thead>
<tr>
<th>Name</th>
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<tr>
<td>Alberts, Hazel Estella</td>
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<td>Anderson, Frances Berline</td>
<td>Lemon, John Francis</td>
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<td>Bell, Bonnie</td>
<td>Maclean, Maude</td>
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<td>Bothwell, Belle</td>
<td>Naugle, Fern Elizabeth</td>
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<td>Bursell, Blanch Gertrude</td>
<td>Oertel, Ernest Edward</td>
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<td>Byers, Kathryn Ada</td>
<td>Phillips, Herbert Joseph</td>
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<td>Dillon, Margaret Winans</td>
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<td>Floyd, Lena Mildred</td>
<td>Ruppenthal, Anna Barbara</td>
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<td>Franklin, Alice Virginia</td>
<td>Stevens, Anna Leach</td>
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<td>Hammar, Louise Blau</td>
<td>Watson, Jean Ferguson</td>
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<td>Hone, Marie Curran</td>
<td>Whitman, Ginuera</td>
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<td>Hubbard, C. Andresen</td>
<td>Whitney, Frank Fleming</td>
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<tr>
<td>Kyd, Margaret Stewart</td>
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</tbody>
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University Normal Diploma

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<tr>
<th>Name</th>
<th>Name</th>
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<tr>
<td>Albem, Nellie</td>
<td>Hall, Amy Violet</td>
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<td>Allen, Mildred Alice</td>
<td>Johnson, Martha Ragna</td>
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<td>Allison, (Mrs.) Ada Fonda</td>
<td>Kilgore, Owen</td>
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<td>Austin, George Ray</td>
<td>Lawrence, Edna May</td>
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<td>Bachmann, Amelia Helen</td>
<td>Magilllucuddy, Martha</td>
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<td>Brown, Leland Pennock</td>
<td>Marquette, Elizabeth</td>
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<td>Carlson, Joseph Emanuel</td>
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<td>Carney, William Harvey</td>
<td>Mitchell, Neva Isobel</td>
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<td>Carr, Nell</td>
<td>Mossford, Frances Ada</td>
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<td>Cole, Eva Maraden</td>
<td>Mykland, Albert</td>
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<td>Costello, Mary Cecilia</td>
<td>Fryde, Joel Joseph</td>
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<td>Cromo, May Frances</td>
<td>Shepherd, (Mrs.) Esther Maria</td>
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<td>Crosso, Olive Viola</td>
<td>Sparks, Percy Spencer</td>
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<td>Driftmier, Rosett Margaret</td>
<td>Speer, Ernest DeWitt</td>
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<td>Ewing, Richard Howe</td>
<td>Thicken, Jane Gray</td>
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<td>Gwynn, Leanna</td>
<td>Wood, Ruth Amelia</td>
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</tbody>
</table>
HONORS AND PRIZES

June 21, 1920

Fellowships Awarded

The Loretta Denny Fellowships
Doris Glasgow Wilson (History)
A. B., University of Washington, 1920
Esther Marie Shepard (English)
A. B., University of Washington, 1920

Fellowships in the College of Mines and
the Northwest Station United States Bureau of Mines
Arvid Anderson (Metallurgy)
B. S., University of Utah
James Bonner (Metallurgy)
B. S., University of Utah
Ernest Francis Goodner (Ceramics)
B. S., University of Washington, 1920

The Columbia University Fellowship in Mining Engineering and Chemistry
Stanley Harold Gill

Prizes and Scholarships Awarded

The Tau Kappa Alpha Debating Prize of $75.00
Earl Nelson
Floyd Toomey

The Philo Sherman Bennett Essay Prize of $25.00
Not Awarded 1920

The E. F. Blaine Oratorical Prize of $100.00
Kenneth Carey Cole

The Judge Kenneth Mackintosh Debating Prize of $75.00
Kai Jensen
Kenneth Collins

The N. Paolella Gold Medal for Excellence in Italian
Gladys Lucile Smith

The Isabella Austin Memorial Scholarship for a Freshman Woman
Elizabeth Grisim

The Edwin A. Jaggard Law Essay Prize of $50.00
Not yet awarded

Men's Freshman Latin Prize of $50.00
Francis Fountain Powers

Sophomore Latin Prize of $25.00
Not Awarded 1920

The University State Bank Prize of $100.00
Shadruth Franklin
William Randall Crawford

The Judge Thomas Burke Prize of $25.00 for Excellence in French
Josephine Mary Waldo

The Judge Thomas Burke Prize of $15.00 for Excellence in French
Ruth Holland

The Du Pont Scholarship of $350.00
Not yet awarded

Junior Military Prize
Roy Paris Turner
The Samuel Rosenberg Scholarship of $200.00 in French
Dorothy Helen Chesley

The Frank Buty Prize in Italian
Newton Drew

The Kellogg Prizes of $35.00 in Architecture
Marshall Gill Doris Selbert
   Elizabeth Ayer

The Gamma Phi Beta Scholarship of $100.00
Zenith Watkins Jones

The Sigma Delta Chi Prize of $100.00 in Journalism
Mitchell Vaughan Charnley

The Kellogg Prizes of $35.00 in Architecture
Marshall Gill Doris Selbert
   Elizabeth Ayer

The Gamma Phi Beta Scholarship of $100.00
Zenith Watkins Jones

The Sigma Delta Chi Prize of $100.00 in Journalism
Mitchell Vaughan Charnley

The Washington Alumnae Scholarship of $100.00
Vivian Moore Robe

The Vimy Ridge Chapter of the Daughters of the British Empire Prize of $100.00
William Chaplin Collins

The following prizes, for essays dealing with China are not awarded for 1919-1920

Two prizes of $25.00 each, offered by
Dr. Kohang Yik, Consul General, Vancouver, B. C.
Two prizes of $25.00 each, offered by M. T. Hsieh
The Thomas Burks China Club Prize of $25.00
The A. B. C. China Club Prize of $25.00

