PUBLICATIONS OF THE UNIVERSITY OF BRITISH COLUMBIA

The University OF British Columbia

CALENDAR

THIRTY-FIFTH SESSION
1949-1950

VANCOUVER, BRITISH COLUMBIA
1949

VOL. 35 GENERAL SERIES NO. 1

TIME TABLES

Schedules showing hours and rooms for lectures and laboratories will be available during the registration period beginning September 12th.

SCHOLARSHIPS AND BURSARIES

Numerous additional scholarships and bursaries will be found in the introductory pages of the Calendar.

THE DOMINION-PROVINCIAL YOUTH TRAINING BURSARIES AND PROVINCIAL LOAN FUND

It is the desire of the Dominion and Provincial Governments that no student of ability shall through lack of funds be denied the opportunity to continue his or her education beyond the level of the secondary school.

A sum of money has been set aside to aid University students who can offer proof of scholastic ability and financial need. This assistance is available to regular students in any year and any faculty. Students will receive 60 per cent. of the total assistance as a bursary and 40 per cent. as a loan. The loan is repayable commencing one year after the applicant enters gainful employment, and will not bear interest until that time.

Application forms may be obtained from the Department of Education, Technical Education Branch, Victoria, B. C., and must be returned by August 15th, 1949.

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CONTENTS

FACULTY OF ARTS AND SCIENCE

Bacteriology and Preventive Medicine, Biology and Botany, Chemistry, Classics, Commerce, Economics, Political Science, and Sociology, Education, English, French, Geology and Geography, German, History, Home Economics, International Studies, Mathematics, Music, Philosophy and Psychology, Physical Education, Physics, Slavonic Studies, Social Work, Spanish, Zoology.

FACULTY OF APPLIED SCIENCE

FACULTY OF AGRICULTURE

FACULTY OF LAW

FACULTY OF PHARMACY

FACULTY OF GRADUATE STUDIES

ACADEMIC YEAR
1949

August

1st Monday — Last day for submission of applications for supplemental examination.

12th Friday, 13th Saturday — Supplemental examinations—First Year Nursing.

15th Monday — Last day for submission of applications for admission to First Year Nursing.

15th Monday — Last day for submission of applications for bursaries.

25th Thursday

September

2nd Friday — Supplemental examinations.

1st Thursday — ACADEMIC YEAR begins.

5th Monday — Labour Day. University closed September 3rd to 5th, inclusive.

12th Monday to 17th Saturday — Registration in person for Winter Session as follows:
Arts and Science, Agriculture, Pharmacy and Graduate Studies.
First and Second Years, 12th to 17th, inclusive.
Other Years, 13th to 17th, inclusive.
Applied Science and Law:
All years, 14th to 17th, inclusive.
Hours: Monday to Friday, 9 a.m. to 4 p.m.
Saturday, 9 a.m. to 12 noon.
(See August 15th, above.)

17th Saturday — Last day for registration and payment of First Term fees of all students, both undergraduate and graduate, except those in Extra-Sessional Classes and Directed Reading Courses.

19th Monday — Lectures begin at 8:30 a.m.

28th Wednesday — Last day for change in students' courses.

30th Friday — Meeting of the Faculty Council. (Subsequent meetings to be held at the call of the President.)

October

1st Saturday — Last day for handing in graduation essays and theses (Autumn Congregation.)

5th Wednesday — Meeting of the Faculty of Arts and Science.

7th Friday — Meeting of the Faculty of Agriculture.

11th Tuesday — Meeting of the Faculty of Law.

Thanksgiving Day. University closed.

15th Saturday — Last day for registration and payment of fees of students in Extra-Sessional Classes and Directed Reading Courses.

15th Saturday — Last day for handing in applications for course leading to Master's degree.

19th Wednesday — Meeting of the Senate.

26th Wednesday — Congregation.

November

30th Wednesday — Meeting of the Faculty of Arts and Science.

December

2nd Friday — Meeting of the Faculty of Agriculture.

5th Monday — Meeting of the Faculty of Law.

14th Wednesday — Meeting of the Senate.

20th Tuesday — First Term ends.

25th Sunday — Christmas Day. University closed December 24th to 26th, inclusive.

1950

January

1st Sunday	New Year's Day. University closed December 31st to January 2nd, inclusive.
4th Wednesday	Second Term begins.
11th Wednesday	Last day for payment of Second Term fees. Payment of second instalment of scholarship money.

February

1st Wednesday	Meeting of the Faculty of Arts and Science.
3rd Friday	Meeting of the Faculty of Agriculture.
6th Monday	Meeting of the Faculty of Law.
15th Wednesday	Meeting of the Senate.

April

7th Friday	Good Friday. University closed April 7th to 10th, inclusive.
13th Thursday	Last day of lectures.
13th Thursday	Last day for handing in graduation essays and theses.
15th Saturday 29th Saturday	Sessional examinations.
29th Saturday	Last day for handing in applications for scholarships.

May

1st Monday	Field work in Applied Science begins immediately at the close of the examinations.
6th Saturday	Meeting of the Faculty of Agriculture.
8th Monday	Meeting of the Faculty of Arts and Science.
8th Monday	Meeting of the Faculty of Law.
9th Tuesday	Meeting of the Senate.
11th Thursday	Congregation.
12th Friday	Congregation.
12th Friday	Meeting of Convocation.
24th Wednesday	Victoria Day. University closed.

June

6th Tuesday	King's Birthday. University closed.

July

1st Saturday	Dominion Day. University closed.
3rd Monday	Summer Session begins.

August

1st Tuesday	Last day for submission of applications for supplemental examinations.
18th Friday	Summer Session ends.
25th Friday	Meeting of the Faculty of Arts and Science.
25th Friday	Meeting of the Senate.
31st Thursday	ACADEMIC YEAR ends.

THE UNIVERSITY OF BRITISH COLUMBIA

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H. C. HOLMES, M.A., Victoria. Term expires 1949.

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The Principal of the Provincial Normal School, Victoria, H. O. ENGLISH, B.A., B.S.A.

(e) Representative of the High School Principals and Assistants, W. R. MCDOUGALL, B.A., North Vancouver. Term expires 1950.

(f) Representatives of Affiliated Colleges:

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Union College of British Columbia, Vancouver (Theological), REV. W. S. TAYLOR, M.A. B.D., Ph.D. Term expires 1951.

The Anglican Theological College of British Columbia, Vancouver, REV. K. E. TAYLOR, O.B.E., M.A., B.D. Term expires 1951.

(g) Elected by Convocation:

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E. DAVIE FULTON, B.A., M.P.

A. E. D. GRAUER, B.A., Ph.D., Vancouver.

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C. A. H. WRIGHT, M.Sc., Ph.D., Trail. . . . . .
Terms expire 1951.

(h) Representative of the British Columbia Teachers' Federation:

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SYDNEY T. MATHEWS, Instructor
FRED SHUMAS, B.A.Sc. (Brit. Col.), Instructor.
K. BARLOW, B.E. (Liverpool), Instructor.
D. R. DUGUID, B.Sc. (Edinburgh), Instructor.
ROY HOOLEY, B.A.Sc. (Brit. Col.), M.Sc. (Stanford), Instructor.
M. LEWCHUK, B.A.Sc. (Brit. Col.), Instructor.
O. I. LOGUE, B.Sc. (New Brunswick), Instructor.
D. L. PERLEY, B.Sc. (London), Instructor.
W. J. PHILLIPS, B.A.Sc. (Brit. Col.), Instructor.
E. R. TINNEY, B.A.Sc. (Brit. Col.), M.Sc. (Washington), Instructor.

Department of Classics

O. J. TODD, A.B., Ph.D. (Harvard), F.R.S.C., Professor and Head of the Department. (Retiring June 30th, 1949).

GEOFFREY B. RIDDEHOUGH, M.A. (Brit. Col.), A.M. (California), Associate Professor.

W. LEONARD GRANT, B.A. (Brit. Col.), A.M. (Harvard), Ph.D. (Toronto), Associate Professor.

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Department of Commerce

ELLIS H. MORROW, B.A. (Queen's), M.B.A. (Harvard), Professor and Head of the Department.

JAMES C. TAYLOR, B.A. (Western Ontario), C.A., Associate Professor.

DONALD K. BELL, B.Com., M.A. (Brit. Col.), Associate Professor.

RICHARD A. MAHONEY, B.A. (Manitoba), M.B.A. (Harvard), Associate Professor.

LESLIE WONG, B.Com. (Brit. Col.), M.B.A. (California), Assistant Professor.

JAMES M. MOYNES, B.A., B.Acc. (Sask.), C.A., M.B.A. (Chicago), Assistant Professor.

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BRIAN E. BURKE, B.Com. (Brit. Col.), M.A. (Washington), Lecturer.

COLIN C. GOURLAY, B.Com. (Brit. Col.), Lecturer.

A. E. CARLSEN, Cand. Phil. (Copenhagen), Special Lecturer.

MRS. OLGA SWALLOW, B.A., B.Com. (Brit. Col.), Lecturer.

Part-time Lecturers:

R. M. BAGSHAW, C.A., Accountancy.

JOHN FARRIS, B.A. (Brit. Col.), M.B.A., LL.B. (Harvard), Commercial Law.

Honorary Lecturer:

FREDERICK FIELD, C.A.

Department of Dairying

BLYTHE EAGLES, B.A. (Brit. Col.), Ph.D. (Toronto), Professor and Head of the Department.

J. J. R. CAMPBELL, B.S.A. (Brit. Col.), Ph.D. (Cornell), Associate Professor.

MISS NORA NEILSON, M.S.A. (Brit. Col.), Instructor.

W. H. HILL, M.S.A. (Brit. Col.), Special Lecturer.

P. C. TRUSSELL, B.S.A. (Brit. Col.), Ph.D. (Wisconsin), Special Lecturer.

Department of Economics, Political Science, and Sociology

HENRY F. ANGUS, B.A. (McGill), B.C.L., M.A. (Oxon.), F.R.S.C., Professor and Head of the Department.

G. F. DRUMMOND, M.A. (St. Andrew's), M.Sc. (Econ.) (London), Professor.

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HARRY B. HAWTHORN, M.Sc. B.A. (New Zealand), Ph.D. (Yale), Professor of Anthropology.

STUART JAMIESON, B.A. (Brit. Col.), M.A. (McGill), Ph.D. (California), Associate Professor.

ROBERT M. CLARK, B.A., B.Com. (Brit. Col.), Ph.D. (Harvard), Assistant Professor.

NORMAN A. M. MACKENZIE, C.M.G., M.M. and Bar, K.C., B.A., LL.B. (Dalhousie), LL.M. (Harvard), LL.D. (Mount Allison, New Brunswick, Toronto, Ottawa, Bristol), D.C.L. (Whitman), F.R.S.C., Honorary Lecturer in Government.

W. H. MERRITT, M.A. (Toronto), Lecturer.

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Department of Education

MAXWELL A. CAMERON, M.A. (Brit. Col.), Ph.D. (Toronto), Professor and Head of the Department.

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B. POPE, B.Sc., B.Ed. (Man.), Lecturer.

Part-time Lecturers:

Miss C. Black, B.Sc. (H.Ec.), A.M., Miss S. M. Boyles, M.A., E. B. Broome, M.A., B.Ed., H. H. Grantham, M.A., Miss M. Henderson, B.A., A. M., J. F. McLean, D.S.O., B.A., Miss M. McManus, Mus. Bac., M.A., E. G. Ozard, B.A., G. G. Sedgewick, B.A., Ph.D., Miss D. Somerset, A.B., O. J. Thomas, B.A., B. E. Wales, B.A., B.Ed., H. D. Whittle, B.P.H.E.

Department of English

ROY DANIELLS, B.A. (Brit. Col.), Ph.D. (Toronto), Professor and Head of Department.

FREDERICK G. C. WOOD, B.A. (McGill), A.M. (Harvard), Professor.

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HUNTER CAMPBELL LEWIS, M.A. (Brit. Col.), Associate Professor.

MRS. DOROTHY BLAKEY SMITH, M.A. (Brit. Col.), M.A. (Toronto), Ph.D. (London), Associate Professor

JOHN H. CREIGHTON, M.A. (Toronto), Associate Professor.

STANLEY E. READ, M.A. (McGill), Associate Professor.

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M. W. STEINBERG, M.A. (Queen's), Assistant Professor.

MRS. EDITH MACRAE CRAGG, M.A. (New Brunswick), Assistant Professor.
A. J. FYFE, M.A. (Toronto), Assistant Professor.
BYRON L. FERGUSON, B.A. (Brit. Col.), Assistant Professor.
MISS D. SOMERSET, A.B. (Radcliffe), Assistant Professor.
MRS. MARION B. SMITH, B.A. (Toronto), Ph.D. (Pennsylvania), Lecturer.
CRAIG MILLER, M.A., B.Ed. (Sask.), Lecturer.
A. R. HAINES, D.F.C., B.A. (Brit. Col.), Lecturer.
J. E. CONWAY, M.A. (Toronto), Lecturer.
MRS. S. E. ATKINS, B.A. (Dalhousie), Lecturer.
MISS M. CREELMAN, B.A. (Dalhousie), Lecturer.
MRS. S. CREIGHTON, B.A. (Brit. Col.), M.A. (Toronto), Lecturer.
MRS. J. A. HATCH, M.A. (McGill), Lecturer.
PETER JONES, M.A. (Oxon.), Lecturer.
R. B. KING, B.A. (Brit. Col.), Lecturer.
MRS. H. C. LEWIS, M.A. (Brit. Col.), Lecturer.
MISS EDITH MCKENZIE, B.A. (Sask.), Lecturer.
MISS CATHERINE MCNIVEN, B.A. (Dalhousie), Lecturer.
F. W. ROBINSON, B.A. (Brit. Col.), Lecturer.

Special Lecturers:

G. G. SEDGEWICK, B.A. (Dalhousie), Ph.D. (Harvard), LL.D. (Dalhousie), F.R.S.C. (Session 1948-49).
W. L. MACDONALD, B.A. (Toronto), M.A. (Wisconsin), Ph.D. (Harvard). (Session 1948-49).

Department of Forestry

LOWELL BESLEY, B.S. (Cornell), M.F. (Yale), Professor and Head of the Department.
F. MALCOLM KNAPP, B.S.F. (Syracuse), M.S.F. (Washington), Professor and Director of University Forests.
GEORGE S. ALLEN, M.A.Sc. (Brit. Col.), Ph.D. (California), Professor.
BRAHAM G. GRIFFITH, M.A. (Brit. Col.), M.F. (Harvard), Ph.D. (Washington), Associate Professor.
ROBERT W. WELLWOOD, B.A.Sc. (Brit. Col.), Ph.D. (Duke), Associate Professor.
WILLIAM L. JOHNSON, B.Sc.F. (New Brunswick), Associate Professor.
HARRY C. HAINES, B.Sc. (Purdue), M.F. (Duke), Assistant Professor.
JOHN W. KER, B.A.Sc. (Brit. Col.), Assistant Professor.
IAN H. SCHIEDEL, B.A.Sc (Brit. Col.), Resident Forester, University Forest.
J. B. ALEXANDER, B.Sc., M.Sc. (New Brunswick), Part-time Lecturer.
R. M. BROWN, B.Sc.F. (Toronto), Honorary Lecturer in Forest Products.
L. B. DIXON, Part-time Lecturer.

Department of French

DAVID OWEN EVANS, M.A., D.Phil. (Oxon.), D.Lett. (Univ. of Paris), F.R.S.C., Professor and Head of the Department. (On leave of absence).
J. J. ANDISON, B.A. (Manitoba), A.M., Ph.D. (Columbia), Visiting Professor and Acting Head of the Department. (Session 1949-50).

A. F. B. CLARK, B.A. (Toronto), Ph.D. (Harvard), Officier d'Académie, F.R.S.C., Professor. (Retiring June 30th, 1949).

MISS DOROTHY DALLAS, M.A. (Brit. Col.), D.Lett. (Univ. of Paris), Associate Professor.

MADAME Y DARLINGTON, Asssitant Professor.

GEOFFREY L. HALL, B.A. (Cantab.), Assistant Professor.

MISS ETHEL HARRIS, A.B. (Columbia), M.A. (Toronto), D.Lett. (Univ. of Paris), Officier de l'Instruction Publique, Instructor.

MISS GWLADYS DOWNES, M.A. (Brit. Col.), Lecturer.

L. J. S. METFORD, M.A. (Brit. Col.), D.Lett. (Univ. of Paris), Lecturer.

J. A. HOOD, B.A. (Brit. Col.), Lecturer.

Department of Geology and Geography

M. Y. WILLIAMS, B.Sc. (Queen's), Ph.D. (Yale), F.G.S.A., F.R.S.C., Professor and Head of the Department.

HENRY CECIL GUNNING, B.A.Sc. (Brit. Col.), M.S., Ph.D. (Mass. Inst. of Technology), F.G.S.A., F.R.S.C., Professor of Economic Geology (Part-time).

H. V. WARREN, B.A. B.A.Sc. (Brit. Col.), B.Sc., D.Phil. (Oxon.), Assoc. Inst. M.M., F.G.S.A., F.R.S.C., Professor of Mineralogy and Petrography.

M. E. ODELL, Ph.D. (Cantab.), F.R.S.E., F.G.S., Visiting Professor. (Session 1948-49).

VLADMIR J. OKULITCH, M.A.Sc. (Brit. Col.), Ph.D. (McGill), F.G.S.A., F.R.S.C., Associate Professor.

KENNETH DEP. WATSON, B.A.Sc. (Brit. Col.), Ph.D. (Princeton), F.G.S.A., F.M.S.A., Associate Professor.

J. LEWIS ROBINSON, B.A. (Western Ont.), M.A. (Syracuse), Ph.D. (Clark), Mem. A.A.G., Associate Professor.

WM. HARRISON WHITE, M.A.Sc. (Brit. Col.), Ph.D. (Toronto), Associate Professor.

R. M. THOMPSON, M.A.Sc. (Brit. Col.), Ph.D. (Toronto), Assistant Professor.

J. D. CHAPMAN, B.A. (Oxon.), Assistant Professor. (On leave of absence).

F. K. NORTH, M.A. (Oxon.), Instructor.

Department of German

MISS JOYCE HALLAMORE, M.A. (Brit. Col.), Ph.D. (Munich), Associate Professor and Chairman of the Department.

CHARLES ERNEST BORDEN, M.A., Ph.D. (California), Associate Professor.

MURRAY A. COWIE, M.A. (Queen's), Ph.D. (Chicago), Assistant Professor.

MISS ISABEL MACINNES, M.A. (Queen's), Ph.D. California), Special Lecturer.

MRS. MARION L. COWIE, A.B. (U.C.L.A.), Ph.D. (Chicago), Lecturer.

MISS MARGARET MILLER, B.A. (Queen's), A.M. Radcliffe), Lecturer.

MRS. M.LOURIE, Dr. Juris (Vienna), A.M. (Stanford), Dip. in Soc. Wk. (Brit. Col.), Instructor.

MRS. J. HARRIS, A.B. (Smith), M.A. (Brit. Col.), Instructor.

MRS. P. TAYLOR, M.A. (Brit. Col.), Instructor.

Department of History

W. N. SAGE, B.A. (Toronto), M.A. (Oxon.), Ph.D. (Toronto), F.R.Hist.S., F.R.S.C., Professor and Head of the Department.

F. H. SOWARD, B.A. (Toronto), B.Litt. (Oxon.), F.R.S.C., Professor and Director of International Studies.

A. C. COOKE, B.A. (Manitoba), M.A. (Oxon.), Professor.

GEORGE F. G. STANLEY, B.A. (Alberta), M.A., B.Litt., D.Phil. (Oxon.), F.R.Hist.S., Professor of Canadian History.

GILBERT E. TUCKER, B.A. (Western Ont.), Ph.D. (Cantab.), Visiting Professor. (Session 1948-49).

MISS MARGARET A. ORMSBY, M.A. (Brit. Col.), Ph.D. (Bryn Mawr), Assistant Professor.

PING-TI HO, B.A. (National Tsing Hua Univ., Peiping, China), Lecturer.

GEOFFREY DAVIES, M.A. (Cantab.), Instructor.

Department of Home Economics

MISS CHARLOTTE S. BLACK, B.Sc. (H.Ec.) (Manitoba), A.M. (Columbia), Professor and Head of the Department.

MISS NINA H. MORLEY, M.A. (Toronto), Assistant Professor.

MISS MARY HOLDER, B.Sc. in H.Ec. (Mt. Allison), Assistant Professor.

MISS CARLENE ROSE, B.Sc. (Minnesota), M.Sc. (Oregon State College), Assistant Professor.

MISS MARGARET MACFARLANE, B.Sc. (Alberta), Assistant Professor.

MISS ELIZABETH D. LITTLE, B.H.Sc. (Toronto), M.S. (Cornell), Assistant Professor.

MISS KATHERINE J. SEATH, B.A. (Toronto), Assistant Professor.

MISS ORENE J. ROSS, B.A. (Alberta), Lecturer.

MISS FRANCES KENNEDY, B.A., M.A. (Toronto), Lecturer.

MRS. W. J. JOHNSON, B.Sc. (McGill), Lecturer.

MISS BARBARA FRITH, B.H.Sc. (Saskatchewan), Dietitian in charge.

Part-time Lecturers:

Stewart Murray, M.D., D.P.H., R. E. Willits, M.D., Mrs. Evangeline Winn, A.M.

Department of Horticulture

A. F. BARSS, A.B. (Rochester), B.S. in Agr. (Cornell), M.S. (Oregon Agricultural College), Ph.D. (Chicago), Professor and Head of the Department.

G. H. HARRIS, B.S.A. (Brit. Col.), M.S. (Oregon State College), Ph.D. (California), Professor.

JOHN W. NEILL, M.C., B.S.A. (Ont. Agric. Coll.), Assistant Professor

FRANK E. BUCK, B.S.A. (McGill), Honorary Professor.

MISS M. J. MCMULLAN, M.S.A. (Brit. Col.), Instructor.

J. B. TEIR, M.S.A. (Brit. Col.), Part-time Instructor.

Department of Mathematics

R. D. JAMES, M.A. (Brit. Col.), Ph.D. (Chicago), F.R.S.C., Professor and Head of the Department.

WALTER H. GAGE, M.A. Brit. Col.), Professor.

S. A. JENNINGS, M.A., Ph.D. (Toronto), Professor.

D. C. MURDOCH, M.A. (Brit. Col.), Ph.D. (Toronto), Associate Professor.
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BENJAMIN N. MOYLS, M.A. (Brit. Col.), Ph.D. (Harvard), Assistant Professor.
E. LEIMANIS, Mag. Math. (Riga), Dr. Rer. Nat. (Hamburg), Assistant Professor.
DANIEL BUCHANAN, M.A. (McMaster), Ph.D. (Chicago), LL.D. (McMaster), D.Sc. (Brit. Col.), Special Lecturer.
MISS CECILIA KREIGER, M.A., Ph.D. (Toronto), Visiting Lecturer. (Session 1948-49).
MRS. ELIZABETH KENNEDY, M.A. (Brit. Col.), Lecturer.
WILLIAM C. CAMPBELL, B.A. (Manitoba), Lecturer.
GORDON M. PETERSEN, A.B., M.S. (Stanford), Lecturer.
LOUIS CROMPTON, M.A. (Toronto), Lecturer.
W. E. JENNER, M.A. (Toronto), Lecturer.
H. F. GEORGE, B.A. (Sask.), B.Ed. (Brit. Col.), Lecturer.
ARTHUR BEAUMONT, B.A. (McMaster), Lecturer.
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CHIA-SHIIN YIH, M.S., Ph.D. (Iowa), Lecturer.
T. E. HULL, M.A., Ph.D. (Toronto), Instructor.

Department of Mechanical and Electrical Engineering

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F. W. VERNON, B.Sc. Eng. (London), Wh.Sch., A.M.I.Mech.E., A.F.R.A.S., Professor of Mechanical Engineering and Lecturer in Aeronautical Engineering.
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fessor of Electrical Engineering.
FRANK NOAKES, B.Sc. (Alberta), M.Sc., Ph.D. (Iowa State College), Professor of Electrical Engineering.
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BRUCE D. CLEMENT, B.A.Sc. (Brit. Col.), Instructor.
WILLIAM J. JOHNSON, B.A.Sc. (Brit. Col.), Instructor.

EDWARD S. BARTON, B.A.Sc. (Brit. Col.), Instructor.
NORMAN C. BRUCE, B.A.Sc. (Brit. Col.), Instructor.
EDO MARZOCCO, B.A.Sc. (Brit. Col.), Instructor.
MRS. MARY SAVERY, B.A.Sc. (Brit. Col.), Instructor.
WM. E. J. STEEL, B.A.Sc. (Brit. Col.), Instructor.
J. C. TEBBY, B.Sc. (Alberta), Instructor.
JOHN S. GRAY, B.A.Sc. (Brit. Col.), Part-time Instructor.
ROBERT N. MCLELLAN, B.A.Sc. (Brit. Col.), Part-time Instructor.
W. B. MILLER, B.A.Sc. (Brit. Col.), Part-time Instructor.

Department of Mining and Metallurgy

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HENRY M. HOWARD, B.A.Sc. (Toronto), Professor of Mineral Dressing.
WILLIAM M. ARMSTRONG, B.A.Sc. (Toronto), Associate Professor of Metallurgy.
C. S. SAMIS, M.Sc. (Manitoba), Ph.D. (London), Associate Professor of Metallurgy.
F. A. HAMES, B.S. (Montana), M.Sc. (Queen's), Assistant Professor.
RALPH D. BARER, B.A.Sc. (Brit. Col.), M.A.Sc. (Mass. Inst. of Technology), Instructor.

Department of Music

HARRY ADASKIN, Professor of Music.
MRS. JEAN COULTHARD ADAMS, L.R.S.M., A.T.C.M., Lecturer.

Department of Nursing and Health

C. E. DOLMAN, M.R.C.S. (England), L.R.C.P., M.B., B.S., M.R.C.P., D.P.H., Ph.D. (London), F.A.P.H.A., F.R.S.C., Professor and Head of the Department.
MISS H. EVELYN MALLORY, B.Sc. (Columbia), R.N., Associate Professor.
LAWRENCE E. RANTA, M.D., D.P.H. (Toronto), Associate Professor.
MISS RUTH MORRISON, B.S. (Minnesota), R.N., Assistant Professor.
MISS PAULINE CAPELLE, B.A., B.A.Sc. (Brit. Col), R.N., Assistant Professor. (On leave of absence).
MISS LORNA M. HORWOOD, B.A. (Queen's), R.N., Assistant Professor.
MISS ELIZABETH K. MCCANN, B.A., B.A.Sc. (Brit. Col.), R.N., Instructor.

Part-time Lecturers:

C. H. Gundry, M.D., Miss Josephine Kilburn, R.N., Gordon Hutton, M.D., D.P.H., D.Psych., Miss Donna Kerr, M.A., Donald H. Williams, B.Sc., M.Sc., M.D., J. R. McIntosh, B. A., M.Ed., Ph.D., F. C. Boyes, M.A.

Department of Philosophy and Psychology

S. N. F. CHANT, O.B.E., M.A. (Toronto), Professor and Head of the Department.
JOSEPH E. MORSH, B.A. (Brit. Col.), Ph.D. (Johns Hopkins), F.A.P.A., Professor.

J. RANTON MCINTOSH, B.A., M.Ed. (Sask.), Ph.D. (Columbia), Professor of Education and Psychology.

BARNETT SAVERY, A.B. (Washington), Ph.D. (Harvard), Professor.

ALEXANDER P. MASLOW, A.B., A.M. (Michigan), Ph.D. (California), Associate Professor.

E. S. W. BELYEA, M.A. (Toronto), Assistant Professor,

D. C. G. MACKAY, M.A. (Queen's), Ph.D. (Stanford), Assistant Professor.

EDMUND MACDONALD, B.A. (Queen's), Lecturer.

W. G. BLACK, B.A. (Brit. Col.), M.A., Ph.D. (Chicago), Part-time Lecturer.

J. W. A. FLEURY, M.A. (Brit. Col.), Part-time Lecturer.

Department of Physical Education

ROBERT F. OSBORNE, B.A., B.Ed. (Brit. Col.), Associate Professor and Director of Physical Education, Men.

MISS MARION HENDERSON, B.A. (Toronto), A.M. (Texas State College for Women), Associate Professor and Director of Physical Education, Women.

H. DOUGLAS WHITTLE, B.P.H.E. (Toronto), Assistant Professor.

MISS MARJORIE LEEMING, B.A. (Brit. Col.), Assistant Professor.

JACK POMFRET, B.A. (Health and P.E.) (Washington), Assistant Professor.

A. B. LAITHWAITE, Dip. in Phys. Ed. (Carnegie Phys. Tr. Coll.), Assistant Professor.

MISS JEAN CARMICHAEL, B.A. (Queen's), B.P.H.E. (Toronto), A.M. (Columbia), Instructor.

MRS. ISABEL HOBSON, B.Sc. (Phys. Ed.) (McGill), Instructor.

MRS. MAY BROWN, B.Sc. (Phys. Ed.), (McGill), Instructor.

D. WILSON, B.A. (Linfield), Instructor.

JOHN FIDDES, M.B., Ch.B., M.D. (Aberdeen), Part-time Lecturer.

Department of Physics

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A. M. CROOKER, B.A. (McMaster), M.A., Ph.D. (Toronto), Professor.

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KENNETH R. MORE, M.A. (Brit. Col.), Ph.D. (California), Professor.

J. B. WARREN, B.Sc., D.I.C., Ph.D. (London), F.Inst.P., Associate Professor.

ALDERT VAN DER ZIEL, M.A., Ph.D. (Groningen), Associate Professor.

GEORGE L. PICKARD, M.B.E., M.A., D.Phil. (Oxon.), Associate Professor.

W. OPECHOWSKI, Magistra Filozoffi (Warsaw), Associate Professor.

ARTHUR ROY CLARK, M.Sc. (Sask.), Ph.D. (Toronto), Associate Professor.

A. J. DEKKER, M.A., Ph.D. (Amsterdam), Associate Professor.

HEINZ KOPPE, Dipl. Ing. (Danzig), Dr. Rer. Nat. (Berlin), Assistant Professor.

Otto Blüh, Dr. Rer. Nat., D.Phys. (Prague), F.Inst.P., Assistant Professor.

G. G. EICHHOLZ, B.Sc., Ph.D. (Leeds), Assistant Professor.

F. K. BOWERS, B.A. (Cantab.), Lecturer.

R. KEITH BROWN, B.A. (Brit. Col.), Lecturer.

R. J. CLARK, B.A. (McGill), Ph.D. (Cantab.), Lecturer.
A. E. HENNINGS, M.A. (Lake Forest College), Ph.D. (Chicago), Lecturer.
FRIEDRICH A. KAEMPFFER, Dipl. Ing., Dr. Rer. Nat. (Göttingen), Lecturer.
A. EDGAR KIDD, Lecturer.
H. M. DUTTON, B.Sc. (London), M.Sc. (West. Ont.), A.Inst.P., Instructor.
F. A. LANG, M.A. (Brit. Col.), Instructor.
J. D. LORIMER, B.A. (Brit. Col.), Instructor.
MISS ELEANOR MAYO, M.A. (Brit. Col.), Instructor.
T. E. WHITTEMORE, B.A. (Brit. Col.), Instructor.

Department of Poultry Husbandry

E. A. LLOYD, B.S.A. (Sask.), M.S.A. (Washington State College), Professor and Head of the Department.
JACOB BIELY, M.S.A. (Brit. Col.), M.S. (Kansas State College), Associate Professor.
I. W. MOYNIHAN, D.V.M. (Ont. Vet. Coll.), M.Sc. (McGill), Special Lecturer.

Department of Social Work

MISS MARJORIE J. SMITH, A.B. (Minnesota), A.M. (Chicago), Professor and Head of the Department.
LEONARD C. MARSH, B.Sc. (Econ.) (London), M.A., Ph.D. (McGill), Associate Professor.
WILLIAM G. DIXON, B.A. (Brit. Col.), A.M. (Chicago), Associate Professor.
MISS MARGARET C. JOHNSON, B.A. (Brit. Col.), M.S.W. (Washington University), Assistant Professor.
MISS ELIZABETH V. THOMAS, A.B. (Wesleyan College), M.S. (New York School of Social Work), Assistant Professor.
MRS. RUTH E. READ, B.A. (Vassar), M.A. (Chicago), Assistant Professor.
MISS ZELLA COLLINS, Dip.Soc.Ser.Dept. (Toronto), Field Work Instructor.
MISS JEAN THOMAS, B.A. (Brit. Col.), Diploma in Social Work (Brit. Col.), Field Work Instructor. (Session 1948-49).
GEORGE A. WHITEN, Field Work Instructor.

Part-time Lecturers:

C. E. Gould, B.A., M.D., G. H. Hutton, M.D., D.P.H., Elda Lindenfeld, M.D., A. deB. McPhillips, Miss Ruby McKay, Fritz Schmidl, D. Juris (Vienna), M.S. (Columbia), R. L. Whitman, M.D., E. Stevens, M.A.

Part-time Field Work Instructors:

MRS. AILSA BISHOP, B.A. (Brit. Col.), M.S. (Columbia).
MISS BARBARA FINLAYSON, B.A. (Toronto), Diploma in Social Work (Toronto).
MRS. THERESA KAUFMANN, Diploma in Social Work (Brit. Col.).
HENRY MCFARLANE MORROW, B.A. (Brit. Col.), M.S.W. (Brit. Col.).
MISS ANNE DUMOULIN, B.A., M.S.W. (Brit. Col.).
MRS. KATHLEEN MCKENZIE, B.A., M.S.W. (Brit. Col.).
MISS MARY MCLORG, B.A., Dip. in Soc. Wk. (Brit. Col.).
MISS PHYLLIS PORTER, B.A. (Ohio Wesleyan), M.Sc. (Western Reserve).
MRS. JUNE WANDEN, B.A., B.S.W. (Brit. Col.).

Department of Spanish

CHARLES VYNER BROOKE, B.A. (Queen's), A.M., Ph.D. (Harvard), Associate Professor and Chairman of the Department.

G. E. MCSPADDEN, M.A. (Univ. of New Mexico), Ph.D. (Stanford), Associate Professor.

J. A. MCDONALD, M.A. (Brit. Col.), Assistant Professor.

MRS. EMILIA DAVISON, Lecturer.

Department of Zoology

W. A. CLEMENS, M.A. (Toronto), Ph.D. (Cornell), F.R.S.C., Professor and Head of the Department.

G. J. SPENCER, B.S.A. (Toronto), M.S. (Illinois), Professor.

IAN MCTAGGART COWAN, B.A. (Brit. Col.), Ph.D. (California), F.R.S.C., Professor.

W. S. HOAR, B.A. (New Brunswick), M.A. (Western Ontario), Ph.D. (Boston), Professor of Zoology and Fisheries.

KENNETH GRAHAM, B.A. (Brit. Col.), M.Sc. (McGill), Ph.D. (Toronto), Professor of Forest Entomology.

JAMES R. ADAMS, B.Sc., M.Sc., Ph.D. (McGill), Associate Professor.

J. A. C. NICOL, B.Sc. (McGill), M.A. (Western Ontario), D.Phil. (Oxon.), Assistant Professor.

M. NEAL CARTER, M.A.Sc. (Brit. Col.), Ph.D. (McGill), Honorary Lecturer.

PETER A. LARKIN, B.A., M.A. (Sask.), D.Phil. (Oxon.), Instructor.

JAMES HATTER, B.A. (Brit. Col.), Instructor.

International Studies

F. H. SOWARD, B.A. (Toronto), B.Litt. (Oxon.), F.R.S.C., Director.

PING-TI HO, B.A. (National Tsing Hua Univ., Peiping, China), Lecturer.

GEOFFREY O. B. DAVIES, M.A. (Cantab.), Instructor.

Slavonic Studies

JAMES O. ST.CLAIR-SOBELL, M.A. (Melbourne), Ph.D. (Graz), Professor.

JOSEPH J. RAYMOND, A.B. (Yale), Ph.D. (Princeton), Assistant Professor.

ALEXANDER W. WAINMAN, M.A. (Oxon.), Assistant Professor.

TADEUSZ HALPERT-SCANDERBEG, Special Lecturer.

Faculty of Law

GEORGE F. CURTIS, LL.B. (Sask.), B.A., B.C.L. (Oxon.), Professor and Dean of the Faculty.

MALCOLM M. MACINTYRE, B.A. (Mount Allison), LL.B., LL.M., S.J.D. (Harvard), Visiting Professor.

FREDERICK READ, LL.B. (Manitoba), Associate Professor.

GEORGE A. MCALLISTER, M.A., B.C.L. (New Brunswick), LL.M. (Columbia), Associate Professor. (On leave of absence 1948-49).

GILBERT D. KENNEDY, M.A., LL.B. (Toronto), Associate Professor.

JOHN R. WESTLAKE, B.A., LL.B. (Alberta), LL.M. (Toronto), Lecturer.
ALFRED W. R. CARROTHERS, B.A., LL.B. (Brit. Col.), Lecturer.
JOHN I. BIRD, B.Com. (Brit. Col.), Lecturer on Shipping.
D. McK. BROWN, B.Com. (Brit. Col.), Lecturer on Insurance.
THE HONOURABLE MR. JUSTICE COADY, B.A. (St. F.X.), Lecturer on Evidence.
LEON J. LADNER, K.C., B.A., LL.B. (Toronto), Lecturer on Taxation.
N. A. M. MACKENZIE, C.M.G., M.M. and Bar, K.C., B.A., LL.B. (Dalhousie), LL.M. (Harvard), LL.D. (Mount Allison, New Brunswick, Toronto, Ottawa, Bristol), D.C.L. (Whitman), F.R.S.C., Lecturer on Public International Law.
M. M. MCFARLANE, B.A. (Brit. Col.), Lecturer on Procedure III.
S. J. REMNANT, Lecturer on Criminal Law.
F. A. SHEPPARD, B.A. (Toronto), LL.B. (Sask.), Lecturer on Equity.
W. A. SCHULTZ, B.Com., B.A. (Brit. Col.), Lecturer on Procedure II.
THE HONOURABLE MR. JUSTICE WILSON, Lecturer on Procedure II.
A. WATTS, B.Com. (Brit. Col.), Honorary Liaison Secretary.

Faculty of Pharmacy

ESLI LONGWORTH WOODS, B.S.P. (Sask.), M.Sc. (Wisconsin), Professor and Dean of the Faculty. (From July 1st, 1949).
FINLAY A. MORRISON, M.B.E., B.S.P. (Sask.), Assistant Professor.
ROBERT H. COX, Phm.B. (Toronto), B.S.P. (Sask.), Assistant Professor.
JOHN EDWARD HALLIDAY, B.S.P. (Sask.), Assistant Professor of Materia Medica and Pharmacology.
GORDON A. GROVES, B.S.P. (Alta.).
DONALD A. ZUCK, B.Sc. (Pharmacy) (Alberta), Lecturer. (Session 1948-49).
MISS LUCY A. DEXTER, B.S.P. (Sask.), Lecturer.

Department of University Extension

GORDON MERRITT SHRUM, O.B.E., M.M., E.D., M.A., Ph.D. (Toronto), F.R.S.C., Director.
ROBERT J. BOROUGHS, M.A. (Brit. Col.), Assistant Director.
KELVIN D. M. LARGE, B.A., B.Com. (Brit. Col.), Assistant Director.
MISS DOROTHY SOMERSET, A.B. (Radcliffe), Assistant Professor of Dramatics.
NORMAN BARTON, M.A. (Brit. Col.), Instructor in Visual Education.
MISS MARJORIE V. SMITH, B.A. (Sask.), Instructor.
ARTHUR RENNEY, B.S.A. (Brit. Col.), M.S. (California), Assistant Professor of Agriculture.
ERNEST G. PERRAULT, B.A. (Brit. Col.), Assistant to the President and to the Director of University Extension.
MISS EILEEN CROSS, B.Sc. in H.Ec. (Manitoba), Instructor in Home Economics.
MISS JEAN TRAVIS, Instructor.
MRS. EVANGELINE WINN, A.M. (Columbia), Instructor.
MISS SYLVEA L. DYSON, B.H.E. (Brit. Col.), Instructor in Home Economics.
MISS MARGARET MACKAY, B.S.A. (Brit. Col.), Instructor in Agriculture.

University Health Service

GEORGE T. CUNNINGHAM, University Representative on the Metropolitan Health Committee.

STEWART MURRAY, M.D., D.P.H. (Toronto), Chief Medical Health Officer, Metropolitan Health Committee.

R. W. LAMONT-HAVERS, B.A. (Brit. Col.), M.D. (Toronto), Medical Health Officer.

MISS MURIEL UPSHALL, B.A.Sc. (Brit. Col.), R.N., Nursing Supervisor.

MISS RUTH ROSS, B.A.Sc. (Brit. Col.), R.N. (Toronto), Public Health Nurse.

MRS. JEANNE E. WORRALL, B.A.Sc. (Brit. Col.), R.N., Public Health Nurse.

MRS. ELEANOR NELSON, B.A.Sc. (Brit. Col.), R.N., Public Health Nurse.

Veterans' Bureau and Employment and Placement Bureau

MAJOR JOHN F. MCLEAN, D.S.O., B.A. (Brit. Col.), Director of Student Services.

CAPT. W. G. BLACK, B.A. (Brit. Col.), M.A., Ph.D. (Chicago), Counsellor.

MAJOR STANLEY E. READ, M.A. (McGill), Part-time Counsellor.

FL.-LT. H. ORVILLE HAYES, B.A. (Brit. Col.), Counsellor.

1949-50

THE UNIVERSITY OF BRITISH COLUMBIA

HISTORICAL SKETCH

The creation of a university in British Columbia was first advocated by Superintendent Jessop in 1877, but it was not until 1890 that the Provincial Legislature passed an act establishing a body politic and corporate named "The University of British Columbia." In 1891 this act was amended to require that a meeting of the Senate be held within one month after the election of the Senators by Convocation. The Senators were elected, but a quorum did not assemble on the date fixed by the Chancellor, Dr. I. W. Powell, of Victoria. Thus the first attempt to establish a university in British Columbia failed.

However, some of the work normally done in a university was begun in 1894, when an act was passed which permitted the affiliation of high schools in the Province with recognized Canadian universities. In 1899 Vancouver High School was affiliated with McGill University in order to provide First Year work in Arts, and took the name of Vancouver College. First Year work in Arts was offered by Victoria High School when it became Victoria College by affiliation with McGill University in 1902. In the same year Vancouver College undertook the Second Year in Arts.

In 1906 an act was passed incorporating the Royal Institution for the Advancement of Learning of British Columbia, which, in the same year, established at Vancouver the McGill University College of British Columbia. The scope of the work undertaken by this college was gradually increased until at the time it was taken over by the University of British Columbia it was giving three years in Arts and Science and two years in Applied Science. When the University of British Columbia opened in the autumn of 1915, both the McGill University College of Vancouver and Victoria College, which since 1907 had been a part of it, ceased to exist.

Definite steps to establish the University were taken by Dr. H. E. Young, Minister of Education, in 1907, when he introduced a "University Endowment Act." This act was followed in 1908 by an act establishing and incorporating the University of British Columbia and repealing the old act of 1890-1. This act, with its subsequent amendments, determines the present constitution of the University.

As authorized by an act passed by the Provincial Legislature in 1910, the Lieutenant-Governor in Council appointed a Site Commission to decide upon a site for the proposed University. The Commission held its first meeting on May 25th, 1910, in Victoria, and after a thorough examination of the Province recommended the vicinity of Vancouver. In the autumn the Executive Council

decided to place the University at Point Grey—the site which the Commission had named as its first choice. In 1911 the Legislature passed an act authorizing the Lieutenant-Governor in Council to grant this site to the University. The grant was increased in 1915, so that it now consists of 548 acres at the extremity of Point Grey. The waters of the Gulf of Georgia form more than half the boundary of the University campus. A tract of some 3,000 acres of Government land immediately adjoining the site, and lying between it and the City of Vancouver, has been set aside by the Government in order that University revenue may be provided by its sale or lease.

In February, 1912, the Hon. H. E. Young, Minister of Education, called for competitive plans which should include plans in detail for four buildings to be erected immediately, and a block plan showing all the proposed buildings on the campus. Messrs. Sharp and Thompson, of Vancouver, B. C., were the successful competitors, and were appointed University Architects.

The first Convocation, held on August 21st, 1912, chose Mr. F. L. Carter-Cotton as first Chancellor of the University. When he retired at the end of two terms in 1918, Dr. R. E. McKechnie was elected Chancellor, and served continuously until his death, May 24th, 1944. On September 18th of that year the Hon. Eric W. Hamber was elected by acclamation to fill out Dr. McKechnie's unexpired term, and in 1945 and 1948, again by acclamation, for the ensuing regular terms.

In March, 1913, the Lieutenant-Governor in Council appointed as first President of the University F. F. Wesbrook, M.A., M.D., C.M., LL.D. On his death, October 20th, 1918, L. S. Klinck, Dean of the Faculty of Agriculture, was appointed by the Board of Governors as Acting President, and on June 1st, 1919, as President. When he retired, June 30th, 1944, he was succeeded by Dr. Norman A. M. MacKenzie.

From its opening in 1915 till the Summer of 1925, the University carried on its work in temporary quarters on part of the site of the General Hospital in Fairview.

Construction work was commenced on the Science Building at the permanent site in Point Grey in 1914, but was interrupted because of war conditions. Work on this building was resumed in 1923, and in the autumn of the same year the contract was let for the Library. These two buildings, which are of stone and are fireproof, conform closely to the original plans as prepared by the architects in 1914. The initial units of these structures, as well as nine other buildings which are of a less permanent character, were completed in 1925, and at the beginning of Session 1925-26 the University commenced work in its new quarters.

The inauguration of the new buildings was held on October 15th and 16th, 1925, on which occasion honorary degrees were granted by the University for the first time.

In the period before the Second World War the following notable additions were made to the University buildings: the Gymnasium, in 1929; the Brock Memorial Building, in 1936; and the first section of the Grandstand for the Stadium, in 1937. During the war the University Armoury was built, the main section in 1941 and an extension to complete the structure in 1943.

Following the war a great many temporary buildings, chiefly converted army huts, were provided to accommodate the greatly increased enrolment caused by the return of veterans to the University.

A programme of construction of additional permanent buildings was authorized by the Provincial Government in 1945, and the Physics Building, the first unit to be completed, was formally opened by the Premier, the Honourable John Hart, on October 29th, 1947. The north wing of the Library was completed and formally opened by the Honourable E. C. Carson, Minister of Public Works, on October 27th, 1948. In 1948 an addition to the Power House was built, and the first section of a permanent Applied Science Building brought to an advanced stage of construction. Work on a general Biological Science Building with Pharmacy wing has been begun and other permanent structures, including residences for women students, a Home Economics Building and a Bacteriology and Preventive Medicine Building have been projected.

GENERAL INFORMATION

The Constitution of the University

The Constitution of the University is governed by the British Columbia University Act, B.C.R.S. 1936, c. 299, and Amending Acts, which provide:

That the University shall consist of a Chancellor, Convocation, Board of Governors, Senate, Faculty Council, and the Faculties; that the Convocation shall be composed of the Chancellor, the Senate, all persons who became members of the Convocation prior to the first day of January, 1919, all persons holding academic appointments with the University and whose names are added to the roll of Convocation by the Registrar of the University from time to time upon instructions from the President, and all persons who have become graduates of the University; that the Chancellor shall be elected by the members of the Convocation; that the Board of Governors shall consist of eleven members—the Chancellor, who shall be the Chairman thereof, the President, three

persons elected by the Senate from among its members, and six members appointed by the Lieutenant-Governor in Council; that the Senate shall consist of: *(a)* The Chancellor, and the President of the University, who shall be chairman thereof; *(b)* the deans and two professors of each of the Faculties elected by members of the Faculty; *(c)* three members to be appointed by the Lieutenant-Governor in Council; *(d)* the principals of the normal schools; *(e)* one member elected by the high school principals and assistants who are actually engaged in teaching; *(f)* one member to be elected by the governing body of every affiliated college or school in this Province; *(g)* fifteen members to be elected by Convocation from the members thereof; *(h)* one member elected by the British Columbia Teachers' Federation.

It is further provided that the University shall be non-sectarian.

The University Act gives the University full powers to grant such degrees in the several Faculties and different branches of knowledge as the Senate may from time to time determine. It reserves for the University the sole right in this Province to confer degrees, except in Theology, and it expressly enacts that "No other university having corporate powers capable of being exercised within the Province shall be known by the same name, nor shall any such university have power to grant degrees."

Library

The addition of the North wing has more than doubled the capacity of the University Library. The large new Ridington Reference Room perpetuates the memory of the late John Ridington, first Librarian of the University. A series of seminar rooms and a Reserve Book Reading Room in the wing have provided further facilities and made possible the establishment of a Fine Arts Room in the old part of the building.

The book collection, which consists of over 260,000 volumes, includes representative works in all the courses offered by the University, and a growing collection of material in other subjects. It is notable for its high percentage of the transactions and proceedings of learned societies and its long runs of scholarly periodicals, all essential to research. The Library receives regularly over 2000 serial publications. In addition, it has recently acquired by purchase a substantial portion of the Royal Canadian Institute's files of periodicals, and when these have been catalogued and made available they will form a most valuable addition to the research material in the Library.

The book collection is classified throughout according to the Library of Congress system.

Special mention should be made of several notable gifts which have greatly increased the scope of the library. Among these are the Howay-Reid Collection, made up of the combined libraries of the late Judge F. W. Howay and the late Dr. Robie L. Reid, both of whom had assembled fine collections of Canadiana, the Pound Collection consisting largely of Canadian fiction, and the A. J. T. Taylor Collection of material pertaining to the Arctic region.

Part of the fund provided by Mr. H. R. MacMillan for a basic library in Forestry has been expended, and a very useful and valuable collection of material is being accumulated. The Koerner Trust Fund for the purchase of books in the Fine Arts, and the B. C. Packers Fund to provide material in Fisheries are making possible very valuable additions in these fields.

The College Music Set, given to the University some years ago by the Carnegie Corporation of New York, has been expanded into a collection of over 2,000 records. It includes also two fine electric gramophones, a collection of books in the field of music, and a large number of scores. The recordings are used regularly for student recitals and to illustrate lectures on the appreciation of music. Thousands of records are loaned annually to staff and students for home use.

The College Art Teaching Set, the gift of the Carnegie Corporation of New York, consists of about 200 works representing the fine and applied arts, and more than 2,000 reproductions illustrating these. The Library also has an Art Loan Collection, comprising prints and original paintings, from which staff and students may borrow. Most of the original paintings in this collection have been made available through the kindness and generosity of local artists.

While the Library is primarily for the staff and students of the University, its resources are available to those of the general public engaged in research or special study, and who make personal application to the Librarian for the privilege of its use. Such persons are known as "extra-mural readers". By order of the Board of Governors a fee of $1.00 per calendar year is charged such readers. In addition, they pay necessary mailing costs, a deposit being required from those unable to call personally for books loaned.

The Library also administers the book collection of the University Extension Department. This consists of about 3,000 volumes, and is increasing as the Department's work develops.

The Extension Department's collection also includes more than 6,000 plays, for the service of dramatic groups and theatre students throughout the Province.

The Extension Department's book and play collections are available to those who have registered with the Department.

The University is deeply indebted to all who have made gifts to the Library. These have been both valuable and numerous. Their number prevents detailed acknowledgement, but recognition should be made of a number of sets of transactions, and complete or partial sets of scientific periodicals, given by societies and friends of the University. The most interesting and valuable of these gifts are listed in the annual report of the Library to the Senate.

Museums

These consist of (1) the Burnett Collection of South Seas and other ethnological specimens, housed on the first floor of the Library; the Raley collection of Indian artifacts, collected by Dr. G. H. Raley and donated by Mr. H. R. MacMillan; the Buttimer collection of Indian baskets; the Michell Pierce collection of Eskimo clothing and utensils; and numerous other valuable collections and items; (2) the Geological and Geographical Museum, in Room 116, Applied Science Building; (3) the Zoological Museum, housed in various rooms of the Applied Science Building.

The Burnett Collection was made by the late Frank Burnett who donated it. It contains groups of artifacts representative of the ethnology and archaeology of various parts of the Pacific Basin. The largest unit, 1170 catalogued items, is from the islands of the South Pacific, but Malaysia and North and South America are also strongly represented.

The Geological and Geographical Museum has been developed as a medium for the visual instruction of students and visitors. It is closely coordinated with the Department of Geology and Geography, but is used freely by students of sociology and history, as well as by art students from city studios. The exhibits include the Dr. H. M. Ami collection of pre-historical artifacts from Les Eyzies, France; the Peach and Horne geological model of the Assynt Mountains, Scotland; suites of fossils, minerals, birds, and mammals, relief map-models, and many other things of interest.

The Zoological Museum, containing material representative of both the vertebrate and the invertebrate fields, is housed mainly in the northern wing of the Applied Science Building. Owing to lack of room in the museum, the collection is distributed in hallways and rooms wherever space can be found. The collection of marine invertebrates of the northeastern Pacific Ocean is one of the largest extant. The collection of vertebrates exclusive of fish numbers 4399 specimens. A collection of 12 beautifully mounted heads of B. C. game, donated by Messrs. G. L. and R. J. Pop, hangs on the walls of Room 100, Applied Science Building, and a fine suite of African game horns, donated by Mr. W. F. Byers, hangs in Room 120 of the same building.

The collections are freely available to students and research institutions.

Gymnasium

This building was completed in 1929 and presented to the University by the Alma Mater Society. The playing floor has an area of 6,000 square feet, and is surrounded on all sides by tiers of seats which will accommodate 1,400 persons. In this building are located the dressing rooms, locker rooms, showers, a training and first-aid room, an equipment room, an apparatus room, a kitchen, and the offices of the Department of Physical Education. Equipment for all recreational sports activities is available to the student body free of charge upon presentation of a Physical Education card.

Stadium and Playing Fields

In accordance with the original landscape plan prepared by Mawson in 1913, the main playing field area, consisting of about 16 acres, is situated east of the East Mall and north of the University Boulevard. Development work was started early in January 1931, as an aid in alleviating the acute unemployment situation, and was made possible by funds provided chiefly by subscriptions from the Faculty, students, and friends of the University. Much of the labour was obtained through the courtesy of the Relief Department of the City of Vancouver. Twenty thousand cubic yards of soil and gravel were used to bring the track and field to grade.

In addition to the main playing field of the stadium, there are four other full-size fields and a number of smaller areas set aside for outdoor games.

The first section of the grandstand for the stadium was erected in the summer of 1937 on the west side of the main playing field. It is a covered, reinforced concrete structure, 126 feet long, and provides seating accommodation for 1,600 spectators. On either side are two wooden bleacher sections of 500 seats each. In 1946 a wooden grandstand section providing 1,000 covered seats was added. The plan provides for the ultimate continuance of the main section around the field, and for this reason the present bleachers are so constructed as to be movable. Underneath the present main stand there are locker rooms, dressing rooms, showers, ticket booths, drying rooms, and a room for special activities such as boxing, handball, weight lifting, wrestling, and fencing. This special activities room in the stadium was completed and equipped early in 1946. Funds for the construction of the grandstand were provided through a $40,000 bond issue sponsored by the Alma Mater Society. The Provincial Government has undertaken to assume the annual charges for interest on the bonds.

There is also some additional temporary accommodation used by the Department of Physical Education. An army hut, located north of the Brock Memorial Building, was supplied in 1946 to relieve the congestion in the gymnasium. This hut is used primarily for dance classes and recreational activities. An airforce hangar brought to the campus in the fall of 1946 was reconstructed as an athletic Field House in January, 1948. This building is 160 feet long and 110 feet wide. It is used for archery, badminton, golf, tennis, as well as track and field and various team practices.

The Brock Memorial Building

In connection with the celebration of the twenty-first anniversary of the opening of the University in 1936, it was decided that a memorial be established by general appeal to students, graduates, and friends of the University throughout Canada. A committee representing all branches of the University decided that the memorial should take the form of a student union building, dedicated to the memory of the late Dean of Applied Science, Reginald W. Brock, and Mrs. Brock, by whose tragic deaths as a result of an aeroplane accident the University suffered a great loss.

The original fund for the construction of the building was subscribed by relatives of Dean and Mrs. Brock, friends of the University throughout Canada and the United States, alumni and students of the University, and former colleagues of Dean Brock. The balance of the amount required to complete construction was provided by the students and the Board of Governors in cash and through a bond issue of the Alma Mater Society. Furnishings for the building were provided from a fund raised over a period of years by the Women's Union Building Committee of the University.

The building is situated adjacent to the playing fields and gymnasium. In it are located the offices of the Alma Mater Society, the Alumni Association, and various clubs and student activities. The building also contains common rooms, lunch and tea rooms, and accommodation for social groups.

The Brock Memorial Building was dedicated in January, 1940.

Forest Products Laboratories

The Forest Products Laboratories of Canada, Vancouver Laboratories, which are maintained by the Forest Service of the Department of Mines and Resources, Canada, occupy five buildings, three of which are provided and kept up through a cooperative agreement between the University and the Dominion Government.

Plan of Campus

The plan at the back of the Calendar shows the buildings which have been erected and indicates the nature of their construction.

The Session

The academic year begins on the first of September and ends on the last day of August. The Winter Session is divided into two terms—the first, September to December; the second, January to May. The Summer Session consists of seven weeks' instruction in July and August. For *Admission to the University,* see page 40, and for *Registration and Attendance,* see page 42.

Courses of Study

The University offers instruction in each of the six faculties, Arts and Science, Applied Science (including Nursing), Agriculture, Law, Pharmacy, and Graduate Studies.

The degrees offered are as follows:

FACULTY OF ARTS AND SCIENCE:
- Bachelor of Arts,
- Bachelor of Commerce,
- Bachelor of Education,
- Bachelor of Home Economics,
- Bachelor of Physical Education,
- Bachelor of Social Work,
- Master of Social Work.

FACULTY OF APPLIED SCIENCE:
- Bachelor of Applied Science,
- Bachelor of Science in Forestry,
- Bachelor of Architecture.

FACULTY OF AGRICULTURE:
- Bachelor of Science in Agriculture.

FACULTY OF LAW:
- Bachelor of Laws.

FACULTY OF PHARMACY:
- Bachelor of Science in Pharmacy.

FACULTY OF GRADUATE STUDIES:
- Master of Arts,
- Master of Applied Science,
- Master of Forestry,
- Master of Science in Agriculture,
- Doctor of Philosophy.

Admission as a graduate student does not in itself imply admission to candidacy for a higher degree.

In addition to the above, a course is offered in the Faculty of Arts and Science leading to a Teacher Training Diploma.

HONORARY DEGREES

The degrees of Doctor of Laws *(Honoris Causa)* and Doctor

of Science *(Honoris Causa)* are the honorary degrees conferred from time to time by the Senate of the University upon persons who have achieved distinction in scholarship or public service.

Academic Dress

The undergraduate's grown is black in colour and of the ordinary stuff material, of ankle length, and with long sleeves and the yoke edged with khaki cord. The graduate's gown is the same, without cord.

The colours for the various degrees are:

B.A. University blue,
B.Com. same with white cord,
B.Ed. white with cord of University blue,
B.H.E. turquoise,
B.P.E. malachite green,
B.S.P. dark green with cord of scarlet,
B.S.W. magenta,
B.A.Sc. scarlet,
B.S.F. same with green cord,
B.S.A. maize,
LL.B. amethyst violet.

The Master's hood is the same as the Bachelor's, lined with the distinctive colour.

The University Student Health Service

The University Student Health Service is under the direction of the Metropolitan Health Committee, which provides health services for the Greater Vancouver Area including the University Endowment Area.

The Health Service is at present housed in Hut No. A2 directly south of the Armoury.

Requirements of The University Student Health Service
Medical Examinations

1. On admission to the University each new student must report to the Health Service office for a medical examination. The medical appointment is made at the time of registration.

2. Students registered in the Second Year (ex-service excepted) must report for a re-check medical examination to determine their capacity for physical exercise. They are advised to make their appointment at the time of registration.

3. Students registering for the Physical Education degree course must have a yearly medical examination completed within the first two weeks of the session. They are advised to make their appointment at the time of registration.

4. Students who are members of athletic teams must have a yearly medical examination preceding active participation. The team manager will check each student's physical capacity card.

5. Students who have been away from the University for a year or more are also required to report.

At the time of the examination the student is informed of any physical defect, given advice, and urged to have remediable conditions corrected.

Evidence, satisfactory to the Medical Officer, of successful immunization against smallpox is required.

The Medical Officer is available at specified hours for consultation with students on health problems.

Control of Communicable Diseases

Preventive tests and inoculations are given by the Health Service. Much valuable time can be saved by prompt and immediate application of preventive measures in checking the spread of communicable disease.

1. Tuberculosis.

Tuberculosis is a major cause of death in people of university age. Therefore a Chest X-ray examination is provided by the University Student Health Service, in cooperation with the Provincial Board of Health, Tuberculosis Division, and the B. C. Tuberculosis Society through its Christmas Seal fund.

The Chest X-ray is part of the medical examination and all other students are urged to have a yearly X-ray while the Unit is on the campus. There is no charge for this service.

This project is of a very great value; for when early tuberculosis is diagnosed and treatment instituted before physical breakdown occurs, the patient is saved from years of invalidism and perhaps death, and student contacts are protected from infection.

2. Other Communicable Diseases.

The development of any communicable disease in a University student or *any person living in the same house* must be reported by the student to the University Student Health Service without delay. Students exposed to communicable disease may be permitted, by special order of the Medical Health Officer, to attend the University for a prescribed period, despite the exposure.

Such students shall report daily (or oftener, at the discretion of the Medical Health Officer) to the University Student Health Service for such prescribed period. Failure to report will result in immediate exclusion from the University.

Reporting of Other Illnesses or Absence

Students *developing* any illness or suffering from any injury while on the campus should apply for first aid to the University Student Health Service.

Students *developing* any illness or suffering any injury while at home, boarding house, fraternity house, etc., are required to report this to the University Student Health Service.

Students absent on account of illness must notify the Health Service Office by telephone and report before attending lectures. If a doctor has been in attendance the student is to bring a medical certificate from him. *If the student is absent from an examination he must present a medical certificate, which is to be in the Health Service Office within one day after the termination of the examination period. A medical certificate must show the nature and period of disability.* Medical report forms may be obtained from the Health Service Office. The dean of the faculty is notified of absence from classes or examinations because of illness.

Summer Session

The University Student Health Service provides a health service for students attending the Summer Sessions. Details of this service may be found in the *Announcement of the Summer Session.*

Ex-service students attending the University for the first time must report and fill in the University medical history card.

Dean of Women

During the session the Dean of Women may be consulted by parents and students on matters pertaining to living conditions, vocational guidance, and other questions that directly affect the social and intellectual life of the women students.

Board and Residence

Women

The Office of the Dean of Women undertakes the inspection of all accommodation offered for women students. Any vacancies of which information is obtained will be listed and made available to students on demand. Since under present housing conditions very few listings are received until late in the summer, students planning to attend the University should also attempt to secure accommodation either through their own efforts or with the aid of friends.

Men and women students are not permitted to lodge in the same house, unless they are members of the same family or receive special permission from the Senate. Women students under twenty-

five years of age are permitted to occupy suites in apartment houses only when accompanied by some older person. Any residence accommodation arranged by women students for themselves must also meet with the approval of the Dean of Women.

The cost of board and lodging is about $45 a month. Room and breakfast can be secured for $20 to $25 a month. Other meals may be obtained at several places on the campus.

For the Session 1949-50 there will be limited accommodation for women at Acadia Camp near the University. The dining room at the Camp is under the supervision of a trained dietitian. Accommodation is in single, double, or triple rooms, and the rates are $45 a month. Request for reservations should be made to the Dean of Women's office. Preference will be given to returned women.

Men

Information concerning accommodation available for men may be obtained by applying to the office of the Housing Administrator, Administration Building. Charges for board and room vary from $45 to $55 a month, for room and breakfast from $25 to $30 a month, and for room alone from $20 to $25 a month. Meals may be obtained in the Cafeteria and in the Brock Memorial Building; light refreshments are available at different points on the campus.

Students wishing accommodation in either Acadia or the Fort Camp should apply to the Housing Administrator at the University. During 1948-49 the charge for room and board was $45 per month. About 700 students can be accommodated. Preference will be given to returned service men.

Counselling and Placement Bureau

In conjunction with the University Veterans' Bureau, the Counselling and Placement Bureau gives information and suggestions to all students concerning admission, courses, and vocational opportunities. A file on professional and vocational opportunities is maintained and is available on request. Tests of general ability, interest, and personality are administered on the following dates:

June 25, 1949—1:30 p.m.
September 3, 1949—1:30 p.m.
September 10, 1949—1:30 p.m.

The Placement Bureau also endeavors, in cooperation with the various faculties concerned, to take care of part time, vacation, and permanent employment for graduates and undergraduates. Close liaison with the executive and professional branch of the National Employment Service is maintained. Registration for part time employment should be made early in September; registration for vacation or full time employment will normally take place in January or February at the Bureau office situated in Hut M7.

In cooperation with the Alumni Association, the Bureau also registers and seeks positions for former graduates of this University who may wish an advantageous change of position.

General Conduct

The University authorities do not assume responsibilities which naturally rest with parents. This being so, it is the policy of the University to rely on the good sense and on the home training of students for the preservation of good moral standards.

ADMISSION TO THE UNIVERSITY

All enquiries relating to admission to the University should be addressed to the Registrar.

The accommodation for students in the University is limited. The University, therefore, reserves the right to limit the attendance.

The University reserves the right of selection and admission of students entering the Second Year of the course in Pharmacy, the First Year of the Combined Course in Nursing and the Second Year of the Double Course in Arts and Science and Nursing.

The University reserves the right to limit the registration in, or to cancel, any of the courses listed. Limitation may be imposed if the numbers desiring any course are found to be too large for the lecture rooms and laboratories available for that course, or for the number of instructors in the department concerned, or for the equipment and supplies which can be obtained. Certain courses may be cancelled if the numbers of instructors in the departments concerned prove to be inadequate to offer all the courses listed.

1. Except under special circumstances, no student under the age of sixteen is admitted to the University. For admission to the First Year of the course in Nursing (or the Second year of the Double Course in Arts and Nursing) a student must be eighteen years of age, and for admission to the course in Social Work twenty-one years of age.

2. Candidates for admission to the courses in the First Year of the Faculty of Arts and Science or the Faculty of Agriculture and to the course in Nursing in Applied Science are required to have full standing in University Entrance (Junior Matriculation) of the Province of British Columbia or to submit certificates showing that they have equivalent standing elsewhere. Special regulations are prescribed for admission to courses in Applied Science, Pharmacy, and Law, and are given under the heading of *Admission* in the sections of the Calendar concerned.

3. Students who have passed the Senior Matriculation examination are admitted to the Second Year of the course leading to the degree of B.A. Students who have partial Senior Matriculation standing will be granted credit in the First Year in each subject in which they have made 50 per cent. or over.

4. A student who has any deficiency in University Entrance standing will not be admitted to the University.

5. The University Entrance and Senior Matriculation examinations of the Province of British Columbia are conducted by the High School and University Matriculation Board of the Province. This Board consists of members appointed by the Department of Education and by the University. The requirements for these examinations are stated in the publication, *Requirements for University Entrance and Senior Matriculation,* issued by the University. The courses of study for the various grades in the high schools are given in the *Programme of Studies for the High Schools,* issued by the Provincial Department of Education.

6. Certificates or diplomas showing that a candidate has passed the matriculation examination of another university will be accepted in lieu of the University Entrance or Senior Matriculation examinations if the faculty concerned considers that the examination has covered the same subjects and required the same standards. If, however, the examinations cover some but not all of the necessary subjects, the candidate will be required to pass the examinations in the subjects not covered.

7. A candidate who wishes to enter by certificate other than a Matriculation or University Entrance certificate issued in British Columbia should submit to the Registrar the original certificates. If he wishes these returned to him, he must present also a copy of each certificate for record at the University, or must pay the prescribed fee for making photostatic copies of the originals. He should under no circumstances come to the University without having first obtained from the Registrar a statement of the value of the certificates he holds. as these may lack one or more essential subjects, or the work done in a subject may not be adequate, or, again, the percentage gained may not be sufficiently high. Moreover, it must be remembered that a certificate may admit to one faculty and not to another. When an applicant's diploma or certificate does not show the marks obtained in the several subjects of the examination, he must arrange to have a statement of his marks sent to the Registrar by the Education Department or university issuing such diploma or certificate.

8. A student of another university applying for exemption from any subject or subjects which he has already studied is required

to submit with his application a calendar of the university in which he has previously studied, together with a complete statement of the course he has followed and a certificate of the standing gained in the several subjects.* The faculty concerned will determine the standing of such a student in this University.

REGISTRATION AND ATTENDANCE

A student applying for registration for the first time in the University of British Columbia must make use of the *Application for Admission* form obtainable from the Registrar's office. Those wishing to register for the regular Winter Session should file this application, together with the necessary certificates, before September 1st. Each applicant will then be given notification concerning his admission and standing and instructions as to registration procedure.

In order to facilitate registration, students who have qualified for admission to the next higher year of the course they are taking will be sent notices of eligibility for re-registration along with statements of their marks as soon as possible after the sessional examinations. Those who wish to enrol in a different faculty or course should notify the Registrar's office of their intention on the form provided for this purpose. Those whose eligibility for re-registration depends upon the passing of supplemental examinations should not apply until all requirements have been met. Results of supplemental examinations are obtainable in person at the Registrar's office as soon as received from the markers, and are mailed to students only on special request.

The registration fee of $5.00 is payable during registration at the same time as the First Term fees. It is not necessary to send the registration fee with application for either first or subsequent registration.

Attention is called to the calendar on page 5, giving the days during which registration must be completed in person.

Registration is not complete until the applicant has turned in his registration booklet at the Registrar's office and has paid his First Term fees. Those who have not completed registration by the last day prescribed will be subject to payment of the late registration fee of $10.00. Students who have been awarded scholarships or bursaries, the first instalment of which is less than the First Term fees, will be required to pay the difference upon registration.

No student with unsatisfactory standing will be permitted to register in September without the permission of Faculty.

*For the conditions under which exemption is granted in the Faculty of Arts and Science, see *Courses Leading to the Degree of B.A.*

The University reserves the right of selection and admission of students entering the Second Year of the course in Pharmacy, the First Year of the Combined Course in Nursing and the Second Year of the Double Course in Arts and Science and Nursing.

Application for admission to First Year Nursing must be made to the Registrar on or before August 15th. A selection of candidates will be made immediately thereafter on the basis of qualifications. Forms of application for admission to these courses may be obtained from the Registrar's office.

1. Undergraduate students are classified as follows:

(a) Full undergraduates—students proceeding to a degree in any faculty who have passed all the examinations precedent to the year in which they are registered.

(b) Conditioned undergraduates—students proceeding to a degree with defects in their standing which do not prevent their entering a higher year under the regulations governing *Examinations and Advancement* of the faculty in which they are registered.

(c) Partial students—students not belonging to one of the three preceding classes. (See 7, below.)

Graduate students who are proceeding to a Bachelor's degree in another course in the same faculty in which they hold a degree, or in another faculty, will register as undergraduates.

2. All students are required to furnish the information necessary for the University record, to enrol for the particular classes which they wish to attend, and to sign the following declaration:

"I hereby accept and submit myself to the statutes, rules, regulations, and ordinances of The University of British Columbia, and of the faculty or faculties in which I am registered, and to any amendments thereto which may be made while I am a student of the University, and I promise to observe the same."

All students are required to give full information of educational institutions previously attended and to provide evidence of the standing obtained.

In the information furnished for the University records, students are requested to state what church they propose to make their place of worship. This information is available for any of the city churches desiring it.

3. No registration for undergraduate students of the regular Winter Session will be accepted after Monday, September 26th, without the special permission of the faculty concerned, and a

candidate so accepted for registration may be required to take fewer courses than the regular year's work.

4. The Registrar is empowered to register all duly qualified students. Doubtful cases will be dealt with by the faculty concerned.

5. Students doing work in two academic years will register in the lower year and fill out their course cards in such a way as to make clear which courses are required to complete the lower year.

6. Students desiring to make a change in the course for which they have registered must apply to the Registrar on the proper form for a "change of course." Except in special circumstances, no change will be allowed after the second week of the session. If the application is approved by the faculty concerned, the Registrar will give the necessary notifications.

7. Partial students, who are not proceeding to a degree, are not normally required to pass an examination for admission, but before registering they must produce a certificate showing that they have satisfied the Dean and the heads of the departments concerned that they are qualified to pursue with advantage the course of study which they propose to undertake.

8. Students are required to attend at least seven-eighths of the lectures in each course that they take. Admission to a lecture or laboratory and credit for attendance may be refused by the instructor for lateness, misconduct, inattention, or neglect of duty. Absence consequent on illness or domestic affliction may be excused only by the dean of the faculty concerned, and medical certificates or other evidence must be presented. *If the absence occurs during the session,* the student must appear in person, with the certificate, at the University Health Service immediately on return to the University, and before attendance upon class work. The University Health Service will examine the person concerned and will immediately forward the certificate, with report thereon, to the dean of the faculty. *If the absence occurs during the examinations,* the certificate must be sent to the Health Service within one day after the termination of the examination period. A medical certificate must show the nature and the period of the disability. Medical report forms may be obtained from the Health Service office. In cases of deficient attendance students may (with the sanction of the dean and the head of the department concerned) be excluded from the Christmas or the final examinations in a course; but, in the case of a final examination, unless the unexcused absences exceed one-fourth of the total number of lectures in a course, such student may be permitted to sit for supplemental examination. (See regulation in each faculty in reference to *Examinations and Advancement.*)

9. All candidates for a degree must make formal application for graduation at least *one* month previous to the Congregation at which they expect to obtain the degree. Special forms for this purpose may be obtained from the Registrar's office.

10. All students new to this University (First and other years) and all students registered in the Second Year must report to the Student Health Service for a medical examination.

Students registering for the Physical Education degree course must have a yearly medical examination; also students who are members of athletic teams must have a yearly medical examination preceding active participation.

LECTURESHIPS

The Hewitt Bostock Lectureship

Through the generosity of the Misses Bostock a lectureship has been established in honour of their father, the late Senator Hewitt Bostock, providing for a public lecture at least once in three years by a speaker of national or international reputation on a subject of educational or social importance.

The Canadian Club Lectureship

On the occasion of its fortieth anniversary in 1946, the Canadian Club of Vancouver made provision for a lectureship under the terms of which a series of two or three lectures will be given annually, preferably by a graduate or former faculty member of the University who has made a special contribution in any field of scholastic, scientific or public endeavor, on a subject of Canadian interest within the special field of the lecturer.

FEES

All cheques must be certified and made payable to "The University of British Columbia."

The registration fee is not returnable.

If fees are not paid when due an additional fee of $2.00 will be charged.

Registration is not complete until the First Term fees have been paid, and no student is entitled to admission to classes until after such payment.

Fee for late registration $10.00

Fee for change of course after September 28th 2.00

Holders of scholarships or bursaries the first instalment of which is less than the First Term fees must pay the difference before registration is complete.

Students taking laboratory courses are required to purchase Laboratory Fee Coupon Books at the Bursar's office at a cost of $3.00 per book. Deductions will be made from these books by instructors for laboratory purposes. Library fines may also be paid by means of these coupons.

Fees are not transferable from one session to another.

NO REFUND will be made for
First Term Fees after October 31st;
Second Term Fees after January 31st.

Application for a refund prior to these dates must be made to the Bursar within a two-week period after the student has discontinued his work.

If conditions make it necessary, the fees in all Faculties and Courses may be increased, effective in the Session 1949-50.

For the purpose of assessing fees, students registered for not less than 12 units in the regular winter session will be considered to be taking a full course and will be subject to the following fees:

FULL-TIME STUDENTS

FACULTY OF ARTS AND SCIENCE (including courses leading to the degrees of B.A., B.Com., B.H.E., B.P.E.†, B.Ed., and the Teacher Training Course):

FACULTY OF AGRICULTURE (except Occupational Course):

NURSING AND HEALTH*:

First Term—Payable on registration:

Registration Fee	$ 5.00
Sessional Fee	90.00
Alma Mater Fee	15.00
Campus and Building Fee	5.00
	$115.00

Second Term—Payable on or before January 11th:

Sessional Fee	90.00
	$205.00†

*For Second, Third and Fourth Year students in Nursing (i.e., students in the affiliated hospital) the Sessional fee is $1.00, payable with an Alma Mater fee of $4.00 on registration. No Campus and Building Fee is payable. Students admitted to a one-year course for graduate nurses and proceeding to the Certificate on a basis of part-time attendance over two or more years will register as Partial Students.

†See Physical Education Fee.

FACULTY OF APPLIED SCIENCE (including courses leading to the degrees of B.A.Sc., B.S.F., and B.Arch., but not including Nursing and Health):

FACULTY OF LAW:

FACULTY OF PHARMACY:

SOCIAL WORK—B.S.W. Course:

First Term—Payable on registration:

Registration Fee	$ 5.00	
Sessional Fee	115.00	
Alma Mater Fee	15.00	
Campus and Building Fee	5.00	
		$140.00

Second Term—Payable on or before January 11th:

Sessional Fee	115.00	
		$255.00†

PHYSICAL EDUCATION FEE (Payable on registration):

B.P.E. Course	$ 5.00
Physical Education Activity Programme (Payable by all students taking Physical Education Activity Courses)	3.00

OCCUPATIONAL COURSE IN AGRICULTURE*:

First Term—Payable on registration:

Registration Fee	$ 5.00	
Sessional Fee	45.00	
Alma Mater Fee	15.00	
Campus and Building Fee	5.00	
		$ 70.00

Second Term—Payable on or before January 11th:

Sessional Fee	45.00	
		$115.00†

*NOTE: Students transferring credit from the Occupational to the Degree Course in Agriculture must pay the difference in fees

†See Physical Education Fee.

PARTIAL STUDENTS

Partial students are subject to the following fees:

(a) Incidental fees, payable on registration, as follows:

For a course of 6 units or less:

Registration Fee	$ 3.00
Alma Mater Fee	8.00
Campus and Building Fee	5.00

For a course of from 7 to 11 units:

Registration Fee	5.00
Alma Mater Fee	15.00
Campus and Building Fee	5.00

(b) Sessional Fees at the rate of $12.00 per unit for courses taken, payable in two equal instalments, the first on registration, and the second on or before January 11th.

Students required to take Physical Education activity courses are also subject to the Physical Education Fee (see page 47).

FACULTY OF GRADUATE STUDIES AND M.S.W. COURSE:
(See notes (a) and (b) below)

For a full course of not less than 12 units:

First Term—Payable on registration:

Registration Fee	$ 5.00
Sessional Fee	90.00
Alma Mater Fee	15.00
Campus and Building Fee	5.00
	$115.00

Second Term—Payable on or before January 11th:

Sessional Fee	90.00
	$205.00

For a course of less than 12 units:

As for Partial Students.

For courses taken in Summer Session:

As for Summer Session Students.

(a) The maximum sessional fee for a course leading to a Master's degree is $180.00. Candidates who take more than one session to complete the course required for the Master's degree may pay at the rate

of $12.00 per unit for courses taken until the maximum of $180.00 has been reached.

Graduate students required to make up prerequisites to the Master's course are subject to sessional fees at the rate of $12.00 per unit for such prerequisite courses in addition to the full fee of $180.00 for the Master's course.

Graduate students who are not candidates for a higher degree are subject to sessional fees at the rate of $12.00 per unit for courses taken.

(b) Candidates for the degree of Ph.D. are subject to graduate fees for a full course, as set forth above, in respect to the first session in which they register as Ph.D. candidates. Students required to make up prerequisites to the Ph.D. course are subject to sessional fees at the rate of $12.00 per unit for the courses concerned in addition to the graduate fees for a full course.

In subsequent sessions during candidacy, they are subject to an annual Registration fee of $10.00 only, payable on registration.

EXTRA-SESSIONAL AND DIRECTED READING COURSES

First Term—Payable on or before October 15th:

Registration fee $3.00
Sessional fee at $6.00 per unit .....

Second Term—Payable on or before January 11th:

Sessional fee at $6.00 per unit .....
Fee for late registration in Extra-Sessional and Directed Reading Courses $2.00

The Alma Mater Fee, authorized by the Board of Governors at the request of the students, is a fee exacted from all students for the support of the Alma Mater Society.

Immediately after the last day for the payment of fees, students whose fees have not been paid will have their registrations cancelled, and will be excluded from classes. Such students will not be permitted to register again during the term until they obtain the consent of the Dean, pay all fees, and present to the Registrar a statement from the Bursar certifying that fees have been paid.

Students borrowing books from the University Library for preparatory reading courses will be required to make the usual deposit of $2.00 with the Librarian to cover mailing cost.

SUMMER SESSION

Fees are payable on registration, otherwise an additional fee of $2.00 will be exacted.

Registration—Payable on registration	$ 3.00
Minimum Class Fee	18.00
Per "Unit"	12.00
Summer Session Association	2.00

SPECIAL FEES

Regular supplemental examination, per paper	$ 5.00
Supplemental examination at other centres, per paper	7.50
Special examination (Applied Science and Agriculture), per paper	7.50
Re-reading, per paper	5.00

Supplemental examination fees must be paid by August 1st when application for examination is made. Special examination fees and fees for re-reading are payable with application.

MEDALS, FELLOWSHIPS, SCHOLARSHIPS, PRIZES, BURSARIES, AND LOANS FOR 1949-50

GENERAL REGULATIONS

1. All awards of medals, scholarships, fellowships, prizes, and bursaries are made by Senate, on the recommendation of the Joint Faculty Committee on Prizes, Scholarships, and Bursaries and the faculties concerned, unless otherwise provided for by special resolution of Senate.

The award of a medal, prize, scholarship, fellowship, or bursary is final when announced by the University.

2. Medals, scholarships, prizes, bursaries, and loans are open to Winter Session students only, unless otherwise stated, and marks obtained in Summer Session courses are not taken into account in awarding them.

3. If the award of a medal, scholarship, or prize is based on an examination, no award will be made to a candidate who obtains less than 75 per cent. of the possible marks.

4. To be eligible for a General Proficiency Scholarship a student must take the full year's course, which must include the required

courses for the year in which he is registered, except that in the Faculties of Arts and Science, Agriculture, and Pharmacy other subjects may be substituted for the required courses if credit for these has already been obtained.

The standing of students taking more than the required number of units will be determined on the basis of the required number of units to be chosen in a manner most advantageous to the students.

5. Unless otherwise specified in the Calendar notice, no student may enjoy the proceeds of more than one scholarship in the same academic year, and the scholarships thus relinquished will be awarded to the candidates next in order of merit. Winners of more than one scholarship will be given recognition in the published lists.

6. Winners of scholarships, prizes and fellowships who desire to do so may resign the monetary value. Nevertheless, their names will appear as winners in University lists. Any funds thus made available will be used for additional scholarships, bursaries, or student loans.

7. Scholarships, fellowships, and bursaries under the jurisdiction of the University are payable in two instalments, one at the beginning of each term. Undergraduate winners must continue their courses to the satisfaction of the faculty concerned during the session following the award. The payment for the Second Term may be withheld in the case of an undergraduate scholarship holder whose work in the First Term has been unsatisfactory. A faculty is authorized to permit a scholarship to be reserved for one year, provided the student shows satisfactory reasons for postponing attendance. Except in the case of a Pharmacy student from Senior Matriculation who has enrolled for the required year of practical training, and for whom a scholarship will be held over for one year, postponement of University Entrance and Senior Matriculation Scholarships will be granted on medical grounds only. Application for reservation should be made to the Registrar.

8. In awarding bursaries consideration will be given to the financial need of applicants.

9. Endowed scholarships, fellowships, prizes and bursaries will be paid provided the invested funds produce the necessary revenue.

If the invested funds do not produce the revenue required for the amount of scholarships, fellowships, prizes and bursaries as named in the Calendar, these scholarships, fellowships, prizes and bursaries will be correspondingly reduced.

10. The University does not guarantee the payment of any prizes, bursaries, scholarships, or fellowships other than those from the

funds of the University. With respect to prizes, bursaries, scholarships, or fellowships based upon the gifts of individuals or associations other than the University, no award will be made unless the funds required for the same have been actually received from the private donor or donors.

11. The Senate of the University of British Columbia reserves the right so to change the terms under which any exhibition, scholarship, fellowship, bursary, or prize may be established at the University of British Columbia that the terms may better meet new conditions as they arise and may more fully carry out the intentions of the donor and maintain the usefulness of the benefaction. The right so reserved shall be exercised by a resolution of the Senate duly confirmed by the Board of Governors, provided always that a year's notice shall be given in Senate of any proposed change and that the donor or his representatives, if living, shall be consulted about the proposed change.

12. Several funds are provided from which limited loans may be made to undergraduate students in need of pecuniary assistance. Interest at the rate of 5 per cent. per annum is charged on these loans commencing May 31st of the academic year in which the loan is made. They must be secured by an approved joint promissory note given for a definite term and signed by the applicant and his parent or guardian. Loans are not granted to graduate students, except in Teacher Training and Social Work. Applications for loans should be addressed to the Dean of Administrative and Inter-Faculty Affairs.

13. The University is in possession of a great deal of information regarding graduate scholarships, fellowships, and assistantships which other universities and various research bodies make available. This information may be obtained from the Dean of Administrative and Inter-Faculty Affairs.

MEDALS

The Governor-General's Gold Medal

A gold medal, presented by His Excellency the Governor-General of Canada, will be awarded to the student standing at the head of the graduating class for the B.A. degree. Honours and General Course students are eligible for this medal.

The Wilfrid Sadler Memorial Gold Medal

A gold medal, given by Sigma Tau Upsilon Honorary Agricultural Fraternity in memory of Professor Wilfrid Sadler, Pro-

fessor and Head of the Department of Dairying, 1918-33, will be awarded to the student standing at the head of the graduating class for the B.S.A. degree.

The Kiwanis Club Gold Medal and Prize

A gold medal and a cash prize of $50, given by the Kiwanis Club of Vancouver, will be awarded to the student standing at the head of the graduating class for the B.Com. degree.

The University Medal for Arts and Science

This medal will be awarded to a student in the graduating class for the B.A. degree. For the purposes of this award, students will be divided into two groups as follows: (A) those who have so chosen their majors or Honours courses that at least half of the required number of units for Third and Fourth Years are in Bacteriology, Biology, Botany, Chemistry, Geography, Geology, Mathematics, Physics, and Zoology; (B) all others. The University Medal will be awarded to the student obtaining highest standing in the group which does not include the winner of the Governor-General's Medal.

The Law Society Gold Medal and Prize

A gold medal, presented by the Law Society of British Columbia, will be awarded to the student obtaining the highest aggregate marks in the final year in the Faculty of Law. This award will be accompanied by a cash grant equivalent to the individual's Call and Admission fee.

The Horner Gold Medal

A gold medal to be known as the "Horner Gold Medal", given by Frank W. Horner Limited of Montreal, will be awarded annually to the student standing at the head of the graduating class in Pharmacy.

The United Empire Loyalists' Association Medal

The Vancouver Branch of the United Empire Loyalists' Association of Canada is offering a silver medal, and a cash prize of $35, for the best essay received during the session 1949-50 on any topic dealing with the history of the United Empire Loyalists and their influence on the development of Canada. The competition is open to all undergraduates of the University, but preference is given to students enrolled in a Canadian History course.

The Lefevre Gold Medal and Scholarship

Out of funds provided by the late Mrs. Lefevre in memory of her husband, Dr. J. M. Lefevre, a gold medal and scholarship will be awarded annually to the student standing highest in general proficiency and research ability in one of the following courses: (a) Honours in Chemistry in the Faculty of Arts and Science; (b) Chemical Engineering in the Faculty of Applied Science. The award will be based upon the work of the last two years in these courses. The value of the scholarship is approximately $150. The winning of this scholarship will not preclude the holder from enjoying the proceeds of a further award.

The Architectural Institute of British Columbia Medals and Prizes

Prizes to the total of $200, given annually by the Architectural Institute of British Columbia, are available for the leading students in the three senior years of Architecture. These prizes, each consisting of a medal and books, will be awarded to the student in each year showing outstanding ability in architectural design and obtaining a high academic record. If, in any year, no student obtains a sufficiently high standing, the awards may be withheld.

The William Brand Young Medal

This award will be made to the student in the Fifth Year of Architecture who produces the best solution to a Design Problem in community planning or civic design. The problem will be set by the Department in consultation with Mr. Young.