Senior Scholars—Class of 1920

Bell, John Karl    History
Brown, Ford Keefer    English
Coffin, Margaret    Sociology
Lindsay, Francis Steele    English
Pepper, Echo    Mathematics
Rind, Rudia    Chemistry
Semon, Waldo Lonsbury    Chemistry
Steele, Ruth Irvine    History
Steele, Elsie    Romantic Languages
Whitehead, Virgil    Greek
Winter, Katherine    Philosophy
Burdick, Esther
Burdick, Eitel, LD
Bumgarner, Helen, LD
Burdick, Don
Bunnell
Burgess, Madeline
Burke
Bumgarner, C
Budd, Irene
Buchanan, Lorna
Buerk
Buckley
Buchanan
Bullock, Cecil Frank, LD, Ed
Bukowsky, Harry
Budwln, Theodora Aileen, LD, LA...
Budden
Buchanan
Bryce
Brueggeman, Kathryn
Bruce, Irene F,
Bruce, Clarascott, Grad
Bruce, Kathryn, LD, LA
Bruce, James Wesley Jr, LD, LA
Burbank, Vernon J, LD, EE
Brunner, John Frederick, LD, Che
Bryan, Helen R, LD, LA
Bryan, Collis Charles, Unc, Che, Dayton
Bryan, Elizabeth J, LD, Bus
Bryan, Kathyrn, LD, LA
Bryan, James Wesley Jr, LD, LA
Bryan, Wilmer Davenport, LD, For, Olympia
Bryant, Nellie Marie, LD, LA, Friday Harbor
Bryant, P, LD, LA
Bryce, Gertrude Amy, LD, LA, Victoria, BC
Buchanan, Iva Luella, Grad
Buchanan, Lorna May, LD, LA, Clear Lake
Buchanan, Myrtle, LD, LA, Seattle
Buchanan, Sara Gene, LD, Ed, Cheney
Buchet, Claude Louis, Sp, Bus
Buck, Florence Margaret, LD, Seattle
Buckley, Henry Booth, LD, CE, Seattle
Budd, Irene Adair, LF, Phar, Helena, Mont
Buddin, Frank Wilfrid, LD, EE
Budvin, Theodora Alleen, LD, LA
Buchner, Cletus Earl, LD, Sci, Topoka, Kan
Bucadia, Juan, LD, Sci
Buerk, Louise Carolyn, LD, LA
Bukowsky, Harry W B, LD, ME, Portland, Or
Buckley, Frank, L, LD, Ed
Bummer, Gary, LD, Bus
Bumgarner, C, Grady, U, CE, Nampa, Ida
Bumgarner, II Helen, LD, Sci, Donnelly, Ida
Bundy, Margaret M, LD, LA
Bunnell, Bertha Clare, LD, LA
Burch, Clara Catherine, UD, FA, Ellensburg
Burcham, Marie A, LD, U, Jour
Burke, Charles F, LD
Burke, C, LD, LA
Burnside, John Andrew, LD, EE, Seattle
Burns, Elizabeth, LD, LA, Seattle
Burns, John Andrew, LD, EE, Seattle
Burns, Howard Mason, UD, Bus, Walla Walla
Burnett, Benjamin S, LD, Ed, Grosclose, Va
Burnham, William D, LD, Eng, Seattle
Burks, Charles Richard, LD, Bus, Seattle
Burlingame, George A, LD, Min, Montborne
Burmeister, Edward Roy, LA, LA, Seattle
Burmeister, Elizabeth, LD, LA, Kellogg, Ida
Burmeister, Harry L, U, Min, Tacoma
Burnam, David Lincoln, UNC, FA, Anacortes
Burnett, Central, New Harbor, Or
Burnett, John Andrew, LD, EE, Seattle
Burnham, Constance O, Grad, Wash, Waupauc, Wis
Burnham, Helen Maria, UD, LA, Seattle
Burns, Barbara B, LD, LA
Burns, Helen, LD, LA
Burns, Irene Lillian, LD, LA
Burns, McCall, LD, Bus, Kallapal, Mont
Burns, Nina May, LD, LA
Burnside, Robert S, LD, Bus, Portland, Or
Burgum, Margaret U, LD, Bus, Bellingham
Burroughs, Walter L, LD, LA, Tacoma
Burrows, Albert Warren, LD, Bus, Seattle
Burrows, Wilson, LA, LA, Seattle
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Burtis, Lyn J, LD, Bus, Portland, Or
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Butler, Robert, LD, CE
Butts, Margaret Flynn, UNC, LA, Seattle
Butte, Malcolm P, Unc, Bus, Hood River, Or
Byrley, Oliver Finley, LD, For, Portland
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Byrd, Evelyn L, LD, Bus, Burns, Or
Byrd, Mabel, LD, LA
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Byrne, Harry McDonald, LD, Bus, Seattle
Byrne, Laurin Thaddeus, LD, LA, Seattle
Byron, Robert Lee, LD, Bus, Bellingham

Caballero, Salvador S, LD, Bus, Philippines
Cadigan, John Wilson, LD, Bus, Spokane
Cahill, Bertha Frances, UNC, Bus, Seattle
Cain, Roy Carlyle, LD, Bus, Kennebunk, Me
Calder, Lester Edward, LD, For, Montesano
Calwell, Derrol V, Unc, Bus, Seattle
Calhoun, Alma, LA, LD
Calhoun, Charles Eliot, LD, LA, Tacoma
Calkins, Howard Theodore, LD, Sci, Kirkland
Calkins, Jane Janice, LD, Sci, Bremerton
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Calkins, Sadie Mae, LD, Sci, Kirkland
Calhoun, A H, LD, Bus, Seattle
Callahan, Lloyd F, Sp, Law, Casselton, N Dak
Callender, John Samuel, CE, Colfax
Callison, Cecil Putnam, LD, ME, Aberdeen
Callison, Henry S, LD, Bus, Aberdeen
Calow, Doris, LD, Sci, Seattle
Calvert, F, U, CE, Seattle
Calvin, John Thornton, LD, Bus, Seattle
DE BURKE, William, UC, LA, Hawai'i.
DEBICKI, John, LD, BB, Ohio.
DEBLEDIN, Paul, LD, ED, Illinois.
DEBOS, Charles, LD, BB, Oregon.
DEBROCHIE, Joseph, UC, LA, Rosebud.
DEBRUIN, Charles, UC, LA, Oregon.
DEBRUIJN, Frans, UC, LA, Wyoming.
DEBRUSCH, John, UC, LA, Minnesota.
DE BUCCHER, Leo, UC, LA, Oregon.
DEBUCHY, Robert, 2d UC, LA, Illinois.
DE BU הכרית, Jose, UC, LA, Puerto Rico.
DE BUHR, Robert, UC, LA, Oregon.
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DE BURGER, Paul, UC, LA, Michigan.
DE BURT, James, UC, LA, Oregon.
DE BURT, Sam, UC, LA, Texas.
DE BURT, Walter, UC, LA, New York.
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DE BURTON, William, UC, LA, Massachusetts.
DE BURTON, Wm., UC, LA, Washington.
DE BURTON, Wm., UC, LA, Ohio.
DE BLASIO, Alfred, UC, LA, New York.
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Drake, Mildred, LD, Ed. .... Portland, Or
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Englehorn, Ruth, LD, LA. Portland, Or
Engleken, Rudolph, LD, Bus. Spokane
List of Students
Greenbank, Paul Reymur, LD, LA, Seattle
Greenblatt, Ruby E, LD, LA, Seattle
Greene, Hamilton Leach, LD, LA, Seattle
Greene, James Martin, LD, Bus, Seattle
Greenleaf, Joseph Tucker, LD, Bus, Seattle
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Griffith, Charles H, Sp, Eng, Bremerton
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Griffiths, Stanley S (Mrs), Unc, LA Seattle
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Grimes, Margaret P, LD, SCI, Tacoma
Grimshaw, Jean, UD, SCI, Anacortes, Mont
Grism, Elizabeth, LD, SCI, Auburn
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Groce, Charles Ernest, LD, LA, Seattle
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Gulliver, Ida Mae, SCI, Seattle
Gundlach, Raphael H, LD, LA, Wallace, Idaho
Gunther, Corf. R, LD, Seattle
Gunn, Elizabeth, LD, SCI, Seattle
Gunn, Thomas R, Grad, Seattle
Gunnesser, Kellen I, Unc, FA, Seattle
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Guy, Sp, Seattle
Guy, Paul, UD, Ed, Seattle
Guyer, Harold, LD, EE, Seattle
Guyre, Selly R, UD, LA, Wallace, Idaho
Hackett, Marion, LD, LA, Walla Walla
Hahn, John Edwin, LD, LA, New York, New York
Hagen, Richard Otto, LD, EE, Seattle
Hager, Dorothy, SCI, Sci, Vancouver, B.C
Hager, Morton Frank, Sp, Bus, Portland, Oregon
Hagerman, Harrie E, LA, Manito, N.
Haigett, Dorothy Gene, LD, LA, Seattle
Halberg, Lawrence E, UD, Bus, Yakima
Hagme, Sigmund, LD, Lab, Livington, Montana
Hahn, James A, LD, LA, Bellingham
Hahn, Carl A, LD, EE, Seattle
Hahn, Oliva Margaret, UD, SCI, Spokane
Haims, Byron R, LD, Bus, Portland, Oregon
Hager, John Newton, LD, Bus, Seattle
Halbrecht, Elizabeth H, Unc, LA, Seattle
Hale, William J, LD, Bus, Seattle
Hale, Ruth Elmer, LD, LA, Seattle
Haleston, Chris, LD, Phar, Cambridge, Massachusetts
Haley, Dorothy E, LD, LA, Juneau, Alaska
Haley, Herbert Huntington, LD, BA, Bellingham
Haley, Payasheup, UD, Bus, Seattle
Haley, Leon, UD, Bus, Seattle
Haley, Louisa, UD, SCI, Seattle
Hall, Albert Lyle, LD, Bus, Seattle
Hall,Allan, LD, Bus, Seattle
Hall, David C, LD, Bus, Seattle
Hall, Dessie Alice, LF, FA, Seattle
Hall, Edward Barton, Sp, Jour, Tacoma
Hall, Edward, LD, ChB, Boise, Idaho
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Hall, O Ingall Jr, LD, CE, Seattle
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Hall, Robert Worthing, LD, Bus, Seattle
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Hall, Vernon Kight, LD, SCI, Vancouver, B.C
Ham, Vesper Trevor, LD, Ed, Seattle
Hall, Wayne Lee, LD, Bus, Spokane
Hallgren, Beatrice, LD, Bus, Seattle
Hallgren, Howard Lincoln, LD, Bus, Seattle
Halvorson, Harold E, UD, Bus, Reno, Montana
Halverson, Leonard A, Sp, Bus, Seattle
Halvorson, Clarence L, Unc, Phar, Coeur d'Alene
Hamada, Fred I, UD, Bus, Seattle
Hanel, Herbert, I, FA, Bremerton
Hamer, Laurence R, LD, Ed, Seattle
Hamill, Milton, M, UD, Bus, Seattle
Hamill, Dorothy, Bus, Seattle
Hamill, Victoria L, LD, LA, Seattle
Hamilton, Ethel Jean, LD, FA, Seattle
Hampton, Jas B, UD, CE, Seattle
Hampton, Marjorie L, UD, SCI, Seattle
Hamill, Rachel E, Grad, Seattile
Hammer, Agnes T, Grad, Seattle
Hammer, Arnold F, Unc, Law, Seattle
Hamley, Gladys Jean, UD, LA, Pendleton, Oregon
Hamlin, Phyllis Kathryn, UD, LA, Seattle
Hammerstrom, Agnes, LD, Grad, Seattle
Hand, Dorothy, LA, Seattle
Handke, Goldie, LD, Bus, Seattle
Haner, Victor, LD, CE, Seattle
Hanen, James Lloyd, LD, Bus, Spokane
Hankinson, Helen A, LD, LA, Moscow, Idaho
Hanify, Mabel V, Sp, SCI, Chohalii
Hanna, Helen, Unc, Bus, Seattle
Hanna, Mrs. Idella M, LD, LA, Edmunds
Hansard, Bernard, LD, EE, McMinnville, Oregon
Hansen, Carl, LD, Bus, Rose Lake, Idaho
Hansen, Emanuel, LD, Eng, Woodinville
Hansen, Hans, Ortho Amnna, LD, Bus, Tacoma
Hansen, Harry F, LD, Bus, Bellingham
Hansen, Ilda C, rth, LD, FA, Puyallup
Hanson, K, LD, Eng, Renton
Hansen, Ted A N, LD, CE, Seattle
Hansen, Thornwald A, Unc, ME, Snohomish
Hansen, Reese D, LD, CE, Spokane
Hansen, Roy, LA, Seattle
Hanson, Bonnie Bessie, LD, Bus, Seattle
Hanson, Emma Marie, Unc, FA, Uhelng, Neb
Hanson, Father Annette, LD, LA, Seattle
Hanson, Everett, WA, LA
Hanson, Henry Ernest, LD, EE, Seattle
Hanson, Marion Fay, UD, Bus, Seattle
Hanson, Rainhardt S, LD, Bus, Bellingham
Hansen, William, LA, Bus, Bellingham
Harada, Masatsuro, LD, LA, Japan
<table>
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<tr>
<th>Name</th>
<th>City</th>
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<tr>
<td>Mahnken, Henry C.</td>
<td>Seattle</td>
<td>WA</td>
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<td>Mahoney, Ethel Cecilia</td>
<td>UD, Sci.</td>
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<td>BUS, Lapwai</td>
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Mont Niles, Nisslroos, Philip, Nitschke, Paul H, LD, Bcl
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Rackley, Theo E, LD, Bus, ... Seattle
Bademaker, Lee Albert, LD, Sc, ... Tacoma
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Sullivan, Will James, Unc, EB. Aloha
Sultz, Alber F, LA. Seattle
Summer, Dora Edith, UD, LA. Seattle
Summereter, Peter, Unc, Law. Chehalis
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Swanberg, Amy, LD. Bus. Seattle
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Winston, John R, UD, For ... Longtown, Miss
Wetherby, Harold J, LA, RD ... Tacoma
Wetherill, True, Unc ... Seattle
Weston, O...
<table>
<thead>
<tr>
<th>Name</th>
<th>Address</th>
<th>Graduation Details</th>
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<tbody>
<tr>
<td>Wheeler, Kathryn Phoebe</td>
<td>LD, Sci.</td>
<td>Seattle</td>
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<tr>
<td>Weythman, Ruth</td>
<td>UD, Sci.</td>
<td>Monitor</td>
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<td>Whalen, Carl Dorsay</td>
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<td>Wheeler, Francis Carlisle</td>
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<td>Wharton, Harry Jerome</td>
<td>LD, Ch.B.</td>
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<td>Wheaton, Alma June</td>
<td>LD, Bus.</td>
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<td>Wheaton, Marion E.</td>
<td>FA.</td>
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<td>Wheeler, Margaret</td>
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<td>Wheeler, Bruce Edward</td>
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<td>Wheeler, Mrs Edwards</td>
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<td>Campbell</td>
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<td>Wheeler, Gladys Fidele</td>
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<td>Wheeler, James Addison</td>
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<td>Wheeler, Verena Mae</td>
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<td>Wheeler, Grant J.</td>
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<td>Wheeler, Harold L.</td>
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<td>Wheeler, Kenneth E.</td>
<td>LD, FA.</td>
<td>Idaho</td>
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<tr>
<td>Wheeler, LeRoy</td>
<td>Unc, Law.</td>
<td>Seattle</td>
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<tr>
<td>Wheeler, Margaret C.</td>
<td>1st Law.</td>
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<td>Wheeler, Ethel Marjorie</td>
<td>UD, Ed.</td>
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<td>Wheeler, Minita</td>
<td>Ms.</td>
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<td>Wheeler, Owen</td>
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<td>Wheeler, Robert C.</td>
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<td>Wheeler, Charles Campbell</td>
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<td>Wheeler, Scott</td>
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<td>Leavenworth</td>
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<td>Wheeler, Thomas Alfred</td>
<td>LD, LA.</td>
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<td>Wheeler, Wallace Edwin</td>
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<td>Wheeler, William C.</td>
<td>Unc, Law.</td>
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<td>Wheeler, Winsford</td>
<td>LD, Sci.</td>
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<td>Wheeler, Margarette</td>
<td>LD, Sci.</td>
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<td>Wheeler, Reba</td>
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<td>Wheeler, Clyde Lester</td>
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<td>Blaine</td>
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<td>Wheeler, Henry V.</td>
<td>LD, Phr.</td>
<td>Friday Harbor</td>
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<td>Wilson, Alice L.</td>
<td>UD, Bus.</td>
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<td>Wilson, Beatrice Marian</td>
<td>Unc, LA.</td>
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<tr>
<td>Wilson, Elizabeth</td>
<td>Bus.</td>
<td>Portland, OR</td>
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<tr>
<td>Wilson, Lorin</td>
<td>Bus.</td>
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<tr>
<td>Wilson, Mrs John</td>
<td>Bus.</td>
<td>Portland, OR</td>
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<tr>
<td>Wilson, Doris Glasgow</td>
<td>Grad.</td>
<td>Seattle</td>
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<td>Wilson, Benjamin</td>
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<tr>
<td>Wilson, Mrs F B.</td>
<td>Grad.</td>
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<tr>
<td>Wilson, Mrs Myrons</td>
<td>1st Law.</td>
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<tr>
<td>Wilson, Grace</td>
<td>M, LA.</td>
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<tr>
<td>Wilson, Mrs Mary Jo</td>
<td>LD, Bus.</td>
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<td>Wilson, Mrs Evelyn</td>
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<td>Wilson, Paul Ebenzer</td>
<td>LD, SCI.</td>
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<td>Wilson, Thelma</td>
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<td>Wilson, Mrs Virginia</td>
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<td>Wilson, Paul</td>
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<td>Wilson, Fred</td>
<td>S, UD, LA.</td>
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<td>Wilson, Evelyn M.</td>
<td>LD, SCI.</td>
<td>Portland, Mt</td>
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<td>Wilson, Angelina</td>
<td>Mrs.</td>
<td>Miles City, MT</td>
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<td>Wilson, Mrs Mary Jo</td>
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<td>Wilson, Victor</td>
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<td>Wilson, W.</td>
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<td>Winter, Rex</td>
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<td>Withrow, Payo</td>
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<td>Withrow, Ralph</td>
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<tr>
<td>Wise, Joseph</td>
<td>W, LD, LA.</td>
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<td>Wise, Robert S.</td>
<td>LD, NA.</td>
<td>Cedar Falls, ID</td>
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<td>Wldrabe, Merle</td>
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<td>Wolf, Alvin Joseph</td>
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<td>Wollaist, Francis</td>
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<td>Womack, Jasper C.</td>
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<td>Woess, Arthur Garde</td>
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Wood, Esther Mary, UD, Bus .......... Seattle
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Wood Zelphla, LD, FA ................. Seattle
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Worthington, Robert E, LD, MB, Quilcene
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Wright, Frank H, LD, ME .............. Seattle
Wright, George Jr, Unc, Bus, Tacoma
Wright, Guy S, LD, EE ................. Victoria, B C
Wright, Jack Willis, LD, LA .......... Tacoma
Wright, Leota, LD, Ed .................. Camas
Wright, Ralph E, LD, Eng ............. Seattle
Wright, Robert Burns, LD, EE ...... Seattle
Wright, Albert Russell, LD, Bus ...... Seattle
Wright, Wilma, LD, Bus .............. Tacoma
Wurzbacher, Marian LD, FA .......... Seattle
Wyers, Marie LD, LA ................. White Salmon
Wyers, Thomas James LD, Bus ...... White Salmon
Wyma, Thornton D, LD, LA .......... Boise, Idaho
Wyman, Winfred LD, Ed ....... Colfax
Yadro, Francis John LD, ChB .......... Ronald
Yamada, Galchih, Grad, Min .......... Japan
Yates, Dewey LD, Bus ................... Clarkston
Yates, James, UD, Bus .................. Clarkston
Yehos, Marcellina V, Unc, Bus .... Philippines
Yeager, Fred A, LD, ME .............. Spokane
Yeatman, Marion E, UD, Ed .......... Vancouver, Wa.
Yerger, Beasie Pearl Grad ............ Seattle
Yorkes, Margaret LD, FA ............. Acme
Young, Leon LD, Ed ................. Blackfoot, Idaho
Young, Merrill UD, LA ................. Seattle
Young, Arthur B LD, Bus .......... East Stanwood
Young, Dorothy UD, ScI .............. East Stanwood
Young, Eccie F, UD, ScI ............... Boise, Idaho
Young, Ernie May, Unc, Bus .......... Seattle
Young, Harold Dewey Grad .......... Kirkland
Young, Helen LD, FA .................. Seattle
Young, Lorraine UD, LD, LA .......... Tacoma
Young, Lois Evelyn, LD, LA .......... Aberdeen
Young, Mae A, Unc, ScI ............... Astoria, Or.
Young, Steven A, LD, Bus .......... Montesano
Young, Versus LD, Bus ............... Sherwood, Or
Young, Wesley George Grad .......... Seattle
Youngquist, R Clifford LD, EE, Goldendale
Yow, Rose Law LD, FA ............... Seattle
Ystrom, Bernard, Unc, Eng .......... Seattle