SCHOLARSHIPS FOR GRADUATES

University Graduate Scholarship

A scholarship of $200 may be awarded to a student of the graduating class who shows special aptitude for graduate studies and who is proceeding in the following year to graduate study in this or any other approved university. Applications, on forms available at the Registrar's office, must be received by the Registrar not later than March 15th.

The Anne Wesbrook Scholarship

This scholarship of $125, given by the Faculty Women's Club of the University, is open to a student of the graduating class of this University who is proceeding in the following year to graduate study

in this or any other approved university. Applications, on forms available at the Registrar's office, must be received by the Registrar not later than March 15th.

The Dr. F. J. Nicholson Scholarships

Out of the proceeds of a fund donated by Dr. Francis John Nicholson, the following scholarships will be awarded annually for the purpose of enabling students to do graduate study in the University of British Columbia or in any other approved university: (1) One scholarship of the value of $500 for graduate work in Chemistry. Applicants must be Honours graduates in Chemistry of the Faculty of Arts and Science, with the degree of B.A. or M.A., or graduates in Chemical Engineering of the Faculty of Applied Science, with the degree of B.A.Sc. or M.A.Sc. (2) One scholarship of the value of $500 for graduate work in Geology. Applicants must be graduates of the Faculty of Applied Science in Geological or Mining Engineering, with the degree of B.A.Sc. or M.A.Sc.

Normally the scholarships will be payable in two instalments of $250 each to provide for two years of graduate work. The payment of the second instalment will be subject to approval by the University of British Columbia of the first year's graduate work. In exceptional circumstances the full sum of $500 may be made available for work to be completed in a single year.

Recipients must be qualified to undertake graduate and research work in respect of scholarship, ability, character, and health. These scholarships will be granted with due consideration for the financial status of the candidate. The spirit of the endowment is to aid those to whom financial help is necessary or of material assistance in furthering their studies.

Applicants must be graduates of the University of British Columbia, have British citizenship, and be not more than 30 years of age on the last day of the final examinations. Preference will be given in making awards to native-born British Columbians. Applications, on forms available at the Registrar's office must be received by the Registrar not later than March 15th.

The John and Annie Southcott Memorial Scholarship

A scholarship of the value of $100, given annually by Mrs. Thomas H. Kirk, will be awarded to that student who, possessing exceptional aptitude for research, either intends to pursue, or is already pursuing some approved investigation in the field of British Columbia history. The scholarship will normally be awarded to a Fourth Year

student or to a graduate proceeding to a higher degree, but may be awarded to a student of the Third Year. Applications, on forms available at the Registrar's office, must be received by the Registrar not later than March 15th.

The Native Daughters of British Columbia Scholarship

A scholarship of $50 is given by the Native Daughters of British Columbia to a Canadian-born graduate student for research work in the early history of British Columbia, such work to be carried on in the Provincial Archives in Victoria, B. C. Applications, on forms available at the Registrar's office, must be received by the Registrar not later than March 15th.

The Vancouver B'nai B'rith Hillel Foundation Scholarships

Vancouver B'nai B'rith Foundation will award two scholarships of the value of $125 each in the Session 1949-50. These awards replace the scholarships formerly given in the name of District Grand Lodge No. 4 B'nai Brith. The terms of award are as follows: These scholarships will be awarded to outstanding graduates of any of the three faculties—Arts and Science, Agriculture, and Applied Science. The winners shall indicate satisfactory plans for graduate study at the University of British Columbia or at any other university approved by the Joint Faculty Committee on Prizes, Scholarships, and Bursaries. Only one scholarship shall be available in any one faculty in one year. Applications, on forms available at the Registrar's office, must be received by the Registrar not later than March 15th.

The Standard Oil Company of British Columbia Limited Fellowship

For research in petroleum engineering the Standard Oil Company of British Columbia Limited offers a fellowship of $950 open to Honours graduates in Chemistry in the Faculty of Arts and Science or graduates in Chemical Engineering in the Faculty of Applied Science. An additional amount, not to exceed $150, may be granted for special equipment for the research problem. The topic of research shall be chosen after consultation with the Department of Chemistry of the University and Standard of B. C. Recipients must be qualified to undertake graduate and research work in respect of scholarship, research ability, personality, and health. Applications, on forms available at the Registrar's office, must be received by the Registrar not later than March 15th.

The Britannia Mining and Smelting Company Limited Scholarship

For research in mineralography the Britannia Mining and Smelting Company Limited offers a scholarship of $250, open to graduates in Geological Mining, or Metallurgical Engineering in the Faculty of Applied Science. A portion of the scholarship not to exceed $50 may be used for special equipment for the research problem. The topic of research shall be chosen after consultation with the Department of Geology and Geography of the University of British Columbia and the Britannia Mining and Smelting Company. Applications, on forms available at the Registrar's office, must be received by the Registrar not later than December 10th. Recipients must be qualified to undertake the research work in respect not only of scholarship and research ability but also of personality and health.

The Cariboo Gold Quartz Mining Company Limited Scholarship

A scholarship of $100, given by the Cariboo Gold Quartz Mining Company Limited, for research in mineralography, is available in the session 1949-50. The terms of award are as follows: This scholarship will be awarded to a graduate in Geological, Mining, or Metallurgical Engineering in the Faculty of Applied Science. A portion of the scholarship not to exceed $20 may be used for special equipment for the research problem. The topic of research shall be chosen after consultation with the Department of Geology and Geography of the University of British Columbia and the Cariboo Gold Quartz Mining Company Limited. Applications, on forms available at the Registrar's office, must be received by the Registrar not later than December 10th. Recipients must be qualified to undertake the research work in respect not only of scholarship and research ability but also of personality and health.

The Powell River Company Limited Scholarship

For research in wood chemistry, or on a subject with application to the pulp and paper industry, the Powell River Company Limited offers annually a scholarship of $700, open to Honours graduates in Chemistry in the Faculty of Arts and Science, or graduates in Chemical Engineering in the Faculty of Applied Science. A portion of the scholarship, not to exceed $100, may be used for special equipment for the research problem. The topic of research shall be chosen after consultation with the Department of Chemistry of the University and the Powell River Company. Recipients must be qualified in respect of scholarship, research ability, personality, and health to undertake graduate and research work.

Furthermore, if special aptitude is shown in carrying out this work, an equal amount may be offered for further graduate study and research in wood chemistry, in this or any other approved university. Applications, on forms available at the Registrar's office, must be received by the Registrar not later than March 15th.

The British Columbia Electric Railway Company Limited Graduate Scholarship in Engineering

The British Columbia Electric Railway Company Limited offers annually a scholarship of $500 for graduate study and research related to Civil, Electrical, or Mechanical engineering. An additional amount of $100 is available for special equipment and supplies required in the research. This scholarship is open to graduates in Civil, Electrical, or Mechanical Engineering who are proceeding to further study at this University. The topic of research must be approved by the Head of the Department, in consultation with the donors. Applications, on forms available at the Registrar's office, must be submitted to the Registrar not later than March 15th.

The Cominco Fellowship

The Consolidated Mining and Smelting Company of Canada Limited offers annually a fellowship of $750 for research related to the general field of metals, chemicals, and fertilizers. An additional sum of $450 will be available to the University for special equipment, supplies, and other expenses incidental to the investigation to be carried out under the fellowship. The fellowship is open to graduates in the Faculty of Arts and Science, Applied Science, or Agriculture of this or any approved university, provided that in the Faculty of Arts and Science their undergraduate work has been in the field of the sciences. The topic of research will be chosen after consultation with the deans of the faculties and the donors. Copies of the full terms of award, which must be read by all applicants, may be obtained at the office of the Dean of Administrative and Inter-Faculty Affairs. Applications, on forms available at the Registrar's office, must be received by the Registrar not later than April 15th.

The Edith Ashton Memorial Scholarship

A scholarship of $250, given by Mr. and Mrs. Daniel M. Armstead in memory of Edith Ashton, will be offered in the Department of Biology and Botany. This scholarship will be awarded to an outstanding graduate student whose topic of research is in the field of marine and freshwater botany or some field approved by

the Head of the Department. Applications, on forms available at the Registrar's office, must be received by the Registrar not later than March 15th.

The Lions Club Fellowship

The Central Lions Service Club offers a fellowship of $1200 for training and research in some problem connected with cancer or virus diseases. An additional amount of approximately $300 will be available for special equipment. The fellowship is open to a recent graduate who has taken Honours or has majored with high standing in the Department of Bacteriology and Preventive Medicine. The topic of research will be chosen by the Head of the Department.

The Canadian Pulp and Paper Association, Western Branch, Fellowship

The Canadian Pulp and Paper Association, Western Branch, Vancouver, offers a fellowship of $1000 renewable annually, and, until such time as graduate work in Forestry is offered at this University, tenable at any approved forest school, to students who are graduates in Forestry of the University of British Columbia. Winners of this award must have high scholastic standing and ability to do research. During tenure of the fellowship they are expected to undertake graduate study and pursue investigation of some problem approved by the Department of Forestry of the University of British Columbia. Applications, on forms available at the Registrar's office, must be received by the Registrar not later than March 15th.

The Shell Oil Fellowship for Research

The Shell Oil Company Limited presents an annual fellowship, tenable at the University of British Columbia, to a graduate of any approved university, for study and research leading to a graduate degree in Chemistry, Chemical Engineering, Geology, Geophysics, Mechanical Engineering, or Physics. Through this fellowship, the student will receive $750 for living expenses, and his University fees for that year will be paid by the Shell Oil Company. Full details of the award should be obtained from the office of the Dean of Administrative and Inter-Faculty Affairs. Applications, on forms available at the Registrar's office, must be received by the Registrar not later than March 15th.

The Dorothy and William Dorbils Scholarship

A scholarship of total value of $2000, the gift of Dorothy and William Dorbils, will be available for award in 1950, and sub-

sequently, to enable a student to undertake an approved programme of graduate studies in the field of the humanities or the pure sciences. To be eligible for the scholarship, an applicant must have completed four years at the University of British Columbia, including at least one year of graduate study. The award will be made to an outstanding student on the basis of scholastic achievement and promise in research. The winner will receive one third of the total value of the scholarship during each of the first three years of his graduate work outlined in the approved programme. In the event that he complete his course in less than three years, the balance of the award will be used to provide a scholarship for another graduate student. Applications, on forms available at the Registrar's office, must be received by the Registrar not later than March 15th.

The Shanahan's Limited Scholarship

For research in the field of agricultural insecticides Shanahan's Limited offers a scholarship of $500, open to graduate students in any faculty. The topic of research will be chosen after consultation with the department concerned and the donors. Recipients must be qualified to undertake graduate and research work in respect of scholarship, research ability, personality, and health. Applications, on forms available at the Registrar's office, must be received by the Registrar not later than March 15th.

The General Construction Company Limited Scholarship

(Donated through the Vancouver Men's Canadian Club)

A scholarship of $300, portion of a gift of $500 from the General Construction Company Limited, will be available for graduates in Civil Engineering of the University of British Columbia to undertake graduate study in engineering at this or any approved university. Recipients must be qualified to undertake graduate work in respect of scholarship, ability, character, and health. If, in the opinion of the Department of Civil Engineering, no applicant is sufficiently qualified the sum will be used to provide scholarships or bursaries for students completing the Third Year of Civil Engineering, and proceeding to the Fourth Year. Applications, on forms available at the Registrar's office, must be received by the Registrar not later than March 15th.

The Canadian Industries Limited Fellowship

A fellowship of $750, the gift of Canadian Industries Limited, is available for students to undertake graduate study and research

at the University in Agriculture, Chemistry, Chemical Engineering, Forestry, Forest Engineering, Metallurgy, or Mining. The recipient, who will be selected on the basis of scholarship and research ability, will be expected to pursue investigation in one of the fields mentioned above. The topic of research will be chosen by the department concerned. Full details of the award are available at the office of the Dean of Administrative and Inter-Faculty Affairs. Applications, on forms available at the Registrar's office, must be received by the Registrar not later than March 15th.

The British Columbia Sugar Refining Company Limited Scholarships

Scholarships to the total of $2500, the gift of the British Columbia Sugar Refining Company Limited, are available annually for students in Agriculture, Bacteriology, Botany and Biology, Chemistry, Fisheries, Home Economics, and Zoology. Awards are open to graduate students. Winners of these awards will be selected by the Joint Faculty Committee on Prizes, Scholarships, and Bursaries from recommendations submitted by the departments concerned. Selection will be made on the basis of scholastic standing and promise of ability in research.

The British Columbia Telephone Company Scholarships

Scholarships to the total of $2500, the gift of the British Columbia Telephone Company, are available for Honours graduates in Physics (including Mathematics and Physics) in the Faculty of Arts and Science, and for graduates in Electrical Engineering, Mechanical Engineering, and Engineering Physics in the Faculty of Applied Science. Awards will be made on the basis of scholastic standing and promise of ability in research to students undertaking an approved programme of graduate study and research at the University of British Columbia. Recipients of these scholarships are recommended to Senate by the Joint Faculty Committee on Prizes, Scholarships, and Bursaries, after consultation with the heads of the departments concerned.

The Alan Boag Scholarship

A scholarship of $250, the gift of the trustees of a fund established by the late Alan Boag, is available for a student who is taking his major work in Commerce, History, Economics, International Studies, Law, Political Science or Sociology and is proceeding to a further year of study at the University of British Columbia. This scholarship, which is open to graduates, or to undergraduates who have completed at least two years at the University, will be awarded

for the best essay or report on some aspect of socialism. In making the award special consideration will be given for originality in analysis and treatment. The award will be made on the recommendation of the heads of the departments of Economics and History and the Director of International Studies. If no essay reaches the required standard, the award will be withheld. Students intending to compete for this scholarship must obtain the approval of their essay subject from the department concerned. Essays must be submitted not later than March 31st.

The British Columbia Packers Limited Research Fellowship

A fellowship of $1200, the gift of the British Columbia Packers Limited, is made available from time to time for research and investigation in fisheries. Under the terms of award the recipient is enabled to undertake advanced work at another institution and to make observations on fishery methods and procedures elsewhere.

The I. J. Klein Scholarship

A scholarship of $100, presented by Mr. I. J. Klein on the occasion of the Twenty-Fifth Anniversary of the establishment of the B'nai B'rith Hillel Foundations at American and Canadian Universities, is offered annually for the best report or essay dealing with some aspect of religious or racial tolerance and prejudice in communities. Term essays or reports, other than graduating essays or theses, are acceptable for the competition, which is open to students in the two final undergraduate years in Arts and Science, in all years of Law, Teacher Training, Social Work, and Graduate study. The award will be made to a student proceeding to further study in this or any approved university. If, in any year, no satisfactory essay is received the award will be withheld. Essays must be submitted to the Director of International Studies not later than March 15th.

The British Columbia Electric Railway Company Limited Graduate Scholarships

Scholarships to the total of $1000, the gift of the British Columbia Electric Railway Company Limited, are available annually for graduates in Arts and Science, Commerce, Law, and Social Work who are proceeding to further work in any of these fields at this University. Recipients will be chosen by the Joint Faculty Committee on Prizes, Scholarships, and Bursaries from recommendations submitted by departments or faculties concerned. Selection will be made on the basis of scholastic standing and ability in research. Recommendations must be submitted to the Chairman of the Committee not later than April 15th.

The Laura Holland Scholarship

The friends and associates of Laura Holland, desiring to recognize her distinguished service to British Columbia and Canada generally, in the field of Social Work, have through a special committee established a scholarship. This scholarship will be awarded annually to the student in Social Work whose record for the year is the most oustanding.

The H. R. MacMillan Export Company Limited Fellowships in Forestry

For graduate study in forestry at any approved forestry school two fellowships of $750 each, the gift of the H. R. MacMillan Export Company Limited, were made available for graduates in forestry of the University of British Columbia. One award was made in May, 1948, and the other in May, 1949, on the recommendation of the Department of Forestry. Recipients were required to give an undertaking to accept employment in British Columbia for a period of at least three years following completion of their studies.

The G. H. Wood and Company Limited Medical Scholarship

On the occasion of the twenty-first anniversary of the Company, G. H. Wood and Company donated a special scholarship of $500. This scholarship was awarded in August, 1948, to a graduate in the Faculty of Arts and Science who was proceeding to medical studies at a university in Canada. The award was made on the basis of academic standing, ability, and aptitude in the field of medicine.

The Bene Scholarship

A scholarship of approximately $150, the gift of Eva and John Bene, is available annually for students taking the Honours course or graduate studies in Psychology, and proceeding to further work in the field at this or any approved University. The award will be made on the recommendation of the Joint Faculty Committee on Prizes, Scholarships, and Bursaries, in consultation with the Department, to a student who is in need of financial assistance and shows merit and promise in the field of Psychology.

The Vancouver Sun Service Award In Home Economics

An opportunity for twelve months experience with an allowance of $100 a month, offered by the Vancouver Sun, is available annually for a student graduating in Home Economics from this University.

The recipient will be given experience in the field of home-service at the Edith Adams' Cottage, operated by the Vancouver Sun, in a programme approved by the Department of Home Economics. Selection of the recipient will be made by the Head of the Department. In making the choice consideration will be given to scholarship, personality, adaptability, and interest in extra-curricular activities.

SCHOLARSHIPS FOR UNDERGRADUATES

1. IN ALL FACULTIES

University Great War Scholarships

Two scholarships of $200 each may be awarded, on the basis of the work of the First Year in Arts and Science or Agriculture, to ex-servicemen, their dependents, and the children of deceased ex-servicemen, proceeding to a higher year in any faculty. Applications, on forms available at the Registrar's office, must be received by the Registrar not later than March 15th.

The T. E. and M. E. Ladner Memorial Scholarship

An annual scholarship of $300, given by Mr. Leon J. Ladner, K.C. and family in memory of his parents, Thomas Ellis and Minnie E. Ladner, is available for a student whose home is in the Delta Municipality of the Lower Fraser Valley. To be eligible for this scholarship an applicant must have high scholastic standing. In making the award, however, consideration will be given to character and financial need. The scholarship is open to students who are eligible for entrance to and will attend the University or are in any year of any faculty. If, in any year, no applicant can meet the scholastic requirements of the University, the award may be withheld. In such case, two awards will be made in a subsequent year. Applications, on forms available at the Registrar's office, must be received by the Registrar not later than August 15th.

The Players' Club Alumni Scholarship

A scholarship of $50, the gift of the Players' Club Alumni of the University of British Columbia, is available annually for award to an active member of the Players' Club. The winner, who will be selected on the basis of outstanding work and interest in any phase of theatrical activity, must enrol in the current Summer School of the Theatre. In making the award, preference will be given to a member of the graduating class. The award will be made by Senate on the recommendation of the Honorary President of the Players' Club, the Director of its spring production, and the Executive of

the Players' Club Alumni. Applications must be submitted to the Honorary President of the undergraduate club before April 15th. If no suitable applicant is found, the award will not be made.

The British Columbia Electric Railway Company Limited Proficiency Scholarships

Five scholarships of $200 each, the gift of the British Columbia Electric Railway Company Limited, will be awarded annually to students of the University or Victoria College who are proceeding to further undergraduate work in any Faculty of this University. These awards will be made, on the basis of proficiency, to students with outstanding records of scholastic achievement. Winners will be selected by the University Joint Faculty Committee on Prizes, Scholarships, and Bursaries, after consultation with departments and faculties.

The I. J. Klein Scholarship

As on page 62.

The Nancy Ryckman Scholarship

As on page 79.

The British Columbia Electric Railway Company Limited Special Scholarships

As on page 79.

2. IN ARTS AND SCIENCE

University Scholarships in Arts and Science

Two scholarships in Arts and Science of $200 each will be awarded to students proceeding to the Fourth Year in a course leading to the degree of B.A., the award to be based on the work of the Third Year. These scholarships will be awarded respectively: 1. To the student standing highest with majors in group (1). (See page 127). 2. To the student standing highest with majors in group (2). (See page 127). Students taking full Honours in Mathematics will be classified in group (1).

Two scholarships in Arts and Science of $200 each will be awarded on the basis of the work of the Second Year to students proceeding to a higher year in a course leading to the degree of B.A.

Two scholarships of $200 each will be awarded to the students taking second and third places in the examinations of the First Year in Arts and Science, and proceeding to a higher year in any faculty.

The Shaw Memorial Scholarship*

This scholarship of $125, founded by friends of the late James Curtis Shaw, Principal of Vancouver College, and afterwards of McGill University College, Vancouver, will be awarded upon the results of the examinations of the Second Year in Arts and Science to the undergraduate student standing highest in any two of three courses, English 200, Latin 202, Greek 90, Greek 101, or Greek 202, and proceeding to a higher year in a course leading to the degree of B.A.

The McGill Graduates' Scholarship*

A scholarship of $125, founded by the McGill Graduates' Society of British Columbia, will be awarded to the student standing highest in English and French of the Second Year in Arts and Science and proceeding to a higher year in a course leading to the degree of B.A.

The Terminal City Club Memorial Scholarship

This scholarship of $100, founded by the members of the Terminal City Club as a memorial to those members of the Club who lost their lives in the Great War, will be awarded to the student standing highest in English 200 and Economics 100 or 200 in the Second Year in Arts and Science, and proceeding to a higher year in a course leading to the degree of B.A.

The Imperial Order Daughters of the Empire Scott Memorial Scholarship

This scholarship of $100, derived from an endowment founded by the Imperial Order Daughters of the Empire of the City of Vancouver, in memory of Captain Robert Falcon Scott, R.N., the Antarctic explorer, who sacrificed his life in the cause of science, will be awarded to a student who combines high standing in Biology 330 with promise of service in the Empire. Applications on forms available at the Registrar's office, must be received by the Registrar not later than the last day of the final examinations.

Royal Institution Scholarship in Arts and Science

A scholarship of $200 will be awarded to the student taking first place in the examinations of the First Year in Arts and Science, and proceeding to a higher year in any faculty.

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*Originally donated to the Royal Institution (see *Historical Sketch*), this has been transferred by that body, with the consent of the donors, to the University of British Columbia.

The Beverley Cayley Scholarship

A scholarship of $100, in memory of Beverley Cayley, Arts '18, given under the terms of the will of his mother, the late Mrs. Cayley, will be awarded to the male student standing highest in English 100 and 101 in the First Year of the Faculty of Arts and Science.

The N. Leo Klein Memorial Scholarship

A scholarship of $100, in memory of N. Leo Klein, given by Mr. I. J. Klein, Vancouver, B. C., will be awarded to the student obtaining first place in the examinations of the Third Year of the course in Commerce and proceeding to the next year in that course.

The Vancouver Women's Canadian Club Scholarship

A scholarship of $100, the proceeds of a fund created by the Vancouver Women's Canadian Club, will be awarded to the undergraduate obtaining first place in Canadian History (History 202, 203, 204, 420, 426, 430).

The John and Annie Southcott Memorial Scholarship

As on page 55.

The Summer Session Students' Association Scholarship

A scholarship of $75, given by the Summer Session Students' Association, will be awarded at the close of the Summer Session to the Summer Session student who in that session completes the Second Year with the highest standing. To be eligible a student must have taken his entire Second Year in the University of British Columbia Summer Session, extra-sessional classes, or reading courses and must be proceeding to a higher year in the University of British Columbia.

The Summer Session Students' Association Scholarship Fund

The annual income from the Summer Session Students' Association Scholarship Fund, or the sum of $75, whichever is less, will be paid annually as a scholarship for study at the University of British Columbia. The scholarship is open to any Summer Session student who has completed the first two years' work, the second of which has been taken wholly by Summer Session, extra-sessional classes, or reading courses, and who is proceeding to a higher year in the University of British Columbia by means of Summer Session. This

award will be made to the student who completes in that session the Second Year of his University work with the *second* highest standing. Only those students who have taken a full course of six units in each Summer Session will be considered eligible for this scholarship. The work of the Second Year must be completed in a maximum of four summer sessions.

The British Columbia Teachers' Federation Scholarship

A scholarship of $100, given by the British Columbia Teachers' Federation will be awarded at the close of the Summer Session to the Summer Session student who, having been an active member of the British Columbia Teachers' Federation for the three years previous to the granting of the scholarship, completes, in that session or through extra-sessional classes or reading courses for which the final examinations were written before or during that session, the Third Year of his University work with the highest standing in that year. To be eligible a student must have taken his entire Third Year in the University of British Columbia Summer Session, extra-sessional classes, or reading courses, and must continue in his Fourth Year at the University of British Columbia.

The Vancouver Women's Canadian Club Scholarship in Home Economics

A scholarship of $100, the proceeds of a fund created by the Vancouver Women's Canadian Club, will be awarded for general proficiency in the work of the Third Year of the Home Economics course to a student proceeding to the Fourth Year of that course.

The Edwin Waterhouse Scholarship

A scholarship of $250, the gift of Price, Waterhouse & Co., will be awarded to a student in Commerce who has completed his Third Year with high standing in the final examinations, and is proceeding to his Fourth Year. The award will be made to an applicant whose academic record, ability and other qualifications are considered to be outstanding and who is deserving of financial assistance. Applications must be submitted to the Registrar not later than the last day of the final examinations.

The R. J. Pop Scholarship in Zoology

A scholarship of $150, given annually by Mr. R. J. Pop, will be awarded to the student who completes the third year of the Honours Course in Zoology with highest standing and intends to pursue an

investigation into terrestrial vertebrate Zoology related to the conservation of natural resources. If no third year student presents work of sufficient merit, the award may be made to a student in the fourth year who is proceeding to graduate work in the above field at this or any other university.

The Alaska Pine Company Scholarship in Wood Chemistry

(Donated through the Vancouver Men's Canadian Club)

A scholarship of $150, the gift of the Alaska Pine Company Limited, will be awarded to a student completing the Third Year of the Honours Course in Chemistry with high standing, and proceeding to the Fourth Year. The award will be made to a student who intends to undertake research in wood chemistry.

The Alaska Pine Company Scholarship in Commerce

(Donated through the Vancouver Men's Canadian Club)

A scholarship of $150, the gift of the Alaska Pine Company Limited, will be awarded to the student who obtains the highest standing in Second Year Commerce and is proceeding to the Third Year of that course. To be eligible for this award the student must take Commerce 251 in the Second Year.

The Vancouver Daily Province Scholarship

(Donated through the Vancouver Men's Canadian Club)

A scholarship of $250, given by the Vancouver Daily Province for the promotion of the study of government, will be awarded to a student taking an Honours course in Political Science (or a combined Honours course in Political Science and some other subject). The award will be made to the student who completes the Third Year with highest standing in Political Science 300 and is proceeding to the Fourth Year of the Honours course.

The Alaska Pine Company Scholarship in Economics

(Donated through the Vancouver Men's Canadian Club)

A scholarship of $150, the gift of the Alaska Pine Company Limited, will be awarded to the student who obtains highest standing in the Third Year of an Honours course in Economics and is proceeding to the Fourth Year of that course. In making the award, standing will be determined on the basis of the marks obtained in any six units of Third Year courses in Economics.

The Burbidge Scholarships

(Donated through the Vancouver Men's Canadian Club)

Two scholarships of $125 each, the gift of Mr. P. W. Burbidge, will be awarded for general proficiency in the Honours course in Physics, or in Mathematics and Physics. These awards will be made to the two students obtaining highest standing in the examinations of the Third Year and proceeding to the Fourth Year.

The Woodward Scholarships

(Donated through the Vancouver Men's Canadian Club)

Two scholarships, the gift of the Honourable W. C. Woodward, will be available as follows:

1. The sum of $125 will be awarded to the student in Third Year Commerce who obtains highest standing in Commerce 361 and is proceeding to the Fourth Year.
2. The sum of $125 will be awarded to the student in Fourth Year Commerce who obtains highest standing in Commerce 461 and is proceeding to the Fifth Year.

To be eligible for either of these awards, a student must also obtain high standing in his other courses.

The British Columbia Daily Newspapers Association Scholarship

A scholarship of $200, the gift of the British Columbia Daily Newspapers Association, is available annually for students in Third Year Commerce. The award will be made to the student who shows the greatest aptitude for work in advertising and is proceeding to the course in advertising in the Fourth Year. The award will be made on the basis of proficiency in the marketing course. To be eligible for this award the student must also obtain high standing in his other courses.

The Canadian Association for Health, Physical Education, and Recreation Scholarship

A scholarship of $50, the gift of the British Columbia Branch of the Canadian Association for Health, Physical Education, and Recreation, will be awarded annually to a student completing the Physical Education course in the Second Year of Arts and Science, and proceeding to the Third Year of that course. The award will be made to the student whose achievement in the course is the most outstanding.

The Automotive Transport Association of British Columbia Scholarship

A scholarship of $150, the gift of the Automotive Transport Association of British Columbia, will be awarded annually to the student in Commerce who obtains the highest standing in the course on Transportation Practices and Policies (Commerce 443) and is proceeding to the course in Highway Traffic Problems (Commerce 545).

The Winspear, Hamilton, Anderson and Company Scholarships

Scholarships of $150 each, the gift of Winspear, Hamilton, Anderson and Company, are offered annually to students who have selected the accounting option in the course leading to the degree of B.Com. Two scholarships will be awarded, one to a student proceeding to the Fourth Year and the other to a student proceeding to the Fifth Year. The awards will be made at the beginning of the session to candidates of outstanding merit who are recommended by the Department of Commerce.

The Kiwanis Club Scholarship

A scholarship of $150, the gift of the Kiwanis Club of Vancouver, will be awarded to the student obtaining highest standing in the Fourth Year of Commerce and proceeding to the final year of that course.

The Daniel Buchanan Scholarship in Mathematics

In honour of Dean Daniel Buchanan, Head of the Department of Mathematics 1920-1948, and in recognition of his teaching and research in Mathematics, the members of the Department of Mathematics offer annually a scholarship of $100 to the student who gains the highest standing in the Third Year of the Honours Course in Mathematics and proceeds to the Fourth Year in that course.

The Trans-Canada Investment Corporation Scholarship

A scholarship of $150, the gift of the Trans-Canada Investment Corporation Limited, will be awarded to a student in Commerce who has a high academic standing and submits the best report of a research character in the course in Business Finance. To be eligible for consideration, a candidate must apply for entrance to the competition on or before November 1st of the academic year in which the award is to be made. The subject of the report must be chosen

in consultation with the Department of Commerce. If, in the opinion of the Department, no report of sufficient merit is submitted, the award will be withheld. The winner of this scholarship must proceed to a further year's study in Commerce at this University.

The Alan Boag Scholarship

As on page 61.

The Bene Scholarship

As on page 63.

3. IN APPLIED SCIENCE

University Scholarship in Nursing and Health

A scholarship of $200 will be awarded for general proficiency in previous work of university grade (which must include a minimum of two years' work in the Province of British Columbia), to a student who is proceeding to the Second Year (or in the Double Course, proceeding to the Third Year) of the Course in Nursing and Health and has successfully completed the hospital probationary period. Applications, on forms available at the Registrar's office, must be received by the Registrar not later than December 1st.

The Vancouver Women's Canadian Club Scholarship

A scholarship of $100, the proceeds of a fund created by the Vancouver Women's Canadian Club, will be awarded to the student who attains the highest standing in the first four years' training, academic and practical, (or in the first five years' training, academic and practical, in the Double Course) of the Nursing and Health course.

The Dunsmuir Scholarship*

A scholarship of $150, founded by the Hon. James Dunsmuir, will be awarded to the undergraduate student standing highest in the Mining Engineering Course of the Third Year in Applied Science, and proceeding to the Fourth Year.

University Scholarship in Applied Science

A scholarship of $200 will be awarded to the student who obtains the highest marks in the Second Year in Applied Science and who is proceeding to the Third Year in that Faculty.

*Originally donated to the Royal Institution (see *Historical Sketch*), this has been transferred by that body, with the consent of the donors, to the University of British Columbia.

Royal Institution Scholarship in Applied Science

A scholarship of $200 will be awarded for general proficiency in the work of the First Year in Applied Science to a student who is proceeding to the Second Year in that Faculty.

The G. M. Dawson Scholarship

A scholarship of $50 will be awarded to the undergraduate student standing highest in the Geological Engineering course, in geological subjects, in the Third Year of the Faculty of Applied Science, and proceeding to the Fourth Year.

The B'nai B'rith Auxiliary No. 77 Scholarship

A scholarship of $50, given by the Women's Auxiliary No. 77 of the B'nai B'rith, will be awarded to the student in the Third Year of Applied Science standing highest in the class of Chemical Engineering or Chemistry and proceeding to the Fourth Year.

The R. Randolph Bruce Scholarship

Out of the proceeds of a fund bequeathed to the University of British Columbia by the late Honourable R. Randolph Bruce in memory of his term as Official Visitor, a scholarship of $200 will be offered annually to the undergraduate student standing highest in the Metallurgical Engineering course in the Third Year in Applied Science and proceeding to the Fourth Year.

The British Columbia Electric Railway Company Limited Undergraduate Engineering Scholarships

Three scholarships given by the British Columbia Electric Railway Company Limited will be available as follows:

(1) the sum of $200 will be awarded to the undergraduate standing highest in the Civil Engineering course of the Third Year in Applied Science, and proceeding to the Fourth Year of that course;

(2) the sum of $200 will be awarded to the undergraduate student standing highest in the Electrical Engineering course of the Third Year in Applied Science, and proceeding to the Fourth Year of that course;

(3) the sum of $200 will be awarded to the undergraduate student standing highest in the Mechanical Engineering course of the Third Year in Applied Science, and proceeding to the Fourth Year of that course.

The Canadian Forest Products Limited Scholarships

(Donated through the Vancouver Men's Canadian Club)

Two scholarships of $150 each, the gift of Canadian Forest Products Limited, will be awarded to the students obtaining highest standing in the Third Year of the Forest Engineering course and proceeding to the Fourth Year.

The Lambert Scholarship

(Donated through the Vancouver Men's Canadian Club)

A scholarship of $200, the gift of Brigadier Noel D. Lambert, will be awarded annually to the student obtaining highest standing in the Third Year of Civil Engineering and proceeding to the Fourth Year of that course.

The General Construction Company Limited Scholarship

(Donated through the Vancouver Men's Canadian Club)

A scholarship of $200, portion of a gift of $500 from the General Construction Company Limited, will be awarded to a student who completes the Second Year of Applied Science (Engineering) and is proceeding to the Third Year. The award will be for proficiency in the work of the First and Second Years.

The John Inglis Company Limited Scholarships

(Donated through the Vancouver Men's Canadian Club)

Two scholarships of $125 each, the gift of the John Inglis Company Limited, Toronto, will be awarded annually to the students completing the Second Year with highest standing and proceeding to the Third Year in Mining or Metallurgical Engineering. The awards will be announced in October.

The Alaska Pine Company Scholarship in Forestry

(Donated through the Vancouver Men's Canadian Club)

A scholarship of $150, the gift of the Alaska Pine Company Limited, will be awarded to the student who obtains highest standing in the Third Year and is proceeding to the Fourth Year in the course leading to the degree of B.S.F.

The Boultbee-Bosustow Memorial Scholarship

(Donated through the Vancouver Men's Canadian Club)

A scholarship of $250, given by Mr. Austin C. Taylor in memory of his associates, William W. Boultbee and Richard Bosustow, will

be awarded annually to a student completing the Third Year in Mining or Metallurgical Engineering and proceeding to the Fourth Year in either of these fields. The winner of this scholarship will be chosen on the basis of ability and general proficiency in the courses in Mining and Metallurgy.

The Canadian Forest Industries Entomological Scholarships

To encourage undergraduates in the work of forest entomology, the forest industries of Canada, including the British Columbia Loggers' Association, the British Columbia Manufacturers' Association, the Pulp and Paper Association of Eastern Canada, and the Canadian Lumbermen's Association, have donated through the Forest Insects Control Board eight annual scholarships of $200 each. Of these scholarships two are available for Forestry students registered in the Second or a higher year at the University of British Columbia. Awards to students in British Columbia will be made on the recommendation of a committee consisting of two members appointed by the President of the University, the Provincial Representative on the Forest Insects Control Board, and a representative of the Dominion or Provincial Entomological Services. Applications, on forms available at the Registrar's office, must be submitted to the Registrar not later than October 1st. In making awards, special desire and aptitude for research in forest entomology will be governing factors. Due weight will also be given to scholastic standing and physical fitness.

The Hobbs Glass Limited Scholarship

A scholarship to the value of one year's tuition fee will be awarded annually by Hobbs Glass Limited to a student in the Fourth Year of Architecture. The award will be made to the student submitting the best solution of an architectural problem proposed by the staff of the Department of Architecture in conjunction with the Company. The award will be made on the recommendation of the Department.

The Road Builders and Heavy Construction Association Scholarship

A scholarship of $250, gift of the Road Builders and Heavy Construction Association, is available for a student completing the Third Year of Civil Engineering with high scholastic standing and proceeding to the Fourth Year of that Course. Selection will be made on the basis of ability, interest, and academic record in subjects which are basic to highway engineering. In making the award, preference will be given to students who have practical experience in this field or who show interest in entering it on graduation.

4. IN AGRICULTURE

University Scholarship in Agriculture

A scholarship in Agriculture of $200 will be awarded to a student proceeding to a higher year, the award to be based on the work of the First Year.

The David Thom Scholarship

A scholarship in Agriculture of $100 will be awarded to a student proceeding to a higher year in that Faculty, the award to be based on the work of the Second Year.

The British Columbia Fruit Growers' Association Golden Jubilee Scholarship

This scholarship, of the annual value of $125, donated by the British Columbia Fruit Growers' Association, will be awarded to a student taking the horticultural options of the Third Year. To qualify for this scholarship candidates must obtain scholarship standing, not only in horticultural subjects, but also in the work of the year, and must be proceeding to the Horticultural Course of the Fourth Year—the year in which the scholarship shall be enjoyed.

The Nabob Scholarship in Food Technology

A scholarship of $300, given annually by the Kelly-Douglas Co. Ltd., Vancouver, will be awarded to a student completing the Fourth Year of the course in Food Technology with high standing, and proceeding to the Fifth Year. The recipient, who will be selected on the basis of scholarship, research ability, and personality, will be expected to pursue investigations in Food Technology. If no Fourth Year student meets the requirements, the award may be made to a student in the Third Year who is proceeding to the work of the Fourth Year. The recipient may be offered the opportunity of employment in one of the manufacturing divisions of the Company during the summer between the Fourth and Fifth Years. Applications, on forms available at the Registrar's office, must be received by the Registrar not later than March 15th.

The Hogarth Scholarships

(Donated through the Vancouver Men's Canadian Club)

Two scholarships of $125 each, the gift of Major General D. M. Hogarth, Toronto, will be awarded annually to students completing the Third Year of Agriculture and proceeding to the Fourth Year.

The recipients will be recommended by the Faculty of Agriculture on the basis of general proficiency and outstanding ability in one or more of the fields of Agricultural Economics, Agricultural Mechanics, Agronomy, Animal Husbandry, Dairying, Horticulture (including Plant Nutrition), and Poultry Husbandry.

5. IN LAW

The Norgan Scholarships

(Donated through the Vancouver Men's Canadian Club)

Six general proficiency scholarships, the gift of Mr. George W. Norgan, will be awarded annually in the Faculty of Law as follows:

1. $150 each to the three students obtaining highest standing in the examinations of the First Year and proceeding to the Second Year;
2. $150 each to the three students obtaining highest standing in the examinations of the Second Year and proceeding to the Third Year.

The Hon. R. L. Maitland Memorial Scholarship

A scholarship of $150, initiated by the Vancouver Primrose Club on behalf of friends of the late Hon. R. L. Maitland, K.C., will be awarded to the student who attains the highest standing in the Second Year of the Law course and is proceeding to the Third Year of that course.

The Alan Boag Scholarship

As on page 61.

6. IN PHARMACY

The Cunningham Scholarship in Pharmacy

(Donated through the Vancouver Men's Canadian Club)

A general proficiency scholarship of $100, the gift of Mr. George T. Cunningham, will be awarded annually to the student obtaining highest standing in the Third Year of Pharmacy and proceeding to the Fourth Year of the course.

The B. C. Drugs Limited Scholarship

(Donated through the Vancouver Men's Canadian Club)

A scholarship of $100, the gift of B. C. Drugs Limited, will be awarded annually to the student who obtains highest standing in the examinations of Second Year Pharmacy and is proceeding to the Third Year.

The Pharmaceutical Association of the Province of British Columbia Scholarship

A scholarship of $100, the gift of the Pharmaceutical Association of the Province of British Columbia, will be awarded to a student entering Second Year Pharmacy. The award will be made to the student with the highest entrance qualifications, as determined by the written examination on the practical training of the First Year.

The Canadian Foundation for the Advancement of Pharmacy Scholarships

Scholarships of $100 each, the gift of the Canadian Foundation for the Advancement of Pharmacy, are available for students in Pharmacy. The number of scholarships depends upon the registration. It is expected that one award will be made in September as an entrance scholarship and another will be made in May to a student completing the Second Year. Although the awards will be made primarily on merit, financial need will be considered.

UNIVERSITY ENTRANCE AND SENIOR MATRICULATION SCHOLARSHIPS

The Vancouver Sun Scholarships for Carriers

The Vancouver Sun offers annually two scholarships of $200 each to students entering the First Year of Arts and Science or Agriculture at the University of British Columbia. The terms of the scholarships require that applicants must have been carriers of the Vancouver Sun for at least two years. The scholarships will be awarded to the two applicants who rank highest on the basis of the marks obtained in any year on the written examinations in the scholarship subjects of University Entrance as outlined in *The Requirements for University Entrance and Senior Matriculation.* The selection of the winners will be made by the University, and applications, accompanied by the service certificate of the Vancouver Sun, should be forwarded to the Registrar not later than September 10th. Winners of these scholarships who obtain and maintain First Class standing in succeeding years of their undergraduate course will be eligible until graduation for extra grants of $200 each year.

The Pacific Mills Limited Scholarship

The Pacific Mills Limited offers annually a scholarship of $250 to students entering the First Year of Arts and Science or Agriculture at the University of British Columbia. This scholarship is open to sons and daughters of employees of Pacific Mills Limited, Cana-

dian Boxes Limited, Northern Pulpwood Limited, and Badwater Towing Company, who are resident in British Columbia. The scholarship will be awarded to the applicant who ranks highest on the basis of the marks obtained in any year on the written examinations in the scholarship subjects of University Entrance, as outlined in *The Requirements for University Entrance and Senior Matriculation.* For an applicant to be eligible, his parent must have been an employee of one of the above companies on March 1st of the year in which the candidate writes the examinations. Selection of the winner will be made by the University. Full details of the terms of award may be obtained from the Personnel Manager of Pacific Mills Limited, or from the office of the Dean of Administrative and Inter-Faculty Affairs. Applications should be forwarded to the Personnel Manager not later than June 1st.

The Nancy Ryckman Scholarship

Out of the proceeds of a fund bequeathed to the University by the late Nancy E. Ryckman, a scholarship of $180 will be awarded annually to a student beginning or continuing a course of study at the University. This scholarship will be available only for students who have completed Senior Matriculation and who attended school in East Kootenay, British Columbia, for three years, of which two years must have been immediately prior to entrance to the University. It is the expressed wish of the donor that the scholarships be awarded to young men or women who require aid in obtaining a university education, and that, in making the award, consideration be given to character and intellectual promise. Applications, on forms available at the Registrar's office, must be received by the Registrar not later than August 15th.

The British Columbia Electric Railway Company Limited Special Scholarships

Five scholarships of $200 each, offered annually by the British Columbia Electric Railway Company Limited, are available annually for sons and daughters of employees of the Company who are beginning or continuing their undergraduate studies in any faculty at the University. Winners of scholarships, however, whose homes are in Victoria or its vicinity may, if they wish, attend Victoria College. These scholarships will be awarded on the recommendation of the Joint Faculty Committee on Prizes, Scholarships, and Bursaries to applicants who have outstanding records of scholastic achievements and are deserving of financial assistance. Application by letter must be made to the Chairman of the University Committee not later than August 15th. Letters of application should state

particulars of family service with the Company and include certificates of standing in all subjects taken at University Entrance, Senior Matriculation, Victoria College, or the University. These scholarships will be awarded for the first time in September, 1950.

University Scholarships for University Entrance

Fifteen General Proficiency scholarships will be awarded on the results of the University Entrance examinations:

(a) $175 to the candidate of highest standing in the Province;

(b) $175 to the candidate of next highest standing in the Province; and

(c) $175 to the candidate of next highest standing in each of the following district:

1. School Districts Nos. 1, 2, 3, 4, 5, 6, 7, 8, 9, and 10;
2. School Districts Nos. 11, 12, 13, 14, 15, 16, and 17;
3. School Districts Nos. 18, 19, 20, 21, 22, and 23;
4. School Districts Nos. 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, and 34;
5. School Districts Nos. 35, 36, 37, 38, and 42;
6. School District No. 39, Britannia, Grandview, John Oliver, and Technical High School, and any private schools in the area;
7. School District No. 39, Fairview, King Edward, King George, Kitsilano High Schools, St. Patrick's Private School, and any other private schools in the area;
8. School District No. 39, Lord Byng, Magee, Prince of Wales High School, University Hill High School, Crofton House, St. George's, Vancouver College, York House Private Schools, and any other private schools in the area.
9. School Districts Nos. 40 and 41;
10. School Districts Nos. 43, 44, 45, 46, 47, and 48;
11. School Districts Nos. 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, and 60;
12. School District No. 61.
13. School Districts Nos. 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, and 74.

These scholarships will be paid only to students in attendance at the University of British Columbia, with the exception that University Entrance scholarships awarded in School Districts 61 to 66 inclusive may be paid to students in attendance at Victoria College.

Postponement of University Entrance scholarships will be granted only on medical grounds.

Royal Institution Scholarships for Senior Matriculation

Six General Proficiency scholarships will be awarded on the result of the Senior Matriculation examinations:

(a) $200 to the candidate of highest standing in the Province;
(b) $200 to the candidate of next highest standing in the Province;
(c) $200 to the candidate of next highest standing in all school districts of the Province other than School Districts Nos. 39, 40, 41, 44, and 45; and
(d) $200 each to the three candidates of next highest standing in School Districts Nos. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 42, 43, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, and 74

These scholarships will be paid only to students in attendance at the University of British Columbia.

Except in the case of a pharmacy student enrolling for the required year of practical training, in which case a scholarship will be held over for one year, postponement of Senior Matriculation scholarships will be granted only on medical grounds.

Winners of all University Entrance and Senior Matriculation scholarships must notify the Registrar before September 1st of their intention of attending the University (or Victoria College in the case of the winner of a University Entrance Scholarship from School Districts 61 to 66, inclusive) during the following session; failing such notification, the winner's rights will lapse.

PRIZES

1. IN ALL FACULTIES

The University Essay Prize

A book prize of the value of $25 will be awarded to a Fourth year student for the best essay presented in any of the courses regularly given by the Department of English.

The Chemical Institute of Canada Book Prizes

Two book prizes of the value of $25 each, the gift of the Chemical Institute of Canada, are available for students entering the Fourth Year. Of these prizes, one will be awarded to the student obtaining

highest standing in Chemistry in the Third Year of the Faculty of Arts and Science and the other to the student obtaining highest standing in the Third Year of Chemical Engineering.

The Hewitt Bostock Memorial Lecture Prize

A prize of $25 will be awarded for the best essay on the lecture given under the terms of the Hewitt Bostock Lectureship. The award is open to students in any year and faculty.

2. IN ARTS AND SCIENCE

Frances Willard Prize

A prize of $50, given by the Woman's Christian Temperance Union of British Columbia, will be awarded to Third or Fourth Year undergraduates or to graduate students for an essay in the field of Economics, Education, History, Psychology, or Sociology, on a subject to be approved by the department concerned in consultation with a committee of the Woman's Christian Temperance Union.

The award will be made for the session 1949-50 on recommendation of the Heads of the Department of Education and the Department of Economics, Political Science, and Sociology. Essays must be submitted by April 10th, 1950.

If in any year no student reaches the required standard the award will be withheld.

The David Bolocan Memorial Prize

A prize of $25 given by Mr. and Mrs. J. L. Bolocan will be awarded to the student in the Fourth Year of the Faculty of Arts and Science who is regarded by the Department of Philosophy and Psychology as the outstanding student in that subject in the graduating year.

The Ahepa Prize

A prize of $100, given by the Gladstone Chapter No. 6, C.J., Order of Ahepa, will be awarded to the student of the Fourth Year who has shown the greatest promise in Greek studies. If possible, the award will be made to an Honours student, but if there is no outstanding Honours student the scholarship may be given to a student in the General Course.

The Armstead Prize in Biology and Botany

A prize of $50, the gift of Mr. and Mrs. Daniel M. Armstead, will be awarded to a graduating student in the Honours course of the Department of Biology and Botany. The winner will be recommended on the basis of scholastic achievement and promise of ability in research.

The Llewellyn Jones Prize in Zoology

A cash prize of $50, offered by Mr. J. R. J. Llewellyn Jones, will be awarded to the student in the graduating year of the Faculty of Arts and Science whose academic work and promise of research ability in the Honours Course in Zoology, in the field of entomology, have been outstanding and worthy of recognition. In the event of there being no undergraduate of outstanding merit, the award will be made to a graduate of the University of British Columbia who is carrying out noteworthy graduate work at this or another university.

The International Studies Prize

A book prize to the value of $30, provided from the income of a trust fund established by an anonymous donor, will be awarded to the undergraduate obtaining first place in International Studies 400.

The Transportation and Customs Bureau of the Vancouver Board of Trade Prizes

Cash prizes to the total of $300, the gift of the Transportation and Customs Bureau of the Vancouver Board of Trade were awarded in May, 1949, for the best major reports submitted by students enrolled in the Department of Commerce in the course on Transportation Practices and Policies (Commerce 443).

The B. C. Tree Fruits Limited Prizes

Three special prizes, the gift of B. C. Tree Fruits Limited, Kelowna, were awarded in May, 1949, to the three students obtaining the highest standing in Geography 201 during the session 1948-49. These awards, each of the value of $100, enabled the recipients to visit centres in the Okanagan to survey the fruit industry.

The Entomological Society of British Columbia Book Prize

A book prize, the gift of the Entomological Society of British Columbia, will be awarded to an undergraduate who distinguishes himself in Entomology. The award will be made on the recommendation of the Department of Zoology.

The Home Economics Graduation Prize

A cash prize of $50 will be awarded to the student standing at the head of the graduating class for the B.H.E. degree.

The Home Economics Second Year Prize

A cash prize of $25 will be awarded to the student obtaining highest standing in the work of the Second Year in Home Economics.

The Prize of the Minister of Switzerland

This book prize was awarded in the Session 1948-49 to an outstanding student of French Language and Literature.

3. IN APPLIED SCIENCE

The Convocation Prize

A prize of $50, given by Convocation of the University of British Columbia, will be awarded to the student in the Fourth Year of Applied Science (B.A.Sc. Course), whose record, in the opinion of the Faculty, is the most outstanding.

Engineering Institute of Canada (Vancouver Branch) Walter Moberly Memorial Prize

A book prize of the value of $25, given by the Vancouver Branch of the Engineering Institute of Canada, will be awarded for the best engineering thesis submitted by any Fourth Year student in the Faculty of Applied Science. This prize is given in memory of the late Walter Moberly, pioneer engineer and explorer, discoverer of the Yellowhead Pass through the Rocky Mountains, whose work in railway location has influenced so greatly the development of the Province of British Columbia.

The Association of Professional Engineers' Prizes

Five book prizes, each of the value of $25, are offered by the Association of Professional Engineers of the Province for competition by those students in the Third Year of the Faculty of Applied Science who are enrolled as engineering pupils in the Association. These prizes are awarded for the best summer essay in each of any five branches of engineering to be selected by the Faculty. The successful essays may be made available by the Faculty to the Council and members of the Association.

The Provincial Department of Health and Welfare (Health Branch) Prizes

The Department of Health and Welfare (Health Branch) of the Province of British Columbia offers the sum of $100 to be given as prizes in the Public Health Nursing Course.

The Engineering Institute of Canada Prize

The Engineering Institute of Canada offers an annual prize of $25 to each of twelve Canadian universities of which the University of British Columbia is one. The prize will be awarded to a student of the Third Year in Applied Science on the basis of the marks made in his academic work in that year and his activities in the student engineering organization or in the local branch of a recognized engineering society.

The British Columbia Lumber Manufacturers' Association Prizes

Prizes of the value of $100, $50, and $25, given by the British Columbia Lumber Manufacturers' Association, will be awarded to the students enrolled in the course Structural Design 1 (C.E.370) who submit the designs, judged to be the best, of a wooden roof truss. The awards will be made upon the recommendation of the Dean of the Faculty of Applied Science in collaboration with the instructor in charge of the course and with the donor. Applications, on forms available at the Registrar's office, must be received by the Registrar not later than January 15th.

The William N. Kelly Prize

A prize of $15 offered by Mr. William N. Kelly, M.E.I.C., Consulting Engineer and Marine Surveyor, Vancouver, will be awarded to the student in the Third Year of the Faculty of Applied Science who obtains the highest standing in Mechanical Engineering 358, Machine Shop Practice. Skill in the use of hand tools will receive special consideration.

The Timber Preservers Limited Prizes

Prizes of the value of $65, $45, and $25, together with three merit awards of $15 each, given by the Timber Preservers Limited, will be awarded to the students enrolled in the course of Engineering Law (C.E. 476) of the Fourth Year of the Civil Engineering course in the Faculty of Applied Science who submit plans and specifications judged to be the best, of a structure of treated timber. The awards will be made upon the recommendation of the Dean of the Faculty of Applied Science in collaboration with the instructor in charge of the course and with the donors.

The Ingledow Prizes

Two prizes of $75 each, the gift of Mr. T. Ingledow, are available for undergraduates in Electrical Engineering who are members of the student branch of the American Institute of Electrical Engineers.

One of these prizes will be awarded to a Third Year student for proficiency in the laboratory work of the courses E.E. 353 and 355, and the other to a Fourth Year student for proficiency in the laboratory work of E.E. 457. In making the awards, emphasis will be placed on the neatness, accuracy, and completeness of laboratory reports, and on practical ability in experimental work.

The Canadian Forest Products Limited Prizes

(Donated through the Vancouver Men's Canadian Club)

Two prizes of $100 each, the gift of Canadian Forest Products Limited, will be awarded to students graduating in Forestry with the degree of B.A.Sc. The awards will be made on the basis of general proficiency in the work of the final two years.

The Northern Electric Company Limited Prize

A cash prize of $100, the gift of the Northern Electric Company Limited, will be awarded to the student in Electrical Engineering whose scholastic record in the final two years of the course has been the most outstanding.

The Trail Board of Trade Prize

A book prize of the value of $25 is available for a student in the Fifth Year of Architecture. This award, which will be made over a period of three years starting in 1950, is provided by a donation of $75 from the Trail Board of Trade. The award will be given for outstanding merit in the Community Planning project of the course in Architectural Design.

The Road Builders and Heavy Construction Association Graduation Prize

A prize of $50, gift of the Road Builders and Heavy Construction Association, will be awarded to a student graduating in Civil Engineering. Provided for the purpose of stimulating interest in the field of highway engineering, this award will be made to the student obtaining highest standing in C.E. 470 (highway engineering).

4. IN AGRICULTURE

The Dr. D. A. McKee Memorial Prize

A cash prize of $30, established from the income of a trust fund donated by Mrs. D. A. McKee in memory of her husband, will be awarded annually to the student with the highest standing in the Third Year of Agriculture, who is proceeding to the Fourth Year.

The Northern Peat Moss Company Prize

A prize of $100, the gift of Mr. Jack Bell of the Northern Peat Moss Company Limited, was made available for undergraduates in the Third or Fourth Year, or for graduates, in Agriculture or Agricultural Engineering. The award was made in May, 1949, on the recommendation of the Faculty of Agriculture, to the student submitting the best report on a phase of peat moss, its formation and use.

5. IN LAW

The Carswell Company Limited Prizes

The Carswell Company Limited, Law Publishers, Toronto, offers annually three book prizes of the value of $20 each. Of these prizes, one will be awarded in each year of the Law course to the student obtaining highest standing in that year.

The Norgan Essay Prize

(Donated through the Vancouver Men's Canadian Club)

A cash prize of $100, the gift of Mr. George W. Norgan, will be awarded to a student in the Third Year of Law for the best essay presented on a topic set or appproved by the Faculty. If in any year no student reaches the required standard, the award will be withheld.

The Toronto General Trusts Corporation Prize

Through the generosity of the Toronto General Trusts Corporation a prize of $30, to be used in the purchase of law books, will be available for students in the Faculty of Law. This prize will be awarded to the student who, in the final examinations, obtains highest standing in the subjects of Trusts.

Special Book Prize

A book prize of the value of $25, the gift of an anonymous donor, was awarded in May, 1949, to a student in the Second Year, who obtained high scholastic standing and was not the recipient of any other scholarship or prize.

The Canada Law Book Company Prize

A book prize, the gift of the Canada Law Book Company Limited, is available annually for students in the Second Year of the Law course. The award will be made to a student obtaining high marks in the subject of Conflict of Laws.

6. IN PHARMACY

The Cunningham Prize in Pharmacy

(Donated through the Vancouver Men's Canadian Club)

A cash prize of $50, the gift of Mr. George T. Cunningham, will be awarded to the student in Pharmacy whose scholastic record in all years of the course has been the most outstanding.

The Frosst Proficiency Awards

A number of cash prizes, provided through the Canadian Pharmaceutical Association, Incorporated, by the Charles E. Frosst Company of Montreal, are available for ex-servicemen and women completing the Second Year in Pharmacy with high standing. Awards will be made on the basis of merit.

The Pharmaceutical Association of the Province of British Columbia Prize

A cash prize of $50, the gift of the Pharmaceutical Association of the Province of British Columbia, will be awarded annually to a student completing the Fourth Year. The award will be made on the recommendation of the Dean of the Faculty to the student whose record during the entire course, in both the practical and theoretical parts of the pharmaceutical subjects, is considered to be the most outstanding.

The Merck Awards

Through the generosity of Merck & Company, Limited, Montreal, two awards, each consisting of the *Merck Index, the Merck Manual of Therapeutics* and *Materia Medica,* and *Reagent Chemicals and Standards* by Joseph Rosin, are available annually for students in Pharmacy. The awards will be made to the two students obtaining the highest standing in Pharmaceutical Chemistry.

The Houghland Prizes in Dispensing

Through the generosity of C. D. Houghland, Vancouver, a prize of $100 is available annually for students in Pharmacy. The prize will be awarded to the graduating student with the best record throughout the course in the practical work of the pharmacy and dispensing laboratories.

The Mallinckrodt Chemical Works Limited Prize

A cash prize of $25, the gift of the Mallinckrodt Chemical Works Limited of Canada, will be awarded annually to the student completing the final year of Pharmacy and obtaining the highest standing in Pharmaceutical Chemistry.

BURSARIES

The Captain LeRoy Memorial Bursary

This bursary of the annual value of $150 was given by the Universities Service Club in memory of their comrades who fell in the First Great War. It is named after Captain O. E. LeRoy, who commanded the overseas contingent from this University and who was killed at Passchendaele in 1917.

It will be awarded to a student, or students, requiring financial assistance to enable him, or them, to attend the University. For this purpose it may be awarded to a matriculant, to a student of any year, or to a graduate student of the University proceeding to graduate work in this or any approved university. In making the award preference will be given first to returned soldiers, then to the dependents of soldiers, and finally to suitable candidates from the student body at large.

Application must contain a statement of the academic record and special circumstances of the applicant, with two supporting references, and, in the case of the preferred categories, of the war record of the soldier. Applications, on forms available at the Registrar's office, must be received by the Registrar not later than August 15th.

The Khaki University and Young Men's Christian Association Memorial Fund Bursaries

A sum of money given to the University by the administrators of the Khaki University of Canada provides a fund from which are awarded annually five bursaries of the value of $100 each, known as the Khaki University and Young Men's Christian Association Memorial Bursaries.

Under conditions specified by the donors these bursaries may be used for undergraduate purposes only, and in making the awards a preference is given to the sons and daughters of soldiers of the First Great War. The financial necessities of candidates are also taken into account.

To be eligible for an award a soldier's dependent must obtain at least Second Class standing, *i.e.*, 65 per cent.; for all others 75 per cent. is required.

Dependents of soldiers and others who have attained the standing as stated above and who are in need of financial assistance should apply to the Registrar not later than August 15th.

These bursaries are open to students from Victoria College proceeding to a course of study in the University.

Application forms may be obtained at the Registrar's office.

The American Woman's Club Bursary

A bursary of $100, given by the American Woman's Club of Vancouver, will be available for the session 1949-50 to assist a woman undergraduate who has completed at least one year in Arts and Science with satisfactory standing, and who could not otherwise continue her course. Applications, on forms available at the Registrar's office, must be received by the Registrar not later than August 15th.

The University Women's Club Bursary

A bursary of $100, given by the University Women's Club of Vancouver, will be available for a woman student of high scholastic standing in the Third Year of the Faculty of Arts and Science who is proceeding to the Fourth Year. Applications, on forms available at the Registrar's office, must be received by the Registrar not later than August 15th.

The Vancouver Panhellenic Alumnae Bursary

A bursary of $200, given by the Vancouver Panhellenic Alumnae Association, will be awarded to a woman student of satisfactory academic standing, who has completed at least the first two years of University work and is proceeding to a higher year of undergraduate work or to the Education Class, or, if a graduate, to the course leading to the Degree in Social Work. The award will be made on the recommendation of the Dean of Women. Applications, on forms available at the Registrar's office, must be received by the Registrar not later than August 15th.

The Mildred Brock Memorial Bursary

A bursary of $75, given by the Delta Gamma Fraternity, in memory of Mrs. Mildred Brock, wife of the late R. W. Brock, Dean of the Faculty of Applied Science, whose personal charm and high ideals were an inspiration to the students, who greatly benefited by her sympathetic understanding and generosity, will be available for a woman student of high scholastic standing who has completed at least two years of her undergraduate studies and is proceeding to a higher year, or, if a graduate to the Teacher Training Course, or to the course leading to the Diploma or Degree in Social Work. Applications, on forms available at the Registrar's office, must be received by the Registrar not later than August 15th.

The Frances Milburn P. E. O. Bursary

A bursary of $150, given by the Vancouver Chapters of the P. E. O. Sisterhood in memory of the late Frances Milburn, will be available

for the session 1949-50 to assist a woman undergraduate who has completed at least one year in Arts and Science with high standing in English, and who could not otherwise continue her course. The award will be made on the recommendation of the Dean of Women. Applications, on forms available at the Registrar's office, must be received by the Registrar not later than August 15th.

The Lady Laurier Club Bursary

A bursary of $100, given by the Lady Laurier Club of Vancouver, will be awarded to a woman undergraduate who has completed at least two years of her undergraduate studies and is proceeding to a higher year. The award will be made on the basis of scholastic standing and financial need. Applications, on forms available at the Registrar's office, must be received by the Registrar not later than August 15th.

The Alliance Française Bursary

A bursary of not less than $25, given by the Alliance Française, will be awarded on a basis of merit and need to a student specializing in French at the University. The bursary will normally be awarded to a student who has completed his Second Year and is proceeding to his Third Year. Applications, on forms available at the Registrar's office, must be received by the Registrar not later than August 15th.

The Faculty Women's Club Bursary

A bursary of the value of $75, given by the Faculty Women's Club of Vancouver, will be awarded to a woman student who has completed the first two years of University work and is proceeding to the next year of her course. The student to whom the award is made must have scholastic ability and real need of financial assistance. Applications, on forms available at the Registrar's office, must be received by the Registrar not later than August 15th.

The William MacKenzie Swan Memorial Bursary

A bursary of the annual value of $250, given by Colonel and Mrs. W. G. Swan in memory of their son, William MacKenzie Swan, an outstanding all-round undergraduate student and popular athlete, who died July 28th, 1937, as a result of injuries received in a fall from the Pattullo Bridge at New Westminster on which he was engaged as Assistant Engineer, will be awarded to a student or students registered in the Second, Third, or Fourth Year of the Faculty of Applied Science, and requiring financial assistance to enable him or

them to continue studies at the University. In making the award, consideration will be given to the academic record of the applicant and to his participation in undergraduate affairs. Applications, on forms available at the Registrar's office, must be received by the Registrar not later than August 15th.

The Phil Wilson Bursary in Forestry

A bursary of $225, given by the British Columbia Loggers' Association, will be awarded to a student registered in Fourth Year Forestry. To be eligible for the award a student must have been a resident in British Columbia for the previous two years, must have a scholastic average of at least 65 per cent. in the work of the Second and Third Years at the University of British Columbia, and must give evidence of leadership, sterling character, and physical vigour. He shall also have been engaged during at least two summer sessions in woods employment, logging operations, cruising, or logging engineering. Applications, on forms available at the Registrar's office, must be received by the Registrar not later than August 15th.

The David Thom Bursaries

From the funds of the David Thom Estate a sum of $300 is available annually for the following bursaries:

1. A sum of $150 to be awarded to the student who has passed University Entrance or Senior Matriculation with the highest standing and who is registered for the first time in the Faculty of Agriculture. In the awarding of this bursary, regulation 8 under *General Regulations for Medals, Scholarships, and Prizes* does not apply.
2. A sum of $75 to be awarded to a student who has satisfactorily completed the work of the First Year in Agriculture and is proceeding to a higher year in that Faculty. Applications, on forms available at the Registrar's office, must be received by the Registrar not later than August 15th.
3. A sum of $75 to be awarded to a student who has satisfactorily completed the work of the Third Year in Agriculture and is proceeding to the Fourth Year in that Faculty. Applications, on forms available at the Registrar's office must be received by the Registrar not later than August 15th.

Delta Gamma Bursary for the Blind

A bursary of $100 given by the Delta Gamma Fraternity will be awarded to a blind student requiring financial assistance to enable him or her to enter the University or to proceed to further

studies. The award will be made by the Senate upon recommendation of the Joint Faculty Committee on Prizes, Scholarships, and Bursaries acting in consultation with the Principal of the B. C. School for the Deaf and Blind, the Superintendent of the Canadian National Institute for the Blind of Vancouver, and an accredited representative of Delta Gamma fraternity. Applications, on forms available at the Registrar's office, must be received by the Registrar not later than August 15th.

The W. Jack H. Dicks Bursary

A sum of $150 will be awarded to a student who has completed at least one year of work in the Faculty of Agriculture, who is proceeding to a higher year in the Faculty, and who has given evidence of possessing those qualities necessary for community leadership. Applications, on forms available at the Registrar's office, must be received by the Registrar not later than August 15th.

The Flying Officer Reverend George Robert Pringle Memorial Bursary

A bursary of the annual value of $200, endowed by friends and associates, in memory of the late Flying Officer Reverend George Robert Pringle, a much beloved graduate of outstanding Christian character and athletic ability who was killed on January 24th, 1943, while on active service overseas, will be awarded to a student who has completed two years at this University and has registered at the University for further study. To be eligible for this award the student must show evidence of academic ability, sterling, unselfish character, and active participation and leadership in University sport. The award will be made in the fall on the recommendation of the Joint Faculty Committee on Prizes, Scholarships, and Bursaries, in consultation with interested members of Faculty.

The Alberta Meat Company Bursary

A bursary of $50, given by the Alberta Meat Company of Vancouver, will be awarded annually on the basis of merit and need to an Animal Husbandry student conducting livestock feeding trials at the University Farm. Applications, on forms available at the Registrar's office, must be reecived by the Registrar not later than August 15th.

The Mary C. Lipsett Bursary

A bursary of $300, offered annually by Mrs. Mary C. Lipsett, will be awarded to a student who has completed at least the Second Year in the Faculty of Arts and Science, and who proposes to take

his major work in Anthropology. In making the award, consideration will be given to the applicant's interest in problems of social anthropology and his ability to pursue work in that field. Applications, on forms available at the Registrar's office, must be received by the Registrar not later than August 15th.

The Rotary Memorial Bursaries

To commemorate the sacrifices and services of Rotarians and their families in the First and Second World Wars, the Rotary Club of Vancouver offers annually to students at the University five bursaries of the value of $200 each. These bursaries are open to students in any year and in any faculty. Wherever practicable, however, the five awards will be made to students in different years. Preference will be given to those who, during the First or Second World War, were in the Services or the Merchant Navy, or to their dependents. To be eligible for the awards, applicants are required to be of good moral character and to have a reasonable interest in extra-curricular activities and a good record of scholastic attainment. Awards will be made only to those who have limited financial ability to enter the University or proceed to a higher year. Applications, on forms available at the Registrar's office, must be received by the Registrar not later than August 15th.

The Cooperative Seed Growers' Bursary

A bursary of $100, given by the British Columbia Cooperative Seed Association, will be awarded annually to a student who has completed the work of the Third Year in Agriculture and is proceeding to the Fourth Year in that Faculty. Applications, on forms available at the Registrar's office, must be received by the Registrar not later than August 15th.

The Vancouver Section National Council of Jewish Women Bursary

A bursary of $100, the gift of the Vancouver Section of the National Council of Jewish Women of Canada, will be awarded to a woman student who is an undergraduate in any year of any Faculty, or who is a graduate registered in the Teacher Training or Social Work courses. To be eligible for this award a student must have good ability and financial need. Applications, on forms available at the Registrar's office, must be received by the Registrar not later than August 15th.

The Gamma Phi Beta Bursary

A bursary of $50, the gift of the Alpha Lambda Chapter of Gamma Phi Beta Sorority, will be awarded annually to a student in any year of the Home Economics course. To be eligible for this award a student must have financial need and high scholastic standing. Applications, on forms available at the Registrar's office, must be received by the Registrar not later than August 15th.

The Provincial Council of British Columbia, Canadian Daughters' League, Bursaries

Two bursaries of $100 each, the gift of the Provincial Council of British Columbia, Canadian Daughters' League, will be available annually to assist women students who could not otherwise continue their courses. The awards, which will be made on the basis of character, academic record, and scholastic ability, will be open to students entering the Teacher Training course. In the event that no applicant in this course can qualify, the awards will be open to students entering Social Work. Applications, on forms available at the Registrar's office, must be received by the Registrar not later than August 15th.

University Women's Club General Bursary

A bursary of $100, given by the University Women's Club of Vancouver, will be available for a woman student registered in any year and any faculty. To be eligible for this award a student must have high scholastic standing and need of financial assistance. Applications, on forms available at the Registrar's office, must be received by the Registrar not later than August 15th.

Bursaries for Proficiency (Special Awards)

Through the generosity of an anonymous donor, a bursary of $1500 was made available to enable a student with high scholastic standing and need of financial assistance to complete his or her undergraduate course. The recipient was chosen in September, 1944, from among bursary applicants entering First or Second Year in any faculty.

A second bursary of $1000, provided by the same donor, was awarded similarly in September, 1947.

The Jack Cohen Bursary

A bursary of $150, the gift of Mr. S. J. Cohen, is available for a student who has completed the Third Year in Commerce and is proceeding to the work of the Fourth Year. To be eligible for this

award, the student must have high scholastic standing, and financial need. Applications, on forms available at the Registrar's office, must be received by the Registrar not later than August 15th.

The McLean Bursaries

Through the generosity of Mr. and Mrs. J. S. McLean of Toronto, four bursaries of $250 each are available for the session 1949-50. These bursaries will be awarded to students entering the Second Year in Arts and Science, Agriculture, or Pharmacy, or the First Year in Applied Science. Preference will be given to students whose homes are in more remote parts of the Province. In making the awards, consideration will be given to scholastic ability and financial need. Applications, on forms available at the Registrar's office, must be received by the Registrar not later than August 15th.

The Pacific Meat Company Bursary

A bursary of $200 is offered annually by the Pacific Meat Company of Vancouver for research related to problems of the meat industry. The award is open to a student, or students, in the Department of Animal Husbandry. Applications, on forms available at the Registrar's office, must be received by the Registrar not later than August 15th.

The Nat Bell Bursary

A bursary of $150, given by Angela Bell in memory of her father, will be awarded annually to a student registered in any year and any faculty who has ability, character, and financial need. Applications, on forms available at the Registrar's office, must be received by the Registrar not later than August 15th.

The R.C.A.F. Veterans' Bursary Fund

A sum of money given to the University by the Wartime Convalescent Homes, War Charity Funds, Incorporated, Vancouver Division, provides an annual fund of approximately $300 for bursaries. These bursaries will be available for R.C.A.F. veterans of the War 1939-1945 and for their dependents. Awards will be made on the basis of scholastic standing and financial need. Applications, on forms available at the Registrar's office, must be received by the Registrar not later than August 15th.

The Teamsters' Joint Council No. 36 Bursary

(Donated through the Vancouver Men's Canadian Club)

An annual bursary of $250, donated by the Teamsters' Joint Council No. 36, is offered to a student in any year and faculty. This

bursary will be given to a student who has need of financial assistance and has high scholastic standing. To be eligible for the award, an applicant must be the son or daughter of a member of the International Brotherhood of Teamsters in B. C. In the event that no such applicant can qualify, the bursary will be awarded to the son or daughter of a member of any International Trade Union. In choosing the recipient, preference will be given to students who are registered in the lower years. Applications, on forms available at the Registrar's office, must be received by the Registrar not later than August 15th.

The Lauder Mercer and Company Limited Bursary

(Donated through the Vancouver Men's Canadian Club)

A bursary of $250, donated by Lauder Mercer and Company Limited, will be available to assist a male student entering the final year of the course leading to the degree of Bachelor of Commerce. The award will be made to a student who has high standing in the work of the preceding year, and need of financial assistance. Applications, on forms available at the Registrar's office, must be received by the Registrar not later than August 15th.

The Pattison Bursaries

(Donated through the Vancouver Men's Canadian Club)

Two bursaries of $100 each, the gift of Mr. J. W. Pattison, are available for graduates taking the Professional Course in Social Work or for undergraduates who intend to enter this field. The awards will be made to students with high scholastic standing and need of financial assistance. Applications, on forms available at the Registrar's office, must be received by the Registrar by August 15th.

The W. D. Shaffer Bursary

A bursary of $200, the gift of Miss Marion A. Shaffer, will be awarded to a student entering the Teacher Training Course. The award will be made on the basis of character and ability, and with special reference to potential qualities for teaching. To be eligible for this award an applicant must have need of financial assistance. Preference will be given to ex-service personnel. If there is no qualified applicant in the Teacher Training Course the award will be available for a student in any year and any faculty. Applications, on forms available at the Registrar's office, must be received by the Registrar not later than August 15th.

The Robert S. Day and Son Limited Bursary

(Donated through the Vancouver Men's Canadian Club)

A bursary of $150, the gift of Robert S. Day and Son Limited, will be available annually for a student who has completed the Third Year of Commerce with high standing, and is proceeding to the final year. The award will be made only to a student who has need of financial assistance. Applications, on forms available at the Registrar's office, must be received by the Registrar not later than August 15th.

The Vancouver Bar Association Bursaries

Three bursaries of $100 each, the gift of the Vancouver Bar Association, will be awarded in the session 1949-50 to students in the Faculty of Law. One bursary will be available for a student entering each of the three years of the course in Law. Awards will be based on scholastic standing and financial need. Applications, on forms available at the Registrar's office, must be received by the Registrar not later than August 15th.

The American Woman's Club Bursary for Social Work

A bursary of $100, the gift of the American Woman's Club, is available for a woman student in Social Work who has completed one year of the course leading to the degree of B.S.W. The award will be made to a student who has good standing and is in need of financial assistance. Applications, on forms available at the Registrar's office, must be received by the Registrar not later than August 15th.

The Ellen Ethel McHattie Memorial Bursary

A bursary of $300, given by Mr. C. T. McHattie in memory of his wife, Ellen Ethel McHattie, is available annually for a graduate student registered in the Social Work course, or for an undergraduate in the Second, Third, or Fourth Year of Arts and Science planning to enter the Social Work course. To be eligible for this award, an applicant must have financial need and high scholastic standing. Applications, on forms available at the Registrar's office, must be received by the Registrar not later than August 15th.

The Allied Officers' Auxiliary Bursary

To commemorate the services and sacrifices of members of the armed forces and the merchant navies of the Allied Nations, the Allied Officers' Club Auxiliary has established a bursary of the

annual value of $75, open to students in any year and faculty. This bursary is available for a veteran of the Second World War. At a later date the bursaries will be made available for the sons and daughters of such veterans. The award will be made on the basis of scholastic standing and financial need. Applications, on forms available at the Registrar's office, must be received by the Registrar not later than August 15th.

The Allied Officers' Auxiliary Fund

From a fund of $2500, the gift of the Allied Officers' Club Auxiliary, special bursaries will be provided from time to time for student veterans who are in need of financial assistance. This fund will be administered by the Joint Faculty Committee on Prizes, Scholarships, and Bursaries. Further information may be obtained from the Chairman of the Committee.

The Louis Toban Bursary

A bursary of $100, the gift of Louis Toban, is available annually for a student entering the Third Year of the course in Pharmacy. The award will be made on the recommendation of the Head of the Department to a student who has shown definite ability and has need of financial assistance. Applications, on forms available at the Registrar's office, must be submitted to the Registrar not later than August 15th.

The National Paper Box Limited Bursaries

Two bursaries of $200 each, the gift of National Paper Box Limited, are available for the session 1949-50. One of these will be awarded to a student in Agriculture and the other to a student in Commerce. The awards will be made to students who have good academic records and are in need of financial assistance.

Applications, on forms available at the Registrar's office, must be received by the Registrar not later than August 15th.

The Bastion Chapter Imperial Order Daughters of the Empire Bursary

The sum of $200, given by the Bastion Chapter of the Imperial Order Daughters of the Empire, was made available in the Session 1948-49 to provide bursaries for student veterans from Nanaimo. These bursaries, which were open to students in any year and faculty, were awarded on the basis of ability and need of financial assistance.

The British Columbia Drug Travellers' Association Bursary

A bursary of $200, given by the British Columbia Drug Travellers' Association, will be awarded to a student in Pharmacy who is recommended to a Committee of the Association by the University Joint Faculty Committee on Prizes, Scholarships and Bursaries in consultation with the Dean of the Faculty of Pharmacy. The award will be made on the basis of scholarship and need. Applications, on forms available at the Registrar's office, should be submitted to the Registrar not later than August 15th.

The Euphemia Laurence McLeod Raphael Bursary

A bursary of $100, gift of the McGill Women Graduates' Society of Vancouver, is available annually for a woman student at the University of British Columbia, who, having completed at least two years of her course, is proceeding to McGill University for further work in any field. To be eligible for consideration, applicants must have a good academic standing, and need financial assistance. They may be graduates or undergraduates. The award will be made by the Joint Faculty Committee in consultation with the Dean of Women. Applications, on forms available at the Registrar's office, must be in the hands of the Registrar not later than June 15th.

The Admiral Jellicoe Chapter, I. O. D. E., Bursaries

Two bursaries of $50 each, the gift of the Admiral Jellicoe Chapter of the I. O. D. E., are available for veterans. These awards, one of which is open to women and the other to men, will be given to students who have attained high scholastic standing and have financial need. Applications, on forms available at the Registrar's office, must be received by the Registrar not later than August 15th.

The Triple Entente Chapter, I. O. D. E. Bursary

A bursary of $75, the gift of the Triple Entente Chapter of the I. O. D. E., is available for veterans. This award will be given to a student in the Faculty of Applied Science. To be eligible the student must have financial need and high scholastic standing. Applications, on forms available at the Registrar's office, must be received by the Registrar not later than August 15th.

The Worthington Memorial, I. O. D. E., Bursary

A bursary of $100, the gift of the Worthington Memorial Chapter, I. O. D. E., is available for a proficient and promising veteran student needing financial assistance. The award is open to a student

in any year and faculty. Applications, on forms available at the Registrar's office, must be received by the Registrar not later than August 15th.

The Sperry Phillips Memorial Bursary

A bursary of the annual value of $100 endowed by friends and associates of the late Sperry S. Phillips (B.S.A., U.B.C. 1923), who prior to his untimely death by accident in 1945, contributed much to the development of Junior Farmer Activities in British Columbia, will be awarded to a student entering the Faculty of Agriculture or the Department of Home Economics for the first time. In making the award, consideration will be given to academic ability and Junior Farmer Club membership. Applications, on forms available at the Registrar's office, must be received by the Registrar not later than August 15.

The Baynes Manning Limited Bursary

A bursary of $250, the gift of Baynes Manning Limited, contractors and engineers, is available annually for undergraduate students in any year of engineering. This award will be made to a student who has a good academic record and who has need of financial assistance for continuing his studies. Applications, on forms available at the Registrar's office, must be submitted to the Registrar not later than August 15th.

The Alvin Cunningham Bursary

A bursary of $200, the gift of Alvin Cunningham, is available annually for a student entering the Second or Third Year of the course in Pharmacy. The award will be made by the Joint Faculty Committee on Prizes, Scholarships, and Bursaries, on the recommendation of the Dean of the Faculty, to a student who has shown definite ability and has need of financial assistance. Applications, on forms available at the Registrar's office, must be submitted to the Registrar not later than August 15th.

The Sir Charles Tupper Chapter, I. O. D. E., Bursary for Summer Session

A bursary of $50, the gift of the Sir Charles Tupper Chapter, I. O. D. E., will be awarded annually to a teacher who has taught for two years in the Public Schools of British Columbia and is proceeding with second year work in the Summer Session. The award will be made to a student who intends to return to teaching in the fall. Applicants will be considered on the basis of financial

need and success and interest in teaching. Applications, on forms available at the Registrar's office, must be received by the Registrar not later than May 15th. A copy of the last inspector's report must accompany the application.

The Elsie Scobee Carpenter Memorial Bursary

A bursary of $100, given by the Vancouver Quota Club in memory of Elsie Scobee Carpenter, a beloved charter member, is available annually for a woman student who has completed at least two years in Commerce and is proceeding to further work in that course. Should no student in Commerce be able to qualify, the bursary will be available for a student whose major work is in Economics. The award will be made to a student who has high scholastic standing and is in need of financial assistance. Applications, on forms available at the Registrar's Office, must be received by the Registrar not later than August 15th.

The Sigma Epsilon Chapter of Zeta Psi Fraternity Bursary

A bursary of $50, the gift of the Sigma Epsilon Chapter of Zeta Psi Fraternity, is available annually for a male undergraduate student in any year and faculty. The award will be made to a student of good scholastic standing who is in need of financial assistance. Applications, on forms available at the Registrar's office, must be received not later than August 15th.

The Epsilon Epsilon Chapter of Kappa Sigma Fraternity Bursary

A bursary of $50, the gift of the Epsilon Epsilon Chapter of Kappa Sigma Fraternity, is available annually for a male undergraduate student in any year and faculty. The award will be made to a student of good scholastic standing who is in need of financial assistance. Applications, on forms available at the Registrar's office, must be received by the Registrar not later than August 15th.

The Delta Zeta Chapter of Alpha Gamma Delta Sorority Bursary

A bursary of $50, the gift of the Delta Zeta Chapter of Alpha Gamma Delta Sorority, is available annually for a woman undergraduate student in any year and faculty. The award will be made to a student on the basis of scholastic standing and need of financial aid. Applications, on forms available at the Registrar's office, must be received by the Registrar not later than August 15th.

The Phi Alpha Chapter of Delta Kappa Epsilon Fraternity Bursary

A bursary of $50, the gift of the Phi Alpha Chapter of Delta Kappa Epsilon Fraternity, is available annually for a male undergraduate student in any year and faculty. The award will be made to a student of good scholastic standing who is in need of financial assistance. Applications, on forms available at the Registrar's office, must be received by the Registrar not later than August 15th.

The British Columbia Chapter of Delta Upsilon Fraternity Bursary

A bursary of $50, the gift of the British Columbia Chapter of Delta Upsilon Fraternity, is available annually for a male undergraduate student in any year and faculty. The award will be made to a student of good scholastic standing who is in need of financial assistance. Applications, on forms available at the Registrar's office, must be received by the Registrar not later than August 15th.

The Theta Chapter of Sigma Phi Delta Fraternity Bursary

A bursary of $50, the gift of the Theta Chapter of Sigma Phi Delta Fraternity, will be available annually for a male undergraduate in any year of the Faculty of Applied Science. The award will be made to a student who has good scholastic standing and who, without financial assistance, would be unable to continue his course. Applications, on forms available at the Registrar's office, must be received by the Registrar not later than August 15th.

The New Westminster Rotary Club Bursary

A bursary of $250, the gift of the Rotary Club of New Westminster, is available for undergraduates who homes are in the New Westminster district and who are taking a full course of study in any year and faculty at the University. To be eligible for consideration applicants must have high scholastic standing and need of financial assistance. Winners of this bursary will be selected by the Joint Faculty Committee on Prizes, Scholarships, and Bursaries. Applications, on forms available at the Registrar's office, must be submitted to the Registrar not later than August 15th.

Kappa Kappa Gamma Alumnae Bursary

A bursary of $100, provided by a trust fund created and maintained by annual contributions from the Alumnae of Kappa Kappa Gamma, is available annually for a woman undergraduate in any year

faculty, who has good scholastic standing and need of financial assistance. The award will be made by the Joint Faculty Committee on Prizes, Scholarships, and Bursaries, in consultation with the Dean of Women. Applications, on forms available at the Registrar's office, must be received by the Registrar not later than August 15th.

The Beta Theta Chapter of Alpha Phi Sorority Bursary

A bursary of $50, the gift of the Beta Theta Chapter of Alpha Phi Sorority, is available annually for a women undergraduate student in any year and faculty. The award will be made to a student on the basis of scholastic standing and need of financial assistance. Applications, on forms available at the Registrar's office, must be received by the Registrar not later than August 15th.

The British Columbia Psychological Association Bursary

A bursary of $50, the gift of the British Columbia Psychological Association, is available for a student taking the Honours course in Psychology. This award will be made to a student completing the Third Year of the course and proceeding to the Fourth Year. To be eligible, the applicant must have good scholastic standing and need of financial assistance. Applications, on forms available at the Registrar's office, must be received by the Registrar not later than August 15th.

The Xi Alpha Chapter of Beta Sigma Phi Sorority Bursary

A bursary of $50, gift of the Xi Alpha Chapter of Beta Sigma Phi, an international sorority, is available annually for women students who are proceeding to the Second Year in the Faculty of Arts and Science, Agriculture, or Pharmacy, or the First Year in the Faculty of Applied Science. The award will be made to a student who has good scholastic standing and is in need of financial assistance. In choosing the recipient, consideration will be given to character and qualities of citizenship. Applications, on forms available at the Registrar's office, must be received by the Registrar not later than August 15th.

University Summer Session Bursaries

Twenty bursaries of $50 each are available in the Summer Session, 1949, for students who are taking a full course (6 units) of work in the Summer Session. They will be awarded to students who hold permanent teaching certificates in British Columbia and are actively

engaged in teaching in the Province. Awards will be made on the basis of scholarship, financial need, interest in teaching, and participation in the activities of school and the community. Special consideration will be given to applicants from more remote parts of the Province. Applications, on forms available at the Registrar's office, must be received not later than May 15th.

Special Bursaries Fund

For the session 1949-50 a Special Bursaries Fund has been made available by the Board of Governors to enable students to attend the University who would not otherwise be able to do so. To be eligible for an award from this fund a student must have attained at least Second Class standing in the examinations last written, and must give evidence of need.

Applications, on forms available at the Registrar's office, must be received by the Registrar not later than August 15th.

Part-time employment on the campus may be available for a limited number of students with financial need and good academic standing. Applicants for bursaries who are interested in such employment should indicate in their applications any special qualifications or previous experience.

Dominion-Provincial Student Aid

(For information, refer to the inside front cover of this Calender.)

LOANS AND SPECIAL FUNDS

General Loan Fund

The General Loan Fund is maintained by annual grants made by the Board of Governors. Its operation is described in paragraph 12 under *General Regulations for Medals, Fellowships, Scholarships, Prizes, Bursaries and Loans.*

The Wheatley Memorial Loan Fund

The Association of Professional Engineers of the Province of British Columbia has established a loan fund in memory of Edward Augustus Wheatley, who, as Registrar of the Association during the years 1921 to 1938 exerted a vital influence on the engineering profession, not only in this Province but throughout Canada.

The fund is available to engineering pupils of the Association in attendance at the University, and all applicants for loans must be recommended by the Dean of the Faculty of Applied Science.

The Roy Graham Memorial Loan Fund

In memory of Roy Graham, M.A.Sc. (Brit. Col.), Ph.D. (Chicago), a loan fund has been established to assist students in the Faculty of Applied Science. Preference will be given to students in the First and Second Years of that Faculty. All applicants for loans must be recommended by the Dean of the Faculty of Applied Science. Applications for assistance must be made to the Dean of Administrative and Inter-Faculty Affairs.

The Canadian Institute of Mining and Metallurgy, B. C. Division, Fund

This is a fund of $100, given by the Canadian Institute of Mining and Metallurgy to the University as a trust to be used for loans to students taking the mining course.

The Alma Mater Loan Fund

This fund was established by the graduating classes of 1937 as a trust to be used for loans to undergraduates who have completed at least one year at the University and who have attained satisfactory academic standing. The fund is administered by the University and distributed by the Joint Faculty Committee on Prizes, Scholarships, and Bursaries. Applications for assistance under this fund must be made to the Dean of Administrative and Inter-Faculty Affairs.

The T. Sato Loan Fund

This fund has been established by Mr. Tsutae Sato for students of Second Class standing, or better, in the Third or Fourth Years in the Faculties of Arts and Science, Agriculture, and Applied Science, or for students in the Fifth Year of a Double Course. For such loans the regulations in paragraph 12 of the *General Regulations for Medals, Fellowships, Scholarships, Prizes, Bursaries, and Loans* are applicable.

The H. R. MacMillan Loan Fund

Through the generosity of Mr. H. R. MacMillan, a loan fund has been established to assist students in Forestry. Loans from this fund are to be repaid within three years from graduation, and until then no interest will be charged. Assistance to any one student is limited to $300. Loans will be made on the basis of scholarship and financial need. Students may obtain application forms and further details from the Dean of Administrative and Inter-Faculty Affairs.

Dean of Women's Fund

Through the generosity of several donors a fund has been established to assist women students who are temporarily in financial

need. The fund is intended for use in emergency situations where limited assistance is required, and is administered by the Dean of Women. In the session 1948-49 contributions to the fund were received from Alumnae of the University of Toronto (The Marion McElhanney Memorial Bursary), the Kappa Kappa Gamma Mother's Club, and the Kappa Kappa Gamma Sorority.

The Special Spring Session Students' Loan Fund

A sum of over $2000, donated by the students of the Special Spring Session conducted in May and June, 1946, for ex-service personnel and former members of the Merchant Navy, provides a fund for emergency loans. Applications must receive the approval of the President of the University and the Chairman and Secretary of the Scholarship Committee. Loans, which are made only to ex-service personnel and ex-members of the Merchant Navy, are repayable commencing one year after the applicant enters gainful employment, and will not bear interest until that time. Application should be made to the Dean of Administrative and Inter-Faculty Affairs.

Home Economics Loan Fund

From a fund established from gifts of anonymous donors, loans are available for undergraduates registered in any year of the Home Economics course. Loans are also available for graduates in Home Economics taking further work at the University in a related field or in the Teacher Training course. Loans to any one student will not exceed $200, and are repayable commencing one year after the applicant discontinues attendance at the University, until which time no interest will be charged. Applicants must be recommended by the Department of Home Economics. Application forms may be obtained at the office of the Dean of Administrative and Inter-Faculty Affairs.

The Mary L. Bollert Loan Fund

To honour the memory of the late Mary L. Bollert, first Dean of Women at the University of British Columbia, women graduates of the University and members of Miss Bollert's family have established a loan fund to assist women students. Those in need of an emergency loan should apply to the Dean of Women, on whose recommendation payment will be made. Loans are repayable in two years and will not bear interest until that time.

Kappa Kappa Gamma Alumnae Fund

Through an annual contribution of $100 by the Alumnae of Kappa Kappa Gamma, a fund has been established to help women

students who are in need of financial assistance. This fund, which is administered by the Dean of Women, is intended to provide aid in emergency situations.

The Summer Session Students' Association Loan Fund

The Summer Session Students' Association of 1947 established a loan fund as a trust to be used for loans to teachers ("teachers" as defined by the Public Schools Act of British Columbia) who have attained satisfactory academic standing. Loans from this fund are to be repaid within three years from the date of receipt of the loan, and until the expiration of the three-year period no interest will be charged. Loans, which may be repaid at any time during the three-year period by assigned instalments, will be granted on the basis of scholarship and financial need, assistance to any one student being limited according to the funds available. Loans will be made on the recommendation of the Joint Faculty Committee and representatives of the Summer Session Students' Association.

Helen Gregory McGill Student Aid Fund

A loan fund, initiated by the Phi Delta Delta Legal Sorority and raised by subscriptions from various organizations, has been established to assist women students in the final year of the Law course or the degree course in Social Work. Loans from this fund, intended for use in emergency situations, are granted on the recommendation of the Joint Faculty Committee on Prizes, Scholarships, and Bursaries, in consultation with the Dean of Women, to whom application should be made. Assistance to any one student is limited to $100. Loans are repayable commencing one year from the end of the session and do not bear interest until that time.

The Alpha Phi Chapter of Delta Gamma Sorority Fund

Through an annual contribution of $50, Alpha Phi Chapter of Delta Gamma Sorority has established a fund to provide financial assistance for women students. This fund, which is administered by the Dean of Women, is intended for use in emergency situations where limited assistance is required.

The Harry F. Bennett Educational Fund of The Engineering Institute of Canada

This fund was established by subscription from members of the Engineering Institute of Canada in memory of the late Harry F. Bennett, M.E.I.C., who for six years was Chairman of the Institute's

Committee on the Training and Welfare of the Young Engineer. One purpose of the fund is to provide loans for deserving students who need financial assistance to enable them to study engineering sciences at university level, and who have successfully completed the First Year in Engineering. Loans will be made largerly on the basis of character and qualities essential to leadership. Application blanks may be obtained from the office of the Dean of the Faculty of Applied Science.

AWARDS ANNOUNCED BY THE UNIVERSITY BUT MADE BY OTHER INSTITUTIONS

The Rhodes Scholarships

The Rhodes Trustees offer annually for award in the Province of British Columbia one Rhodes Scholarship of the basic value of £400 a year but temporarily increased to £500. At most Colleges, and for most men, this increased sum is scarcely sufficient to meet a Rhodes Scholar's necessary expenses for term-time and vacations, and Scholars who can afford to supplement it by, say, £50 a year from their own resources are strongly advised to do so. The cost of the voyage to and from England must be borne by the Scholar.

The Scholarship is tenable ordinarily for two years at Oxford University. A third year will be awarded only if the Rhodes Scholar has shown outstanding quality and presents a definite plan of study for the additional period satisfactory to his College and to the Rhodes Trustees.

A candidate must be an unmarried male British Subject domiciled and resident for five years in Canada. He must be in his second year at least of work in a Canadian university and may apply either in the province of his residence or of his university, if these differ. A candidate must have passed his 18th brthday but not have reached hs 24th birthday by October 1st, 1949.

The special provisions applicable until last year to ex-servicemen and relating to age and marriage have been discontinued.

In that section of the Will in which he defined the general type of scholar he desired, Mr. Rhodes mentioned four groups of qualities, the first two of which he considered most important:

1. Literary and scholastic attainments;
2. Qualities of manhood, truth, courage, devotion to duty, sympathy, kindliness, unselfishness, and fellowship;
3. Exhibition of moral force of character and of instincts to lead and to take an interest in his fellows;
4. Physical vigour, as shown by fondness for and success in outdoor sports.

Some definite quality of distinction, whether in intellect, character, or personality, or in any combination of these, is the most important requirement for a Rhodes Scholarship, and it is upon this that Committees will insist. Success in being elected to office in student organizations may or may not be evidence of leadership in the true sense of the word. Mr. Rhodes evidently regarded leadership as consisting in moral courage and in interest in one's fellow men quite as much as in the more aggressive qualities. Physical vigour is an essential qualification for a Rhodes Scholarship, but athletic prowess is of less importance than the moral qualities developed in playing outdoor games. Financial need does not give a special claim to a Scholarship.

A candidate for a Scholarship is required to make application by November 1st, 1949, and, if elected, to go to Oxford in October, 1950. Further information and application forms may be had from the Registrar or Dean G. F. Curtis, Secretary of the B. C. Selection Committee, Faculty of Law, University of British Columbia, Vancouver, B. C.

The Exhibition of 1851 Scholarship

Under the revised conditions for the award of the Exhibition of 1851 Scholarship in Science, the University of British Columbia is included in the list of universties from which nominations for scholarships alloted to Canada may be made. These scholarships of £350 per annum are tenable, ordinarily, for two years. Scholarship winners with special needs may receive additional money grants during the period of their tenure. The scholarships are granted only to British subjects of not more than 26 years of age who have already completed a full university course and given evidence of capacity for scientific investigation. The scholarships are open to graduates of any university who have spent not less than three years in the study of science. Detailed information may be obtained from the Dean of Administrative and Inter-Faculty Affairs.

Royal Institution of Great Britain Science Research Scholarship

This scholarship, of £350 per annum and ordinarily tenable for a period of two years, is available for graduates who have given evidence of capacity for scientific investigation. The scholarship will be awarded in any branch of the physical sciences for which facilities are available in the Davy Faraday Research Laboratory of the Royal Institution, London, and the scholar will be required to devote himself to research in that branch. The scholarship will be tenable only in the Davy Faraday Research Laboratory. The

conditions of tenure are similar to those of the 1851 Overseas Scholarships. Detailed information may be obtained from the Dean of Administrative and Inter-Faculty Affairs.

Imperial Order Daughters of the Empire War Memorial Scholarship (Overseas)

This fund was established by the I.O.D.E. in order to perpetuate the memory of the men and women who gave their lives in the defence of the Empire in the First Great War. Nine graduate scholarships to the value of $1600 each are offered annually, one in each province of the Dominion. The conditions under which they are awarded may be obtained from the Registrar. Applications must be submitted by October 15th of each year.

Canadian Federation of University Women Scholarships

The Travelling Scholarship of the Canadian Federation of University Women, of the value of $1250, available for study or research work, is open to any woman holding a degree from a Canadian university, who is not more than 35 years of age at the time of award. In general, preference will be given to those candidates who have completed one or more years of graduate study and have a definite course of study or research in view. The award is based on evidence of character, intellectual achievement, and promise of success in the subject to which the candidate is devoting herself.

The Junior Scholarship of the Canadian Federation of University Women, of the value of $850, is open to any woman holding a degree from a Canadian university, who is not more than 25 years of age at the time of award. Preference will be given to students who have studied in only one university and who desire to continue their studies in another.

The Professional Scholarship of the Canadian Federation of University Women, of the value of $700, is open to any woman holding a degree from a Canadian university, who is not more than 35 years of age at the time of award. Preference will be given to candidates who have completed one or more years of professional work and who desire to spend a year at an accredited Library School, College of Education, School of Social Work or similar professional school.

The proposed place and plan of study or research must be approved by the Scholarship Committee.

Application blanks and further information may be obtained from the Convener of the Scholarship Committee, Dr. Phyllis G. Ross, 4899 Belmont Ave., Vancouver, B. C. Applications and recommendations must be received not later than February 1st.

The International Brotherhood of Pulp, Sulphite and Paper Mill Workers Scholarship

A scholarship of $250, given by the International Brotherhood of Pulp, Sulphite, and Paper Mill Workers, Local 312, Ocean Falls, is available annually for a student entering First Year at the University of British Columbia. This scholarship, which is open to students in Ocean Falls, Powell River, Port Alice, Port Mellon, and Woodfibre, will be awarded to the applicant obtaining highest standing in the written examinations in the scholarship subjects for University Entrance. Application forms and further information may be obtained by writing to the Secretary, Local 312, Ocean Falls, B. C.

The French Government Scholarship

Scholarships of the present value of approximately $1000 are donated by the French Government for graduate study in France. They are tenable for one year and are renewable. Travelling expenses and university fees are defrayed by the French Government. The awards are made by the French Embassy on the recommendation of the Head of the Department of French in the University.

French Government Medals

A Silver and a Bronze medal will be awarded for distinguished work in French Literature, on the recommendation of the Head of the Department of French.

The French Government Book Prizes

Book prizes, offered by the French Embassy, will be awarded to students in the French language on the recommendation of the Head of the Department of French.

The Summerland Scholarship

A scholarship of $250, given by the citizens of Summerland, is available annually for a student of Summerland High School proceeding to the University of British Columbia, or some other institution of higher learning in the event that courses of the winner's choice are not available at the University of British Columbia. The scholarship will be awarded to the applicant who, in the opinion of the Summerland selection committee, best exemplifies the qualities of the all-round student.

Viscount Bennett Trust Fund

Under the terms of a deed of gift to the Canadian Bar Association from the Right Honourable Viscount Bennett, P.C., K.C., LL.D.,

D.C.L., Honorary Life President of the Association, a trust fund known as the Viscount Bennett Trust Fund has been established. The annual income from the fund or the sum of $1000, whichever is less, will be paid annually as a scholarship for graduate study at an institution of higher learning to be approved by a scholarship committee. The scholarship is open to a person of either sex who has graduated from an approved law school in Canada or who, at the time of application, is pursuing his or her final year of studies as an undergraduate student. The award is to be made by the committee at the time of the mid-winter meeting of the Council of the Association or prior thereto. The Faculty of Law of this University has been approved by the Committee. Full information as to qualifications of applicants may be had on application to the Dean of Administrative and Inter-Faculty Affairs. Application must be in the hands of the Secretary-Treasurer of the Association by December 31st.

The Crofton House Alumnae Scholarship

A scholarship of $175, the gift of the Crofton House Alumnae, is available annually for a student of Crofton House School who is proceeding to the University of British Columbia. In making the award, consideration will be given to scholastic abilty, character, leadership, and participation in the activities of the School. The winner will be selected by the Headmistress and Staff.

The Imperial Oil Graduate Research Fellowship

The Imperial Oil Limited, in 1946, established for annual competition four research fellowships of the value of $3000 each ($1000 a year payable in Canadian funds for a maximum of three years), open to graduates of any approved university in Canada. These fellowships are offered for graduate work leading to a Doctor's or Master's degree in the fields of Petroleum Engineering, Petroleum, Geology, Chemistry or Chemical Engineering, and Mechanical Engineering. Nomination of students for these fellowships is made by the University—such nominations being submitted to the Imperial Oil Scholarship Committee, Imperial Oil Limited, 56 Church Street, Toronto, not later than June 1st, each year. Nomination forms and information as to the terms of fellowship are available at the office of the Dean of Administrative and Inter-Faculty Affairs.

The United Odd Fellows Bursaries

Six bursaries of $200 each, provided by the Grand Lodge of B. C., I.O.O.F., the Grand Encampment, and the Rebekah Assembly,

are available annually for students in any year of any faculty. Under terms approved by the Grand Bodies, one bursary will be offered in each of the following districts of the Province: (1) Vancouver Island and Powell River; (2) Greater Vancouver; (3) New Westminster and the Lower Fraser Valley; (4) the Kootenays; (5) North and South Okanagan, including Princeton and Merritt; (6) Main Line of the C.P.R. east of Chilliwack, and Northern B. C. The awards will be made by a joint committee consisting of two representatives from each of the Grand Bodies. In general, applications will be considered first from members of the immediate families of Odd Fellows or Rebekahs, but failing suitable candidates from these sources, the Committee may award the bursaries to other worthy applicants. Special consideration will be given to applicants with financial need. Full details of the awards and application forms may be obtained from the Secretary of any Odd Fellows Lodge or Rebekah Lodge, or from the Grand Secretary of the Grand Lodge, I.O.O.F. Applications should be submitted to the Odd Fellows or Rebekah Lodge by June 15th or to the Grand Secretary, 144 Hastings Street West, Vancouver, not later than June 30th.

National Research Council Bursaries, Studentships, and Fellowships

The National Research Council awards annually a number of Bursaries, Studentships, and Fellowships for graduate work. These are open to selected graduates in the sciences who have shown distinction in the undergraduate studies. The values of the awards are as follows: Bursary, $450; Studentship, $750; and Fellowship, $900. Applications must be received in Ottawa before February 10th. Application forms and regulations governing the awards may be obtained from the office of the Dean of Administrative and Inter-Faculty Affairs, or by writing to the Secretary-Treasurer, National Research Council, Ottawa.

Rotary Foundation Fellowships

The Board of Directors of Rotary International and the Rotary Foundation Trustees have established a limited number of Rotary Foundation Fellowships for advanced study for one academic year. Candidates are expected to pursue study outside their own country. These fellowships are open to students between the ages of twenty and twenty-eight. Applicants must be graduates or in their graduating year. They are advised to make application early in October. Further information may be obtained from the office of the Dean of Administrative and Inter-Faculty Affairs.

The Vancouver Public Library Staff Association Bursary

A bursary of not less than $150, given by the Vancouver Public Library Staff Association is available annually for a student intending to adopt librarianship as a profession. To be eligible an applicant must have complete University Entrance and have worked on a library staff for one year or for the equivalent in part time employment. The recipient will be selected on the basis of scholarship, personality, ability to work with others, aptitude for library work, physical fitness and financial need. Other things being equal an application from a student going to a library school will take precedence over that of a student planning undergraduate work. The successful applicant should be willing to return to British Columbia within a period of five years after graduation from library school if a suitable opening is available. Application forms and further information may be obtained from Miss J. Hotson, Vancouver Public Library, Vancouver, B. C.

The B'nai B'rith Hillel Foundation Scholarship

On the occasion of the opening of the Hillel House at the University of British Columbia in November, 1947, Mr. Sam Hyman of Vancouver generously offered an annual scholarship which will be awarded to a student affiliated with the Hillel Foundation on the basis of scholarship, leadership and character. This scholarship, in the amount of $50, will be offered by Mr. Hyman annually as long as he lives.

The B'nai B'rith Hillel Foundation Service Bursary

Through the generosity of Mrs. I. J. Klein of Vancouver, a Service Bursary of one hundred dollars ($100) is offered through the B'nai B'rith Hillel Foundation to a student who is chosen on the basis of ability, character and need. This student receives the Bursary for service performed to the Hillel Foundation. The Bursary was offered by Mrs. Klein in November, 1948, on the occasion of the 25th anniversary of the establishment of the B'nai B'rith Hillel Foundations in American and Canadian Colleges and Universities. The Bursary will be granted for a period of five years.

The Agricultural Institute of Canada Scholarships

Scholarships, offered annually by the Agricultural Institute of Canada in co-operation with a number of industrial concerns, are available for graduates in Agriculture who wish to take advanced training in professional agriculture. One of these scholarships, of

annual value $800, is donated by the British Columbia Electric Railway Company. Selection of winners is made by the National Scholarship Committe of the Institute. Graduates interested in these awards may obtain application forms and further details from the office of the Dean of Agriculture, University of British Columbia.

The Pilkington Glass Limited Travelling Scholarship In Architecture

A travelling scholarship, for the purpose of post-graduate study at Liverpool University, England, or the Architectural Association, London, has been made available by Pilkington Glass Limited, for competition among Architectural students in Canada. This scholarship will be given to a fifth year student from one of the schools having a five-year course and will be of an annual value of $1500 plus travelling expenses, cabin class, to and from England. Architectural students at the University of British Columbia are eligible to enter the competition. Further details may be obtained from the Head of the Department of Architecture.

Hudson's Bay Scholarships

The Hudson's Bay Company has created a trust fund for the award of two scholarships for study in the United Kingdom. These have been established to provide advanced training for business executives, to further research in those subjects in which the Company is interested, particularly distribution and trading, personnel administration and labour relations, and to strengthen the links between the business communities in Canada and the United Kingdom. Candidates must be Canadian citizens ordinarily resident in Canada, who at the time of application, should be over twenty-three and not have passed their thirtieth birthday. The scholarships are primarily for university graduates, although non-graduates are not excluded. Each scholarship will be of the value of £450, plus cost of transportation between Canada and the United Kingdom and return, for one year's study in the United Kingdom. Application forms and further information may be obtained from the Secretary, Hudson's Bay Scholarships, Hudson's Bay House, Winnipeg, Manitoba. Those interested should apply early in January.

Beaver Club Trust Scholarships

These scholarships, open to Canadian ex-servicemen and their sons, were awarded for the first time in 1949. They are of annual value not exceeding £500 and are tenable at any university or college in Great Britain. The duration of each scholarship is at the

discretion of the Selection Committee. In the choice of scholars, emphasis is on the humanities and social sciences, including such subjects as law, pedagogy, fine arts, and sociology. The purpose is educational and not for research. Candidates must be (1) Canadian citizens, (2) men who served at least one year in the Canadian Armed Forces during the period from September 1, 1939 to August 31, 1945, *or* the son of a man who so served. Although preference is given to candidates who are completing their undergraduate studies at a university or college in Canada, candidates who have completed at least two years of university or college work are eligible to apply. Information may be obtained from P. L. P. Macdonnell, Esq., Secretary, Beaver Club Trust, Room 1709, 80 King Street, West, Toronto, Ontario.

THE
FACULTY
OF
ARTS AND SCIENCE

1949-1950

THE FACULTY OF ARTS AND SCIENCE

The degrees offered in this Faculty are Bachelor of Arts (B.A.), Bachelor of Commerce (B.Com.), Bachelor of Education (B.Ed.), Bachelor of Home Economics (B.H.E.), Bachelor of Physical Education (B.P.E.), Bachelor of Social Work (B.S.W.), and Master of Social Work (M.S.W.). For regulations concerning the degree of Master of Arts (M.A.) see *Faculty of Graduate Studies.*

In addition, a course is provided leading to a Diploma in Teacher Training.

COURSES LEADING TO THE DEGREE OF B.A.

The degree of B.A. is granted with Honours or as a General Course degree. A General Course degree will be granted on completion of courses amounting to 60 units chosen in conformity with Calendar regulations; an Honours degree will similarly require 66 units. For regulations in regard to Honours degrees see pages 128-143.

For regulations under which students may take courses leading to double degrees see *Double Courses.*

Credits obtained at the Summer Session (see *University Summer Session*) may be combined with Winter Session credits to complete the number of units required for the degree of B.A. The degree of B.A. will not be granted within three years from Senior Matriculation nor within four years from University Entrance.

The maximum credit for Summer Session work in any one calendar year is 6 units; and the maximum credit for work other than that of the regular Summer and Winter Sessions is 3 units in each academic year, and 15 units in all subsequent to Senior Matriculation or First Year Arts.

No credit will be granted for work done at other universities in the same academic year in which work has been attempted at this University, whether in the Summer Session or in the Winter Session or otherwise. Extra-mural work done at other universities prior to registration at this University may be accepted, if approved by the Faculty, but may not exceed 3 units in respect of any one academic year or 15 units in all subsequent to Senior Matriculation. If a student is granted credit for extra-mural work taken elsewhere, the number of units which he may take at this University without attendance at a Winter or Summer Session will be correspondingly reduced.

Candidates for the degree of B.A. are advised to attend at least one Winter Session, preferably that of the Fourth Year.

Courses are described in terms of units. A unit normally consists of one lecture hour (or one continuous laboratory period of not less than two or more than three hours) each week throughout the session, or two lecture hours (or equivalent laboratory periods) throughout a single term.

Students in any of the affiliated Theological Colleges who file with the Registrar a written statement expressing their intention of graduating in Theology will be allowed to offer in each year of their Arts course, in place of optional subjects set down in the Calendar for the year and the course in which they are registered, Religious Knowledge options, to the extent of three units taken from the following list: Hebrew, Biblical Literature, New Testament Greek, Church History, Christian Ethics, and Apologetics.

First and Second Years

The requirements of the First Year consist of 15 units. In the Second Year, students proceeding to a B.A. degree in the General Course (see pages 127-128) must take 15 units; those proceeding to a B.A. degree in an Honours course must take 15 or 18 units, according to the requirements of individual departments (see pages 129-143). Courses in the first two years must also be chosen in conformity with the requirements (a)-(f) below and the special regulations in notes 1-16. Details of courses are given under the various departments.

*Each student must take:	Units
(a) In the First Year English 100 and 101, and in the Second Year English 200 (See note 15)	6
(b) The first two courses in a language offered for University Entrance or in Russian, one course in each year (See notes 1-6)	6
(c) In the First Year Mathematics 100 or the option indicated in Note 10 (See notes 7-13)	3
(d) One course chosen from: Economics 100, 140, 200; Geography 201; History 101, 202, 203, 204, 304; Philosophy 100, 205; Psychology 100; Sociology 200 (See notes 7, 13, 15, and 16)	3

*For credit that can be given for Senior Matriculation standing, complete or partial, see page 41 and Note 14.

(e) One course chosen from:

Biology 100	Geology 201-2	3
Chemistry 100, 105	Physics 100, 101, 103	
Geography 101		

(See notes 6-9, 13, 15 and 16)

**(f)* At least three courses—not already chosen—selected from the following:

Architecture 160 and 170	History 101, 202, 203 204, 304	9 or 12
Bacteriology 201	Latin 90, 101, 202	
Biology 100, 330	Mathematics 90, 100, 200, 201, 202	
Botany 200	Music 105, 205	
Chemistry 100 or 105, 200, 225	Philosophy 100 or 205, 202, 210	
Commerce 251	Physics 100 or 101 or 103, 200, 203, 220	
Economics 100, 140 or 200, 335	Polish 110, 210	
English 205	Psychology 100, 200, 201, 202	
French 101, 202, 203	Russian 100, 200, 203	
Geography 101, 201, 202	Sociology 200	
Geology 201-2, 301, 302	Spanish 90, 101, 201	
German 90, 100 or 101, 200 or 201	Zoology 200	
Greek 90, 101, 202, 314, 315		

(See notes 4-9 and 12-16)

NOTES

1. Except as provided in note 6 below, students who have not offered German, Greek, Latin, or Spanish for University Entrance may fulfil requirement *(b)* by taking German 90, Greek 90, Latin 90, or Spanish 90, respectively in the First Year, German 100 or 101, Greek 101, Latin 101, or Spanish 101 respectively in the Second Year, and German 200 or 201, Greek 202, Latin 202, or Spanish 201 respectively in the Third or Fourth Year. They will be required to complete 63 units for a degree in the General Course and 69 units in an Honours course.

2. Students who have completed German III of the High School course of study, or its equivalent, may fulfil requirement *(b)* by taking German 200 in the First Year and German 300 in the Second Year.

3. Students who offer French IV, German IV, or Latin IV of Senior Matriculation under Group 1 of the optional courses of

*Courses numbered 300 or over are Third and Fourth Year Courses and, unless listed in this section, are not open to First and Second Year students.

University Entrance may fulfil requirement *(b)* by taking French 202, German 200 or 201, or Latin 202 respectively in either the First or the Second Year. If the Second Year language is taken in the First Year, a Third Year course in this language may be taken in the Second Year.

4. No student in the First Year may elect more than one language course numbered 90, and, except as provided in note 6, no language course numbered 90 will count towards a degree unless followed by an additional year's work in that language.

5. Except in the case of Polish or Russian, no course in a language numbered 100 or higher may be taken by a student unless he has offered that language for entrance to the University or has taken the course numbered 90 in that language. Polish 110 and Russian 100 may be taken by students who have not previously studied these languages.

6. Students offering 12 units of science, or 9 units of science and 6 units of mathematics, in the First and Second Years, may fulfil requirement *(b)* by taking any two of French 101, French 202; Latin 90, Latin 101, Latin 202; German 90, German 100 or 101, German 200; Greek 90, Greek 101, Greek 202; Russian 100, Russian 200; Spanish 90, Spanish 101, Spanish 201. Only one course numbered 90 may be selected.

Students offering 18 units of science in the First and Second Years may postpone the second course under *(b)* until the Third or Fourth Year.

The science courses above may be selected from Bacteriology, Biology, Botany, Chemistry, Geography (except Geography 201), Geology, Physics, Zoology.

7. Mathematics 100 is required for the following courses:

Architecture 160, 170; Bacteriology, Biology (except Biology 100); Botany (except Botany 200); Chemistry; Commerce; Economics (except Economics 100, 140); Geography (except Geography 101 and 201); Geology; Mathematics (except Mathematics 90); Political Science; Psychology (except Psychology 100, 201, 202); Sociology (except Sociology 200); Physics (except Physics 110, 103, 203); Zoology (except Zoology 200).

Students will not be permitted to register for any of the above courses until they have taken Mathematics 100, except in the case of Chemistry 100 and 105, Economics 200, Physics 100 and 101, where it may be taken concurrently.

Mathematics 100 is a prerequisite for majors or Honours in Bacteriology and Preventive Medicine, Biology, Botany, Chemistry,

Economics, Geography, Geology, International Studies (Honours only), Mathematics, Philosophy (Honours only), Psychology, Physics, Political Science, Sociology, and Zoology; or Combined Honours in these subjects.

8. Mathematics 90 must precede or be taken concurrently with Physics 110 and Philosophy 202, unless Mathematics 91 or Mathematics VI (old course) has been taken previously in high school. It must precede Physics 203.

9. Students who have not offered Mathematics 91, or Mathematics VI (old course), for University Entrance may fulfil requirement *(c)* by taking Mathematics 90 in the First Year and Mathematics 100 in the Second Year. They will be required to complete 63 units for a degree in the General Course and 69 units in an Honours course. The extra 3 units may be taken in the Third or Fourth Year.

10. If Mathematics 100 is not taken, student may fulfil requirement *(c)* by taking one course—not already chosen—selected from French 101, German 100 or 101, Greek 101, Latin 101, Polish 110, Russian 100, Spanish 101, Music 105 (provided they have University Entrance standing in Music or its equivalent).

11. Students who have not offered German, Greek, Latin, or Spanish for University Entrance may fulfil requirement *(c)* by taking German 90, Greek 90, Latin 90, or Spanish 90, respectively, in the First Year and German 100 or 101, Greek 101, Latin 101, or Spanish 101, respectively, in the Second Year. They will be required to complete 63 units for a degree in the General Course or 69 units in an Honours course. The extra 3 units may be taken in the Third or Fourth Year.

12. Mathematics 90, or Mathematics 91 or Mathematics VI (old course) in the High School Programme, is prerequisite to Mathematics 100. Students who have obtained standing in Mathematics 91 or Mathematics VI (old course) at entrance will not be permitted to take Mathematics 90 for credit.

13. Students offering 18 units of language courses (French, German, Greek, Latin, Polish, Russian, Spanish) in the first two years may defer the course selected under *(e)* until the Third or Fourth Year. Students taking 12 units of science (see paragraph 3, note 6) may defer the course selected under *(d)* until the Third or Fourth Year.

14. Only one course numbered 90 (or one course 90 or 91 in Senior Matriculation) may be counted in the units required for the B.A. degree.

15. The following courses are not open for credit toward the First Year.

Architecture 160, 170; Bacteriology 201; Biology 330; Botany 200; Chemistry 200, 225; Commerce 251; Economics 200, 335; English 200, 205; French 203; Geography 202; Geology 201-2, 302; Greek 314, 315; History 203, 204, 304; Mathematics 200, 201, 202; Philosophy 202, 210; Physics 200, 203, 220; Polish 210; Psychology 200, 201, 202; Russian 200, 203; Sociology 200; Zoology 200.

Students who later intend to take Chemistry 300 should not take Chemistry 225, which is open only to students in a Pre-Dental Course or in Home Economics. Credit will not be given for both Chemistry 225 and 300.

Commerce 251 is open to students only if they have completed the First Year and have taken or are taking Economics 200.

Credit will not be given for both Economics 140 and Economics 200. Economics 200, which is not open to students registered in the First Year, must be taken by students intending to proceed to further work in Economics. Students who have already taken Economics 140 will not receive any additional units of credit for Economics 200.

Economics 335 may be taken only by those who have taken Economics 200 or are taking it concurrently.

English 200 and 205 may be taken only by students who have passed in both English 100 and 101.

English 205 is open to students in the B.A. course only if they have taken English 200 or are taking it concurrently.

French 203 is open to Second Year students only if they are proceeding to Honours.

Geography 101 may not be taken for credit along with Geology 201-202. Provided at least Second Class standing be obtained, however, Geography 101 may be substituted for Geology 201-202 as a prerequisite for courses in Geology. Students intending to Major or Honour in Geography are required to take Geography 101 as prerequisite to all other courses in Geography.

History 202 is open to First Year students only if they are preparing for entrance to Normal School.

Music 105 is open to students only if they have University Entrance standing in Music or its equivalent.

16. Students who intend entering Social Work should refer to the *Admission* section of the Department of Social Work announcements, and should consult the Department concerning their choice

of courses, to ensure that they complete the requisite minimum of 27 units in the social and biological sciences within their four undergraduate years.

NOTE. Students thinking of entering Applied Science are referred to the list of subjects required to be taken by them in First Year Arts and to the regulations in reference to these, given under *Admission and General Outline of courses in Faculty of Applied Science.* They are advised to attend the noon hour talks on the choice of a profession and on the life and work in vocations likely to appeal to Applied Science graduates. Students intending to enter Pharmacy are referred to the requirements as listed under that Faculty.

Third and Fourth Years

The requirements of the Third and Fourth Years consist of at least 30 units, of which students must take in their Third Year not less than 15 units. The graduation standing is determined by the results of the Third and Fourth Years combined.

Details of courses available in the Third and Fourth Years are given under the various departments.

Attention is called to several courses which, although offered by language departments, do not require a knowledge of these languages, and to certain courses in other departments. These courses, which may be taken as electives, include Architecture 466, 467; Greek 314, 315, 331; Latin 331; Slavonic Studies 305, 306, 308, 310, and Spanish 412.

A. General Course Curriculum

1. For the General Course a student must select two major subjects according to either of the following schemes:*

a. A minimum of 9 units in one subject and a minimum of 6 units in another subject, both subjects to be chosen from one of the following groups:

(1) Bacteriology, Biology and Botany, Chemistry, Geography, Geology, Mathematics, Physics, Psychology, Zoology.

(2) Anthropology, Economics, Education (not more than six units, chosen from Education 509 and Education 510 to 582 inclusive, and only for those who have completed their Normal Training), English, French, Geography, German, Greek, History, International Studies, Latin, Mathematics, Music, Philosophy, Political Science, Psychology, Slavonic Studies, Sociology, Spanish.

Or

b. A minimum of 9 units in each of two subjects to be chosen from the following:

Biology and Botany, Chemistry, English, French, Geography, German, Greek, History, Latin, Mathematics, Physics, Spanish, Zoology.

*Those who intend to enter the Teacher Training Course should consult section 3, page 160.

Work in the First or Second Year is required in each of the major subjects, except in Education, International Studies, and Political Science.

In certain cases, however, this requirement may be fulfilled by taking a First or Second Year course in the Third Year (see section 2), but a course thus taken may not count towards the required units for a major.

In addition to the major subjects a minimum of 6 units must be chosen from some other subject or subjects.

2. Only *two* subjects (6 units) of the First or Second Year courses may be taken in the combined Third and Fourth Years.

For the purpose of this regulation the following subjects are considered Third and Fourth Year subjects: Botany 200 or Zoology 200 (if both are taken); Geography 202; Geology 201 and 202; German 200 or 201; Greek 202; Latin 202; Mathematics 200 or 202 if the other has been taken in the Second Year; Philosophy 202, 205, 210; Psychology 200, 201, 202; Spanish 201; also the subjects under *(d)* or *(e)* postponed to the Third or Fourth Year, as provided for under paragraphs 6 and 13, pages 124, 125.

B. Honours Curriculum

1. Candidates for Honours must complete a minimum of 51 units in the final three years.

2. Students whose proposed scheme of work for the Third and Fourth Years involves Honours courses must obtain the consent of the departments concerned and of the Dean before entering on these courses; and this consent will normally be granted only to those students who have a clear academic record at the end of their Second Year with at least Second Class standing in the subject or subject of specialization, and who have chosen their courses and fulfilled the prerequisites outlined below. (Cards of application for admission to Honours courses may be obtained during the Registration period.)

3. Some departments offer Honours courses either alone or in combination with other departments. For Honours in a single department, at least 18 of the requisite units for the Third and Fourth Years must be taken in the department concerned, and at least 6 outside it. For Honours in combined courses, at least 12 units in the Third and Fourth Years are required in each of two subjects. Particulars of these courses are given below.

4. Candidates for Honours, with the consent of the department concerned, may offer a special reading course (to count not more than 3 units).

5. All candidates for Honours, at the option of the department or departments concerned, may be required to present a graduating essay embodying the results of some investigation that they have made independently. Credit for the graduating essay will be not less than 3 or more than 6 units. The latest date for receiving graduating essays in the Second Term shall be the last day of lectures; and the corresponding date for the Autumn Congregation shall be October 1st.

6. Candidates for Honours are required to take at the end of their Fourth Year a general examination, oral or written, or both, as the department or departments concerned shall decide. This examination is designed to test the student's knowledge of his chosen subject or subjects as a whole, and is in addition to the ordinary class examinations of the Third and Fourth Years.

7. Honours are of two grades, First Class and Second Class. Students who, in the opinion of the department concerned, have not attained a sufficient high ranking, may be awarded a General Course degree. If a combined Honours course is taken, First Class Honours will be given only if both the departments concerned agree; and an Honours degree will be withheld if either department refuses a sufficiently high grade.

8. It is hoped to offer the following Honours courses during the session 1949-50. But if it is found impossible to do so, the University reserves the right to refuse new registrations in any of them.

SINGLE HONOURS COURSES

Bacteriology and Preventive Medicine

Prerequisites: Biology 100, Chemistry 100 or 105, and Mathematics 100. Biology 100 may be taken concurrently with Bacteriology 201 in the Second Year.

Course: In the Second Year, Bacteriology 201; in the Third and Fourth Years, Bacteriology 301 and at least 15 units selected in consultation with the Head of the Department.

Biology and Botany

Students may take Honours in any one of the options, namely, Ecology, Genetics, General Physiology, Morphology, Pathology, Plant Physiology, Taxonomy. (To fulfil the requirements for a

major, courses may be selected under these options.) The Department should be consulted.

Prerequisites: Biology 100, Chemistry 100 or 105, Mathematics 100.

Course: In the Second Year, Botany 200, Zoology 200, English 200, a language, Physics 100 or 101 (replaced in the Second Year by Biology 330 for Genetics and by Bacteriology 201 for Pathology options), Chemistry 200 (replaced by Geology 201-2 for Taxonomy option).

In the Third Year, Botany 330, Botany 310 or 340, Biology 330 (replaced by Physics 100 or 101 for Genetics option) and eleven additional units to be chosen in consultation with the Department.

In the Fourth Year, Botany 304, Chemistry 300 (except for Taxonomy option), a graduating essay, and six additional units to be chosen in consultation with the Department and in agreement with the option chosen.

Chemistry

Prerequisites: Chemistry 100 or 105, Mathematics 100, and Physics 100 or 101.

Course: In the Second Year, Chemistry 200, Mathematics 202, Physics 200, and nine additional units to be chosen in consultation with the Department; in the Third Year, Chemistry 300, 304, 310, Mathematics 300, and six additional units; in the Fourth Year, Chemistry 407, 409, 411, a graduating essay, and three additional units.

Classics

Prerequisites: Greek 101, Latin 101.

Course: Greek 202 and Latin 202 in the Second Year; in the Third and Fourth Years, Greek 310, 410 and Latin 310, 410; any three of Greek 303, 305, 306, 407; any three of Latin 303, 304, 405, 406; and Greek 331, Latin 331.

As proof of ability to write Greek and Latin prose, candidates must attain not less than Second Class standing in Greek 310, 410 and Latin 310, 410. During the candidate's Fourth Year, papers will be set in sight translation, and the candidate is advised to pursue a course of private reading under the supervision of the Department.

There will also be a general paper on antiquities, literature, and history.

Economics

Prerequisites: For admission to the Third Year of the Honours course, Mathematics 100, a reading knowledge of French, Ger-

man or Russian, and a First Class or a high Second Class in Economics 200.

Course: In the Second Year, Economics 100, if not already taken, and Economics 200; in the Third and Fourth Years, Economics 300, 301 (unless 400 has been taken), 335, and two of 305, 310, 320, 325, 330, 401, 405, 435. If in exceptional circumstances students enter the Third Year without having completed Economics 100, they will be required to take Economics 410 in addition to the courses prescribed for the Third and Fourth Years. In addition a graduating essay, counting three units, must be written in the Fourth Year and an Economics Seminar, counting three units, must be attended in each of the Third and Fourth Years. An oral as well as a written examination on the work of the Seminar is required.

English Language and Literature

Candidates for honours must secure the approval of the Department before beginning the Third Year.

Prerequisites are:

—a first or high second class mark in English 200.

—an elementary knowledge of Latin (e.g., University Entrance Latin or Latin 90).

Candidates will offer at least 51 units in the last three years, made up as follows:

	Units
—courses in the Second Year	15
—440: Chaucer	3
—442: Anglo-Saxon	2
—443: History of the English Language	3
—444: Bibliography	1
—445: Seminar (must be taken in both Third and Fourth Years, credit being given at the end of the Fourth Year)	3
—Graduating Essay	3
—courses which may be taken *either in or outside* the Department of English	15
—courses which *must be taken outside* the Department of English	6
	51

Candidates will take the following final honours examinations (one of them oral) in the history of English literature:

(1) before 1500
(2) 1500-1700
(3) 1700-1800
(4) 1800-1914

Candidates who have not taken a course in English history will write an examination in that subject.

Candidates will present evidence, by the end of the Fourth Year, of a reading knowledge of French or German or Russian and of a knowledge of a second foreign language equal to at least two years of University work in that language.

French

Prerequisite: French 101.

Course: In the Second Year, French 202, in which a First or high Second Class standing must be obtained, and French 203; in the Third and Fourth Years, French 300, 301, 302, 400, 401, 402, a graduating essay (6 units), English (3 units), and History 314 or 415.

Geography

Prerequisites: In the First and Second Years, Mathematics 100, Geography 101, and two years of a language.

Course: Geography 201 is recommended in the Second Year for those in the Social Sciences. In the Third and Fourth Years, the Honours Course requires fifteen units chosen from Geography 202, 303, 305, 306, 308, 402, 407, 409, 412, and also a graduating essay to count three units. Because of the breadth of field encompassed by geography, some courses in Agriculture, Anthropology, Economics, Geology, History, Sociology and Slavonic Studies are also recommended by the Department.

Honours students in the Third and Fourth Years are required to attend and participate in the Geography Seminar. An Honours paper will be set at the end of the Fourth Year on the work of the Seminar and the courses studied in the Third and Fourth Years.

Geology

Prerequisites: Chemistry 100 or 105, Mathematics 100, Physics 100 or 101, and, if possible, Biology 100. The Department should be consulted.

Course: In the Second Year, Geology 201, 202 and Biology 100 (if not already taken); in the Third and Fourth Years, eighteen units selected from Geology 301, 302, 304, 305, 307, 308, 406, 407, 408, 409, 410, 411. If Geology 302 is not taken in the Second Year, it must be taken in the Third Year. Zoology 200 is recommended for the Third Year. A graduating essay counting three units is required in the Fourth Year.

German

Prerequisite: A First Class or High Second Class in German 100 (or 200).

Course: In the Second Year, German 200 (or 300); in the Third and Fourth Years eighteen units selected from German 300, 301, 302, 303, 400, 401, 402, History 314 or Philosophy 205, and a graduating essay counting three units. Honours students who are not proficient in spoken German must attend a conversation class (one hour a week) in the Third and Fourth Year, for which no credit is given. Candidates will be required to take a comprehensive oral and written examination in the history of German literature.

History

Prerequisites: For admission to the Third Year of the Honours Course (1) a First Class or high Second Class standing in at least one of the History courses open to the students of the First and Second Years; (2) a reading knowledge of French, German, Russian, or Spanish.

Course: Students entering Honours in the Second Year should pursue the following course: English 200, French 202 (or its equivalent); one of History 202, 203 or 204; Geography 201; and one elective course. Students who have not taken History 101 in the First Year are required to take it in the Second Year in which case they may substitute History 101 for History 202, 203, or 204.

Third and Fourth Year students must elect either History 304 or 309, write a graduating essay which will count three units, and take twelve other units which must be chosen from courses offered in the Third and Fourth Years. They must also attend the Honours Seminar of the Third and Fourth Years.

Students whose standing in Honours History during the Second or Third Year is inadequate may, at the discretion of the Department, be required to discontinue the Honours course.

An Honours paper will be set at the end of the Fourth Year on the work of the seminars and of the courses studied in the Third and Fourth Years. There will be an oral examination on the field covered in the graduating essay.

International Studies

Prerequisites: For students proceeding to the Third Year in the Honours course, French 202 or its equivalent and a First Class or good Second Class standing in History 101 or Economics 200.

Course: In the Second Year, Economics 200, English 200, French 202 or its equivalent, Geography 201, History 101 (if not already taken) or History 202 (if not already taken).

In the Third Year, a language course, International Studies 300 or 310, the Seminar in Economics or Political Science (Economics 440); *two* of History 310, Slavonic Studies 305, 308, Geography 306, Economics 310, 325.

In the Fourth Year, International Studies 400, the Seminar in Canadian External Policy (International Studies 410), a graduating essay (3 units) dealing with some phase of International Studies, *two* of History 415, 419, 427, Economics 330, Political Science 400, 425, 435, Slavonic Studies 310.

Third and Fourth Year courses are to be chosen in consultation with the Director of International Studies.

Students whose work at the end of the Second or Third Year has not been of sufficiently high standard may be required to withdraw from Honours. A general paper will be set at the end of the Fourth Year on the seminars and courses attended in the upper years. There will be an oral examination on the topic covered in the graduating essay.

Latin

Prerequisite: Latin 101.

Course: Latin 202 in the Second Year; in the Third and Fourth Years Latin 303, 304, 331, 405, 406, Greek 331, and private reading to count for three units. The candidate must also take Latin 310 and 410, obtaining at least Second Class standing. His general knowledge will be tested by papers on antiquities, literature, and history at the end of the Fourth Year. Candidates are strongly advised to take Greek.

Mathematics

Prerequisites: Mathematics 100, Physics 100 or 101. A reading knowledge of French, German, or Russian is highly desirable. Students should therefore elect at least one of these languages in the First or Second Year. It is also suggested that Chemistry 100 or 105 be taken in the First Year.

Course: Mathematics 200, 202, Physics 200, and nine additional units in the Second Year; Mathematics 320, 321, 322, and nine or ten additional units in the Third Year; Mathematics 400, 401, 402, 403, 440, and five or four additional units in the Fourth Year. The additional units in any year must be chosen to satisfy the general requirements for the B.A. degree and in consultation with the Department. For students intending to take graduate work, a reading knowledge of at least two of French, German, Russian is essential.

Mathematics (Actuarial Option)

Prerequisites: Mathematics 100, Physics 100 or 101, Economics 100 or Psychology 100.

Course: Mathematics 200, 201, 202, Economics 200, and six additional units in the Second Year; Mathematics 320, 321, 322, Economics 300, Commerce 251, and three or four additional units in the Third Year; Mathematics 405, 440, at least six units chosen from Mathematics 307, 400, 401, 402, 403, and additional units to total sixteen or fifteen in the Fourth Year. The additional units in any year must satisfy the general requirements for the B.A. degree, and should be chosen, in consultation with the Department, from the following courses: Economics 335, 410, 435, English 205, History 202, 312, Spanish 90, 101, or others to be specified by the Department.

Philosophy

Prerequisites: Mathematics 100, Philosophy 100, and Psychology 100.

Course: In the Second Year, Philosophy 202 and 210; preferably one of Physics 100, 101, or 103, Biology 100, Psychology 200.

In the Third Year, Philosophy 310, and one of Philosophy 302, 304; four courses selected in consultation with the Department.

In the Fourth Year, three courses not already chosen from Philosophy 302, 304, 402, 410, 415, 500 (at least one of Philosophy 410 or 415 must be taken); three courses selected in consultation with the Department.

NOTE. Philosophy 202 and 9 units chosen from Philosophy 205, 210, 310, 410, 415, must be taken. Philosophy 205 should not be taken by Honours students except with approval of the Department.

A student with Second Class standing in the First Year or Senior Matriculation may, with the consent of the Department, take Philosophy 100 and Psychology 100 in the Second Year and complete his Honours requirement by taking the required courses during the Third and Fourth Years.

Candidates for Honours in Philosophy must obtain satisfactory standing on a comprehensive examination which will be given at the end of the Fourth Year.

Physics

Prerequisites: Chemistry 100 or 105, Mathematics 100, and Physics 100 or 101.

Course: In the Second Year, Mathematics 200, 202, Physics 200, and nine additional units chosen in conformity with Calendar

regulations; in the Third Year, Mathematics 320, 321, Physics 300, 302, 304, 308, Chemistry 304; in the Fourth Year, Mathematics 402, Physics 401, 402, 403, 405, 406, 407, 409.

Political Science

Prerequisites: For admission to the Third Year of the Honours course, Mathematics 100, a reading knowledge of French, German, or Russian, and a First Class or high Second Class standing in Economics 200.

Course: In the Second Year, Economics 200; in the Third and Fourth Years, Political Science 300, 400, and any three of Economics 320, Political Science 425, 430, 435, 436, 437, 438, 439, and 441. In addition a graduating essay counting three units must be written. A Political Science Seminar counting three units must also be attended in each of the Third and Fourth Years. A written as well as an oral examination on the work of this Seminar will be required.

Psychology

Prerequisites: Mathematics 100; Psychology 100; one of Biology 100, Chemistry 100 or 105, Physics 100 or 101. First Class or high Second Class standing must be obtained in the work of the Second Year.

Course: In the Second Year, Psychology 200; Philosophy 100 or 205; one not already taken of Biology 100, Chemistry 100 or 105, Physics 100 or 101, Mathematics 202, or a second course in the science taken in the First Year.

In the Third Year, three not already taken of Psychology 201, 202, 300, 301, 304; Philosophy 202; two courses selected in consultation with the Department.

In the Fourth Year, three not already taken of Psychology 300, 301, 303, 400, 403, 500; three courses selected in consultation with the Department.

NOTE. A student with First Class or high Second Class standing in the First Year or in Senior Matriculation may, with the consent of the Department, take Psychology 100 in the Second Year and complete his Honours requirements by taking four courses in Psychology and one less elective course in either the Third or the Fourth Year. Candidates for Honours in Psychology must obtain satisfactory standing on a comprehensive examination which will be given at the end of the Fourth Year.

Sociology

Prerequisites: For admission to the Third Year of the Honours Course, Mathematics 100, a reading knowledge of French, German,

or Russian, and a First Class or high Second Class average in Sociology 200.

Course: In the Second Year, Economics 200 and Sociology 200; in the Third and Fourth Years, twelve units selected from Sociology and six units selected from courses offered in any other Social Science.

In addition a graduating essay must be written which will count three units, and a Sociology Seminar counting three units must be attended in either the Third or the Fourth Year. A written as well as an oral examination on the work of this Seminar will be required.

Slavonic Studies

Prerequisites: Russian 100 and, if possible, Polish 110.

Course: In the Second Year, Russian 200, and one of Russian 203, Polish 110, Polish 210; in the Third and Fourth Years, Russian 300 and Russian 400, a graduating essay of value 3 units, and twelve units chosen from the following courses: Slavonic Studies 305, 306, 308, 310, 401, 402, Russian 203 (if not already taken), Polish 210 (if not already taken), History 415, International Studies 400. Electives in the Third and Fourth Years should be chosen in consulation with the Head of the Department.

Spanish

Prerequisite: Spanish 101.

Course: In the Second Year, Spanish 201; in the Third and Fourth Years, eighteen units chosen from Spanish 301, 302, 304, 320, 400, 401, 402, 403, 404, 410 and a graduating essay (6 units).

Zoology

Prerequisites: English 100, French 100, Mathematics 100, Biology 100, Chemistry 100 or 105.

Course: In the Second Year, English 200, German 90 or 101, Zoology 200, Botany 200, Chemistry 200 or 300, Physics 100 or 101; in the Third and Fourth Years, Zoology 300, 304, 400, 408; two of Zoology 301, 303 and 404; Biology 330, Chemistry 300 if not taken in the second year, a course under (d), page 122, a thesis and three or four options.

Optional Courses: Zoology 302, 305, 306, 307, 308, 400, 401, 402, 403, 406; courses in Botany; Biology 400, 430, 431; Geology 406; Agronomy 421; Mathematics 405.

Within the Honours programme a student may proceed to specialization in one of the several fields of academic zoology, for example, Anatomy, Embryology, Physiology, Parasitology; or to one of the

applied fields of Entomology, Fisheries, or Wildlife Management. Sequences of courses appropriate to these programmes should be chosen in consultation with the Head of the Department. In the fields of Applied Zoology, Third and Fourth Year options should include some of the following courses:

Entomology: Zoology 301, 302, 303, 305, 308, 401, 402, 404, 406, 407; Agronomy 202; Animal Husbandry 215; Horticulture 213.

Fisheries: Zoology 301, 302, 303, 307, 403, 404, 405, 406; Agronomy 421; Biology 400; Botany 411.

Wildlife Management: Zoology 301, 302, 303, 306, 404, 406, 409, 410; Agronomy 304, 421; Botany 303, 304, 420; Forestry 160, 250, 253, 350.

COMBINED HONOURS COURSES

(a) Any two of:

Bacteriology and Preventive Medicine, Biology and Botany, Chemistry, Geography, Geology, Mathematics, Physics.

(b) Any two of:

Economics, English, French, Geography, German, History, Latin or Classics, Philosophy, Political Science, Psychology, Slavonic Studies, Sociology, Spanish.

(c) Other combinations not listed above may be taken with the consent of Faculty.

The requirements in each of these subjects in such combinations are as follows:

Biology and Botany

Prerequisites: Biology 100, Chemistry 100 or 105, Mathematics 100.

Course: In the Second Year, Botany 200 and Chemistry 200 or the equivalent. In the Third and Fourth Years, twelve units selected from third and fourth year courses in consultation with the Head of the Department.

Bacteriology and Preventive Medicine

Prerequisites: Mathematics 100, Chemistry 100 or 105, and Biology 100. Biology 100 may be taken concurrently with Bacteriology 201 in the Second Year.

Course: In the Second Year, Bacteriology 201; in the Third and Fourth Years, Bacteriology 301, 401, 402, and 403, and a thesis.

Chemistry

Prerequisites: Chemistry 100 or 105, Mathematics 100, and Physics 100 or 101.

Course: In the Second Year, Chemistry 200, Mathematics 202, Physics 200; in the Third and Fourth Years, Mathematics 300 and twelve additional units to be chosen in consultation with the department.

Classics

Prerequisites: Greek 101, Latin 101.

Course: Greek 202 and Latin 202 in Second Year; in the Third and Fourth Years, Latin 310 and 410; any two of Greek 303, 305, 306, 407; any two or Latin 303, 304, 405, 406.

Economics

Prerequisites: For admission to the Third Year of the Honours Course, Mathematics 100, a reading knowledge of French, German or Russian, and a First Class or high Second Class standing in Economics 200. In addition to the requirements following, students who have not taken Economics 100 in their First or Second Year will be required to take Economics 410, unless they are proceeding to Combined Honours in History and Economics and are offering either History 416 or History 417.

Course: In the Second Year, Economics 200; in the Third and Fourth Years, Economics 300, 330 or 400, 335, and three further units in Economics courses numbered above 300. These three units may be replaced by the graduating essay if it is written in Economics. In this case an Economics Seminar counting three units must be attended in each of the Third and Fourth Years.

English

Students who intend to take Honours must have the permission of the Department before proceeding to the work of the Third Year.

Prerequisites: (1) A First Class or high Second Class in English 200. Ordinarily, special work is required of students who intend to take Honours. Such work, if required, is announced at the beginning of the session. (2) a reading knowledge of French or German.

Course: English 440, 444, 445, and any three of the English courses specified for the Third and Fourth Years. The seminar must be attended during both the final years, but credits which count for the B.A. degree will be given only for the work of the Fourth Year.

See also statement of prerequisites on page 131.

Candidates will be required to take the following final Honours examinations on the history of English literature:

1. From 1500 to 1700.
2. From 1700 to 1800.
3. From 1800 to 1914.

In the award of Honours special importance will be attached to these examinations. One of them may be oral.

French

Prerequisite: French 101.

Course: In the Second Year, French 202, which must be passed with a First or high Second Class standing, and French 203; in the Third and Fourth Years French 300, 302, and six additional units; twelve units in the second subject selected in consultation with the departments concerned; and a graduating essay (6 units) in one or the other field.

Geography

Prerequisites: Geography 101 and Mathematics 100.

Course: Twelve units from any of the Third and Fourth Year courses offered in Geography. Other requirements are the same as for the Single Honours course.

Geology

Prerequisites: Chemistry 100 or 105, Mathematics 100, and Physics 100 or 101.

Course: In the Second Year Geology 201 and 202; in the Third and Fourth Years twelve units selected in consultation with the Head of the Department; a graduating essay of value three units.

Geology and Geography

Prerequisites: Chemistry 100 or 105, Geography 201, and Mathematics 100.

Course: In the Second Year, Geology 201 and 202; in the Third and Fourth Years, twelve units in each of Geology and Geography selected in consultation with the Head of the Department, and a graduating essay counting three units.

German

Prerequisite: A First Class or high Second Class in German 100 (or 200).

Course: German 200, 300, 302, and any two or 301, 303, 400, 401, 402, and a graduating essay. Candidates will be required to take a comprehensive oral examination in the history of German literature.

History

Prerequisites: For admission to the Third Year of the Honours Course (1) a First Class or high Second Class standing in at least one of the History courses open to the students of the First and Second Years. (2) A reading kuowledge of French, German, Russian or Spanish.

Course: Students entering Honours in the Second Year should pursue the following course: English 200, French 202 (or its equivalent), one of History 101 (if not taken in the First Year), 202, 203 or 204, and two other courses, one of which must be in the other Honour field.

Third and Fourth Year students must elect either History 304 or 309, and any nine additional units of Third and Fourth Year History, of which the graduating essay, if written in History, will count three units. Students must also attend the Honours Seminar of the Third and Fourth Years.

Students whose standing in Honours History during the Second or Third Year is inadequate, may, at the discretion of the Department, be required to discontinue the Honours course.

An Honours paper will be set at the end of the Fourth Year on the work of the seminar and of the courses studied in the Third and Fourth Years. There will be an oral examination on the field covered in the graduating essay if written in History.

Latin

Prerequisite: Latin 101.

Course: Latin 202 in the Second Year; in the Third and Fourth Years Latin 310 and 410 and any four of 303, 304, 331 (3 units) or Greek 331 and Latin 331 (1½ units each), 405, 406. In the final year candidates must pass an examination *(a)* in sight translation and *(b)* in Latin literature, history, and antiquities. Private reading under the direction of the Department is recommended.

Mathematics

The following are the requirements for Mathematics combined with a subject other than Physics.

Prerequisites: Mathematics 100, Physics 100 or 101.

Course: Mathematics 200, 202, and twelve additional units in the Second Year; Mathematics 320, 321, 322, and nine or ten additional units in the Third Year; Mathematics 440 and any two of Mathematics 400, 401, 402, 403 and additional units to total sixteen or fifteen in the Fourth Year. The additional units in any year must be chosen to satisfy the general requirements for the B.A. degree and in consultation with the departments concerned.

Philosophy

Prerequisites: Mathematics 100, Philosophy 100 or 205.

Course: In the Second Year, Psychology 100, Philosophy 202; in the Third and Fourth Years, twelve units in Philosophy, selected in consultation with the Head of the Department.

Candidates must obtain satisfactory standing on a comprehensive examination which will be given at the end of the Fourth Year.

Physics

The following are the requirements for Physics combined with a subject other than Mathematics.

Prerequisites: Mathematics 100, Physics 100 or 101.

Course: In the Second Year, Mathematics 202, Physics 200; in the Third Year, Mathematics 300, Physics 300 and 308; in the Fourth Year, Physics 402 and four additional units in the Department.

Physics and Mathematics

Prerequisites: Chemistry 100 or 105, Mathematics 100, Physics 100 or 101.

Course: In the Second Year, Mathematics 200, 202, Physics 200 and nine additional units chosen in conformity with Calendar regulations; in the Third Year, Mathematics 320, 321, 322, Physics 300, 302, 304, 308; in the Fourth Year, Mathematics 402, 441, Physics 401, 402, 403, 406, 407, 409.

Political Science

Prerequisites: For admission to the Third Year of the Honours Course, Mathematics 100, a reading knowledge of French, German or Russian, and a First Class or high Second Class standing in Economics 200.

Course: In the Second Year, Economics 200; in the Third and Fourth Years, Political Science 300, 400 and six units to be chosen from Economics 320, Political Science 425, 435, 436, 437, 438, and

439. Three of the six units mentioned may be replaced by the graduating essay if it is written in Political Science. In this case, the Political Science Seminar counting three units must be attended in each of the Third and Fourth Years.

Psychology

Prerequisites: Mathematics 100, Psychology 100, Philosophy 100 or 205.

Course: Fifteen units in Psychology selected in consultation with the Department, of which twelve units must be taken in the Third and Fourth Years.

Candidates must obtain satisfactory standing on a comprehensive examination which will be given at the end of the Fourth Year.

Sociology

Prerequisites: For admission to the Third Year of the Honours Course, Mathematics 100, a reading knowledge of French, German or Russian, and a First Class or high Second Class standing in Sociology 200.

Course: In the Second Year, Economics 200 and Sociology 200; in the Third and Fourth Years, nine units in Sociology. If the graduating essay is written in Sociology it may be substituted for three of these units. In this case the Seminar in Sociology, counting three units, must be attended in each of the Third and Fourth Years.

Spanish

Prerequisite: Spanish 101.

Course: In the Second Year, Spanish 201; in the Third and Fourth Years, twelve units chosen from Spanish 301, 302, 304, 320, 400, 401, 402, 403, 404, 410; twelve units in the second subject selected in consultation with the department concerned; and a graduating essay (6 units) in one or the other field.

COURSE LEADING TO THE DEGREE OF B.Com.

Students who hold honourable discharge from His Majesty's armed services will be permitted to proceed to the degree of B.Com. on completion of courses amounting to 60 units chosen in conformity with 1945-46 Calendar regulations (i.e. upon completion of four years of work including First Year Arts and Science or its equivalent). All others will conform to the requirements of the present Calendar.

For the regulations governing the double course leading to the degrees of B.A. and B.Com. see *Double Courses.*

The regulations as to Summer Session credits, number of units to be taken in any academic year, etc., apply to courses leading to the degree of B.Com. in the same way as to courses leading to the degree of B.A.

As the student progresses in his course he will be expected to do an increasing amount of field work in the business community available to him. In this way he will learn to work on his own initiative and will acquire a first hand knowledge of business practice.

Periodic written reports are an important part of the different courses, and students are warned that demands upon their time will be sustained throughout the course.

Owing to the expense in preparing and setting up cases for report and class use, a small charge sufficient to cover costs may be made for mimeographed material used in some of the courses.

Students proceeding to the degree of B.Com. are required so to arrange their courses that they will be registered in Commerce subjects over a period of at least three years. Any departure from this regulation must have the approval of the Head of the Department of Commerce and the Dean.

It is desirable that students determine as early as possible the way in which they wish to direct their studies so that even at the First Year level they can take courses which will be useful to them when specializing in the later years.

The Fourth and Fifth Year courses are arranged in groups to meet the needs of a student's special interests and are integrated with the required subjects of the general Commerce course. These groupings are suggestive rather than mandatory and are flexible as to selection. A student wishing to select courses from two or more options or from the general Arts curriculum may do so, but should first consult with the Dean and with the departments concerned. The chief limiting factor in course selection will be the time-table.

Students selecting options in conjunction with other departments of the University (e.g., Agriculture, Forestry, etc.) must take the full option as presented.

The emphasis of course development in Commerce will probably be in the direction of distribution, foreign trade, and transportation, owing to the importance of these aspects of economy in the Province of British Columbia. Class material, insofar as possible, will be centred on the industrial and commercial activities most important to the Province.

Two copies of all major reports and theses must be filed with the Department. The student should also retain a third copy for himself.

Choosing Electives

It is recommended that throughout his course the student try to include in his electives courses in the general Arts curriculum for which he is eligible. In this connection particular attention is directed towards the importance of English for Commerce graduates. Before registering for courses other than those definitely prescribed in each year students must secure the approval of the Dean of the Faculty of Arts and Science and the Head of the Department of Commerce.

Course Numbering

The first digit designates the year of the Commerce course:

2 is Second Year; 3 is Third Year; 4 is Fourth Year; 5 is Fifth Year.

The second digit designates the subject grouping of the course:

3 is Foreign Trade; 4 is Transportation; 5 is Accounting; 6 is Marketing; 7 is Finance; 8 is Industrial Management; 9 is Miscellaneous.

The third digit designates the separation between fundamental and advanced courses in their respective subject groupings:

1 and 2 are fundamental courses; 3-7 are advanced courses; 8, 9, 0 are miscellaneous courses.

E.g., 361 means a Third Year course of fundamental character in the marketing group; 453 means a Fourth Year course of advanced character in the accounting group.

Students should take their courses in the year designated by the first digit.

First Year

A complete course in First Year Arts and Science or the equivalent, including English 100 and 101, Mathematics 100, and a language.

Students who take a course numbered 90 in a language in their First Year should understand that this is of high school level and the complete requirements for a First Year include a first year language at university level. They will be permitted to go on to Second Year Commerce but will be required before graduation to secure standing in the next course of their language to be taken as an extra subject. The only exception to this rule is in the case of Slavonic languages, where a beginner's course counts for full First Year standing.

Second Year

The following courses comprising 15 units: English 205; Mathematics 201 or an additional course in the language taken in the First

Year or Slavonic Studies 100 (Russian); Economics 200; Geography 201; Commerce 251.

In view of the importance which rightly attaches to the capacity for adequate and clear expression in writing, regulation 12 on page 164 of the Calendar will be rigidly enforced at the end of the Second Year, and a reasonable legibility in handwriting will be insisted upon.

Third Year

Prerequisites for all Commerce courses: Commerce 251, Economics 200.

The following courses comprising 15 units: Commerce 352 and 361; Economics 300; Economics 335 or an additional course of the language taken in the Second Year; an elective, to be chosen from any three unit course in the general Arts curriculum for which the student has taken the prerequisites or for which he can qualify under the regulations for the General Course as found in section A, page 127.

Students intending to proceed into Commerce 453 must secure a standing of Second Class in Commerce 352.

Students who at the beginning of the Third Year are definitely interested in a specific Fourth and Fifth Year option are advised to elect the suggested desirable courses unless previously taken as a science in the First Year.

Fourth Year

Prerequisite to all Commerce courses: Commerce 352; Commerce 361; Economics 300.

At the beginning of the Fourth Year every student is required to plan his Fourth and Fifth Year work and before registering must have his course approved by the Dean of the Faculty of Arts and Science and the Head of the Department.

The following courses comprising 18 units: Commerce 471, 481*, 491; Economics 320 or 325; six units of electives, to be chosen so as to conform with the requirements of the option groupings covering the Fourth and Fifth Years. Students on the language option must continue with their language.

*Commerce 481 is a required course for all male students but not for women, who are recommended to substitute for Commerce 481 some course in the general Arts course for which they have the necessary qualifications. Women desiring to take Commerce 481 should consult with the Dean, the Head of the Department, and the instructor in the course before registering.

Fifth Year

Students registering for the Fifth Year must have completed Commerce 471 and 491.

The following courses comprising 18 units: Commerce 593, 594, 599; nine units of electives to be chosen so as to conform with the requirements of the option groupings covering the Fourth and Fifth Years.

Fourth and Fifth Year Options

NOTE. Desirable preliminary science courses are indicated and should be taken before the Fourth Year.

Accounting Option: Commerce 453, 553, 554 and 555. Commerce 453 is prerequisite to the other courses.

Agricultural Optional: Agricultural Economics 301 and 400 together with six units of work in Agriculture to be selected in consultation with the Dean of the Faculty of Agriculture. Biology 100 and Chemistry 100 or 105 are desirable preliminary courses.

Education Option: To quality for admission to the Teacher Training Course, the candidate must fulfil the requirements for the B.Com. degree, including nine units beyond Second Year Arts and Science in one of the subjects listed under Preparatory Courses, Section 3(a) of the Teacher Training Course, page 160.

Foreign Trade Option: Commerce 533; Economics 310 (prerequisite to the Commerce course); Slavonic Studies 305 and/or 308; courses in Political Science; courses in Geography. Geography 101 is a desirable preliminary course.

Fisheries Option: Zoology 200, 307, 403, and 405. Zoology 200 is prerequisite to Zoology 307.

Forestry Option: Forestry 471, 473, 474, 475, 481. Botony 200 is a desirable preliminary course.

Language Option: The basic language option is arranged for students who prefer languages to mathematics and statistics; students who elect a language are expected to take as many courses as possible in the Fifth Year.

Special attention is directed towards the possibility of beginning the study of Russian and related subjects in the Second Year. The growing political and industrial importance of the Slavonic bloc presages a high commercial importance for the Russian language.

Marketing Option: Commerce 461, 463, 563, 564, and 565. Commerce 461 is prerequisite to Commerce 564 and 463 is prerequisite to Commerce 563.

Production Option: Commerce 583, 584, and 585.

Statistics Option: Mathematics 202; Economics 435; six units to be selected in consultation with the Head of the Department of Economics.

Transportation Option: Commerce 443, 544, and 545; Economics 320 and 405.

A desirable preliminary course is Geography 202.

COURSES LEADING TO THE DEGREE OF B.H.E.

Students entering in the fall of 1949 with University Entrance standing, including Home Economics CC III, will receive the degree of Bachelor of Home Economics on completion of courses amounting to a total of 60 units chosen in conformity with the following requirements:

(1) *Required courses:*

English 100 and 101	3	Units
Chemistry 100 or 105, and 225 (see note 3)	6	"
Biology 100 and 304	6	"
Bacteriology 201 or 202	3	"
Physics 100 or 101, or 110 (see note 3)	3	"
Economics 140 or 200 (see note 3)	3	"
Psychology 100	3	"
Home Economics 100, 101, 102, 200, 201, 202, 300, 301, 302, 303, 420, 421	19½	"

(2) Students who elect to proceed to Dietetic Training should complete in addition the following courses:

Home Economics 304, 305, 410, 413, 414, 416, 417	10½	Units
Commerce 259	1½	"

(3) Students who elect to proceed to Teacher Training should complete in addition the following courses: Home Economics 304, 400, 401, 403, 410 and two additional courses from among H.E. 305-417 ..... 10½ "

(4) Students who elect a general Home Economics course without a view to proceeding to a professional certificate should complete in addition to those Home Economics courses listed under (1) nine units chosen from H.E. courses numbered 304 to 417 ..... 9 "

(5) Elective courses should be chosen from the following: Agriculture 100, Botany 200, English 200 or 205, Geography 101 or 201, History 101 or 202 or 203, language (6 units), Mathematics 100, Philosophy 100, Sociology 200, Animal Husbandry 422, Horticulture 213, 314, 316, 317, Social Work 499, Architecture 160, 170, 270, 352, 466, 467.

NOTES. 1. If a student has not presented Home Economics CC III, A III, or B III as part of her University Entrance standing, she will be required to precede all Home Economics courses by Home Economics 90 and 91, which courses shall total 3 units in addition to the 60 units required for the degree of B.H.E.

Should the student present Home Economics A III, she will take Home Economics 91 and a total of 61½ units. Should the student present Home Economics B III, she will take Home Economics 90 and a total of 61½ units.

A student who presents Home Economics CC IV for Senior Matriculation credit will be granted credit for 3 units of Home Economics work usually carried in the First Year.

2. Students who plan to carry on advanced work in Nutrition or Textiles should include Mathematics 100 and Bacteriology 201 and substitute certain other courses in Chemistry for Chemistry 225, such substitutions to be arranged after consultation with the departments concerned.

3. Mathematics 91 or Mathematics VI (old course) of the High School Programme, or Mathematics 90 in the University, is prerequisite to Chemistry 100 or 105 and Physics 110. Students electing Economics 200 or Physics 100 or 101 must take Mathematics 100 concurrently if not already taken.

PHYSICAL EDUCATION

Requirements For Men and Women

Two activity courses in Physical Education are required of all students in the First and Second Years of the Faculty of Arts and Science and the Faculty of Agriculture and in the First Year of the Faculty of Applied Science, except ex-service personnel and members of military units operating on the campus. Only courses numbered from 100 to 199 may be selected to meet the requirement.

Students who enter with Senior Matriculation or equivalent, with the exception of ex-service personnel and members of military units operating on the campus, will be required to take the Physical Education courses during their first year at the University but for one year only.

Students who enter with a standing equivalent to the first two years at the University will not be required to take Physical Education courses.

No student will receive a degree who has not completed the Physical Education courses required of him at entrance. If a student's work in the Physical Education courses is unsatisfactory

in any year, he will be required to repeat the work during the following year.

All First and Second Year students must make an appointment for a medical examination at the time of registration. Students who are placed in medical category 3 by the University Health Service may be assigned to remedial or special classes after consultation with the Physical Education staff.

All members of athletic teams must have a yearly medical examination preceding active participation.

For courses leading to the degree of Bachelor of Physical Education see page 152.

Men

First Year men may satisfy the above regulations by selecting two activity courses, one of which must be P.E. 100 or P.E. 130.

Second Year men may satisfy the regulations by selecting any two activity courses.

Students may substitute membership on a University athletic team for one Physical Education activity course.

First Year students intending to major in Physical Education must register for P.E. 104 and P.E. 100 or P.E. 130.

GYMNASTICS

100. *Basic Physical Education.*—General body conditioning, including calisthenics, apparatus work, and games.

102. *Tumbling and Apparatus.*—Fundamental skills on all types of apparatus. Basic and advanced tumbling.

104. *Introduction to Physical Education.*—Open to students registering for the degree course in Physical Education and to students in Teacher Training.

TEAM GAMES

The following courses are open to students who are interested in increasing their knowledge of the rules and tactics of the particular sport and in obtaining a limited experience in the playing of a team game. These courses will be conducted along lines similar to regular university team practices. Students must be prepared to play regardless of weather conditions.

110. *Basketball.*—Conditioning, and fundamental practice drills, offensive and defensive tactics.

112. *American Football.*—Conditioning, and fundamental practice drills, offensive and defensive tactics, including touch football and six man football.

114. *English Rugby.*—Conditioning, and fundamental practice drills, offensive and defensive tactics.

116. *Grass Hockey and Soccer.*—Conditioning, and fundamental practice drills, offensive and defensive tactics.

INDIVIDUAL AND DUAL ACTIVITIES

120. *Individual and Dual Games.*—Fundamentals and skills at beginners' level in tennis, golf, and badminton.

122. *Archery.*—Open only to students in Medical Category 3.

124. *Track and Field.*—Track and field practices, leading to competition on intramural level.

126. *Weight Training.*—General conditioning and body building.

SWIMMING AND LIFE-SAVING

130. *Swimming, Beginners.*—Open to students who cannot swim 150 feet using any recognized stroke.

132. *Swimming, Intermediate.* — Fundamental skills of breast stroke, back stroke, crawl, elementary diving.

134. *Life-Saving.*—An intermediate course leading to Bronze Medallion of Royal Life-Saving Society.

136. *Life-Saving.*—An advanced course leading to Award of Merit, Royal Life-Saving Society.

138. *Swimming Club.*—Recreational and competitive swimming.

DANCE

140. *Square and Ballroom Dancing.*

COMBATIVE SPORTS

150. *Boxing.*—Fundamentals of self-defence, leading to competition on intramural level.

152. *Boxing Club.*

154. *Fencing.*—Introduction to fencing technique with foil, épée, sabre.

156. *Wrestling.*—Fundamental holds and breaks, leading to competition on intramural level.

Women

Women will choose two courses in Physical Education from the following activities in each of the first two years.

Students may substitute membership on a University team for one Physical Education activity course.

GYMNASTICS

101. *Gymnastics.*—General conditioning exercises.

103. *Individual Gymnastics.*—Exercises to correct postural faults. Open to those in Medical Category 3. To be arranged on consultation with the staff.

TEAM GAMES

111. *Team Games.*—Basketball, field hockey, volleyball.

INDIVIDUAL GAMES

113. *Archery, Beginners.*

115. *Archery, Intermediate.*—Open to those who have taken Beginners' Archery.

117. *Badminton, Beginners.*

119. *Badminton, Intermediate.*—Open to those who have taken Beginners' Badminton.

121. *Golf, Beginners.*

123. *Golf, Intermediate.*—Open to those who have taken Beginners' Golf.

125. *Table Tennis.*

127. *Tennis, Beginners.*

129. *Tennis, Intermediate.*—Open to those who have taken Beginners' Tennis.

SWIMMING AND LIFE-SAVING

131. *Swimming, Beginners.*

133. *Swimming, Intermediate.*

135. *Swimming, Senior.*

137. *Life-Saving.*

DANCE

141. *Folk Dance.* — Scandinavian, English, Irish, Scotch, and Mexican folk dances.

143. *Modern Dance, Beginners.*—Fundamental rhythmic movements and introduction to composition.

145. *Modern Dance, Intermediate.*—Fundamental rhythmic movements with composition.

147. *Square and Ballroom Dancing.*

COURSE LEADING TO THE DEGREE OF B.P.E.

Students enrolling in the course leading to the degree of Bachelor of Physical Education must have a yearly medical examination completed within the first two weeks of the session.

Students intending to enter the Teacher Training Course should choose their electives in order to satisfy the requirements for admission given on pages 160, 161.

First Year

	Units
English 100 and 101	3
Biology 100, or Chemistry 100 or 105	3
Electives (to be chosen in consultation with the Department of Physical Education)	9
Two hours required Physical Education activity	

Men students must register for P.E. 104.

Women students must register for P.E. 105.

NOTES.

1. Students who do not have credit for Physics 91 of University Entrance are advised to take Physics 101, 110, or 103 as an elective in the First or the Second Year.
2. Mathematics 91 of University Entrance is required for entrance into the Physical Education Course or Mathematics 90 must be taken as an elective in the First Year.
3. Students planning to accompany the major in Physical Education with a major in Mathematics or any science must take Mathematics 91 for University Entrance and must take Mathematics 100 in the First Year. For other courses and majors requiring Mathematics 90 or 100 see pages 124, 125, notes 7, 8. Students in Physical Education, however, will be permitted to take Chemistry 100 or 105 without Mathematics 100 provided they have had Mathematics 91 (High School) or Mathematics 90 (University).
4. Chemistry 91 is recommended for entrance.
5. Students planning to accompany the major in Physical Education with a major in a science should take two of the following sciences in their First Year and the third in their Second Year: Physics 100 or 101, Chemistry 100 or 105, Biology 100.

Second Year

	Units
English 205 or English 200 (English 200 required for students majoring in English)	3
Chemistry 100 or 105 or Biology 100, or an elective if both have been taken	3
Psychology 100	3

	Units
Elective (to be chosen in consultation with the Department of Physical Education)	3
Physical Education 260	2
Eight hours of Physical Education activity a week	4

Men	Women		Men	Women
P.E. 200	201	Gymnastics General Activities	2 hrs.	2 hrs.
*	211	Team Games	2 hrs.	2 hrs.
*	221	Individual and Dual Games	2 hrs.	1 hr.
230	231	Aquatics	1 hr.	1 hr.
240	241	Dance	1 hr.	2 hrs.

*Men must select 4 hours (2 units) from courses 210-226.

Third Year

	Units
Psychology: One course to be selected from Psychology 201, 202, 301, 303	3
Elective	3
Physical Education 360	2
Physical Education 370	3
Biology 304	3
Eight hours of Physical Education activity a week	4

Men	Women		Men	Women
P.E. 300	301	Gymnastics General Activities	2 hrs.	2 hrs.
*	311	Team Games	2 hrs.	2 hrs.
*	321	Individual and Dual Games	2 hrs.	1 hr.
330	331	Aquatics	1 hr.	1 hr.
	341	Dance	1 hr.	2 hrs.
350		Track and Field	1 hr.	

*Men must select 4 hours (2 units) of courses not already taken.

Fourth Year

	Units
Psychology: one course not chosen from courses listed in the Third Year	3
Electives	6
Physical Education 460	2
Physical Education 470	2
Physical Education 471	1
Eight hours of Physical Education activity a week	4

Men	Women		Men	Women
P.E. 400	401	Gymnastics		
		General Activities	2 hrs.	2 hrs.
406		Physical Education Workshop	1 hr.	
*	411	Team Games	2 hrs.	2 hrs.
*	421	Individual and Dual Games	2 hrs.	1 hr.
430	431	Aquatics	1 hr.	1 hr.
450		Track and Field	1 hr.	

*Men must select 4 hours (2 units) of courses not already taken.

COURSE LEADING TO THE DEGREE OF B.Ed.

1. *Prerequisites:*
   (a) A bachelor's degree in Arts, Agriculture, or Applied Science, or an equivalent, from a recognized university.
   (b) At least one year's teaching experience before beginning the courses listed under 2 *(b)* below.
   (c) A permanent teaching certificate, which must be obtained before the degree is conferred.
2. *Course:* The B.Ed. degree represents fifteen units as follows:
   (a) Six units for the completion of the Teacher Training Course or its equivalent.
   (b) Nine units—not already chosen—from Education 510 to 582 inclusive.
3. With the approval of the Dean and the Head of the Department, three units regularly carrying Third Year or higher standing in a subject other than Education may be included in the fifteen units required.
4. Candidates must have their courses approved by the Head of the Department and by the Dean.
5. Standings will be First Class, Second Class, and Pass, according to the average mark obtained in the nine units required under 2 *(b)* above.

SOCIAL WORK

Courses Leading to the Degrees of B.S.W. and M.S.W.

The accepted education for the profession of social work consists of a minimum of two university years of graduate study including lectures, clinical practice work in the field, and a research project or thesis, leading to the degree of Master of Social Work. The total course is designed to give a broad preparation for the field of social

work and to develop skill in one or more fields of practice. Students who complete one-half of this programme qualify for the degree of Bachelor of Social Work.

Admission

Requirements for entrance to the Department of Social Work are as follows:

(a) The Bachelor of Arts degree, or an equivalent, from a recognized university. A minimum of 27 units in the social and biological sciences is required.

(b) Personal qualifications for the field of social work. Because maturity is an important factor, students are usually advised to wait until they are at least 21 years of age before beginning their professional education.

Application for entrance is to be made on forms obtainable from the Department and should be filed not later than July 1st for the following September.

Undergraduate students who are looking forward to entering the Department of Social Work should consult the Department each year about their courses. Economics 200 (Second Year) and Social Work 499 (Fourth Year) are required. Economics 140 may be substituted for Economics 200 only with the special permission of the Department of Social Work. It is also recommended that in the First and Second Years undergraduates select for their electives as many introductory courses in the social and biological sciences as possible. Recommended courses for First Year include Biology 100, Economics 100, Geography 201, History 101. Recommended courses for Second Year include Bacteriology 201, Economics 100, History 101, or one of History 202, 203, or 204, Sociology 200, Philosophy 100, Psychology 100, Zoology 200.

Third and Fourth Year students are advised to choose a general course in the social sciences, majoring preferably in Anthropology, Economics, History, Political Science, Sociology, or Slavonic Studies. Courses recently established at the University and suitable as electives for some students include those in international studies, housing, town planning, theatre, and music.

Student Advisors

On entrance to the Department each student is assigned to a member of Faculty, who is responsible for assisting the student in planning his total programme of courses and in advising and helping him at all times.

Requirements for Degrees

THE DEGREE OF BACHELOR OF SOCIAL WORK

The B.S.W. degree will be granted to students who, having received the B.A. degree or an equivalent, satisfactorily complete one University session including twelve units of lectures and three units of field work. Candidates must successfully write a comprehensive examination on the year's work. Lectures and field work are to be chosen from the following courses:

	Units
S.W. 501 and 502. Social Case Work	3
S.W. 503. Public Welfare	1½
S.W. 504. Medical and Psychiatric Information 1	1½
S.W. 507. Social Group Work 1	1½
S.W. 508. Medical and Psychiatric Information 2	1½
S.W. 509. Beginning Field Work	3
S.W. 511. Community Organization	1½
S.W. 512. Community Resources	1½
S.W. 513. Public Welfare 2	1½
S.W. 517. Social Group Work 2	1½
S.W. 518. Development of Personality	1½
S.W. 520. Social Research	1½

Two plans of work are available for casework students in the first year. Field work under supervision may be taken *concurrently* with the lecture programme and the students spends a minimum of 450 hours or from 2 to 2½ days each week in this practice work plus a block period of full-time work at the end of the session in a recognized social agency. This constitutes the necessary 3 units of field work credit. Field work may also be taken in a *block period* from January to May. The students who elect this programme attend classes in the first term (September to December) and then proceed to full-time field work in recognized social agencies outside Vancouver. They return for an eight week period of classes from the middle of May to the first week in July. Students in the first plan will take additional field work in the summer or employment in a social agency, but may take certain courses in the May to July session to lighten their work in their second year. Students who complete the block plan work will have three units of second year class work completed. Students in group work will ordinarily have a casework placement in the summer and will take a casework class in the May to July session.

The student should keep in mind that there are certain expenses involved in field and clinical work, primarily for transportation to the agency to which the student is assigned. These costs range from $15.00 to $30.00 a year for those in the concurrent plan.

The public and private family and child welfare agencies are used for field work in casework practice, since they provide the most general and fundamental work experience. Group work, recreation and community planning agencies are used for those interested mainly in group work. The student remains in the same agency for all first year field work, and is supervised by a qualified member of the agency staff. The Department maintains a close relationship with the field work agencies through individual conferences between a Faculty member and the agency supervisor, and by group meetings. In this way the student's total development and his ability to relate classroom material to practical work can be observed.

THE DEGREE OF MASTER OF SOCIAL WORK

The Department of Social Work at the University of British Columbia, in line with the most recent trends in the profession, has developed a generic curriculum based on two years of graduate study. Students will find some opportunity for following their particular interests in casework or group work practice, administration and research in the second year. Those students who wish to specialize in casework or group work practice will find many settings in which to gain experience: family and child welfare, medical and psychiatric services, hospitals and clinics, public welfare, institutions, neighbourhood houses, public recreation, work with the handicapped, community centres, probation and court work.

1. Candidates for the M.S.W. degree (except as noted below) must have the B.S.W. degree, and should begin work leading toward the M.S.W. degree within five years after receiving the B.S.W. degree or they will be required to complete further preparatory work.

2. Candidates for the M.S.W. degree who obtained the Social Work Diploma (for which the B.A. is prerequisite) during the sessions 1943-44 and 1944-45 and who have satisfactory social work experience may proceed with the course for the M.S.W. degree within the five year period without the B.S.W. degree or further work.

3. Candidates for the M.S.W. degree who hold the B.A. degree and the Diploma for Social Work obtained prior to May, 1944, and who have had satisfactory social work experience, may proceed with the course for the M.S.W. degree without the B.S.W. degree but will be required to complete certain other work which may include a qualifying examination.

4. Students accepted as candidates for the M.S.W. degree will be required to complete a minimum of one year of University study including nine units of lectures, three units of field work, and a thesis or research project to count for three units. At least Second

Class standing is expected of all candidates for the Master's degree. Students who proceed directly from the B.S.W. degree to the M.S.W. degree without experience in the field of social work will be expected to work for the four months during the summer either in paid or in voluntary employment in a social agency, or will be required to complete extended field work during that period. For some students block placements in advanced field work will be arranged during the summer preceding or following the second year of study. Candidates for the M.S.W. degree are expected to complete a minimum of 450 hours of field work, but in most instances 600 hours will be required.

5. Candidates for the M.S.W. degree should file an application on a special form obtainable from the Registrar not later than November 1st.

6. Details relating to the format, presentation, and submission of the M.S.W. thesis are set out in the special bulletin, *Instructions Relating to M.S.W. Thesis,* obtainable from the Registrar. The candidate is required to submit *four* copies of the completed thesis, of which at least the first two must be on good bond paper. If the thesis is approved, two copies are bound for permanent deposit in the University Library, one is retained by the Department of Social Work, and the fourth is made available to the agency or agencies most directly interested in the subject of the research project.

The latest date for submission of thesis in time for graduation at the Spring Convocation is the last day of lectures in the Second Term: for graduation in the Autumn Congregation, the corresponding date is June 30th. To meet these dates, candidates must have submitted to their thesis adviser at least three-quarters of the thesis in provisional form one month before the last day of lectures in the Second Term, or by May 31st, whichever is appropriate.

Students who fail to complete their theses by June 30th in their Second Year are required to apply for readmission to the degree in the first term of the Session immediately following. Permission to proceed with the thesis for completion during this session is not automatic, but will depend on a review by the Department of the circumstances of the individual candidate.

7. A candidate will be granted the M.S.W. degree after a demonstration of knowledge and of skill of performance in social work. An oral examination on the thesis subject, and a written comprehensive examination, will provide the final evidence of the competence of the candidate.

TEACHER TRAINING COURSE

Candidates qualifying for the Academic A Certificate (given by the Provincial Department of Education, Victoria, on the completion of the Teacher Training Course) take the courses prescribed in section 3 of page 207.

1. REGISTRATION

Documentary evidence of graduation from a recognized university must be submitted to the Registrar by all candidates other than graduates of the University of British Columbia. All correspondence in connection with the Teacher Training Course should be addressed to the Registrar.