Zaar, Clarence William LD, LA .......... Seattle
Zahl, Herman Miles LD, Bus, Milton, N D
Zambemini, Luigi, UD, Italy .......... Seattle
Zamora, Vicente P, Unc, CE .......... Philippines
Zaradnias, Sofo, LD, LA ............... Philippines
Zee, Chung LD, Bus .................. China
Zee, Ernest Unc, Bus ............... China
Zeigel, Henry H LD, Min .............. Dragon, Utah
Zeis, Duncan LD, Bus ................. Seattle
Zener, Bertram LD, ScI ............... White Salmon
Zener, Carlis R, UD, Bus, White Salmon
Zener, Robert G LD, MB .............. White Salmon
Zickrick, Lynell W, UD, Min, Wahkon, Minn
Ziel, Leonard LD, CE ................. Ft Townsend
Zimmerman, Mary M, UD, LA .......... Seattle
Zimmerman, Ralph O, UD, Bus ........ Gresham, Or
Zinther, Clarence J LD, EE .......... Seattle
Zobrist, Herbert E, Unc, MB .......... Acme
Zwicky, Everett E, UD, Unc Min, Kalispell, B
SUMMER QUARTER STUDENTS—1921

Abel, Robert Bryan, 1st Law Grays Harbor
Abell, Charles H, LD, BA .............. Seattle
Abelset, Mark, 3d yr, Law ............ Seattle
Achlin, Helen Spec, LA ................摩擦
Adair, Prudence, Spec, Ed ........... Province
Adams, Jeannette, UL, LA ............ Spokane
Adams, John Q, Unc, BA ... Sherman, Texas
Adeis, Margaret Kathleen, UL, BA, Dayton
Agen, John Stuart, LD, Bus .......... Seattle
Agulla, Jose, LD, Ed ... San Jose, Philippines
Attebery, Ruth, LA ...................... Tacoma
Akin, Cecilia Ellen, Unc, LA ........ Seattle
Akin, Margaret Agnes, Unc, FA, Seattle
Albee, Archie Veryl, UL, LA .......... Seattle
Albers, Alvin M, Grad .......... Northfield, Minn
Albert, Beata Cooley, Unc, FA ...... Seattle
Anderson, John, Grad, Bus .......... Seattle
Anderson, Clara Ida .................. Seattle
Anderson, Edna M, UL, LA .......... Saved Redmond
Anderson, Edward G .................. Ellensburg
Anderson, Elsie ..............................
Anderson, Evelyn M, UL, Sci ......... Seattle
Anderson, Mrs. Florence, Unc, Sci Langley
Anderson, Grace E, Grad, Vancouver, B C
Anderson, John Franklin, Unc, Ed .......
Anderson, Lucien F, Spec, Ed Portland, Ore
Anderson, Margaret Gena .......... Tacoma
Anderson, Mary Grace .................. Bellingham
Anderson, Mary M ...................... Pullman
Anderson, Pauline .............................
Anderson, August R, UL, Sci ......... Seattle
Anderson, Ivan F, Spec, Ed, Palouse
Applegate, Lindsay M, LD, EE ....... Harrington
Arant, Bernadine R, LD, Ed Lewiston, Ida
Archer, Helen, LD, LA ................... Seattle
Archer, Raymond Barnes, LD, LA ... Seattle
Arges, Julia Eileen, LD, Ed .......... Du Pont
Armbruster, Verona, Unc, LA ......... Burton
Armstrong, Raphael W, LD, Bus ...... Tacoma
Arnold, Harriet J, Grad Big Timber, Mont
Arnouse, Ruby, UL, LA .............. Seattle
Arthur, Isabel .............................. Nelson, B C
Arthur, Margaret Isabel, L, Spec, Ed
Aubot, Emmett Raymond, LD, Ed ... Seattle
Aspinwall, Mabel Gates, Grad ........
Atkins, Ruth, UL, LA ................... Seattle
Atteberry, Uci Oscar, UD, Ed .......... Ell
Ault, Lila M .............................. Enterprise, Ore
Austin, George Ray, UD, Ed .......... Seattle
Ayers, Leland S, LD, LA San Francisco, Cal