2. CERTIFICATES AND STANDING

At the close of the University session successful candidates in the Teacher Training Course will be recommended to the Faculty of Arts and Science for the University Diploma in Education and to the Provincial Department of Education for the Academic A Certificate. Successful candidates will be graded as follows: First Class, an average of 80 per cent. or over; Second Class, 65 to 80 per cent.; Passed, 50 to 65 per cent.

All students registered in the Teacher Training Course at the University are entitled to the privileges accorded to students in the various faculties, and are also subject to the regulations of the University regarding discipline and attendance at lectures.

3. PREPARATORY COURSES

Students who intend to proceed to the Teacher Training Course are required to take Psychology 100 as prerequisite to Educational Psychology, and must have fulfilled one of the following:

(a) They must have obtained a least nine units of credit in the academic courses normally offered in the Third and Fourth Years in each of at least two of the following subjects: Biology (including Botany and Zoology), Chemistry, English, French, Geography, German, History, Latin (or Latin and Greek), Mathematics, Physics, Russian, Spanish. Equivalent courses in the Faculty of Applied Science may be offered. Candidates offering History may substitute six units of one, or three units in each of two, of Economics, Political Science, Sociology, and Geography, for three units of History.

(b) They must have completed an Honours course in any one or two of the subjects listed above.

(c) They must have obtained in their Third and Fourth Years nine units in one and six units in another of Mathematics, Physics, Chemistry and Biology (including Botany and Zoology), and in the other two subjects over their whole four years, a further six units in one and three in the other.

(d) They must have obtained a B.S.A. degree which includes Mathematics 100, Physics 100 or 101, Chemistry 100 or 105, and Biology 100, and a further nine units in one or more of these subjects.

(e) They must have obtained a degree in Home Economics from a recognized university.

(f) They must have obtained a degree in Physical Education from the University of British Columbia or its equivalent from a recognized university, including in the Third and Fourth Years at least nine units in one of the subjects designated in (a).

(g) They must have obtained a B.Com. with at least nine units in the Third and Fourth Years in one of the subjects designated in (a) and present satisfactory evidence of proficiency in Typing and Shorthand.

Students who choose English as a major are advised to acquire some background in the social sciences. Those who offer a major in History are advised to take some work in Economics, Sociology, Political Science, and Geography, and one or more advanced courses in English. *It is strongly recommended that students choosing Mathematics or one of the sciences take at least one course in each of Biology, Physics, and Chemistry.*

Prospective teachers of Mathematics should consider the possibility of arranging their courses as follows: in the First and Second Years Mathematics 100 and 200 respectively; in the Third Year, Mathematics 202 and 306; and in the Fourth Year, Mathematics 300 or 307.

PRE-MEDICAL COURSES

The *minimum* requirement for admission to most medical schools in Canada and the United States is the completion of three years of pre-medical work. Because of the limited number of applicants who can be accommodated, very few gain admission who have not obtained the degree of B.A. or its equivalent.

Each pre-medical student should obtain the specific requirements from the medical school or schools to which he intends to apply and should plan his course accordingly. Some medical schools advise students to take as broad a course as possible, including several courses in the humanities and social studies, in addition to the basic sciences, while others prefer an Honours course in science. The following outline, in conformity with the general requirements for the degree of B.A., will serve as a guide.

First Year:

English 100 and 101, a modern language, Mathematics 100, Chemistry 100 or 105, Biology 100. 15 units.

Second Year:

English 200, a modern language, Physics 100 or 101, Chemistry 200, Zoology 200. 15 units.

Third Year:

Chemistry 300, Physics 220, Zoology 300, two electives. 15 units.

Certain universities require Botany 200 or its equivalent.

If possible, students should add Physics 100 or 101 to the First Year (making a total of 18 units), and should substitute Physics 220 (a Second Year subject) for Physics 100 or 101 in Second Year. Those who may decide to complete the work for the degree of B.A. with Honours must take 18 units in each of two of the Second, Third, and Fourth Years.

EXAMINATIONS AND ADVANCEMENT

1. Examinations in all subjects, obligatory for all students, are held in April. Examinations in December are obligatory in all First and Second Year courses, and in all Third and Fourth Year courses except where exemption has been granted by Faculty. Applications for special consideration on account of illness or domestic affliction must be submitted in writing to the Dean not later than two days after the close of the examination period. In cases where illness is the plea for absence from examinations, a medical certificate must be presented on the appropriate form which may be obtained from the University Health Service.

2. The passing mark is 50 per cent. in each subject. In any course which involves both laboratory work and written examinations, students may be debarred from examinations if they fail to present satisfactory results in laboratory work, and they will be required to pass in both parts of the course.

3. Successful candidates taking at least fifteen units of work will be graded as follows: First Class, an average of 80 per cent. or over; Second Class, 65 to 80 per cent.; Passed, 50 to 65 per cent.

4. A supplemental will be granted in a subject which a candidate has taken during the year, provided he has written the final examination and has obtained a mark of not less than 30 per cent. A candidate, however, will not be granted in any one year supplementals in more than six units.

5. Any request for the re-reading of an answer paper must reach the Registrar *within four weeks* after the announcement of examination results and must be accompanied by a fee for each paper of five dollars, which will be refunded only if the mark is raised. Each applicant for a re-reading must state clearly why he believes the content of his paper to deserve a mark higher than it received; pleas on compassionate grounds should not form part of this statement and prospective applicants should remember that a paper with less than a passing mark has been read at least a second time before results are announced. Re-readings will not be permitted in more than two papers (6 units) in the work of one academic year, and in one paper (3 units) in a partial course of nine units or less or in the work of one Summer Session.

6. Supplemental examinations, covering the work of both the First and Second Terms, will be held in August or September in respect of Winter Session examinations, and in July in respect of Summer Session examinations. In the Teacher Training Course, supplemental examinations will be held not earlier than the third week in June. (See Paragraph 7 below.)

Local centres for supplemental examinations in September will be arranged in British Columbia at the following centres:

Cranbrook
Dawson Creek
Kamloops
Kelowna or Penticton
Ocean Falls
Prince George
Prince Rupert
Trail or Nelson
Victoria College

A student wishing to write supplemental examinations at one of these centres must state in his application the centre chosen and must pay a fee of $2.50 a paper in addition to the regular fee of $5.00 a paper for a supplemental examination.

In the first three years a candidate who has been granted a supplemental may try the supplemental only once. If he fails in the supplemental, he must either repeat his attendance in the course or substitute an alternative chosen in accordance with Calendar regulations. In the case of Fourth Year students two supplemental examinations in respect of the same course will be allowed.

A candidate with a failure or a supplemental examination outstanding in any subject which is on the Summer Session curriculum may clear his record by attending the Summer Session course in the subject and passing the required examinations.

7. Applications for supplemental examinations in respect of the Winter Session examinations, accompanied by the necessary fees (see *Schedule of Fees*), must be in the hands of the Registrar by August 1st.

8. No student may enter a higher year with standing defective in respect of more than 3 units. (See regulations in regard to advancement to Second and Third Year Commerce, pages 145, 190, and in reference to admission to First Year Applied Science, page 127, note under section 16).

Except as noted above a student will be permitted, however, to take courses in a higher year, provided he also takes concurrently those courses (or permissible subsitutes) in which he has defective standing and provided the total work taken is not more than 18 units.

9. A student may not continue in a later year any subject in which he has defective standing in prerequisite subjects from an earlier year.

10. A student who fails twice in the work of the same year may, upon the recommendation of the Faculty, be required by the Senate to withdraw from the University.

11. Any student whose academic record, as determined by the tests and examinations of the first term of the First or Second Year, is found to be unsatisfactory, may, upon the recommendation of the Faculty, be required by the Senate to discontinue attendance at the University for the remainder of the session. Such a student will not be readmitted to the University as long as any supplemental examinations are outstanding.

12. Term essays and examination papers will be refused a passing mark if they are deficient in English; and, in this event, students will be required to pass a special examination in English to be set by the Department of English.

DEPARTMENTS IN ARTS AND SCIENCE

Department of Architecture

160. As in Applied Science.
170. As in Applied Science.
466. As in Applied Science.
467. As in Applied Science.

Department of Bacteriology and Preventive Medicine

For Honours courses in Bacteriology and Preventive Medicine see pages 129 and 138.

153 [3]. *Bacteriology in Relation to Health and Disease.* — A course of lectures, demonstrations, and laboratory work, designed to emphasize the practical applications of bacteriology to medical, nursing, and public health problems.

Methods of isolation, culture, and identification of pathogenic micro-organisms; aseptic technique; disinfection and antisepsis; infection and resistance; active immunization procedures; bacteriology in relation to sanitation.

References: Henrici, *Biology of Bacteria,* latest edition, Heath; Biggar, *Handbook of Bacteriology,* latest edition, Williams and Wilkins.

Prerequisites: Mathematics 100, Chemistry 100 or 105, and Biology 100. Biology 100 may be taken concurrently.

This course is reserved for Nursing and Pharmacy students. Such students intending to proceed to Bacteriology 301 must take Bacteriology 201.

One lecture and four hours laboratory a week. 3 units.

NOTE. See regulations as to laboratory coats under Bacteriology 201 below.

201 [1]. *Introductory Bacteriology.* — A course consisting of lectures, demonstrations, and laboratory work.

The history of bacteriology, the place of bacteria in nature, the classification of bacterial forms, methods of culture and isolation, the relation of bacteria to agriculture, to industrial processes, to veterinary science, and to public health and sanitation.

Text-book: Mackie and McCartney, *Handbook of Practical Bacteriology,* latest edition, Livingstone.

References: Henrici, *Biology of Bacteria,* latest edition, Heath; Salle, *Fundamental Principles of Bacteriology,* latest edition, McGraw-Hill.

Prerequisites: Mathematics 100, Chemistry 100 or 105, and Biology 100. Biology 100 may be taken concurrently.

This course is prerequisite to Bacteriology 301.

One lecture and four hours laboratory a week. 3 units.

NOTE. Students must provide themselves with white laboratory coats, ready for use at the *first* laboratory.

202. *Bacteriology for Home Economics Students.* — A course consisting of lectures, demonstrations, and laboratory work.

A study of the growth of micro-organisms; the principles of

infection and immunity; sanitation relating to the home and community; the hygiene of food preparation; and certain industrial applications of bacteriology.

Text-book: Swingle, *General Bacteriology, 2nd edition,* Van Nostrand.

Reference: Salle, *Fundamental Principles of Bacteriology,* latest edition, McGraw-Hill.

Prerequisites: Chemistry 225 and Biology 100.

This course is reserved for Home Economics students. Such students intending to proceed to Bacteriology 301 must take Bacteriology 201.

One lecture and four hours laboratory a week. 3 units.

301 [2]. *Immunology.*—A course consisting of lectures, demonstrations, and laboratory work.

The protective reactions of the animal body against pathogenic micro-organisms; cellular and humoral immunity. The course will include demonstrations of immunity, and of various diagnostic methods used in public health laboratories.

Reference: Topley & Wilson, *Principles of Bacteriology and Immunity,* latest edition, Macmillan.

Prerequisite: Bacteriology 201.

One lecture and four hours laboratory a week. 3 units.

302 [11]. *Methodology of Bacteriological Research.*—A course of seminars and discussion periods designed to equip the student preparing for Honours in the Department with a critical appreciation of the literature in the field of bacteriology and preventive medicine; the planning and execution of a limited research problem; the design of protocols, and the general presentation of results.

This course may be taken in their Third Year by prospective Honours course students after consultation with the Head of the Department.

Prerequisites: Bacteriology 201 with at least Second Class standing, and Bacteriology 301, with which this course may be taken concurrently. 3 units.

304 [4a]. *Dairy Bacteriology.*—(This course is the same as Dairying 304, and is given by the Department of Dairying.)

305 [4b]. *Dairy Bacteriology.*—(This course is the same as Dairying 305, and is given by the Department of Dairying.)

312 [6]. *Soil Bacteriology.*—(This course is the same as Agronomy 312, and is given by the Department of Agronomy.)

401 [5]. *Advanced Bacteriology and Immunology.*—A course of lectures, demonstrations, and laboratory work on the nature and antigenic structure of bacteria and viruses; antigen-antibody reactions; theories of susceptibility and immunity; sensitization; preparation and assay of bacterial toxins, toxoils, and antitoxins.

Text: Boyd, *Fundamentals of Immunology,* 2nd edition, 1947, Interscience Publishers, Inc.

Prerequisites: Bacteriology 201 and 301, with at least Second Class standing in both courses.

Four hours a week. 3 units.

This course must be taken by all students working for nine or more units credit in the Department.

402 [9]. *Microbiological Physiology.*—Lectures, laboratory work, and demonstrations on the physiology of bacteria, yeasts, and molds, including growth, nutrition, respiration, and other aspects of metabolism. Application of microbial physiology to problems in medicine, sanitation, and industry.

Reference: Porter, *Bacterial Chemistry and Physiology,* latest edition, John Wiley.

Text: Anderson, *An Introduction to Bacteriological Chemistry,* latest edition, E. & S. Livingstone.

Prerequisites: Bacteriology 201 and 301 with at least Second Class standing in both courses; also Bacteriology 401, which may be taken concurrently.

Four hours a week. First Term. 1½ units.

403 [10]. *Pathology of Infection.*—A course of lectures, laboratory work, and demonstrations. The history, techniques, and objectives of preventive medicine; modes of conveyance of communicable infections, considered in relation to the prevention of disease; stages in the development of infections in the animal body, illustrated by post-mortem specimens and by microscopic sections.

Reference: Rosenau, *Preventive Medicine and Hygiene,* latest edition, Appleton-Century.

Prerequisites: Bacteriology 201 and 301 with at least Second Class standing in both courses; also Bacteriology 401, which may be taken concurrently.

Four hours a week. Second Term. 1½ units.

404 [8]. *Reading Course in Bacteriology.*—A directed reading course in some advanced problem within the scope of bacteriology and preventive medicine. No class instruction will be given, but

regular meetings will be held for critical discussion, and there will be an examination, either written or oral. 3 units.

Prerequisites: Bacteriology 301; also Bacteriology 401 and one of Bacteriology 402 or 403, with which this course may run concurrently.

405. *Seminar.*—Reviews of bacteriological problems will be presented by students taking Bacteriology 302 and 404. All students accepted for Honours in the Department will be required to attend and to participate in a critical discussion of the presentations.

Second Term. 1 unit.

406. *Research Problem.*—In the final year of the Honours course, students must undertake an investigation approved by the Head of the Department. Their graduating essay will take the form of a report on the results obtained, and will be critically reviewed at an oral examination.

3 units.

407 [7]. *Advanced Dairy Bacteriology.*—(This course is the same as Dairying 407, and is given by the Department of Dairying.)

Department of Biology and Botany

For Honours and major requirements in Biology and Botany see page 129, and note 15 on page 126.

Biology

Biology 100 is prerequisite to all other courses in Biology and Botany, and to all courses in Zoology.

100 [1]. *Introductory Biology.*—The course is introductory to more advanced work in General Biology, Botany, or Zoology; also to courses closely related to biological science, such as Agriculture, Forestry, Medicine, Nursing, Pharmacy, Fisheries, Home Economics.

The fundamental principles of biology; the interrelations of plants and of animals; life processes; the cell and division of labour; life-histories; relation to environment; dynamic biology.

Text-book: Mavor, *General Biology,* Macmillan.

References: MacDougall and Hegner, *The Science of Life,* McGraw-Hill; Marsland Plunkett, *Principles of Modern Biology,* Holt.

Two lectures and two hours laboratory a week. Members of the Department. 3 units.

304. *Basic Physiology.*—An elementary study of the physiology of the mammalian body.

The course may be taken by students in Home Economics, Physical Education, and Psychology. Pre-medical, Pre-dental, and Honours students in the biological sciences taking Physiology are directed to take Biology 400.

Text-book: Carlson and Johnson, *The Machinery of the Body,* revised edition, 1948, University of Chicago.

Prerequisites: Biology 100, Chemistry 100 or 105. The Department is to be consulted.

Two lectures and two hours laboratory a week. Mr. Black. 3 units.

320. *Basic Ecology.*—A course in the primary methods, and principles of ecology, with special reference to the bioecological view point. The practical work consists of laboratory and field exercises.

References: Shelford, *Laboratory and Field Ecology,* Williams and Wilkins; Weaver and Clements, *Plant Ecology,* McGraw-Hill; Clements and Shelford, *Bioecology,* Wiley; Oosting, *The Study of Plant Communities,* Freeman.

Prerequisites: Botany 200, Zoology 200.

Mr. Pillsbury. 3 units.

330 [2a, 2b]. *Principles of Genetics.*—A lecture and laboratory course. The laboratory work will consist of the examination of illustrative material, problems, and experiments, especially with Drosophila.

Text-book: Sinnot and Dunn, *Principles of Genetics,* McGraw-Hill.

Prerequisites: Biology 100.

Two lectures and two hours laboratory a week. Mr. Huchinson, Mr. Brink, Mrs. Brink, Miss Cole. 3 units.

400 [3]. *General Physiology.*—A study of animal and plant life processes. Open to students of Third and Fourth Years having prerequisite Biology, Chemistry, and Physics; the Department should be consulted.

Text-book: Mitchell, *General Physiology,* McGraw-Hill.

Laboratory Manual: Zoethout, *Laboratory Experiments in Physiology,* Mosby.

Two lectures and three hours laboratory a week. Reference reading. Mr. Allardyce. 3 units.

430. *Seminar in Genetics.*—A review of advanced phases and the more recent developments in genetics.

Prerequisite: Biology 330.

Two hours a week and essays. Mr. Hutchinson, Mr. Brink, Mrs. Brink. 3 units.

431. *Research in Genetics.*—An introduction to genetical methods and investigations. Students interested in plant breeding may elect Agronomy 500 as an equivalent of this course. Available to students majoring but not taking Honours in Genetics.

Prerequisite: Biology 330.

Three hours a week. Mr. Hutchinson, Mr. Brink, Mrs. Brink. 3 units.

480. *Directed Studies.*—In special cases and with the approval of the Department a student in attendance may carry on directed studies to supplement another course in the Department. 1-2 units.

490. *Graduating Essay.*—Students should consult the Department during the Third Year. 3 units

500. *Problems in General Physiology.*—A course for graduate students on physiological controls with particular reference to vitamins and hormones.

Prerequisite: Biology 400.

Two lectures and a problem. Mr. Allardyce. 3 units.

501. *General Physiology; Respiration and Metabolism.*—A comparative study of respiration and metabolism.

Prerequisites: Biology 400 or Zoology 404, and Chemistry 300. At least Second Class standing must be obtained in Biology 400 or Zoology 404. The Department is to be consulted.

One lecture and four hours laboratory a week. Mr. Black. 3 units.

502. *Recent Advances in General Physiology.*—A seminar course for graduate students.

Prerequisite: Biology 400.

Three hours a week. Mr. Allardyce. 3 units.

530. *Advanced Genetics.*

Prerequisite: Honours or a major in Genetics. The Department is to be consulted. 3 units.

540. *Advanced Cytology.*—The physical basis of genes and gene mutations; preparation, examination, interpretation, and analysis of euchromatic and heterochromatic phases; membranes; plastids, food bodies, vacuoles.

Prerequisites: Biology 330, and either Botany 340 or Zoology 303.

Lectures, seminar, and laboratory periods to be arranged. Mr. Hutchinson. 2-3 units.

Botany

For Honours and major requirements see page 129, and note 15 on page 126.

Botany 200 is prerequisite to all other courses in Botany, and for Honours in Zoology.

200 [1a]. *General Botany.*—An introductory course that gives a general perspective of the plant kingdom. Physiological anatomy, ecological relations, and developmental trends are illustrated by specific examples.

Text-book: Hill, Overholts, and Popp, *Botany,* McGraw-Hill.

Prerequisite: Biology 100.

Two lectures and two hours laboratory a week. Mr. Taylor. 3 units.

303 [5b]. *Dendrology.*—A course in the identification and distribution of North American trees, designed particularly for Forestry students. Emphasis is laid on practical work.

Text-book: Harlow and Harrar, *Textbook of Dendrology,* McGraw-Hill.

Prerequsite: Botany 200.

One lecture and one laboratory period of two or three hours a week. Mr. Taylor. 2 units.

304 [5a, 5c]. *Introduction to Systematics of Vascular Plants.*—An introduction to the classification of the Pteridophytes and Spermatophytes based largely on the flora of British Columbia. The course will also include field and herbarium methods.

Text-book: Pool, *Flowers and Flowering Plants,* McGraw-Hill.

Prerequisite: Botany 200.

One lecture and four hours of laboratory or field work a week. Mr. Taylor. 3 units.

310 [2a]. *Phylogenetics.*—The origin and development of plant groups.

Prerequisite: Botany 200.

Two lectures and four hours laboratory a week. First Term. Mr. Hutchinson. 2 units.

315 [6e]. *Mycology.*—A course designed to give the student a general knowledge of the fungi from a taxonomic point of view.

Prerequisite: Botany 200.

One lecture and four hours laboratory a week. Credit will be given for a collection of fungi made during the summer preceding the course. Mr. Dickson. 3 units.

316 [6c]. *Plant Pathology (Elementary).*—A course dealing with basic concepts of plant disease and plant disease control. A number of economically important plant diseases are studied in detail.

Text-book: Heald, *Introduction to Plant Pathology,* McGraw-Hill.

Prerequisite: Botany 200.

Two lectures and four hours laboratory a week. Second Term. Mr. Dickson. 2 units.

318. *General Forestry Pathology.*—A general course on life histories, control, and economics of diseases in relation to forest trees and forest products in Western North America.

Text-book: Boyce, *Forest Pathology,* McGraw-Hill.

References: Hubert, *Outline of Forest Pathology,* Wiley; Baxter, *Pathology in Forest Practice,* Wiley.

Prerequisite: Botany 200.

Two lectures and two hours laboratory a week. Mr. Buckland. 3 units.

330. *Plant Physiology.*—An introduction to the physiological processes of plants. A general survey is made of photosynthesis, transpiration, absorption, enzymes, respiration, plant hormones, and growth.

Text-book: Meyer and Anderson, *Plant Physiology,* Van Nostrand.

Prerequisite: Botany 200.

Two lectures and four hours laboratory a week. First Term. Mr. Wort. 2 units.

340 [4]. *Histology.*—A study of the structure and development of plant tissues and cells; methods of preparation, examination, and interpretation of tissues.

Text-books: Eames and McDaniels, *Introduction to Plant Anatomy,* McGraw-Hill; Johansen, *Plant Microtechnique,* McGraw-Hill.

Prerequisite: Botany 200.

Two hours lecture and four hours laboratory a week. Second Term. Mr. Hutchinson. 2 units.

341. *Microscopic Pharmacognosy.*—A study of the microscopic features of crude and powdered vegetable drugs, including methods of sectioning, staining, and mounting; use of microscope, camera lucida, and photomicrographic apparatus; detection of adulterants; identification of unkown powders.

To be given in conjunction with Botany 340, *Plant Histology.*

Text-book: Wallis, *Practical Pharmacognosy.*

Two lectures and four hours laboratory a week. Mr. Hutchinson. 2 units.

411 [2b]. *Phycology.*—a basic course on Algæ.

References: Smith, *Freshwater Algae of the United States,* McGraw-Hill; Fritsch, *The Structure and Reproduction of the Algae,* Vols. I, II, Macmillan.

Prerequisite: Botany 200.

Two lectures and four hours laboratory a week. Second Term. Mr. Davidson, Mr. Hutchinson. 2 units.

418. *Applied Forest Pathology.*—A course on the spread of forest diseases; control methods, mechanical and through forest management; laboratory and field techniques in handling forest pathological problems.

Text-book: Boyce, *Forest Pathology,* McGraw-Hill.

References: Baxter, *Pathology in Forest Practice,* Wiley; Cartwright and Findlay, *Decay of Timber and Its Prevention,* King's Printer.

Prerequisite: Botany 318, 315 or 316.

One lecture and four hours laboratory a week. Mr. Buckland. 3 units.

420 [7a]. *Forest Ecology and Geography.*—The interrelations of forest trees and their environment; the ecological characteristics of important forest trees; forest associations; types and regions; physiography.

References: Weaver and Clements, *Plant Ecology,* McGraw-Hill; Halliday, *A Forest Classification for Canada,* McGraw-Hill; Oosting, *The Study of Plant Communities,* Freeman.

Two lectures and one period of field and practical work a week. Field trips. Mr. Hutchinson, Mr. Pillsbury. 3 units.

430. *Synthetic Processes of the Plant; Anabolism.*—A study of constructive metabolism and related processes—absorption, translocation, synthesis of carbohydrates, fats, proteins, and derivatives.

References: Miller, *Plant Physiology,* McGraw-Hill; Gortner, *Outlines of Biochemistry,* Wiley.

Prerequisites: Botany 330, Chemistry 300.

Two lectures and four hours laboratory a week. Second Term. Mr. Wort. 2 units.

(Given in 1949-50 and alternate years.)

431. *Plant Enzymes and Catabolism.* — A study of digestion, enzymes, and respiration as essential to plant processes.

Prerequisites: Botany 330, Chemistry 300.

Two lectures and four hours laboratory a week. Second Term. Mr. Wort. 2 units.

(Given in 1950-51 and alternate years.)

480. *Directed Studies.*—In special cases and with the approval of the Department a student in attendance may carry on directed studies to supplement another course in the Department.

490. *Graduating Essay.*—Students should consult the Department during the Third Year. 3-6 units.

500. *General Botanical Seminar.*

Required of all graduate students in the Department. 1 unit.

503 [403]. *Systematics of Woody Plants.*

Prior to registration in this course students are required to make a collection of at least 75 species of woody plants. A portion of the laboratory mark for the course is assigned to this collection.

Prerequisite: Botany 303 or 304.

One lecture and four hours of laboratory or field work a week. Mr. Taylor. 3 units.

(Given in 1950-51 and alternate years).

504. *Systematics of Flowering Plants.*

Prior to registration in this course students are required to make a collection of at least 150 species of flowering plants. A portion of the laboratory mark for the course is assigned to this collection.

Prerequisite: Botany 304.

One lecture and four hours of laboratory or field work a week. Mr. Taylor. 3 units.

(Given in 1949-50 and alternate years.)

514 [6f]. *History of Plant Pathology.*—A lecture course dealing with the history of the science of plant pathology from ancient times to the present.

Text-book: Whetzel, *An Outline of the History of Phytopathology,* Saunders.

Prerequisite: Botany 316.

One hour a week. Mr. Dickson. 1 unit.

516 [6d]. *Plant Pathology (Advanced).*—A course designed for Honours or graduate students. Technique, isolation, and culture work; inoculations; details concerning the various stages in the progress of plant diseases; a detailed study of control measures.

Text-book: Rawlins, *Phytopathological Methods,* Wiley.

Prerequisites: Botany 315 and 316.

One lecture and four hours laboratory a week. Mr. Dickson. 3 units.

517. *Problems in Forest Pathology.*—Research work of an original nature designed to meet the individual student's particular needs.

Prerequisite: Botany 418 or equivalent.

Hours in consultation with the Department. Mr. Buckland. 1-3 units.

518. *Advanced Forest Pathology.*—A detailed study of the life histories and the economics of forest tree diseases; the pathology of forest products.

Text-books: Boyce, *Forest Pathology,* McGraw-Hill; Baxter, *Pathology in Forest Practice,* Wiley; Cartwright and Findlay, *Decay of Timber and Its Prevention,* King's Printer.

Prerequisite: Botany 318 or equivalent.

Two lectures and two hours laboratory a week. Mr. Buckland. 3 units.

520 [7b]. A seminar and problem course in more advanced Ecology.

Prerequisite: Botany 420.

Five hours a week. First Term. Mr. Hutchinson, Mr. Pillsbury. 2 units.

534. *Plant Microchemistry.*—The isolation and identification of organic and inorganic substances found in plant tissues, by microtechnical methods.

Prerequisite: Botany 330. Desirable antecedent: Chemistry 300.

Two lectures and four hours laboratory a week. Second Term. Mr. Wort. 2 units.

(Given in 1950-51 and alternate years.)

535. *Problems in Plant Physiology.*—Recent advances in biophysical and biochemical aspects of plant life are discussed. The course is designed primarily as an experimental approach to the subject. The student is expected to select some problem in plant physiology for original investigation.

Prerequisites: Botany 330, Chemistry 300, Physics 100 or 101.

Two lectures and four hours laboratory a week. Second Term. Mr. Wort. 2-3 units.

(Given in 1949-50 and alternate years.)

Evening and Short Courses in Botany

A course in general Botany, comprising approximately fifty lectures, in open to all interested in the study of plant life of the Province. No entrance examination and no previous knowledge of the subject is required.

The course is designed to assist teachers, gardeners, foresters, and other lovers of outdoor life in the Province. As far as possible, illustrative material will be selected from the flora of British Columbia.

The classes meet every Tuesday evening during the University session (September-May) from 7.30 to 9.30 p.m. Field or laboratory work, under direction, is regarded as a regular part of the course.

No examination is required except in the case of University students desiring credit for this course. Biology 100 is a prerequisite for such students. This course may be substituted for the lecture part of Botany 200; but credit is not given until the laboratory work is complete.

Students who do not desire credit but wish to ascertain their standing in the class may apply for a written test.

A detailed statement of requirements and of work covered in this course is issued as a separate circular. Copies may be obtained on request from the Department.

Department of Chemistry

For Honours courses in Chemistry, see pages 130 and 139.

100 [1]. *General Chemistry.*—A study of inorganic chemistry against a background of theory. Chemical arithmetic, the Periodic Table, and the fundamental theories will be stressed. Students must reach the required standard in both lecture and laboratory work.

Text-book: Foster and Alyea, *An Introduction to General Chemistry,* Van Nostrand. For the laboratory: Harris and Ure, *Experimental Chemistry for Colleges,* McGraw-Hill.

Prerequisites: University Entrance Chemistry 91 and Mathematics 100. The latter may be taken concurrently.

Three lectures and two and one-half hours laboratory a week. 3 units.

105. *General Chemistry.*—This course may be taken only by those who have not had Chemistry 91 in High School. The final examination will be the same as for Chemistry 100. Mathematics 100 must precede or be taken concurrently.

Text-book and laboratory: Same as Chemistry 100.

Four lectures and two and one-half hours laboratory a week. 3 units

200. *Quantitative and Qualitative Analysis.*—A study of the principles of chemistry with special emphasis on those involved in analytical procedures. Reactions of the common radicals, equilibrium in solutions, hydrolysis, theories of electrolytes. Reaction mechanisms and an introduction to chemical kinetics.

Two lectures a week throughout the year, and six hours of laboratory devoted to quantitative analysis in the First Term, and qualitative analysis in the Second Term.

Prerequisite: Chemistry 100 or 105. 3 units.

1ST TERM

Reference Books: Pierce and Haenish, *Quantitative Analysis,* Wiley; Kolthoff and Sandell, *Textbook of Quantitative Analysis,* Macmillan.

2ND TERM

Text-book: Reedy, *Theoretical Qualitative Analysis,* McGraw-Hill.

225. *Organic Chemistry.*—This course includes a study of the fundamental principles and reactions of organic chemistry with especial reference to compounds important in foodstuffs, dyes, textiles and physiology.

Text-book: Fieser and Fieser, *Organic Chemistry,* (Abridged Edition), Heath.

Reference: Lowy, Harrow and Apfelbaum, *An Introduction to Organic Chemistry,* Wiley.

Laboratory text-book: Boord, Brode and Bossert, *Laboratory Outlines and Notebook for Organic Chemistry,* Wiley.

Prerequisite: Chemistry 100 or 105.

Open only to students in Home Economics or a Pre-dental course.

Two lectures and three hours laboratory a week. 3 units.

300. *Organic Chemistry.*—The first half of this course involves a study of the main classes of aliphatic compounds with particular emphasis on the fats, carbohydrates and proteins. The second half of the course will be devoted to a study of benzene, naphthalene, anthracene, phenanthrene and related products. Reaction kinetics will be introduced wherever it will assist in throwing light on the mechanism of the reaction in question.

References: Fieser and Fieser, *Organic Chemistry,* Heath; Brewster, *Organic Chemistry,* Prentice Hall.

Laboratory Manual: Fieser, *Experiments in Organic Chemistry,* Heath.

Prerequisite: Chemistry 200.

Three lectures and one laboratory period a week. 3 units.

304 [4a]. *Theoretical Chemistry.*—An introductory course in the development of modern theoretical chemistry, including a study of gases, liquids, and solids, solutions, ionization and electrical conductivity, chemical equilibrium, kinetics of reactions, thermochemistry and thermodynamics, colloids.

Text-book: Glasstone, *Elements of Physical Chemistry,* Van Nostrand.

References: Millard, *Physical Chemistry for Colleges,* McGraw-Hill; Noyes and Sherrill, *Chemical Principles,* Macmillan; Gucker and Meldrum, *Physical Chemistry.*

Laboratory text-books: Sherrill, *Laboratory Experiments on Physico-Chemical Principles,* Macmillan; *Handbook of Chemistry and Physics,* Chemical Rubber Company, Cleveland.

Prerequisites: Chemistry 200 (except for students taking Honours in Physics) and Mathematics 202. Honours students majoring in Chemistry should take Mathematics 300 concurrently.

Two lectures and one laboratory period a week. 3 units.

305 [4b]. This course is the same as Chemistry 304 with the omission of the laboratory, and is open only to students not taking Honours in Chemistry. 2 units.

310 [5]. *Advanced Quantitative and Qualitative Analysis.*

(a) Quantitative Analysis.—The determinations made will include the more difficult estimations in the analysis of rocks as well as certain constitutents of steel and alloys. The principles on which analytical chemistry is based will receive a more minute consideration than is possible in the elementary course.

Text-book: Vogel, *Quantitative Analysis,* Longmans; or Treadwell-Hall, *Quantitative Analysis,* Vol. II, Wiley.

Prerequisite: Chemistry 200.

(b) Qualitative Analysis.—The work of this course will include the detection and separation of the less common metals, particularly those that are important industrially.

Text-book: Vogel, *Qualitative Analysis,* Longmans; or Treadwell-Hall, *Analytical Chemistry,* Vol. I, Wiley.

References: Noyes and Bray, *Qualitative Analysis of the Rarer Elements,* Macmillan; McAlpine and Soule, *Qualitative Chemical Analysis,* Van Nostrand.

Two lectures and six hours laboratory a week. 3 units.

350 [6]. *Introduction to Chemical Engineering.*—As in Applied Science. 3 units.

407 [7]. *Physical Chemistry.*—This course is a continuation of Chemistry 304 and treats in more detail the kinetic theory of gases, properties of liquids and solids, thermodynamics and thermochemistry, properties of solutions, theoretical electrochemistry, chemical equilibrium, kinetics of reactions, photo-chemistry, radio-activity.

Text-book: Glasstone, *A Text-Book of Physical Chemistry,* Van Nostrand. Reference: Noyes and Sherrill, *Chemical Principles,* Macmillan.

Prerequisites: Chemistry 304; Mathematics 300, which may be taken concurrently.

Two lectures and one laboratory period a week. 3 units.

409. *Advanced Organic Chemistry.*—The first term will be devoted to a study of the chemistry of the B-keto esters and heterocyclic chemistry. The lectures of the Second Term will be devoted to a discussion of physico-organic chemistry.

Text-books: Morton, *The Chemistry of Heterocyclic Compounds,* McGraw-Hill; Hammett, *Physical Organic Chemistry,* McGraw-Hill.

References: Branch and Calvin, *The Theory of Organic Chemistry,* Prentice Hall; Remick, *Electronic Interpretation of Organic Chemistry,* Wiley.

Prerequisites: Chemistry 300.

Two lectures and one laboratory period a week. 3 units.

410. *Qualitative Organic Analysis.*—The lectures in this course will involve a discussion of the scope and limitations of the reactions encountered in the various qualitative schemes. A considerable portion of the time will be devoted to problems.

Text-book: Shriner and Fuson, *Systematic Identification of Organic Compounds,* Wiley.

Reference: Kamm, *Qualitative Organic Analysis,* Wiley.

Prerequisite: A division 2 in Chemistry 409 in the Christmas examinations.

Two lectures and one laboratory period a week. Second Term. 2 units.

(Given in 1949-1950.)

411 [10]. *History of Chemistry.*—A general survey of the development of chemical knowledge from the earliest times up to the present day, with particular emphasis on chemical theory.

References: Moore, *History of Chemistry,* McGraw-Hill; Campbell-Brown, *History of Chemistry,* Blakiston; Partington, *A Short History of Chemistry,* Macmillan.

NOTE. This course is open only to students taking Chemistry 407 and 409.

Two hours a week. First Term. 1 unit.

FOR FOURTH YEAR OR GRADUATE STUDENTS

412. *Physical Inorganic Chemistry.*—The chemical properties of elements and their compounds will be discussed from the point of view of simple atomic and molecular structure. The fundamentals and some of the applications of radiochemistry will also be considered.

References: Latimer and Hildebrand, *Principles and Reference Book of Inorganic Chemistry,* Macmillan; L Pauling, *Nature of the Chemical Bond,* Cornell Press; Proceedings of the Conference on Nuclear Chemistry 1947, C.I.C. 1 unit.

425. *Outlines of Biochemistry.*—The lectures will deal with the chemistry of cells and tissues. The laboratory work will consist of a study of the methods of preparation, isolation, identification, and determination of compounds associated with biochemical reactions and processes.

Text-book: Gortner, *Outlines of Biochemistry,* Wiley; or Harrow, *Textbook of Biochemistry,* Saunders.

References: Hawk, Oser, and Summerson, *Practical Physiological Chemistry,* Blakiston; Baldwin, *Dynamic Aspects of Biochemistry,* Macmillan.

Prerequisites: Chemistry 300, 304, and 409; the last may be taken concurrently.

Two lectures and one laboratory period a week. 3 units.

449. *Thesis.*—The student will work on an experimental thesis under the direction of a staff member. 5 units.

458. *Electrochemistry.*—Theoretical principles are discussed in the light of industrial applications. Electrokinetics, electrorefining, electrolytic extraction, electroplating are considered in detail. Electric furnace design, and the principles of and testing methods for corrosion are also studied. The laboratory work is designed to amplify the lectures.

Text-books: Mantell, *Industrial Electrochemistry,* McGraw-Hill; Thompson, *Theoretical and Applied Electrochemistry,* Macmillan.

Two lectures and one laboratory period a week. 3 units.

505. *Theory of the Chemical Bond.*—The general principles of quantum mechanics as applied to chemistry. The hydrogen molecule. Simple diatomic molecules. Hybrid orbitals and their relation to structural chemistry. The investigation of molecular structural by the method of molecular orbitals, as applied to polyatomic molecules.

References: Eyring, Walter and Kimball, *Quantum Chemistry,* Wiley; Pauling and Wilson, *Introduction to Quantum Mechanics,* McGraw-Hill; Pauling, *Nature of the Chemical Bond,* Cornell University Press.

One lecture per week. 1 unit.

512 [12]. *Colloid Chemistry.*—A consideration of the principles which underlie the behaviour of disperse systems and reactions at surfaces, including electro-capillary phenomena, preparation of colloids, Brownian movement, surface tension, adsorption, emulsions, membrane equilibria, and gels.

References: Thomas, *Colloid Chemistry,* McGraw-Hill; Svedberg, *Colloid Chemistry,* Chemical Catalog Co.; Weiser, *Colloidal Chemistry,* Wiley.

Prerequisites: Chemistry 300 and 304.

One hour a week. 1 unit.

517 [17]. *Chemical Thermodynamics.*—Study of first, second, and third laws; derivation of fundamental equations and their application to the gas laws, chemical equilibrium, theory of solutions, electrochemistry, and capillarity.

Text-books: Lewis and Randall, *Principles of Thermodynamics,* McGraw-Hill; Glasstone, *Thermodynamics for Chemists,* Van Nostrand.

Prerequisites: Chemistry 407.

One lecture a week. 1 unit.

(Given in 1949-50 and alternate years.)

518 [18]. *Advanced Inorganic Chemistry.*—The properties of the elements are considered in relation to the periodic table. The course includes a study of the less common elements.

Prerequisites: Chemistry 200 and 304.

Reference: Hopkins, *Chemistry of the Rarer Elements,* D. C. Heath; and current literature.

One lecture a week. 1 unit.

(Given in 1950-51 and alternate years.)

521. *Statistical Mechanics.*—The fundamentals are applied to the calculation of thermodynamic functions from molecular spectra. Specific heats, chemical kinetics and equations of state are interpreted in terms of molecular properties.

References: Glasstone, *Theoretical Chemistry,* Van Nostrand; Slater, *Introduction to Chemical Physics,* McGraw-Hill; Mayer and Mayer, *Statistical Mechanics,* Wiley. 1 unit.

(Given in 1949-50)

522 [22]. *Surface Chemistry.*—Thermodynamics of surfaces, adsorption equations, heats of adsorption, theory of combustion, clean-up of gases in vacuum tubes, reactions on hot filaments, theory of contact catalysis, industrial uses of adsorption phenomena.

Text-book: Gregg, *The Adsorption of Gases by Solids,* Methuen.

References: Brunauer, *The Adsorption of Gases and Vapours,* Princeton; McBain, *The Sorption of Gases by Solids,* Routledge; Adam, *The Physics and Chemistry of Surfaces,* Oxford; Rideal, *Surface Chemistry,* Cambridge.

Prerequisite: Chemistry 407.

One lecture a week. 1 unit.

(Given in 1950-51 and alternate years.)

530 [30]. *Research Conference.*—This course is required of all graduate students. Students will be required to present a paper on an approved topic.

One hour a week. 1 unit.

535. *Selected Topics.*—Most of the course will be devoted to an exhaustive study of (1) the methods of oxidation and reduction, (2) cyclization, (3) rearrangements, (4) dealhylation, (5) the Diels-Alder reaction. These methods will then be applied to the elucidation of the structures of various terpenes, resin acids, and the sterols.

References: Adams, *Organic Reactions,* Vols. I to IV, Wiley;

Simonsen, *The Terpenes,* 2 vols.; Fieser, *The Chemistry of the Natural Products Related to Phenanthrene.*

Prerequisite: Chemistry 409.

Two hours a week. 2 units.

(Given in 1950-51.)

536. *Heterocyclic Chemistry.*—The first third of the course will be devoted to a study of the chemistry of the various classes of heterocyclics. The last two thirds of the course will be devoted to the study of the chemistry of such compounds as chlorophyll, the phthalocyaxine pigments, the pyrrolutinealhaloids, the pipendine alkaloids, atropine, pseudopelletierine, the opium alkaloids, colchicine, the quinoline alkaloids, the isoquinoline alkaloids, and the indole alkaloids.

References: Morton, *The Chemistry of the Heterocyclic Compounds;* Henry,*The Plant Alkaloids;* Churchill, Manske, and Holmes, *The Chemistry of the Alkaloids, Academic.*

Prerequisite: Chemistry 409.

Two hours a week. 2 units.

(Given in 1949-50.)

540. *Advanced Electrochemistry.*—Modern measurements of conductance and transport; Debye-Huckel interionic attraction theory; ionic solutions in equilibrium and in perturbed state; Wien effects; dieletric constants and electric moments: theoretical interpretations of activity coefficients; phase boundary potentials; non-aqueous solutions; polyvalent electrolytes; macromolecules in solution; polarography; applications of simple quantum mechanics to electrochemistry.

References: Harned and Owen, *The Physical Chemistry of Electrolytic Solutions;* Dole, *Experimental and Theoretical Electrochemistry;* Falkenhagen, *Electrolytes;* Glockler and Lind, *Electro-Chemistry of Gases and Other Dielectrics.*

Prerequisite: Chemistry 407. 2 units.

Department of Classics

For Honours courses in Classics see pages 130, 134, 139, 141.

For courses in art, literature, and history, not requiring a knowledge of Greek or Latin, see Greek 314, 315, 331; Latin 331.

Greek 331 and Latin 331 replace the history courses formerly numbered Greek 330 and Latin 329.

Greek

Greek 101 is open to students who have presented Greek for University Entrance; Greek 202 is open to those who have passed in Greek 90 with at least Second Class standing, or Greek 101, or Senior Matriculation Greek.

Of the courses numbered 303, 305, 306, and 407 only two are normally available in any one year.

90. *Beginners' Greek*—The elements of Attic Greek.

Text-book: To be announced.

Four hours a week, to be arranged. 3 units.

101 [1]. *Introduction to Greek Prose Authors.*—After completing the beginners' book, the course will present the first book of Xenophon's eye-witness account of the march made by the "Ten Thousand" Greeks into Asia Minor. There will be practice in composition, and reading in the history of Greece.

Text-books: White, *First Greek Book,* chap. XLIX-LXXX, Ginn (for those who have not taken Greek 90); North and Hillard, *Greek Prose Composition* (one exercise each from sections 1-16), Rivingtons; Robertson and Robertson, *The Story of Greece and Rome,* chap. I-XXXII, Dent.

Text: Xenophon, *The First Four Books of Xenophon's Anabasis,* Goodwin and White, Ginn.

Four hours a week, to be arranged. 3 units.

202 [2]. *Greek Literature of the Classical Period.* — Plato's account of Socrates' defence at his trial will be followed by an introduction to Greek tragedy in a play of Euripides. There will be practice in composition, and a brief survey of Greek literary history.

Text-books: North and Hillard, *Greek Prose Composition* (sections 17-44), Rivingtons; Norwood, *The Writers of Greece,* Oxford.

Texts: Plato, *Apology,* Adam, Cambridge Elementary Classics; Euripides, *Medea,* Bayfield, Macmillan.

Four hours a week, to be arranged. 3 units.

THIRD AND FOURTH YEARS

The following courses are open to students who have completed Greek 202.

303 [3]. *Greek Drama.*—Lectures on the development of Greek tragedy and comedy and on scenic antiquities; the reading of representative plays of Sophocles, Euripides, and Aristophanes, and of Aristotle's discussion of tragedy in his *Ars Poetica.*

Texts: Sophocles, *Antigone,* Jebb and Shuckburgh, Cambridge; Euripides, *Heracles,* Byrde, Oxford; Aristophanes, *Aves,* Hall and Geldart, Oxford; Aristotle, *Ars Poetica,* Bywater, Oxford.

Three hours a week. 3 units.

305 [5]. *Epic and Lyric Poetry.*—Selections from Homer's *Iliad* and from the Greek lyric anthology.

Texts: Homer, *Iliad,* Monro, 2 vols., Oxford; *Greek Elegiac, Iambic, and Lyric Poets,* Harvard.

Three hours a week. 3 units.

306 [6]. *Greek Historians.*—Lectures on the rise of Greek historical writing; the reading of selections from Herodotus and Thucydides.

Texts: *Herodoti Historiae,* Hude, Oxford; Thucydides, *History Book VII,* Marchant, Macmillan.

Three hours a week. 3 units.

310 [8a]. *Composition*—Obligatory for Honours students in the Third Year.

One hour a week. 1 unit.

The following three courses (Greek 314, 315, 331) do not require a knowledge of the Greek language. Greek 314 and 315 may be taken by Second Year students.

314 [14a]. *Greek Art.*—A survey of architecture, sculpture, and the minor arts from the Aegean period to the Hellenistic, with consideration of their aesthetic value and their relation to Hellenic life and thought. Lectures illustrated with lantern slides and photographs from the Carnegie Collection.

This course does not require a knowledge of Greek.

Text-book: Fowler and Wheeler, *A Handbook of Greek Archaeology,* American Book Company.

One hour a week. 1 unit.

315 [14b]. *Greek Epic and Tragedy.*—A study, in translation, of the *Iliad,* the *Odyssey,* and selected plays of Aeschylus, Sophocles, and Euripides. Collateral reading will be assigned.

This course does not require a knowledge of Greek.

Texts: Homer, *Iliad* (text to be announced); Homer, *Odyssey,* translated by Butcher and Lang, Macmillan; Aeschylus, *The House of Atreus* (text to be announced); Sophocles, *Oedipus the King* and one other play, translated by Jebb, MacMillan; Euripides, *Medea* and *Hippolytus,* translated by Murray, Allen and Unwin.

Two hours a week. **2 units.**

331 [9]. *Greek History to 14 A.D.*—The course will include a study of the background and rise of Greek civilization, with special attention to the social and political life in the fifth century city states; and a survey of Hellenistic civilization, with special emphasis on the contribution of the Hellenistic Age to Graeco-Roman culture. Essays will be assigned on special topics.

For those who wish more than 1½ units of credit, special reading and investigation will be arranged. For a complementary course in Roman history in the Second Term see Latin 331.

For credit in the Department of History see History 331.

This course does not require a knowledge of Greek.

Text-books: Trever, *History of Ancient Civilization,* Vol. I, Harcourt, Brace; Herodotus, Everyman; Thucydides, Everyman.

References: Botsford and Robinson, *Hellenic History,* Macmillan; Laistner, *Greek History,* Heath; Cary, *A History of the Greek World from 323 to 146 B.C.,* Methuen.

Three hours a week. First Term. 1½ to 3 units.

407 [7]. *Introduction to Greek Philosophy.*—A survey of the beginnings of Greek philosophic inquiry; the reading of selections from two of the major works of Plato and Aristotle.

Texts: Plato, *Respublica,* Burnet, Oxford; Aristotle, *Ethica Nicomachea,* Bywater, Oxford.

Three hours a week. 3 units.

410 [8b]. *Advanced Composition.*—Obligatory for Honours students in the Fourth Year.

One hour a week. 1 unit.

PRIMARILY FOR GRADUATE STUDENTS

521 [21]. Aristotle, *Politica,* Immisch, Teubner.

Latin

Latin 101 is open to students who have presented Latin for University Entrance or have taken the beginners' course in the University; Latin 202 is open to those who have passed in Latin 101 or in Senior Matriculation Latin.

90. *Beginners' Latin.*—This course is intended for students who have no previous knowledge of Latin. It is open for credit only to students who have not offered Latin for credit at University Entrance.

The aims of the course include (1) a mastery of what is fundamental in Latin grammar and composition and the learning of a basic Latin vocabularly; and (2) a continuous correlation with English, in a careful study of the origins and meanings of English words derived from Latin and of the structure of the English sentence. During the latter part of the year selections from Latin authors will be read.

Text-book: To be announced.

Four hours a week. 3 units.

101 [1]. *Introduction to Latin Literature.*—The course opens with selections from prose authors; in the Second Term will be read selection from some of the representative poets of the late Republic and the early Empire. There will be practice in composition and reading in the history of Rome.

Text-books: Pilsbury, *Latin Prose Composition,* Oxford; Robertson and Robertson, *The Story of Greece and Rome,* chap. XXXIII-LIV, Dent.

Texts: *A Book of Latin Prose Selections,* Neville, Dale, Breslove, and Tracy, Macmillan; *A Book of Latin Poetry,* Neville, Jolliffe, Dale, and Breslove, Macmillan.

Three hours a week. 3 units.

202 [2]. *Prose and Poetry of the Golden Age.*—Reading in some of the prose of Cicero and in the developed epic as represented by Vergil; brief history of Greece.

Text-book: Robertson and Robertson, *The Story of Greece and Rome,* chap. I-XXXII, Dent.

Texts: Cicero, *Catilinarian Orations,* Upcott, Oxford; Vergil, *Aeneid VI,* Page, Macmillan.

Three hours a week. 3 units.

THIRD AND FOURTH YEARS

Courses 303, 304, 310, 329, 405, 406 are open to all students who have passed Latin 202 or its equivalent.

NOTE. All students are advised to provide themselves with Allen and Greenough, *New Latin Grammar,* Ginn. Honours students will be expected to take additional reading in the Third and Fourth Years in connection with at least two of the courses numbered 303, 304, 405, and 406.

303 [3]. *Roman Comedy.*—A study of typical plays of Plautus and Terence, illustrative of the Greek influence on the Roman stage; brief history of Latin literature.

Text-book: Duff, *The Writers of Rome,* Oxford.

Texts: Plautus, *Menaechmi,* Jones, Oxford; or Moseley and Hammond, Harvard; Plautus, *Captivi;* Terence, *Phormio,* Bond and Walpole, Macmillan; Terence, *Heautontimorumenos.*

Three hours a week. 3 units.

(Given in 1950-51 and alternate years.)

304 [4]. *Prose and Poetry of the Silver Age.*—The second great period of Latin literature will be studied in the works of the historian Tacitus and the satirist Juvenal. Brief history of Latin literature.

Text-book: Duff, *The Writers of Rome,* Oxford.

Texts: Tacitus, *The Annals Books I-VI,* Allen, Ginn; Juvenal, *Satires,* Duff, Cambridge.

Three hours a week. 3 units.

(Given in 1949-50 and alternate years.)

310 [8a]. *Composition.*—Obligatory for Honours students in the Third Year.

One lecture a week and one hour devoted to sight reading; individual conferences at the pleasure of the instructor. 1 unit.

331 [7]. *Roman History.*—A survey of the growth of Rome and the development of its political institutions during the Republic; a conspectus of the social and economic history of the Empire and of the transition from the classical to the mediaeval world. Essays will be assigned on special topics.

For those who wish more than 1½ units of credit special reading and investigation will be arranged. For a complementary course in Greek history in the First Term see Greek 331.

For credit in the Department of History see History 331.

This course does not require a knowledge of Latin.

Text-book: Trever, *History of Ancient Civilization,* Vol. II, Harcourt, Brace. Required readings in ancient sources and bibliographies will be supplied by the instructor.

References: Cary, *A History of Rome Down to the Reign of Constantine,* Macmillan; Parker, *A History of the Roman World from A.D. 138 to 337,* Methuen.

Three hours a week. Second Term. 1½ to 3 units.

405 [5]. *Latin Letter Writing.*—A study of three different styles of letters—personal correspondence, essays in verse, and philosophical discussions—by three masters in three successive periods.

Texts: Cicero, *Selected Letters,* Pritchard and Bernard, Oxford; Horace, *Epistles,* Wilkins, Macmillan; Seneca, *Select Letters,* Summers, Macmillan.

Three hours a week. 3 units.

(Given in 1950-51 and alternate years.)

406 [6]. *General View of Latin Poetry.*—This course offers a survey of Latin poetry from the earliest native verse, through the period of Greek influence, into the late Imperial and early Christian literature.

Text: *The Oxford Book of Latin Verse,* Garrod, Oxford.

Three hours a week. 3 units.

(Given in 1949-50 and alternate years.)

410 [8b]. *Advanced Composition.*—Obligatory for Honours Students in the Fourth Year.

Prerequisite: Latin 310.

One lecture a week and one hour devoted to sight reading; individual conferences at the pleasure of the instructor. 1 unit

509 [9]. *Methods in High School Latin.*—This course is offered primarily for students in the Teacher Training Course, and does not carry undergraduate credit. Readings to be assigned.

PRIMARILY FOR GRADUATE STUDENTS

521 [21]. Cicero, *Select Letters,* 2 vols., How, Oxford.

Three hours a week. 3 units.

523 [23]. *Roman Comedy.* 3 units.

530. Julius Caesar. 3 units.

Department of Commerce

Owing to the nature of work involved in subjects of a commercial character, these courses are not available as reading courses.

It will be noted that some of the courses are marked "Not given in 1949-50". This is because the courses outlined are those planned for future years and they will come into effect only as the growth of staff and facilities permit. Students planning their courses at the beginning of each year should consult the Department before registering so as to find out what new courses in their options may be available.

No student will be admitted to any Commerce course unless he has a complete First Year Arts standing or its equivalent, including Mathematics 100, English 100, 101, and a language.

251 [1]. *Fundamentals of Accounting.*—The technique of account construction; preparation of financial statements; the application of accounting principles to practical business problems; a consideration of corporation accounting; preliminary study of depreciation.

Written assignments must be prepared for each class period, and in addition one or two model sets of accounts are handled during the course of the academic year. Owing to the continuity of the work in accounting, students who are more than two weeks late in registering will not be permitted to register in Commerce 251 without the permission of the instructor. In order to qualify for examination the student is required to submit 75 per cent. of the written assignments.

Commerce 251 is a prerequisite to all other courses in Commerce.

Text-book: To be announced.

Four hours a week. Mr. Taylor, Mr. Moynes, Mr. Wong, Mr. Burke. 3 units.

352. *Accounting Analysis and Control.*—Analysis and interpretation of accounting statements with principles of valuation; partnership accounting; study of accounting systems of outstanding importance in British Columbia.

Text-book: To be announced.

Assigned practice sets.

Prerequisite: Commerce 251.

Three hours a week. 3 units.

361 [6]. *Marketing.*—A consideration of methods and channels used for the distribution of consumer and industrial goods, and the merchandising problems of manufacturers and distributors. The course is handled by a discussion of cases taken from actual business. A series of written reports on assigned cases is required as part of the course. In order to qualify for the examination the student is required to submit 75 per cent. of the written assignments.

Text-book: Learned, *Problems in Marketing,* McGraw-Hill.

Assigned readings.

Three hours a week. Mr. Van Houten, Mr. E. Carlsen. 3 units.

443. *Transportation Practices and Policies.*—A consideration of the management problems pertaining to railway, waterway, highway, and airway transportation. The purpose of the course is to

acquaint the student with the various regulations, documents, and rate structures of the different modes of transport. Reports are required.

Assigned readings.

Prerequisite: Economics 405.

Three hours a week. Mr. Bell. 3 units.

453 [2]. *Advanced Accounting.*—This course embraces advanced work in accounting and the study of the financial problems of corporations, including consolidations, depreciation, and the miscellaneous details connected with balance sheet valuations in general.

Text-book: To be announced.

Assigned readings.

Prerequisite: Commerce 352 with Second Class standing.

Three hours a week. Mr. Moynes. 3 units.

461 [14]. *Fundamentals of Advertising.*—The general field of advertising in relation to the distribution and merchandising of commodities; in particular, the principles and techniques in printed and oral advertising, comparative value of media, the functions of advertising agencies, and the planning of advertising campaigns. The view point is that of the business executive. The course is handled entirely by the case method of study.

Text-book: Borden, *Problems in Advertising,* McGraw-Hill.

Prerequisite: Commerce 361.

Three hours a week. Mr. Morrow. 3 units.

463. *Sales Management.*

Prerequisite: Commerce 361. 3 units.

(Not given in 1949-50.)

471 [9]. *Business Finance.*—A study of the problems of financing business concerns, including such factors as promotion, types of organization, the provision of long-term and short-term capital, financial statement analysis, involvements, and the public policy towards corporations. As far as possible instruction will be by means of cases taken from actual business.

Text-book: Guthmann and Dougall, *Corporate Financial Policy.*

Assigned readings.

Three hours a week. Mr. Wong. 3 units.

481 [11]. *Industrial Management.*— A study of the organization and management of manufacturing concerns from the standpoint of control of raw materials, plant and equipment, operations, labour, etc. Class discussion will be based on cases taken from actual busi-

ness. Field work comprising visits to factories, and written reports form a part of this course. To qualify for the final examination a student is required to submit 75 per cent. of the written assignments and to take in 75 per cent. of the assigned factory visits.

Text-book: Folts, *Introduction to Industrial Management,* 1940, McGraw-Hill.

Three hours a week. Mr. Mahoney. 3 units.

491 [4]. *Commercial Law.*—Principles of company law and of the law of contract, agency, bills and notes, sale of goods, etc. The primary purpose of this course is to familiarize the student with the various legal situations that arise in the day to day conduct of a business and with their implications.

Assigned readings.

Three hours a week. Mr. Farris. 3 units.

533 [13]. *Foreign Trade Problems.*—Methods, policies and routine practice in the serving of foreign markets, including consideration of important problems. The course will be conducted by discussion of actual business cases and will entail field work and a major report.

Text-book: Horn, *International and Trade Practices,* revised edition, Prentice-Hall.

References: *Commercial Intelligence Journal,* and assigned readings.

Three hours a week. Mr. Gourlay, Mr. Carlsen. 3 units.

544. *Airline Traffic Problems* (with major report).—A study of the major airlines of Canada and the United States. Special consideration will be given to development of air express and air freight traffic in Canada. Cases from actual business will be discussed and a major report will be required.

Text-book: Frederick, *Commercial Air Transportation,* Irwin.

Prerequisite: Commerce 443.

Three hours a week. First Term. Mr. Bell, Mr. Gourlay. 1½ units.

545. *Motor Highway Transport Problems.*—A detailed consideration of the motor transport industry in Canada with emphasis on regulation, classification, and tariffs of the motor carriers.

A major report will be required.

Assigned readings.

Prerequisite: Commerce 443.

Three hours a week. Second Term. Mr. Bell. 1½ units.

553 [3]. *Cost Accounting.*—A study of the application of accounting principles to the internal operations of a business so as to provide management control of labour, machines, materials, and overhead.

Text-book: To be announced.

Prerequisite: Commerce 352 (Second Class standing).

Three hours a week. Mr. Taylor. 3 units.

554. *Auditing.*—The duties and responsibilities of the auditor, a study of auditing theory and practice with particular attention to internal control.

Text-book: Hanson, *Auditing Theory and Its Application,* McGraw-Hill.

References: Smails, *Auditing,* 4th edition, Pitman; Montgomery, *Auditing Theory and Practice,* 6th edition, Ronald.

Prerequisite: Commerce 453.

Three hours a week. Second Term. Mr. Taylor. 1½ units.

555. *Municipal and Government Accounting.*—A study of the accounting principles and procedures for governmental bodies. This course is designed to bring out the controls obtained through the use of funds and budgets. Special reference is made to the preentation of financial statements.

Text-book: To be announced.

Assigned readings.

Prerequisite: Commerce 453.

Three hours a week. First Term. Mr. Taylor. 1½ units.

563. *Retail Store Management* (with major report).

Prerequisite: Commerce 463. 1½ units.

(Not given in 1949-50)

564. *Advertising Problems.*—An advanced course for those professionally interested in advertising. The professional and technical aspects of advertising will be presented to the students by visiting experts in the various branches of the field, and by occasional panel discussion. A major report written on a current advertising problem in conjunction with some firm or agency will be an important feature of the course.

Assigned readings.

Prerequisite: Commerce 461.

Three hours a week. Second Term. 1½ units.

565. *Market Analysis and Research.* — A study of the uses, methods and techniques of market analysis. Field work, entailing schedule construction, sampling, field testing, editing and tabulation will be required with a major report.

Assigned readings.

Three hours a week. First Term. Mr. Van Houten. 1½ units.

583. *Personnel Management and Labour Relations.*—The First Term will be devoted to a study of current personnel policies and mechanisms and to their practical application. The Second Term will cover the field of collective bargaining in industry with the interrelations of employee, management, and government. A feature of the course will be a lecture series given by leaders in the realms of management and of labour.

Text-book: Scott, Clothier, Mathewson, and Spriegel, *Personnel Management,* 1945, McGraw-Hill.

Prerequisites: Commerce 481, Economics 325.

Three hours a week. Mr. Mahoney. 3 units.

584. *Production Practices and Controls.*—An advanced study of methods used in planning and controlling factory operations; incentive wage systems; with major report.

Text-book: To be announced.

Prerequisite: Commerce 481.

Three hours a week. Mr. Carlsen. 1½ units.

585. *Industrial Procurement.*—A study of the principles and methods used in the purchase, handling, and storing of raw materials of industry; with major report.

Text-book: To be announced.

Prerequisite: Commerce 481.

Three hours a week. Mr. Mahoney. 1½ units.

593. *Executive Problems.*—A Fifth Year case course designed to correlate the various courses taken in the previous years so as to impress upon the student the interrelation of the various aspects of a business and to give him practice in solving its over-all problems. Periodic written reports will be featured in this course.

Prerequisites: Commerce 471, Commerce 491, Economics 335.

Three hours a week. 3 units.

(Not given in 1949-50.)

594. *Business Planning and Budgetary Controls and Income Tax.* —A Fifth Year course dealing in detail with the annual preparations and estimates needed for the planned over-all conduct of a business.

Prerequisites: Commerce 471, Commerce 491, Economics 335.
Three hours a week. 3 units.
(Not given in 1949-50.)

599. *Thesis*—Students whose choice of courses does not entail two or more major reports in their Fourth and Fifth Years will be required to submit a thesis on some business topic chosen in consultation with the Head of the Department and with members of the staff. Where major reports are written in conjunction with the advanced courses they will be identified with the thesis requirement and if considered satisfactory will be granted due credit. 3 units.
(This requirement will not come into effect until 1950-51.)

(The following course is not available to Commerce Students).

259. *Accounting and Food Control for Home Economics.*—A study of the general principles of bookkeeping, followed by its application to the problems of the dietitian. Special consideration will be given to the construction and use of supplementary records and forms to be used in controlling food costs.

Text-book: Radell, *Accounting and Food Control.*

Four hours a week. Second Term. 1½ units.

(Courses 359, 369, 499 are available only to students registered in the Faculty of Pharmacy).

359. *Drug Store Accounting.* — A survey of interpretation of accounting data and a study of fundamental accounting methods and procedures with special attention to the requirements of the small retail drug store.

Text-book: Heckert and Dickerson, *Drug Store Accounting,* McGraw-Hill.

One hour a week. Mr. Moynes.

369. *Drug Store Merchandising and Management.*—A study of commercial problems common to average retail pharmacies, including store location and arrangement, stock control, display, and advertising.

Text-book: Nolen and Maynard, *Drug Store Management,* McGraw-Hill.

One hour a week. Mr. Van Houten. 1 unit.

499. *Advanced Drug Store Management.*—Forms of business organization, commercial law, marketing of drug products, advertising, problems of retail operations. This course will be handled on a seminar discussion basis with discussion leaders drawn from various staff members and professional experts.

Three hours a week. Mr. Morrow. 3 units.

559. *Industrial Accounting.*—This course is designed for students with scientific training who wish to obtain an understanding of industrial accounting. The course gives a firm foundation in accounting principles and includes a study of the use of accounting in controlling and measuring operating results.

Text-book and assigned readings to be announced.

Prerequisite: Economics 200.

Two hours a week. Mr. Taylor. 2 units.

599. *Industrial Problems.*—A general survey of the problems of marketing, production and management as encountered in industry.

Text-book and assigned readings to be announced.

Prerequisite: Economics 200.

One hour a week. Mr. Gourlay. 1 unit.

Department of Economics, Political Science, and Sociology

For Honours courses in the Department see pages 130, 136, 139, 142, 143.

Economics

NOTE. Economics 200 is the prerequisite for all other courses in Economics except Economics 100, 140, and 205.

Agricultural Economics 301, 400, 500, and 501 and Geography 201 may be counted as courses in Economics.

100 [2]. *Economic History.*—A survey of factors of major social and economic significance in the rise and development of Western civilization, from early times to the present day. Special attention will be given to major economic changes in Europe and the North American continent during the last two centuries.

Text-books: Heaton, *History of Trade and Commerce with Special Reference to Canada,* revised edition, Nelson; Heaton, *Economic History of Europe,* Harpers.

Reference: Barnes, *An Economic History of the Western World,* Harcourt, Brace.

Three hours a week. Mr. Jamieson. 3 units.

140. *Introduction to Political Economy.*—An elementary approach to fundamental ideas in economic theory such as the nature of wealth, its production, accumulation and distribution; the determination and function of price, etc. A description of the framework and institutions of the Canadian economy with particular reference to types of business organization, banking, international trade, popu-

lation problems, and certain important industries such as newsprint, wheat, transportation, mining, etc.

This course is designed to meet the needs of students who do not propose to proceed to Third and Fourth Year courses in Economics. It is more descriptive and less analytical than Economics 200 and has no mathematical prerequisite.

Text-books: Bladen, *An introduction to Political Economy,* Toronto; Hicks and Hart, *The Social Framework, An Introduction to Economics,* Oxford.

References: *Features of Present Day Canada,* The Annals of the American Academy of Political and Social Science, Volume 253, September 1947, Philadelphia; Carlson, *Modern Economics,* Blakiston; *Canada Year Book.*

Three hours a week. 3 units.

200 [1]. *Principles of Economics.*—A comprehensive survey of the agencies and forces at work to shape our economic progress; the roles of enterprise, labour, and government; the organization of production, exchange, and distribution; elementary treatment of the topics to which specialized consideration is given in the Third and Fourth Year courses.

Text-books: Logan and Inman, *A Social Approach to Economics,* 2nd ed., Toronto; Ise, *Economics,* Harper's; Burns, Neil and Watson, *Modern Economics,* Harcourt, Brace.

References: McIsaac and Smith, *Essential Economic Principles,* Little-Brown; Kiekofer, *Economic Principles, Problems and Policies,* Appleton-Century.

Three hours a week. 3 units.

205. [10]. *Human and Economic Geography.*—(This is the same as Geography 201.)

300. [4]. *Money and Banking.*—The origin and development of money, credit, and banking and the economic functions performed by commercial, savings, trust, and investment banks; the monetary and banking systems of England, Canada, and the other British Dominions, the United States and other important foreign countries; foreign exchange; financial aspects of the trade cycle; the purchasing power of money; the problems of central banking.

Text-books: Thomas, *Our Modern Banking and Monetary Systems,* Prentice-Hall; James, *The Economics of Money, Credit and Banking,* Ronald.

References: Crumb, *Lessons in Money and Banking;* Willis and Beckhart, *Foreign Banking Systems,* Holt; Chandler, *Introduction*

to Monetary Theory, Harper; Halm, *Monetary Theory,* Blakiston; Haberler, *Prosperity and Depression,* League of Nations, 3rd Ed., 1941.

Three hours a week. Mr. Crumb. 3 units.

301 (Replacing 400 [8].) *Economic Theory.*—The field of theoretical economics with particular reference to basic assumptions, principles, and the determinants of value.

Text-book: Boulding, *Economic Analysis,* 2 Ed., Harpers.

References: Stigler, *The Theory of Price,* MacMillan; Kierstead, *Essentials of Price Theory,* Toronto; Robinson, *The Economics of Imperfect Competition,* Macmillan, and special references on indifference.

Prerequisite: At least Second Class standing in Economics 200.

Three hours a week. Mr. Drummond. 3 units.

305. [7]. *Business Finance.*—(This is the same as Commerce 471.)

Prerequisite: Elementary Accounting.

310 [6]. *International Trade.*—The mechanism of international trade; the balance of payments; equilibrium; transfers; investment abroad; price level changes; purchasing power parity; control of exchange rates; the gold standard; gold versus paper; comparative cost; trade policy; free trade; duties on imports; preferences; quotas; general and particular arguments for protection; international cartels and monopolies; trade treaties and international agreements.

References: Haberler, *The Theory of International Trade,* Hodge; Taussig, *International Trade,* Macmillan; Viner, *Studies in the Theory of International Trade,* Allen and Unwin.

Three hours a week. Mr. Drummond. 3 units.

320 [5]. *Government Finance.*—Theories of taxation; constitutional allocation of powers of taxation and responsibility for expenditures; municipal financial problems, including the valuation of property; provincial and federal taxation and expenditure problems with emphasis on income taxes and succession duties; Dominion-Provincial tax relations; public borrowing and deficit financing.

Text-book: Lutz, *Public Finance,* 4th edition,, Appleton-Century.

Readings from the following: Seligman, *Essays in Taxation,* 1928, Macmillan; Pigou, *A Study in Public Finance,* 1947, Macmillan; De Vite, *First Principles of Public Finance,* 1936, Cape; Fagan and Macy, *Public Finance,* 1936, Longmans; Groves, *Viewpoints on Public Finance,* 1947, Henry Holt; Bonbright, *Valuation of Prop-*

erty, 1937, McGraw-Hill; Black, *The Incidence of Income Taxes,* 1939, Macmillan; Magill, *Taxable Income,* 1945, Ronald; *Second Report on a Plan of a Model System of State and Local Taxation,* 1933, National Tax Association; *Report of the Royal Commission on Dominion-Provincial Relations,* 1940, King's Printer, Ottawa.

Three hours a week. 3 units.

325 [3]. *Labour Economics and Labour Problems.*—A study of the major labour problems arising out of the factory system and large-scale enterprise. Special attention will be given to the history of trade unions in England, the United States, and Canada, and to recent developments in labour relations, with regard to structure and functions of trade unions, employer policies and associations, collective bargaining and industrial conflict, labour legislation, labour and political action.

Text-books: Lester, *Economics of Labour,* Macmillan.

References: Bakke and Kerr, *Union Management and the Public,* Harcourt-Brace.

Three hours a week. Mr. Jamieson. 3 units.

330 [9]. *History of Economic Thought.*—The development of economic theory with special reference to the Mercantilists, the Physiocrats, and Adam Smith; the distinguishing characteristics and the modern counterparts of the Classical, Historical, Socialist, and Marxian economic doctrines; the immediate background and present emphases of the science.

Text-book: To be announced.

Three hours a week. 3 units.

335 [12]. *Statistics 1.*—Averages, dispersion, skewness; the normal curve; sampling; index number; time series analysis; correlation; applications of these topics to business problems. A few lectures will be devoted to applications of statistics in each of the following fields: vital statistics, forestry, and agriculture.

Text-books: Mills, *Statistical Methods,* Holt; *Lessons in Lettering,* Book I—Vertical single stroke, McGraw-Hill.

Three lectures and two hours of laboratory work a week. 3 units.

400 [8]. *Advanced Economic Theory.*—The field of theoretical economics, with emphasis on the basic principles of the science; the approach and contributions of contemporary authorities, including Joan Robinson, J. R. Hicks, and J. M. Keynes.

Text-book: Boulding, *Economic Analysis,* Harpers.

Readings: Keynes, *General Theory of Employment, Interest and Money,* 1936, Harcourt, Brace; Chamberlain, *The Theory of Monop-*

olistic Competition, 1933, Harvard; Robinson, *The Economics of Imperfect Competition,* 1933, Macmillan; Homan, *Contemporary Economic Thought,* 1928, Harpers; Hicks, *The Theory of Wages,* 1935, Macmillan; Kierstead, *Essentials of Price Theory,* University of Toronto; Meyers, *Elements of Modern Economics,* Prentice-Hall.

Three hours a week. 3 units.

(Not given in 1949-50.)

401. *Business Cycles.*—A survey of business cycle theories, and some of the applications to Canadian economic problems. There will be a discussion of the major works related to business cycles of J. M. Keynes, D. H. Robertson, A. C. Pigou, F. Hayek, A. H. Hansen, J. A. Schumpeter, R. G. Hawtrey, G. Haberler, Paul Sweezy, and others.

Text-book: Haberler, *Prosperity and Depression,* League of Nations, 3rd edition, 1941.

Three hours a week. 3 units.

(May not be given in 1949-50.)

405 [11]. *Transportation.*—The development of railway, highway, water, air, and urban transportation agencies in Canada. The rate structure in Canada, and the theory and practice of rate-making. The influence of governmental policy, technological progress, and labour organizations upon transportation and rates.

Text-book: Jackman, *Economic Principles of Transportation,* 1935, University of Toronto.

References: Glazebrook, *A History of Transportation in Canada,* 1939, Ryerson; Henry, *Railway Freight Rates in Canada,* 1939, King's Printer, Ottawa; Innis, *Problems of Staple Production in Canada,* 1933, Toronto; *Reports of the Royal Commission to Inquire into Transportation, 1917 and 1931-32,* King's Printer, Ottawa; Fournier, *Railway Nationalization in Canada,* Macmillan; Innis, *Essays in Transportation,* Toronto; and other assigned readings.

Three hours a week. 3 units.

410. *Economic History of the United States and Canada.* — A survey of major economic developments and trends in the United States and Canada, from the earliest period of colonial settlement to the present day.

Text-books: Shannon, *America's Economic Growth,* Macmillan; Currie, *Canadian Economic Development,* Nelson.

Term papers will be assigned during the year.

Three hours a week. Mr. Jamieson. 3 units.

435 [13]. *Statistics 2.*—General theory of frequency curves; elementary theory of random sampling; advanced sampling problems; multivariate analysis.

Text-books: Smith and Duncan, *Elementary Statistics and Applications,* McGraw-Hill; Smith and Duncan, *Sampling Statistics and Applications,* McGraw-Hill.

References: Fisher, *Statistical Methods for Research Workers,* Oliver and Boyd; Ezekiel, *Methods of Correlation Analysis,* Wiley.

Prerequisites: Mathematics 200 or 202; at least Second Class standing in Statistics 1.

Four hours a week. Mr. Drummond. 3 unit.

440 [14]. *Honours Seminar.*—Third and Fourth Year Honours and M.A. students in Economics are required to attend an Economics Seminar. This is not open for credit to other students.

Two hours a week, to be arranged. 3 units.

500. *Contemporary Economic Theory.*—The approach, major content and emphasis of contemporary economic thinking with special reference to income analysis; employment, monetary and cycle theories; and to conceptions of control mechanisms.

Text-book: Hickes, *Value and Capital,* Oxford-Clarendon.

References: Keynes, *General Theory of Employment Interest and Money,* Macmillan; Haberler, *Readings in Business Cycle Theory,* Blakiston, 1944; Halm, *Monetary Theory,* Blakiston; Pigou, *The Economics of Welfare,* 4th Ed., Macmillan; Timlin, *Keynsian Economics,* Toronto; Fellner & Haley, Editors, *Readings in the Theory of Income Distribution,* Blakiston; Lerner, *Economics of Control,* Macmillan.

This course is intended for graduate students with an adequate background in Economics.

Three hours a week. Mr. Crumb. 3 units.

Agricultural Economics

For courses in Agricultural Economics (301, 400, 500, 501) open to students in the Faculty of Arts and Science see under the Faculty of Agriculture.

Forest Economics

381 [1]. *Forest Economics.*—This course is devoted to the economic aspects of land use, forestry resources, timber production, and the forest industries, especially the distribution of lumber and other products. (This course is identical with Forestry 381.)

Three hours a week. 2 units.

Political Science

NOTE. Economics 200 is prerequisite for courses in Political Science but may be taken concurrently with Political Science 300.

300 [1]. *Constitutional Government.* — This course deals with the nature, origin, and aims of the State; and with the organization of government in the United Kingdom and in the United States of America.

Text-books: Ogg, *English Government and Politics,* Macmillan; Ogg and Ray, *Introduction to American Government,* Appleton-Century.

Three hours a week. Mr. Angus. 3 units.

325 [3]. *Imperial Problems.*—A course on problems of government within the British Empire.

Readings to be assigned.

Three hours a week. 3 units.

(Not given in 1949-50.)

330. *History of Political Thought.*—A discussion of the thought of some of the great political thinkers of the world in the light of problems of today.

Readings to be assigned.

Three hours a week. 3 units.

(May not be given in 1949-50)

400 [5]. *The Government of Canada.*—The development of the Canadian federal system; the crisis in Dominion-Provincial relations; Canadian government in wartime; adaptation of Canadian institutions for the tasks of reconstruction.

Text-book: Dawson, *The Government of Canada,* Toronto.

Reference: *The Report of the Royal Commission on Dominion-Provincial Relations,* King's Printer, Ottawa.

Three hours a week. Mr. Angus. 3 units.

425 [4]. *Problems of the Pacific.*—A course on the problems of the Pacific Area discussed at the conferences of the Institute of Pacific Relations. Each problem will be related to its economic and political background.

Readings to be assigned.

Three hours a week. 3 units.

(Not given in 1949-50)

435 [6]. *Public International Law.*—The nature, sources, and sanctions of international law; the notion of nationhood, with particular reference to the status of the British Dominions; jurisdiction, nationality, normal relations between states; settlement of international disputes; war; organization of peace after the recent conflict.

Public International Law is a required course for second year students in the Faculty of Law. Students intending to enter that Faculty are therefore advised not to take Public International Law for credit in the Faculty of Arts.

References: Oppenheim, *International Law;* Brierly, *The Law of Nations;* MacKenzie and Laing, *Canada and the Law of Nations.*

Three hours a week. Mr. MacKenzie. 3 units.

NOTE: Courses numbered 436-441 inclusive are available as courses in Political Science for students taking Honours or graduate work only.

436. *British History to* 1688.—(This is identical with History 309.)

437. *Great Britain Since* 1714.—(This is identical with History 419.)

438. *The Great Powers and World Politics.*—(This is identical with International Studies 400.)

439. *Culture of the Slavonic Peoples.*—(This is identical with Slavonic Studies 310).

441. *Expansion of Russia.*—(This is identical with Slavonic Studies 308.)

445. *Honours Seminar.*—Third and Fourth Year Honours and M.A. students in Political Science are required to take this course. This is not open for credit to other students.

Two hours a week to be arranged. 3 units.

Sociology

The prerequisite for Third and Four Year courses in Sociology is either Economics 200 or Sociology 200. The prerequisite may be taken concurrently with the advanced course.

200 [1]. *Introduction to Sociology.*—The approach to the study of society is by way of the local community and its institutions. An evaluation of the importance of the geographic, the biological, the psychological, and the cultural factors in the determination of the rise, growth, and functioning of groups will be undertaken. There

will be an attempt to discover fundamental principles and to trace these principles in their interrelations. Several of the problems resulting from group contacts will be studied.

Text-books: La Piere, *Sociology,* McGraw-Hill; Cuber, *Sociology,* Appleton-Century-Crofts.

References: Dawson and Gettys, *An Introduction to Sociology,* third edition, Ronald; Odum, *Understanding Society,* Macmillan; Bogardus, *Sociology,* revised edition, Macmillan; MacIver, *The Web of Government,* Macmillan.

Three hours a week. Mr. Topping. 3 units.

300 [8]. *Criminology.*—The theoretic and scientific basis of criminology will be sketched through a study of opinions, cases and institutions. An analysis of contemporary findings concerning causation in juvenile delinquency and in adult crime will be made. Reformist programmes will be evaluated and suggestions for a modern scientific system of treatment for Canadian criminals will be invited.

Text-book: Sutherland, *Principles of Criminology,* fourth edition, Lippincott.

References: Cavan, *Criminology,* Crowell; Gillin, *Criminology and Penology,* third edition, Appleton-Century-Crofts; Barnes and Teeters, *New Horizons in Criminology,* Prentice-Hall; Topping, *Canadian Penal Institutions,* revised edition, Ryerson; Kidman, *The Canadian Prison,* Ryerson; *Report on the Penal System of Canada,* 1938, King's Printer; *Report of the Saskatchewan Penal Commission,* 1946, Dept. of Public Works, Regina.

Three hours a week. Mr. Topping. 3 units.

330 [6]. *Introduction to Social Work.*—(This course is the same as Social Work 499.)

400 [7]. *The Dynamic Family.*—The genetic rise of the family will be traced and its modern forms described. Various statements on the functions of the family will be evaluated while the interrelations of religion, science, education, public opinion, law, and social change with the dynamic family are being sketched. An analysis of causation in family break-up will be made and recommendations for facilitating family life and for rehabilitating the broken family will be considered.

Text-books: Burgess and Locke, *The Family,* American Book Company; Nimkoff, *Marriage and the Family,* Houghton-Mifflin.

References: Groves and Groves, *The Contemporary American Family,* Lippincott; Elmer, *The Sociology of the Family,* Ginn; Burgess and Cottrell, *Predicting Success or Failure in Marriage,* Pren-

tice-Hall; Terman, *Psychological Factors in Marital Happiness,* McGraw-Hill; Cuber, *Marriage Counseling Practice,* Appleton-Century-Crofts; Furbay, *Workbook Manual,* 1949, Appleton-Century-Crofts.

Three hours a week. Mr. Topping. 3 units.

425 [3]. *The Urban Community.*—The structural characteristics of the modern city will be outlined and the sociological significance of the functions performed by its inhabitants discussed. A factual study will be made of urban personalities, groups, and cultural patterns. Methods of urban social control will be investigated and solutions for urban problems will be evaluated.

Text-book: Gist and Halbert, *Urban Society,* third edition, Crowell.

Three hours a week. Mr. Topping. 3 units.
(Not given in 1949-50.)

426. *The Rural Community.*—A comparative study of rural communities with special emphasis on population elements, structure, ecological organization, process, and functions. General cultural patterns will be sketched and the interrelations of rural and urban communities will be noted. Stratification and social control will be given consideration.

Text-books: Landis, *Rural Life in Process,* second edition, McGraw-Hill; Nelson, *Rural Sociology,* American Book Company.

Three hours a week. 3 units.
(Not given in 1949-50)

430 [4]. *Social Problems and Social Policy.*—A detailed study of significant modern Canadian social problems, together with a statement and evaluation of the more promising suggested solutions for these problems.

Text-books: "Features of Present-Day Canada," *The Annals,* September, 1947; England, *Contemporary Canada,* Gage; *Canada* 1948, Dept. of Trade and Commerce, Ottawa.

References: *The Canada Year Book,* King's Printer; Creighton, *Dominion of the North,* Hale; Taylor, *Canada,* Methuen; Cassidy, *Social Security and Reconstruction,* Ryerson; Currie, *Canadian Economic Development,* Nelson; Anderson, *Canada and the World Tomorrow,* Ryerson.

Three hours a week. Mr. Topping. 3 units.
(Not given in 1949-50)

435 [5]. *Sociological Theory.*—The central trend in thinking of sociologists will be traced with special emphasis on recent developments in sociological theory.

Text-book: Gurvitch and Moore, *Twentieth Century Sociology,* The Philosophical Library.

Readings to be assigned.

Three hours a week. Mr. Topping. 3 units.

(Not given in 1949-50.)

445. *Honours Seminar.*—Third and Fourth Year Honours and M. A. students in Sociology are required to take this course.

This is not open for credit to other students.

Two hours a week, to be arranged. 3 units.

NOTE: Courses 201, 203, 304, 407, 421, 428 are available as courses in Sociology for students taking Honours or graduate work only.

201. *Social Psychology.*—(This course is the same as Psychology 201.)

203. *Introductory Human and Economic Geography.*—(This course is the same as Geography 201.)

304. *Social Philosophy.*—(This course is the same as Philosophy 304.)

407. *Human and Cultural Geography.*—(This course is the same as Geography 407.)

421. *Child Development and Family Relations.*—(This course is the same as Home Economics 421.)

427. *Town Planning.*—(This course is the same as Architecture 466.)

428. *Social Aspects of Housing and Community Planning.*—(This course is the same as Architecture 467.)

Anthropology

300. *Social Anthropology.*—A brief review of the archaeological evidence on human origins; the biological background of culture; some contemporary theories of culture; a more detailed study of primitive economics, religion, and social and political organization.

Prerequisite for Anthropology 300: It is strongly recommended that the student should have taken more than one of the following courses: Geography 201, Economics 200, Sociology 200, Psychology 201, Philosophy 304, Biology 304.

Anthropology 300 is prerequisite to all other courses but may be taken concurrently with them.

Three hours a week. Mr. Hawthorn. 3 units.

400. *The Changing Primitive.*—The expansion of Europe and the impact on primitive societies; a study of the social and individual adjustments of the primitive; evaluation of the programmes of governments, missions, and other agencies. The work of each student will include actual observation of one situation of culture contact.

Prerequisite: Anthropology 300, unless 300 to 400 are taken concurrently.

Three hours a week. Mr. Hawthorn. 3 units.
(Not given in 1949-50.)

401. *Indians of British Columbia.*—The pre-European cultures of British Columbia; their present condition, problems, and modes of adjustment; the educational, economic, and health programmes aimed at the Indian.

Each student will carry out a field study in Social Anthropology or Archaeology, or Acculturation.

Prerequisite: Anthropology 300.

Three hours a week. Mr. Hawthorn. 3 units.

402. *Peoples of the Pacific.*—The primitive cultures of Polynesia, Melanesia, Micronesia, Indonesia, and the Philippines; the effects of culture change and the modern problems of these areas.

Prerequisite: Anthropology 300.

Three hours a week. Mr. Hawthorn. 3 units.

403. *Ethnology of the Haida, Kwakiutl, and Tlingit.*
Three hours a week. Mr. Kelly. 3 units.

404. *Contemporary Indians of British Columbia.*
Three hours a week. Mr. Kelly. 3 units.

420. *Archeology of British Columbia.*
Three hours a week. Mr. Borden. 3 units.

Department of Education

NOTES

1. Undergraduates who intend to proceed to the Teacher Training course are required to take Psychology 100, and their attention is called to Philosophy 100, 304; Psychology 202, 301, 303; Sociology 200.

2. Six units chosen from Education 509, 510 to 582 may be taken for undergraduate credit but only by students who have completed their normal school training.

3. The Teacher Training Course consists of Education 500 to 506 inclusive.

4. Only a limited number of courses from Education 510 to 582 will be offered in any one year.

5. Psychology 301 may be counted as a course in Education.

COURSES

500 [9]. *Principles of Education.*—The first part of this course deals with some of the broader principles of method and the main types of teaching and learning activities. The second part of the course attempts to develop a philosophy of education around such topics as the individual and society, curriculum theories, and the role of education in a democracy.

Text-books: To be announced.

501 [10]. *Educational Psychology.*—The applications of psychology to education; a consideration of the origin, motivation, development, and modification of human behaviour; native equipment; intelligence; individual differences; learning; the transfer of training; the mental hygiene of the school child; and the psychology of elementary and secondary school subjects.