Baker, Warren Benjamin .......... Seattle
Baldwin, Anna L, Spec, Ed .......... Spokane
Baldwin, David Edward, UD, LA .... Seattle
Baldwin, Rilla Joseph, Unc .......... Spokane
Bailey, Eda ......................... Chehalis
Bell, Helva Lilian, Grad .............. Ellensburg
Ballard, James M, Spec, LA .......... Seattle
Bamborough, James Elton, Unc ... Vancouver, B C
Bampton, Louise ....................... Vancouver, B C
Banks, Amy Theodore ................. Seattle
Barber, David A, Grad .......... Kent
Barber, Helen Josephine, Unc ....... Kent
Barber, Zay, Grad .................... Seattle
Barfield, Wanda, LA ................. Seattle
Barlow, William, 3d Law .......... Seattle
Barrett, Walter Cozard .............. Seattle
Barrett, Marshall N, LD, LA ....... Vancouver
Barrow, Minna Elizabeth ...... Newark, S J
Bartholomew, Wayne L, LD, BA ...... Seattle
Bassett, Bert, Spec, Ed, Olympia
Bassett, Samuel Bitar .......... Washington, D C
Batcheller, Elva Leonore, Grad .... Seattle
Baldorf, Beryl ..........................
Batemann, Albert A, Unc, FA ...... Seattle
Bathwell, Belle, UL, LA .......... Spokane
Bauer, Lydia L, Spec, Ed .......... Walla Walla
Bayer, W., Grad ..........................
Beall, Beattie, Spec, LA ....................
Beal, Beatrice ......................... Seattle
Beck, Leota Myrtle, Unc, Ed ...... Seattle
Bean, Erma Lois, LD, BA .......... Spokane
Bean, Mabel Louise, LD, LA .... Seattle
Beardieo, Will Gordon .............. Bothell
Beanbridge, Grace, LD, LA ........... Winlock
Bebee, Jeanette Howell .......... Seattle
Behmeyr, Verona Skinner .......... Seattle
Bell, Adna May, Unc, Sci .......... Vancouver, B C
Bell, Bonnie, UD, LA .............. Seattle
Bell, Ellis W, Fr, ME ............... Mt Union, Ia
Bell, Kate Tuttle, Grad .......... Spokane
Bell, Ola Emmett, Unc, Ed Idaho Falls, Ida
Bell, Wyloha Helen, UD, LA .... Seattle
Bennett, Brenda Anna, Spec, BA, Spec, Washington, D C
Bennett, Edward Allen, Grad ...... Seattle
Benza, Henry, S, EE ......................
Bender, Robert William, Jr, EE ...... Harbor
Bennett, Ada M ..........................
Bennett, Brenda Anna, Spec, BA, Spec, Washington, D C
Benson, Clarence W, UD, LA ........ Spokane
Berg, Lawrence, R, Jr, EE .. Missoula, Mont
Berg, Idaho Falls, Ida ......... Seattle
Bergman, E, EE, UL, Sci, Bremadale, Col
Bergstrom, Anna, Spec, Sci ...... Seattle
Berner, Elsa Rose .................... Clackamas, Ore
Bernheim, Martha Julia, J, Pha .... Seattle
Best, Walter Columbus, Spec, Bus .... Seattle
Bewley, Loyai V, Fr, EE ............ Seattle
Bewley, Ruth Lynette, Unc, LA .... Seattle
Bhnur, Gea ............................ Seattle
Billingham, Birger Irwin, Jr, LA .... Seattle
Billingham, Glen Arthur, Grad ...... Denver, Colo
Bird, Lela .............................. Twin Bridge, Mont
Birks, Margaret E, LD, LA .......... Tacoma
Bianchi, Virginia, Unc, FA ........ Seattle
Bishop, Theodore, Unc, LA .. Clarkston
Bissett, May, Grad .......... Winnipe, Manitoba
Bissett, Rudolf Alfred, UL, Spec, Sci .... Seattle
Birkenhead, Enoch Joseph, Unc, LA .... Spokane
Black, Dorothy E, LD, LA ............ Ellensburg
Blackburn, Mrs. R, L, E ............. Ephraim
Blackburn, Richard Leroy, Ed, LA ... Ephraim
Blackstone, Helen E ..........................

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Summer Quarter Students—1921

Clement, Franklin C., Albert Les, Minn
Close, Anelta L., UD, Ed...Kalama
CloUGH, Ray W., Grad...Seattle
Coffinberry, Pearl S., Grad...Seattle
Coffman, Grace M., UD, LA...Spokane
Coffman, Mabel M., Unc, LA...Bellingham
Coffman, John E., Grad...Seattle
Coffman, John E., UD, LA...Portland, Or
Coffman, Louise, Grad...Seattle
Collie, Olive Irene, LD, LA...Seattle
Collins, Alta, Unc, R, Ed....Tripplett, Mo
Condit, Sadie Adeline, LA...Hagerman, Ida
Conklin, R. H., Spec...Chittottr, Idaho
Conn, John Earl, LD, B...Findlay, I
Connell, Archie M., UD, Ed...Freewater, Ore
Connolly, R., Constance, Spec, BA...Seattle
Connor, Catherine, Unc, LA...Seattle
Converse, Esther J., LA...Billings, Mont
Cook, Beatrice H., LA...Spokane, Wash
Cook, Raymond Edward, Grad...Chenialis
Cooney, Alta, UD, Ed...Seattle
Cooper, Alfred Morton...Seattle
Cooper, Ethel, LA...Seattle
Cooper, Isabel Donkin, UD, LA...Tacom
Cope, Harvey F., UD...Ed...Corvallis, Ore
Coppard, Mildred F., PA...Portland, Ore
Corbally, John E., Grad...Seattle
Cordero, R. M., Jr, Phar Bawan, Philippines
Corakie, Florence B., LD, Sci...Seattle
Coulter, Edna M., Unc, FA...Williston, N D
Cox, Hallie M., LA...Helena, Mont
Coyner, Ruth Caldwell...Kirkland
Craig, Dora B., UD, Ed...Bureka, Kan.
Craig, Leota, Unc, LA...Tacoma
Craike, Lillian A., LD, LA...Seattle
Craven, Leonard T., Unc, LA...Seattle
Cremer, Henry, Grad...Seattle
Crim, Wm Alfred, D., LD, LA...Seattle
Crofoot, Mentha, UD, Ed...Seattle
Crock, Lillian C., Unc, Ed...Worley, Id.
Cromwell, Montana, Unc, Ed...Butte, Mont
Crummett, Alice, Unc, BA...Seattle
Crump, Ella, Unc, FA...Palouse
Crump, John K., Unc, LA...Seattle
Cuddy, Laura May, Auburn
Cullinan, Nicholas C., LD, LA...Seattle
Culver, Ralph M., LD, BA...Seattle
Cummings, Ardyce H., UD, Ed...Seattle
Cumming, Genevieve M., LA...Baker, Ore
Cunningham, B. Therien, Grad...Seattle
Curtsis Verne E., LD, LA...Grand Dales, Ir
Cushing, Gladys H...Seattle
Cutler, Susan E., UD, Spec...Sheridan, Wyo
Cutting, Forrest B., Grad...Seattle
Cutts, Beatrice T., Journ...Seattle
Cutts, Laura L., UD, LA...Seattle

David, Emerson E., B...Seattle
Davidson, Florence, UD, Ed...Grandview
Davidson, Helen, UD, LA...Grandview
Davies, David, Grad...Seattle
Davies, David F., Journ...Seattle
Davies, Benjamin F., Unc, BA...Farmington
Davis, Frances, UD, LA...Everett
Davis, Martelle, Elliott, Los Angeles
Davis, Raymond, B A, Salt Lake City, Utah
Davis, Rose McVay, Unc, Sci St. Paul, Minn
Dawson, Florence, Grad...Oakland, Calif
Day, Mrs. Wallace Robena, Spec...Seattle
Dean, Mildred, Grad...Walla Walla
Deane, Charles H., Grad...Seattle
de Forest, Marion B., Grad...Norwalk, Con
Degering, Ed F., Spec, Sci...Mt. Vernon
Deits, Harry Lee, Unc, Ed...Seattle
Del Duca, Domenica E., UD, FA...Seattle
DeLong, Edith, UD, LA...Everett
Deming, Anna, Spec...Seattle
Denney, Charles R., UD, LA...Everett
Densmore, E., UD, Ed...St. Croix Falls, Wis
De Shone, Minn...Ed, Sci...Seattle
Desmond, Ethel J., LA...Seattle
Detjen, Gertrude...Algoma, Wis
Dickson, Belle L., LA...Spokane
Docksteden, Florence, Grad...Seattle
Dodd, Joseph, LD, Fish...Seattle
Dodge, Florence F., UD, Ed...Tacom
Donaldson, Abigail C., Grad...Seattle
Donovan, Nellie G., Grad...Seattle
Doran, Ida F...Seattle
Dove, Nva M., UD, LA...Bickleton
Dow, Ncel Ellis, Spec...Seattle
Doyle, James C., LD, Sci...Seattle
Draper, Edgar M., Grad...Ontonol, Ore
Draper, Geo. A., Spec, ME...Seattle
Draper, Anna, Grad...Seattle
Drayton, Katharina G...Hamilton, Mont
Driscoll, Marie E...Butte, Mont
Drivar, Hanna F., LD, BA...Seattle
Ducat, Cecil F., UD, LA...Peck, Ida
Dun, Mrs. Annie H., Spec...Seattle
Dunmore, Blanche, LD, LA...Seattle
Dunn, Margaret C., LD, ED...Seattle
Dunning, Guy Ernest, Unc, Law Washinton
Dutcher, Lila M., Spec, LA...Seattle
Dvorak, Charles E., Grad...Chewelah

Eades, Beulah, Sci...Manchester
Eagan, Frances M., LD, Ed...Bremerton
Eager, Marion C., UD, LA...Vancouver
Easterbrooks, Elva L., Unc, LD...Seattle
Ebright, Etoise, UD, BA...Seattle
Eccles, Grace, Grad...Naswau
Eckerty, Ruth...Indiana, Ind
Eddy, Mrs. Mona R., Spec, Ed...Helena, Mont
Eden, Martin L., Spec, Sci...Hardin, Mont
Edson, Mrs. Grace H...Seattle
Edwards, Elizabeth M., LD, LA...Seattle
Edwards, Esther M, UD, Sci...Seattle
Edwards, George Boorman, Spec...Seattle
Edwards, Pauline, LD, LA...Seattle
Egan, Blanche, FA...Seattle
Eisenmann, A. M., LA, Nebenua City, Neb
Elliott, Annabelle, Grad...Seattle
Ellis, J. Boyd, Grad...Maryvillle
Ellis, James L., Unc, LA...Seattle
Ellis, Lila, UD, LA...Walla Walla
Ellis, Marion F., LD, BA...Tacoma
Elmore, Luther, UD, BA...Seattle
Elvidge, Mabel, R, Sr, ME...Seattle
Ely, John Carl, UD, FA...Seattle
Elyea, Winifred, UD, Ed...Ephrata
Ellwell, Mary M., Spec...Seattle
Emerson, Frances, UD, LA...Seattle
Emory, De Wolfe, Unc, Law...Seattle
Enslow, Talitha Eldora, LD, Ed...Seattle
Erickson, Helen, Unc, FA...Seattle
Holt, Edwin
Harada, Matsutaro, LD, Sci.
Hara, Tadao, Grad
Hanthorn, Faith, Grad
Haugen, Sarah Eleanor, UD, BA
HarriS, Sarah
Harrington, Florence, LD, BA
Harmon, Lonise W., Grad
Harbaugh, Evelyn Amy
Harvey, Grad
Harper, Leslie B., Mill
Hayward, Cyril
Haynes, Stephen Bernard, LD, LA
Hayward, Harold Soph, For Ridgewood, N J
Heath, Harry French, Grad
Heffernan, Grace E, UD, LA
Hellabaum, Walter F., Spokane
Helmeich, Merle L, UD, Sci.
Henderson, Evelyn G, BA
Henry, Helen, Grad, Seattle
Hentzorne, Oril E, UD, LA
Herbers, Willis Neeld, LA, Tacoma
Hernandez, Mallari A, Maceabe, Pamp, I P
Heywood, Carrie, Grad
Hibbard, Myra, UD, LA
Hickey, Florence M, Univ, Law, Seattle
Hickok, Beulah G., Bloomington, Ill
Hicks, Ethel M, FA.
Hight, William, Spec, FA
Hill, Cyril Dean, UD, LA
Hill, Glen G, UD, Ed.
Hill, Lilla D, LD, Ed.
Hill, Mildred S, LA
Hill, Mary, Grad
Hillman, Richard K, LD, LA
Hilton, Maud Helen, FA
Himes, Ona, Spokane
Himelstein, Doarch M, UD, Sci.
Hinshaw, Grace Linton, Ashland, Mo
Hinze, Mrs. Gertrude, FA
Hoffman, Mary, Grad, Seattle
Hoe, Katharine, Law
Hoard, Charles Vere, Law
Hold, Edwin Anthony, LD, BA
Holden, Wlland W, Grad, Corvallis, Ore
Hodes, James F, LD, BA
Hoff, Jon Evelyn
Hoffer, J. C, LD, Fish Chippewa Falls, Wis
Hog, Helen, Grad
Holbrook, William Paul, UD, Sci.
Holcomb, James Hector, UD, Ed.
Holcr, Glad, Grad
Holland, Ruth, UD, LA
Holland, Selma, FA
Holm, T, H, 3rd Law, Edgmont, N C
Hommel, Margaret, UD, LA
Hollin, Linda Adeline, Unc, Ed.
Hone, Marie C, UD, LA
Hope, Erna Dorothy, Grad
Hopkinson, Mrs. Marie, Spec, BA
Hoppe, Carolyn
Hoppeck, Gertrude C, Grad
Horstman, Fred Harry, Fr, BS
Hood, Margaret, Grad, Redmond
Hower, Mrs. Ernest John, UC, Law, Seattle
Hovey, Joseph C, 2nd Law, Ellensburg
Howe, Helen, LD, BC
Howe, Evie, UD, BA
Howell, Irma Elizabeth, LD, BA
Hubbard, C, Anderson, UD, Ed
Hubbard, Elta H, Sacramento, Calif
Hubson, M, Ethel, FA
Hucke, Ethel, Grad, Pender, Colo
Hughes, Honoria Leon, LD, Ed Butte, Mont
Hughson, Ella P, Cedarhurst
Hulett, John Henry, Spec, LA
Hunt, Hector, UD, BA
Huntley, Mary, Law
Hurlbert, B, UD, Ed Thompson Falls, Mont
Hurley, Catherine B, Grad
Hurley, Ernest E, Grad
Hurlbut, James, Williams Kelly
James, William Kelly
Jensen, Mabel, Centralia
Jasper, Anna Grace, UD, Sci.
Jenkins, Estelle E, FA
Jenison, Arne Sigurd, Grad
Jensen, Marian G, UD, Sci.
Jensen, Paul John, Spec, Jour, Seattle
Johnson, Alva L, Grad, Bellingham
Johnson, Clifford E, LD
Johnson, Edward, Grad
Johnson, Elizabeth
Johnson, Edward, Grad, Ed
Johnson, E A, Unc, LA
Johnson, John, UD, LA
Johnson, Leta E, UD, LA
Johnson, Millan, Grad
Johnson, Ralph C, Unc, Ed.
Johnson, Laughland, BA
Johnson, V M, Unc, FA
Johnson, Wesley R, LD, ME
Johnson, Wm, E, UD, BA
Johnson, Hazel, Grad
Johnson, Kathryn, LD, Ed
Johnson, Marjorie, Grad, Ed
Johnson, Patience, Grad, Ed
Johnston, Harold, BA, Mt.
Johnston, Hazel B, UD, BA
Johnston, Paul, Grad, Ed
Johnson, T, H, 3rd Law, Edgmont, N C
Horn, Cecerta, Grad
Horning, Marjorie, Grad, Spec
Hurn, Mildred S, LA
Hurn, Lula, Grad
Hurn, Antonia, Grad
Hurn, Mary, Grad
Hurn, Ethel, Grad
Hurn, Julie, Grad
Hurn, Jennifer, Grad
Hurn, John, Grad
Hurn, Joseph, Grad
Hurn, William, Grad
Hurn, Mary, Grad
Hurn, Patricia, Grad
Hurn, Elizabeth, Grad
Hurn, Martha, Grad
Hurn, Anna, Grad
Hurn, Paul, Grad
Hurn, William, Grad
Hurn, Charles, Grad
Hurn, Martha, Grad
Hurn, William, Grad
Hurn, Charles, Grad
Hurn, Margaret, Grad
SUMMER QUARTER STUDENTS—1921