Text-book: To be announced.

Prerequisite: Psychology 100.

502 [12]. *School Administration and Law.*—The organization of the school system; aims and characteristics of the elementary, junior high, and senior high schools; fundamentals of school administration; the co-curriculum; the school law of British Columbia; the teaching profession.

503 [13]. *Tests and Measurements.*

504 [14]. *Methods.*

1. *Elementary School Subjects.*
2. *High School Subjects.*—English, Social Studies, Latin, French, German, Mathematics, Biology, Chemistry, Physics, General Science, Agriculture, Geography, Home Economics.

   Two of these courses are required, but students are advised to attend a third course. All students taking one or more of the special sciences (Biology, Chemistry, and Physics) are required to take General Science.
3. *Additional Subjects.*—Art, Music, Health and Physical Education, Librarianship, Guidance, Speech, Dramatics.

   The Physical Education courses open to men are 500, 502, 510, 550; to women, 501, 511, 541, 561.

505. *Observation and practice.*

NOTE. Supplementals will not be granted in the practice teaching. Students who fail in practice teaching will be required to repeat this part of the Second Term of the Teacher Training Course.

506 [15]. *Seminar.*—A special study, with an essay or report, in one of the four fields, Education 500, 501, 502, 503.

One hour a week.

509 [16]. *High School Methods.*—In this course, methods of teaching two high school subjects will be studied. Not open to students in the Teacher Training Course nor to students who have not taken normal school training.

1½ units.

510 [25]. *Administration of School Systems.*—Dominion participation in education; the Provincial Department of Education; centralization and decentralization; school finance; the local unit of administration.

1½ units.

511 [26]. *Administration of the Elementary School.*—The organization of the elementary school; the work of the principal; participation of staff in administration.

1½ units.

512 [27]. *Administration of the Secondary School.*—The administrative staff and their duties; office routine; administration of guidance programme; assemblies; co-curricular activities; construction of the time table. Applications to British Columbia circumstances will be stressed throughout.

Text-book: Koos and others, *Administering the Secondary School,* American Book Co. 1½ units.

513 [36]. *Supervision.*—A study of techniques for the improvement of instruction. Responsibilities of inspectors, supervisors, and principals.

519. *Foundations of Education.*—An introductory course in educational theory. The course will be devoted, in the main, to an examination of historic and contemporary theories of education and the role of these theories in the determination of educational content and methodology. Theories of curriculum construction will also be considered. This course is intended for students who are proceeding toward a degree in education or who wish to qualify for an Academic A certificate and who have not taken a Teacher Training Course or its equivalent.

Text-book: To be announced. 1½ units.

520 [20]. *History of Education.*—The development of educational theory from the time of ancient Greece to the present day, with special attention to the period since 1800.

3 units.

521 [22]. *Philosophy of Education.*—A study of current trends in educational philosophy; the social implications of contemporary educational theories.

Prerequisite: Education 500, 519 or an equivalent. 3 units.

522 [29]. *The Secondary School.*—A foundation for this course will be laid by a study of the basic principles of secondary education. Consideration will be given to some of the more important modern developments in the light of these principles both in Canada and in other countries of the world.

1½ units.

523 [37]. *Comparative Education.*—Types and systems of schools in some of the principal nations. Study will be mostly but not entirely of England, France, Germany, the United States, and Canada.

1½ units.

524. *Modern Educational Theories.*—A number of present day theories and movements will be considered, with special reference to their significance for the concept of democracy as a way of life.

1½ units.

529. *Educational Psychology.*—Major emphasis will be on the understanding of the pupil, with special reference to the adolescent, the psychology of learning, the adjustment of learning situations to individual differences and the evaluation of instruction. This course is intended for students who are proceeding toward a degree in education or who wish to qualify for an Academic A certificate and who have not taken a Teacher Training Course or its equivalent.

Text-book: To be announced. 3 units.

530 [21]. *Advanced Educational Psychology.*—A survey of recent psychological theories and a critical analysis of their implications for education. 3 units.

Prerequisite: Education 501 and 503, or 529, or an equivalent.

531 [31]. *Psychology of Childhood.*—The mental, social, emotional, and physical characteristics of pre-school and elementary school pupils; their interests and their problems; implications for organization and administration of school systems.

1½ units.

532 [30]. *Psychology of Adolescence.*—The junior and senior high school pupil as an individual and as a member of social groups; the physical, mental, social, emotional, and religious development typical of adolescence; the interests of teen-age boys and girls and their problems in personal relations, in the home, in the school, and in the community.

1½ units.

533 [33]. *Psychology of Exceptional Children.*—The physical, mental, social, and emotional characteristics of exceptional children (gifted, backward, crippled, hard-of-hearing, etc.); factors in their growth and development; educational provisions suited to their needs.

1½ units.

534 [32]. *Psychology of the School Subjects.*—This course aims to cover that part of educational psychology which is directly concerned with classroom subject-matter activities. It considers the research findings in the various elementary and secondary school fields and applies them to teaching and learning procedures.

1½ units.

535 [38]. *Evaluation.*—The basic principles of evaluation; tests and measuring instruments for the determination of the outcomes of instruction; analyzing the results of evaluation.

3 units.

536. *Individual Tests.*—The administration, scoring, interpreting, and values of such individual tests as the Revised Stanford Binet, the Wechsler-Bellevue, etc. A consideration of the theories of the nature of intelligence; the constancy of the IQ, etc. Practical experience in the administration of the tests will be given.

First Term. 1½ units.

537. *Standardized Group Tests.*—A consideration of such group tests as achievement, intelligence, personality, interests, aptitudes, and attitudes. Practical experience in administering, scoring, and interpreting the tests will be offered. No credit will be given for students who have not taken Education 535.

Second Term. 1½ units.

550 [35]. *Introduction to Guidance.*—The objectives of guidance; gathering and using information concerning students, counselling with students; articulation of the different forms of guidance; contributions of teachers, principal, and specialists in guidance; analysis of guidance programmes in secondary schools.

1½ units.

551. *Counselling Techniques.*—This course is intended for counsellors and for teachers who are preparing for counselling.

Text-book: Reed, *Guidance and Personnel Services in Education.*

1½ units.

560 [39]. *Teaching in the Secondary School.*—This course on modern techniques of secondary school teaching will include a study of such matters as socialized procedures and provision for individual differences through unit methods. Some opportunity for specialization according to subject will be provided. 1½ units.

561 [34]. *Diagnostic and Remedial Instruction.*—This course is intended to help teachers in their work with seriously retarded pupils. It includes a study of the diagnostic point of view in education, types and causes of subject-matter disabilities, and possible remedies of difficulties. Disabilities in spelling, reading, and arithmetic will be studied chiefly, and over half the course will be devoted to reading. Some opportunity will be given teachers to specialize on primary, intermediate, or secondary school levels of work.

1½ units.

570 [40]. *Educational Sociology.*—This course will include such topics as the following: individual and social aims, the community and education, education and internationalism, social problems of administration and control, curriculum problems, moral education, education and national unity, pending educational developments in Canada.

3 units.

580 [23]. *Problems in Education.*—An investigation and report of an educational problem.

3 units.

581 [24]. *Methods of Educational Research.*—The scientific method in education; discovering educational problems; types of educational research; standards in thesis writing; critical study of published research.

1½ units.

582 [28]. *Educational Statistics.*—The frequency distribution; measures of central tendency; measures of variability; the normal probability curve and its applications; sampling; reliability; correlation, its meaning and application; partial and multiple correlation.

1½ units.

Department of English

For Honours courses in English see pages 131 and 139.

PREREQUISITES

All students in the First Year are required to take English 100, 101. English 100, 101 or its equivalent in Senior Matriculation is prerequisite to English 200 or 205.

English 200 is prerequisite to English courses with numbers above 400 for all students proceeding to a B.A. degree.

Students not proceeding to a B.A. degree may offer English 205 as an alternative to English 200 as a prerequisite to certain English courses with numbers above 400.

Every student is required to own a good dictionary; e.g., *The Concise Oxford Dictionary, The American College Dictionary, Webster's Collegiate Dictionary.*

FIRST YEAR

100, 101. *Literature and Composition.* Elementary study of a number of literary forms to be chosen from the short story, the play, the novel, the essay, the simpler sorts of poetry. Elementary forms and principles of composition. Themes and class exercises will be required. This course is not divisible, for purposes of credit, into two parts.

Texts: *A Little Treasury of Modern Poetry,* ed. O. Williams, Scribner's; *Masters of the Modern Short Story,* ed. Havighurst, Harcourt, Brace; *Essays of Our Time,* ed. Sharon Brown, Gage; Shakespeare, *Antony and Cleopatra,* Crofts; Shaw, *Saint Joan,* Penguin; *Century Collegiate Handbook,* ed. Greever and Jones, Appleton-Century.

Four hours a week. 3 units.

SECOND YEAR

200 *Literature.*—Studies in English Literature from Chaucer to Browning. Lectures will be given on twelve major English authors. Essays will be required.

Texts: *The College Survey (Shorter Edition),* ed. Whiting, et al., Harcourt, Brace; Shakespeare, *Hamlet* and *Henry IV, Part I,* Crofts; *Stories From Hakluyt,* ed. Wilson, Dent; Swift, *Gulliver's Travels,* Macmillan; Fielding, *Joseph Andrews,* Oxford; Austen, *Pride and Prejudice,* Nelson; Dickens, *Great Expectations,* Pocket Books.

Three hours a week. Three units.

205. *English Composition and Literature.*—A course especially designed to meet the needs of Second Year students in the Faculty

of Agriculture, and in Architecture, Commerce, Physical Education, Pharmacy, and Home Economics. This course offers training in advanced composition, in research, and in the preparation of term papers and reports. It also includes selected readings from various types of modern writing. To satisfy the course requirements the student must (1) write satisfactory reports and essays, and (2) pass written examinations.

Text-books: Perrin, *Writer's Guide and Index to English,* Scott, Foresman; McCallum, *The College Omnibus,* 6th edition, 1947, Harcourt, Brace; Blakey and Cooke, *The Preparation of Term Essays,* University of B.C.

Three hours a week. 3 units.

THIRD AND FOURTH YEARS

401. *Creative Writing.*—A course devoted to practice in imaginative writing. Both verse and prose forms will be attempted, and particularly the short story, familiar essay, and literary article. Enrolment in this course will be limited to twenty students, who must make written application to the instructor before September 1st.

Three hours a week. Mr. Birney. 3 units.

402. *Classics of European Literature.*—A course devoted to the study of some great books representative of various strains in Western civilization.

(Not given in 1949-50.)

405. *Poetics.*—The imagination and the poetic process; the emotional element in poetry and the tests of value; the content of poetry and the nature of poetic truth; poetic form and its varieties, diction, imagery, tone-colour, and metrics.

Texts: To be announced.

Three hours a week. Mr. Larsen. 3 units.

408. *Studies in Elizabethan Literature.*—Various literary types will be examined: the lyric, the sonnet sequence, the pastoral, the prose romance, realistic prose and verse, literary criticism, the essay. The authors studied will include Sidney, Daniel, Drayton, Campion, Jonson, Bacon and Donne. The work of Spenser will be studied in detail. The King James version of the Bible and its influence on English literary style will receive special attention.

Texts: Hebel and Hudson, *Poetry of the English Renaissance,* Dodd, Mead; *The Oxford Spenser.*

Three hours a week. Miss Mawdsley. 3 units.

409; 410. *Shakespeare.*—These courses may be taken for credit in two successive years. In 1949-50, 410 will be given as follows:

i. A detailed study of the text of *Romeo and Juliet, Twelfth Night, Hamlet, King Lear, The Winter's Tale.*

ii. Lectures on Shakespeare's development, on his use of sources, and on his relation to the stage and the dramatic practice of his time.

Students will provide themselves with annotated editions of the five plays named above, and with *The Facts About Shakespeare,* by Neilson and Thorndike, Macmillan. They are advised to get *The Complete Works of Shakespeare,* ed. Kittredge, Ginn, or the *New Cambridge Shakespeare,* ed. Neilson and Hill, Houghton Mifflin, or the *Oxford Shakespeare,* ed. Craig.

Three hours a week. 3 units.

411. *The Drama to 1642.*—The course begins with a study of Aristotle's theory of tragedy, and of the Roman dramatists who provided models for the Elizabethans. The Miracle Plays, Morality Plays, and Interludes of English medieval drama will be studied. The main subject of the course is Elizabethan drama, its development, culmination, and decline. Particular attention will be given to the words of Lyly, Kyd, Peele, Greene, Marlowe, Shakespeare, Jonson, Webster, Beaumont and Fletcher, Middleton, Massinger, Shirley, and Ford.

Texts: Parks and Beatty, *The English Drama 900-1642,* Norton; *The Complete Works of Shakespeare,* ed. Kittredge, Ginn, or the *New Cambridge Shakespeare,* ed. Neilson and Hill, Houghton Mifflin.

Three hours a week. Mr. Akrigg. 3 units.

420. *The History of English Drama Since 1660.*—A survey of the chief developments of dramatic art from the Restoration to the present day.

(Not given in 1949-50).

421. *Theatre Practice.*—This course deals with the theory and practice of acting and with the fundamentals of voice production. It includes the following subjects: (a) principles of acting, pantomine, interpretation of the role, acting scenes, participation in a play; (b) breath control, tone quality, articulation, intepretation of the spoken line.

Two lectures and two laboratory periods a week. Miss Somerset. 3 units.

(Given in 1950-51 and alternate years).

422. *History of the Theatre.*—A course that surveys the history of Western theatrical presentation from the Greek era to the present day. It will examine representative plays of important periods in the development of the theatre, with special emphasis upon the theatres in which they were produced, the art of the actors, scenic effects, styles of production, and dramatic theory. Students will have the opportunity of participating in workshop presentations of plays taken up in class.

Three hours a week. Miss Somerset. 3 units.

(Given in 1949-50 and alternate years.)

425. *The Age of Milton.*—The first term will be devoted to a study of Milton, with particular emphasis on *Paradise Lost.* In the second term certain themes, determined in part by the particular needs of the class, will be traced throughout the seventeenth century; e.g., the "metaphysical" school of poets; mysticism; Anglicanism; the Cavalier and Libertine spirit; Puritanism and the arts; Baroque form in poetry and prose; the new science and the Royal Society; the development of prose styles. Essays will be required and a few seminars arranged for discussion of assigned topics.

Texts: *Complete Poetical Works of John Milton* (New Cambridge edition) Houghton Mifflin; Coffin and Witherspoon, *Seventeenth Century Prose and Poetry,* Harcourt, Brace.

Three hours a week. Mr. Daniells. 3 units

426. *Eighteenth Century Literature.*—This is a survey course extending from the Restoration of 1660 to the end of the eighteenth century. The course is divided into the three principal literary periods—the Age of Dryden, the Age of Pope, and the Age of Johnson. The significant authors of each period are closely studied, and their works related to the broad cultural movements of the age, in architecture, art, and music.

Text: Shepard and Wood, *English Prose and Poetry, 1660-1800,* Houghton Mifflin.

Three hours a week.

427. *The English Novel from Richardson to 1910.*—The development of English fiction is traced from Richardson, Fielding, Smollett, and Sterne through Goldsmith, Mrs. Radcliffe, Scott, Jane Austen, and the Victorian novelists to those of the Edwardian period.

Three hours a week. Mr. Wood. 3 units.

428. *English Literature of the American Continent to 1865.*—This course is mainly concerned with the literature of the United States, the significant authors, the development of literary forms, and the principal currents of thought from Puritanism to Transcendentalism. Particular emphasis is given to the works of Franklin, Poe, Emerson, Thoreau, Hawthorne, and Melville. Some representative Canadian writings within the same period will be included.

Texts: Norman Foerster, *American Poetry and Prose* (3rd ed.), Houghton Mifflin; A. J. M. Smith, *The Book of Canadian Poetry* (rev. ed), Gage. The reading of about eleven other books, chiefly novels, is required, including *The Scarlet Letter* and either *The House of Seven Gables* or *The Marble Faun* by Hawthorne; *Moby Dick, Billy Budd,* and one other novel by Melville; *Sam Slick the Clockmaker* by Haliburton; and about five others to be selected by the student from a list of titles.

Three hours a week. Mr. Watters. 3 units.

(Given in 1949-50 and alternate years)

429. *English Literature of the American Continent since 1865.*—A course in the literatures of the United States and Canada, the significant authors, the development of modern literary techniques, and the principal currents of thought. Particular emphasis is given to the works of such authors as Whitman, Clemens, James, Dickinson, Dreiser, Wolfe, Hemingway, and Eliot. The leading Canadian authors from Lampman to Maclennan will also be studied.

Texts: To be announced.

Three hours a week. Mr. Watters. 3 units.

(Given in 1950-51 and alternate years.)

430. *The Romantic Period, 1780-1830.*—Studies in the literature of the Romantic period, based chiefly upon the work of Wordsworth, Coleridge, Byron, Shelley, and Keats.

Text: Campbell, Pyre, and Weaver, *English Poetry and Criticism of the Romantic Movement,* Crofts.

References: Bernbaum, *Guide Through the Romantic Movement* and *Selections from the Pre-Romantic Movement,* Nelson; Elton, *A Survey of English Literature, 1740-1830,* Macmillan.

Three hours a week. 3 units.

431. *Victorian Poetry.*—This course is chiefly concerned with the work of Tennyson, Browning, and Arnold. A few weeks at the close of the term will be devoted to a survey of the development of later poetry.

Text: Stephens, Beck, and Snow, *Victorian and Later English Poets,* American Book Company.

Reference: Elton, *A Survey of English Literature, 1830-1880,* Macmillan.

Three hours a week. Mr. Robbins. 3 units.

432. *Victorian Prose Literature.*—Literary, social, religious, and scientific currents of thought as represented by the work of Mill, Ruskin, Carlyle, Newman, Arnold, Darwin, Huxley, and Butler. The following texts in whole or part will be dealt with in lectures and class discussion: Mill, *Utilitarianism* and *Liberty,* Everyman; Ruskin, *Unto This Last,* Everyman; Carlyle, *Sartor Resartus* (selections), *Heroes and Hero Worship* (selections), *Past and Present,* Everyman; Newman, *Apologia Pro Vita Sua,* Everyman; *Idea of a University* (selections), ed. Yardley, Cambridge; Arnold, *Representative Essays,* ed. Brown, Macmillan, *Literature and Dogma* (selections), Burt's Home Library; Darwin, *Origin of Species,* Chapter IV, Everyman, or World's Classics, Oxford; Huxley, *Readings from Huxley,* ed. Rinaker, 1934, Harcourt, Brace; Butler, *Erewhon,* Everyman.

Three hours a week. Mr. Morrison. 3 units.

433. *Contemporary Literature.*—A study of outstanding writers of the present generation, and of the literary developments they represent in the essay, poetry, and fiction.

Texts: Pence, *Essays of To-day;* Sanders and Nelson, *Chief Modern Poets of England and America;* and three novels to be assigned.

Three hours a week. Mr. Lewis. 3 units.

434. *Private Reading.*—Students who are candidates for an Honours degree in English may elect a course of private reading in their Third Year. 3 units.

435. *Private Reading.*—Students of the Fourth Year may pursue, with the consent and under the direction of the Department, a course of private reading.

440. *Chaucer and Middle English.*—(i) Middle English grammar with the reading of representative texts; (ii) *The Canterbury Tales.*

Texts: *Chaucer's Complete Works.* ed. Robinson, Houghton Mifflin; Manly, *The Canterbury Tales,* Holt; a Middle English reader.

Three hours a week. 3 units.

442. *Anglo-Saxon*—Moore & Knott, *The Elements of Old English,* edition of 1940 or later, Wahr.

Two hours a week. 2 units.

443. *The History of the English Language.*—The study of the vocabulary, syntax, accidence, and phonology of the English language from the historical point of view. A brief introduction to philological method; the ancestry of English; the language in the Old and Middle English periods, with illustrative readings; the development of modern English.

This course is open to any Fourth Year student taking an Honours course (whether single or combined Honours), and, by permission of the instructor, to a limited number of other Fourth Year students of satisfactory standing.

Three hours a week. 3 units.

SEMINARS

444. *Bibliography and General Method.*—Third Year Honours students in English are required to take this course.

One hour a week. 1 unit.

445. In this class Honours students will get practice in some of the simpler methods of criticism and investigation. The subject for 1949-50 will be literary criticism. All Honours students, *of both Third and Fourth Years,* are required to take this course. Credit is given at the end of the Fourth Year.

Two hours a week. 3 units.

Department of French

With the consent of the professor in charge of the course, a student taking a General Course B.A. degree may be admitted to any course in the Third and Fourth Years in addition to, but not in lieu of French 300 and 400; and a student taking a B.Com. degree may be admitted to French 301 or 302 in lieu of French 300. Students from other universities who have already taken the work of French 300 and 400 may be given special permission by the Head of the Department to substitute other courses.

For Honours courses in French see pages 132 and 140.

101 [1]. Texts: Irvin and King, *Lectures intermédiares,* Harper; Barton and Sirich, *Simplified French Review Grammar and Composition,* Crofts.

Prerequisite: University Entrance French or its equivalent.

Three hours a week. 3 units.

202 [2]. Texts: Flaubert, *Madame Bovary;* Cantanès & Robert, *Promenades littéraires et historiques,* Harcourt, Brace. Independent reading to include Balzac, *César Birotteau,* and the author listed under *Summer Reading.*

Composition in French based on the above readings, and from Barton and Sirich, *Simplified French Review Grammar and Composition,* Crofts.

Prerequisite: French 101 or its equivalent.

Three hours a week. One additional hour of conversational practice may be taken without credit.

3 units.

203. Instruction in the organization of work; training in speech and writing. Open to students preparing for Honours.

Texts: Faguet, *Ce que disent les livres,* Cambridge; Hugo, *Prose et poésies,* Cambridge; Stendhal, *Le Rouge et le Noir,* Scribners; Shields, *Parlons français,* Houghton Mifflin.

Three hours a week. 3 units.

300 [3a]. *The Literature of the Age of Louis* XIV.—Lectures on the history and social conditions of the period, and on the development of the literature. Careful reading and discussion of the following texts: Schinz and King, *Seventeenth Century French Readings,* Holt; Corneille, *Le Cid,* Didier, or *Polyeucte,* Didier; Racine, *Iphigénie,* American Book Co., or *Andromaque,* Didier, or *Phèdre,* Heath; Molière, *Le Misanthrope,* Didier, or *Les Femmes Savantes,* Didier, or *L'Avare,* Manchester University; *Le Tartuffe* Didier.

Conversation and written résumés based on the above.

This course is obligatory for all students taking Third Year French. French 202 is a prerequisite. Students who cannot write French with some facility are advised not to attempt French 300.

Students who intend to take French throughout the four years or who wish to teach this subject should take also French 302.

Three hours a week. 3 units.

301 [3b]. *French Verse.*—A study of the forms of French verse and of poetic diction and imagery from 1820 onwards. Exercises in scansion, rhythm, and harmony; analysis of language and composition.

Texts: Berthon, *Nine French Poets,* Macmillan; Victor Hugo, *Oeuvres choisies* (Delagrave); Charles Marc des Granges, *Les poètes français 1820-1920,* Hatier.

Independent readings to include Vigney, *Eloa;* or Lamartine, *Jocelyn.* See also, under *Summer Reading,* Chateaubriand and Rivarol.

Three hours a week. For Honours students. 3 units.

302 [3c]. *French Practice.*—Composition and phonetics, training in writing, conversation, and pronunciation. This course should be taken by all who elect French as a Third Year subject. It may not be substituted for French 300.

Text-books: Coindreau, *Contes et nouvelles du tempts présent,* Reynal and Hitchcock; Bond, *The Sounds of French,* Heath.

Three hours a week. 3 units.

303. *Readings in the Social Sciences.*—Training in the reading and translation of texts in the social and political sciences. Designed for Honours students in Economics, Political Science, and Sociology, and students expecting to take graduate courses in these sciences.

Prerequisite: French 202.

Three hours a week. 3 units.

400 [4a]. *The Romantic Movement.*—Romanticism, lyrical and social, in French literature; its significance in poetry and life.

Texts: Victor Hugo, *Hernani,* Nelson; *Ruy Blas,* Delagrave; Alfred de Vigny, *Chatterton,* Larousse; Alfred de Musset, *Fantasio, On ne badine pas avec l'amour,* Larousse. Independent readings include the plays of Marivaux, Voltaire, Sedaine, and Banville and the works of Chateaubriand and Bernardin de Saint-Pierre listed under *Summer Reading.*

References: Stewart and Tilley, *The Romantic Movement in French Literature,* Cambridge; Roger Picard, *Le Romantisme social,* Brentano.

Prerequisites: French 300 and 302.

Three hours a week. 3 units.

401 [4b]. *The Literature of the Eighteenth Century.*—Lectures on the history and social conditions of the period, with special emphasis on the *philosophe* movement, and the beginnings of Romanticism. The interrelations of French and English thought and literature will be touched upon.

Texts: Havens, *Selections from Voltaire,* Appleton-Century; Mornet, *Rousseau, Morceaux choisis,* Didier; Fallex, *Diderot, Extraits,* Delagrave; Beaumarchais, *Le Barbier de Séville,* Macmillan.

Prerequisites: French 300 and 301.

Three hours a week. 3 units.

402 [4c]. Lectures on the educational and administrative institutions of modern France; one hour. Oral and written practice, readings, and discussions; two hours.

This course may be taken with French 400, but not in place of it.

Prerequisite: French 302.

Three hours a week. 3 units.

COURSES FOR GRADUATE STUDENTS

501 [5b]. *The Middle Ages and XVIth Century.*—Texts: *Aucassin et Nicolete,* Classiques français du moyen-âge, Champion; selected readings from Montaigne, Rabelais, and the poets of the Pléiade in *Anthologie littéraire de la Renaissance française,* Holt. 3 units.

502 [5c]. *The History of French Criticism.*—French literary criticism and theory, from the Pléiade to the present day.

Text-book: Vial-Denise, *Idées et doctrines littéraires,* three vols., Delagrave. 3 units.

503 [5d]. *Contemporary French Literature.*—The poetic movement from Péguy to the Surréalistes.

Texts: *Anthologie de la nouvelle poésie française,* Kra; *Lectures expliquées* from Valéry, *Variété i,* Gallimard; Gide, *Pages de Journal,* Gallimard; Valery Larbaud, *Amants, heureux amants,* Gallimard. Further readings to be specified. 3 units.

Summer Reading

Upon entering the courses for the years stated, the student must satisfy the instructor that he has read the books mentioned below.

Third Year:

1. Chateaubriand, *Atala, René,* Larousse.
2. Madame de Staël, *De l'Allemagne,* Larousse*.
3. Rivarol, *Discours sur l'universalité de la langue française,* Larousse.

Fourth Year:

1. Marivaux, *Le Jeu de l'amour et du hasard,* Larousse.
2. Voltaire, *Contes,* Hatier.
3. Voltaire, *Zaïre,* Larousse.
4. Sedaine, *Le philosophe sans le savoir,* Larousse.*
5. Bernardin de Saint-Pierre, *Paul et Virginie,* Larousse.*
6. Banville, *Gringoire,* Hatier.*

NOTE. Books marked with an asterisk are to be read by Honours students only.

Department of Geology and Geography
Geology

For Honours courses in Geology and Geography see pages 132, 140.

201 [1a and 1c]. *General Geology.*—This course serves as an introduction to the science of geology, and includes the following subdivisions:

Physical Geology, including weathering, the work of the wind, ground water, streams, and glaciers, the ocean and its work, the structure of the earth, earthquakes, volcanoes, igneous intrusions, metamorphism, mountains, plateaus, and ore deposits.

Two hours a week. First Term and to January 31. Mr. Okulitch and Mr. Thompson.

Historical Geology, including the history of the earth and its life from pre-Cambrian to recent time.

Two hours a week. Second Term from February 1. Mr. Williams and Mr. Okulitch.

Text-book: Longwell, Knopf, Flint, Schuchert, and Dunbar, *Outlines of Geology,* 1941, Wiley. Those students intending to pursue studies in geology should purchase the *Textbook of Geology,* Parts I and II, 3rd and 5th Editions, 1948, by the authors and publishers noted above, instead of *Outlines of Geology.*

References: Moore, *Elementary Geology for Canada,* 1944, Dent & Sons; Holmes, *Principles of Physical Geology,* 1947, Nelson.

Prerequisite: See under Geology 202.

2 units.

202 [1b and 1d]. *Laboratory Exercises.*—Laboratory exercises in physical geology, including the study and identification of the commoner minerals and rocks.

Field Work may replace laboratory occasionally, and will take the form of excursions to localities in the immediate neighborhood of Vancouver which illustrate the subject matter of the lectures.

Two hours laboratory a week. First Term and to Jan. 31. Mr. White, Mr. Watson, Mr. Warren, Mr. Thompson, Mr. North, and assistants.

Laboratory Exercises in Historical Geology, including the study of index fossils representative of the periods of geological time, and geological maps.

Two hours laboratory a week. Second Term from Feb. 1. Mr. North, Mr. Okulitch, and assistants.

Text-book: Longwell, Knopf, Flint, Schuchert, Dunbar, *Outlines of Geology,* 1941, Wiley.

Prerequisite for Geology 201 and 202: Chemistry 100 or 105 and Physics 100, 101, or 103 must be taken either before or concurrently.

1 unit.

Students may be required to pass in each of the laboratory divisions.

301. *Morphological Crystallography.*—A course on the thirty-two crystal classes with reference to natural and artificial crystals. The course includes space lattices, symmetry elements, stereographic and gnomonic projections; optical activity, pyroelectricity and piezoelectricity in crystals. Laboratory work consists of a study of crystal forms.

References to be assigned.

Prerequisites: Chemistry 100 or 105, Physics 100 or 101, and Geology 201-2 or Second Class standing in Geography 101.

Two hours lectures and two hours laboratory a week. First term. Mr. Thompson.

1½ units.

302 [2a, 2b]. *Mineralogy.*—An introduction to the field of mineralogy. Lectures cover crystallography, physical, systematic, and descriptive mineralogy of approximately one hundred rock-forming and ore minerals in addition to those studied in Geology 202.

Laboratory work consists of a study of the more common crystal forms and methods of determinative mineralogy including blowpipe analysis.

Text-book: Dana, *Text-book of Mineralogy,* revised by Ford, 4th edition, Wiley.

References: Brush and Penfield, *Determinative Mineralogy and Blowpipe Analysis,* 16th edition, Wiley; Phillips, *An Introduction to Crystallography,* Longmans.

Prerequisites: Chemistry 100 or 105; Geology 201, 202, Physics 100 or 101, or Second Class standing in Geography 101.

Two lectures and two hours laboratory a week.

Mr. Warren, Mr. Thompson, and assistants. 3 units.

304 [4]. *Structural Geology.*—A study of primary and secondary structures in rocks. The course includes practice in methods of solving various structural problems.

Text-book: Lahee, *Field Geology,* 4th edition, 1941, McGraw-Hill.

Prerequisites: Geology 201 and 202, 301 and 302.

Three hours a week. Mr. White. 3 units.

References: Billings, *Structural Geology, 1947,* Prentice-Hall; Nevin, *Structural Geology, 1936,* Wiley.

305 [5]. *History of the Earth Sciences; Theoretical and Historical Geology.*—A brief study of the development of the geological sciences, theories employed in geological interpretations, and the historical geology of North America.

References: Geikie, *The Founders of Geology,* Macmillan; Merrill, *The First One Hundred Years of American Geology,* Yale; Adams, *The Birth and Development of the Geological Sciences,* Williams and Wilkins; Schuchert and Dunbar, *Textbook of Geology,* Part II, *Historical Geology,* 4th edition, 1941, Wiley.

Prerequisites: Geology 201 and 202.

Two hours a week. Mr. Williams. 2 units.

NOTE. Geology 305 may be counted as a course in Geography.

307 [8, part]. *Petroleum and Natural Gas.* — A study of the origin and occurrence of petroleum, natural gas and structural materials.

Text-book: Bateman, *Economic Mineral Deposits,* 1942, Wiley.

Prerequisites: Geology 201, 202, 302.

One hour a week. Mr. Williams. 1½ units.

308 [8, part]. *Coal* .—A study of the origin and occurrence of coal, with special reference to Canadian deposits.

Text-book: Bateman, *Economic Mineral Deposits,* 1942, Wiley.

Prerequisites: Geology 201, 202, 302.

One hour a week. First Term. Mr. Williams. ½ unit.

406 [6]. *Palaeontology.*—A study of invertebrate and vertebrate fossils, their classification, identification, and geological distribution.

Text-book: Twenhofel and Shrock, *Invertebrate Palaeontology,* McGraw-Hill.

References: Shimer and Shrock, *Index Fossils of North America,* Technology Press; Zittel-Eastman, *Text-book of Palaeontology,* Macmillan; Raymond, *Prehistoric Life,* 1939, Harvard; Shimer, *An Introduction to the Study of Fossils,* 1933, Macmillan.

Prerequisites: Geology 201 and 202. Biology 100 and Zoology 200 are recommended. For students majoring or taking Honours in

Geography or Zoology, a reading course in historical geology may be substituted for Geology 201 and 202.

Two lectures and two hours laboratory a week. Mr. Okulitch. 3 units.

407 [7]. *Petrography.*—This course consists of systematic studies of (i) optical mineralogy and (ii) petrography, with an introduction to petrogenesis.

The laboratory work deals with the determination of rocks under the microscope and in hand specimens.

Text-books: Tyrrell, *The Principles of Petrology,* Dutton; Rogers and Kerr, *Optical Mineralogy,* McGraw-Hill.

Prerequisite: Geology 302.

Two lectures and four hours laboratory a week. Mr. Watson. 4 units.

408 [8, part]. *Mineral Deposits.*—A study of the manner of occurrence, genesis, structure, and distribution of the principal metallic and non-metallic mineral deposits, with type illustrations; special stress is placed upon Canadian deposits.

Text-book: Bateman, *Economic Mineral Deposits,* 1942, Wiley.

Prerequisites: Geology, 302, 304, and 403 or 407 must precede or accompany this course.

Three hours a week. Mr. Gunning, Mr. White. 3 units.

409 [9]. *Mineralography.*—Principally a laboratory course dealing with the study and recognition of the opaque minerals by means of the reflecting microscope.

The work consists of practice in the cutting, grinding, and polishing of ore specimens, accompanied by training in micro-chemical methods of mineral determination.

During the Second Term each student is assigned a suite of ores from some mining district for a critical examination and report.

Text-book: U. S. Geological Survey Bulletin 914, *Microscopic Determination of the Ore Minerals.* Edwards, *Features of the Ore Minerals,* 1947, Australian Inst. M.M.

Prerequisites: Geology 408 must precede or accompany this course.

Three hours a week by arrangement. Mr. Warren, Mr. Thompson, and assistants. 2 units.

410 [10]. *Field Geology.*—The methods taught are the fundamental ones used by professional geologists and by the officers of the Geological Survey of Canada. This course is essentially practical and is designed to teach methods of observing, recording, and

correlating geological facts in the field. The students construct geological maps of selected areas and visit localities of interest within reach of Vancouver. The cost to each student may approach $20.

Text-book: Lahee, *Field Geology,* 4th edition, 1941, McGraw-Hill.

References: Hayes, *Handbook for Field Geologists,* Wiley; Spurr, *Geology Applied to Mining,* McGraw-Hill.

Prerequisites: Geology 302 and 304.

Two hours a week in the Second Term by arrangement and ten days in the field at the close of examinations in the spring. Mr. White. 1½ units.

411 [11]. *Regional Geology.*—A study of the geology of Canada and of the main geological features of the continental and oceanic segments of the earth.

References: Young, *Geology and Economic Minerals of Canada,* Geological Survey of Canada, Economic Geology Series No. 1, 1926; Suess, *Das Antlitz der Erde,* Tempsky; maps and reports of various national surveys.

Prerequisites: Geology 305; 304 must accompany or precede.

Three lectures a week. Mr. Williams, Mr. White. 3 units.

412 [12]. *Geomorphology.*—This course is intended for advanced students in geography and geology. This subject represents the overlap between these two major sciences. It involves a study of the processes, principles, and laws of land formation, types of land forms, and their distribution.

Text-book: Hinds, *Geomophorlogy,* 1943, Prentice-Hall.

References: Lobeck, *Geomorphology,* 1939, McGraw-Hill; Von Engeln, *Geomorphology,* 1942, Macmillan; Cotton, *Geomorphology,* 1947, Wiley; reports of the Canadian Geological Survey; reports and maps of the U.S. Geological Survey; geological and geographical journals.

Prerequisite: Geography 101 or Geology 201 and 202.

Two lectures and two hours laboratory a week. Mr. North. 3 units.

COURSES FOR GRADUATE STUDENTS

520 [20]. *Sedimentation.*

Text-book: Twenhofel, *Principles of Sedimentation,* McGraw-Hill.

Prerequisites: Geology 302 and 411.

Two seminars and 6 hours of reading or laboratory a week. Mr. Williams. 3 units.

521 [21]. *Problems in Palaeontology.*

Prerequisite: Geology 406.

One seminar and 6 hours laboratory a week. Mr. Okulitch. 3 units.

522 [23a]. *Advanced Mineralogy (Gems and Precious Stones).*—A systematic study of the gem minerals and of some of the more popular semi-precious stones.

Text-books: Dana, *Text-book of Mineralogy,* revised by Ford, 4th edition, Wiley; Smith, *Gemstones,* Methuen.

Prerequisite: Geology 302.

One seminar and four hours laboratory a week. First Term. Mr. Warren, Mr. Thompson. 1½ units.

NOTE. This course may be taken as an undergraduate course, subject to the approval of the Department.

523 [23b]. *Advanced Mineralogy.*—A systematic study of some of the rarer minerals, particular attention being given to those of economic importance.

Text-book: Dana, *Text-book of Mineralogy,* revised by Ford, 4th edition, Wiley.

References: Brush and Penfield, *Determinative Mineralogy and Blowpipe Analysis,* 16th edition, Wiley; Kraus, Hunt, and Ramsell, *Mineralogy,* 3rd edition, McGraw-Hill.

Prerequisite: Geology 408.

One seminar and four hours laboratory a week, or six hours laboratory a week. Second Term. Mr. Warren, Mr. Thompson. 1½ units.

524 [24]. *Advanced Mineralography.*—A critical study of some approved suite of ores, using the more recent methods of investigation, including the examination of polished sections under polarized light, microchemistry, microphotography, use of "super-polisher," etc.

Frequent reference will be made to U. S. Geological Survey Bulletin 914, *Microscopic Determination of the Ore Minerals.*

Prerequisite: Geology 409.

Occasional seminars and from five to seven hours laboratory a week. Mr. Warren, Mr. Thompson. 3 to 4 units.

525 [25]. *Petrogeny.*—A seminar course, supplemented with laboratory work, which deals with the origin of igneous and metamorphic rocks.

References: Harker, *Metamorphism,* Methuen; Bowen, *Evolution of Igneous Rocks,* Princeton; Gilluly, *Origin of Granite,* G.S.A.;

Turner, *Mineralogical and Structural Evolution of the Metamorphic Rocks,* G.S.A.

Prerequisite: Geology 407.

Two seminars and two hours laboratory a week. Mr. Watson. 3 units.

526 [26]. *Mineral Deposits.*—A seminar course, supplemented by laboratory work dealing with the character, origin, and structure of mineral deposits, with emphasis on ore deposits.

Text-book: Lindgren, *Mineral Deposits,* 4th edition, 1933, McGraw-Hill.

Reference: *Ore Deposits of the Western States,* A.I.M.E., 1933.

Prerequisites: Geology 308, 407, and 408.

Two hours seminar and two hours laboratory a week. Mr. Gunning. 4 units.

531. *Advanced Invertebrate Palaeontology.*—This course will be given in 1949-50 and alternate years with Geology 521. Selected groups of fossils, special problems of palaeontology, and palaeontological techniques are dealt with.

References: to be assigned.

Prerequisites: Geology 406 and 411.

One hour lecture and six hours laboratory a week. Mr. Okulitch. 3 units.

Geography

Students intending to major or honour in Geography are required to take Geography 101 as prerequisite to all other courses in Geography. Geography 101 is one of the elective sciences as stated on page 123, sec. *(e)* of the calendar.

101 [1]. *Elementary Physical Geography.*—This introductory course provides a foundation for the study of geography. It will be useful not only to those who may intend to continue a study of geography or to teach it in schools, but to all those who are interested in man's physical environment. The course covers the study of maps and map reading, land forms, processes of weathering, erosion, diastrophism, materials of the earth's crust, climate, and history of the earth. The laboratory part of the course includes elementary surveying and map making; interpretation of climatic, distribution and topographic maps; the study of common minerals, rocks, and fossils.

Text-book: Thompson, *Fundamentals of Earth Science,* 1947, Appleton-Century.

References: Wilmore, *Groundwork of Modern Geography,* Bell; Finch and Trewartha, *Elements of Geography,* McGraw-Hill; Moore, *Elementary Geology for Canada,* Dent.

Three lectures and two hours laboratory a week. 3 units.

201. *Human and Economic Geography.*—A general introductory course dealing with man and his occupations. It will be useful for those intending to major in the social sciences. The course deals with the effect of physical environment upon the distribution of the world population and resources. It discusses the distribution of various natural resources as a background to the understanding of national problems of trade and commerce and the interchange of products.

Text-book: Bengston and Van Royen, *Fundamentals of Economic Geography,* 1946, Prentice-Hall, *or* Case and Bergsmark, *College Geography,* 1949, Wiley; Hammond, *World Orientation Atlas,* 1946.

References: Huntington, *Principles of Human Geography,* 5th edition, 1946, Wiley; Jones and Darkenwald, *Economic Geography,* 1941, Macmillan; Smith and Philips, *Industrial and Commercial Geography,* 1946, Holt; Jones, *Minerals and Industry,* Pelican.

Three lectures a week. Mr. Robinson. 3 units.

202 [2]. *Weather and Climate.*—The course is meant to give an understanding of elementary study of weather phenomena. It includes practical weather observations and recording, and analysis of daily weather maps. In the Second Term it deals chiefly with climatic classification and description, and the distribution of climatic types. Additional work will be required of Geography major and Honours students and those wishing Third or Fourth Year credit.

Text-book: Trewartha, *An Introduction to Weather and Climate,* 2nd edition, 1943, McGraw-Hill.

References: Blair, *Weather Elements,* Prentice-Hall; Kendrew, *Climate of the Continents,* Oxford; Miller, *Climatology,* 4th edition, Methuen.

Two lectures and two hours laboratory a week. 3 units.

303 [3]. *Regional Geography.*—An outline course of regional geography of the world. Recommended for students taking only one course in Geography. The physical structure, resources, climate, population, transportation, and industry of the continents are studied. Emphasis on particular continents may change from year to year.

Text-book: Lackey and Anderson, *Regions and Nations of the World,* 1947, Van Nostrand.

References: Cressey, *Asia's Lands and Peoples,* 1945, McGraw-Hill; Stamp, *Asia,* Dutton; Hubbard, *The Geography of Europe,* Appleton-Century; James, *Latin America,* 1942, Odyssey; Stembridge, *The World,* 1940, Oxford; Renner, *Global Geography,* 1944, Crowell.

An atlas is a requisite: e.g., *University Atlas,* Phillips; *Goode's School Atlas,* Rand-McNalley; *Oxford Advanced Atlas,* Oxford.

Three hours a week. 3 units.

305. *History of the Earth Sciences, Theoretical and Historical Geology.*—(This course is identical with Geology 305.) 2 units.

306 [6]. *Natural Resources and World Affairs (Economic Geography).*—Geographic basis of food supply, energy, natural resources, population, transportation, and trade. This course is intended to give a background for those interested in international and national affairs.

Text-books: Klimm, Starkey, and Hall, *Introductory Economic Geography,* 2nd edition, Harcourt-Brace; Stamp, *An Intermediate Commercial Geography,* Part 1, *Commodities and World Trade,* Longmans. An atlas is a requisite; *Modern School Atlas,* Appleton-Century, is recommended.

Two hours lectures a week and two hours seminar *or* two hours laboratory. Mr. Warren, Mr. Griffith, Mr. Rowles. 3 units.

308. *Regional Geography of Europe.*—An introduction to the physical and human geography of Europe based on an analysis of the interaction between man and his environment in the major natural regions, and the relation of such regions to the principal political divisions of the continent. The physical and climatic characteristics of the continent; development of resources; population.

Text-book: Shackleton, *Europe, A Regional Geography,* 3rd edition, Longmans.

References: Hubbard, *The Geography of Europe,* Appleton-Century; Newbigin, *Southern Europe,* Methuen; Stamp and Beaver, *The British Isles,* 2nd edition, Longmans; Ormsby, *France,* Methuen.

Three lectures a week. 3 units.

309. *Geography of Asia.*—A regional geography course describing the topography, climate and resources of Asia, and their relationship to population distribution and industrial development. Special

emphasis will be given to the Soviet Union, Middle East, India and Far East.

Text-book: Cressey, *Asia's Lands and Peoples,* 1945, McGraw-Hill.

Three lectures a week. 3 units.

402. *Cartography and Map Reading.*—A course meant primarily for senior students in geography. Lecture material will cover historical cartography, map projections, methods of showing relief, distribution maps, statistical graphs and cartograms, and source of maps and map information. The laboratory period will include practical field mapping and methods of land utilization survey. Several finished maps will be made during the year.

Text-book: Raisz, *General Cartography,* 1948, McGraw-Hill.

Two lectures a week and three hours laboratory. 3 units.

407. *Human and Political Geography.*—A course dealing with the influences of natural environment upon man, his activities, and his culture. The course covers the early distribution of man and his culture, and the mode of life and occupations of man in climatic regions such as the arctic, tropics, deserts, mountains. Discussion of world population, densities and boundary problems. It is desirable that Geography 201 precedes this course.

References: Davis, *The Earth and Man—A Human Geography,* 1943, Macmillan; Huntington, *Mainsprings of Civilization,* 1945, Wiley; James, *A Geography of Man,* 1949, Ginn; White and Renner, *Human Geography,* 1948, Appleton-Century.

Three lectures a week. Mr. Robinson. 3 units.

409. *Geography of North America.*—Regional geography of North America with particular emphasis on Canada, dealing with physiography, climate, natural resources, population, primary industries. Special reference is given to the development and future of Northern Canada.

Text-book: Taylor, *Canada,* 1948, Methuen.

References: Currie, *Economic Geography of Canada,* 1947, Macmillan; White and Foscue, *Regional Geography of North America,* 1945, Prentice-Hall; Smith and Phillips, *North America,* 1940, Harcourt-Brace; Putnam, *Regional Geography of Canada,* 1949, Dent.

Three lectures a week. Mr. Robinson. 3 units.

412 [4]. *Geomorphology.*—This course is identical with Geology 412. 3 units.

445. *Honours Seminar.*—Discussion of the history, philosophy, scope and content of geography; the different fields of geography, and professional opportunity. Required for all Third and Fourth Year Honours students. May be attended by senior majors without credit.

Two hours a week. Mr. Robinson. 1½ units.

449. *Honours Essay.*—Required for Fourth Year Honours students. Topic to be selected in consultation with the staff of the Department. 3 units.

Department of German

For Honours courses in German see pages 133 and 140.

90. *Beginner's Course.*—Greenfield, *An Outline of German Grammar,* Barnes and Noble; Hagboldt, *Graded German Readers,* I-V, "Alternate" series, Heath.

Four hours a week. 3 units.

100. Texts: Chiles, *German Composition and Conversation,* Part I, Ginn; Kastner, *Die verschwundene Miniatur,* Heath; Bruns, *Book of German Lyrics,* Heath; Second term reader to be announced.

Prerequisite: University Entrance or German 90.

Three hours a week. 3 units.

101. *Scientific German.*—An introduction to the reading of scientific German for students majoring in the natural sciences, supplemented by a review of essentials in German grammar and composition.

Text-books: Wild, *An Introduction to Scientific German,* Oxford; Wild, *An Anthology of Scientific German,* Oxford, Chiles; *German Composition and Conversation,* Part 1, Ginn.

Prerequisites: University Entrance or German 90.

Three hours a week. 3 units.

200. Texts: Chiles, *German Composition and Conversation,* Part II, Ginn; Werfel, *Jacobowsky und der Oberst,* Crofts; Mann, *Tonio Kröger,* Crofts; Keller, *Kleider machen Leute,* Heath; Bruns, *Book of German Lyrics,* Heath.

Prerequisite: German 100 or 101 or the equivalent.

Three hours a week. 3 units.

201. *Readings in German History.*—A course especially designed for Honours students in the social sciences.

Texts to be announced. Each member of the class must possess a standard German-English dictionary.

Prerequisite: German 100 or the equivalent.
This course does not admit to senior courses in German.
Three hours a week. 3 units.

300. *The Classical Period.*—Lectures on the literature of the 18th century, with emphasis on the works of Lessing, Goethe and Schiller.
Texts: Lessing, *Emilia Galotti; Minna von Barnhelm; Nathan der Weise,* Heath; Goethe, *Faust I; Iphigenie,* Heath; Schiller, *Die Jungfrau von Orleans; Marie Stuart,* Holt.
Three hours a week. 3 units.

301. *The Novelle.*—Lectures on the development of the German Novelle, with special emphasis on the nineteenth century.
Texts: Fleissner, *Die Kunst der Prosa,* Crofts; Röseler, *Deutsche Novellen des 19. Jahrhunderts,* Holt; Steinhauer, *Die Deutsche Novelle 1880-1933, Norton;* Coenen, *Auf höherer Warte,* Holt.
Extensive independent reading will be expected. 3 units.
(Given in 1950-51 and alternate years.)

302. A course in the history of German civilization, supplemented by intensive training in oral and written composition.
Text: Jordan, *Deutsche Kulturgeschichte,* Crofts.
Three hours a week. 3 units.

303. *A survey of German literature to 1800.*
Texts: To be announced.
Three hours a week. 3 units.
(Given in 1949-50 and alternate years.)

400. *Nineteenth Century German Drama.*—Text: Campbell, *German Plays of the Nineteenth Century,* Crofts. 3 units.

401. *Nineteenth Century German Fiction.*—Lectures on the development of the German novel, with special emphasis on the nineteenth century, and study of the outstanding novels of that period. 3 units.

402. *Middle High German.* — Text: Bachmann, *Mittelhochdeutsches Lesebuch.* 3 units.

500. *Lessing, Goethe, and Schiller.*—Reading and discussion of the most important works of these authors. 3 units.

502. *History of the German Language.* 3 units.
(Not given in 1949-50.)

Department of History

Students who intend to specialize in history or who are preparing for the Teacher Training Course are advised to associate with it such allied subjects as economics, political science, sociology, and geography. Economics 100, 200, 205, 330, Political Science 300, 325, 425, Sociology 200, Philosophy 300, 401, Psychology 201, and Geography 201 will be found especially helpful. *Attention, however, is called to the regulation in paragraph 2, page 128, regarding the number of First and Second Year courses which may be taken in the Third and Fourth Years. This rule applies also to Third and Fourth Year students electing History 101, 202, 203, 204.*

For Honours courses in History see pages 133 and 141.

A reading knowledge of French and German will be found extremely valuable in Third and Fourth Year courses, while in certain classes of more advanced work Latin is advisable. French, at least, will be required for Honours work, and the study of German is recommended.

FIRST AND SECOND YEARS

101 [1]. *Main Currents in Twentieth-Century History.*—This course completes the study of world history in the high schools and offers a background for contemporary world problems. This course is prerequisite to History Honours. If the World History course has been taken in Senior Matriculation, History 202 will be required for Honours.

Text-books: Benns, *Europe Since 1914,* Crofts, or Chambers, Grant, and Bayley, *The Age of Conflict,* Harcourt-Brace; Schmitt, *Triple Alliance and Triple Entente,* Oxford; Fox, *The Super-Powers,* Harcourt-Brace (for upper year credit).

Essays will be assigned throughout the session. (Extra work will be required from Third and Fourth Year students taking this course.)

Four hours a week. Mr. Soward. 3 units.

202 [2]. *The History of Canada.*—A general introductory course on Canadian History from the earliest times to the present. This course is required for Second Year Honours credit unless it has already been taken in the First Year or in Senior Matriculation. If credit has been given for History 202, History 203 or History 204 must be taken for Honours credit. History 202 is prerequisite for History 420, 426, 427, 430, 433, 533.

Text-books: Wittke, *A History of Canada,* Crofts; Brown, *Readings in Canadian History,* Dent.

Essays will be assigned throughout the session. (Extra work will be required from Third and Fourth Year students taking this course.)

Three hours a week. 3 units.

203 [3]. *Canada West of the Great Lakes.*—The place of Western Canada in Canadian development.

Text-books: Howay, *British Columbia, the Making of a Province,* Ryerson; Sage, *Sir James Douglas and British Columbia,* University of Toronto; Morton, *A History of the Canadian West to 1870-71,* Nelson; Sage, *Canada from Sea to Sea,* University of Toronto; Howay, Sage, and Angus, *British Columbia and the United States,* Ryerson; Burt, *Romance of the Prairie Provinces,* Gage.

Essays will be assigned throughout the session. Extra work will be required from Third and Fourth Year students taking this course.

Three hours a week. Mr. Sage. 3 units.

204. *The History of French Canada.*—A survey of the French Canadian contribution to the development of Canada.

Readings to be announced.

Three hours a week.

(Not given in 1949-50.)

THIRD YEAR

Third Year courses may be taken in the Fourth Year and vice versa.

Although History 304 is primarily a Third Year course, Second Year students may be admitted.

Honours students must offer either History 304 or History 309.

304 [4]. *Mediaeval Europe, 500-1300.*—A general outline of mediaeval history from the fall of the Roman Empire to the 13th century. Sketches of Byzantine history and of the rise of Islam are included, but the main emphasis is laid upon the culture of the 12th and 13th centuries in the West.

Text-books: Stephenson, *Mediaeval History,* revised edition, Harpers; Strayer and Munro, *The Middle Ages,* Appleton-Century.

Essays are assigned throughout the session.

Three hours a week. Miss Ormsby. 3 units.

305. *The Expansion of Europe.*—The history of European colonial expansion, and problems of colonial administration.

Text-books: Abbott, *Expansion of Europe,* Holt; Muir, *Expansion of Europe,* Macmillan; Townsend, *Colonial Expansion Since*

1871, Lippincott; Ward, *The International Shareout,* Nelson; Walker, *Colonies,* Macmillan.

Three hours a week. Mr. Cooke. 3 units.
(Not given in 1949-50.)

309 [10]. *British History to 1688.*—This course aims at an interpretation of the political, constitutional, economic, and religious development of the British Isles from the earliest times to the Revolution of 1688.

Text-books: Trevelyan, *A History of England,* Longmans; Williamson, *The Evolution of England,* Oxford; Stephenson and Marcham, *Sources of English Constitutional History,* Harpers; Adams, *Constitutional History of England,* Holt; Hall and Albion, *A History of England and the British Empire,* Ginn.

Essays will be assigned throughout the session.

Three hours a week. Mr. Sage. 3 units.

310 [11a]. *The Development and Problems of the British Commonwealth.*—British colonial policy; the development of the Dominions; problems of the Commonwealth.

Text-book: Knaplund, *The British Empire, 1815-1939,* Harpers.

Bibliographies for voluntary summer reading will be supplied on application to the instructor in charge.

Three hours a week. Mr. Cooke. 3 units.
(Not given in 1949-50.)

311 [11b]. *The Development and Problems of the British Colonial Empire.*—The history of the crown colonies and India; problems of colonial administration.

Text-books: Knaplund, *The British Empire, 1815-1939,* Harpers; Simnett, *British Colonial Empire.*

Bibliographies for voluntary summer reading will be supplied on application to the instructor in charge.

Three hours a week. Mr. Cooke. 3 units.
(Given in 1949-50 and alternate years.)

312 [12]. *History of the United States of America.*—This course begins with a sketch of the American colonies at the outbreak of the Revolution and traces the history of the United States from the commencement of the War of Independence to the outbreak of the Second World War.

Text-book: Faulkner, *American Political and Social History,* Crofts, *or* Craven and Johnson, *The United States,* Ginn.

Essays will be assigned throughout the session.

Three hours a week. Mr. Soward. 3 units.

313 [13]. *The Age of the Renaissance and Reformation.*—A study of the cultural development of Europe from the 14th to the 17th century, including a consideration of the transition from the mediaeval to the modern world; humanism; Renaissance art; overseas exploration and expansion; the rise of national states; the Reformation; the scientific revolution and intellectual developments.

Text-books: Lucas, *The Renaissance and the Reformation,* Harpers; Smith, *The Age of the Reformation,* Holt; Stearns, *Pageant of Europe,* Harcourt, Brace.

Readings and reports will be assigned.

Three hours a week. Mr. Cooke. 3 units.

314 [14]. *Europe from Westphalia to Waterloo.*—Europe in the 17th and 18th centuries; the establishment of absolutism; the ascendancy of France; expansion and conflict overseas; the enlightened despots; the Age of Reason; the French Revolution; Napoleon; the Congress of Vienna.

Text-books: Ergang, *Europe From the Renaissance to Waterloo,* Copp Clark; Bruun, *Europe in Evolution,* Houghton Mifflin; Gottschalk, *The Era of the French Revolution,* Houghton Miffln; Stearns, *Pageant of Europe,* Harcourt-Brace.

Readings and reports will be assigned.

Three hours a week. Mr. Cooke. 3 units.

316 [16]. *Social and Economic History of Mediaeval Europe.*—A course on the development of economic and social life through the Middle Ages in Europe, c. 500-1500 A.D.

Text-books: Pirenne, *An Economic and Social History of Mediaeval Europe,* and *Mediaevel Cities and the Revival of Trade,* Kegan Paul. Further reading assigned.

Essays will be assigned throughout the session.

Three hours a week. 3 units.

(Not given in 1949-50.)

318 [18]. *British History, Tudors and Stuarts, 1485-1714.*—This course offers a general survey of political, economic, social, and cultural change in the Tudor and Stuart periods.

Text-books: Trevelyan, *History of England,* Longmans; Adams and Stephens, *Select Documents of English Constitutional History,* Macmillan; Bland, Brown, and Tawney, *English Economic History, Select Documents,* Bell.

Essays will be assigned throughout the session.

Three hours a week. 3 units.

(Not given in 1949-50.)

320. *The History of China.*—A survey of the domestic development of China since the Manchu Conquest.

Text-book: Latourette, *The Chinese, Their History and Culture,* Macmillan.

Essays will be assigned throughout the session.

Three hours a week. Mr. Ping-Ti Ho. 3 units.

331. *Ancient History.*—A survey of ancient Greek and Roman historical development. The same as Greek 331, Latin 331. For details see Department of Classics.

Knowledge of Latin and Greek is not required for this course.

Three hours a week. Mr. Guthrie. 3 units.

333 [22a]. *Third Year Honours Seminar.*—Problems of Bibliography and historical method.

Text-book: Rowse, *The Use of History,* Hodder, Stoughton.

Mr. Cooke, Miss Ormsby.

Two hours a week. 3 units.

FOURTH YEAR

415 [15]. *Europe, 1815-1914.*—The political, social and economic history of the chief countries of continental Europe, with especial attention to international relations.

Text-books: Hayes, *A Political and Cultural History of Modern Europe,* Vol. II, Macmillan; Hall and Davis, *The Course of Europe Since Waterloo,* Appleton-Century; Stearns, *Pageant of Europe,* Harcourt-Brace.

Essays will be assigned throughout the session.

Three hours a week. Mr. Soward. 3 units.

(Not given in 1949-50.)

417 [17]. *World Economic History, 1850-1943.*—A comparison of the means by which industrial progress has been achieved in Western Europe, the Americas, Japan, Russia, and India, and a study of the social changes involved. Regular reading will be required, but no essays.

Three hours a week. 3 units.

(Not given in 1949-50.)

419 [19]. *Great Britain Since 1714.*—This course aims at an interpretation of the constitutional, political, economic, and religious development of the British Isles since 1714. A brief survey of the main constitutional and social trends of the Tudor and Stuart period will also be given as a short introduction to the course.

Text-books: Trevelyan, *British History of the Nineteenth Century,* Longmans; Stephenson and Marcham, *Sources of English Constitutional History,* Harpers; Woodward, *The Age of Reform,* Oxford; Hall and Albion, *A History of England and the British Empire,* Ginn.

Essays will be assigned throughout the session.

Three hours a week. Mr. Davies. 3 units.

420 [20]. *The Evolution of the Canadian Constitution.*—A survey of Canadian constitutional development from the Ancient Regime to the present day.

Text-books: Kennedy, *The Constitution of Canada,* Oxford; Kennedy, *Statutes, Treaties and Documents of the Canadian Constitution, 1713-1929,* Oxford; Coupland, *The Durham Report,* Oxford; Wheare, *The Statute of Westminster and Dominion Status.*

Essays will be assigned throughout the session.

Three hours a week. 3 units.

424 [24]. *History of Latin America.* 3 units.

(Not given in 1949-50.)

426 [26]. *Canada After 1867.*—A survey of the main features of political and economic development of Canada after 1867, with some consideration of foreign policy.

Text-books: Lower, *Colony to Nation,* Longmans; Creighton, *Dominion of the North,* Houghton Mifflin; *Report of the Royal Commission on Dominion-Provincial Relations, Book I, Canada, 1867-1939,* King's Printer, Ottawa; Soward and others, *Canada in World Affairs, the Pre-War Years,* Oxford.

Essays will be assigned throughout the session.

Three hours a week. Miss Ormsby. 3 units.

427. *Canadian-American Relations.*—A survey of the diplomatic, social, and economic relations of Canada and the United States from the American Revolution to the present day.

Text-books: Brebner, *North Atlantic Triangle,* Ryerson; Keenleyside, *Canada and the United States,* Crofts; Corbett, *The Settlement of Canadian-American Disputes,* Ryerson.

Three hours a week. 3 units.

(Probably not given in 1949-50).

428. *Economic and Social History of the United States.*—A study of social and economic development in the United States, from the colonial period to the present day.

Text-books: Beard, *The Rise of American Civilization,* 1945, Macmillan; Parrington, *Main Currents in American Thought,* Harcourt-Brace.

Essays will be assigned throughout the session.

Three hours a week. Miss Ormsby. 3 units.

429. *Eastern Europe from the Early Middle Ages.*

(Not given in 1949-50.)

430. *Fourth Year Honours Seminar.*—The history of Canadian defence; a survey of the military and political problems of Canadian defence from the French Regime to the present day.

Two hours a week. 3 units.

(Probably not given in 1949-50.)

433 [22b]. *Fourth Year Honours Seminar.*—Development of Canadian external policy since Confederation.

Prerequisite: History 202.

Two hours a week. Mr. Soward. 3 units.

NOTE. Fourth Year Honours students will elect *one* of 430, 433.

FOR GRADUATE STUDENTS

525 [25]. *History of Historical Writing.*—A survey of the development of Western culture as reflected in the changing outlook of historians from classical times to the present day. Emphasis will be laid on 19th and 20th century philosophies of history.

Text-books: Barnes, *A History of Historical Writing,* Oklahoma University; Shotwell, *An Introduction to the History of History,* Columbia; Gooch, *History and Historians in the 19th Century,* Longmans.

Three hours a week. Members of the History staff. 3 units.

533 [23]. *M.A. Seminar.*—The history of British Columbia. Mr. Sage.

Department of Home Economics

The following courses are open only to students of the degree course in Home Economics except by permission of the faculties concerned.

90 [A]. *Introduction to Foods and Nutrition.*—An introductory course designed to give basic principles of food preparation and of nutrition.

Text-books: Bogert, *Nutrition and Physical Fitness,* 4th edition, Saunders; Kansas State College, *Practical Cookery,* 21st edition, 1947, Wiley.

Two lectures and three hours laboratory a week. First Term. 1½ units.

91 [B]. *Introduction to Textiles and Clothing.*—An introductory course designed to give basic principles of textile selection and of clothing construction by using commercial patterns.

Text-book: Erwin, *Practical Dress Design,* Macmillan.

Two lectures and three hours laboratory a week. First Term. 1½ units.

100 [1]. *Home Management.*—Activities in the home; development of standards, techniques, and skills, with emphasis on time and motion studies and use of variety of equipment.

Text-books: Gross and Crandall, *Home Management in Theory and Practice,* 1947, Crofts; R. Balderston, *Housekeeping Workbook,* Lippincott.

Prerequisite: Home Economics 90 or equivalent.

One hour of lectures, two hours of discussion, and two hours of laboratory a week. Either Term. 1½ units.

101 [2]. *Principles of Design.*—The study and application of fundamental art principles to problems in design. Application of design principles to dress.

Text-book: Goldstein, *Art in Everyday Life,* 3rd edition, Macmillan.

Three lectures and three hours laboratory a week. Either Term. 1½ units.

102 [3]. *Textiles and Clothing.*—Laboratory study of basic textile fibres and fabric construction; techniques of clothing construction applicable to wool, silk, or synthetic fabrics.

Text-book: Hess, *Textile Fibres and Their Use,* revised edition, Lippincott.

Prerequisite: Home Economics 91 or equivalent.

One hour of lectures, three hours of laboratory, and one hour of discussion a week. Either Term. 1½ units.

200. *Dress Design and Construction.*—Development of foundation patterns and flat pattern design; consumer problems in clothing.

Text-book: Latzke and Quinlan, *Clothing,* Lippincott.

Prerequisites: Home Economics 101, 102.

One hour of lectures, four hours of laboratory, and one hour of discussion a week. Either Term. 1½ units.

201 [4]. *Food Management.*—Food buying, meal planning, and table service; food preparation, food legislation; brands, grades.

Text-book: Kansas State College, *Practical Cookery,* 21st edition, 1947, Wiley.

Prerequisite: Home Economics 100.

Two lectures and six hours laboratory a week. Either Term. 1½ units.

202. *Human Nutrition.*—Requirements of the normal adult; laboratory study of food values.

Text-books: Taylor, *Food Values in Shares and Weights,* 1942, Macmillan; Chaney and Ahlborn, *Nutrition,* 3rd edition, 1943, Houghton Mifflin.

Prerequisite: Home Economics 100. Chemistry 225 must precede or be taken concurrently.

Two lectures and three hours laboratory a week. Second Term. 1½ units.

300 [5]. *Household Equipment and Furnishings.*—A study of house plans, furnishings, and equipment. Problems of selection and care of equipment and furnishings.

Text-book: Nickell and Dorsey, *Management in Family Living,* Wiley.

Prerequisite: Physics 100 or Physics 110.

Three lectures and two hours laboratory a week. First Term. 1½ units.

301 [6]. *Economics of the Household.*—Family expenditures and standards of living. Budgeting of time, energy, and family funds.

Text-book: Nickell and Dorsey, *Management in Family Living,* Wiley.

Prerequisite: Economics 140 or 200.

Two lectures and two hours discussion a week. Second Term. 1½ units.

302 [7]. *Foods.*—Preparation of various types of food presented from an experimental point of view.

Text-book: Lowe, *Experimental Cookery,* 3rd edition, Wiley.

Prerequisites: Home Economics 201, Chemistry 225.

Two lectures and three hours laboratory a week. First Term. 1½ units.

303 [8]. *Family Nutrition.*—Food requirements of the healthy family group.

Text-book: Monsch and Harper, *Feeding Babies and Their Families,* Wiley.

Prerequisites: Home Economics 202; Chemistry 225; Biology 304 parallel or preceding.

Two lectures and three hours laboratory a week. First Term. 1½ units.

304. *Experimental Cookery.*—Experimental procedure applied to food preparation. Each student will carry out and write a report on an experimental food problem.

Text-book: Lowe, *Experimental Cookery,* 3rd edition, Wiley.

Prerequisite: Home Economics 302.

Six hours laboratory a week. Second Term. 1½ units.

305. *Advanced Nutrition.*—Application to all groups in a community. Oral reports on recent advances in the science of nutrition.

Reference: Sherman, *Chemistry of Foods and Nutrition,* 7th edition, 1945, Macmillan.

Prerequisite: Home Economics 303.

Three lectures a week. Second Term. 1½ units.

400 [9]. *Textiles.*—A study of the construction, finish and design of textiles: Identification of fibres. Physical and chemical testing of fabrics. Problems of the textile consumer.

Text-book: Hess, *Textile Fibres and Their Uses,* revised edition, 1946, Lippincott.

Prerequisite: Chemistry 225.

Two lectures and three hours laboratory a week. First Term. 1½ units.

401 [10]. *Advanced Clothing.*—Development of dress design by means of draping and tailoring. A study of the social significance of fashion and the field of garment making.

Prerequisite: Home Economics 200.

Two lectures and four hours laboratory a week. Second Term. 1½ units.

403 [12]. *Interior Decoration.*—Application of design principles to home furnishing. A study of the various elements of interior decoration and the history of interiors and furnishings. Laboratory work includes work on household furnishings.

Text-book: Whiton, *Elements of Interior Decoration,* Lippincott.

Prerequisite: Home Economics 101.

Two lectures and four hours laboratory a week. Second Term. 1½ units.

410 [11]. *Advanced Foods.*—Demonstration techniques and other means of presenting information to the public. Discussion and demonstrations, radio talks.

Prerequisites: Home Economics 302, 304.

One hour of lecture, two hours of discussion, and three hours of laboratory a week. Either Term. 1½ units.

Practice Time: To be arranged.

413 [13]. *Diet Therapy.*—A discussion of the relation of normal nutrition to certain diseases and the part that diet therapy may play in their treatment. Special diets are calculated and prepared in the laboratory.

Reference: McLester, *Nutrition and Diet in Health and Disease,* 4th edition, Saunders.

Prerequisite: Home Economics 303, Biology 304.

Two lectures and three hours laboratory a week. Second Term. 1½ units.

414 [14]. *Quantity Cookery.*—Experience in the preparation of food in large quantities.

Reference: West and Wood, *Food Service in Institutions,* 2nd edition, Wiley.

Prerequisite: Home Economics 201.

One lecture and five hours laboratory a week. First Term. 1½ units.

416 [16]. *Institution Buying.*—Discussion of problems of purchasing food in large quantities and of the selection, arrangement, and care of equipment for large quantity food service.

Text-book: West and Wood, *Food Service in Institutions,* 2nd edition, Wiley.

Prerequisite: Home Economics 201.

Three lectures a week. First Term. 1½ units.

Field trips to be arranged.

417 [15]. *Institution Administration.*—Discussion of the organization and administration problems of food departments of institutions.

Text-book: West and Wood, *Food Service in Institutions,* 2nd edition, Wiley.

Prerequisites: Home Economics 416, Commerce 259.

Two hours lecture, two hours laboratory, two hours discussion a week. Second Term. 1½ units.

420 [17]. *Home Management.*—Residence in home management house.

Open only to Third and Fourth Year students.

1½ units.

421 [18]. *Child Development and Family Relations.*—*The* physical, mental, social, and emotional development of the infant and child; a study of family relations. Open only to Third and Fourth Year students.

Three lectures a week and observation periods. 3 units.

International Studies

For Honours courses in International Studies see page 133.

300. *The British Commonwealth and International Organization.*—This course will survey the part played by the members of the British Commonwealth in international affairs from 1919 to the present day. In particular it will deal with Commonwealth participation in international organizations and with the growth of intra-Commonwealth cooperation in the field during the period.

Text-books: Carter, *The British Commonwealth and International Security,* Ryerson; Keith, *The Dominions as Sovereign States,* Macmillan.

Three hours a week. Mr. Davies. 3 units.

310. *Chinese External Policy.*—A survey of Chinese external policy from the first Anglo-Chinese War of 1840-42 to the present day.

Text-book: Vinacke, *A History of the Far East in Modern Times,* Crofts.

Three hours a week. Mr. Ping-Ti Ho. 3 units.

400. *The Great Powers and World Politics.*—A study of the Great Powers and their international policies in the 19th and 20th centuries.

Text-book: Beukema and Geer, *Contemporary Foreign Governments,* Rinehart.

Prerequisite: History 101.

Three hours a week. Mr. Soward. 3 units.

410. *Canadian External Policy Since Confederation.*—For credit in the Department of History see History 433. Except by special permission this course is only open to Honours or Graduate students.

Prerequisite: History 202.

Two hours a week. Mr. Soward. 3 units.

Department of Mathematics

For Honours courses in Mathematics see pages 134-5 and 141-2.

90. *Introductory Mathematics.*—A course covering the material prerequisite to Mathematics 100 for those students who have not obtained standing in Mathematics VI (old course) or Mathematics 91 (new course) of the High School Programme of Studies. Standing in this course or its high school equivalent must be obtained before Mathematics 100 is taken.

Text-book: Lennes, *A Second Course in Algebra,* revised edition, Macmillan.

Four hours a week. 3 units.

100 [1]. *Algebra, Geometry, and Trigonometry.*—A course in algebra, including logarithms, theory of quadratic equations, permutations, combinations, binomial theorem; determinants, complex numbers; analytical geometry, including the study of the straight line and the circle, with an introductory study of the parabola, ellipse, and hyperbola; elementary trigonometry.

Text-book: Sisam, *College Mathematics,* Holt.

Prerequisite: Mathematics 90 or 91.

Four hours a week. 3 units.

PRIMARILY FOR SECOND YEAR STUDENTS

Mathematics 100 is prerequisite to the following courses:

200 [2]. *Algebra and Geometry.*—Review of fundamentals, mathematical induction, complex numbers, theory of equations, determinants, convergency and divergency of series, and probability; review of conics, polar coordinates, and solid analytic geometry.

Text-books: Nowlan, *College Algebra,* McGraw-Hill; geometry text to be announced.

Three hours a week. 3 units.

201 [3]. *The Mathematical Theory of Investments.*—This course deals with the exponential law, the power law, curve fitting, the theory of interest, annuities, debentures, valuation of bonds, sinking funds, depreciation, probability and its application to life insurance.

This course may not be counted in the units required for a major in Mathematics.

Text-book: Williams, *The Mathematical Theory of Finance,* revised, Macmillan.

Three hours a week. 3 units.

202. *Calculus.*—Introduction to differential and integral calculus, with applications.

Text-book: Sherwood and Taylor, *Calculus,* revised edition, Prentice-Hall.

Three hours a week. 3 units.

PRIMARILY FOR THIRD YEAR STUDENTS

300 [10]. *Calculus.*—The theory and applications of the subject.

Text-book: Sherwood and Taylor, *Calculus,* revised edition, Prentice-Hall.

Prerequisite: Mathematics 202.

Three hours a week. 3 units.

302 [12]. *Differential Equations.*—An introductory course, with applications to geometry, mechanics, physics, and chemistry.

Text-book: To be announced.

Prerequisite: Mathematics 300.

With the consent of the Department, Mathematics 300 and 302 may be taken concurrently.

Three hours a week. 3 units.

306. *Topics in Algebra and Geometry.*—A discussion of the number systems of elementary algebra, and a critical examination of the axioms of elementary geometry. The course should be of interest to prospective teachers of high school mathematics.

Text-book: Robinson, *Foundations of Geometry,* University of Toronto.

Prerequisite: Mathematics 200.

Three hours a week. 3 units.

307. *Elementary Number Theory.*—Properties of integers and primes, diophantine equations, quadratic residues, quadratic forms, special problems.

Text-book: Uspensky and Heaslet, *Elementary Number Theory,* McGraw-Hill.

Prerequisite: Mathematics 200.

Three hours a week. 3 units.

FOR THIRD YEAR HONOURS STUDENTS ONLY

At least Second Class standing in each of Mathematics 200 and 202 is prerequisite to the following courses:

320. *Differential Calculus.*—The real number system, sequences, series; derivatives of functions of one and several variables, implicit functions; applications to the differential geometry of curves and surfaces.

Text-books: Hyslop, *Infinite Series,* Oliver and Boyd; Sherwood and Taylor, *Calculus,* revised edition, Prentice-Hall.

Two lectures and one problem period a week. 2 units.

321. *Integral Calculus and Differential Equations.*—Definition and properties of the single and multiple Riemann integral; systematic integration; line and surface integrals; elementary differential equations, with various applications.

Text-books: Gillespie, *Integration,* Oliver and Boyd; Ince, *Integration of Ordinary Differential Equations,* Oliver and Boyd.

Three hours a week. 3 units.

322. *Algebra and Geometry.*—An introduction to n-dimensional vector spaces; linear systems, matrices, and determinants, matric algebra; quadratic forms, with applications to conics and quadrics.

Three hours a week. 3 units.

PRIMARILY FOR FOURTH YEAR STUDENTS

For Honours students in Mathematics or in Mathematics combined with another subject, at least Second Class standing in each of Mathematics 320, 321, and 322 is prerequisite to each of the following courses. Other students may be admitted to Mathematics 401, 402, and 405 only with the consent of the Department.

400 [15]. *Modern Algebra.*—The number systems of algebra and analysis. An introduction to groups, fields, linear vector spaces. Various applications.

Text-book: Birkhoff and MacLane, *A Survey of Modern Algebra,* Macmillan.

References: MacDuffee, *Introduction to Abstract Algebra,* Wiley; Albert, *Modern Higher Algebra,* University of Chicago.

Two hours a week. 2 units.

401 [16]. *Analysis.*—Applications of power series; Fourier series; implicit functions; introduction to the theory of functions of a complex variable.

Text-book: Phillips, *Functions of a Complex Variable,* Oliver and Boyd.

References: de la Vallée Poussin, *Cours d'Analyse,* Volumes I and II, Dover Publications.

Three hours a week. 3 units.

402 [17]. *Theory and Applications of Differential Equations.*—A course covering existence theorems, systems of ordinary equations, interpolation and numerical integration, symbolic methods, the classical second order equations, partial differential equations of the first and second order, with various applications to physics.

Text-book: Ford, *Differential Equations,* McGraw-Hill.

Three hours a week. 3 units.

403 [19]. *Projective Geometry.*—A systematic development of the geometry of the projective plane by analytic methods.

Two hours a week. 2 units.

405. *Mathematical Statistics.* — A mathematical introduction to statistical analysis, with emphasis on sampling theory and the testing of statistical hypotheses. Applications to problems in the sciences.

Text-book: Hoel, *Introduction to Mathematical Statistics,* Wiley.

Prerequisites: Mathematics 300, or 320 and 321.

Three hours a week. 3 units.

440 [18]. *Honours Seminar.*—Fourth Year Honours students in Mathematics or in Mathematics combined with a subject other than Physics are required to take this course.

1 unit.

441. *Honours Seminar.*—Fourth Year Honours students in Physics and Mathematics are required to take this course.

1 unit.

COURSES FOR GRADUATE STUDENTS

It is hoped to offer four of the following courses in 1949-50. Students should consult the Department for further information.

501 [21]. *Theory of Functions of a Real Variable.*
502 [22]. *Theory of Functions of a Complex Variable.*
503 [23]. *Differential Geometery.*
504 [24]. *Projective Geometry.*
505 [25]. *Topics in Applied Mathematics.*
506 [26]. *Advanced Differential Equations.*

507 [27]. *Theory of Numbers and Algebraic Numbers.*
508 [28]. *Theory of Rings.*
509 [29]. *Modern Algebra.*
511 [31]. *Topology.*
512 [32]. *Theory of Groups.*

Department of Music

105. *The Theory of Music I.*—A study of the beginning of harmony up to the 17th century, with ear training and early musical history.

Prerequisite: University Entrance Music or its equivalent.

Three hours a week. Mrs. Jean Coulthard Adams. 3 units.

205. *The Theory of Music II.*—A study of 18th and 19th century harmony and counterpoint, with ear training and musical history of the Romantic period.

Prerequisite: Music 105.

Three hours a week. Mrs. Jean Coulthard Adams. 3 units.

300. *Music Appreciation.*—How to listen to music; analysis of structure and form.

Three hours a week. Mr. Harry Adaskin. 3 units.

305. *The Theory of Music III.*—A study of 20th century harmony and counterpoint. The beginnings of orchestration, and early 20th century musical history.

Prerequisite: Music 205.

Three hours a week. 3 units.

Department of Philosophy and Psychology
Philosophy

Courses numbered 300-500 are not open to Second Year students. Honours and graduate students in Philosophy may count Anthropology 300 and Slavonic Studies 310 as courses in Philosophy.

For Honours courses in Philosophy and Psychology, see pages 135, 136, 142, 143.

100 [1]. *Introduction to Philosophy.*—A systematic study of the important problems of philosophy with particular emphasis upon proposed solutions relevant to problems of today.

Text-book: To be announced.

Three hours a week. Mr. Savery. 3 units.

202 [8]. *Logic.*—A general course in the fundamental problems of logic and scientific method emphasizing the application of the principle of correct thinking.

Text-book: To be announced.

Three hours a week. Mr. Savery. 3 units.

205. *General History of Philosophy.*—A general survey of the history of philosophy from the Greeks to the present day. This course is intended primarily for general course students. Students who have taken Philosophy 100 may not enroll for this course without permission of the instructor.

Text-books: To be announced.

Three hours a week. Mr. MacDonald. 3 units.

210 [2]. *Ancient Philosophy.*—Western philosophic thought from Thales to St. Augustine, with the principal stress on the works of Plato and Aristotle.

Text-books: To be announced.

Prerequisite: Philosophy 100 or 205 or equivalent.

Three hours a week. Mr. Maslow. 3 units.

302 [6]. *Philosophy of Values.*—The study of the development of ethical and aesthetic thought, followed by a systematic discussion of the fundamental problems of ethics and aesthetics.

Text-books: To be announced.

Three hours a week. Mr. Maslow. 3 units.

304 [9]. *Social Philosophy.*—A discussion of social ideals. An evaluation of present social institutions and processes in terms of the democratic ideal.

Text-books: To be announced.

Three hours a week. Mr. Savery. 3 units.

305. *Recent Philosophy.*—A course dealing with the system of realism, idealism, pragmatism, together with an introduction to the basic ideas of contemporary movements such as those of phenomenology, logical positivism, semantics and existentialism. This course is primarily designed to follow Philosophy 205.

Text-book: To be announced.

Prerequisite: Philosophy 100 or 205 or equivalent.

Three hours a week. Mr. MacDonald. 3 units.

310 [3]. *Mediaeval and Early Modern Philosophy.*—A course tracing briefly the history of mediaeval thought from St. Augustine

to the Renaissance and more intensively the rise of modern science, the resulting effect on general European thought, and the philosophical developments of the seventeenth and eighteenth centuries.

Text-books: To be announced.

Prerequisite: Philosophy 205 or 210 or equivalent.

Three hours a week. Mr. MacDonald. 3 units.

402 [10]. *Symbolic Logic and Semantics.*—Introduction to the elements of symbolic logic and to the general theory of signs.

Text-book: To be announced.

Prerequisite: Philosophy 202 or its equivalent.

Three hours a week. Mr. Maslow. 3 units.

410 [4]. *Modern Philosophy.*—Intensive study of Kant's *Critique of Pure Reason,* followed by a general critical survey of the philosophy of Kant and the major philosophers of the nineteenth century.

Text-books: To be announced.

Prerequisite: Philosophy 310 or its equivalent.

Three hours a week. Mr. Maslow. 3 units.

415 [5]. *Contemporary Philosophy.*—A discussion of the major schools and problems of philosophy of the present century.

Selected readings.

Prerequisites: Philosophy 100, and one of Philosophy 205, 310, 410, or equivalent.

Three hours a week. Mr. Savery. 3 units.

500. *Philosophy Seminar.*—A course in selected problems in metaphysics and epistemology as they present themselves at the present time, together with an examination of the historical background of these problems. Students will be expected to prepare and present papers for class discussion. Open to graduate and Honours students.

Text-book: To be announced.

Three hours a week. Mr. MacDonald. 3 units.

Psychology

Psychology 100 is a prerequisite for all courses in Psychology numbered 200-500.

Courses numbered 300-500 are not open to Second Year students. Honours and graduate students in Psychology having the required prerequisites may count Biology 304, Education 530, and Anthropology 300 as courses in Psychology.

100 [A]. *Introductory Psychology.*—A scientific and practical study of the basic forms of human thinking, emotion, and activity.

Text-book: Ruch, *Psychology and Life,* third edition, Scott, Foresman.

References: Dashiell, *Fundamentals of General Psychology,* Houghton Mifflin; Munn, *Psychology,* Houghton Mifflin.

Three hours a week. Mr. Chant, Mr. Morsh, and Mr. MacKay. 3 units.

200 [2]. *Experimental Psychology.*—An introduction to the application of scientific method to the study of human behaviour and experience. The experimental, genetic, and case history methods; the performance of individual and group laboratory studies to illustrate these methods; laboratory technique; elementary statistics.

Manual: Psychology 200 Laboratory Manual.

References: Andrews, *Methods of Psychology,* Wiley; Smith, *Statistical Methods for Psychology and Education,* Rinehart.

Two lectures and two hours laboratory a week. Mr. Belyea. 3 units.

201 [3]. *Social Psychology.*—A study of social life including personality development, motivation, beliefs and attitudes, language, institutional behaviour, leadership, propaganada, freedom and control, major social problems.

Text-book: Krech and Crutchfield, *Theory and Problems of Social Psychology,* McGraw-Hill.

Reference: Newcomb and Hartley, *Readings in Social Psychology,* Holt.

Three hours a week. Mr. Black. 3 units.

202 [4]. *Psychology of Adjustment.*—Origins and modification of behaviour, varieties of adjustive behaviour, mental hygiene.

Text-book: Shaffer, *The Psychology of Adjustment,* Houghton Mifflin.

Three hours a week. Mr. Morsh. 3 units.

300 [7]. *Applied Psychology.*—The application of psychological principles to problems of business and industry. Organization of personnel department; scientific selection, training, and development of personnel; human relations.

Text-book: To be announced.

Three hours a week. Mr. Fleury. 3 units.

301 [9]. *Psychology of Childhood and Adolescence.*—Points of view and methods of study of psychological development during childhood and adolescence. The development process in terms of motor, intellectual, emotional, social, and language development. Implications for the control of behaviour are dealt with as they grow out of this study.

References: Gesell and Ilg, *Infant and Child in the Culture of Today,* Harper; Blatz, *Understanding the Young Child,* Clark-Irwin; Spock, *Pocket Book of Baby and Child Care,* Pocket Books.

Three hours a week. Mr. Belyea. 3 units.

303. *Clinical Psychology and Counselling.*—Problem behaviour; case studies; interview techniques; use of tests; projective methods; adjustment procedure; referrals.

Text-book: Pennington and Berg, *An Introduction to Clinical Psychology,* Ronald.

Reference: Watson, *Readings in the Clinical Method in Psychology,* Harper.

Three hours a week. Mr. Black. 3 units.

304 [6]. *Statistics.*—Statistical methods applied to psychological investigations.

Work-book: Guilford and Lovell, *Elementary Statistical Exercises,* Sheridan.

References: Garrett, *Statistics in Psychology and Education,* 3rd edition, Longmans; Guilford, *Fundamental Statistics in Psychology and Education,* McGraw-Hill; Walker, *Elementary Statistical Methods,* Holt.

Three hours a week. Mr. Belyea. 3 units.

400 [5]. *Abnormal Psychology.*—The study of abnormal behaviour and mental processes as an approach to the understanding of human nature. The lectures will be supplemented with field trips and case studies. This course is open only to Fourth Year and graduate students.

Text-book: Thorpe and Katz, *The Psychology of Abnormal Behavior,* Ronald.

References: Cameron, *The Psychology of Behavior Disorders,* Houghton Mifflin; Thorpe and Katz, *Workbook in the Psychology of Abnormal Behavior,* Ronald.

Prerequisites: Psychology 202 and at least one of Psychology 301-500.

Three hours a week. Mr. Morsh. 3 units.

403 [10]. *Mental Measurement and Psychological Tests.*—The principles underlying the use of various psychological measuring instruments: intelligence tests, personality inventories, and questionnaires, with practice in administration and scoring.

It is suggested that students should take Psychology 304 before Psychology 403.

Three hours a week. Mr. Pope. 3 units.

404. *Principles of Comparative Psychology.*—Fundamental principles of the behaviour of man and the lower animals examined from the comparative point of view.

Text-book: Maier and Schneirls, *Principals of Animal Psychology,* McGraw-Hill.

References: Moss, Ed., *Comparative Psychology,* Prentice-Hall; Scheer, *Comparative Physiology,* Wiley; Warden, Jenkins and Warner, *Comparative Psychology,* Ronald.

Prerequisites: Psychology 100 and Biology 100.

Three hours a week. Mr. MacKay. 3 units.

PRIMARILY FOR GRADUATE STUDENTS

The following courses are designed for graduate students but are open to a limited number of Fourth Year honours students by permission of the Department.

500 [20]. *History of Psychology Seminar.*—Reports and discussions will be based on assigned readings and research.