Sabin, Rose E., Unc, F.A.—Anacortes
Salmon, Arline, Grad.—Columbia, Mo
Sandgren, Jennie, Unc, L.A.—Seattle
Santos, Joseph F., Spec, Ed.—Banker, Ore
Sawyer, Bertha, Spec, F.A.—Spokane
Sartoris, Madeleine V., Unc, Sci.—Emunclaw
Sedlco, Mrs. lda J., S.F., Seattle

Scamahorn, Essie Nore, L.D., Ed.—Spokane
Schirmans, Sara I., U.D., Ed.—Mt. Vernon
Schlenzer, Mary A., L.D., Sci.—Seattle
Schlauch, Gustav H., Grad.—Latah
Schmid, Byron C., Spec, Ch.E.—Seattle
Schmitt, Lizzie M., Seattle
Schottler, Gladys M., L.D., Ed.—Seattle
Schofield, Mary G., Unc, L.A.—Seattle
Scholtes, Marion Ellen, F.A.—Yakima
Schrader, Blanche M., L.D. Fredlent, Ore
Schuck, Katherine A., U.D., Sci.—Seattle
Schumacher, Margaret, Grad.—Seattle
Scott, Alice A., Sci.—Seattle
Scott, Cora Hazel—Twin Falls, Ida
Scott, Elizabeth G., Grad, The Dalles, Ore
Scott, Jesse Waltie, Unc, L.A.—Seattle
Scott, Lydia L., L.D., L.A.—Seattle
Scoulag, Laura, U.D., Sci.—Seattle
Scully, Kathryin I., F.A.—Butte, Mont
Schrain, Evelyn Violet, F.A.—Everett
Sealls, Rachel Joyce, L.D., L.A.—Seattle
Sears, Ruth Beth, L.A.—Bellingham
Seddon, Sue L., Spec, Sci.—Seattle
Seely, Walter Bate, U.D., Sci.—Seattle
Selby, Harold Kellogg, L.D., BA.—Seattle
Senska, Nellie M., Grad.—Seattle
Stillernen, Florence, L.A.—Seattle
Shank, Chelena, L.D., Sci.—Seattle
Shank, Katherine, U.D., L.A.—Seattle
Shanks, Carrol, U.D., BA.—Payette, Ida
Sharp, Mary Coral, Spec, L.A.—Seattle
Shea, Oscar, L.D.—Bellingham
Sheehan, Mary Madelina, Grad.—Seattle
Shelton, Sarah Louise, Unc, F.A.—Seattle
Shepard, Alice O., Grad.—Seattle
Shepherd, Gertrude, Unc, L.A.—Seattle
Sherm, Oscar Richard—Coeur d'Alene, Ida
Sherrard, Alice G., Ed.—Seattle
Sherrick, Johnson, Sci.—Seattle
Sherven, Henry O., Unc, L.A.—Tacoma
Shidler, Edwin, L.D., L.A.—Seattle
Shilandroid, Will L., L.D., L.A.—Seattle
Shigaya, Paul S., L.D., Sci.—Kont
Shindel, Maurice H., U.D., L.A.—Seattle
Shipley, Ethelyn, Grad.—Seattle
Shinemaker, Harry E., Fr, CE.—Spokane
Short, Bertha L., Unc, F.A.—Seattle
Shorer, Mrs. M., Spec, F.A.—Bellevue
Shull, Ranata M., Grad.—Springfield, O
Shuttleworth, L.J., L.D., BA—Idaho Falls, Ida
Sickels, Elmer V., Unc, Ore
Sickels, Katherine A., Unc, Ed.—Spokane
Sidela, Frances Ethel—Seattle
Siemens, Lydia Anne, L.D., Ed.—Othello
Siemens, Mrs., M. Belice
Silber, Lillee May, L.D., Sci.—Seattle
Silverman, Nathan Gregory, U.D., LA
Siemens, Edith, F.A.—Seattle
Sirjord, Mau F., Sci.—Ferntle, Man
Skolly, Nan Smith—Everett
Slatet, Lela May, Spec, F.A.—Portland, Ore
Smith, Abigail Jean, Unc, Sci.—Toppenish
Smith, Mary Adela, Unc, L.A.—Seattle
Smith, Albert Earl, U.D., BA.—Seattle
Smith, Edith R., U.D., Ed.—Tacoma
Smith, Eileen J., L.D., F.A.—Kalspe, Mont
Smith, Eunice L., Unc.—Ashland, Ore
Smith, George M., Jr., U.D., L.A.—Seattle
Smith, Gienard D., Spec, BA.—Portland, Ore
Smith, Helen A., L.D., L.A.—Pasco
Smith, Mary I., Grad.—Lommont, Cola
Smith, John A., U.D., BA.—Seattle
Smith, Julia B., Unc, L.A.—Twin Falls, Ida
Smith, Lily B., U.D., L.A.—Idaho
Smith, Lyle C., Spec.—Bellingham
Smith, Madorah, Grad.—Cedar Rapids
Smith, Mrs. Margaret Spec, Sci Boise, Ida
Smith, Mrs., Mary, Spec, F.A.—Seattle
Smith, Minnie J., Grad.—Moscow, Ida
Smith, Peari, U.D., BA.—Prosser

Rawlinson, Laura Jones.—Portland, Ore
Raymon, Anita Caldwell.—Berkeley, Calif
Reynolds, Gertie, L.A., Spec.—Bellingham
Reynolds, John, Unc, L.A.—Seattle
Reynolds, Mrs. W., Spec, F.A.—Spokane
Rhee, William Daniel, Sci.—Spokane
Reyes, Marie Adele, Grad.—South Bend
Reyes, Joseph Austin, Grad.—Seattle
Reyes, Mary Katherine, U.D., Sci.—Seattle
Rehder, Annabel, Grad.—Missoula, Mont
Reid, Mona Adele, L.D., Ed.—Newport
Reierson, Christie, L.A.—Troy, Ida
Remington, Arthur E., Spec, M.B., Mott, N.D
Reanle, Wessel F., Grad.—Seattle
Reynolds, Do.—Loom Lake
Reynolds, Jack W, 3rd Law.—Seattle
Rich, Estelle May, U.D., Spec.—Seattle
Richard, Marie Fern, Unc, L.A.—Seattle
Richardson, Dlo, Grad.—Seattle
Richardson, Mary Elizabeth, U.D., Spec.—Seattle
Richardson, Mary, Unc, L.A.—Or
Richeen, Sanford Elmer, Spec, B.A.—Seattle
Ritchie, Mrs. Agnes N., Unc, L.A.—Renton
Riggs, Metta Wilson, U.D., Spec.—Seattle
Rind, Roy E., Grad.—Seattle
 RNGER, K Helen Dorothy, L.D., L.A.—Seattle
Rlite, Victor E., L.D., Sci.—Chopaka
Ritter, John Jos, Spec, Sci.—Seattle
Robinson, Holland E., Ed.—Winnehom
Robb, Opal, U.D., BA.—Seattle
Robbins, David, Unc, Sci.—Portland
Robe, Vivian Moore, U.D., FA.—Granite Falls
Robert, Jocelyn, M.F.—Wall Walla
Roberts, Margaret, Unc, Ed.—Tacoma
Roberts, Nell J., Sci.—Lewis, Ida
Roberts, Berenda, L.D., Spec.—Seattle
Robertson, Katherine C., Grad.—Seattle
Robertson, Eleanor Muriel, U.D., L.A.—Seattle
Robins, Anna Loretta, Spec, Burlington, Ia
Robin, Beatrice, L.D., Sci.—Seattle
Robinson, Blanche M., Spec, F.A.—Seattle
Robinson, Estelle E.—Seattle
Robinson Lillian M., Grad.—Spokane
Robison, Mildred, Spec, F.A.—Spokane
Rockwell, John Jr., U.D., Ed.—Castle Rock
Rode, Alfred, 1st Law.—Bellingham
Rode, Irene Dorthas, L.D., FA., Minot, N.D.
Rogers, Mary, Unc, L.A.—Ida
Rogers, Henry E.—Centralia
Roper, Marion Wesley, U.D., Ed.—Seattle
Rose, Guy, Spec, Ed.—Everett
Ross, Flora Mae, Spec, F.A.—Portland, Ore
Roy, Ruby, U.D., L.A.—Seattle
Rowland, Thomas M., Spec, E.B.—Victoria, B.C
Rowe, Adelene Lee, Unc, Bus.—Seattle
Rowell, Fenton Charles, L.D., Bus.—Spokane
Rubinac, Leslie H., U.D., BA.—Tacoma
Rupe, Gustine E., L.D., Ed.—Seattle
Rupplethal, Anne B., Grad.—Kalhotas
Russell, Catharine Ann, L.A.—Seattle
Russell, Mrs. Irene, L.A.
Russell, John Beaucamp, Ed.—Puyallup
Russell, Foie M., Spec, L.A.—Seattle
Russiak, Henry Romuald.—Seattle
SUMMER QUARTER STUDENTS—1921