Three hours a week. Mr. MacKay. 3 units.

501. *Advanced Social Psychology.*—Special study of certain aspects of major social problems in the light of psychological findings.

Prerequisites: Psychology 100, 201, and 304.

Three hours a week. Mr. Black. 3 units.

510. *Psychological Research Methods and Procedure.*—A seminar designed to acquaint the graduate student with research methods in psychology; defining a problem; use of the literature; the requirements of scientific method; collection, organization and analysis of data; preparation of papers and thesis; critical study of published research. Students will have the opportunity to present and discuss their own research problems.

Department of Physical Education

PHYSICAL EDUCATION ACTIVITY COURSES

Four units (8 hours a week) of Physical Education activity courses are required of all students during each of the Second, Third, and Fourth Years.

UNIFORMS AND EQUIPMENT

MEN

Major students are required to obtain the following: 1 pair regulation gray trousers, 2 white T shirts, 2 pairs blue shorts, 1 pair football boots, 1 pair white gymnasium or tennis shoes, 1 blue football jersey, 1 pair blue swimming trunks.

In addition the following are suggested: sweat suit, regulation blue dress sweater.

WOMEN

Major students are required to obtain the regulation uniform: tunic, shorts, blouse, sweat suit, white socks, white tennis shoes, dance sandals.

COURSES FOR MEN

NOTE. Courses 210 to 218 inclusive, and any two of 220 to 226 inclusive, are required of all students during the Second and Third Years.

200. *Gymnastics.*—Introductory gymnastics. This course is intended to extend the student's experience with movement and to develop skill in fundamental movements. Free standing exercises (calisthenics), tumbling, and apparatus work will be introduced.
Two hours a week. 1 unit.

210. *Basketball.*—Fundamentals of basketball: passing, dribbling, pivoting, and shooting. Basic drills; team play.
Two hours a week. First Term. ½ unit.

212. *Football.*—Fundamentals of football: blocking, passing, kicking, play in various positions, basic formations.
Two hours a week. 1 unit.

214. *Rugby.*—Basic skills, main rules; emphasis on playing.
Two hours a week. Second Term. ½ unit.

216. *Soccer.*—Basic skills, main rules; emphasis on playing.
Text-book: *Football Association Handbook,* Evans Bros.
Two hours a week. First Term. ½ unit.

218. *Minor Games; Volleyball, Group Games, and Relays.*—Rules, skills, teaching technique, practical teaching.

Two hours a week. Second Term. ½ unit.

220. *Badminton.*—Skills, basic shots, elementary court craft, rules.

Two hours a week. First Term. ½ unit.

222. *Combatives; Boxing and Wrestling.*—Basic techniques and skills of boxing and wrestling; practice in fundamentals.

Two hours a week. Second Term. ½ unit.

224. *Golf.*—Theory of swing, practical application, etiquette, and rules.

Two hours a week. First Term. ½ unit.

226. *Tennis.*—Fundamentals of tennis, basic strokes, court procedure, rules.

Two hours a week. Second Term. ½ unit.

230. *Aquatics.*—Basic fundamentals, swimming skills, including strokes, entries, and personal water safety. Canadian Red Cross Intermediate Swimmers Test.

Text-books: *Canadian Red Cross Swimming Manual; Instructors' Guide.*

One hour a week. ½ unit.

240. *Dance.*—Theory of the dance; elementary folk, elementary modern. Square and ballroom dancing suitable for recreational groups.

One hour a week. ½ unit.

NOTE. P.E. 200, 230, and 240 are required for all Second Year students as well as 2 units chosen from the above courses.

300. *Gymnastics.*—Continuation of P.E. 200. Progression in gymnastic tables, classification of exercises, and mutual instruction in calisthenics. Tumbling and apparatus and vaulting work. Practice teaching in both phases of the work is continued through both terms.

Two hours a week. 1 unit.

310. *Advanced Basketball.*—Team tactics and strategy; coaching and officiating techniques; rules; use and development of material.

Prerequisite: P.E. 210.

Two hours a week. Sec. 1, First Term; Sec. 2, Second Term. ½ unit.

312. *Advanced Football.*—Theory and practice; offensive and defensive tactics; strategy and generalship; early season practice; use and development of material; ethics of the game; rules.

Prerequisite: P.E. 212.

Two hours a week. Second Term. ½ unit.

314. *Advanced Rugby and Soccer.*—Organization, coaching methods, tactics and team strategy, rules and refereeing.

Prerequisite: P.E. 214 and 216.

Two hours a week. First Term. ½ unit.

316. *Grass Hockey and Cricket.*—Rules, playing and coaching techniques, practical teaching.

Two hours a week. First Term. ½ unit.

330. *Aquatics.*—Principles of water safety, functional swimming, springboard diving, water games and sports, officiating, swimming meets, pageants, carnivals, deep water emergency tests, personal safety and rescue methods including beach, pool, lake, ice techniques. Canadian Red Cross Society Swimming Test and Bronze Medallion Royal Life Saving Society.

Text-books: *Canadian Red Cross Swimming Manual and Instructors' Guide, Royal Life Handbook.*

One hour a week. ½ unit.

340. *Dance.*—Recreational dancing—square and ballroom—with emphasis on teaching. Practice and techniques.

Two hours a week. First term. ½ unit.

350. *Track and Field.*—Instruction and practice in the fundamentals of sprinting, middle distance and distance running, high jumping, pole vaulting, and putting the shot.

One hour a week. ½ unit.

NOTE: P.E. 300, 330, and 350 are required of all Third Year students as well as 2 units of any courses in Second or Third Year not already taken.

400. *Gymnastics.*—Continuation of P.E. 300. Review of class teaching, techniques, methods of control, commands, and class formations. Methods of promoting, judging, conducting competitions; demonstration drills, and pyramids.

Two hours a week. First Term. ½ unit.

402. *Advanced Tumbling and Apparatus.*—Single, dual activities; routines and combinations on all pieces of apparatus with special emphasis on beauty of combination, form, and free flowing movement.

Two hours a week. Second Term. ½ unit.

406. *Physical Education Workshop.*—Techniques of teaching, coaching, and officiating will be discussed. Supervised field work will be required.

One lecture or 2 hours of field work a week. ½ unit.

430. *Aquatics.*—Care of facilities, swimming pool, beach, camp water front; health and safety procedures in aquatics. Competitive swimming, coaching, training, and conditioning. Canadian Red Cross Instructors' Test and Award of Merit Royal Life Saving Society.

One hour a week. ½ unit.

450. *Track and Field.*—Instruction and practice in the fundamentals of hurdling, broad jumping, throwing the javelin and discus, relay racing. Organization and conduct of a track and field meet.

One hour a week. ½ unit.

NOTE: P.E. 400, 406, 430, and 450 are required of all students in the Fourth Year as well as 2 units of any courses listed in Second, Third, or Fourth Year not already taken.

TEACHER TRAINING

500. *Methods and Materials in Gymnastics.*—A practical and lecture course dealing specifically with teaching methods and procedures in free standing exercises, apparatus, and tumbling.

One hour a week.

502. *Games, Relays, and Contests.*—A review of game techniques, leadership, and conduct of games of low organization. Relays and contests. Lecture and practical period.

One hour a week.

510. *Team Sports.*—A review of fundamentals, with emphasis on methods of instruction, problems and duties of coaches, including strategy, rules, and umpiring, training, and conditioning.

One hour a week.

550. *Organization and Administration of Health and Physical Education in Junior and Senior High School.*

One hour a week.

COURSES FOR WOMEN

SECOND YEAR

201. *Gymnastics.*—Fundamental exercises to provide a scientific method of conditioning the body; general activities to include elementary jumps, vaults, tumbling. stunts, pyramids; gymnastic nomenclature, gymnastic tables.

Text-book: Christensen and Trap, *Textbook of Gymnastics,* University of London.

Two hours a week. 1 unit.

211. *Team Games.*—Games of low organization; field hockey, volleyball, soccer; fundamental skills and team tactics.

Text-books: *Official Volleyball Guide,* Barnes; *Official Fieldball Guide,* Barnes.

Two hours a week. 1 unit.

221. *Individual Games.*—Tennis, strokes and courts tactics; archery, techniques and shooting.

Text-book: *Official Badminton and Tennis Guide,* Barnes.

One hour a week. ½ unit.

231. *Aquatics.*—Strokes, water skills, water entries; Canadian Red Cross Intermediate Swimmer Test; elementary life-saving skills.

Text-books: *Canadian Red Cross Swimming Manual; Canadian Red Cross Guide for Instructors.*

One hour a week. ½ unit.

241. *Dance.*—Elementary modern dance, fundamental technique, history of dance, musical form and its application to the dance; elementary folk dance, Scandinavian, American, English; ballroom dancing, fox-trot, waltz.

Text-books: Bryans and Madsen, *Scandinavian Dances,* Clarke, Irwin; Henry Ford, *Good Morning;* Jackson, *Dancing for Fun,* University of Toronto; Sharp, *The English Country Dance Book,* Vol. I, Novello and Company.

Two hours a week. 1 unit.

THIRD YEAR

301. *Gymnastics.*—Fundamental exercises; general activities to include intermediate jumps, vaults, tumbling, stunts, pyramids; classification of gymnastic exercises; gymnastic tables.

Two hours a week. 1 unit.

311. *Team Games.*—Field hockey, soccer, volleyball, fundamental skills and team tactics; track and field fundamentals.

Text-book: *Official Volleyball, Soccer, Field Hockey Guides,* Barnes.

One hour a week. 1 unit.

321. *Individual Games.*—Badminton, strokes and court tactics; archery, techniques and shooting.

One hour a week. ½ unit.

331. *Aquatics.*—Strokes, water skills, water entries; Canadian Red Cross Senior Swimmer Test; Bronze Life-Saving Test.

Text-book: *Royal Life-Saving Handbook.*

One hour a week. ½ unit.

341. *Dance.*—Intermediate modern dance, techniques, introduction to group composition; intermediate folk dance, Scandinavian, American, Scottish, European; character dances.

Text-book: *Scottish Country Dance Book,* Anglo-Canadian Music Company.

Two hours a week. 1 unit.

FOURTH YEAR

401. *Gymnastics.*—Fundamental exercises; general activities to include advanced jumps, vaults, tumbling, stunts, pyramids; principles of varying exercises, progression in exercises, the gymnastic lesson, the gymnastic programme, gymnastic tables.

Two hours a week. 1 unit.

411. *Team Games.*—Basketball, field hockey, volleyball, softball, track and field, coaching and officiating.

Two hours a week. 1 unit.

421. *Individual Games.*—Badminton, tennis; stroke fundamentals, strategy, tactics, umpiring; golf; archery.

One hour a week. ½ unit.

431. *Aquatics.*—Strokes, water skills, water entries; the Award of Merit, Royal Life-Saving Test.

One hour a week. ½ unit.

441. *Dance.*—Advanced modern dance, dance composition, production, and stagecraft; advanced folk dance, Scandinavian, English, Scottish, European, Mexican; national dances; character dances; ballroom dancing, fox-trot, waltz, tango.

Two hours a week. 1 unit.

TEACHER TRAINING

501. *Gymnastics and General Activities.*—Fundamental exercises to provide a scientific method of conditioning the body; gymnastic nomenclature, classification of gymnastic exercises, gymnastic tables; general activities to include elementary jumps, tumbling, and stunts.

One hour a week.

511. *Team Games.*—Games of low organization; basketball, volleyball, soccer, fundamental skills, team tactics, coaching and officiating.

One hour a week.

541. *Dance.*—Elementary folk dance, Scandinavian, American, English; ballroom dancing, fox-trot, waltz.

One hour a week.

561. *Organization and Administration.*—The organization and administration of the physical education programme, the intramural programme, methods in teaching gymnastics and general activities, games, dance.

One lecture a week.

COURSES IN THEORY FOR MEN AND WOMEN

260. *History of Physical Education and Recreation.*—A survey of physical education and recreation from the ancient civilizations, with emphasis placed on present day curricula and methods.

Two hours a week. 2 units.

360. *Principles of Physical Education.*—A study of fundamental principles, aims, objectives to formulate the student's professional point of view; a study of competition, its history, basic principles, and psychological aspect and its place in education.

Theory and practice of first aid; standard course to qualify for Instructor's Certificate.

Two hours a week. 2 units.

370. *Anatomy and Kinesiology.*—A study of the anatomy of the various systems of the body with special emphasis on the skeletal muscular system; the application of muscular movements in various physical education activities.

Three hours a week. 3 units.

380. *Physiology.*—Elementary human physiology. This course is the same as Biology 304. See page 169.

Two lectures and two hours laboratory a week. 3 units.

460. *Physical Education Seminar.*—A study of the problems relating to the organization and administration of physical education programmes.

Two hours a week. 2 units.

470. *Health.*—Nutrition, sex education, community health and sanitation, development of health services, mental health, safety.

Two hours a week. 2 units.

471. *Individual Gymnastics, Massage, Athletic Injuries.*—The orthopaedic examination, normal posture, postural faults, causes of postural faults and their correction, the place of individual gymnastics in the physical education programme; the theory and practice of massage; the treatment of athletic injuries.

One hour a week. 1 unit.

Department of Physics

NOTE 1. Students who plan to take only one course in physics, either to meet the calendar requirements for a science or to acquire some knowledge of the modern physical world, are advised to take Physics 103. All who propose to take an honours course in Science, or any professional course, must take either Physics 100 or 101. Home Economics students take 110.

NOTE 2. Physics 203 and 303 are suitable courses for those taking the General Course or Teacher Training.

NOTE 3. For Honours Courses in Physics see pages 135 and 142.

100. *Elementary Physics.*—A study of general college physics suitable for those students who have obtained credit for University Entrance Physics 91 or its equivalent. The course covers the fundamental principles of mechanics, properties of matter, heat, light, sound, electricity, and some of the more recent developments in physics. This course is designed primarily for Honours Science and Engineering students.

Text-book: Stewart, *Physics, A Text-book for Colleges,* Ginn.

Prerequisite: University Entrance Physics 91. Mathematics 100 must precede or be taken concurrently with this course.

Three lectures and two hours laboratory a week. 3 units.

101. *Elementary Physics.*—A study of general college physics for students who have not obtained credit for University Entrance Physics 91 or its equivalent. The course covers the fundamental

principles of mechanics, properties of matter, heat, light, sound, electricity, and some of the more recent developments in physics.

Text-book: Stewart, *Physics, A Text-book for Colleges,* Ginn.

Prerequisite: Mathematics 100 must precede or be taken concurrently with this course.

Three lectures, two hours tutorial, and two hours laboratory a week. 3 units.

103. *A Survey of Physics.*—A course of demonstration lectures in non-mathematical language presenting the fundamental principles of physics so that they can be understood by students who have had no previous training in the subject. The lectures deal with the principles of mechanics, heat, light, sound, electricity and atomic structure, and are supplemented by practical work in the laboratory. The chief aim of the course is to give the minimum acquaintance with physical science to those whose studies will be mainly literary. Students who have received credit for Physics 100 may not take this course.

There are no prerequisites for this course.

Text-book: White, *Classical and Modern Physics,* Van Nostrand.

Reference: Lemon, *From Galileo to Cosmic Rays,* University of Chicago.

Three lectures and two hours laboratory a week. 3 units.

110. *General Physics.*—An elementary course in general physics for students taking courses in the Department of Home Economics. The course will cover mechanics, molecular physics, heat, sound, light, electricity, and modern physics without stressing their mathematical aspect. Topics which are of particular interest in home economics will be given special emphasis. Nursing students may take this course in lieu of Physics 100.

Prerequisite: If Mathematics 91 has not been taken for entrance to the University, Mathematics 90 must precede or be taken concurrently with this course.

Text-book: Avery, *Household Physics,* revised edition, Macmillan.

Three lectures and two hours laboratory a week. 3 units.

200. *Mechanics, Heat and Molecular Physics.*—A study of statics and dynamics of a particle and a rigid body, the laws of gases, molecular theory, temperature, calorimetry, laws of radiation and elementary thermodynamics.

Text-books: Duncan and Starling, *Dynamics,* Macmillan; Allen and Maxwell, *Text-book of Heat,* Macmillan.

Prerequisite: Physics 100 or 101. It is recommended that Mathematics 200 and 202 be taken concurrently with this course.

Three lectures and three hours laboratory a week. 3 units.

This course is intended for students majoring in science.

203. *General Physics.*—This course is designed for General Course students who may wish to take a second course in Physics. It also serves as a prerequisite for Physics 303. It covers selected topics in classical and modern physics which will help the student to acquire a better understanding of the modern physical world.

Candidates for Honours in Physics receive no credit for this course.

Text-book: To be announced.

Reference: Lemon and Ference, *Analytical Experimental Physics,* University of Chicago.

Prerequisite: Physics 100 or 101 or 103; Mathematics 90.

Two lectures and three hours laboratory a week. 3 units.

220. *General Physics.*—An intermediate physics course for students intending to go into the study of medicine, biology, agriculture, or the humanities. In the laboratory special emphasis is placed on physical methods useful in biology and medicine. Honours Physics students receive no credit for this course.

Text-book: Semat, *Fundamentals of Physics,* Rinehart.

Prerequisite: Physics 100.

Three lectures and two hours laboratory a week. 3 units.

PRIMARILY FOR THIRD YEAR STUDENTS

300. *Electricity and Magnetism.*—A study of the fundamentals of magnetism and electricity, including alternating currents and electron physics.

Text-book: Suydam, *Fundamentals of Electricity and Magnetism,* Van Nostrand.

Reference: Starling, *Electricity and Magnetism,* Longmans, Green & Co.

Prerequisite: Physics 100 or 101, and Mathematics 202.

Three lectures and three hours laboratory a week. 3 units.

302. *Introduction to Mathematical Physics.*—An introduction to the application of mathematics to physics. The methods rather than specific subject matter will be stressed. Topics will be selected from forced vibrations, wave motion, elasticity, potential theory, hydrodynamics, heat conduction, and neutron diffusion.

If credit has not been obtained in Mathematics 300 and 302 or 320 and 321 they should be taken concurrently with this course.

References: Houston, *Principles of Mathematical Physics,* McGraw-Hill; Rutherford, *Vector Methods,* Oliver and Boyd.

Two lectures a week. 2 units for students in the Third year, 1 units for others.

303. *Elementary Modern Physics.*—A survey of the fundamental ideas underlying modern physics. The arrangement of the material is designed especially to suit the needs of general science teachers and others who wish to study some of the recent developments in physics. Analytical demonstrations, such as are given, do not involve advanced mathematics. Among the topics treated are electronic phenomena, radio and television, the nature of light and electromagnetic radiation, X-rays, the *quantum* theory, spectroscopy, astrophysics, relativity, radioactivity, cosmic rays, and elementary particles.

Text-book: Brown, *Fundamentals of Modern Physics,* Wiley.

Reference: Hull, *An Elementary Survey of Modern Physics,* Macmillan.

Prerequisites: Physics 100 or 101 or 203.

Two lectures and three hours laboratory a week. 3 units.

304. *Thermodynamics.*—A more advanced discussion of the three fundamental laws of thermodynamics, with applications in physics and chemistry.

Reference: Zemansky, *Heat and Thermodynamics,* McGraw-Hill.

Prerequisites: Mathematics 202, Physics 200.

Two lectures a week. 2 units.

308. *Physical Optics.*—A study of geometrical and physical optics supplemented by laboratory work, covering spectroscopy, aberration theory, optical instruments, optical glass, photography, interference, diffraction, polarization, reflection theory, magneto-optics, electro-optics, and experiments on ether drift.

Text-book: Monk, *Light, Principles and Experiments,* McGraw-Hill.

References: Hardy and Perrin, *The Principles of Optics,* McGraw-Hill; Wood, *Physical Optics,* Macmillan.

Two lectures and three hours laboratory a week. 3 units.

310. *Light.*—A short lecture course for students who have not taken Physics 303. A study of optical instruments, photography, spectroscopy, photometry, thermal radiation, refractometers, interference, diffraction, and polarised light.

Text-book: Noakes, *Text-book of Light,* Macmillan.

References: Hardy and Perrin, *The Principles of Optics,* McGraw-Hill; Gibb, *Optical Methods of Chemical Analysis,* McGraw-Hill.

One lecture a week. 1 unit.

331. *History of Physics.*—A course on the development of physics and of scientific thought for students of science. Honours students in Physics will receive no credit for this course.

Two lectures a week. 2 units.

PRIMARILY FOR FOURTH YEAR STUDENTS

401. *Electricity and Magnetism.* — A course on the theoretical phases of electricity and magnetism, and an introduction to potential theory and to the electromagnetic theory.

Text-book: Slater and Frank, *Electromagnetism,* McGraw-Hill.

References: Harnwell, *Principles of Electricity and Magnetism,* McGraw-Hill; Page and Adams, *Principles of Electricity,* McGraw-Hill.

Two lectures a week. 2 units.

402. *Introduction to Atomic Structure.*—A course of lectures dealing with the various branches of physics which have most directly contributed to the present status of our knowledge of atomic structure. The topics treated include electrical discharges in gases, the discovery and properties of the electron, the photoelectric and thermionic effects, elementary notions of special relativity and wave mechanics, the Bohr-Rutherford model of the atom, atomic and molecular spectra, X-rays, and magnetic and dielectric properties of matter.

Text-book: Richtmyer and Kennard, *Introduction to Modern Physics,* McGraw-Hill.

References: Born, *Atomic Physics,* Blackie; Crowther, *Ions, Electrons and Ionizing Radiations,* Longmans, Green & Co.

Prerequisites: Physics 200 and 300, and Mathematics 300 or 320 and 321.

Two lectures a week. 2 units.

403. *Statistical Theory of Matter.*—A course of lectures giving an exposition of classical and quantum statistics; applications will include black-body radiation, quantum theory of the specific heat, Brownian motion, and some other topics.

References: Glasstone, *Theoretical Chemistry,* Van Nostrand; Lindsay, *Introduction to Physical Statistics,* Wiley.

Two lectures a week. 2 units.

405. *Theory of Elasticity and of Flow.*—A study of the mathematical theory of elasticity, propagation of waves, the fundamentals of hydrodynamics and viscosity, and conduction of heat.

Reference: Joos, *Introduction to Theoretical Physics.*

Prerequisites: Mathematics 300, 302, 303 or 320, 321, 322; Physics 200.

One lecture a week. 1 unit.

406. *Theoretical Mechanics.*—A course in analytic and vector mechanics of a particle and a rigid body. Among the topics treated are central forces, vector fields, D'Alembert's Principle, generalized co-ordinates, and Lagrange's equations of motion. An introduction is given to the principle of Least Action, Hamilton's Principle, canonical transformation, and the Hamilton-Jacobi equation.

Text-books: Page, *Introduction to Theoretical Physics,* Van Nostrand; Whittaker, *Analytical Dynamics,* Cambridge.

If credit has not been obtained in Mathematics 300 and 302 or 320 and 321 they should be taken concurrently with this course.

Two lectures a week. 2 units.

407. *Introduction to Nuclear Physics and Cosmic Rays.*—Development of the concept of the nucleus; mass spectroscopy and binding energy; radioactivity; alpha, beta, and gamma rays; acceleration and detection of charged particles; discovery and properties of the neutron; nuclear reactions and fission; nature of cosmic rays and discovery of mesons.

This course provides a qualitative introduction to nuclear physics. It is intended primarily as a companion course to Physics 402, but may be taken separately.

Text-book: Stranathan, *The Particles of Modern Physics,* Blackiston.

References: Pollard and Davidson, *Applied Nuclear Physics,* Wiley; Cork, *Radioactivity and Nuclear Physics,* Van Nostrand; Crowther, *Ions, Electrons, and Ionizing Radiations,* Longmans, Green & Co.

Prerequisites: Physics 200 and 300, Mathematics 300 or 320 and 321.

One lecture a week. 1 unit.

409. *Experimental Physics.*—An advanced laboratory course covering experiments in radioactivity and nuclear physics, spectroscopy and atomic physics, and electronics. It includes training in high vacuum technique, workshop practice, and elementary glass-blowing. The careful preparation of reports requiring a study of the relevant literature constitutes an essential part of the course..

Text-books: Hoag, *Electron and Nuclear Physics,* Van Nostrand; Strong, *Procedures in Experimental Physics,* Prentice-Hall; Yarwood, *High Vacuum Technique,* Wiley.

Six hours laboratory a week. 2 units.

420. *Biophysics.*—An introduction to the basic problems of biophysics, in particular to the physics of proteins, of cellular phenomena, and the physics of sensations. The theoretical work is closely connected with and supported by laboratory work, which includes diffusion, sedimentation electrophoresis, X-ray diffraction (fibre diagram), electron diffraction and miscroscopy, light polariscopy, radiation measurements, radiation chemistry, etc.

Prerequisite: At least one of Physics 200, 220, 300, and 330.

Two lectures and three hours laboratory a week. 3 units.

PRIMARILY FOR GRADUATE STUDENTS

With the consent of the Head of the Department, Fourth Year students may select one or more units from the following graduate courses.

500. *Elementary Quantum Mechanics.*—An introductory course in quantum mechanics with applications to atomic problems.

References: Schiff, *Quantum Mechanics,* McGraw-Hill; Gurney, *Elementary Quantum Mechanics,* Cambridge.

Prerequisite: Physics 402.

Two lectures a week. 2 units.

501. *Electromagnetic Theory.*—A study of the classical work of Maxwell, Hertz, Lorentz, and others on the subject of electromagnetic radiation, with applications to propagation, guided transmission, and similar topics.

Reference: Stratton, *Electromagnetic Theory,* McGraw-Hill.

One lecture a week. 1 unit.

502. *Theory of Measurements.*—A lecture course on the combination of observations, interpolation formulae, frequency distributions, least squares, correlation coefficients, significance tests, application of statistical methods to quality control.

References: Hoel, *Introduction to Mathematical Statistics,* Wiley; Whittaker and Robinson, *The Calculus of Observations,* Blackie.

One lecture a week. 1 unit.

503. *Electronics.*—An introduction to the theory of electronic circuits in their application to physics. The following topics will be discussed: Rectification, power supplies, regulation, amplification, detection, feed-back, oscillators, saw-tooth generators, pulse techniques; differentiating, integrating and scaling circuits.

References: Terman, *Radio Engineers Handbook,* McGraw-Hill; Reich, *Theory and Applications of Electron Tubes,* McGraw-Hill; Smith, *Radio Designers' Handbook,* The Wireless World.

One lecture a week. 1 unit.

510. *Nuclear Physics.*—A survey of modern developments in nuclear physics, including radioactivity, interactions of various radiations with matter, nuclear reactions, fission, and nuclear properties.

Reference: Rasetti, *Elements of Nuclear Physics,* Prentice-Hall.

Two lectures a week. 2 units.

511. *Magnetism and Dielectrics.*—An introduction to the theory of magnetic and dielectric properties of materials, including classical and modern theory of diamagnetism and paramagnetism, and the special problems associated with the magnetization of ferro-magnetic substances and with ferro-electricity.

Text-book: Stoner, *Magnetism,* Methuen.

References: Van Vleck, *Electric and Magnetic Susceptibilities,* Oxford; Stoner, *Magnetism and Matter,* Methuen; Cady, *Piezo-electricity,* McGraw-Hill.

One lecture a week. 1 unit.

512. *Spectroscopy.*—A study of the excitation, observation, and theory of optical spectra. This includes the origin of atomic and molecular spectra; atomic and molecular energy states; Zeeman, Paschen-Back, and Stark Effects.

Text-books: Herzberg, *Atomic Spectra and Atomic Structure,* Van Nostrand; Herzberg, *Molecular Spectra and Molecular Structure,* Van Nostrand.

References: White, *Introduction to Atomic Spectra,* McGraw-Hill; Sawyer, *Experimental Spectroscopy,* Prentice-Hall; Harrison, et. al., *Practical Spectroscopy,* Prentice-Hall.

Prerequisite: Physics 500.

One lecture a week. 1 unit.

513. *X-Rays and Crystal Structure.*—A study of the production and measurement of X-ray beams and their interaction with matter, the elements of crystal structure, and crystal structure analysis by X-rays, the diffraction of electrons and its application to surface structure, the diffraction of X-ray and electron beams by gases and liquids.

Text-book: W. H. Bragg and W. L. Bragg, *The Crystalline State,* Bell.

Reference: Compton and Allison, *X-Rays in Theory and Experiment,* Macmillan.

One lecture a week. 1 unit.

514. *Special Relativity Theory.*—An introductory course to the theory of special relativity, including relativistic kinematics, dynamics and electromagnetism.

Reference: Bergmann, *Introduction to the Theory of Relativity,* Prentice-Hall.

Prerequisite: Physics 401.

One lecture a week. 1 unit.

515. *Electron Optics.*—A study of electrostatic and magnetic electron optical systems with a consideration of their practical applications in cathode ray and image tubes, electron multipliers and electron microscopes.

Text-book: Gabor, *The Electron Microscope,* Hulton Press.

References: Cosslett, *Electron Optics,* Cambridge University Press; Zworykin and Morton, *Television,* Wiley.

One lecture a week. 1 unit.

516. *Chemical Physics.*—This course is designed for graduate students in physics as well as those in physical chemistry. The topics to be treated will be of the following nature: Electronic and ionic equilibrium between metals and electrolytic solutions, calculations of the dipole moment from the dielectric constant in polar liquids and electron theory of metals with applications to rectification processes, ionic conduction in solids.

References: Gurney, *Ions in Solution,* Cambridge University Press; Mott and Gurney, *Electronic Processes in Ionic Crystals,* Oxford. Further references to articles will be given during the course.

One lecture a week. 1 unit.

520. *Advanced Quantum Mechanics.*—Selected topics such as relativistic quantum mechanics, second quantization, and theory of particles of spin 0 or 1.

References: Dirac, *Quantum Mechanics,* Oxford; Kramers, *Quantentheorie des Elektrons und der Strahlung,* Edwards; Wentzel, *Introduction to the Quantum Theory of Wave Fields,* Interscience.

Prerequisites: Physics 500 and 514.

Two lectures a week. 2 units.

521. *Group Theory Methods in Quantum Mechanics.*—Applications to atomic, molecular and crystal structure. Selection rules.

References: van der Waerden, *Gruppentheoretische Methode in der Quantenmechanik,* Edwards; Wigner, *Gruppentheorie und ihre Anwendung auf die Quantenmechanik der Atomspektren,* Edwards.

Prerequisites: Physics 500 and 512.

One lecture a week. 1 unit.

522. *Advanced Spectroscopy.*—Selected topics in modern spectroscopy including the various methods of measuring nuclear properties; the determination of molecular structure from infra-red, Raman and microwave spectra.

Text-books: Condon and Shortley, *The Theory of Atomic Spectra,* Cambridge; Herzberg, *Infra Red and Raman Spectra,* Van Nostrand.

Perequisite: Physics 512.

Two lectures a week. 2 units.

523. *Advanced Electronics.*—A more advanced treatment of specific problems. The topics discussed will be chosen from the following: noise problems and sensitivity limits, micro-wave techniques, particle accelerators and pulse response of circuits.

Prerequisites: Physics 503 or El. Eng. 465.

One lecture a week. 1 unit.

524. *General Relativity Theory.*

Prerequisite: Physics 514.

One lecture a week. 1 unit.

525. *Physics of the Solid State.*—An exposition will be given of the electronic structure and macroscopic properties of solids on the basis of quantum mechanics.

Reference: Seitz, *The Modern Theory of Solids,* McGraw-Hill.

One lecture a week. 1 unit.

526. *Quantum Theory of Radiation.*—Exposition of the Dirac Theory of radiation. Calculation of cross-sections for processes such as absorption, emission and scattering of photons, and creation and annihilation of positrons.

Reference: Heitler, *The Quantum Theory of Radiation,* Oxford.
Prerequisites: Physics 500, 501 and 514.
One lecture a week. 1 unit.

527. *Theoretical Nuclear Physics.*—Selected topics.
References: Bethe, *Elementary Nuclear Theory,* Wiley; Rosenfeld, *Nuclear Forces,* Interscience.
Perequisites: Physics 500 and 510.
One lecture a week. 1 unit.

528. *Cosmic Rays.*—A course dealing with the results of experimental investigations in the field of cosmic rays and mesons, their theoretical interpretation and significance to nuclear theory.
Reference: Janossy, *Cosmic Rays,* Oxford University Press.
One lecture a week. 1 unit.

531. *Biophysics.*—A discussion of selected topics of biophysics and physical biology, e.g. structure of proteins, bioelectricity, effects of radiations, and physiological tracer technique.
One lecture a week. 1 unit.

532. *Geophysics.*—The course deals with the reduction and interpretation of geophysical observations. It includes the reduction of gravity measurements, the calculation of gravimetric and magnetic fields of type bodies and the propagation and reflection of earth vibrations.
Reference: Heiland, *Geophysical Exploration,* Prentice-Hall.
One lecture a week. 1 unit.

533. *Physical Oceanography.*—A study of the physical properties, circulation and mixing of ocean waters and of the observational methods in use.
Reference: Sverdrup, *The Oceans,* Prentice-Hall.
One lecture a week. 1 unit.

540. *Methods in High School Physics.*—This course is offered primarily for students in the Teacher Training Course and does not

549. Thesis for Master's Degree.

649. Thesis for Ph.D. Degree.

Slavonic Studies

For Honours courses in Slavonic Studies see page 137.

100. *Basic Russian.*
Text-book: Semeonoff, *New Russian Grammar,* Dent. 3 units.

110. *Basic Polish.*

Text-book: Coleman and Patkaniowska, *Polish Grammar.*

3 units.

200. *Russian.*—A second course in the Russian language.

Text-book: Semeonoff, *New Russian Grammar,* Dent.

Mr. Wainman. 3 units.

203. *Russian Reading and Conversation.*—More advanced aspects of Russian morphology, syntax, and composition. Scientific study of Russian phonetics.

Text-book: Semeonoff, *New Russian Grammar,* Dent.

Mimeographed notes will be provided.

Three hours a week. Mr. Sobell. 3 units.

210. *Polish.*—A second course in the Polish language.

Text-book: Coleman and Patkaniowska, *Polish Grammar.*

Three hours a week. Mr. Halpert. 3 units.

300. *Nineteenth and Twentieth Century Russian Literature.*

Texts: Reading in Russian of selected works of Pushkin, Gogol, Tolstoy, Turgenev, Gorky, Blok.

Three hours a week. Mr. Sobell. 3 units.

305. *Economic History and Geography of U.S.S.R. and Eastern Europe.*

Text-book: To be announced.

References: Seton-Watson, *Eastern Europe Between War,* 1945, Macmillan; Mavor, *Economic History of Russia,* 1925; Mirsky, *Social History of Russia,* 1943, Cresset.

Three hours a week. 3 units.

306. *Slavonic Literature in Translation.*—This course will study the literary achievements of the Slavonic peoples, with main stress on the important works of nineteenth and twentieth century Russian writers.

Text-book: Hare, *Russian Literature,* 1947, Methuen.

References: Selected sections from Pushkin, Gogol, Turgenev, Tolstoy, Dostoyevsky, Chekhov, Gorky, Merejkowsky, Bunin, Sholokhov.

Three hours a week. Mr. Wainman. 3 units.

308. *Expansion of Russia.*—A study of the centuries of growth of the Russian Empire and of the transition period of the Revolution and the consolidation of the power of the Communist Party as the ruler of the present day Union of Soviet Socialistic Republics. Nineteenth and twentieth century aspects of Panslavism will constitute an important part of the course.

Text-book: Pares, *History of Russia,* 1945, Knopf.

References: Vernadsky, *History of Russia,* 1929; Skrine, *Expansion of Russia,* 1915, Cambridge; Beazley, Forbes, and Birkett, *Russia from the Varangians to the Bolsheviks,* 1919, Oxford; *Cambridge Modern History,* Vols. XI-XII; Platonov, *History of Russia,* 1929, Macmillan.

Three hours a week. Mr. Raymond. 3 units.

310. *Culture of the Slavonic Peoples.*—Cultural history and ethnography of the Slavonic nations.

Text-books: Pares, *History of Russia,* 1945, Knopf; Rose, *Poland,* 1948, G. Bell & Sons.

References: Mirsky, *Social History of Russia,* Cresset; Prokes, *Histoire Tchechoslovaque,* Orbis (Prague); Schmitt, *Poland,* University of California; Temperley, *History of Serbia,* Bell.

Mr. Sobell. 3 units.

400. *History of Russian Literature.*—The lectures will be delivered in Russian.

References: Pypin, *Istoria Russkoi Literatury;* Polevoi, *Istoria Russkoi Slovesnosti;* Sakulin, *Novaya Literatura,* 1929, Moscow.

Three hours a week. 3 units.

401. *The History of the Russian Language.*

Texts: Mimeographed Russian notes will be provided.

References: Shakhmatov, *Kurs III* (U.B.C. Library mimeographed copy); Sobolevsky, *Letksii po istorii russkogo yazyka,* 4th edition, 1907, Moscow; Obnorsky, *Imennoye sklonyeniye,* 1927, Leningrad.

Three hours a week. Mr. Sobell. 3 units.

402. *Introduction to Comparative Slavonic Philology, Part I.*—Comparative study of morphology and phonetics of Eastern, Western, and Southern Slavonic.

Text: Mimeographed notes will be provided.

References: Meillet, *Le slave commun,* 1924, Paris; Niederle, *Slovanské starozitnosti,* 1925, Prague; Broch, *Ocherk fiziologii*

slavyanskoi rechi, 1910, St. Petersburg; Vondrak, *Vergleichende Slavische Grammatik,* Goettingen.

Three hours a week. 3 units.

(Not given in 1949-50.)

NOTE. Courses 401 and 402 are essential for students wishing to do research work in the field of comparative Slavonic linguistics, philology, and scientific structural analysis in Slavonics.

Department of Social Work

NOTE. The following courses, except Social Work 499, are open only to students who have made application and have been accepted for admission to the Department. Advanced courses normally taken in the Second Year are marked with an asterisk.

Courses in other departments which may be taken for credit by some students in the Second Year are as follows: Anthropology 400 (Cultural Contact and Change), Architecture 466 (Social Aspects of Housing), Architecture 467 (Community Planning), Economics 320 (Public Finance), Geography 407 (Human and Cultural Geography), Psychology 403 (Mental Measurement and Psychological Tests).

499 [1]. *Introduction to Social Work.*—A survey of the various fields and activities within the profession of social work, including the general historical development of these fields in England, the United States, and Canada. The Canadian social services are examined by studies and visits to agencies.

Prerequisite: Fourth Year standing or permission of the Department of Social Work.

Three hours a week. Mrs. Read. 3 units.

501 [2a]. *Social Case Work 1.*—An introductory course including the philosophy of social case work, the types of problems to which case work can make a contribution, and case work methods and technique. Interviewing and recording are emphasized and the use of personal and community resources is presented through analysis of case material.

Prerequisite: Social Work 499.

Three hours a week. First Term. 1½ units.

502 [2b]. *Social Case Work 2.*—A continuation of 501 with more detailed study of cases in the field of child and family welfare, emphasizing social diagnosis and treatment.

Three hours a week. Second Term. 1½ units.

503 [3]. *Public Welfare 1.*—An introductory course in the development of public welfare as demonstrated in the growth of public services to children. Changing concepts of the rights and duties of parents; preservation of family life; children in foster homes; institutional treatment; unmarried parenthood; adoption; the handicapped child; juvenile delinquency; child guidance; child labour; the organization and administration of child welfare services.

Three hours a week. First Term. Mr. Dixon. 1½ units.

504 [4]. *Medical and Psychiatric Information 1.*—The purpose of this course is to provide social workers with effective ways of understanding and working with people who are mentally or physically ill or handicapped. The psychosomatic approach is used in reviewing the diseases and disorders of the mind and the various systems of the body with emphasis on the social worker's application of this knowledge.

Three hours a week. First Term. Miss Johnson and lecturers. 1½ units.

*505 [5]. *Social Case Work 3.*—Discussion of case work material from various fields of practice with emphasis on greater understanding of behaviour and on the development of skill in treatment.

Two hours a week. First Term. 1 unit.

*506. *Social Case Work 4.*—A continuation of 505.

Two hours a week. Second Term. 1 unit.

507 [7]. *Social Group Work 1.*—A study of group work as a process in social work, concepts of social group work, actual methods and techniques of the leader, group work related to other areas of social work practice, to education, and to recreation. Agency programmes in current practice. Group records are used.

Three hours a week. First Term. Miss Thomas. 1½ units.

508. *Medical and Psychiatric Information 2.*—A continuation of Social Work 504.

Three hours a week. Second Term. Miss Johnson and lecturers. 1½ units.

509 [9]. *Beginning Field Work.*—Practice work under supervision in various social agencies.

3 units.

*510 [10]. *Advanced Field Work.*—Supervised practice work during the Second Year required for the Master's degree.

3 units.

511 [11]. *Community Organization.*—A study of the problems of identifying social needs in the community and of developing programmes to meet them. An analysis of the function of co-ordinating agencies in the community and the place of the professional social worker in social planning.

Three hours a week. 1½ units.

512. *Community Resources.*—The observation of, orientation to and use of social, medical, and recreational agencies in the community. A special course designed for students who will be taking a block placement in field work in the January to April term.

Three hours a week. First Term. Miss Thomas. 1½ units.

513. *Public Welfare 2.*—Further treatment of the principles and policies of public welfare. Dominion-Provincial relations affecting public welfare; public assistance; introduction to social security principles; treatment of the adult offender; mental hygiene programmes; public housing policies; vocational rehabilitation services; introduction to principles of public administration and financing of public welfare.

Three hours a week. Second Term. Mr. Dixon. 1½ units.

517. *Social Group Work 2.*—An examination of principles of social group work as carried out in practice, and the study of organizational and administrative problems from the standpoint of the agency and the group worker. Group records are used. This course must be preceded by Social Work 507 and is to be taken only in conjunction with field work in a group work agency or by students with previous group work experience.

Three hours a week. Second Term. Miss Thomas. 1½ units.

518. *Development of Personality.*—This course attempts to give an understanding of the "person as a whole" in his various phases of development. It lays the ground work for an appreciation of the individual pattern of life with its manifest as well as its unconscious motivation, using the psychosomatic and analytic approach.

Three hours a week. First Term. 1½ units.

520 [20]. *Social Research 1.* — The development and special character of research in the social sciences. The research methods relevant to social work; case study, historical method, the social survey, etc. The basic statistical techniques, including practical work. Canadian statistical source materials.

Three hours a week. Second Term. Mr. Marsh. 1½ units.

*540. *Medical and Psychiatric Information 3.* — An advanced course designed for students specializing in casework practice.

Prerequisites: Social Work 504 and 508.

Two hours a week. First Term. 1 unit.

*545 [12]. *Social Work and the Law.*—Principles of law with which the social worker should become familiar; the structure of the court system; problems of judicial administration and law which particularly affect persons with low incomes.

Two hours a week. First Term. 1 unit.

*546. *Administration of Social Agencies.*—The basic principles of administration and organization. A study of the delegation of authority, finance, personnel practices, public relations, office procedures.

Three hours a week. Miss Smith. 1½ units.

559. *Probation Methods.*—Probation, its definition, legal provision and extent in Canada; probation and parole; casework in probation; work of probation officers; pre-sentence reports; historical development of probation, Canada, Britain, United States. Modern principles of penology. A Provincial Department of Corrections.

Two hours a week. First Term. Mr. Stevens. 1 unit.

*560. *Legal Protection of the Child.*—A study of the administration of statutes designed to protect the child from the standpoint of health, education, employment, dependency, and general welfare.

Two hours a week. Second Term. 1 unit.

*563. *Social Group Work 3.*—An advanced study of supervisory and administrative aspects of group work. The selection, training, and supervision of the volunteer and of other non-professional workers.

Three hours a week. First Term. Miss Thomas. 1½ units.

*565. *Methods in Community Organization.*—An advanced course in methods and techniques of community organization.

Two hours a week. One Term. Miss Thomas. 1 unit.

(Not given in 1949-50.)

568. *Public Welfare 3 (Social Insurance).*—The nature and development of social insurance; principles of existing systems; the place of social insurance in a comprehensive social security programme; the function of the social worker in the administration of social insurance. An analysis will be made of existing and proposed schemes

of workmen's compensation, disability insurance, unemployment insurance, health insurance, old age and survivors' insurance, and family allowances.

Three hours a week. Mr. Dixon. 1½ units.

*569. *Seminar in Public Assistance Practice.*—Discussion of case studies from public assistance programmes. Administrative, case work, community aspects.

Two hours a week. One term. 1 unit.

*570. *Seminar in Foster Care Programmes.*—Institutional and foster home care for children.

Two hours a week. One term.

*572. *Behaviour Problems of Children.*—Case studies and discussion of children having difficulties adjusting themselves at home, in the foster home, at school, in the community.

Two hours a week. Second Term. 1 unit.

*573. *Seminar in the Problems of Old Age.*—Discussion of case studies involving problems of assistance, housing, medical care, social relations.

Two hours a week. One term.

*575. *Seminar in Supervision.*—Discussion centering on the psychological factors in the supervisory situation, the educational aspects of supervision, and the handling of evaluations and individual and group conferences.

Three hours a week. Second Term.

*580. *Social Group Work 4.*—A discussion of topics selected by the students to integrate their experiences in class and in field work with their individual philosophies.

Two hours a week. Miss Thomas. 1 unit.

*581. *Seminar in Advanced Case Work.*—A discussion of advanced problems in case work. Administrative and community aspects.

582. *Public Welfare 4.*—The place of public administration in modern society; the development of public administration in Canada. Principles of organization and administration; the function of the executive; organization of a public welfare department on the national, provincial and local levels; personnel administration; function and place of research, budgeting and fiscal administration; administrative supervision; public relations.

Three hours a week. Second Term. Mr. Dixon. 1½ units.

*583. *International Welfare.* — Comparative programmes; international cooperation in social welfare.

1½ units.

*584. *History of Social Welfare.*—A study of the backgrounds of present day social agencies and programmes, particularly the history of the English Poor Laws, how they affected the development of public welfare, and the rise of voluntary agencies and reform movements in Europe, England, and North America.

Three hours a week. Miss Smith. 1½ units.

*585. *Social Research 2.*—The role of research in professional social work. Planning of studies; the analysis of material; the writing of reports. The work will be conducted through both individual consultations and group discussions.

Three hours a week. First and Second Terms. Mr. Marsh. 3 units.

Department of Spanish

For the terms under which Spanish may satisfy the language requirements, see pages 123-5. For Honours Courses in Spanish see pages 137 and 143.

90. *Beginners' Course.*—Grammar, composition, translation, conversation.

Texts: Kasten and Neale-Silva, *Lecturas Escogidas,* Harpers; Brenes and Patterson, *Conversemos,* Crofts; McSpadden, *Spanish Usage for Beginners,* University Bookstore.

Four hours a week. 3 units.

101 [1]. Review of grammar; composition, translation, conversation.

Texts: To be announced.

Three hours a week. 3 units.

201 [2]. Study of modern authors and *Don Quijote,* assigned themes in Spanish, conversation.

Texts: Mitchell, *Intermediate Spanish Composition,* Longmans; Kasten and Neale-Silva, *Lecturas Amenas,* Harpers; Cervantes, *Don Quijote de la Mancha,* Macmillan; Amner-Staubach, *Revista de América, Segunda Serie,* Ginn.

Three hours a week. 3 units.

301. *The Golden Age.*—Spanish literature of the sixteenth and seventeenth centuries.

Texts: To be announced.

Three hours a week. 3 units.

302. *Modern Authors.*—Study of leading representatives of Neo-Classic, Romantic, Realistic, Naturalistic and Modernist trends and the age in which these authors lived.

Text: Pattison, *Representative Spanish Authors,* vol. II, Oxford.

Three hours a week. 3 units.

304. *Advanced Conversation and Composition.*—Practice in pronunciation, conversation, and brief talks; study of model passages from contemporary writers; directed and free composition on aspects of Hispanic life and culture.

Texts: To be announced.

Three hours a week. 3 units.

(Not given in 1949-50.)

320. *Contemporary Spanish Poetry.*—This course will deal mainly with the poetry of Juan Ramón Jiménez, Antonio Machado, Pedro Salinas, Jorge Guillén, Federico García Lorca and Rafael Alberti.

Texts: To be announced.

Three hours a week. 3 units.

401. *The History of the Spanish Language.*

Text-book: Spaulding, *How Spanish Grew,* University of California.

Three hours a week. 3 units.

(Not given in 1949-50.)

402. *Cervantes, Don Quijote.*—Reading and interpretation of the *Quijote,* with lectures and special reports.

Text: Cervantes, *El Ingenioso Hidalgo Don Quijote de la Mancha,* Calleja.

Three hours a week. 3 units.

403. *Commercial Spanish.*

Texts: To be announced.

Three hours a week. 3 units.

404. *Spanish American Authors.*—Introductory discussion of the history, topography, and climate of Spanish America. Study of representative writers, illustrating Spanish American literature, thought, and life.

Students who have already received credit in Summer School for Spanish 400, *Spanish American Literature,* may not take this course for credit.

Text: Hespelt and others, *An Anthology of Spanish American Literature,* Crofts.

Three hours a week. 3 units.

(Not given in 1949-50.)

412. *Cervantes in English.*—Reading and interpretation of *Don Quixote* for students who do not read Spanish.

Not open to students enrolled in Spanish 402.

Text: Cervantes, *Don Quixote,* trans. Motteux-Ozell, Modern Library.

One hour a week. 1 unit.

501. *Directed Studies.*—In special cases and with the approval of the Department a student in attendance may carry on directed studies to supplement another course in the Department. 3 units.

Department of Zoology

Biology 100 is prerequisite to all courses in Zoology.

For Honours courses in Zoology see page 137.

Students majoring or taking Honours in Zoology may take Biology 330, 400, 431, Agronomy 421, Mathematics 405, and Geology 406 in fulfilment of credit requirements upon the approval of the Head of the Department of Zoology. As a prerequisite for Geology 406, a reading course in historical geology may be substituted for Geology 201 and 202 and may be taken concurrently with Geology 406.

The attention of students is called to the possibility of specialization in certain fields of Applied Zoology. Students desiring to enter any of the following fields should consult with the Head of the Department.

FISHERIES

Students desiring training in various fields related to Fisheries may obtain instruction by a judicious selection of courses offered in various departments of the University. The following programmes are now available and special graduate courses in Fisheries and Fisheries Technology may be arranged to suit the needs of certain students. Those interested may obtain advice from Mr. Hoar.

a. *Biological Research.*—Students are advised to take the Honours course in Zoology followed by graduate work leading to the Master's degree. Pertinent courses are: Zoology 307, 403, 404, 406, 501, 504, 508, Agronomy 421, Botany 411, Mathematics 405.

b. *Commerce.*—Students in Commerce may elect a Fisheries Option during their Fourth and Fifth Years (see page 147).

c. *Food Technology.*—Students may take the course in Food Technology in the Faculty of Agriculture and choose courses in Zoology as electives. These courses may include Zoology 200, 307, 403, 405, 411. The programme will provide training for positions in fisheries food technology either with the industry or the government fisheries experimental stations.

WILDLIFE MANAGEMENT

Courses of study can be followed that permit a student to enter this field of applied Zoology either through the B.A. degree or the B.S.F. degree. In both instances the Master's degree is essential and students should not attempt to enter the field unless they can meet the academic requirements for it.

The course of study in Arts and Science begins in the Second Year and is predicated upon a First Year course including Biology 100, Chemistry 100 or 105 and a language. For details of the course of study in Forestry see under *Applied Science.*

ECOMONIC ENTOMOLOGY

A student may specialize in one of the following fields:

a. *Agricultural Entomology.*—A suitable training may be gained within either the B.A. Honours course or the B.S.A. Honours. Students in the B.A. course who have not had general farming experience should include as prerequisites, Animal Husbandry 215, Agronomy 202, Horticulture 213 and 217. Students in the B.S.A. course who intend to major in Entomology must have passed Zoology 200. Zoology 302, 305, 401 and 404 should be included in the course of study.

Students entering these fields must be prepared to continue to at least the Master's degree at this or another University.

b. *Food Technology.*—Students in the Food Technology programme in the Agricture Faculty who will come in contact with insects of field and vegetable crops and pests of stored products are advised to take Zoology 302 and 305; Zoology 200 is not prerequisite in this instance.

c. *Forest Entomology.*—Students in Applied Science studying for the B.S.F. degree, or Honours students in Zoology may elect to specialize in forest entomology. Minimum requirements are as follows:

B.S.F. students: Zoology 200, 302, 308, 402; Zoology Honours students: Zoology 302, 306, 308, 400, 402, 404, 408; Biology 330; Chemistry 300; Forestry 160, 350, 360.

Students expecting to gain permanent employment in this field must be prepared to proceed to at least the Master's degree.

200 [1]. *General Zoology.*—A course in the structure, classification, life histories, and biology of animals.

This course is prerequisite to other courses in Zoology except in the case of students in Agriculture and Forestry who wish to take courses in entomology but do not intend to major in it.

Text-book: Storer, *General Zoology,* McGraw-Hill.

References: Hegner, *College Zoology,* Macmillan; Buchsbaum, *Animals Without Backbones,* University of Chicago; Romer, *Man and the Vertebrates,* University of Chicago.

Two lectures and three hours laboratory a week. Mr. Adams.
3 units.

300 [2]. *Comparative Anatomy of Vertebrates.*—The phylogeny and comparative anatomy of the vertebrates and protochordates; the dissection of representative forms.

Text-book: Hyman, *Comparative Vertebrate Anatomy,* University of Chicago.

One lecture and four hours laboratory a week. Mr. Cowan.
3 units.

301 [3]. *Invertebrate Zoology.*—A detailed course on the anatomy, taxonomy, and life histories of the invertebrates with special reference to marine forms.

Text-book: Parker and Haswell, *A Textbook of Zoology,* Vol. 1, 6th edition, Macmillan.

References: Hyman, *The Invertebrates,* McGraw-Hill; Borradaile, *The Invertebrata,* Cambridge; Pratt, *Manual of the Common Invertebrate Animals,* Blakiston; Ward and Whipple, *Freshwater Biology,* Wiley.

Two lectures and three hours laboratory a week. Mr. Clemens.
3 units.

302 [4]. *Introduction to Entomology.*—Morphology, classification, life histories, and interrelation of insects; determination of common forms.

A collection of at least one hundred insects representative of all common orders must be made before starting this course. Leaflets describing the making of such collections should be obtained from the office of the Department of Zoology.

Students in Agriculture who intend to major in Entomology must have passed Zoology 200.

This course is prerequisite to all other courses in Entomology except Zoology 308 and 359.

Text-book: Matheson, *Entomology for Introductory Courses,* Comstock.

Laboratory Manual: Matheson, *A Laboratory Guide to Entomology,,* Comstock.

References: Essig, *College Entomology,* Macmillan; Comstock, *Introduction to Entomology,* Comstock.

Two lectures and three hours laboratory a week. Mr. Spencer.
3 units.

303 [5]. *Histology.*—The tissues and miscroscopic anatomy of animals with especial reference to mammals, including man. Methods in histology, fixing, embedding, sectioning, and staining.

Text-book: Clark, *The Tissues of the Body,* 2nd edition, Oxford.

References: Maximov and Bloom, *Text-book of Histology,* 5th edition, Saunders; Elwyn and Strong, *Bailey's Text-book of Histology,* 8th edition, Wood; Bremer and Weatherford, *A Text-book of Histology,* 6th edition, Blakiston.

Two lectures and three hours laboratory a week. Mr. Nicol.
3 units.

304 [6]. *Vertebrate Embryology.* — The principles of chordate development.

Text-book: Huettner, *Comparative Embryology of the Vertebrates,* latest edition, Macmillan.

References: Wieman, *An Introduction to Vertebrate Embryology,* McGraw-Hill; Shumway, *Introduction to Vertebrate Embryology,* 4th edition, Wiley.

Laboratory manual: Adamstone and Shumway, *A Laboratory Manual of Vertebrate Embryology,* Wiley.

Two lectures and three hours laboratory a week. Mr. Nicol.
3 units.

305 [7]. *Economic Entomology.*—A study of the relation of insects to man, his crops, and domestic animals; bionomics and control of economic forms; natural control.

Students taking this course must have a collection of at least fifty species of insects of economic importance.

Text-book: Metcalf and Flint, *Destructive and Useful Insects,* 2nd edition, McGraw-Hill.

References: Wardle and Buckle, *The Principles of Insect Control,* Manchester University; Wardle, *The Problems of Applied Entomology,* Manchester University; current literature.

Two lectures and four hours laboratory a week. Second Term. Mr. Spencer. 2 units.

306 [11]. *Biology of the Vertebrates.*—The mammals, birds, reptiles, amphibians, and fishes, chiefly of British Columbia; identification of species, observational methods of study of behaviour and habitat relations; systematics, distribution, and speciation; methods of preservation for museum study. Field work will be emphasized.

References: Allen, *Birds and Their Attributes,* Marshall Jones; Hamilton, *American Mammals,* McGraw-Hill; Munro and Cowan, *The Bird Fauna of British Columbia,* King's Printer, Victoria.

Laboratory Manual: Pettingill, *A Laboratory and Field Manual of Ornithology,* Burgess.

One lecture and four hours laboratory a week. Mr. Cowan. 3 units.

307 [12]. *Biology of Fishes.*—Classification, identification, life histories, and ecology of fishes with special reference to British Columbia species; problems in fish culture.

Text-book: Clemens and Wilby, *Fishes of the Pacific Coast of Canada,* University of Toronto Press; Carl and Clemens, *The Freshwater Fishes of British Columbia,* King's Printer, Victoria.

References: Jordan and Evermann, *The Fishes of North and Middle America;* Jordan, *A Guide to the Study of Fishes,* Stanford; Norman, *A History of Fishes,* Benn.

Two lectures and three hours laboratory a week. Mr. Hoar. 3 units.

308. *General Forest Entomology.*—Insects in relation to forest establishment, production and utilization: types of damage and resultant losses, recognition of important species throughout life stages, insect outbreaks and their characteristics, appraisal of hazard to forest, natural control, applied control, salvage problems.

References: Doane, Van Dyke, Chamberlain and Burke, *Forest Insects,* McGraw-Hill; Keen, *Insect Enemies of Western Forests,* U.S. Department of Agriculture, Misc. Publ. No. 273; Graham, *Principles of Forest Entomology,* 2nd edition, McGraw-Hill.

Two lectures and two hours laboratory a week. Mr. Graham. 3 units.

400. *History and General Principles of Biology.*—Seminar based on assigned readings which will include the literature dealing with the most recent advances in the various fields of biology.

References: Locy, *Biology and its Makers,* Holt; Nordenskiold, *The History of Biology,* Knopf; selected current literature.

One hour of seminar throughout the year. Mr. Clemens. 2 units.

401 [9]. *Practical Entomology.*—Habitat studies of local representatives of all insect orders; collecting, preserving, mounting, dissecting, and sectioning equipment and technique; clearing methods; meteorological instruments and records; rearing methods and equipment; elements of insect photography. Students will rear certain insects under natural and controlled conditions.

References: Peterson, *Manual of Entomological Equipment and Methods,* Parts I and II, Edwards; Kingsbury and Johannsen, *Histological Technique,* Wiley; *The Meteorological Observer's Handbook,* 1939, H.M. Stationery Office; *Culture Methods for Invertebrate Animals,* Comstock; Shelford, *Laboratory and Field Ecology,* Williams and Wilkins.

Five hours a week. First Term. Mr. Spencer. 2 units.

402. *Advanced Forest Entomology.*—Forest insect problems from the point of view of organizing and undertaking projects: population-sampling techniques for assessing importance of natural control agents, procedures in forecasting hazard, procedures in planning and directing chemical control of defoliators; bark-beetle control; forest management in insect control; organization and analysis of data.

Prerequisite: Zoology 302 and 308.

References: As for Zoology 308, together with current literature.

Two lectures and two hours laboratory a week. Mr. Graham. 3 units.

403. *Fisheries Economics and Management.*—The Canadian fishing industry and research problems related to it; populations of important food fishes and factors affecting them, including varying degrees of fishing intensity, mortality rates, etc. Students are required to take Agronomy 421 or Mathematics 405 in preparation for this course unless they have already had training in elementary statistical procedures.

Two lectures and one laboratory period a week. Second Term. Mr. Hoar. 1½ units.

404. *Experimental Zoology.*—An analysis of the relations of temperature, pressure, light, humidity, salinity, gases, etc., to animals and animal populations.

Text-book: Heilbrunn, *Outline of General Physiology,* Saunders.

One lecture and four hours laboratory a week. Mr. Hoar. 3 units.

405. *Fisheries Technology.*—A course of seminars, laboratory exercises, and demonstrations in the handling, preparation, and preservation of fish. Practical work is under the direction of the staff of the Pacific Fisheries Experimental Station and is given in the laboratories of this institution. The course is open to students in the Commerce and Fisheries option and may be taken by other students only with the permission of the Head of the Department of Zoology.

Four hours a week. First Term. Mr. Hoar, Mr. Carter. 1½ units.

406. *Parasitology.*—A course dealing with the classification, morphology, and life histories of animal parasites affecting domestic and wild animals and man.

Text-book: Chandler, *Introduction to Parasitology,* 7th edition, Wiley; or Hegner, *Parasitology,* Appleton-Century. Pre-medical students are advised to purchase the former.

Laboratory Manual: Cable, *An Illustrated Laboratory Manual of Parasitology,* Burgess.

Two lectures and three hours laboratory a week. Mr. Adams. 3 units.

407. *Insect Morphology and Taxonomy.*—A course dealing with external morphology, including wing venation and the systematics and taxonomy of insects.

Students must present a collection of at least three hundred insects representing all orders.

Text-book: Snodgrass, *Principles of Insect Morphology,* McGraw-Hill.

References: MacGillivray, *External Insect Anatomy,* Scarab; Comstock, *The Wings of Insects,* Comstock; Ferris, *The Principles of Systematic Entomology,* Stanford; Blatchley, *Coleoptera of Indiana,* Nature Pub. Co.; Brues and Melander, *Classification of Insects,* Harvard; Viereck, *Hymenoptera of Connecticut,* Bull. 22, Geological Survey, Conn.

Five hours a week. Mr. Spencer. 3 units.

408 [20]. *Biological Methods and Procedures.* — A course to acquaint the student with the methods of dealing with research material, use of literature, rules of nomenclature, and preparation and manuscripts and illustrative material.

Two lectures a week. First Term. Mr. Clemens, Mr. Spencer, Mr. Cowan, Mr. Hoar. 1 unit.

Required of all Honours and Graduate students.

409. *Principles of Wildlife Biology and Conservation.*—A course dealing with the biological principles involved in the conservation of the economically important birds and mammals.

Text-book: Leopold, *Game Management,* Scribners.

Prerequisite: Zoology 306.

This course is prerequisite to other courses in Wildlife Biology.

Two hours a week. First Term. Mr. Cowan. 1½ units.

410. *Biology and Management of Upland and Farm Game.*—Identification, biology and ecology of the gallinaceous birds; factors affecting status, management techniques and field study.

Text-book: Trippensee, *Wildlife Management,* McGraw-Hill.

Prerequisites: Zoology 306 and 409.

One lecture and three hours laboratory a week. Second Term. Mr. Hatter. 1½ units.

411. *Technology of Marine Products.*—An advanced course in fisheries food technology. Practical work and special lectures are given at the Pacific Fisheries Experimental Station. The course is open to students in the Food Technology option and may be taken by other students only with the permission of the Head of the Department of Zoology.

Prerequisite: Zoology 405.

Four hours a week. Second Term. Mr. Carter. 1½ units.

412. *Research Problem.*—Honours students in their final year are required to undertake an investigation approved by the Head of the Department. A thesis embodying the results of their work must be presented and will be critically reviewed at an oral examination. 3 units.

COURSES FOR GRADUATE STUDENTS

500. *Special Advanced Course.*—A special advanced course correlated with the work for the major thesis may be arranged for a graduate student upon the approval of the Head of the Department of Zoology. The credit shall not be more than 3 units.

501 [21]. *Limnology and Marine Zoology.*—A course dealing with the physical and chemical conditions in streams, lakes, and seas; life histories and ecology of aquatic organisms; methods of investigation.

References: Welch, *Limnology,* McGraw-Hill; Needham, *Life of Inland Waters,* Comstock; Harvey, *Biological Chemistry and Physics of Sea Water,* Macmillan; Sverdrup, *The Oceans,* Prentice-Hall.

Two lectures and three hours laboratory a week. Mr. Clemens and Mr. Larkin. 3 units.

502 [22]. *Insect Anatomy and Physiology.*—A course dealing with internal anatomy and physiology of insects.

Text-books: Snodgrass, *Principles of Insect Morphology,* McGraw-Hill; Wigglesworth, *The Principles of Insect Physiology,* Dutton.

References: Imms, *Recent Advances in Entomology,* Blakiston; Uvarov, *Insect Nutrition and Metabolism,* Trans. Ent. Soc. of London.

Five hours a week. Mr. Spencer. 3 units.

503. *The Biology and Management of Forest and Wilderness Game.*—A course dealing primarily with the biology, ecology and management of the large ungulates, carnivores and fur bearers of Canada.

Two hours a week. Second Term. Mr. Cowan. 1½ units.

504. *Comparative Physiology.*—Advanced studies in comparative animal physiology, with particular reference to fishes and other cold-blooded vertebrates.

Text-book: To be announced.

Prerequisites: Zoology 404 or Biology 400.

One lecture and four hours laboratory a week. Mr. Hoar. 3 units.

505. *Morphogenesis and Histogenesis.*—An advanced course dealing with the development of animals, the differentiation of tissues and organs, and the tracing of causal factors in embryogeny.

Text-book: Weiss, *Principles of Development,* Holt.

Reference: Huxley and de Beer, *The Elements of Experimental Embryology,* Cambridge.

Lectures, seminar, and laboratory, four hours a week. Mr. Nicol. 3 units.

506. *Advanced Parasitology.*—A course dealing mainly with the parasitic protozoa and helminths. Further work in taxonomy and the identification of parasites, life cycle studies, physiological requirements of parasites, culture methods and other laboratory techniques.

Lectures, seminar and laboratory, five hours a week. Mr. Adams. 3 units.

507. *Graduate Forest Entomology.*—Development of fundamental principles in relation to forest insect problems: factors pertaining to geographical distribution, evolution of new strains, behaviour, migration and abundance of forest insects, and the application of principles in control measures.

Lectures, seminar and laboratory, five hours a week. Mr. Graham. 3 units.

508. *Population Dynamics.*—Characteristics of growth and fluctuation of animal populations, the physico-chemical and biotic factors involved, interspecific relations and mathematical expressions thereof, relation of population fluctuation to evolution.

Some knowledge of statistics is required for this course.

References: Lotka, *Elements of Physical Biology,* Williams and Wilkins; Gause, *The Struggle for Existence,* Williams and Wilkins; Chapman, *Animal Ecology,* McGraw-Hill.

Lectures and seminars, two hours per week. Mr. Larkin. 2 units.

509. *Biology and Management of Waterfowl.*—A course basic to the understanding of North American waterfowl problems: life histories, distribution, food habits and environmental requirements of economically important species; management techniques, problems in conservation and theoretical considerations related thereto; laboratory and field study.

Reference: Kortright, *The Ducks, Geese and Swans of North America,* Wildlife Institute of America.

Prerequisites: Zoology 306 and 409.

One lecture and three hours laboratory a week. First Term. Mr. Hatter. 1½ units.

1949-50

THE

FACULTY

OF

APPLIED SCIENCE

(ARCHITECTURE; ENGINEERING; FORESTRY;
NURSING AND HEALTH)

1949-1950

FACULTY OF APPLIED SCIENCE

FOREWORD

The object of the courses in Applied Science is to train students in exact and fertile thinking, and to give them a sound knowledge of natural laws and of the means of utilizing natural forces and natural products for the benefit of man and the advancement of civilization. Experience shows that such a training is the best yet devised for a large and increasing proportion of the administrative, supervisory, and technical positions. Consequently the undergraduate course is made broad and general rather than narrow and highly specialized.

A course of this kind is not only better suited to the British Columbia conditions that the graduate will encounter in his after-life, but also better for later specialization, for it furnishes a more solid foundation, a better background, a broader outlook, and a more stimulating atmosphere, all necessary if the specialist is to achieve the maximum results of which he is capable.

The First and Second Years in Applied Science are spent in a general course that includes mathematics and all the basic sciences. This not only gives a broad training but enables the student to discover the work for which he has special liking or aptitude and to select more intelligently the subjects in which to specialize during the final two years. During these two years students acquire more detailed knowledge and get practice in applying scientific principles and knowledge, in solving problems, in doing things; and there is also training in economics, law, and industrial management.

During the long period between sessions, the student is required to engage in some industrial or professional work that will afford practical experience not obtainable in the laboratory or field classes, but that is a necessary supplement to academic study.

An engineering degree in the Applied Science Course of the University is accepted by the Association of Professional Engineers of the Province of British Columbia in lieu of two of the six years' practical experience required by the Engineering Act of the Province for registration to practise engineering.

Students in Engineering are advised to register with the Association of Professional Engineers of British Columbia in their Second Year; and to associate themselves with the appropriate engineering societies.

In order to practice forestry in the Province of British Columbia it is necessary to be registered as a member of the Association of British Columbia Foresters. A forestry graduate (B.A.Sc. in Forest Engineering or B.S.F.) from the Faculty of Applied Science, University of British Columbia may become registered after he has completed two years of forestry work and has submitted a satisfactory thesis.

ADMISSION

The general requirements for admission to the University are given on pages 40-42.

For admission to Applied Science it is required that the student shall have completed the First Year in Arts and Science, with credit for the courses shown below, or that he shall have fulfilled these requirements by Senior Matriculation or similar work taken outside the University.

Required subjects are:

English 100 and 101
Mathematics 100
Chemistry 100 or 105
Physics 100* or 101*
Latin 101 or French 101§ or German 90† or Slavonic Studies 100 (Basic Russian)

The passing grade for entrance to Applied Science is 60 per cent. in Mathematics, Chemistry, Physics, and Biology, and 50 per cent. in other subjects.

Students intending to enter Nursing and Health are required to obtain a grade of 60 per cent., in either Biology or Chemistry; for all other subjects a grade of 50 per cent. will be accepted. For detailed requirements for admission to courses in Nursing and Health see pages 317, 322, and 323.

No student with defective standing will be admitted to the First Year in Applied Science.

Students who are considering entering Applied Science are recommended to take the First Year Arts and Science at the University because in the opinion of the Faculty it is highly desirable for students to have a year's experience at the University before entering Applied Science. This experience includes special orientation lectures, contact with Arts students, with Applied Science senior students, with specialists, with college organization, and with university methods, thus providing a period of adjustment in preparation for the difficult and heavy work of the First Year in Applied Science and an opportunity for the student to decide whether or not he is suited for Engineering or Architecture or whether he might prefer to proceed in other courses without loss of time.

Candidates who expect to complete the requisite entrance standing through University or Senior Matriculation supplemental examina-

*Students planning to enter the B.S.F. Course or the Degree Courses in Nursing are required to take Biology 100 instead of Physics 100 or 101.

§Students intending to enter Architecture are advised to take French 101.

†Students intending to enter Applied Science are advised to take German 90.

tions, held in August or September, may apply for admission and their applications will be considered subject to the results of these examinations.

The Faculty reserves the right of selection and admission of the students entering the First Year of the Combined Course and the Third Year of the Double Course in Nursing. Applications for admission to the First Year in Nursing, or to the Third Year in the Double Course in Arts and Science and Nursing, must be made to the Registrar on or before August 15th. Application to the associated hospital school of nursing must be completed before that date.

Students desiring to enrol in the double course for the degrees of B.A. and B.A.Sc., of B.A. and B.Arch., or of B.A. and B.S.F., should consult the section *Double Courses*.

Students intending to enter Applied Science are advised to present Chemistry 91 and Physics 91 for University Entrance, and should, preferably, have completed at least one course in French and one course in German before applying for admission to the Faculty of Applied Science. Architecture students should see footnote page 298.

DEGREES

The degrees offered students in this Faculty are:
Bachelor of Applied Science (B.A.Sc.). (See below.)
Bachelor of Science in Forestry (B.S.F.). (See page 309).
Bachelor of Architecture (B.Arch.). (See page 324).

COURSES LEADING TO THE DEGREE OF B.A.Sc.

The degree of Bachelor of Applied Science is granted on the completion of the work in one of the courses* given below:

1. Agricultural Engineering.
2. Chemical Engineering.
3. Civil Engineering.
4. Electrical Engineering.
5. Forest Engineering.
6. Geological Engineering.
7. Mechanical Engineering.
8. Metallurgical Engineering.
9. Mining Engineering.
10. Engineering Physics.
11. Nursing and Health.

*The curriculum described in the following pages may be changed from time to time as deemed advisable by the Senate.

Double courses are offered in Arts and Science and Applied Science leading to the degrees of B.A. and B.A.Sc. (Engineering), B.A. and B.A.Sc. (Nursing), B.A. and B.Arch., and B.A. and B.S.F. For the regulations governing these, see the section *Double Courses,* at the end of the Calendar.

PRACTICAL WORK OUTSIDE THE UNIVERSITY

In order to master professional subjects it is very important that the work done at the University should be supplemented by practical experience in related work outside. Therefore students are expected to spend their summers in employment that will give such experience.

Before a degree will be granted, a candidate is required to satisfy the department concerned that he has completed a suitable amount of practical work related to his chosen profession. Third and Fourth Year essays (see page 303) should be based, as far as possible, upon the summer work.

Upon approval of the Dean and the head of the department concerned, University credit may be granted for work done outside the University under the immediate supervision of the University staff, during the University session.

Practical work such as shop-work, freehand drawing, mechanical drawing, surveying, etc., done outside the University may be accepted in lieu of laboratory or field work (but not in lieu of lectures) in these subjects, on the recommendation of the head of the department and approval of the Dean. Students seeking exemption as above must make written application to the Dean, accompanied by certificates indicating the character of the work done and the time devoted to it.

OPENING OF SESSION

1. It is essential to the success of the student that he should be in attendance at the opening of the session, for, in order to allow as much time as possible for practical work in the summer, the length of the session has been reduced to the minimum consistent with the ground to be covered. Consequently a student requires the full session to master the work. A mere pass standing is a very unsatisfactory preparation for subsequent work or professional life. Further, from this standpoint, the opening work is the most im-

portant of the whole session for the student, for in it are given the general instructions necessary for the proper approach to the work.

2. The only exception is when the summer employment affords experience necessary for the course in which the student is specializing, and when it will lighten to some extent the work of the session (such as in Geological Survey field work for geological students) and then only provided the nature of this work makes it impossible for the student to reach the University on the opening day. Under these circumstances, if the student furnishes a statement from his employer showing that it was impossible for him to release the student earlier, the Dean may allow the student to enter without penalty as to class attendance. The student must, however, register at the opening of the session in accordance with the regulations in reference to registration.

SUPPLEMENTAL EXAMINATIONS

A student with supplementals must write them off at the regular time for supplemental examinations before the opening of the session, for he will need the entire session for the current year's work. It is also necessary, for a successful year, to have a satisfactory knowledge of the foundational work of the preceding year. No exceptions to the above rule will be granted except as under paragraph 2, above. See regulations 4 and 5, pages 327-328.

COURSES
FIRST AND SECOND YEARS

The work of both years is the same in all curricula, except those in Nursing and Health, Forestry, Forest Engineering, and Architecture.

No student with defective standing will be admitted to First or Second Year Applied Science.

Students registering for First Year Nursing D are required to present an essay as indicated on page 375.

Two activity courses in Physical Education are required of all students in First Year Applied Science, except ex-service personnel and members of military units operating on the campus. For details of requirements see page 149 in the Faculty of Arts and Science.

Students entering Second Year are required to submit an essay of not less than 1,000 words. This should take the form of a scientific report based preferably upon original observations made during the

summer. Any suitable subject, however, may be chosen. Emphasis will be placed upon the precise and accurate use of English, but credit will also be given to subject matter, form, and illustrations. If the essay is not up to the standard of a pass mark in English, it will be returned for re-writing. One copy only is required, which may be retained for future reference by the department most interested. The essays shall be handed in to the Dean not later than November 15th.

FIRST YEAR

Subject	For details see page	First Term		Second Term	
		Lect.	Lab.	Lect.	Lab.
Math. 150 Trigonometry and Solid Geometry	360	2	.....	2	.....
Math. 151 Algebra	360	2	.....	2	.....
Math. 152 Calculus	360	2	.....	2	.....
M.E. 152 Drawing	361	.....	3	.....	3
Physics 150 Mechanics	377	3	3	.....	.....
Physics 151 Heat	377	.....	.....	3	3
*Chem. 150 Qual. Analysis	340	1	3	1	3
C.E. 150 General Engineering	343	1	.....	1	.....
C.E. 155 Graphical Statics	343	.....	2	.....	2
C.E. 160 Engineering Problems	343	.....	4	.....	4
English 150 Composition	350	2	.....	2	.....
†For. 151 Profession of Forestry	350	1	.....	1	.....
†For. 252 Forest Botany	351	2	2	2	2

SECOND YEAR

Subject	For details see page	First Term		Second Term	
		Lect.	Lab.	Lect.	Lab.
Essay	301	.....	.....	.....	.....
Math. 250 Calculus	360	3	.....	3	.....
Math. 251 Geometry	360	2	.....	2	.....
*Chem. 250 Quan. Analysis	340	1	3	1	3
Physics 250 Electricity	377	2	3	2	3
C.E. 250 Field Work and Mapping	343	.....	4	.....	4
C.E. 251 Surveying	343	2	.....	2	.....
C.E. 255 Descriptive Geometry	343	.....	3	.....	3
C.E. 260 Mechanics and Engineering Problems	344	2	3	2	3
Geol. 201 General Geology	358	2	.....	2	.....
Geol. 202 Geology Laboratory	358	.....	2	.....	2
English 250 Technical Writing	350	1	.....	1	.....
‡†For. 151 Profession of Forestry	350	1	.....	1	.....
†For. 250 Silvics	351	.....	.....	1	2
†For. 251 Fire Protection	351	1	2	1	2
†For. 253 Forest Soils	351	1	2	.....	.....

NOTE.—The sum of $3.00 as caution money must be deposited before the opening of the courses in Surveying Field Work.

*Not required for Forest Engineering students.

†For Forest Engineering students only.

‡1949-50 only.

THIRD AND FOURTH YEAR ESSAYS*

Essays are required of all students entering the Third and Fourth Years, except that the essay is optional for students entering Fourth Year Chemical Engineering and is not required of students entering Third or Fourth Year Engineering Physics or Fourth Year Geological Engineering. The following regulations should be observed:

1. The essay shall consist of not less than 2,000 words.
2. Two copies shall be submitted in properly bound form. Only one copy need contain maps and illustrations.
3. The essay shall be a technical description of the engineering aspects of the work on which the student was engaged during the summer, or of any scientific or engineering work with which he is familiar. In the preparation of the essay, advantage may be taken of any source of information, but due acknowledgement must be made of all authorities consulted. It should be suitably illustrated by drawings, sketches, photographs, or specimens.
4. The essays shall be typewritten, or clearly written on paper of substantial quality, standard letter size (8½x11 inches), on one side of the paper only, leaving a clear margin on top and left-hand side. Every student shall submit a duplicate copy of his essay, for the correction of English. If typewritten, essays must be "double-spaced." Students are recommended to examine sample reports to be found in the departments and also copies of Masters' theses in the library.
5. The latest date for receiving graduating essays in the Second Term shall be the last day of lectures, and the corresponding date for the Autumn Congregation shall be October 1st. *All other essays shall be handed in to the Dean not later than November 15th.*
6. In the Final Year, students in Nursing and Health will be required to submit a graduating essay, or to present a seminar, covering an original study based upon experiences gained during the academic and professional years, and developed from topics approved by the Department early in the year. All essays must be handed in, or seminars presented, during the Second Term.

All essays, when handed in, become the property of the department concerned, and are filed for reference. A duplicate copy may be submitted in competition for the students' prizes of the Engineering Institute of Canada, or the Canadian Institute of Mining and Metallurgy.

A maximum of 100 marks is allowed, the value being based on presentation, English, and matter.

*Architecture students should consult page 324.

1. Agricultural Engineering

For courses in First and Second Years see page 302.

THIRD YEAR

Subject	For details see page	First Term		Second Term	
		Lect.	Lab.	Lect.	Lab.
Essay	303	.....	.....	.....	.....
M.E. 352 Mechanical Drawing	361	At end of 2nd Term, 2nd Year			
C.E. 355 Strength of Materials	345	2	3*	2	3*
C.E. 357 Materials Testing	345	.....	3*	.....	3*
C.E. 360 Hydraulics	345	1	2	1	2
M.E. 356 Machine Shop Practice	361	.....	2	.....	2
M.E. 361 Kinematics of Machines	362	3	2	.....	.....
M.E. 371 Applied Thermodynamics	362	2	3	2	3
A.E. 350 Motors	329	2	2	2	2
A.E. 351 Machinery	330	2	3	2	3
Agric. Econ. 300 Farm Management	330	2	2	2	2
Agron. 211 Soils	331	2	2	2	2

FOURTH YEAR

Subject	For details see page	First Term		Second Term	
		Lect.	Lab.	Lect.	Lab.
C.E. 475 Engineering Economics	348	1	1	1	1
E.E. 451 Electrical Circuits	367	2	2	2	2
M.E. 363 Machine Design	362	.....	.....	3	2
M.E. 365 Dynamics of Machines	362	2	.....	2	.....
M.E. 477 Heating and Ventilating	365	2	.....	2	3
Met. 351 Physical Metallurgy	371	2	.....	1	.....
Met. 352 Metallography	371	.....	3*	.....	3*
A.E. 450 Agricultural Buildings	330	2	2	2	2
A.E. 451 Adv. Agric. Engineering	330	2	2	2	2
A.E. 452 Thesis	330	.....	3	.....	3
A.E. 456 Shopwork	330	.....	3*	.....	3*
A.E. 460 Irrigation and Drainage	330	2	3	2	3
A.E. 470 Rural Electrification	330	2	3	.....	.....

*Alternate weeks.

2. Chemical Engineering

For courses in First and Second Years see page 302.

THIRD YEAR

Subject	For details see page	First Term		Second Term	
		Lect.	Lab.	Lect.	Lab.
Essay	303	.....	.....	.....	.....
M.E. 352 Mechanical Drawing	361	At end of 2nd Term, 2nd Year			
Math. 350 Applied Calculus and Differential Equations	361	3	.....	3	.....
Met. 351 Physical Metallurgy	371	2	.....	1	.....
Met. 352 Metallography	371	.....	3*	.....	3*
Chem. 300 Organic	340	3	3	3	3
Chem. 304 Theoretical	340	2	3	2	3
Chem. 350 Introduction to Chemical Engineering	340	3	.....	3	.....
Chem. 351 Industrial Stoichiometry	340	1	2	1	2
Chem. 352 Advanced Quantitative Analysis	341	1	2	1	2
Physics 360 Light	378	1	.....	1	.....
C.E. 355 Strength of Materials	345	2	3*	2	3*
C.E. 357 Materials Testing	345	.....	3*	.....	3*
Summer Reading	340	.....	.....	.....	.....

FOURTH YEAR

Subject	For details see page	First Term		Second Term	
		Lect.	Lab.	Lect.	Lab.
†Essay	303	.....	.....	.....	.....
E.E. 451 Electrical Circuits	367	2	2	2	2
Chem. 407 Physical Chemistry	341	2	3	2	3
Chem. 450 Chemical Engineering Theory	341	3	.....	3	.....
Chem. 451 Chemical Engineering Laboratory and Problems	341	.....	6	.....	6
Chem. 452 Thesis: research *or* designing of chemical engineering equipment	341	.....	6	.....	6
Chem. 458 Electro-chemistry	341	2	3	2	3
Chem. 409 Adv. Organic	340	2	3	2	3

*Alternate weeks.

†Optional.

NOTE. For courses for graduate students see page 342.

3. Civil Engineering

For courses in First and Second Years see page 302.

THIRD YEAR

Subject	For details see page	First Term		Second Term	
		Lect.	Lab.	Lect.	Lab.
Essay	303	.....	.....	.....	.....
C.E. 350 Surveying Field Work	344	At end of 2nd Term, 2nd Year			
C.E. 351 Surveying	344	2	.....	2	.....
C.E. 352 Mapping	344	.....	3*	.....	3*
C.E. 353 Drawing	344	.....	3*	.....	3*
C.E. 355 Strength of Materials	345	2	3*	2	3*
C.E. 356 Materials Testing	345	1	3*	.....	3*
C.E. 361 Hydraulics	345	1	3	1	3
C.E. 365 Foundations	345	2	3	.....	.....
C.E. 366 Earth Pressure	346	.....	.....	2	.....
C.E. 370 Structural Design 1	346	2	3	2	3
C.E. 375 Railways	346	2	.....	2	.....
C.E. 380 Seminar	346	1	.....	1	.....
M.E. 371 Applied Thermodynamics	362	2	3	2	3

FOURTH YEAR

Subject	For details see page	First Term		Second Term	
		Lect.	Lab.	Lect.	Lab.
Essay	303	.....	.....	.....	.....
C.E. 380 Seminar	346	1	.....	1	.....
C.E. 450 Surveying Field Work	346	At end of 2nd Term, 3rd Year			
C.E. 455 Theory of Structures	347	2	6	.....	.....
C.E. 460 Structural Design 2	347	2	3	2	6
C.E. 461 Reinforced Concrete Design	347	2	3	.....	4
C.E. 465 Municipal Engineering	348	2	2	2	2
C.E. 466 Water Power Development	348	.....	.....	2	2
C.E. 470 Highway Engineering	348	2	.....	2	2
C.E. 475 Engineering Economics	348	1	1	1	1
C.E. 476 Law—Contracts	349	1	.....	1	.....
E.E. 451 Electrical Circuits	367	2	2	2	2

*Alternate weeks.

NOTE. The sum of $3.00 as caution money must be deposited before the opening of the course in Surveying Field Work.

For courses for graduate students, see page 349.

4. Electrical Engineering

For courses in First and Second Years see page 302.

THIRD YEAR

Subject	For details see page	First Term		Second Term	
		Lect.	Lab.	Lect.	Lab.
Essay	303	.....	.....	.....	.....
M.E. 352 Mechanical Drawing	361	At end of 2nd Term, 2nd Year			
Math. 350 Differential Equations	361	3	.....	3	.....
C.E. 355 Strength of Materials	345	2	3*	2	3*
C.E. 357 Materials Testing	345	.....	3*	.....	3*
C.E. 360 Hydraulics	345	1	2	1	2
M.E. 358 Machine Shop Practice	362	.....	3*	.....	3*
M.E. 365 Dynamics of Machines	362	2	.....	2	.....
M.E. 375 Applied Thermodynamics	363	3	3	3	3
E.E. 353 D.C. Machines	367	2	.....	1	.....
E.E. 355 A.C. Circuits	367	1	.....	2	.....
E.E. 356 Electrical Engineering Laboratory	367	.....	3	.....	3
E.E. 357 Electronics and Electron Tubes	367	2	2*	2	2*

FOURTH YEAR

Subject	For details see page	First Term		Second Term	
		Lect.	Lab.	Lect.	Lab.
Essay	303	.....	.....	.....	.....
M.E. 467 Mechanical Design	364	2	.....	2	.....
C.E. 475 Engineering Economics	348	1	1	1	1
E.E. 457 Principles of A.C. Machines	368	3	6	3	6
E.E. 459 Electrical Machine Design	368	1	3	1	3
E.E. 461 Illuminating Engineering	368	2	.....	.....	2
E.E. 463 Electric Power Transmission	368	2	2	2	2
E.E. 465 Electrical Communication	369	2	3	2	3
E.E. 467 Instruments and Measurements	369	2	.....	2	.....

*Alternate weeks.

NOTE. For course for graduate students, see page 369.

5. Forest Engineering and Forestry

Forest Engineering

The curriculum for the first two years in *Forest Engineering* is shown on page 302.

THIRD YEAR

Subject	For details see page	First Term		Second Term	
		Lect.	Lab.	Lect.	Lab.
Essay	303	.....	.....	.....	.....
Bot. 303 Dendrology	339	1	2	1	2
C.E. 350 Surveying Field Work	344	At end of 2nd Term, 2nd Year			
C.E. 351 Surveying	344	2	.....	2	.....
C.E. 352 Mapping	344	.....	3*	.....	3*
C.E. 355 Strength of Materials	345	2	3*	2	3*
C.E. 356 Materials Testing	345	1	3*	.....	3*
C.E. 360 Hydraulics	345	1	2	1	2
‡For. 251 Fire Protection	351	1	2	1	2
For. 270 Wood Technology	351	1	2	1	2
For. 350 Silviculture	352	2	2*	2	2*
For. 355 Seeding and Planting	352	1	2*	1	2*
For. 360 Mensuration	352	2	3	2	3
For. 371 General Logging	352	2	.....	2	.....
For. 381 Forest Economics	353	2	.....	2	.....

FOURTH YEAR

Subject	For details see page	First Term		Second Term	
		Lect.	Lab.	Lect.	Lab.
Essay	303	.....	.....	.....	.....
Bot. 467 Forest Pathology	339	2	2	.....	.....
For. 353 Seminar	352	1	.....	1	.....
For. 370 Wood Technology	352	1	3	1	3
For. 380 Forest Policy and Administration	352	2	.....	2	.....
‡For. 381 Forest Economics	353	2	.....	2	.....
†For. 390 Summer Camp	353	.....	.....	.....	.....
For. 462 Forest Finance	353	1	2	1	2
For. 463 Management	353	2	3	2	3
‡For. 371 General Logging	352	2	.....	2	.....
For. 472 Logging Engineering	354	2	3	2	3
For. 473 Milling and Marketing	354	2	4*	2	4*
For. 474 Lumber Grading	354	.....	.....	1	2
For. 475 Forest Products	354	2	4*	2	4*
Zool. 459 Forest Entomology	379	.....	.....	2	2

*Alternate weeks.

‡1949-50 only.

†Between the Third and Fourth Years all Forestry and Forest Engineering students are required to take the four weeks' summer camp at the University Research Forest near Haney. In addition, short field trips are required from time to time throughout the Third and Fourth Years. Fee for summer camp (1949) is $65.00, payable to the Bursar at the time of registration for the camp.

Forestry (B.S.F. Course)

Students proceeding towards the B.S.F. degree are required to take during each academic year, a basic core of essential subjects and a certain number of other courses which they elect. The choice of electives is governed by the particular phase of forestry in which the student is interested. The primary purpose of the B.S.F. course is to provide a strong, well rounded professional forestry training. At the same time, through his choice of electives, the student is given an opportunity to supplement his knowledge of allied sciences pointing towards specialized training. The electives have been arranged so that a student wishing to proceed with graduate studies in a particular phase or specialty can do so without the necessity of having to take, before commencing his graduate programme, a number of prerequisite undergraduate courses. The main phases of technical forestry or allied fields are: *General Forestry* (Management, Administration, Protection, Silviculture), *Forest Business Administration, Forest Pathology, Forest Entomology,* and *Wild Life Management.*

FIRST YEAR

Subject	For details see page	First Term		Second Term	
		Lect.	Lab.	Lect.	Lab.
Bot. 200 General Botany	339	2	2	2	2
Econ. 200 Principles of Economics	350	3	.....	3	.....
English 150 Composition	350	2	.....	2	.....
For. 151 Profession of Forestry	350	1	.....	1	.....
For. 160 Forest Surveying	351	1	3	1	3
Math. 153 Forestry Mathematics	360	3	.....	3	.....
Phys. 100 Elementary Physics	377	3	2	3	2
†ELECTIVES					
Geog. 202 Weather and Climate	358	2	2	2	2
Zool. 200 General Zoology	379	2	3	2	3

†Students must consult the list of electives (page 311) under the different options for the number and subject of electives to be taken in each year.

SECOND YEAR

Subject	For details see page	First Term		Second Term	
		Lect.	Lab.	Lect.	Lab.
Essay	303	.....	.....	.....	.....
Biol. 331 Genetics	339	.....	.....	2	4
Bot. 303 Dendrology	339	1	2	1	2
Bot. 330 Plant Physiology	339	2	4	.....	.....
English 250 Technical Writing	350	1	.....	1	.....
For. 250 Silvics	351	.....	.....	1	2
For. 251 Fire Protection	351	1	2	1	2
For. 253 Forest Soils	351	1	2	.....	.....
For. 260 Surveying and Mapping	351	1	2	1	2
For. 270 Wood Technology	351	1	2	1	2
For. 360 Mensuration	352	2	3	2	3
†ELECTIVES					
Bot. 315 Mycology	339	1	4	1	4
Geol. 201 General Geology	358	2	.....	2	.....
Geol. 202 Laboratory	358	.....	2	.....	2
Zool. 200 General Zoology	379	2	3	2	3
Zool. 300 Comparative Anatomy of Vertebrates	286	1	4	1	4

THIRD YEAR

Subject	For details see page	First Term		Second Term	
		Lect.	Lab.	Lect.	Lab.
Essay	303	.....	.....	.....	.....
Bot. 318 Forest Pathology	339	2	2	2	2
For. 350 Silviculture	352	2	2*	2	2*
For. 353 Seminar	352	1	.....	1	.....
For. 355 Seeding and Planting	352	1	2*	1	2*
For. 370 Wood Technology	352	1	3	1	3
For. 371 General Logging	352	2	.....	2	.....
For. 380 Forest Policy and Administration		2	.....	2	.....
For. 381 Forest Economics	352	2	.....	2	.....
Zool. 308 Forest Entomology	353	2	2	2	2
†ELECTIVES	379				
Bot. 304 Systematics of Vascular Plants	339	1	4	1	4
Comm.559 Accounting and Business Principles	350	2	.....	2	.....
Zool. 306 Biology of the Vertebrates	379	1	4	1	4

*Alternate weeks only.

†Students must consult the list of electives (see page 311) under the different options for the number and subject of electives to be taken in each year.

FOURTH YEAR

Subject	For details see page	First Term		Second Term	
		Lect.	Lab.	Lect.	Lab.
Essay	303	.....	.....	.....	.....
For. 371 General Logging	352	2	.....	2	.....
‡For. 381 Forest Economics	353	2	.....	2	.....
**For. 390 Summer Camp	353	.....	.....	.....	.....
For. 462 Forest Finance	353	1	2	1	2
‡‡For. 463 Management	353	2	3	2	3
For. 473 Milling and Marketing	354	2	4*	2	4*
For. 474 Lumber Grading	354	.....	.....	1	2
For. 475 Forest Products	354	2	4*	2	4*
†ELECTIVES					
Bot. 304 Systematics of Vascular Plants	339	1	4	1	4
Bot. 418 Applied Forest Pathology	339	1	4	1	4
Bot. 420 Forest Ecology and Geography	339	2	2	2	2
Comm. 361 Marketing	349	3	.....	3	.....
Comm.559 Accounting and Business Principles	350	2	.....	2	.....
Comm. 471 Business Finance	349	3	.....	3	.....
Comm. 491 Commercial Law	350	3	.....	3	.....
For. 450 Advanced Silvics and Silviculture	353	2	.....	2	.....
For. 455 Problems in Silvics and Silviculture	353	.....	4	.....	4
For. 460 Advanced Mensuration	353	1	3	1	3
Zool. 200 General Zoology	379	2	3	2	3
Zool. 301 Invertebrate Zoology	379	2	3	2	3
Zool. 302 Introduction to Entomology	379	1	4	1	4
Zool. 402 Advanced Forest Entomology	379	2	2	2	2
Zool. 409 Principles of Wild Life Biology and Conservation	379	2	.....	.....	.....
Zool. 410 Biology and Management of Upland and Farm Game	379	.....	.....	1	2

†ELECTIVES

General Forestry (Management, Administration, Protection, Silviculture).

In the First Year Geography 202; in the Second Year Geology 201 and 202; in the Third Year Botany 304 or Commerce 559; in the Fourth Year nine units or their equivalent, six of which must be chosen from the following courses: Botany 304, 420, Forestry 450, 455, 460, Commerce 559 and three units chosen in consultation with the Department.

*Alternate weeks only.

‡Given in 1949-50 only.

‡‡Not given in 1949-50.

**See note at bottom of page 308.

†Students must consult the list of electives (see page 311) under the different options for the number and subject of electives to be taken in each year.

Forest Business Administration.

In the First Year Geography 202; in the Second Year Geology 201 and 202; in the Third Year Commerce 559; and in the Fourth Year Commerce 361, 471 and 491.

Forest Pathology.

In the First Year Geography 202; in the Second Year Botany 315; in the Third Year Botany 304; in the Fourth Year Botany 418, 420, and Zoology 200.

Forest Entomology.

In the First Year Geography 202; in the Second Year Zoology 200; in the Third Year Botany 304; in the Fourth Year Botany 420, Zoology 302 and 402.

Wild Life Management.

In the First Year Zoology 200; in the Second Year Zoology 300; in the Third Year Zoology 306; in the Fourth Year Botany 304, Zoology 301, 409 and 410.

6. Geological Engineering

For courses in First and Second Years see page 302.

THIRD YEAR

Subject	For details see page	First Term		Second Term	
		Lect.	Lab.	Lect.	Lab.
Essay	303	.....	.....	.....	.....
C.E. 350 Surveying	344	At end of 2nd Term, 2nd Year			
Biol. 100 Introductory Biology	338	2	2	2	2
C.E. 352 Mapping	344	.....	.....	.....	3
C.E. 360 Hydraulics	345	1	2	1	2
Min. 350 Principles of Mining	370	2	.....	2	.....
Met. 350 Chemical Metallurgy	370	2	3	2	3
Met. 351 Physical Metallurgy	371	2	.....	1	.....
M.D. 350 Principles of Mineral Dressing	374	2	3*	2	3*
Geol. 301 Morphological Crystallography	358	2	2	.....	.....
Geol. 302 Mineralogy	358	2	2	2	2
Geol. 304 Structural	358	3	.....	3	.....
Geol. 305 Theoretical and Historical Geology	358	2	.....	2	.....
Geol. 307 Petroleum, Natural Gas and Structural Materials	358	1	.....	1	.....
Geol. 308 Coal	358	1	.....	.....	.....
†Geol. 410 Field Geology	359	.....	.....	.....	2

***Alternate weeks.**
†Includes 10 days' field work after lectures close in the Second Term.
NOTE. For courses for graduate students, see page 359.

FOURTH YEAR

Subject	For details see page	First Term		Second Term	
		Lect.	Lab.	Lect.	Lab.
C.E. 475 Engineering Economics	348	1	1	1	1
Min. 450 Principles of Mining	370	2	.....	2	.....
Geol. 406 Palaeontology	359	2	2	2	2
Geol. 407 Petrography	359	2	4	2	4
Geol. 408 Mineral Deposits	359	3	.....	3	.....
Geol. 409 Mineralography	359	.....	3	.....	3
Geol. 411 Regional Geology	359	3	.....	3	.....
Geol. 412 Geomorphology	359	2	2	2	2
Geol. 420 Thesis	359	.....	4	.....	5
Phys. 461 Geophysics	378	2	.....	2	.....
‡Zool. 200 General Zoology	379	2	2	2	2

7. Mechanical Engineering

For courses in First and Second Years see page 302.

THIRD YEAR

Subject	For details see page	First Term		Second Term	
		Lect.	Lab.	Lect.	Lab.
Essay	303	.....	.....	.....	.....
M.E. 352 Mechanical Drawing	361	At end of 2nd Term, 2nd Year			
Math. 350 Differential Equations	361	3	.....	3	.....
C.E. 355 Strength of Materials	345	2	3*	2	3*
C.E. 357 Materials Testing	345	.....	3*	.....	3*
C.E. 360 Hydraulics	366	1	2	1	2
E.E. 351 Electrical Engineering	361	2	3	2	3
M.E. 356 Machine Shop Practice	362	.....	2	.....	2
M.E. 361 Kinematics of Machines	362	3	2	.....	.....
M.E. 363 Machine Design 1	362	.....	.....	3	2
M.E. 365 Dynamics of Machines	362	2	.....	2	.....
M.E. 373 Applied Thermodynamics	362	3	3	3	3

FOURTH YEAR

Subject	For details see page	First Term		Second Term	
		Lect.	Lab.	Lect.	Lab.
Essay	303	.....	.....	.....	.....
C.E. 475 Engineering Economics	348	1	1	1	1
E.E. 453 A.C. Machines	368	2	3	2	3
Met. 351 Physical Metallurgy	371	2	.....	1	.....
Met. 352 Metallography	371	.....	3*	.....	3*
M.E. 456 Mfg. Processes	363	1	.....	1	.....
M.E. 463 Machine Design 2	363	2	3	2	3
M.E. 465 Applied Mechanics	363	.....	2	2	2
M.E. 471 Prime Movers	364	3	.....	3	.....
M.E. 472 Mechanical Engineering Laboratory	364	.....	3	.....	3
† M.E. 475 Power Plant Design	364	2	3	.....	.....
† M.E. 477 Heating, Ventilating, Air Conditioning and Refrigeration	365	2	.....	2	3
†M.E. 481 Aeronautics	365	3	3	3	3

*Alternate weeks.
‡Optional to Geology 409.
†Students in the Fourth Year must select as an option *either* M.E. 475 and M.E. 477 *or* M.E. 481.
NOTE. For courses for graduate students, see page 365.

8. Metallurgical Engineering

For courses in First and Second Years see page 302.

THIRD YEAR

Subject	For details see page	First Term Lect.	First Term Lab.	Second Term Lect.	Second Term Lab.
Essay	303	.....	.....	.....	.....
M.E. 352 Mechanical Drawing	361	At end of 2nd Term, 2nd Year			
Math, 350 Differential Equations	361	3	.....	3	.....
Geol. 301 Morphological Crystallography	358	2	2	.....	.....
C.E. 355 Strength of Materials	345	2	3*	2	3*
C.E. 357 Materials Testing	345	.....	3*	.....	3*
C.E. 360 Hydraulics	345	1	2	1	2
M.E. 363 Machine Design	362	.....	.....	3	2
M.E. 371 Applied Thermodynamics	362	2	.....	2	.....
Phys. 360 Light	378	1	.....	1	.....
Min. 350 Principles of Mining	370	2	.....	2	.....
M.D. 350 Principles of Mineral Dressing	374	2	3*	2	3*
Met. 350 Chemical Metallurgy	370	2	3	2	3
Met. 351 Physical Metallurgy	371	2	.....	1	.....
Met. 352 Metallography	371	.....	3*	.....	3*
Met. 360 Seminar	371	.....	.....	.....	1

FOURTH YEAR

Subject	For details see page	First Term Lect.	First Term Lab.	Second Term Lect.	Second Term Lab.
Essay	303	.....	.....	.....	.....
E.E. 451 Electrical Circuits	367	2	2	2	2
C.E. 475 Engineering Economics	348	1	1	1	1
Met. 450 Theoretical Metallurgy	371	2	3	2	3
Met. 451 Applied Chemical Metallurgy	371	2	.....	2	.....
Met. 452 Physical Metallurgy	372	2	.....	2	.....
Met. 453 Metallurgical Calculations	372	.....	2	.....	2
Met. 454 Laboratory and Research Methods	372	.....	3	.....	6
Met. 457 Plant Management	373	1	1	1	1
and *one* of the following options:					
MINERAL DRESSING					
M.D. 450 Mineral Dressing	374	2	6*	2	.....
Geol. 409 Mineralography	359	.....	3	.....	3
Chem. 350 Chemical Engineering	340	3	.....	3	.....
CHEMICAL METALLURGY					
M.D. 450 Mineral Dressing	374	2	6*	2	.....
Met. 458 Process Laboratory	373	.....	3	.....	3
Chem. 350 Chemical Engineering	340	3	.....	3	.....
PHYSICAL METALLURGY					
Physics 460 Metallurgical Physics	378	2	.....	2	.....
Met. 456 Metallography	372	.....	3	.....	3
Met. 459 Mechanical Metallurgy	373	2	.....	.....	.....
†M.E. 363 Machine Design 1	362	.....	.....	3	2

*Alternate weeks.
†1949-50 only.
NOTE. For courses for graduate students, see page 378.

9. Mining Engineering

For courses in First and Second Years see page 302.

THIRD YEAR

Subject	For details see page	First Term		Second Term	
		Lect.	Lab.	Lect.	Lab.
Essay	303	.....	.....	.....	.....
C.E. 350 Surveying	344	At end of 2nd Term, 2nd Year			
C.E. 352 Mapping	344	.....	3*	.....	3*
C.E. 355 Strength of Materials	345	2	3*	2	3*
C.E. 357 Materials Testing	345	.....	3*	.....	3*
C.E. 360 Hydraulics	346	1	2	1	2
C.E. 370 Structural Design I	346	2	3	2	3
Geol. 302 Mineralogy	358	2	2	2	2
Geol. 304 Structural Geology	358	3	.....	3	.....
Geol. 308 Coal	358	1	.....	.....	.....
Met. 350 Chemical Metallurgy	370	2	3	2	3
Met. 351 Physical Metallurgy	371	2	.....	1	.....
Met. 360 Seminar	371	.....	.....	.....	1
M.D. 350 Principles of Mineral Dressing	374	2	3*	2	3*
Min. 350 Principles of Mining	370	2	.....	2	.....

FOURTH YEAR

Subject	For details see page	First Term		Second Term	
		Lect.	Lab.	Lect.	Lab.
Essay	303	.....	.....	.....	.....
E.E. 451 Electrical Circuits	367	2	2	2	2
†Geol. 308 Coal	358	1	.....	.....	.....
Geol. 403 Petrology	358	2	.....	2	.....
Geol. 408 Mineral Deposits	359	3	.....	3	.....
M.E. 371 Applied Thermodynamics	362	2	3	2	3
C.E. 475 Engineering Economics	348	1	1	1	1
Met. 453 Metallurgical Calculations	372	.....	2	.....	.....
Met. 457 Plant Management	373	1	1	1	1
M.D. 450 Mineral Dressing	374	2	6*	2	.....
Min. 450 Principles of Mining	370	2	.....	2	.....
Min. 451 Mine Management	370	2	.....	2	.....
Min. 454 Problems and Reports	370	.....	2	.....	4
Phys. 461 Geophysics	378	2	.....	2	.....

*Alternate weeks.
†1949-50 only.

10. Engineering Physics

This course of studies will be open only to students who obtain the consent of the Head of the Department of Physics and the Dean of the Faculty of Applied Science.

For courses in First and Second Years see page 302.

THIRD YEAR

Subject	For details see page	First Term		Second Term	
		Lect.	Lab.	Lect.	Lab.
M.E. 352 Mechanical Drawing	361	At end of 2nd Term, 2nd Year			
C.E. 355 Strength of Materials	345	2	3*	2	3*
C.E. 357 Materials Testing	345	.....	3*	.....	3*
Math. 320 Differential Calculus	360	2	.....	2	.....
Math. 321 Integral Calculus	360	3	.....	3	.....
Math. 322 Algebra and Geometry 2	360	3	.....	3	.....
Phys. 302 Mathematical Physics	378	2	.....	2	.....
Phys. 304 Thermodynamics	378	2	.....	2	.....
Phys. 308 Physical Optics	378	2	3	2	3
and *one* of the following:					
Chem. 300 Organic Chemistry	340	2	3	2	3
Chem. 350 Chemical Engineering	340	3	.....	3	.....
E.E. 355 A.C. Circuits	367	1	.....	2	.....
Geol. 304 Structural Geology	358	2	.....	2	.....
M.E. 371 Applied Thermodynamics	362	2	3	2	3
{ Met. 351 Physical Metallurgy	371	2	.....	1	..... }
{ Met. 352 Metallography	371	.....	3*	.....	3* }

FOURTH YEAR

Subject	For details see page	First Term		Second Term	
		Lect.	Lab.	Lect.	Lab.
E.E. 465 Electrical Communications	369	2	3	2	3
Math. 402 Differential Equations	361	3	.....	3	.....
Phys. 401 Electricity and Magnetism	378	2	.....	2	.....
Phys. 402 Atomic Structure	378	2	.....	2	.....
Phys. 403 Statistical Theory of Matter	378	2	.....	2	.....
Phys. 405 Theory of Elasticity	378	1	.....	1	.....
Phys. 407 Nuclear Physics	378	1	.....	1	.....
Phys. 409 Experimental Physics	378	.....	6	.....	6
and *one* of the following:					
Chem. 450 Chem. Engineering Theory	341	3	.....	3	.....
Chem. 409 Advanced Organic	341	2	3	2	3
E.E. 453 A.C. Machines	368	2	3	2	3
{ Phys. 461 Geophysics	378	2	.....	2	.....
{ Geol. 403 Petrology	358	2	.....	2	.....
M.E. 477 Heating, Ventilating	365	2	.....	2	3
M.E. 481 Aeronautics	365	3	3	3	3
{ Met. 452 Physical Metallurgy	372	2	.....	2	..... }
{ Met. 456 Adv. Metallography	372	.....	3	.....	3 }

***Alternate weeks.**

11. Nursing and Health

The University offers courses in Nursing to students who desire to receive a broader education than can be secured in a hospital school of nursing alone, and who wish, at the same time, to prepare themselves for teaching or supervisory positions in schools of nursing or for public health nursing.

Included in the regular programme are the following courses:

Nursing A. A combined university and hospital course leading to the degree of B.A.Sc. (Nursing) and to a Diploma in Nursing from the Vancouver General Hospital School of Nursing, which is affiliated with the University for the purpose of providing the professional part of the course. (See below.)

Nursing AA. A double degree course one year longer than Nursing A leading to the degrees of B.A. and B.A.Sc. (Nursing) as well as to a Diploma in Nursing from the Vancouver General Hospital School of Nursing. (See page 320 and *Double Courses*).

Nursing B A course for graduate nurses to prepare them for staff positions in public health nursing organizations. This course consists of one year of academic study supplemented by appropriate field work, and leads to a certificate in Public Health Nursing. (See page 321).

Nursing C. A course for graduate nurses to prepare them for teaching and supervisory positions in schools of nursing. This course consists of one year of academic study supplemented by appropriate field work, and leads to a certificate in Teaching and Supervision in Schools of Nursing. (See page 321).

Nursing D. A course for graduate nurses who wish to qualify for the degree of B.A.Sc. (Nursing). (See page 323).

Students of all courses in Nursing are subject to the general University regulations, and to special regulations of the Faculty of Applied Science. (See pages 35-45 and 327-329).

All regulations are subject to change from year to year, and subjects may be modified during the year as the Faculty may deem advisable.

Degree Courses in Nursing

Nursing A

This combined university and hospital course assures to the student the educational and cultural advantages available at the University; professional training built on a sound scientific foundation; and preparation for teaching and supervision in schools of nursing or for public health nursing. The course is given by the

University in collaboration with the school of nursing of the Vancouver General Hospital, the only hospital school which has to date signified willingness to provide the professional part of the course and has received the approval of the University Senate for that purpose.

For admission requirements see page 298. No student with defective standing will be admitted to the First Year in Nursing.

As registration is limited, application should be made on or before August 15th. Students will be notified of the acceptance or rejection of their applications.

Applicants are also required:

1. To satisfy the Department of Nursing and Health that they are personally fitted for the branches of nursing to which the course leads;
2. To have met the entrance requirements of the Vancouver General Hospital School of Nursing.

The course consists of three parts, each of which is described briefly.

I. First Year Nursing.—Students register in the Faculty of Applied Science for the following courses, which provide an introduction to general cultural subjects and a foundation in sciences basic to the practice of nursing.

FIRST YEAR NURSING

Subject	For details see page	First Term		Second Term	
		Lect.	Lab.	Lect.	Lab.
English 200	350	3	.....	3	.....
Zoology 200	379	2	3	2	3
Physics 110	265	3	2	3	2
Psychology 100	254	3	.....	3	.....
Nursing 151 History of Nursing	374	1	.....	1	.....
Nursing 152 Elementary Biochemistry	374	1	.....	1	.....
Nursing 153 Bacteriology in Relation to Health and Disease	375	1	4	1	4

II. Professional course of thirty-two months at the Vancouver General Hospital School of Nursing.*

Following completion of the academic or pre-clinical year (First Year Nursing) the student enters the Vancouver General Hospital School of Nursing for her professional course. This course is planned to afford a wide experience and training in the care of the sick, and to develop the skill, powers of observation, and judgment necessary to the efficient practice of nursing. It includes a study of community health problems as well as those of the hospital.

*Candidates are advised to write to the Director, School of Nursing, Vancouver General Hospital, for the School Calendar.

Students enter upon this part of their course along with the regular hospital students, and during the first four months (the probationary period) undergo a rigid examination as to fitness in physique, temperament, and character. This trial period helps the student to decide whether she feels herself personally fitted or inclined to proceed with the course. It also gives the hospital school of nursing an opportunity to judge the student's suitability for the profession of nursing. The hospital school of nursing reserves the right to reject candidates who do not meet required standards.

During the professional part of the course students are under the direction of the hospital school of nursing and live in residence there, receiving:

(1) full maintenance;
(2) a yearly vacation;
(3) a small monetary allowance as designated by the hospital.

In order to receive University credit for work done at this time, students must register at the University each year and pay the nominal fee required. (See footnote on page 46).

Following is an outline of the course provided by the Vancouver General Hospital School of Nursing.

1. Instruction is given by qualified nurse teachers and by members of the medical staff in:

Nursing Ethics
Principles and Practice of Nursing
Anatomy and Physiology
Health Education
Psychology
Normal Nutrition and Diet Therapy
Pharmacology and Therapeutics
Urinalysis
Introduction to: Anaesthesia
Physiotherapy
X-ray

Community Health and Social Needs.

2. Instruction and supervised experience are provided in the following services:

Communicable Diseases (including Tuberculosis and Venereal Diseases)
Dietary
Eye, Ear, Nose, and Throat
Gynecological
Medical
Obstetric

Orthopedic
Out-Patient
Pediatric
Psychiatric
Surgical (including Operating Room)
Visiting Nurse

While the preventive and social aspects of nursing are stressed throughout, they are given particular emphasis during experience in the Out-patient Department and with the Victorian Order of Nurses.

The hospital programme is subject to change at the discretion of the hospital in consultation with the Department of Nursing and Health at the University.

Upon satisfactory completion of this part of the course the student is awarded a diploma as a graduate nurse of the Vancouver General Hospital School of Nursing. She also writes the provincial Registered Nurse examinations, and if successful becomes qualified to practise as a Registered Nurse in British Columbia.

Students who, during their period in the hospital school of nursing, have lost time because of illness or for other reasons, may be required to postpone the final academic year at the University. Graduate nurse experience before returning to the University is recommended.

III. For the final year of her course the student elects either Nursing B (see page 317) or Nursing C (see page 317), and upon its satisfactory completion she is awarded the degree of B.A.Sc. (Nursing).*

Nursing AA

The University also offers a double degree course leading to the degrees of B.A. and B.A.Sc. (Nursing). This course requires two years (instead of one) of academic work at the University before entering the hospital school of nursing, but is otherwise similar to Nursing A. (See page 317). Students receive the degree of B.A. upon completion of their course at the hospital, and the degree of B.A.Sc. (Nursing) when Nursing B or Nursing C has been completed.

The double degree course is advised for

(1) students who wish to enrich their background of knowledge by an additional year of university studies, and who are anxious to obtain the B.A. degree; and

(2) students who at the end of the first year of Nursing A would still be too young to enter the hospital school of nursing.

*Before July 15th of the year in which she plans to return to the University each student must notify the Department of Nursing and Health as to whether she proposes to take Nursing B or Nursing C.

Nursing B and Nursing C (Degree and Certificate Courses)

Degree Courses

Students taking Nursing B or Nursing C as part of the degree course must obtain at least 65 per cent. marks on the aggregate with not less than 50 per cent. in any one subject.

NURSING B (PUBLIC HEALTH NURSING)

Subject	For details see page	Total hours of lectures
Nursing 454 Preventive Medicine	375	45
Nursing 455 Mental Hygiene	375	18
Nursing 457 Infant and Child Health	375	18
Nursing 459 Sanitation	375	9
Nursing 461 Public Health Organization	375	10
Nursing 463 Principles and Practice of Public Health Nursing	375	54
Nursing 466 Health Teaching	376	54
Nursing 467 Current Nursing Problems	376	18
Nursing 471 Social Case Work	376	18
Nursing 477 Sociology of the Family	376	18
Nursing 481 Principles and Methods of Teaching	376	18
Nursing 485 Essay	376	.....
Nursing 486 Field Work	376	.....

NURSING C (TEACHING AND SUPERVISION IN SCHOOLS OF NURSING)

Subject	For details see page	Total hours of lectures
Nursing 454 Preventive Medicine	375	45
Nursing 455 Mental Hygiene	375	18
Nursing 467 Current Nursing Problems	376	18
Nursing 468 Teaching in Schools of Nursing	376	36
Nursing 469 Principles of Supervision in Schools of Nursing	376	36
Nursing 477 Sociology of the Family	376	18
Nursing 481 Principles and Methods of Teaching	376	18
Electives from Nursing B, from Education, or from related Science courses, to make up three units	.....	.....
Nursing 485 Essay	376	.....
Nursing 487 Field Work	376	.....

Certificate Courses

Nursing B and Nursing C are available as Certificate Courses to graduate nurses who possess the required qualifications.

1. *General education.* All applicants must fulfil the educational requirement of University Entrance. An official transcript of the high school education record should be submitted along with the application.

2. *Professional education.* Graduation from a recognized school of nursing. Applicants must satisfy the department that they have received adequate instruction and experience in the nursing care of communicable diseases and of diseases of infancy and childhood.

3. *Professional experience.* Applicants who have had satisfactory nursing experience derive greater benefit from the courses than those who come directly from the school of nursing. Applicants for admission to Nursing C are required to have had at least one year of satisfactory experience as graduate nurses.

4. *Health.* A report of a medical examination recorded on a form provided by the Department, signed by a practising physician and accompanied by the report of an x-ray of the chest (taken within the preceding three months) is required of all applicants.

5. *Ability to drive a car.* Applicants for admission to Nursing B are advised to learn to drive a motor car and to secure their driver's licence. Ability to drive well is often a deciding factor in securing a position.

6. *Personal fitness.* Because it is very important that applicants have the necessary personal qualifications for their proposed work, and also because facilities for field work limit the number of students who can be enrolled, the Department reserves the right of selection. A personal interview is required whenever possible.

Applications for admission to Certificate Courses should be submitted before July 1st. The requisite form may be obtained on request from

Department of Nursing and Health,
The University of British Columbia,
Vancouver, B. C.

Nursing D

This is a course for graduate nurses who are eligible for admission to the University and who desire to qualify for the degree of B.A.Sc. (Nursing).

Admission requirements:

1. The applicant's professional preparation shall be considered by the Department to be a satisfactory alternative to the professional course included in Nursing A.

2. The applicant's record, both academic and professional, shall indicate the probability of success in her chosen field.

Course requirements:

1. The applicant shall complete satisfactorily the work of the First Year of the Faculty of Arts and Science or Senior Matriculation with the subject content as outlined on page 298.

2. Candidates will register in the Faculty of Applied Science and take the following courses as First Year students in Nursing D:

Subject	For details see page	First Term		Second Term	
		Lect.	Lab.	Lect.	Lab.
English 205	350	3	.....	3	.....
Psychology 100	254	3	.....	3	.....
Nursing 152 Elementary Biochemistry	374	1	.....	1	.....
Nursing 153 Bacteriology in Relation to Health and Disease	375	1	4	1	4
Nursing 154 Essay	375	.....	.....	.....	.....
Six additional units to be selected in consultation with the Department	.....	.....	.....	.....	.....

3. Nursing B or Nursing C as outlined on page 321.

Except in very unusual circumstances those candidates who already hold a certificate in Nursing B or Nursing C must meet the requirements listed under (2) above by attendance at a winter session within a period of five years following completion of the certificate course.

Students who have completed work simliar to Nursing B or Nursing C at another university must take a full year of senior work at this University. In such cases, however, efforts will be made to adjust their program so as to avoid unnecessary duplication of work in which a satisfactory degree of proficiency has already been demonstrated.

At the discretion of the Department any student may be required to obtain practical experience in the field of her major interest before proceeding with further academic work.

COURSE LEADING TO THE DEGREE OF B.Arch.

The course leading to the degree of Bachelor of Architecture requires for its completion five years of study after entering the Faculty of Applied Science. The studies, all related to basic human and social needs, provide a training in the fundamentals of the profession of architecture. This training fits the student for efficient service in the offices of practising architects upon graduation and prepares him for an early start in his professional career.

The course in Architecture also provides a sound basis for students who are planning to undertake graduate work leading to specialization in related fields, such as Town and Community Planning, Industrial Design, Prefabrication, and Landscape Design.

Basic training in mathematical, physical, architectural and design principles is provided in the first three years of the course. The last two years are devoted to studies and research which are more professional in character, with architectural problems worked out in a manner similar to that employed in current practice. The organization and presentation of subjects is so arranged that the student's power of discrimination in his choice of materials, structural systems, methods of construction, equipment, finishes, and embellishments is developed in a practical and co-ordinated manner on the basis of aesthetic conceptions. Ample opportunity is provided for personal contact and discussion with practising architects, as well as with other leaders in the fields of art, construction, and social work.

Competence in Architectural Design is a prerequisite to progress in this course and to the granting of a degree. See below.

The general requirements for admission to the course in Architecture are the same as those for admission to other courses in Applied Science (see page 298), with the exception that students planning to enter Architecture are advised to take French 101 in the First Year of Arts and Science.

The essay required of students in engineering courses and described on page 303 is also required of all Architecture students entering the Second, Third, Fourth, and Fifth Years. The essay may deal with "architectural" or "planning" aspects of the work on which the student was engaged during the summer, or of any scientific, "architectural", or "planning" work with which he is familiar. The same regulations apply except that Architecture students are not eligible to compete for the students' prizes mentioned on page 84.

Candidates, in order to be admitted into the Fourth and Fifth Years of Architecture, must obtain a pass mark in Architectural

Design of the previous year. No supplemental examinations are held in this subject in any year with the exception of Second Year (Arch. 250). In Architectural Design (Arch. 550) a student must obtain a pass mark in both his Thesis Project and in the Final Examination to be granted his degree.

Before the degree of Bachelor of Architecture will be granted, every student is required to submit satisfactory evidence of having had 12 months (1900 hours) practical experience in architectural work. Further details of the requirements are shown under Arch. 280, page 333. See also general statement concerning practical work outside the University (page 300).

FIRST YEAR

Subject	For details see page	First Term		Second Term	
		Lect.	Lab.	Lect.	Lab.
Math. 150 Trigonometry and Solid Geometry	360	2	.....	2	.....
Math. 151 Algebra	360	2	.....	2	.....
Math. 152 Calculus	360	2	.....	2	.....
C.E. 155 Graphical Statics	343	.....	2	.....	2
C.E. 160 Engineering Problems	343	.....	4	.....	4
English 205 English Composition and Literature	350	3	.....	3	.....
Phys. 160 Mechanics and General Physics	377	2	3	2	3
Arch. 150 Elements of Architecture	331	1	.....	1	.....
Arch. 151 Building Materials	331	2	.....	2	.....
Arch. 152 Architectural Drafting and Descriptive Geometry	331	1	4	1	4
Arch. 160 History of Art	331	1	.....	1	.....
Arch. 170 Visual Design	332	1	3	1	3

SECOND YEAR

Subject	For details see page	First Term		Second Term	
		Lect.	Lab.	Lect.	Lab.
Essay	303	.....	.....	.....	.....
Eng. 250 Technical English	350	1	.....	1	.....
Phys. 260 General Physics	377	2	3	2	3
Arch. 250 Architectural Design 1	332	.....	6	.....	6
Arch. 251 Theory of Planning	332	3	.....	3	.....
Arch. 252 Elements of Construction	332	3	6	3	6
Arch. 255 Elementary Strength of Materials and Structures	333	2	2	2	2
Arch. 260 History of Architecture	333	2	.....	2	.....
Arch. 262 Architectural Essay	333	.....	.....	.....	.....
Arch. 270 Freehand Drawing	333	.....	3	.....	3
Arch. 280 Summer Work	333	.....	.....	.....	.....

THIRD YEAR

Subject	For details see page	First Term		Second Term	
		Lect.	Lab.	Lect.	Lab.
Essay	303	.....	.....	.....	.....
Ec. 200 Principles of Economics	350	3	.....	3	.....
M.E. 377 Mechanical Services	363	2	.....	2	.....
Arch. 350 Architectural Design 2	334	.....	12	.....	12
Arch. 351 Industrial Design and Prefabrication	334	1	3	1	3
Arch. 352 Interior Finishes and Colour	334	1	3	.....	.....
Arch. 353 Furniture	334	.....	.....	1	3
Arch. 355 Arch. Engineering 1	334	2	3	2	3
Arch. 360 History of Architecture	335	2	.....	2	.....
Arch. 362 Architectural Essay	335	.....	.....	.....	.....
Arch. 370 Sketching	335	.....	.....	.....	.....
Arch. 371 Landscape Design	335	1	2	1	2
Arch. 380 Summer Work	335	.....	.....	.....	.....

FOURTH YEAR

Subject	For details see page	First Term		Second Term	
		Lect.	Lab.	Lect.	Lab.
Essay	303	.....	.....	.....	.....
Comm. 559 Industrial Accounting	350	2	.....	2	.....
Arch. 450 Architectural Design 3	335	.....	18	.....	18
Arch. 455 Arch. Engineering 2	335	1	3	1	3
Arch. 456 Electricity and Illumination	336	2	.....	2	.....
Arch. 460 History of Architecture 3	336	2	.....	2	.....
Arch. 462 Architectural Essay	336	.....	.....	.....	.....
Arch. 465 Commercial Law	336	.....	.....	2	.....
Arch. 466 Town Planning	336	2	3	.....	.....
Arch. 467 Social Aspects of Housing and Community Planning	467	.....	.....	3	.....
Arch. 470 Sketching	337	.....	.....	.....	.....
Arch. 471 Modelling	337	.....	3	.....	3
Arch. 480 Summer Work	337	.....	.....	.....	.....

FIFTH YEAR

Subject	For details see page	First Term		Second Term	
		Lect.	Lab.	Lect.	Lab.
Essay	303	.....	.....	.....	.....
Arch. 550 Architectural Design 4	337	.....	27	.....	27
Arch. 552 Specifications	337	1	.....	1	.....
Arch. 555 Arch. Engineering 3	337	1	2	1	2
Arch. 560 Theory of Architecture	338	1	2	2	.....
Arch. 562 Architectural Essay	338	.....	.....	.....	.....
Arch. 565 Professional Practice	338	2	.....	2	.....
Arch. 566 Seminar on Human Environmental Needs	338	2	.....	2	.....
Arch. 570 Sketching	338	.....	.....	.....	.....
Arch. 580 Summer Work	338	.....	.....	.....	.....

EXAMINATIONS AND ADVANCEMENT

1. Examinations are held in December and in April. December examinations will be held in all subjects of the First and Second Years, and are obligatory for all students of these. December examinations in subjects of the Third and Fourth Years, excepting those subjects that are completed before Christmas, shall be optional with the departments concerned. Applications for special consideration on account of illness or domestic affliction must be submitted to the Dean not later than two days after the close of the examination period. In cases where illness is the plea for absence from examinations, a medical certificate must be presented on the appropriate form which may be obtained from the Dean's office, or if the illness occurs at the University the student may report to the Nurse, Hut A2, near the Auditorium Building, who may furnish the necessary certificate.

2. Candidates, in order to pass, must obtain at least 50 per cent. in each subject; in courses which comprise both lecture and laboratory work students will be required to pass in *both* the written examinations *and* laboratory work before standing in the subject will be granted. The grades are as follows: First Class, an average of 80 per cent. or over; Second Class, 65 to 80 per cent.; Passed, 50 to 65 per cent. (See pars. 12 and 13.)

Candidates in the Final Year of the B.A.Sc. course in Nursing, in order to obtain this degree, must obtain at least 50 per cent., in each subject, and at least 65 per cent., on the aggregate.

3. If a student's general standing in the final examinations of any year is sufficiently high, the Faculty may grant him supplemental examinations in the subject or subjects in which he has failed. Notice will be sent to all students to whom such examinations have been granted.

For regulations regarding re-reading of paper see *Faculty of Arts and Science,* under "Examinations and Advancement" (section 5, page 163).

4. Supplemental examinations will be held in September. Special examinations will not be granted, except by special permission* of the Faculty and on payment of a fee of $7.50 per paper, and then only during the third week in October or the third week in January. Nursing students with supplementals in the First Year must, in order to enter the hospital in September, obtain standing in these subjects by attendance at Summer Session. They may, however, take the September supplementals, thus postponing the date of entering upon the hospital course.

*Special permission of the Faculty is granted only under exceptional circumstances, such as illness, or as outlined on page 301.

5. Applications for supplemental examinations, accompanied by the necessary fees see *Special Fees,* page 50, must be in the hands of the Registrar by August 1st.

Local centres for supplemental examinations will be arranged in British Columbia at the following centres:

Cranbrook
Dawson Creek
Kamloops
Kelowna or Penticton
Ocean Falls
Prince George
Prince Rupert
Trail or Nelson
Victoria College

A student wishing to write supplemental examinations at one of these centres must state in his application the centre chosen and must pay a fee of $2.50 a paper in addition to the regular fee of $5.00 a paper for a supplemental examination.

6. No student may enter the Third or higher year with supplemental examinations still outstanding in respect of more than 4 units of the preceding year, or with any supplemental examination outstanding in respect of the work of an earlier year unless special permission* to do so is granted by Faculty. Students in Nursing A must remove all outstanding supplemental examinations before entering their Second Year (the First Year of the Hospital Course). For requirements for students entering the Fourth or Fifth Year of Architecture, see page 324.

7. No student will be allowed to take any subject unless he has previously passed, or secured exemption, in all prerequisite subjects.

8. A student who is required to repeat his year will not be allowed to take any work in a higher year excepting that a student who has taken the field work of C.E. 350 in the spring may take C.E. 352 during the following session. A student repeating his year need not repeat the laboratory portion of certain courses providing he has obtained a standing in the laboratory work which is acceptable to the head of the department in which the course is given.

9. Any student repeating his year will not be admitted with any supplementals outstanding.

10. A student who fails twice in the work of the same year may, upon the recommendation of the Faculty, be required by the Senate to withdraw from the University.

*Special permission of the Faculty is granted only under exceptional circumstances, such as illness, or as outlined on page 301.

11. Any student whose academic record, as determined by the tests and examinations of the First Term, is found to be unsatisfactory, may, upon the recommendation of the Faculty, be required by the Senate to discontinue attendance at the University for the remainder of the session. Such a student will not be re-admitted to the University as long as any supplemental examinations are outstanding.

12. Term essays and examination papers may be refused a passing mark if they are noticeably deficient in English.

13. Honours graduate standing will be granted to those who obtain Honours in the final year and who have passed any one of the three preceding years with at least 50 per cent. in each subject and 75 per cent. on the whole.

DEPARTMENTS IN APPLIED SCIENCE

NOTE. The following subjects may be modified during the year as the Senate may deem advisable.

The hours assigned for laboratory and lectures in the courses are designated as shown by the following examples:

2 lectures and 3 hours laboratory per week, both terms. (2-3-2-3)

1 lecture per week and 3 hours laboratory in alternate weeks, both terms. (1-3*-1-3*)

1 lecture and 2 hours laboratory per week, First Term. (1-2-0-0)

1 lecture and 2 hours laboratory per week, Second Term. (0-0-1-2)

Department of Agricultural Engineering

350. *Internal Combustion Engines.*—A study of the internal combustion engine; spark and compression ignition. Considerable material is included on fuels, lubricants, and design of combustion chambers.

Text-book: Heldt, *High Speed Internal Combustion Engines,* Heldt.

Reference: Morrison, *American Diesel Engines,* McGraw-Hill. (2-2-2-2)

351. *Agricultural Machinery.*—A study of seeding, tillage, and harvest machines; their application and efficiency.

Text-book: Davidson, *Agricultural Machinery,* Wiley.

Reference: Turner and Johnson, *Machines for the Farm, Ranch and Plantation,* McGraw-Hill.

(2-3-2-3)

450. *Agricultural Buildings.*—Building construction; design and construction of farm buildings; plans and specifications; sewage disposal; water supply and ventilation.

Text-book: Scoates, *Farm Buildings,* Books 1 and 2, A. & M. College, Texas.

Reference: Foster and Carter, *Farm Buildings,* Wiley.

(2-2-2-2)

451. *Advanced Agricultural Engineering.*—Lectures, papers, and discussions on various phases of agricultural engineering projects and related topics of recent development.

(2-2-2-2)

452. *Thesis.* (0-3-0-3)

456. *Shopwork.*—Practical application and technique of oxy-acetylene and arc welding, and application of heat treatment and hardening to agricultural tools.

(0-3*-0-3*)

460. *Irrigation and Drainage.*—Irrigation methods, irrigation implements and structures, soil and water relations, application of irrigation to various crops, and related problems of irrigation. Drainage for reclaiming areas of land, field drainage, and special drainage problems.

Text-books: Israelsen, *Irrigation Principles and Practices,* Wiley; Ayres and Scoates, *Land Drainage and Reclamation,* McGraw-Hill; King and Lynes, *Tile Drainage,* Mason City Brick and Tile Co.

(2-3-2-3)

470. *Rural Electrification.*—Stationary farm lighting plants, wind charging units, application of electric motors to farm equipment, and distribution of power within the farmyard.

Text-book: Schaenzer, *Rural Electrification,* 4th edition, Bruce.

(2-3-0-0)

Department of Agricultural Economics

300. [A]. *Farm Organization and Management.*—As in Agriculture.

Department of Agronomy

211 [11]. *Soils.*—As in Agriculture.

Department of Architecture

150. *Elements of Architecture.*—Historical survey of the architect's position in society and of the design of buildings. Physiological, psychological, and social needs of man to be satisfied by architecture through its planning, structural, service, and design elements. Characteristics of good architecture. Reports with diagrams and sketches are required throughout the year.

Text-book: Tubbs, *An Englishman Builds,* Penguin Book.

Mr. Lasserre. (1-0-1-0)

151. *Building Materials.*—Mechanical and physical properties of materials; origin, processing, manufacture, characteristics, and application in construction of principal materials and their derivatives.

Text-book: Gay and Parker, *Materials and Methods of Architectural Construction,* Wiley.

Reference: Johnson's *Materials of Construction,* Wiley.

Mr. Davison. (2-0-2-0)

152. *Architectural Drafting and Descriptive Geometry.*—Drafting and lettering; the principles of drawing and of descriptive geometry; orthographic, isometric, and oblique projections, intersections, and development; angular and parallel perspective; shades and shadows.

Mr. Porter. (1-4-1-4)

160. *History of Art.*—A chronological survey of the changes in painting, sculpture, and other visual arts from prehistoric times to the present day. Illustrated reports are required.

The Department reserves the right to limit registration in this course by students outside of the departments of Architecture and Home Economics. Preference will be shown to those also registering in Arch. 170.

Text-book: Robb and Garrison, *Art in the Western World,* Harpers.

Mr. Shapiro. (1-0-1-0)

170. *Visual Design.*—Basic visual elements of line, shape, colour, volume, and texture. Three dimensional studies of space with different shapes, materials, and lighting effects.

This course is available only to students also registered in Arch. 160 or by special permission after consultation with the instructor or the Head of the Department.

Mr. Shapiro. (1-3-1-3)

250. *Architectural Design* 1.—Relation of exterior and interior space; the design of simple architectural elements, elementary planning, construction integration; study of fundamental concepts of space, form, and function and of the primary structural, colour, texture, and light relations by which these are expressed. Through workshop and drafting room exercises and discussions the student is made familiar with the processes of thought and feeling basic in architectural design.

Mr. Lasserre. (0-6-0-6)

NOTE. The subject of architectural design is continued through four years. Long problems (four to eight weeks) form case studies of specific projects; short problems (one day to one week) provide concentration on minor projects or on some aspect of longer problems. Diagrammatic study of function, analysis of site and of human and social factors, introduction of clients, contractors, and authorities concerned, preparation of programmes (clients' requirements), plans, elevations, sections, details, perspectives, models, execution drawings.

251. *Theory of Planning.*—Basic plan and design requirements of different building types studied through analysis of existing good examples. Method of approach to planning, characteristics of good plans; their three dimensional expression and execution. Analysis reports are required throughout the session.

Reference: *Time Saver Standards,* F. W. Dodge Corporation.

Mr. Lasserre. (3-0-3-0)

252. *Elements of Construction.*—Basic construction technique in its relation to design. Field trips to familiarize students with the problems of construction and of its proper practice, and with the fabrication and production of building parts. Lectures, demonstrations and reading on procedure in construction, finishing, insulating; development of design ideas into practical working details and specifications, including selection and installation of materials; elementary estimating; use of building codes; principles of good detailing.

Text-books: Gay and Parker, *Materials and Methods of Architectural Construction,* Wiley; Ramsey and Sleeper, *Architectural Graphic Standards,* Wiley; *National Building Code,* Department of Finance and National Research Council of Canada; *Building Standards,* Central Mortgage and Housing Corporation, Ottawa.

References: Huntington, *Building Construction,* Wiley; Don Graf's *Data Sheets,* Reinhold; *A62 Guide,* Addison Wesley.

Mr. Davison. (3-6-3-6)

255. *Elementary Strength of Materials and Structures.*—Relations between external forces, stresses, and deformation in material and application for basic structural members. Laboratory tests of strength of different materials.

Text-book: Timoshenko and McCullough, *Elements of Strength of Materials,* Van Nostrand.

Mr. Wisnicki. (2-2-2-2)

260. *History of Architecture 1.*—History of Ancient, Classical, and Medieval Architecture based on the concept that plans and architectural forms are related to purpose, material, technical skills, climate, traditions, and to activities of life as expressed in literature, paintings, sculpture, and other records.

Text-book: Hamlin, *Architecture Through the Ages,* Putnam's.

References: Banister-Fletcher, *A History of Architecture,* Batsford; Robb and Garrison, *Art in the Western World,* Harpers.

Mr. Porter. (2-0-2-0)

262. *Architectural Essay.*—Students are required to prepare a paper during the session on some aspect of historical architecture. It should be based upon references in literature or other available records and may be a study of technique, material, structure, or function in historic buildings, or of an architect and his work. The essay is to be illustrated and of at least 1500 words.

It shall be handed in to the Head not later than February 15th, on standard letter-size paper.

270. *Freehand Drawing and Colour.*—Drawing in pencil and other media and painting in various media to develop skill in visual presentation to illustrate the structure and characteristic nature of natural forms and of common objects.

Mr. Shapiro. (0-3-0-3)

280. *Summer Work.*—Before receiving his degree, every student is required to submit satisfactory evidence of having had twelve months (1900 hours) practical experience of an architectural nature.

At least four of the twelve months shall be spent on building sites and in contact with the processes of construction. Should a student find it impossible to find sufficient summer employment, and can supply evidence to that effect, he will be required to submit sets of measured drawings to the approval of the Staff; in no case will he be allowed to graduate with less than six months (1000 hours) of practical experience in architectural work.

350. *Architectural Design 2.*—A continuation of Arch. 250. Long problems include residential, educational and industrial buildings. Short problems also are given to develop speed in the formulation of plan and design concepts and to give training in rapid but clear presentation of these concepts.

Mr. Porter. (0-12-0-12)

351. *Industrial Design and Prefabrication.*—Principles and methods of design for industrial production. Detailed study of materials and manufacturing processes. Professional status of the Industrial Designer. Present state and systems of prefabrication of houses. The laboratory period includes design problems in drafting room, practical shop work including use of hand and power tools, and visits to factories.

References: Young, *Materials and Processes,* Wiley; Teague, *Design This Day,* Harcourt-Brace.

Mr. Wisnicki. (1-3-1-3)

352. *Interior Finishes and Colour.*—Fabrics and finishing materials used in interior decoration; performance and costs. Workshop experiments in texture and colour relations (harmony and contrast). Theories of colour mixture and harmony; the use of colour to explain and enhance designs and surfaces of buildings and objects.

Mr. Shapiro. (1-3-0-0)

353. *Furniture.*—History of furniture design and construction; basic principles in the design of free and built-in furniture. Laboratory studies in furniture design.

Mr. Shapiro. (0-0-1-3)

355. *Architectural Engineering 1.*—Principles and methods of structural design of steel and timber structures. Foundations, soil bearing, and earth pressures. The laboratory period embraces solving of problems connected with structures of buildings and design of main structural elements; related to problems in Arch. 350.

Text-books: *Steel Handbook,* American Institute of Steel Construction; *Wood Structural Design Data,* National Lumber Manufacturers' Association.

Reference: Young and Morrison, *Elementary Structural Problems in Steel and Timber,* Wiley.

Mr. Wisnicki. (2-3-2-3)

360. *History of Architecture 2.*—A continuation of Arch. 260. The Renaissance and the Baroque Periods and the Nineteenth Century; early social and cultural manifestations of the modern movement.

Text-book: Giedion, *Space, Time, and Architecture,* Harvard.

Reference: Burckhardt, *The Civilization of the Renaissance in Italy,* Phaidon Press.

Mr. Porter. (2-0-2-0)

362. *Architectural Essay.*—A continuation of Arch. 262.

370. *Sketching.*—Before the first of October students are required to submit not less than ten sheets of studies of architectural subjects. They are to be presented on sheets approximately 16 by 20 inches and at least five are to be in colour.

371. *Landscape Design.*—Historical and critical study of landscape design and architecture; economic, sociological, geographic, and climatic factors effecting design, and selection of materials—lawns, walks, walls, rockeries, shrubs, and trees—for different locations. Visit to landscaped sites. Problems in conjunction with Arch. 350. This course is the same as Horticulture 416. (1-2-1-2)

380. *Summer Work.*—A continuation of Arch. 280.

450. *Architectural Design* 3.—A continuation of Arch. 350. Major problems include recreation, transportation, and medical buildings; relation of such buildings to the community and to its development. Presentation drawings to include enough details to indicate a study of structure (see Arch. 455), construction, services, interior finishes, and landscaping. Practising architects are asked to give criticisms of designs for major problems.

Mr. Lasserre and staff. (0-18-0-18)

455. *Architectural Engineering* 2.—Continuation of Arch. 355. Principles and methods of construction and design of concrete structures. The laboratory period includes calculation and design of elements of concrete structures; related to problems in Arch. 450.

Text-book: Parker, *Simplified Design of Concrete Structures,* Wiley.

Mr. Wisnicki. (1-3-1-3)

456. *Electricity and Illumination.*—The wiring and electric service and equipment needs of buildings. Principles of visual comfort; illumination, natural and artificial; measurements, controls, glare, colour, light differentials, lighting equipment. One of the architectural problems in Arch. 450 is devoted to a study of illumination and wiring in relation to design.

Mr. Simpson. (2-0-2-0)

460. *History of Architecture 3.*—A continuation of Arch. 360. Analysis of theories expounded during the past hundred years as they effect contemporary architecture in relation to social changes brought about by the industrial revolution and to developments in materials, in methods of calculation, in methods of construction, and in the building trades. Study of national architectural characteristics.

Mr. Porter. (2-0-2-0)

462. *Architectural Essay.*—A continuation of Arch. 362.

465. *Commercial Law.*—The purpose of this course is to familiarize the student with the laws affecting construction, contracts, partnership, and the day to day conduct of business. Principles of company law and of the law of contract, agency, bills and notes; bonds and mechanic's liens.

Text-book: To be announced. (0-0-2-0)

466. *Town Planning.*—History of city development: physical, social, economic, and technological factors; illustrative examples of planned, unplanned, and replanned types. The city as an expression of contemporary life. The principles, problems, and techniques of modern town planning. Public and civic facilities. Metropolitan and regional planning. The economic and legal aspects of urban redevelopment. Special study and research projects will be based on Vancouver throughout the course.

Text-books: Churchill, *The City is the People,* Reynal and Hitchcock; Sert, *Can Our Cities Survive,* Harvard.

Mr. Marsh. (2-3-0-0)

467. *Social Aspects of Housing and Community Planning.*—The significance of urban growth: Western Europe and North America. Industrialization, population movements, democracy, and other cardinal influences on the family, housing, concepts of community, and national welfare. Social surveys; social welfare legislation. Evolution of state-aided housing; finance, administration, relation to family life, relation to town planning. Critical Canadian social measurements (population, regional pattern, social classes, the distribution of incomes) and their implications for economists, social

workers, architects, and community planners. Term papers using Canadian examples as subject.

Text-book: Advisory Committee on Reconstruction, *Housing and Community Planning,* King's Printer.

References: Catherine Bauer, *Modern Housing,* Houghton Mifflin; Straus, *The Seven Myths of Housing,* Knopf.

Mr. Marsh. (0-0-3-0)

470. *Sketching.*—A continuation of Arch. 370, with the same requirements.

471. *Modelling.*—A course designed to develop more fully an appreciation of three-dimensional form and to equip the architect for cooperation with sculptors in practice. A study of form, solids, textures. Model making and wood carving.

Mr. Shapiro. (0-3-0-3)

480. *Summer Work.*—A continuation of Arch. 380.

550. *Architectural Design* 4.—A continuation of Arch. 450; housing and civic or community planning projects, public and administrative buildings. During this year the student learns to correlate all factors contributing to planning and design studied during the previous years, and learns to solve complex planning and design problems. The thesis problem occupies most of the student's attention during the Second Term. A programme for it must be submitted by the student not later than the first day of the Second Term to the Head of the Department for approval by the staff. The problem should be sufficiently complex to demonstrate the student's learning and ability, and will have to be completely worked out in construction, design, and cost, and explained orally to assessors.

The staff and practising architects. (0-27-0-27)

552. *Specifications.*—Technique of specification writing, principal clauses to be covered, practice in specifying for common trades. This course is a review of good practice in construction and in the choice and handling of materials.

Mr. Davison. (1-0-1-0)

555. *Architectural Engineering* 3.—Synthesis of Arch. 355 and 455 and advanced study of structural design. Comparison and evaluation of different structures for particular problems in design. The laboratory period includes solving of broader structural problems; related to design work in Arch. 550.

Mr. Wisnicki. (1-2-1-2)

560. *Theory of Architecture.*—A continuation of Arch. 460. An analytical survey of the factors leading to good design with experiments in design. An effort is made to arrive at standards of design integrated with the other arts and interpretive of the requirements of contemporary life and techniques. During the Second Term leaders from the other arts and from the profession are invited to seminars. The aim of this course is to establish clarity as to the philosophy of contemporary architecture and to summarize and congeal the theoretical training of the student.

Mr. Lasserre. (1-2-2-0)

562. *Architectural Essay.*—A continuation of Arch. 462. The essay shall be at least 2000 words in length and shall relate to Arch. 560.

565. *Professional Practice.*—This course, largely in the form of seminars handled by practising architects, completes the student's knowledge of the architect's administration and organization of his office, his relation to the public, to his client, to the engineers and other allied professions, arts and crafts, and to the contractor. Professional conduct and ethics; supervision; public health and safety; principles of surveying; fire, building, and planning codes and legislation. (2-0-2-0)

566. *Seminar on Human Environmental Needs.*—Seminar for investigating man's physiological and psychological requirements in building and planning. Information from scientists working in physiology, psychology, and other fields on human environmental needs and from technicians who are making it possible to meet these needs. (2-0-2-0)

570. *Sketching.*—A continuation of Arch. 470, with the same requirements.

580. *Summer Work.*—A continuation of Arch. 480.

Department of Biology and Botany

Biology

100 [1]. *Introductory Biology.*—The course is introductory to more advanced work in General Biology, Botany, or Zoology; also to courses closely related to biological science, such as Agriculture, Forestry, Medicine, Nursing, Pharmacy, Fisheries, Home Economics.

The fundamental principles of biology; the interrelations of plants and animals; life processes; the cell and division of labour; life-histories; relation to environment; dynamic biology.

The course is prerequisite to all courses in General Biology, Botany, and Zoology, except as otherwise stated.

(2-2-2-2)

304 [5]. *Basic Physiology.*—As in Arts. (See page 169).

330. [2]. *Principles of Genetics.*—As in Arts. (See page 169).

331. *Principles of Genetics.*—For Forestry students only. A lecture and laboratory course. The nature and genetic significance of variations and mutations. Mendel's Law and applications. The structural and cytological basis of inheritance. Genetic selection and the production of improved strains.

Text-book: Sinnot and Dunn, *Principles of Genetics,* McGraw-Hill.

Prerequisite: Biology 100.

Mr. Hutchinson, Mrs. Brink, Miss Cole. (0-0-2-4)

400 [3]. *General Physiology.*—As in Arts. (See page 169).

Botany

200 [1*(a)*]. *General Botany.*—As in Arts. (See page 171).

303 [5*(b)*]. *Dendrology.*—As in Arts. (See page 171).

304. *Introduction to Systematics of Vascular Plants.*—As in Arts. (See page 171).

315. *Mycology.*—As in Arts. (See page 172).

318. *General Forest Pathology.*—As in Arts. (See page 172).

330 [3a]. *Plant Physiology.*—For students in the B.S.F. course. First Term. As in Arts. (See page 172).

332 [3c]. *Plant Physiology and Nutrition.*—For students in the B.S.F. course. Second Term. As in Agriculture (Horticulture 442).

418. *Applied Forest Pathology.*—As in Arts. (See page 173).

420 [7a]. *Forest Ecology and Geography.*—As in Arts. (See page 173).

467. *Introductory Forest Pathology.*—An introductory course outlining life histories, control and economics of diseases in relation to

forest management in Western Northern America. Open to Forest Engineering Students only.

Reference: Boyce, *Forest Pathology,* McGraw-Hill.

Mr. Buckland. (2-2-0-0)

518. *Advanced Forest Pathology.*—As in Arts. (See page 175).

534. *Plant Microchemistry.*—As in Arts. (See page 175).

Department of Chemistry

150 [*2(a)*]. *Qualitative Analysis.*—During the first six weeks of the term an additional lecture may be substituted for a part of the laboratory work.

Reference: Reedy, *Theoretical Qualitative Analysis,* McGraw-Hill.

Mr. J. A. Harris. (1-3-1-3)

250 [*2(b)*]. *Quantitative Analysis.*—This course embraces the more important methods of gravimetric and volumetric analysis.

Text-book: Booth and Damerell, *Quantitative Analysis,* McGraw-Hill.

Mr. J. A. Harris. (1-3-1-3)

300 [3]. *Organic Chemistry.*—As in Arts. (See page 178).

304 [*4(a)*]. *Theoretical Chemistry.*—As in Arts. (See page 178).

305 [*4(b)*]. This course is the same as Chemistry 304 with the omission of the laboratory.

350 [6]. *Introduction to Chemical Engineering.*—In this course the elements of unit operations, such as filtration, distillation, crystallization, evaporation, and drying are to be considered. Several lectures will be devoted to the chemistry of combustion. The lectures will be supplemented by visits to manufacturing plants in the neighbourhood.

Summer reading: Read, *Industrial Chemistry,* Wiley.

Text-book: Badger and McCabe, *Elements of Chemical Engineering,* McGraw-Hill. (3-0-3-0)

351. *Industrial Stoichiometry.*—A review of basic physical chemistry principles will lead to a consideration of material and energy balances. Problem work will deal also with fuels and combustion, gas producers, water-treatment, and chemical systems in equilibrium.

Text-book: Kirkbride, *Chemical Engineering Fundamentals,* McGraw-Hill. (1-2-1-2)

352. *Advanced Quantitative Analysis.* (1-2-1-2)

Text-book: Vogel, *Quantitative Analysis,* Longmans.

407 [7]. *Physical Chemistry.*—As in Arts. (See page 179).

409 [9]. *Advanced Organic Chemistry.*—As in Arts, Chem. 409. (See page 179).

450 [16*(a)*]. *Advanced Chemical Engineering Theory.* — The First Term will comprise a course of study dealing with the general hydrodynamical equations for fluid flow. The thermodynamic aspect will be stressed wherever necessary. The theory of heat transfer with special reference to heat exchangers and condensers will also be considered. The Second Term will be devoted to theories of diffusion operations in general. The unit operations, such as humidification, drying, extraction, and absorption will be studied in some detail. (3-0-3-0)

451 [16*(b)*]. *Chemical Engineering Problems and Laboratory.*—Each student must submit solutions to a list of problems dealing with the unit operations discussed in both Chemistry 350 and Chemistry 450 lectures. The laboratory work will be arranged to supplement the lectures as much as time and equipment will permit.

Text-books: Walker, Lewis, McAdams, and Gilliland, *Principles of Chemical Engineering,* McGraw-Hill; Zemansky, *Heat and Thermodynamics,* Wiley; Binder, *Fluid Mechanics,* Prentice-Hall; Jakob and Hawkins, *Elements of Heat Transfer,* Wiley.

(0-6-0-6)

452. *Thesis: Research or Design.*—Each student must submit a thesis based on laboratory or theoretical investigation into some phase of chemical engineering theory or equipment design. Topics will be chosen at the beginning of the first term in consultation with the staff in chemical engineering. (0-6-0-6)

458. [8]. *Electrochemistry.*—Solutions are studied from the standpoint of the osmotic and dissociation theories. The laws of electrolysis, electroplating, electromotive force, and primary and secondary cells are considered in detail. Electric furnaces and electrolytic refining and deposition of metals will be studied in detail.

Text-books: Creighton and Koehler, *Electrochemistry,* Vol. II, Wiley; Thompson, *Theoretical and Applied Electrochemistry,* Macmillan.

Mr. Shemilt. (2-3-2-3)

COURSES FOR GRADUATE STUDENTS

512 [12]. *Colloid Chemistry.*—As in Arts. (See page 181).

517 [17]. *Chemical Thermodynamics.*—As in Arts. (See page 181). (Given in 1949-50 and alternate years).

518 [18]. *Advanced Inorganic Chemistry.*—As in Arts. (See page 182).
(Given in 1950-51 and alternate years.)

521 [21]. *Statistical Mechanics.*—As in Arts. (See page 182). (Given in 1949-50 and alternate years)

522 [22]. *Surface Chemistry.*—As in Arts. (See page 182). (Given in 1950-51 and alternate years)

530 [30]. *Research Conference.*—This course is required of all graduate students. Students will be required to present a paper on an approved topic.

535. *Selected Topics.*—As in Arts. (See page 182).

536. *Heterocyclic Chemistry.*—As in Arts. (See page 183).

540. *Advanced Electrochemistry.*—Modern measurements of conductance and transport; Debye-Huckel interionic attraction theory; ionic solutions in equilibrium and in perturbed state; Wien effect; dielectric constants and electric moments; theoretical interpretations of activity coefficients; phase boundary potentials; non-aqueous solutions; polyvalent electrolytes; macromolecules in solution; polarography; applications of simple quantum mechanics to electrochemistry.

References: Harned and Owen, *The Physical Chemistry of Electrolytic Solutions,* Reinhold; Dole, *Experimental and Theoretical Electrochemistry,* McGraw-Hill; Falkenhagen, *Electrolytes,* Oxford; Glockler and Lind, *Electrochemistry of Gases and Other Dielectrics,* Wiley.

Prerequisite: Chemistry 407.

Mr. Shemilt. (2-0-2-0)

550. *Reactor Design.*—Principles of industrial reaction rates; conduction; convection and heat release in catalytic converters; phase rule applications to heterogeneous systems; principles of extraction processes. (2-0-2-0)

Department of Civil Engineering

150 [3]. *General Engineering.*—A course designed to give the student a knowledge of the commercial and financial aspects of the engineering profession, its historical background, and the relations between science and modern industry. Industrial organization and management. Labour relations.

Mr. Finlayson. (1-0-1-0)

155 [4]. *Graphical Statics.*—Elementary theory of structures; composition of forces; general methods involving the force and equilibrium polygons; determination of resultants, reactions, centres of gravity, bending moments; stress in framed structures, cranes, towers, roof-trusses, and bridge-trusses. Algebraic check methods will be used throughout.

Reference: Hudson and Squire, *Elements of Graphic Statics,* McGraw-Hill.

Mr. Peebles. (0-2-0-2)

160 [30]. *Engineering Problems 1.*—Training in methods of attacking, analyzing, and solving engineering problems; coaching in proper methods of work and study, including drill in systematic arrangement and workmanship in calculations. The content is based upon the application of mathematics to problems in physics and engineering.

Mr. Peebles. (0-4-0-4)

250. *Surveying and Mapping.*—Elementary surveying; practical problems involving the use of the chain, stadia, compass, transit, and level; traverses, closed circuits, contour and detail surveys; levels for profiles, benches, and contours. Draughting from notes obtained in survey field work; maps of compass, stadia, and transit surveys; contour maps, topographical maps, and conventions.

Mapping and field work given in alternate weeks.

Mr. de Jong. (0-4-0-4)

251 [6]. *Surveying 1.*—Chain and angular surveying; levelling; construction, use, and adjustment of surveying instruments; applications to engineering problems.

Text-book: Breed and Hosmer, *Elementary Surveying,* Wiley.

Mr. de Jong, Mr. Heslop. (2-0-2-0)

255 [1]. *Descriptive Geometry.*—Orthographic projection involving points, lines and planes; use of auxiliary planes; interpenetrations and developments; practical applications.

Text-book: Smith, *Practical Descriptive Geometry,* 4th edition, McGraw-Hill.

Mr. Pretious. (0-3-0-3)

260 [31]. *(a) Mechanics.*—An extension of the subject matter of Physics 150, applying the methods of the differential and integral calculus.

(b) Engineering Problems 2.—A continuation of C.E. 160, involving a thorough drill in problems in the principal divisions of mathematics given in the First and Second Years of Applied Science, drawn from the field of mechanics, surveying, draughting, and engineering

Text-book: Poorman, *Applied Mechanics,* McGraw-Hill.

Mr. Finlay, Mr. Hrennikoff. (2-3-2-3)

350 [7]. *Field Work 2.—(a)* Route surveys, reconnaissance, preliminary and location surveys; methods of taking topography, cross-sectioning; estimating quantities; running in curves, etc. The notes secured will be used in class work for mapping and for estimating quantities.

(b) Solar observations for latitude and azimuth; adjustments of instruments; the use of plane table, and minor instruments.

Work commences at the close of spring examinations, and consists of field work, eight hours a day for twelve days, or equivalent.

Mr. Finlay, Mr. Pretious.

351 [14]. *Surveying 2.*—A continuation of Civil 251. Underground, hydrographic, and phototopographic surveying; Dominion and Provincial land surveys; field astronomy.

Text-book: Breed and Hosmer, *Surveying,* Volumes I and II, Wiley.

References: *Manual of Surveys of Dominion Lands; Instructions for B. C. Land Surveyors;* Davis & Foote, *Surveying,* McGraw-Hill; Hosmer, *Practical Astronomy,* Wiley.

Mr. de Jong. (2-0-2-0)

352 [13]. *Mapping 2.*—Mapping from notes obtained in Civil 350; mining, forestry, or geological maps.

Mr. Scarisbrick. (0-3*-0-3*)

353 [15]. *Drawing.*—Map projections, phototopographic mapping.

Mr. Bell. (0-3*-0-3*)

355 [10*(a)*]. *Strength of Materials.*—A study of the fundamental relations between external forces and their accompanying stresses, strains and deflections in structural members, including simple and continuous homogeneous beams, reinforced concrete beams, shafts, columns, springs, and riveted and welded joints.

Text-book: Timoshenko & McCullough, *Elements of Strength of Materials,* 2nd edition, Van Nostrand.

Reference: Timoshenko, *Strength of Materials,* Vols. I and II, Van Nostrand.

Mr. Finlay. (2-3*-2-3*)

356 [10*(b)*]. *Laboratory.*—Testing of timber, steel, and concrete specimens to determine the strength of these materials; hardness testing; the testing of cement aggregates and the proportioning of concrete mixes. Lecture course covers properties of engineering materials.

Mr. Hrennikoff, Mr. Alexander. (1-3*-0-3*)

357 [10*(c)*]. *Materials Testings.*—Testing of steel and other metals for their mechanical properties. For students in courses other than Civil or Forest Engineering.

Mr. Bell. (0-3*-0-3*)

360 [12]. *Hydraulic Engineering 1.*—Fundamental principles and their application. Problems on gauges, pressure on surfaces; translation and rotation of liquids, Bernouilli's theorem, flow through orifices, short tubes, nozzles, weirs, pipes, and open channels, and the dynamic action of jets. Laboratory period includes experimental work on gauges, pipes, weirs, orifices, and hydraulic machines. Problems and laboratory in alternate weeks.

Text-book: Russell, *Hydraulics,* 5th edition, Holt.

Reference: Freeman, *Hydraulics Laboratory Practice,* A.S.M.E.

Mr. Pretious, Mr. Heslop. (1-2-1-2)

361 [12]. *Hydraulic Engineering.*—A course similar to C.E. 360 for Civil Engineering students only.

One lecture and two hours of problems every week with two hours of laboratory every second week.

Mr. Pretious. (1-3-1-3)

365 [8]. *Foundations.*—Soil exploration; bearing power of soils; pile and other foundations; cofferdams; caissons; open dredging; pneumatic and freezing processes.

Text-book: Jacoby and Davis, *Foundations of Bridges and Buildings,* McGraw-Hill.

C.E. 355 must either precede or be taken concurrently.

Mr. Hrennikoff. (2-3-0-0)

366. *Earth Pressure.*—Theory of earth pressure for cohesionless and cohesive materials; active and passive pressures; design of retaining walls; bulkheads; pressure on hoppers; stability of unretained slopes.

References: Ketchum, *Walls, Bins and Grain Elevators;* Cain, *Earth Pressure, Walls and Bins.*

Mr. Hrennikoff. (0-0-2-0)

370 [9]. *Structural Design 1.*—Problems in draughting, illustrating designs in structural engineering; estimates of quantities and costs; preparation of plans.

Text-books: *Manual of Timber Connector Construction,* Timber Engineering Co.; *Steel Construction,* American Institute of Steel Construction; Grinter, *Elementary Structural Analysis and Design,* Macmillan.

Mr. Muir. (2-3-2-3)

375 [11]. *Railways.*—The development of railway transportation; co-ordination of transportation systems; railway location, drainage, grades, curvature, and distance, and their effects upon operating costs; maintenance of way and structures.

References: Williams, *Designs of Railway Location,* 2nd edition, Wiley; Raymond, *Elements of Railroad Engineering,* 6th edition, Wiley; Tratman, *Railway Track and Track Work,* McGraw-Hill.

Mr. Peebles. (2-0-2-0)

380 [28]. *Seminar.*—Written and oral discussion of articles appearing in the current transactions and proceedings of the various engineering societies, also reviews of important papers in engineering periodicals; reports on local engineering projects; preparation of written outlines for all oral reports; training in technical writing and public speaking.

Required of all Third and Fourth Year students in Civil Engineering.

Reference: Rickard, *Technical Writing,* McGraw-Hill. (1-0-1-0)

450 [16]. *Field Work 3.*—The adjustment, care, and use of precise surveying instruments; method of carrying out triangulation surveys; determination of latitude, azimuth, and time to a

high degree of accuracy; base line measurements and precise levelling.

Mr. de Jong.

455 [25]. *Theory of Structures.*—An analysis of the principal types of structures, including simple trusses, 3-hinged arches, continuous girders, and rigid frames, under the action of fixed and moving loads, together with a study of the deflections to which such structures are subject.

Text-book: Timoshenko & Young, *Theory of Structures,* 1st edition, McGraw-Hill.

Reference: Johnson, Bryan & Turneaure, *Modern Framed Structures,* Vols. I to III, Wiley.

Mr. Finlay. (2-6-0-0)

460 [17]. *Structural Design 2.*—Design of simple span steel bridges; determination of stresses due to vertical, longitudinal, and lateral forces; proportioning of parts; design of sections, connections, end supports, and various details; making detail drawings.

Text-books: *Steel Construction,* American Institute of Steel Construction; *Specifications for Steel Railway Bridges,* American Railway Engineering Association; *Standard Specifications for Steel Highway Bridges,* Canadian Engineering Standards Association.

Reference: Kirkham, *Structural Engineering,* McGraw-Hill.

Mr. Hrennikoff. (2-3-2-6)

461 [24]. *Reinforced Concrete Design.*—Intended to train the student in methods of analysis and design of reinforced concrete structures, including beams, slabs, columns, footings, and rigid frames. A complete design of a small reinforced concrete building, including the necessary drawings, is prepared by each student.

Text-book: Urquhart and O'Rourke, *Design of Concrete Structures,* 4th edition, McGraw-Hill.

Mr. Lipson. (2-3-0-4)

465 [22]. *Municipal Engineering.—Sewerage and Sewage Disposal;* general methods and economic consideration; quantity and run-off; design of sewers, man-holes, flush tanks, etc.; construction methods, materials, and costs; estimate, design, maintenance, and management of sewerage systems; physical, chemical, biological, and economic aspects of sewage treatment; dilution; screening, sedimentation, filtration; disinfection; maintenance and management costs.

Text-book: Steel, *Water Supply and Sewerage,* McGraw-Hill.

Reference: Metcalf and Eddy, *Sewerage and Sewage Disposal,* McGraw-Hill.

Water Supply: rainfall; evaporation; run-off; quantity, quality, and pressure required; pumping machinery; storage; aqueducts, pipe lines, and distribution systems; purification systems; valves, hydrants, and fire service; materials, estimates, and designs; construction methods and costs.

Text-book: Steel, *Water Supply and Sewerage,* McGraw-Hill.

Reference: Babbitt and Doland, *Water Supply Engineering,* McGraw-Hill.

Town Planning: the economical and artistic development of a city; city management; street cleaning and disposal of waste; composition and quantity of city wastes; collection, dumping, and disposal; land treatment; incineration and reduction; costs and returns.

Reference: Lewis, *City Planning,* Wiley.

Mr. Muir. (2-2-2-2)

466 [29]. *Water Power Development.*—The principles of hydrology, rainfall, run-off, stream flow, hydrographs, specific speed, characteristic curves, selection of hydraulic machines, theory of turbines, tangential water wheels, and centrifugal pumps, hydro-electric installations, waterhammer, and surge tanks.

Laboratory work consists of testing pumps and turbines, plotting curves, and solving problems.

Text-book: Barrow, *Water Power Engineering,* McGraw-Hill.

References: Meyer, *Elements of Hydrology,* 2nd edition, Wiley; Creager and Justin, *Hydro-electric Engineering,* 1st edition, Wiley; Daugherty, *Hydraulic Turbines,* 3rd edition, McGraw-Hill.

Mr. Muir. (0-0-2-2)

470 [23]. *Highway Engineering.*—Development and organization; administration and finance; economics and planning; location and design; materials and construction methods; soil studies, including laboratory analysis of soils; highway safety and traffic control; transportation surveys.

References: Hewes, *American Highway Practice,* Vols. I and II, Wiley; Hogentogler, *Engineering Properties of Soil,* McGraw-Hill; Bateman, *Highway Engineering,* 5th edition, Wiley.

Mr. Peebles. (2-0-2-2)

475 [18]. *Engineering Economics.*—Elementary mathematics of investment; interest; annuities; financial comparison of engineering installations; organization of business enterprise; principles of fin-

ancing; bonds; stocks; graphical analysis of fixed and variable expense; elementary accounting; interpretation of financial statements; elements of statistical method.

Text-book: Woods and DeGarmo, *Introduction to Engineering Economy,* Macmillan.

References: Dewing, *Financial Policy of Corporations,* Ronald; Jordan, *Investments,* Prentice-Hall; Foulke, *Practical Financial Statement Analysis,* McGraw-Hill; Marston and Agg, *Engineering Valuation,* McGraw-Hill.

Mr. Kania. (1-1-1-1)

476 [19]. *Engineering Law.*—The engineer's status; fees, salary; the engineer as a witness; responsibility; engineering contracts; tenders; specifications; plans; extras and alterations; time; payments and certificates; bonus or liquidated damages; maintenance and defects; subcontractors; agents; arbitration and awards; specification and contract writing.

Text-book: Kirby, *Elements of Specification Writing,* Wiley.

References: Laidlaw and Young, *Engineering Law,* University of Toronto; H. D. and W. H. Anger, *Digest of Canadian Mercantile Law,* Anger.

Mr. Pretious. (1-0-1-0)

COURSES FOR GRADUATE STUDENTS

550 [100]. *Advanced Structural Analysis.*—A course devoted to the analysis of statically indeterminate structures, such as arches, rigid frames, continuous trusses, and suspension bridges.

Mr. Finlay.

551. *Advanced Strength of Materials.*—Stresses in shells; torsion of shafts of non-circular section; advanced problems in bending of beams; centre of twist; beams on elastic foundations; trigonometric series; curved beams; column theory; strength theories.

Mr. Hrennikoff.

Department of Commerce

251 [1]. *Fundamentals of Accounting.*—As in Arts. (See page 190).

361 [6]. *Marketing.*—As in Arts. (See page 190).

471 [9]. *Business Finance.*—As in Arts. (See page 191).

481 [11]. *Industrial Management.*—As in Arts. (See page 191).

491 [4]. *Commercial Law.*—As in Arts. (See page 192).

559. *Industrial Accounting.*—As in Arts. (See page 196).

Department of Economics

200. *Principles of Economics.*—As in Arts. (See page 197).

Department of English

150 [3]. *Composition.*—A course in composition especially designed to meet the needs of students in the Faculty of Applied Science. It offers training in economical and accurate objective writing. The work consists of (1) essays, class exercises, and selected reading, and (2) written examinations. Students will be required to make a passing mark in each of these two parts of the work.

Text-books: Perrin, *Writer's Guide and Index to English,* Scott, Foresman; Brown, *Present Tense,* revised edition, Harcourt-Brace.

(2-0-2-0)

200 [2]. *Literature.*—For students in Nursing. As in Arts. (See page 213).

205 [3 & 4]. *Literature and Composition.*—For students in Nursing and Architecture. As in Arts. (See page 213).

250 [4]. *Technical Writing.*—This course offers instruction in the preparation and writing of technical papers and reports, with emphasis upon the organization and forms appropriate to such work.

Text-book: To be announced.

(1-0-1-0)

Department of Forestry

151. *The Profession of Forestry.*—Survey of the profession of forestry and of the opportunities available to trained men.

Text-book: Illick, *An Outline of General Forestry,* Barnes and Noble.

Reference: Allen, *An Introduction to American Forestry,* McGraw-Hill.

Mr. Haines. (1-0-1-0)

160. *Forest Surveying.*—The care, adjustment, and use of simple surveying instruments. Practice in running base lines and traverses, and in topographic mapping.

Text-book: Breed and Hosmer, *Elementary Surveying,* Wiley.

Mr. Johnson. (1-3-1-3)

250. *Silvics.*—An introduction to the study of climatic, edaphic, physiographic, and biotic factors affecting the establishment and growth of trees and forests.

Text-book: Toumey and Korstian, *Foundations of Silviculture,* 2nd edition, Wiley.

Mr. Griffith. (0-0-1-2)

251. *Forest Fire Protection.*—The field of forest fire protection and fire control planning. The fundamentals of prevention, danger rating, forest fuels, fire weather, fire behaviour, detection, communication, transportation and suppression.

Text-books: Folweiler and Brown, *Fire in the Forests of the United States,* Swift; *Western Fire Fighters Manual,* Western Forestry and Conservation Association.

Mr. Haines. (1-2-1-2)

252 [1b]. *Forest Botany.*—A general introduction to botany, with special reference to forest conditions. Engineering students only are required to take this course.

Text-book: Holman and Robbins, *A Text-book of General Botany,* Wiley.

Mr. Griffith. (2-2-2-2)

253. *Forest Soils.*—Fundamentals of soil science with particular reference to forestry.

Text-book: Lutz and Chandler, *Forest Soils,* Wiley.

Mr. Griffith. (1-2-0-0)

260. *Forest Surveying and Mapping.*—Solar and stellar observations for azimuth; route surveying; interpretation of aerial photographs.

Text-books: Spurr, *Aerial Photographs in Forestry,* Ronald Press; Breed and Hosmer, *Elementary Surveying,* Wiley.

Mr. Johnson. (1-2-1-2)

270. *Wood Technology.*—The macroscopic characteristics and properties of wood structure.

Text-book: Brown, Panshin, and Forsaith, *Wood Technology,* Volume I, McGraw-Hill.

Mr. Wellwood. (1-2-1-2)

350. *Silviculture.*—Silvicultural systems; intermediate cuttings; natural regeneration; applied silviculture in the various region of North America.

Text-book: Hawley, *Practice of Silviculture,* 5th edition, Wiley.

Reference: Westveld, *Applied Silviculture in the United States,* Wiley.

Mr. Allen. (2-2*-2-2*)

353 [14]. *Seminar.*—Oral presentation and discussion of current forestry topics; reviews of important papers in forestry periodicals.

The staff. (1-0-1-0)

355. *Seeding and Planting.*—Artificial regeneration; forest nursery practice.

Text-book: Toumey and Korstian, *Seeding and Planting in the Practice of Forestry,* 3rd edition, Wiley.

Mr. Allen. (1-2*-1-2*)

360 [2]. *Forest Mensuration.*—Log scaling and measurement of felled timber products; preparation of volume, stand and yield tables; measurement of growth and yield of forests; statistical analysis.

Text-book: Bruce and Schumacher, *Forest Mensuration,* 2nd edition, McGraw-Hill.

Reference: Chapman and Demeritt, *Elements of Forest Mensuration,* Lyon.

Mr. Ker. (2-3-2-3)

370. *Wood Technology.*—The microscopic characteristics and identification of wood; morphology; economic uses of commercial North American Timbers.

Text-book: Brown, Panshin and Forsaith, *Wood Technology,* Volume I, McGraw-Hill.

Reference: Tieman, *Wood Technology,* Pitman.

Mr. Wellwood. (1-3-1-3)

371. *General Logging.*—A study of the general and distinctive logging methods in the different forest regions on the North American continent.

Text-book: Brown, *Logging,* Wiley.

Mr. Knapp. (2-0-2-0)

380. *Forestry Policy and Administration.*—The development of forestry, forest legislation and administration in Canada, United States and other countries. Present policies and methods.

Mr. Haines. (2-0-2-0)

381. *Forest Economics.*—Principles of forest economics; economic and social value of forests; forestry and land use; forest taxation, forest credit, and forest fire insurance; forestry as a private business enterprise.

Text-book: Buttrick, *Forest Economics and Finance,* Wiley.

References: Marquis, *Economics of Private Forestry,* McGraw-Hill; Korstian, *Forestry on Private Lands in the United States,* Duke University.

Mr. Besley. (2-0-2-0)

390. *Summer Camp.*—A four weeks summer camp at the University Research Forest near Haney is required of all forestry students preceding their final year at the University. (See page 308).

The staff.

450. *Advanced Silvics and Silviculture*—Fundamental silvicultural problems; the application of research findings to the practice of silviculture.

Mr. Allen. (2-0-2-0)

455. *Problems in Silvics and Silviculture.*—Experimentation applied to specific forest problems. Each student is required to carry out an original investigation and submit a report.

Mr. Allen. (0-4-0-4)

460. *Advanced Mensuration.*—Recent developments in mensuration research methods.

Reference readings are assigned.

Mr. Ker. (1-3-1-3)

462. *Forest Finance.*—Costs of producing and harvesting the forest crop. Valuation of forest land and timber. Appraisal of stumpage and damage.

Text-book: Chapman and Meyer, *Forest Valuation,* McGraw-Hill.

References: Matthews, *Management of American Forests,* McGraw-Hill; Buttrick, *Forest Economics and Finance,* Wiley.

Mr. Besley. (1-2-1-2)

463. *Forest Management.*—Principles of forest organization and regulation of the cut; sustained yield management of forests; forest working plans.

Text-book: Matthews, *Management of American Forests,* McGraw-Hill.

Mr. Griffith. (2-3-2-3)

472. *Logging Engineering.*—Principles of engineering as applied to logging in the Pacific Northwest. Analysis and cost studies of various phases of logging, the preparation of detailed logging plans and operating methods.

References: Matthews, *Cost Control in the Logging Industry,* McGraw-Hill; Brown, *Logging,* Wiley; Brandstrom, *Analysis of Logging Costs and Operating Methods in the Douglas Fir Region,* Charles Lathrop Pack Forestry Foundation, Washington, D.C.; various periodicals.

Mr. Knapp (2-3-2-3)

473. *Milling and Marketing.*—Lumber manufacturing methods and machinery, mill layout and design. Lumber markets and marketing methods.

Text-book: Brown, *Lumber,* Wiley.
Reference: Brown, *American Lumber Industry,* Wiley; various trade journals, periodicals and bulletins.

Mr. Knapp. (2-4*-2-4*)

474 [13]. *Lumber Grading.*—An intensive study of the grading, tallying, and shipping of Pacific Coast lumber products.

Text-books: *Lumber Grading,* B. C. Lumber Manufacturers Association; *Standard Grading and Dressing Rules,* B. C. Lumber Manufacturers Association.

Mr. Dixon. (0-0-1-2)

475. *Forest Products.*—The pulp and paper industry; veneer and plywood, laminated wood, chemical and physical treatment of woods.