Ward, Roberta, L.D., FA...Seattle
Walker, Ruth, LA..............Seattle
Wall, Edith Elizabeth, Spec, FA...Seattle
Wallace, Clara L, Grad........Seattle
Walker, Donald G, U.C., Grad...Seattle
Wallis, Beulah, UD, LA......Seattle
Wallis, Mrs. Florence L......Seattle
Wall, Harold James, Unc, BA...Seattle
Wallin, Herma, Spec, FA......Seattle
Wallin, Hrs............Seattle
Waller, Donald G............Seattle
Watts, Gertrude L............Seattle
Watt, Elsie, LD, BA............Seattle
Watrous, Genie Ida.........Seattle
Waters, Basil W............Seattle
Watsen, Nettie Kerr, LD Ed...Seattle
Wern, Winnifred, Grad........Seattle
Wentworth, Lois.............Seattle
Welnzlrl, Adolph, LD........Seattle
Walker, Ruth.............Seattle
Wheeler, Chetta..............Seattle
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Whitman, Daniel S, Grad......Seattle
Whitney, Frank Fleming, Unc, Ed......Seattle
Whitney, Aletta R, LD Ed....Seattle
Whitman, Daniel S, Grad......Seattle
Wells, Dorothy Elizabeth.....Seattle
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Williams, David James, LD, LA...Tyler
Williams, Edith Wyn, Spec, FA Oskalouus, Is
Williams, Mrs. Ethel DeWitt....Willbur
Williams, Merian Porter, Grad......Tacoma
Williams, Jessie Evelyn, FA...Seattle
Williams, Lowell Eugene, UD, Sci Seattle
Williams, Roy Arthur, Law....Seattle
Williams, Theresa Maud........Seattle
Wills, Mrs. Arza McCollum.....Naselle
Wills, Cecil Durand, LD, LA....Seattle
Wilson, Alice, LD, BA........Seattle
Wilson, S, Berta, Grad........Spokane
Wilson, Doris Glagow, Grad......Seattle
Wilson, Florence Markaret, Grad......Seattle
Wilson, Frances Imogen, UD, LA...Seattle
Windust, Savannah, LA........Seattle
Winter, Frank H..............Spokane
Winter, Ella, Grand..........Vancouver
Wise, Byron F, LD, BA........Seattle
Witt, Lena E..............Seattle
Woober, Harry J, Mines........Spokane
Wolff, May Elizabeth, Unc, Sci......Seattle
Wood, Florence, LD, FA.......Seattle
Wood, Leighton Howard, LD, BA...Seattle
Wood, Ruth Rebecca, Spec, Ed......Helena, Mont
Woods, William..............Vancouver, B C
Woodward, Harriett, LD, BA....Seattle
Woodworth, Earl G, Unc, BA.....Nooksack
Woodworth, Elizabeth, Grad......Seattle
Worcester, Eleanor Sewall, Unc......Spokane
Workman, Paul A, Unc, Sci, Portland, Ore
Worth, Ernest Harding, FA........Seattle
Wright, Ann Barkley, Unc, LA.....Seattle
Wright, Beatrice, LD, LA.......Tacoma
Wright, Bernice F, Unc, Ed......Seattle
Wright, J, Clarence, UD, Ed, FA...Seattle
Wright, Guy Samuel, Unc, ED, Victoria, B C
Wright, Ruth H, Grad..........Seattle
Wright, Warren Coleman, FA.....Seattle
Wrighter, Helen Tiffany, LD, Sci, Lewiston
Wyeth, Adelina Burnham, Grad, Grhead, Ore
Wynn, Vivian B, UD, Sci........Ferndale

Yancey, Della M, Grad.........Seattle
Yeager, Lucile Marie........Spokane
Yenney, Ann, Unc, Ed..........Seattle
Yerger, Bessie Pearl, Grad......Seattle
Yost, Carl Ross, Spec, Ed........Spokane
Yost, Stella Gertrude........Blackfood, Ida
Young, Arthur B, Unc, LA....East Stanwood
Young, Fay Laverna, UD, BA......Tacoma
Young, Paul H, Sci............Bellingham
Young, Wesley George, Grad......Seattle
Young, William W, UD, Ed, Nisland, B D
Youngs, Marie, Grad............Warrenburg, Mo

Zee, Chung, Unc, BA.........Ningpo, China
Ziegler, Genevieve............Seattle
Zeltler, Elsa Joanna.........Luxembourg, Wis
Zinn, Zola, UD, Sci.........Seattle
Zickler, Irma, Grad.........Seattle
Puget Sound Biological Station—1920

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Short Course in Fisheries—1921

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<td>Hoynes, Jens Sundberg</td>
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<td>Hynes, Frank W.</td>
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<td>McNab, John</td>
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<td>Nadeau, Madeleine</td>
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Short Course in Forestry—1921

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<td>Morris, B. E.</td>
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<td>Rodell, Crockett M.</td>
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<td>Shannon, Edw.</td>
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Short Course in Mines—1921

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<td>Robertson, James H.</td>
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<td>Sergieecky, Nicholas A.</td>
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<td>Stankovich, Peter N.</td>
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<td>Stay, Andrew H.</td>
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<td>Taylor, Martin S.</td>
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(378)
SUMMARY OF ENROLLMENT
1920-1921
## SUMMARY OF ENROLLMENT—1920-1921

### By Schools and Colleges

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<th>Schools and Colleges</th>
<th>Summer Quarter Census</th>
<th>Autumn Quarter Census</th>
<th>Winter Quarter Census</th>
<th>Spring Quarter Census</th>
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**Notes:** Columns 1, 2, 4, 5, and 6 represent census figures—i.e., the enrollment taken on a stated day within the first month of a term or quarter. Columns 3 and 7 show figures representing the number of individuals; column 3 the number registered during the summer quarter, column 7 the number registered during the regular academic year. For comparison with other institutions the figures in columns 8 and 7 should be used, as these are the customary catalogue figures.
### SUMMARY OF ENROLLMENT

**By Classes**

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<th>CLASSES</th>
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<td>5191</td>
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**TOTAL STUDENTS IN RESIDENCE**

- During regular academic year: 6882
- During summer quarter: 1664
- Net total for the year: 7015

**EXTENSION STUDENTS**

- Correspondence: 203
- Extension Classes: 302
- Total Extension: 505

**NOTE**
- Columns 1, 2, 4, 5, and 6 represent census figures—i.e., the enrollment taken on a stated day within the first month of a term or quarter.
- Columns 3 and 7 show figures representing the number of individuals: column 3 the number registered during the summer quarter, column 7 the number registered during the regular academic year. For comparison with other institutions the figures in columns 3 and 7 should be used, as these are the customary catalogue figures.

**NOTE**
- The Extension Service enrolls students at any time during the twelve months. The figures given indicate the number actually studying by correspondence, or in extension classes during some part of the year beginning July 1, 1920.
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