References: *The Manufacture of Pulp and Paper,* Vol. III, IV, and V, McGraw-Hill; Sutermeister, *The Chemistry of Pulp and Paper Making,* Wiley; Perry, *Modern Plywood,* Pitman; Woods and Linn, *Plywood,* W. &. K. Johnson.

Mr. Wellwood. (2-4*-2-4*)

COURSES FOR GRADUATE STUDENTS

551. *Problems in Forest Fire Protection.*—Advanced work in specialized phases of forest fire protection with particular emphasis on recent developments in the fields of detection, communication, and transportation planning. Hours to be arranged.

Mr. Haines. One to three units.

553. *General Forestry Seminar.*—Required of all graduate students in forestry.

The staff **One unit.**

555. *Research in Silvics and Silviculture.*—A course designed to supplement and guide the work on the thesis may be arranged with the approval of the Department. Hours to be arranged.

Mr. Allen. One to three units.

556. *Forest Tree Seed.*—Seed production, collection, provenance, testing, treatment, and the application of these to the practice of forestry.

Mr. Allen. (1-0-1-0)

(Given in 1949-50 and alternate years.)

557. *Forest Genetics.*—Principles of forest genetics, extensive and intensive methods of forest tree improvement, techniques used in tree-breeding.

Mr. Allen. (1-0-1-0)

(Given in 1950-51 and alternate years.)

560. *Problems in Forest Mensuration.*—Students with adequate training in mensuration may undertake research in forest mensuration under direction. Hours to be arranged.

Mr. Ker. One to three units.

561. *Problems in Forest Management.*—Advanced work and special studies may be taken in forest management under direction. Hours to be arranged.

Mr. Griffith. One to three units.

565. *Forest Research Methods.*—Curve fitting, multiple correlation, tests of significance, analysis of variance and covariance, design of experiments.

Mr. Ker. (1-2-1-2)

(Given in 1950-51 and alternate years.)

566. *Forest Aerial Surveys and Timber Inventories.*—Aerial survey methods, photo-interpretation, and plotting methods as applied to forest conditions.

Mr. Johnson. (1-2-1-2)

570. *Research in Wood Anatomy.*—Basic studies of the anatomy of wood with consideration of the physiological and systematic importance of the different elements and tissues. Practice in various methods of preparing woody materials for miscroscopic examination.

Mr. Wellwood. (1-2-1-2)

575. *Problems in Forest Products.*—Special investigations in wood and other forest products. The work may concern the research, development, and marketing involved in the production of forest products. Hours to be arranged.

Mr. Wellwood. One to three units.

578. *Research in Mechanical Properties of Wood.*—Special problems in the determination of stress-strain relationships in wooden structures. Hours to be arranged.

Mr. Wellwood. One to three units.

581. *Problems in Forest Economics and Finance.*—Advanced work may be taken under special assignment. Hours to be arranged.

Mr. Besley. One to three units,

The University Research Forest

On March 1st, 1943, the Provincial Government leased to the University, for twenty-one years subject to further renewal, an area of forest land, approximately 9,600 acres, between Pitt Lake and the town of Haney for "forest research and demonstration purposes". On November 7th, 1947, by Order-in-Council No. 2252 the Provincial Government made a free grant of the forest to the University.

The area comprises a solid block of land about 7 miles long and 2½ miles wide. In size, accessibility, variety of sites, of timber types, and of age classes it provides ample scope for cruising, mensuration, silviculture, logging engineering, and forest management, and for research in forestry and related sciences.

The University Campus Forest

The Campus Forest consists of a narrow belt south and west of the University, and is typical of the lowland stands on the southern coast. It contains the principal species of trees and shrubs of the region, including old trees as well as young growth of different ages. It serves as a convenient demonstration and field study area for the departments of Forestry, Biology and Botany, and Zoology.

A small forest nursery has been established for experimental and demonstration work in silviculture and to provide planting stock.

Vancouver Laboratory
Forest Products Laboratories of Canada, Forest Service
Department of Mines and Resources, Canada

TECHNICAL STAFF

R. M. BROWN, M.B.E., B.Sc.F. (Toronto), Superintendent.
R. S. PERRY, B.Sc. (McGill), Senior Engineer.
MISS EDITH M. HENDERSON, M.A. (Glasgow), B.L.S. (McGill), Librarian.

DIVISION OF TIMBER MECHANICS

J. B. ALEXANDER, M.Sc. (New Brunswick).
W. J. SMITH, B.A.Sc. (Brit. Col.).
P. L. NORTHCOTT, B.A.Sc. (Brit. Col.).

DIVISION OF WOOD UTILIZATION

F. W. GUERNSEY, B.A.Sc. (Brit. Col.).
C. F. MCBRIDE, B.A.Sc. (Brit. Col.).
G. R. W. NIXON, B.A.Sc. (Brit. Col.).
C. F. ARCHER, B.Sc.F. (Toronto).

DIVISION OF WOOD PRESERVATION

W. M. CONNERS, B.A.Sc. (Toronto).
H. W. EADES, B.Sc.F. (Washington).
W. C. FOUNTAIN, B.Sc.F. (Toronto).
J. W. ROFF, B.S.F. (Brit. Col.).
MRS. EDITH ANN HOUGHTON, B.A. (Brit. Col.).

DIVISION OF WOOD CHEMISTRY

J. A. F. GARDNER, M.A. (Brit. Col.), Ph.D. (McGill).
H. MACLEAN, M.B.E., M.S. (Brit. Col.).

The Forest Products Laboratories of Canada is a research organization maintained by the Forest Service of the Department of Mines and Resources, Canada. Research in forest products is carried on in two laboratories, one in Ottawa and the other in Vancouver, while all questions relating to pulp and paper research are dealt with by a cooperative laboratory established at McGill University, Montreal, through an arrangement between the Forest Products Laboratories of Canada, the Canadian Pulp and Paper Association, and McGill University.

The Vancouver Laboratory was established in 1918 and has been maintained in association with the University of British Columbia since that time. After World War II, the institution was reorganized on a regional basis to carry on research in all fields of forest products. There are four major divisions—Timber Mechanics, Wood Utilization, Wood Preservation, and Wood Chemistry—with laboratory facilities and equipment suited to a wide range of investigation. Close cooperation with industry permits the application of research findings to commercial practice.

An important phase of the work of the Laboratory is the technical service offered to the timber industry and to wood users on a wide variety of subjects having to do with forest products. Contact maintained with other forest products research organizations throughout the world permits a free exchange of technical information, which greatly enhances the value of this service.

A mutually beneficial scheme of cooperation is maintained between the Laboratory and the University, whereby students of the University in Engineering and Forestry have access to the Laboratory to watch the work being carried on. Use of apparatus has been provided for classes in testing the strength of materials. The staff of the Laboratory also has the benefit of the University Library and the advice and assistance of University specialists in related work.

Department of Geology and Geography

201 [1*(a)* & *(c)*]. *General Geology.*—As in Arts. (See page 223).

202 [*(b)* & *(d)*]. *Laboratory Exercises.*—As in Arts. (See page 223).

301. *Morphological Crystallography.* — As in Arts. (See page 224).

302 [2a]. *Mineralogy.*—As in Arts. (See page 224).

304 [4]. *Structural Geology.*—As in Arts. (See page 224).

305 [5]. *Theoretical and Historical Geology.*—As in Arts. (See page 225).

307. *Petroleum, Natural Gas, and Structural Materials.*—As in Arts. (See page 225).

308. *Coal.*—As in Arts. (See page 225).

403 [3]. *Petrology.*—An elementary course on the common rocks and the processes which formed them. Determinations are made entirely on hand specimens. Results to be obtained by miscroscopic studies of rock sections are outlined and demonstrated, but no attempt is made to instruct the student in Petrography. The course is designed primarily for students in Mining Engineering.

Text-book: Grout, *Kemp's Handbook of Rocks,* Van Nostrand.

Reference: Tyrrell, *The Principles of Petrology,* Dutton.

Mr. Watson. (2-0-2-0)

406 [6]. *Palaeontology.*—As in Arts. (See page 225).

407 [7]. *Petrography.*—As in Arts. (See page 226).

408 [8]. *Mineral Deposits.*—As in Arts. (See page 226).

409 [9]. *Mineralography.*—As in Arts. (See page 226).

410 [10]. *Field Geology.*—As in Arts. (See page 226).

411 [11]. *Regional Geology.*—As in Arts. (See page 227).

412 [12]. *Geomorphology.*—As in Arts. (See page 227).

420. *Thesis.*

COURSES FOR GRADUATE STUDENTS

(To be arranged by consultation with the instructors and the Head of the Department.)

520 [20]. *Sedimentation.*—As in Arts. (See page 227).

521 [21]. *Problems in Palaeontology.*—As in Arts. (See page 228).

522. *Advanced Mineralogy (Gems and Precious Stones).*—As in Arts. (See page 228).

523. [23]. *Advanced Mineralogy.*—A systematic study of some of the rarer minerals; the determination of some of the more important gem stones.

Text-books: Dana, *Text Book of Mineralogy,* revised by Ford, 4th edition, Wiley; Brush & Penfield, *Determinative Mineralogy and Blowpipe Analysis,* 16th edition, Wiley.

Mr. Warren.

524 [24]. *Advanced Mineralography.* — A critical study of an approved suite of ores, using the more recent methods of investigation, including the examination of polished sections under polarized light, microchemistry, photomicrography, use of "super-polisher," etc.

Text-book: U. S. Geological Survey Bulletin 914, *Microscopic Determination of the Ore Minerals.*

Occasional seminars and seven, nine, or eleven hours laboratory work a week.

Mr. Warren.

525 [25]. *Petrogeny.*—As in Arts. (See page 228).

526 [26]. *Mineral Deposits.*—As in Arts. (See page 229).

531. *Advanced Invertebrate Palaeontology.*—As in Arts. (See page 229).

Department of Mathematics

150 [2]. *Trigonometry and Geometry.*—Graphs and periodicity of simple and compound trigonometric functions; inverse functions, trigonometric equations, and identities; De Moivre's theorem; series expansions; exponential, logarithmic, and hyperbolic functions. Selected topics in geometry.

Text-books: Palmer and Leigh, *Plane and Spherical Trigonometry,* McGraw-Hill; Rider, *Analytical Geometry,* Macmillan.

(2-0-2-0)

151 [3]. *Algebra.*—Complex numbers, polynomials, rational functions, and their graphs; interpolation formulae; numerical solution of equations; determinants; infinite series.

Text-book: Nowlan, *College Algrebra,* McGraw-Hill.

(2-0-2-0)

152 [4]. *Calculus.*—An introductory study of the differential and integral calculus, and some of the simpler applications.

Text-book: Sherwood and Taylor, *Calculus,* revised edition, Prentice-Hall.

(2-0-2-0)

153. *Mathematics for Forestry.* — Introduction to the calculus; practical trigonometry; elementary statistics; mathematics of investment.

Text-book: Currier, Watson, and Frame, *General Mathematics,* Macmillan. (3-0-3-0)

250 [6]. *Calculus.*—Differential and integral calculus with various applications.

Text-book: Nelson, Folley, and Borgman, *Calculus,* Heath.

(3-0-3-0)

251 [7]. *Plane and Solid Geometry.*—A study of the conics, cycloids, and other plane curves; elementary statistics and curve fitting; solid analytic geometry; introduction to spherical trigonometry; elementary vector analysis.

Text-books: Palmer and Leigh, *Plane and Spherical Trigonometry,* McGraw-Hill; Rider, *Analytical Geometry,* Macmillan.

(2-0-2-0)

320. *Differential Calculus.*—As in Arts. (See page 249).

321. *Integral Calculus and Differential Equations.*—As in Arts. (See page 249).

322. *Algebra and Geometry.*—As in Arts. (See page 249).

350 [8]. *Applied Calculus and Differential Equations.* — More advanced calculus, including harmonic analysis, interpolation, Fourier series; probability; ordinary and partial differential equations met in physics and engineering.

Text-book: Reddick and Miller, *Advanced Mathematics for Engineers,* revised edition, Wiley.

(3-0-3-0)

401. *Analysis.*—As in Arts. (See page 249).

402 [17]. *Theory and Applications of Differential Equations.*—As in Arts. (See page 250).

Department of Mechanical and Electrical Engineering

Mechanical Engineering

152 [1]. *Mechanical Drawing.*—Free hand lettering, orthographic projection; dimensioning; thread conventions; technical sketching; detail and assembly drawings of machine parts; tracing and blueprinting. (0-3-0-3)

Text-book: Svenson, *Essentials of Drafting,* Van Nostrand.

Mr. Wolfe.

352. [2]. *Mechanical Drawing.*—Continuation of M.E. 152. Isometric and oblique projection; auxiliary views; more advanced working drawings; checking a drawing.

This course commences immediately upon the close of the spring examinations and continues for a period of twelve days, eight hours a day.

Required of Third Year students proceeding in Agricultural, Chemical, Electrical, Mechanical, and Metallurgical Engineering.

Text-book: Svenson, *Essentials of Drafting,* Van Nostrand.

Reference: Schuman, *Technical Drafting,* Harpers.

Mr. Wolfe.

356. *Machine Shop Practice.*—Practical experience on the basic metal cutting machines; engine lathe, shaper, drill press and milling machine. Simple jigs and fixtures. Layout and bench work.

Reference: Ford Trade School, *Shop Theory,* McGraw-Hill.

Mr. McIlroy. (0-2-0-2)

358. [31]. *Machine Shop Practice.*—Similar to M.E. 356 but intended for students in Electrical Engineering.

Mr. McIlroy. (0-3*-0-3*)

361 [3]. *Kinematics of Machines.*—Velocity and acceleration diagrams of mechanisms; instantaneous centre of rotation; slider crank and quadric-crank chain; quick return mechanisms; inversion; straight line motions; epi-cyclic trains; miscellaneous mechanisms.

Text-book: Schwamb, Merrill, and James *Elements of Mechanism;* 6th edition, Wiley.

Mr. Richmond. (3-2-0-0)

363 [5]. *Machine Design 1.*—A study is made of the design of machines and machine parts. Emphasis is placed on the selection of proper materials and the rational design of standard machine parts for strength, giving proper consideration to rigidity, safety, and economical operation.

Text-books: Faires, *Design of Machine Elements,* Macmillan; Marks, *Mechanical Engineers' Handbook,* 4th edition, McGraw-Hill.

Mr. Richmond. (0-0-3-2)

365 [4]. *Dynamics of Machines.*—Diagrams of crank effort, piston velocity, and acceleration; flywheel; balancing, rotating, and reciprocating masses; secondary balancing; governors, brakes, and dynamometers; belt-drives; dynamics of the gyroscope; friction and friction-clutches; impulsive forces in mechanisms.

Text-book: Low, *Applied Mechanics,* Longmans.

Mr. Vernon. (2-0-2-0)

371 [6]. *Applied Thermodynamics.* — A practical course for students not specializing in Mechanical and Electrical Engineering. Fuels and combustion; steam boilers; steam engines and turbines; combustion engines; air compression; refrigeration.

Text-book: Severns and Degler, *Steam, Air and Gas Power,* Wiley.

Mr. Wolfe. (2-3-2-3)

373 [7]. *Applied Thermodynamics.*—This course deals with the application of the laws of thermodynamics to problems concerning steam cycles and steam engines, the flow and compression of air, the combustion of fuels, internal combustion engines, and refrigerating machines.

Text-book: Faires, *Applied Thermodynamics,* Macmillan.

References: A.S.M.E. *Power Test Codes;* Shoop and Tuve, *Mechanical Engineering Practice,* McGraw-Hill.

Mr. McIlroy. (3-3-3-3)

375. *Applied Thermodynamics.*—Similar to M.E. 373, but modified to meet the needs of students in Electrical Engineering.

Mr. McIlroy. (3-3-3-3)

377. *Mechanical Services.*—This course deals with the heating, ventilation, and plumbing design of buildings. The subjects treated include the calculation of building heat losses and gains; design of the various steam, hot water, and warm air heating systems; measurement of air flow and design of duct systems; layout and practice of plumbing and sanitation for buildings; drainage systems; water supply; sewage disposal; materials and fixtures.

Text-book: Gay and Fawcett, *Mechanical Equipment of Buildings,* Wiley.

Mr. Thomson. (2-0-2-0)

456. *Manufacturing Processes.*—The application of Machine Shop Practice to modern manufacturing processes. (1-0-1-0)

463 [16]. *Machine Design 2.*—A continuation of Mechanical Engineering 363, which includes the design of power transmission equipment such as belts, gears, etc. Emphasis is placed on the use of rational formulas in the design of machine parts.

In the drawing office period the student is required to design simple machines and to prepare the working drawings necessary for their construction.

Text-books: Faires, *Design of Machine Elements,* Macmillan; Marks, *Mechanical Engineers' Handbook,* 4th edition, McGraw-Hill.

Mr. Richmond. (2-3-2-3)

465 [17]. *Applied Mechanics.*—This course deals with the theory of mechanical vibrations, applications being made to the problems of vibration isolation and absorption, and the torsional vibrations of internal combustion engines. In addition, methods of experimental stress analysis are considered, such as photoelasticity and strain measurement by electric gauges. Some mathematical stress analysis is also included.

Text-book: Freberg and Kemler, *Elements of Mechanical Vibration,* Wiley.

References: Den Hartog, *Mechanical Vibrations,* McGraw-Hill; Timoshenko, *Strength of Materials,* Parts 1 and 2, Van Nostrand.

Mr. Richmond. (0-2-2-2)

467. *Mechanical Design.*—A course dealing with the various problems arising in the electrical power field. The subjects treated include electrical machines, transmission lines and hydraulic, steam and diesel power plants.

Text-book: Morse, *Power Plant Engineering and Design,* Van Nostrand.

Mr. Thomson. (2-0-2-0)

471 [15]. *Prime Movers.*—A more advanced course in the theory of all types of prime movers, namely, water turbines, steam turbines, and internal combustion engines.

Water Turbines: impulse turbines; Pelton wheel; Girard turbine; reaction turbines; Francis turbine; Kaplan turbine; specific speeds; draft tube; centrifugal pumps; reciprocating pumps; hydraulic pressure machines.

Steam Turbines: flow through nozzles; impulse turbines; De Laval, Curtis, Zoelly, Rateau; velocity compounding; pressure compounding; reaction turbines; Parsons; velocity diagrams; reheating of steam; the reheat cycle; the regenerative cycle; bleeding condensers and air pumps; steam consumption of turbines.

Internal Combustion Engines: a more advanced course in the thermodynamic theory design, and performance of petrol, gas, and oil engines.

Text-book: Polson, *Internal Combustion Engines,* Wiley.

References: Goudie, *Steam Turbines,* Longmans; Stodola, *Steam and Gas Turbines,* McGraw-Hill; Moyer, *Steam Turbines,* Wiley; Lea, *Hydraulics,* Longmans; Gibson, *Hydro-electric Engineering,* Vol. I, Blackie.

Mr. Vernon. (3-0-3-0)

472 [10]. *Mechanical Engineering Laboratory.*—The work carried out embodies the operation and testing of the various laboratory machines, illustrating the theory covered in the corresponding lecture courses. Written reports are required on the tests carried out.

Mr. Vernon. (0-3-0-3)

475 [12]. *Design of Steam Power Plants.*—A study of the function construction, and performance of the various units that comprise a modern steam power plant; i.e., boilers, grates, chimneys, pumps, feed-water heaters, economisers, condensers, steam piping and valves, fuel and ash-handling equipment; calculations regarding

capacity, efficiency, and operating cost of the various types of these units; inspection trips to a number of local plants.

Text-book: Skratzki and Vopot, *Applied Energy Conversion,* McGraw-Hill.

References: Gebhardt, *Steam Power Plant Engineering,* Wiley; Gaffert, *Steam Power Stations,* McGraw-Hill.

Mr. McIlroy. (2-3-0-0)

477 [11]. *Heating, Ventilating, Air Conditioning, and Refrigeration.*—Factors affecting human comfort; calculation of building heat losses and gains; design of the various steam, hot-water, and warm-air heating systems; measurement of air flow and design of duct systems; air humidification and dehumidification; design and performance of the various refrigerating apparatus; study of refrigerants; heat transfer and flow of fluids.

Text-book: Severns, *Heating, Ventilating, and Air Conditioning Fundamentals,* Wiley.

References: Macintire, *Refrigeration Engineering,* Wiley; A. S. H.V.E. *Guide;* Allen and Walker, *Heating and Air Conditioning,* McGraw-Hill.

Mr. Thomson. (2-0-2-3)

481 [18]. *Aeronautics.*—General theory of flight; aerofoils, lift, drag, distribution of pressure, aspect ratio, effect of variation of camber; stream lines, airscrews, performance curves; general principles of design and methods of construction; theory of stability.

Text-book: Jones, *Elements of Practical Aerodynamics,* Wiley.

Mr. Vernon. (3-3-3-3)

COURSES FOR GRADUATE STUDENTS

561. *Advanced Applied Mechanics.*—This course deals with the various problems of stress analysis of interest to machine designers. The behaviour of actual material in machines will also be considered with emphasis being placed on plasticity and creep effects, fatigue or endurance properties, and impact and dynamic effects. The laboratory period is utilized for problems and computations, and experimental methods of stress analysis.

Text-book: Timoshenko, *Strength of Materials,* Parts I and II, Van Nostrand.

Mr. Richmond. (2-3-2-3)

563 [101]. *Applied Theory of Elasticity.*—A study of the mathematical theory of elasticity as applied to various problems arising in mechanical engineering. The subjects treated include plane stress and plane strain in rectangular and polar co-ordinates, the torsion problem, and the bending of prismatical bars.

References: Timoshenko, *Theory of Elasticity,* McGraw-Hill; Southwell, *Theory of Elasticity,* Oxford.

Mr. Richmond.

565. *Mechanical Vibrations.*—This course will continue the study of mechanical vibrations started in M.E. 465 and will consider the vibration of elastic bodies, engine dynamics and torsional vibrations, self-excited vibrations, vibration of non-linear systems, and other subjects of interest in machine design. The laboratory period is utilized for problems and computations, and methods of vibration measurement.

Text-book: Den Hartog, *Mechanical Vibrations,* McGraw-Hill.

Mr. Richmond. (2-3-2-3)

567. *Heat Transfer.*—A study of theory of heat transfer as applied to various problems arising in the field of mechanical engineering. The mechanism of heat transfer by conduction, convection, and radiation is studied and practical applications of each mechanism are considered.

References: McAdam, *Heat Transmission,* McGraw-Hill; Brown and Marco, *Elementary Heat Transfer,* McGraw-Hill; selected references from current engineering periodicals.

Mr. Wolfe. (2-0-2-0)

573. *Power Plant Design.*—This course will study the practical design of Steam Generating Plants and their auxiliaries. The students will prepare engineering reports on topics associated with the design of plants, such as Power Plant Loading, Fuel Supplies, Stoker Selection, etc. A weekly seminar is included for discussion of the reports.

References: Morse, *Power Plant Engineering,* Van Nostrand; Sabin and Crocker, *Piping Handbook;* current periodicals.

Mr. Wolfe. (2-0-2-0)

Electrical Engineering

351. *D. C. Machines and A. C. Circuits.*—The theory and characteristics of direct current generators and motors. Single-phase and polyphase alternating current circuits; power measurements.

Text-books: Hehre and Harness, *Electrical Circuits and Machinery,* Vols. I and II, Wiley; *Junior Laboratory Manual.*

Mr. Kersey. (2-3-2-3)

353 [2]. *Principles of D. C. Machines.*—Electromagnetic theory. The theory, operating characteristics, efficiency, and applications of direct current generators and motors.

Text-book: Hehre and Harness, *Electrical Circuits and Machinery,* Vol. I, Wiley.

Reference: Langsdorf, *Principles of Direct Current Machines,* McGraw-Hill.

Mr. Pullinger. (2-0-1-0)

355 [3]. *Principles of Alternating Currents.*—A thorough treatment of alternating current theory and calculations, with an introduction to the principles of the chief alternating current machines.

Text-book: Kerchner and Corcoran, *Alternating Current Circuits,* Wiley.

Reference: Hehre and Harness, *Electrical Circuits and Machinery,* Vol. II, Wiley.

Mr. Morgan. (1-0-2-0)

356 [2 and 3 *Laboratory*].—Experimental work and problems on D.C. machines and A.C. circuits, illustrating the theory covered in E.E. 353 and E.E. 355.

Text-book: *Junior Laboratory Manual.*

Mr. Morgan. (0-3-0-3)

357. *Electronics and Electron Tubes.*—Motion of charged particles; structure of atoms; electrons in metals thermionic emission; electrical discharges in gases; electron tubes and their characteristics; rectifiers and elementary circuits.

Text-books: Ryder, *Electronic Engineering Principles,* Prentice-Hall; *Electronics Laboratory Manual.*

Mr. Kersey. (2-2*-2-2*)

451 [1]. *Electrical Circuits and Apparatus.*—A general course for students not specializing in Electrical or Mechanical Engineering. The course includes the theory of D.C. and A.C. circuits and machinery, and the theory and application of electron tubes.

Text-book: Fitzgerald, *Basic Electrical Engineering,* McGraw-Hill.

Mr. Noakes. (2-2-2-2)

453 [14]. *Alternating Current Machines.*—The theory and characteristics of alternating current machines. For Fourth Year students in Mechanical Engineering.

Text-books: Hehre and Harness, *Electrical Circuits and Machinery,* Vol. II, *Alternating Currents,* Wiley; *Senior Laboratory Manual.*

Mr. Morgan. (2-3-2-3)

457 [12]. *Principles of Alternating Current Machines.*—A detailed analysis of the theory and characteristics of alternating current machinery, including the transformer, the alternator, the synchronous motor, the induction motor, the rotary converter, and the commutator motor.

Text-books: Langsdorf, *Theory of Alternating Current Machinery,* McGraw-Hill; Vickers, *The Induction Motor,* Pitman; *Senior Laboratory Manual.*

Reference: Puchstein and Lloyd, *Alternating Current Machines,* Wiley.

Mr. Coulthard. (3-6-3-6)

459 [7]. *Design of Electrical Machinery.*—The design of direct and alternating current motors and generators and of constant potential transformers, with special reference to the theory and limits of design.

Text-book: Kuhlmann, *Design of Electrical Apparatus,* Wiley.

Reference: Still, *Elements of Electrical Design,* McGraw-Hill.

Mr. MacLeod. (1-3-1-3)

461 [8]. *Electrical Illumination.*—Radiation; luminous flux; light sources; photometric units and measurements; vision; lighting design.

Text-book: Kraehenbuehl, *Electric Illumination;* Wiley.

Reference: Boast, *Illumination Engineering,* McGraw-Hill.

Mr. Morgan. (2-0-0-2)

463 [9]. *Electric Power Transmission and Distribution.*—The calculation of line resistance, inductance, and capacitance; steady state currents and voltages; circle diagrams; corona and insulators; transmission line design; the electrical layout of power plants, substations, and distribution systems; short circuit calculations; relays; an introduction to the theory of rates.

Text-book: *Electrical Transmission and Distribution Reference Book,* Westinghouse.

References: Ware and Reed, *Communication Circuits,* Wiley; Kerchner and Corcoran, *Alternating Current Circuits,* Wiley.

Mr. Noakes. (2-2-2-2)

465. *Electrical Communication.*—Resonant and coupled circuits; the theory and application of vacuum tubes as amplifiers, oscillators, modulators and detectors; miscellaneous aspects of tubes and circuits; electrical characteristics of telephone lines and cables; filters and impedance transformation.

Text-book: Terman, *Radio Engineering,* 3rd edition, McGraw-Hill; *Laboratory Manual.*

Reference: Ware and Reed, *Communication Circuits,* Wiley. (2-3-2-3)

467 [13]. *Electrical Theory, Instruments, and Measurements.*—A review of electrical units and dimensions; electrical instruments and measurements; bridges; electrical theory, including transient phenomena.

Text-books: Golding, *Electrical Measurements and Measuring Instruments,* Pitman; Coulthard, *Transients in Electric Circuits,* Pitman.

Mr. Coulthard. (2-0-2-0)

COURSES FOR GRADUATE STUDENTS

551 [101]. *Electromagnetic Theory and Electronics.*—A study of electromagnetic fields and waves with reference to radio and electronics engineering. The main subjects are Maxwell's equations, potentials, circuit concepts, propagation and reflection of electromagnetic waves, radiation; transmission lines, wave guides, radio circuits and apparatus, with special reference to high frequencies.

References: Bronwell and Beam, *Theory and Application of Microwaves,* McGraw-Hill; Ramo and Whinnery, *Fields and Waves in Modern Radio,* Wiley; current journals.

Mr. Noakes. (2-3-2-3)

553. *Electric Power Systems.*—The theory of power flow; synchronous machine characteristics; electrically long transmission lines; generalized circuit constants and circle diagrams; symmetrical components and surge phenomena.

References: *The Westinghouse Transmission and Reference Book;* Wagner and Evans, *Symmetrical Components,* McGraw-Hill; current journals.

Mr. Noakes. (2-3-2-3)

555. *Application of Operational Methods to Engineering.*—Operational mathematics applied to the solution of linear and of partial differential equations; and to topics selected from electric circuit theory, dynamical theory, electric transmission lines, conduction of heat, and electric wave and diffusion problems.

References: Coulthard, *Transients in Electric Circuits,* Pitman; McLachlan, *Complex Variable and Operational Calculus,* Cambridge; Gardener and Barnes, *Transients in Linear Systems,* Wiley.

Mr. Coulthard. (2-0-2-0)

Department of Mining and Metallurgy

Mining

350 [1]. *Principles of Mining 1.*—Mine economics, prospecting, exploration, mine development, breaking ground, ground support, transportation.

Text-book: Lewis, *Elements of Mining,* Wiley.

References: Young, *Elements of Mining,* McGraw-Hill; Peele, *Mining Engineers' Handbook,* Wiley (a reference for all courses in mining.)

Mr. Crouch. (2-0-2-0)

450 [3]. *Principles of Mining 2.*—A continuation of Mining 350; mineral economics, mine sampling and valuation, mining methods.

References: Hoover, *Economics of Mining, Stanford;* Parks, *Examination and Valuation of Mineral Property,* Addison-Wesley.

Mr. Crouch. (2-0-2-0)

451. *Mine Management.*—Mine plant; mine ventilation, industrial hygiene, accident prevention; mine organization and management; mining law.

Mr. Crouch. (2-0-2-0)

454 [8]. *Problems and Reports.*—Problems in mine plant design; reports on selected topics; discussion of current technical literature.

Reference: Staley, *Mine Plant Design,* McGraw-Hill.

Mr. Crouch. (0-2-0-4)

Metallurgy

350 [1*(b)*]. *Chemical Metallurgy.*—Introduction to metallurgy, fuels; refractories; pyrometry; elementary physico-chemical principles of metallurgical operations. These principles are illustrated

in the laboratory by application to hydro-, pyro-, and electro-metallurgical reactions, including some aspects of fire- and wet- assaying.

Text-book: Newton, *Introduction to Metallurgy,* Wiley.

References: Shepard and Dietrich, *Fire Assaying,* McGraw-Hill; Liddell, *Handbook of Non-ferrous Metallurgy,* 2nd edition, McGraw-Hill; *Basic Open Hearth Steelmaking,* Part 2, A.I.M.E.

Mr. Forward, Mr. Samis. (2-3-2-3)

351 [1*(a)*]. *Physical Metallurgy.*—Structure and physical properties of metals; alloy equilibrium diagrams; principles of heat treatment of steel and non-ferrous alloys; properties of alloys; specifications.

Text-book: Heyer, *Engineering Physical Metallurgy,* Van Nostrand.

Reference: Samans, *Engineering Metals and Their Alloys,* Macmillan.

Mr. Forward and Mr. Armstrong. (2-0-1-0)

352 [1*(c)*]. *Metallography.*—Preparation of specimens and observation of micro-structures; heat treatment of carbon steels and non-ferrous alloys; simple physical tests.

Text-book: Kehl, *The Principles of Metallographic Laboratory Practice,* 2nd edition, McGraw-Hill.

Reference: Teichert, *Ferrous Metallurgy—Metallography and Heat Treatment of Steel,* Volume III, McGraw-Hill.

Mr. Armstrong. (0-3*-0-3*)

360. *Seminar.*—Discussion of current topics in the field of mining and metallurgy; oral presentation of the subject matter contained in the Third Year Essay; training and practice in public speaking and technical writing. (0-0-0-1)

450. *Theoretical Metallurgy.*—The development of the free energy concepts of the phase rule, heats of reaction and equilibria as they relate to metallurgical processes and alloys. The laboratory course serves to illustrate the application of these principles in oxidation and reduction, electro-metallurgy, melts, gas reactions, and certain phases of alloying operations.

Mr. Samis. (2-3-2-3)

451 [2]. *Applied Chemical Metallurgy.*—The application of chemical principles in roasting, leaching, smelting, and refining, illustrated by the operations encountered in the metallurgy of iron and steel, the common base metals, light metals, precious metals, and ferro-alloys.

References: Stoughton, *Metallurgy of Iron and Steel,* 4th edition, McGraw-Hill; *Basic Open Hearth Steelmaking,* A.I.M.E.; Liddell, *Handbook of Non-ferrous Metallurgy,* 2nd edition, McGraw-Hill.

Mr. Forward, Mr. Armstrong, Mr. Samis. (2-0-2-0)

452 [*3(a)*]. *Physical Metallurgy.*—The structure and deformation of metals and alloys; phase changes in the solid state; effect of alloy additions to steel; principles of heat treatment; quenching media; special alloys; cast-iron; atmosphere control.

Text-books: Seitz, *Physics of Metals,* McGraw-Hill; Beynon, *The Physical Structure of Alloys,* Longmans.

References: Hume-Rothery, *The Structure of Metals and Alloys,* 1947 edition, Institute of Metals; Bain, *The Alloying Elements in Steel,* American Society for Metals; Bullens, *Steel and Its Heat Treatment,* 5th edition, Wiley; *Metals Handbook,* 1948 edition, American Society for Metals; Heyer, *Engineering Physical Metallurgy,* Van Nostrand; Barrett, *Structure of Metals,* McGraw-Hill.

Mr. Forward, Mr. Armstrong. (2-0-2-0)

453 [*3(b)*]. *Metallurgical Calculations.*—A laboratory course dealing with problems related to the fields of combustion, roasting, smelting, leaching, and refining, with particular emphasis on the thermodynamic and other physico-chemical principles involved.

Text-book: Butts, *Metallurgical Problems,* 2nd edition, McGraw-Hill.

Mr. Samis. (0-2-0-2)

454 [4]. *Laboratory and Research Methods.*—In the First Term, laboratory analysis of metallurgical products. In the Second Term, study of selected problems in (a) Mineral Dressing, *or* (b) Chemical Metallurgy, *or* (c) Physical Metallurgy. Emphasis is laid on the methods of laboratory procedure and preparation of engineering reports.

Mr. Howard, Mr. Samis, Mr. Armstrong. (0-3-0-6)

456 [9]. *Applications of Metallography.*—A continuation of the work in Metallurgy 352: polishing ferrous and non-ferrous metals; identification of micro-constituents; macro-etching; contact prints; photography; radiographic, magnetic, and fluorescent inspection methods.

Text-book: Kehl, *Principles of Metallographic Laboratory Practice,* McGraw-Hill.

Mr. Armstrong. (0-3*-0-3*)

457 [7]. *Plant Management.*—Metal production statistics and markets; ore-buying contracts; personnel and labour relations; metallurgical accounting, cost-finding, and inspection; professional ethics. A weekly seminar is included for formal discussion of current technical and social topics to provide training in the organization and oral presentation of engineering reports. Students are also required to prepare a written report on the production methods and economic aspects of one of the metals.

Mr. Forward, Mr. Crouch, Mr. Howard, Mr. Armstrong, Mr. Samis. (1-1-1-1)

458. *Process Laboratory.*—A laboratory course illustrating the application of chemical principles in the reduction, separation, and purification of metals.

Mr. Samis. (0-3-0-3)

459. *Mechanical Metallurgy.*—The relation between metallurgical factors and mechanical properties of metals; the principles of fabricating methods; material selection; metallurgical design problems.

References: Hollomon and Jaffe, *Ferrous Metallurgical Design,* Wiley; Sachs and Van Horn, *Practical Metallurgy,* American Society for Metals.

Mr. Armstrong. (2-0-0-0)

COURSES FOR GRADUATE STUDENTS

550. *Metallurgy.*—A laboratory course consisting of research studies in mineral dressing *or* chemical metallurgy *or* physical metallurgy, and the presentation of a thesis.

552. *Advanced Physical Metallurgy.*—Theories of the metallic crystalline state as applied to plastic deformation, fracture, creep, fatigue, anelasticity, recrystallization, anisotropy, age hardening, and decomposition of austenite. The experimental methods of obtaining information in this field will be discussed and illustrated by problems.

Mr. Armstrong. (2-0-2-0)

553. *Advanced Theoretical Metallurgy.*—A lecture and problem course dealing with the application, in the field of metallurgy, of the principles of chemical physics, including studies in statistical mechanics, reaction rates, theory of electrolytes, character of electrothermal processes, and related topics.

Reference: Slater, *Introduction to Chemical Physics,* McGraw-Hill.

Mr. Samis. (2-0-2-0)

Mineral Dressing

350 [1]. *Mineral Dressing 1.*—A study of the fundamental principles of mineral dressing; testing procedure; sampling; crushing; screening; grinding; classification; gravity concentration; flotation; cyanidation; magnetic separation; milling calculations. Selected laboratory experiments show the application of the fundamental principles to the treatment of representative ores.

Text-book: Richards and Locke, *Text-book of Ore Dressing,* Wiley.

References: Taggart, *Handbook of Mineral Dressing,* Wiley; Wark, *Principles of Flotation,* Australasian Institute of Mining and Metallurgy; Dorr, *Cyanidation and Concentration of Gold and Silver Ores,* McGraw-Hill; Gaudin, *Principles of Mineral Dressing,* McGraw-Hill; current periodicals.

Mr. Howard. (2-3*-2-3*)

450 [3]. *Mineral Dressing 2.*—A continuation of Mineral Dressing 350 with special reference to flowsheets; mill location and design; smelter contracts; metallurgical calculations; non-metallics; coal preparation; plant control. Laboratory tests on the treatment of selected ores.

Text-book: Richards and Locke, *Text-book of Ore Dressing,* Wiley.

Mr. Howard. (2-6*-2-0)

COURSE FOR GRADUATE STUDENTS

550. *Theory of Fine Particles.*—Measurement of particle size and surface area; physical and chemical behaviour of fine particles; methods of separation; settling; filtration; use of electrolytes; effect of slime coatings.

Reference: Dalla Valle, *Micromeritics,* 2nd edition, Pitman.

Mr. Howard. (2-0-2-0)

Department of Nursing and Health

151 [1]. *History of Nursing.*—A study of the origin and history of nursing.

Miss McCann. (1-0-1-0)

152 [2]. *Elementary Biochemistry, as Applied to Physiology.*

Mr. Allardyce. (1-0-1-0)

153 [3]. *Bacteriology in Relation to Health and Disease.*—A course of lectures, demonstrations, and laboratory work, designed to emphasize the practical applications of bacteriology to medical and nursing problems.

Methods of isolation, culture, and identification of pathogenic micro-organisms; aseptic technique; disinfection and antisepsis; infection and resistance; active immunization procedures; bacteriology in relation to public health.

References: Henrici, *Biology of Bacteria,* latest edition, Heath; Bigger, *Handbook of Bacteriology,* latest edition, Williams and Wilkins.

This course is the same as Bacteriology 153. (See page 165).

(1-4-1-4)

154. Essay.—Presentation of a written report to indicate the relation of some phase of the academic programme to nursing.

454 [4]. *Preventive Medicine.*—A study of the public health aspects of preventable disease, including the acute infections; tuberculosis and venereal diseases; heart disease, cancer, and other degenerative conditions; preparation and utilization of biological products; and the newer knowledge of nutrition.

Text-book: Smillie, *Preventive Medicine and Public Health,* 1946, Macmillan.

(3-0-2-0)

455 [5]. *Mental Hygiene.*—An introduction to the study of mental illness, with emphasis upon its prevention; child guidance clinics and the psychiatric social history.

457 [7]. *Infant and Child Health.*—A study of the nurse's responsibility in the promotion and maintenance of individual health, with emphasis on the care of the infant and child.

459 [9]. *Sanitation.*—A study of community sanitation and of relevant legislative measures; field visits.

Mr. Ranta. (1-0-0-0)

461 [11]. *Public Health Organization.*—A series of lectures dealing with the organization and administration of health services.

Special lecturers. (1-0-0-0)

463 [13]. *The Principles and Practice of Public Health Nursing.*—A study of the evolution of the principles of public health nursing and their application to skills which are essential to the professional competence of the public health nurse.

Miss Morrison. (3-0-3-0)

466 [16]. *Health Teaching.*—A course designed to prepare the public health nurse for her role as a health teacher. Consideration is given to content and technique.

(3-0-3-0)

467 [17]. *Current Nursing Problems.*—Consideration of the professional problems of nurses, particularly those of the present.

Miss Mallory. (1-0-1-0)

468 [18]. *Teaching in Schools of Nursing.*—Application of principles and methods of teaching to school of nursing curricula.

Miss Mallory. (2-0-2-0)

469 [19]. *Principles of Supervision in Schools of Nursing.*—A study of the organization of the school of nursing, with especial reference to the function of a word or teaching unit; a discussion of experience records, case studies, ward clinics, and other means which assist in the correlation of theory and practice.

Miss Mallory. (2-0-2-0)

471 [21]. *Social Case Work.*—Consideration of the general principles underlying social case work and the interrelation of community health and welfare agencies. (0-0-2-0)

477 [27]. *Sociology of the Family.*—A study of the family as a primary unit of society. (2-0-0-0)

481 [31]. *Principles and Methods of Teaching.*

(2-0-0-0)

485 [35]. *Essay.*—Presentation and discussion of a written report upon an elected problem or topic within the scope of nursing education or public health nursing.

486 [36]. *Field Work in Nursing B*.*—Field Work will be arranged with community organizations. It may be necessary for part of this field work to be taken before and after the academic year.

487 [37]. *Field Work in Nursing C.*—Opportunities will be provided for observation and limited participation in teaching, supervision, and ward management in the schools of nursing of associated hospitals during and at the close of the academic year.

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*In calculating the probable expense of the course, students are reminded to allow for costs in connection with field work. The sum of $100.00 is mentioned as probably the maximum amount required to cover the expenses of board and lodging while with the rural nursing organization, and of transportation.

Department of Physics

The instruction includes lectures on the general principles of physics, accompanied by courses of practical work in the laboratory.

100 [1]. *Elementary Physics.*—As in Arts. (See page 264).

101. *Elementary Physics.*—As in Arts. (See page 264).

150 [4*(a)*]. *Mechanics.*—An elementary treatment of statics, kinematics, and dynamics, with particular emphasis on the working of problems.

Text-book: Singer, *Engineering Mechanics,* Harper.

(3-3-0-0)

151. *Heat.*—It is assumed that the student is already familiar with the elementary principles of heat.

Text-book: Edser, *Heat for Advanced Students,* Macmillan.

(0-0-3-3)

160. *Mechanics and General Physics.*—This course is intended for those students who are proceeding to a degree in Architecture. The following are among the topics included in the course: statics, dynamics, heat, heat transfer and radiation. The emphasis is placed upon those fundamental principles of physics which find application in architecture.

Text-book: Singer, *Engineering Mechanics,* Harper.

(2-3-2-3)

250 [5]. *Electricity and Magnetism.* — A quantitative study of fundamental principles of electricity and magnetism, with special reference to the fact that the student is to be an engineer. The course includes a short treatment of the elements of alternating currents and an introduction to vacuum tube circuits.

Reference: Nelkon, *Electricity and Magnetism,* Arnold.

(2-3-2-3)

260. *Electricity, Light and Acoustics.*—This course is intended for those students who are proceeding to a degree in Architecture. The subject matter includes: the fundamentals of electricity and the principles of the production, reflection, transmission and absorption of light and sound. Emphasis is placed on fundamental principles having application to architecture.

References: Knudsen, *Architectural Acoustics,* Wiley; Boast, *Light, Photometry and Illumination Engineering,* McGraw-Hill.

(2-3-2-3)

302. *Mathematical Physics.*—As in Arts. (See page 266).

304. *Thermodynamics.*—As in Arts. (See page 267).

308. *Physical Optics.*—As in Arts. (See page 267).

360 [10]. *Light.*—A short lecture course for engineering students. The subject matter includes radiation theory, photography, interference instruments, refractometers, spectroscopy, and applications of polarized lighting to engineering.

References: Gibb, *Optical Methods of Chemical Analysis,* McGraw-Hill; McAdams, *Heat Transmission,* McGraw-Hill.

401 [11]. *Electricity and Magnetism.*—As in Arts. (See page 268).

402 [12]. *Introduction to Atomic Structures.*—As in Arts. (See page 268).

403. *Statistical Theory of Matter.*—As in Arts. (See page 268).

405. *Theory of Elasticity and Flow.*—As in Arts. (See page 269).

407. *Introduction to Nuclear Physics and Cosmic Rays.*—As in Arts. (See page 269).

409. *Experimental Physics.*—As in Arts. (See page 270).

460. *Metallurgical Physics.*—Elements of the structure and properties of matter; X-ray methods; spectroscopy; surface phenomena. (2-0-2-0)

461. *Geophysics.*—A course of lectures dealing with geophysical exploration. The course covers magnetic, electrical, gravimetric and seismic methods of exploration for oil and minerals. Special attention is paid to the interpretation of the results of each method.

Reference: Nettleton, *Geophysical Prospecting for Oil,* McGraw-Hill. (2-0-2-0)

552. *Introduction to Theoretical Physics.*—Applications of vector analysis to problems in mechanics, elasticity, fluid flow, electricity, and magnetism.

Text-book: Page, *Introduction to Theoretical Physics,* Van Nostrand. (3-0-3-0)

Department of Zoology

NOTE. Biology 100 is prerequisite to all courses in Zoology. Zoology 200 is prerequisite to all other courses in Zoology except in the case of students in Forestry who wish to take courses in forest entomology but do intend to major in it.

200 [1]. *General Zoology.*—As in Arts. (See page 286).

306 [11]. *Biology of the Vertebrates.*—As in Arts. (See page 288).

308. *General Forest Entomology.*—As in Arts. (See page 288).

402. *Advanced Forest Entomology.*—As in Arts. (See page 289).

409. *Principles of Wildlife Biology and Conservation.*—As in Arts. (See page 291).

410. *Biology and Management of Upland and Farm Game.*—As in Arts. (See page 291).

459. *Introductory Forest Entomology.*—Insects in relation to forestry: types of damage and losses, recognition of typical forest insects, control methods, salvage and pre-salvage problems. Open to Forest Engineering students only.

Text-book: Keen, *Insect Enemies of Western Forests,* U.S. Dept. of Agric. Misc. Publ. No. 273.

References: Doane, Van Dyke, Chamberlain, and Burke, *Forest Insects,* McGraw-Hill; Graham, *Principles of Forest Entomology,* 2nd edition, McGraw-Hill.

Mr. Graham. (2-2-0-0)

THE FACULTY OF AGRICULTURE

1949-1950

FACULTY OF AGRICULTURE

INFORMATION FOR STUDENTS IN AGRICULTURE

The particular course of study* selected by any student in the Faculty of Agriculture is determined by his previous training and by the use he intends to make of his university work, whether for farming, district agricultural work, teaching, research, industry, or other vocation.

The first two years of work leading to the degree in Agriculture are devoted largely to acquiring a knowledge of the basic sciences, in adding to the student's knowledge of language, and in laying a foundation for more advanced studies in the practical and scientific phases of agriculture and of related subjects.

During the first year, the student who is not yet clear as to what special phase of agriculture he may care to follow is given an opportunity of becoming acquainted with the general field of agriculture and of its various branches, through the medium of an orientation course (Agriculture 100). This introductory course is given in the applied departments.

During the last two years of the four-year general course the student is permitted, in consultation with the Dean, the Committee on Courses, and the head of a department, to select from a wide list of subjects either a generalized course in agriculture or a specialized course in some one phase of agriculture, as in Agricultural Economics, Agricultural Mechanics, Agronomy; Animal Husbandry, Dairy, Horticulture, Poultry Husbandry; or a still further specialized course within these or closely allied fields, such as in Animal or Plant Nutrition, Animal or Plant Pathology, Applied Genetics, Bacteriology, Entomology, Physiology, Soils, and similar fields of study.

Details with regard to Honours courses will be found on pages 387-399.

The extent of the course, whether for a few weeks or for several years, and the nature of the course, whether generalized or specialized, scientific or practical, is to be decided by each individual on the advice of the Dean, the Committee on Courses, and a department head.

In advising on the selection of courses or vocation, the student's personal preference and his adaptability are given careful consideration.

For those interested in continuing their university training beyond the work of the four or five years leading to the bachelor's degree,

*The curriculum described in the following pages may be changed from time to time as deemed advisable by the Senate.

excellent opportunity is afforded in many of the fields mentioned above for further work leading to the master's degree.

For further information regarding the various courses, see statements which follow the *Outline of Courses;* also descriptions of courses as listed under the separate departments. For details with regard to Honours courses, see particulars on pages 387-399.

Admission, Registration, Etc.

For statement as to general requirements for admission to the University, registration, etc., see pages 40-45.

Physical Education

Two activity courses in Physical Education are required of all students in First and Second Years of the Faculty of Agriculture except ex-service personnel and members of military units operating on the campus. For details of requirements see pages 149-152 in the Faculty of Arts and Science.

Degrees

The degrees offered in this Faculty are:

Bachelor of Science in Agriculture (B.S.A.).

Bachelor of Science in Agriculture (B.S.A.) with Honours.

Courses of Study

Three distinct groups of courses are offered, as follows:

Degree Courses

(a) A four-year general course leading to the degree of Bachelor of Science in Agriculture (B.S.A.). (See page 386).

(b) A five-year course leading to the degree of Bachelor of Science in Agriculture (B.S.A.) with Honours. (See pages 387-399).

Diploma Courses

(a) A one-year occupational course leading to a Diploma in Agriculture. (See page 385).

(b) A course for professional gardeners leading to a Diploma in Horticulture. (See page 385).

Short Courses

Short courses are offered at the University and at various points in the Province under the auspices of the Department of University Extension.

The Occupational Course

The Occupational Course is planned for those students whose academic qualifications may not be high, but whose practical qualifications are satisfactory. The course permits of work in Agricultural Economics, Agricultural Mechanics, Agronomy, Animal Husbandry, Dairying, Farm Mechanics, Horticulture, and Poultry Husbandry on the part of those who wish to extend their practical knowledge. A successful completion of the course leads to a diploma in Agriculture. University Entrance standing is not required.

Course for Professional Gardeners

This course in Horticulture is designed to give special training in the more important horticultural practices, together with instruction in horticulture and in certain closely allied subjects.

The course is intended to prepare students for the profession of gardening. Prerequisites include high school graduation or its equivalent. A *Certificate of Progress* will be issued on satisfactory completion of certain required courses, together with four years' experience in applied horticulture. On satisfactory completion of certain additional University courses, together with five years of experience in applied horticulture, a *Diploma in Horticulture* will be granted.

It is anticipated that instruction in certain courses will be offered during the session 1949-50. Details will be provided through the Registrar's office.

Short Courses

The Short Courses are planned for those men and women who are unable to take advantage of the longer courses, but who desire to extend their knowledge of agriculture in one or more of those branches in which they are particularly interested. The work throughout is intensely practical. Illustrative materials and periods devoted to demonstration and judging work are features of the course. No entrance examination is required, nor are students asked to write an examination at the conclusion of the course.

Special announcements giving details of the various divisions of the course are issued in December of each year, and may be obtained from the Director of University Extension on application.

Curriculum

Courses are described in terms of units. A unit normally consists of one lecture hour (or one continuous laboratory period of not less than two or more than three hours) a week throughout the session, or two lecture hours (or equivalent laboratory periods) throughout a single term.

Courses Leading to the Degree of B.S.A.

University Entrance standing, or its equivalent, is required for admission to all courses leading to the degree of B.S.A.

Four-Year General Course

Students are required to select their courses in consultation with the head of the department in which the undergraduate essay is to be written. In addition to Agriculture 100, all students are required to take as a minimum of agricultural subjects outside of their major department twelve units of courses to be chosen in not fewer than three of the seven departments: Agricultural Economics, Agronomy, Animal Husbandry, Dairying, Agricultural Mechanics, Horticulture, and Poultry Husbandry. Students writing essays in fields other than those indicated above, such as Plant Pathology and Economic Entomology, are required to include in their outlines at least Agronomy 202, Horticulture 213, Horticulture 441, and Horticulture 442.

At the beginning of the First Term of each session all students are required to submit to the Dean for approval by the Committee on Courses an outline of courses to be taken during that session.

FIRST AND SECOND YEARS

The requirements for the first two years consist of 30 units, 15 of which must be taken in each year. Courses must be chosen in conformity with the requirements that follow.

Each student must take:

(a) Agriculture 100
(b) Biology 100
(c) Chemistry 100 or 105
(d) English 100 and 101, and either English 200 or English 205
(e) Mathematics 100
(f) Three units from electives A
(g) Not less than 9 units from electives B and C, at least 6 of which shall be from electives B

ELECTIVES

A	B	C
Agricultural Mechanics 201	Bacteriology 201	German 90
Agronomy 202	Biology 330	Spanish 90
Agronomy 211	Botany 200	Commerce 251
Animal Husbandry 215	Chemistry 200	Economics 200
Dairying 203	Geology 201 and 202	Political Science
Horticulture 213	Mathematics 200, 201 *or* 202	History 101
Poultry Husbandry 200 and 201	Physics 100 *or* 101	University Entrance Language 3 *or* 6 units
	Zoology 200	Psychology 100
		Home Economics

Students who enter with standing higher than that of University Entrance may on approval of the Committee on Courses be excused from Agriculture 100, but if so excused, are required to take 6 units from electives A for credit in First and Second Years.

Students who contemplate proceeding to the Normal School after taking one year of the course in Agriculture may take the First Year course in the language taken for University Entrance in First Year and defer either Chemistry 100 or 105 or Biology 100 until Second Year.

Subject to the approval of the Dean and the Committee on Courses, other subjects from the Faculty of Arts and Science, or from the Faculty of Applied Science, may be accepted for credit in the Faculty of Agriculture; also, but for First Year only, from Senior Matriculation; further, any two of the elective subjects in the Second Year not taken in that year, subject to approval, may be taken in the Third Year. A student may take in his Fourth Year an elective of the Second Year subject to the approval of the Faculty.

THIRD AND FOURTH YEARS

Prior to registration, and preferably before the close of the Second Year, all students are required to discuss with the Dean all courses which they intend to take.

There are no specific subjects which must be taken by all students; students are required, however, to elect up to a total of 36 units essay included, but not more than 18 units of study may be undertaken in either year without approval of the Faculty.

A student's standing at graduation will be determined by averaging the grades obtained in the best 36 units of required work taken in the Third and Fourth Years.

An essay shall be prepared by each student on some topic, the subject of which shall be selected, with the approval of the heads of the departments concerned, before the end of the Third Year's work.

Two typewritten copies of each essay on standard-size paper (8½x11 in.) shall be submitted not later than the last day of lectures in the Second Term of the graduating year. The corresponding date for the Autumn Congregation shall be October 1st.

Five-Year Honours Courses

Honours courses in any of the departments, consisting of 87 units of work, extend over a period of five academic years, or their equivalent. For admission to Honours standing the student must have at least Second Class standing in 33 units of work in the first two years. Courses must be selected as follows:

FIRST YEAR

Course and Number	Description	Units	See Page
Agriculture 100	General Agriculture	3	401
Biology 100	Intro. Biology	3	411
Chemistry 100 or 105	General Chemistry	3	411
English 100	Literature	3	415
English 101	Composition		
Mathematics 100	Intro. Mathematics	3	419

SECOND YEAR

Course and Number	Description	Units	See Page
English 200	Literature	3	415
Or English 205	Composition		
Mathematics 202	Calculus	3	419
Physics 100 or 101	Elementary Physics	3	419
Elective A	(See Head of	3	386
Electives B and/or C	Department)	6	386

THIRD, FOURTH AND FIFTH YEARS

In order to retain Honours standing, at least Second Class standing must be obtained in each of the succeeding years in all courses as required by the head of the department concerned.

The specific subjects listed below, which must be taken in the Third, Fourth, and Fifth Years in the various Honours courses, must be approved by the Dean and by the head of the department concerned. Eighteen units constitute a full course in each of these years. In addition to Agriculture 100, all students are required to take, as a minimum of agricultural subjects outside of their major department, twelve units of courses to be chosen in not fewer than three of the seven departments, Agricultural Economics, Agricultural Mechanics, Agronomy, Animal Husbandry, Dairying, Horticulture, and Poultry Husbandry.

A student's standing at graduation will be determined by averaging the grades obtained in the best 36 units of required work taken in the Fourth and Fifth Years. If a student fails to meet the above requirement with regard to Second Class standing in his Fifth Year, he may be granted Pass standing for graduation.

An essay shall be prepared by each student on some topic, the subject of which shall be selected, with the approval of the head of the department concerned, before the end of the Fourth Year's work.

Two typewritten copies of each essay on standard-size paper (8½x11 ins.) shall be submitted not later than the last day of lectures in the Second Term of the graduating year. The corresponding date for the Autumn Congregation shall be October 1st.

Candidates for Honours are required to take at the end of their Fifth Year a general examination, oral or written, or both, as the department or departments concerned shall decide. This examina-

tion is designed to test the student's knowledge of his chosen subject or subjects as a whole, and is in addition to the ordinary class examinations of the Third, Fourth, and Fifth Years.

Agricultural Economics

THIRD YEAR

Course and Number	Description	Units	See Page
Agric. Econ. 301	Intro. to Agric. Econ.	3	401
Commerce 361	Marketing	3	412
Economics 335	Statistics 1	3	414
Language		3	.....
Electives		6	.....

FOURTH YEAR

Course and Number	Description	Units	See Page
Agric. Econ. 300	Farm Management	3	401
Agric. Econ. 401	Marketing	3	402
Economics 310	International Trade	3	414
Electives		9	.....

FIFTH YEAR

Course and Number	Description	Units	See Page
Agric. Econ. 425	Undergraduate Essay	3	402
Economics 300	Money and Banking	3	414
Economics 400	Advanced Economic Theory	3	414
Economics 435	Statistics 2	3	414
Electives		6	.....

Agricultural Mechanics

THIRD YEAR

Course and Number	Description	Units	See Page
Agric. Econ. 300	Farm Management	3	401
Agric. Mech. 302	Advanced Motors	3	403
Agronomy 313	Phys. Prop. of Soils	1½	406
Agronomy 314	Soil Conservation	1½	406
Elective			
or Agronomy 211	Intro. to Soils		406
or Chemistry 200	Quant. and Qual. Analysis	3	412
Language		3	.....
Physics 200	Mechanics, Molecular Physics, and Heat	3	419

FOURTH YEAR

Course and Number	Description	Units	See Page
Agric. Mech. 305	Irrigation & Drainage	3	403
Agric. Mech. 404	Building Construction	3	403
Agric. Mech. 406	Advanced Machinery	3	404
Agric. Mech. 408	Advanced Mechanics	3	404
Electives	(From Agriculture)	6	.....

FIFTH YEAR

Course and Number	Description	Units	See Page
Agric. Mech. 410	Shopwork	1½	404
Agric. Mech. 412	Rural Electrification	1½	404
Agric. Mech. 425	Undergraduate Essay	3	404
Electives	(From Agriculture)	4½	.....
Electives	(From Applied Science)	6	.....

Agricultural Science

SECOND YEAR

Course and Number	Description	Units	See Page
English 200	Literature		
or English 205	Composition	3	415
Mathematics 202	Calculus	3	419
Physics 100 or 101	Elementary Physics	3	419
Elective A			
Agronomy 211	Intro. to Soils	3	406
Elective B			
Botany 200	Botany (Intro.)	3	411
Chemistry 200	Quan. and Qual. Analysis	3	412

THIRD YEAR

Course and Number	Description	Units	See Page
Agronomy 202	Field Crops	3	404
Animal Husbandry 215	Fund. of An. Husbandry	3	408
Bacteriology 201	Intro. Bacteriology	3	411
Chemistry 300	Organic Chemistry	3	412
Dairying 203	Fund. of Dairying	3	412
Language		3	.....

FOURTH YEAR

Course and Number	Description	Units	See Page
Agric. Econ. 300	Farm Management	3	401
Agric. Mech. 201	General Mechanics	3	402
Electives		3	.....
Horticulture 213	Practical Horticulture	3	415
Poultry Husbandry 200	Fund. of P.H.	1½	420
Poultry Husbandry 201	Fund. of P.H.	1½	420
Zoology 200	General Zoology	3	423

FIFTH YEAR

Course and Number	Description	Units	See Page
Electives		15	.....
Undergraduate Essay		3	.....

Agronomy

THIRD YEAR

Course and Number	Description	Units	See Page
Agronomy 202	Field Crops		404
or Agronomy 211	Intro. to Soils	3	406
Botany 200	Botany (Introductory)	3	411
Chemistry 300	Organic Chemistry	3	412
Electives		6	.....
Language		3	.....

FOURTH YEAR

Course and Number	Description	Units	See Page
Agricultural Economics		3	401
Agronomy 304	Range Management	1½	405
Agronomy 305	Pasture Management	1½	405
Agronomy 313	Phys. Prop. of Soils	1½	406
Agronomy 314	Soil Conservation	1½	406
Biology 330	Prin. of Genetics	3	.....
Electives		3	.....
Geology or Geography		3	.....

FIFTH YEAR

Course and Number	Description	Units	See Page
Agronomy 406	Field Crop Technology	1½	405
Agonomy 407	Plant Breeding and Seed Production	3	405
Agronomy 416	Soil Genesis, Morphology, and Classification	1½	407
Agronomy 425	Undergraduate Essay	3	407
Animal Husbandry		3	.....
Electives		6	.....

Plant Breeding

THIRD YEAR

Course and Number	Description	Units	See Page
Agronomy 211	Intro. to Soils	3	406
Biology 330	Principles of Genetics	3	411
Botany 316	Plant Path. (Elementary)	2	411
Botany 330	Plant Physiology	2	411
Chemistry 300	Organic Chemistry	3	412
Horticulture 441	Plant Nutrition (a)	2	418
Language		3	.....

FOURTH YEAR

Course and Number	Description	Units	See Page
Agronomy 406	Field Crop Technology	1½	405
Agronomy 407	Plant Breeding and Seed Production	3	405
Agronomy 421	Biometry	1½	407
Botany 300	Economic Flora	1½	411
or Zoology 302	Intro. to Entomology	3	423
Botany 340	Histology	2	411
Electives		to 18	.....
Horticulture 213	Practical Horticulture	3	.....

FIFTH YEAR

Course and Number	Description	Units	See Page
Agronomy 405	Field Crops (Advanced)	1½	405
Agronomy 416	Soil Genesis, Morphology, and Classification	1½	407
Agronomy 425	Undergraduate Essay	3	407
Botany 300	Economic Flora	1½	411
or Zoology 302	Intro. to Entomology	3	423
Botany 415	Plant Path. (Advanced)	3	411
Electives		to 18	.....

Soils

THIRD YEAR

Course and Number	Description	Units	See Page
Agronomy 202	Field Crops	3	404
Agronomy 312	Soil Bacteriology	3	406
Agronomy 313	Physical Properties of Soil	1½	406
Agronomy 314	Soil Conservation	1½	406
Chemistry 300	Organic Chemistry	3	412
Chemistry 304	Theoretical Chemistry	3	412
Language		3	.....

FOURTH YEAR

Course and Number	Description	Units	See Page
Agronomy 415	Chemical Properties of Soils	3	407
Agronomy 416	Soil Genesis and Classification	1½	407
Agronomy 421	Biometrical Methods	1½	407
Botany 200	Introductory Botany	3	411
Chemistry 310, or	Adv. Quant. and Qual. Analysis	3	412
Chemistry 409 and	Adv. Organic Chemistry	1½	412
Dairying 413	Dairy Mycology	1½	413
Geology 201 and 202, or	General Geology	3	415
Biology 400, or	General Physiology		411
Bacteriology 301	Immunology		411
Elective		3	.....

FIFTH YEAR

Course and Number	Description	Units	See Page
Agronomy 423	Seminar	1	407
Agronomy 425	Essay	3	407
Botany 330	Plant Physiology	2	411
Chemistry 425 or	Biochemistry	3	412
alternate		3	.....
Electives		9	.....

Animal Nutrition

THIRD YEAR

Course and Number	Description	Units	See Page
Agronomy 211	Introduction to Soils	3	406
Animal Husbandry 322	Animal Nutrition	3	409
Chemistry 300	Organic Chemistry	3	412
Chemistry 304	Theoretical Chemistry	3	412
Dairying 304	Dairy Bacteriology	1½	413
Dairying 305	Dairy Bacteriology	1½	413
Language		3	.....

FOURTH YEAR

Course and Number	Description	Units	See Page
Agronomy 421	Biometrical Methods	1½	407
Animal Husbandry 422	Animal Feeding	3	409
Chemistry 310	Advanced Analysis	3	412
Chemistry 409	Adv. Organic Chemistry	1½	412
Chemistry 425	Biochemistry	3	412
Poultry Husbandry 410	Poultry Nutrition	1½	422
Electives		4½	.....

FIFTH YEAR

Course and Number	Description	Units	See Page
Animal Husbandry 425	Undergraduate Essay	3	410
Animal Husbandry 522	Adv. Animal Nutrition	3	410
Biology 400	General Physiology	3	411
Electives		9	.....

Animal Science

THIRD YEAR

Course and Number	Description	Units	See Page
Agronomy 202	Field Crops	3	404
Bacteriology 201	Intro. Bacteriology	3	411
Botany 200	Intro. Botany	3	411
Chemistry 300	Organic Chemistry	3	412
Dairying 203	Fundamentals of Dairying	3	412
Language		3	.....

FOURTH YEAR

Course and Number	Description	Units	See Page
Agronomy 211	Introduction to Soils	3	406
Agronomy 421	Biometrical Methods	1½	407
Animal Husbandry 322	Animal Nutrition	3	409
Biology 330	Principles of Genetics	3	411
Biology 400	General Physiology	3	411
Electives		4½	.....

FIFTH YEAR

Course and Number	Description	Units	See Page
Animal Husbandry 419	Seminar	3	409
Animal Husbandry 425	Undergraduate Essay	3	410
Electives		12	.....

Commerce

THIRD YEAR

Course and Number	Description	Units	See Page
Agricultural Economics 301	Intro. to Ag. Ec.	3	401
Commerce 361	Marketing	3	412
Electives		9	.....
Language		3	.....

FOURTH YEAR

Course and Number	Description	Units	See Page
Economics 300	Money and Banking	3	414
Economics 335	Statistics	3	414
Commerce 453	Advanced Accounting	3	412
Agricultural Economics 401	Marketing	3	402
Electives		6	.....

FIFTH YEAR

Course and Number	Description	Units	See Page
Commerce 471	Business Finance	3	412
Commerce 481	Industrial Management	3	412
Commerce 491	Commercial Law	3	412
Electives		6	.....
Undergraduate Essay		3	.....

Dairy Bacteriology

THIRD YEAR

Course and Number	Description	Units	See Page
Agronomy 211	Intro. to Soils	3	406
Dairying 304	Dairy Bacteriology	1½	413
Dairying 305	Dairy Bacteriology	1½	413
Chemistry 300	Organic Chemistry	3	412
Chemistry 304	Theoretical Chemistry	3	412
German 90	Beginners' Course	3	415
Animal Husbandry 215	Fund. of A.H.		408
or Ag. Mech. 301	Food Mechanics		403
or Bacteriology 301	Immunology	3	411

FOURTH YEAR

Course and Number	Description	Units	See Page
Agronomy 312	Soil Bacteriology	3	406
Chemistry 425	Biochemistry	3	412
Dairying 301	Dairy Technology	3	412
Dairying 413	Dairy Mycology	1½	413
Electives		7½	.....

FIFTH YEAR

Course and Number	Description	Units	See Page
Dairying 407	Adv. Dairy Bacteriology	3	413
Dairying 425	Undergraduate Essay	3	414
Dairying 430	Undergraduate Seminar	3	414
Electives		9	.....

Dairy Technology

To be taken in accordance with the curriculum provided under Food Technology. The electives of the Second Year are Dairying 203, Bacteriology 201, and Chemistry 200. The electives of the Fifth Year are to be selected after consultation with the Head of the Department.

Entomology

Students wishing to take Honours in this field must consult the Dean of Agriculture with regard to selection of courses.

N.B. Zoology 200 must be taken in the Second Year.

Food Technology

Students interested in Food Technology in relation to Fisheries are advised to consult the Department of Zoology before the third year with regard to selection of courses. Zoology 200 should be taken in the Second Year.

The electives of the Fourth and Fifth Years are to be selected after consultation with the Head of the Department in which the Graduating Essay is being written.

THIRD YEAR

Course and Number	Description	Units	See Page
Agricultural Mechanics 301	Food Mechanics	3	403
Agronomy 211	Introduction to Soils	3	406
Agronomy 306	Identification and Standards	1½	405
Chemistry 300	Organic Chemistry	3	412
Chemistry 304	Theoretical Chemistry	3	412
Dairying 304	Dairy Bacteriology	1½	413
Dairying 305	Dairy Bacteriology	1½	413
Poultry Husbandry 306	Identification and Standards	1½	421

FOURTH YEAR

Course and Number	Description	Units	See Page
Agricultural Mechanics 401	Advanced Food Mechanics	3	403
Agronomy 312	Soil Bacteriology	3	406
Agronomy 421	Biometrical Methods	1½	407
Animal Husbandry 406	Identification and Standards	1½	409
Chemistry 425	Biochemistry	3	412
Dairying 406	Identification and Standards	1½	413
Horticulture 406	Identification and Standards	1½	416
Elective		3	.....

FIFTH YEAR

Course and Number	Description	Units	See Page
Dairying 413	Dairy Mycology	1½	413
Nutrition		3	.....
Commerce 559	Industrial Accounting	3	412
Electives, including essay		10½	.....

Horticultural Science

THIRD YEAR

Course and Number	Description	Units	See Page
Agronomy 211	Intro. to Soils	3	406
Botany 300	Economic Flora	1½	411
Botany 302	Descriptive Taxonomy	1½	411
Horticulture 314	Commercial Horticulture	1½	416
Horticulture 315	Hort. Prod. and By-prod.	1½	416
Horticulture 316	Landscape Gard. and Floriculture	1½	416
Horticulture 317	Vegetable Gardening	1½	416
Horticulture 340	Food Values of Horticultural Crops		418
or Biology 330	Principles of Genetics	3	411
Zoology 302	Intro. to Entomolgy	3	423

FOURTH YEAR

Course and Number	Description	Units	See Page
Botany 316	Plant Path. (Elementary)	2	411
Elective	(From Biology or Agric.)	2	.....
Horticulture 418	Systematic Horticulture	1½	417
Horticulture 419	Spec. Hort. Crops	1½	417
Horticulture 420	Methods of Research	3	417
Horticulture 441	Plant Nutrition (a)	2	418
Horticulture 442	Plant Nutrition (b)	2	418
Horticulture 443	Seminar in Pl. Nutrition	2	419
Zoology 305	Economic Entomology	2	423

FIFTH YEAR

Course and Number	Description	Units	See Page
Electives	(From Biology or Agric.)	to 18	.....
Horticulture 425	Undergraduate Essay	3	417
Horticulture 430	Research in Hort.	3	417
Horticulture 500	Research in Hort.	3-5	417
Horticulture 547	Advanced Plant Nutrition	4	419

Plant Nutrition

THIRD YEAR

Course and Number	Description	Units	See Page
Agronomy 211	Intro. to Soils	3	406
Bacteriology 201	Intro. Bacteriology	3	411
Chemistry 300	Organic Chemistry		412
or Horticulture 441	Plant Nutrition (a)	3	418
Elective	(From Biology or Agric.)	3	.....
Two of			
Horticulture 314	Commercial Horticulture		416
Horticulture 315	Hort. Prod. and By-prod.		416
Horticulture 316	Landscape Gardening and Floriculture		416
Horticulture 317	Vegetable Gardening	3	416
Horticulture 340	Food Values of Hort. Crops	3	418

FOURTH YEAR

Course and Number	Description	Units	See Page
Electives	(From Agric. or Botany)	6½	.....
Horticulture 418	Systematic Horticulture	1½	417
Horticulture 420	Methods of Research	3	417
Horticulture 441	Plant Nutrition (a)		.....
or Chemistry 300	Organic Chemistry	3	412
Horticulture 442	Plant Nutrition (b)	2	418
Horticulture 443	Seminar in Pl. Nutrition	2	419

FIFTH YEAR

Course and Number	Description	Units	See Page
Electives	(From Agric., Biol., or Chemistry)	8	.....
Horticulture 425	Undergraduate Essay	3	417
Horticulture 545	Research in Plant Nutrition	3	419
Horticulture 547	Advanced Plant Nutrition	4	419

Poultry Nutrition

THIRD YEAR

Course and Number	Description	Units	See Page
Bacteriology 201	Intro. to Bacteriology	3	411
Chemistry 300	Organic Chemistry	3	412
Elective		3	.....
Language		3	.....
Poultry Husbandry 400	Poultry Farm Management	1½	421
Poultry Husbandry 401	Incubation and Hatchery Management	1½	421
Zoology 300	Comp. Anat. of Vertebrates		423
or Zoology 303	Histology		423
or Zoology 304	Vertebrate Embryology	3	423

FOURTH YEAR

Course and Number	Description	Units	See Page
Agronomy 421	Biometry	1½	407
Chemistry 425	Outlines of Biochemistry	3	412
Dairying 304	Dairy Bacteriology	1½	413
Dairying 305	Dairy Bacteriology	1½	413
Electives		7½	.....
Poultry Husbandry 410	Poultry Nutrition	1½	422
Poultry Husbandry 411	Feeding Management	1½	422
Poultry Husbandry 420	Physiology of Sex		423
or P.H. 310	Breeding and Judging	1½	421

FIFTH YEAR

Course and Number	Description	Units	See Page
Animal Husbandry 422	Animal Feeding	3	410
Biology 400	General Physiology	3	411
Electives		6	.....
Poultry Husbandry 405	Seminar	1½	422
Poultry Husbandry 415	Diseases and Hygiene	1½	422
Undergraduate Essay		3	.....

Poultry Science

THIRD YEAR

Course and Number	Description	Units	See Page
Bacteriology 201	Intro. Bacteriology	3	411
Biology 431	Problems in Genetics	3	411
Chemistry 300	Organic Chemistry	3	412
Elective		3	.....
Language		3	.....
Poultry Husbandry 400	Poultry Farm Management	1½	421
Poultry Husbandry 401	Incubation and Hatchery Management	1½	421

FOURTH YEAR

Course and Number	Description	Units	See Page
Agronomy 421	Biometry	1½	407
Biology 430	Seminar in Genetics	3	411
Electives		4½	.....
Poultry Husbandry 300	Markets and Marketing	1½	420
Poultry Husbandry 410	Poultry Nutrition	1½	422
Poultry Husbandry 411	Feeding Management	1½	422
Zoology 300	Comparative Anatomy of Vertebrates	3	423
Poultry Husbandry 420	Phys. of Sex Reproduction and Endocrinology	1½	423

FIFTH YEAR

Course and Number	Description	Units	See Page
Animal Husbandry 423	Animal Breeding	3	410
Biology 400	General Physiology	3	411
Poultry Husbandry 310	Breeding and Judging	1½	421
Poultry Husbandry 311	Advanced Breeding	1½	421
Poultry Husbandry 405	Seminar	1½	422
Poultry Husbandry 415	Diseases and Hygiene	1½	422
Undergraduate Essay		3	.....
Zoology 304	Vertebrate Embryology	3	423

Plant Pathology

Students wishing to take Honours in this field must consult the Dean of Agriculture with regard to selection of courses.

Teacher Training Course

As well as satisfying the requirements of their own departments in the Faculty, students planning to enter the Teacher Training Course through Agriculture must have at least nine units of credit to be selected at will from the following subjects: Chemistry, Mathematics, Physics or Biology (including Botany and Zoology), in addition to Chemistry 100 or 105, Mathematics 100, Physics 100 or 101, and Biology 100.

Students who intend to proceed to the Teacher Training Course are required to take Psychology 100 as a prerequisite to Educational Psychology.

For further particulars see *Teacher Training Course* under Faculty of Arts and Science.

Examinations and Advancement

1. Examinations in all subjects, obligatory for all students, are held in April. In the case of subjects which are final at Christmas and in the case of courses of the First and Second Years, examinations will be held in December as well. Applications for special consideration on account of illness or domestic affliction must be submitted to the Dean not later than two days after the close of the examination period. In cases where illness is the plea for absence from examinations, a medical certificate must be presented on the appropriate form, which may be obtained from the Dean's office.

2. Undergraduate students in all years as well as those taking work in the Summer Session will not be considered as having passed unless they obtain 50 per cent. or more in each subject.

3. Successful candidates will be graded as follows: First Class, an average of 80 per cent. or over; Second Class, 65 to 80 per cent.; Passed, 50 to 65 per cent.

4. If a student's general standing in the final examinations of any year is sufficiently high, the Faculty may grant him supplemental examinations in the subject or subjects in which he has failed. Notice will be sent to all students to whom such examinations have been granted.

For regulations regarding re-reading of papers, see *Faculty of Arts and Science,* "Examinations and Advancement" (section 5, page 163).

5. Supplemental examinations will be held in August-September. Special examinations will not be granted, except by special permission of the Faculty, and on payment of a fee of $7.50 for each paper. Application for special examinations must be made at least two weeks prior to the scheduled meetings of the Faculty in October and February.

6. Applications for supplemental examinations, accompanied by the necessary fees (see *Fees*), must be in the hands of the Registrar by August 1st. For local centres at which supplemental examinations may be written in September, see page 163, section 6.

7. No student may enter a higher year with supplemental examinations still outstanding in respect of more than 3 units of the preceding year, nor with any supplemental examination outstanding in respect of the work of an earlier year or of University Entrance, unless special permission to do so is granted by the Faculty. Such permission will be granted only when the Faculty is satisfied that the failure to remove the outstanding supplemental examinations had an adequate cause.

8. A student may not continue in a later year any subject in which he has a supplemental examination outstanding from an earlier year, except in the case of compulsory subjects in the Second Year.

9. A student who is not allowed to proceed to a higher year may not register as a partial student in respect of the subjects of that higher year. But a student who is required to repeat his year will be exempted from attending lectures and passing examinations in subjects in which he has already made at least 50 per cent. In this case, he may take, in addition to the subjects of the year which he is repeating, certain subjects of the following year.

10. A student who fails twice in the work of the same year may, upon the recommendation of the Faculty, be required by the Senate to withdraw from the University.

11. Any student whose academic record, as determined by the tests and examinations of the First Term of the First or Second Year, is found to be unsatisfactory, may upon the recommendation of the Faculty, be required by the Senate to discontinue attendance at the University for the remainder of the session. Such a student will not be readmitted to the University as long as any supplemental examinations are outstanding.

12. Term essays and examination papers will be refused a passing mark if they are noticeably deficient in English, and, in this event, students will be required to pass a special examination in English to be set by the Department of English.

DEPARTMENTS AND COURSES IN AGRICULTURE

Agriculture

100 [1]. *General Agriculture.*—This course provides by means of lectures, demonstrations, and laboratory exercises a general survey of the field of Agriculture and an introduction to the work of the various branches of Agriculture, such as Agronomy, Animal Husbandry, Dairying, Horticulture, and Poultry Husbandry.

Two lectures and one laboratory period a week. First Year.

The staff. 3 units.

Department of Agricultural Economics

300 [A]. *Farm Organization and Management.*—A study of accounts and records suitable for a farm business. The economic principles involved in making management decisions with respect to rotations, rates of fertilizer application, rates of feeding and combinations of enterprises. Management problems connected with capital equipment, labour, financing, evaluation of a farm, getting started in farming, and obtaining information. Methods used in farm management research.

Text-book: Black, Clawson, Sayre and Wilcox, *Farm Management,* Macmillan.

Two lectures and two hours laboratory a week.

Mr. Anderson. 3 units.

301 [1]. *Introduction to Agricultural Economics.*—A study of agriculture in relation to the rest of the economy; the role of agriculture in economic development; production, supply and demand

functions; the effect of monopolistic elements, changes in price level, population growth and technological progress. References and assigned readings from Black, Dummeier and Heflebower, Boulding and others.

Three lectures a week. Mr. Anderson. 3 units.

401 [2]. *Marketing.*—The principles of marketing as applied to the individual farm and to agriculture as a whole. The contributions of farmer movements to our knowledge of marketing, co-operative marketing, and the evolution of marketing legislation.

References and assigned readings from Patton, Mackintosh, Hibbard, Black, Boyle, Macklin, Benton, and others.

Three lectures a week. Mr. Clement. 3 units.

425. *Undergraduate Essay.* 3 units.

500 [50]. *Agricultural Problems and Policy*—Doctrines that have helped shape attitudes and policy toward agriculture. Fundamentals of the problem of low labour returns. Critical review of present and proposed price and income policies. Lectures, discussions and assigned readings (open to graduates only).

Mr. Anderson. 3 units.

Prerequisites: Agricultural Economics 301 and Economics 400.

(Not given 1949-50.)

501 [51]. *Advanced Marketing.*—A study of the price making forces at the retail, wholesale and farm market level. Critical analysis of various marketing schemes. Lectures, discussions and assigned readings. (Open to graduates only). 3 units.

Prerequisite: Agricultural Economics 401 and Economics 400.

Department of Agricultural Mechanics

The studies in this department are designed to give the student a knowledge of the fundamental principles related to internal combustion engines and machinery. Emphasis is placed on the maintenance, care, and operation of equipment used in agriculture, through practical laboratory training.

201. *General Mechanics.*—A study of the internal combustion engine and related material such as fuels, lubricants, and general maintenance, operation, and repair.

Text-book: Elliott and Consoliver, *The Gasoline Automobile,* McGraw-Hill.

Two lectures and three hours laboratory a week. 3 units.

301. *Food Mechanics.*—A study of the mechanics of food technology, including power drives, pumps, refrigeration, steam, use of concrete, and maintenance of equipment.

Text-book: Farrell, *Dairy Engineering,* Wiley.

Reference Text: Jacobs, *Food and Food Products,* Vols. I and II, Inter-Science Publishing Co.

Prerequisites: Physics 100 or 101, Mathematics 202.

Two lectures and three hours laboratory a week. 3 units.

302. *Advanced Motors.*—An advanced study of motors as applied to agriculture, including dynamometer tests, etc.

Text-book: Heldt, *High Speed Combustion Engines,* published by author.

Reference Text: Morrison, *American Diesel Engines,* McGraw-Hill.

Prerequisites: Agricultural Mechanics 201, and Physics 200 or 150 and 151.

Two lectures and three hours laboratory a week. 3 units.

305. *Irrigation and Drainage.*—A study of the mechanical procedures and problems involved in irrigation and drainage.

Text-book: Israelson, *Irrigation Principles and Practices,* Wiley.

Two lectures and three hours laboratory a week. 3 units.

401. *Advanced Food Mechanics.*—An advanced study of the mechanics of food technology.

Text-book: Jacobs, *Food and Food Products,* Vols. I and II, Inter-Science Pub. Co.

References: Sutheim, *Introduction to Emulsions,* Chemical Pub. Co.; Russel, *Text-book on Hydraulics,* Holt; Seferns, *Heating, Ventilation, and Air Conditioning,* Wiley.

Prerequisites: Agricultural Mechanics 301.

Two lectures and three hours laboratory a week. 3 units.

404. *Building Construction.*—A study of building requirements for the farm, including use of concrete, framing, ventilation, insulation, sewage disposal, and heating. Some material will be included in lettering and drafting.

Text-book: Foster and Carter, *Farm Buildings,* Wiley.

Reference Text: Scoates, *Farm Buildings,* Vols. I and II, Texas A. & M.

406. *Advanced Machinery.*—A study of special purpose machinery as used for such products as root crops, bulbs, truck gardening. Emphasis will be on operation, maintenance, and repair.

Prerequisite: Agricultural Mechanics 201.

Two lectures and one laboratory period a week. 3 units.

408. *Advanced Mechanics.*—Lectures, discussions, and papers on advanced agricultural mechanics and related subjects.

Prerequisites: Agricultural Mechanics 201, 302, 406.

Two lectures and one laboratory period a week. 3 units.

410. *Shopwork.*—A combined laboratory class in blacksmithing, oxy-acetylene welding, and arc welding.

Three hours laboratory a week. 1½ units.

412. *Rural Electrification.*—A study of rural electrification developments and problems in Canada with particular reference to British Columbia conditions.

Text-book: To be announced. 1½ units.

425. *Undergraduate Essay.*—A report on a practical problem encountered in summer work. 3 units.

430. *Directed Studies.* 3 units.

501. *Food Mechanics Problems.*—Assigned problems and special studies in food mechanics. 3 units.

Department of Agronomy

General Agronomy.—(Included in Agriculture 100 in the First Year.)

FIELD CROPS

202 [2]. *Field Crops.*—A systematic study of the most important grain, forage, and root crops. The laboratory work includes studies of noxious weed seeds, the commercial and seed grades of Canada, the commercial grain and hay grades of the United States, and the identification and judging of the principal types and varieties of field crops. Special problems of production, weed control, harvesting, and storage are considered, as well as the physical phases of marketing.

Two lectures and one laboratory period a week. 3 units.

303. *Weeds.*—A study of the common noxious weeds of the Province. Influence of weeds on crop growth; identification; mode of reproduction; cultural and chemical methods of control.

Two lectures and one laboratory period a week. Second Term. 1½ units.

304 [4, part]. *Range Management.*—A study of western dryland pastures and their ecological relations. Experimental methods and maintenance problems.

Two lectures and one laboratory period a week. First Term. 1½ units.

305 [4, part] *Pasture Management.*—Principles underlying the management of pasture and haylands of humid areas. Studies in the conservation of fodder crops.

Two lectures and one laboratory period a week. Second Term. 1½ units.

306. *Identification and Standards.*—A study of the grades of farm crops. Particular emphasis is placed on crop types and their quality as determined by different environments.

Open only to students taking the Food Technology Option or with approval of the Head of the Department.

Two lectures and one laboratory period a week. First Term. 1½ units.

405 [5a]. *Field Crops (Advanced).*—Studies of the climatic, ecological, and biological factors which influence the distribution and world production of field crops.

Prerequisite: Agronomy 202.

Two lectures and one laboratory period a week. First Term. 1½ units.

406 [5b]. *Field Crop Technology.*—A study of the chemical constituents of field crops as influenced by climate, soil, and variety, with application to the processing of farm crops.

Prerequisite: Chemistry 200.

Two lectures and one laboratory period a week. Second Term. 1½ units.

407 [6]. *Plant Breeding and Seed Production.*—Principles of plant breeding, methods of crop improvement. Production of improved seed of cereals, forage crops, and roots.

Prerequisites: Biology 330.

Two lectures and one laboratory period a week. 3 units.

422 [22]. *Crop Production Problems.*—Preparation of reports and submission of recommendations based on a detailed study of crops, cropping systems, soils, and soil management practices on individual farms.

Lectures, seminar periods, and research. 3 units.

SOILS

211 [11]. *An Introduction to the Study of Soils.*—Physical, chemical, and biological agencies of weathering; the mechanical constitution of a soil—organic matter, mineral fraction, water and air; the living phase of a soil. Soil development and classification. First Term.

Different systems of cultivation and manuring and their relation to environment. Nutrient levels and moisture relations; soil reaction and liming; use of farm and green manures; commercial fertilizers and their use. Special consideration is given to the soils of British Columbia. Second Term.

References: Lyon and Buckman, *Nature and Properties of Soils,* latest edition; Millar and Turk, *Fundamentals of Soil Science,* latest edition; Collings, *Commercial Fertilisers, Their Sources and Uses,* latest edition.

Two lectures and one laboratory period a week. 3 units.

312 [12]. *Soil Bacteriology.*—Soil as a natural habitat for microorganisms; factors determining distribution and activity of bacterial species. A number of distinct physiological groups of bacteria studied in some detail with particular referencee to influence on fertility. (Same as Bacteriology 312.)

Prerequisite: Bacteriology 201.

References: Waksman, *Principles of Soil Microbiology,* latest edition; Fred, Baldwin, and McCoy, *Root Nodule Bacteria and Leguminous Plants.*

One lecture and two laboratory periods a week. 3 units.

313. *Physical Properties of Soils.*—Relation of physical properties of soil to plant growth, soil management practices, and land utilization. Mechanical make-up of soils, clay minerals, soil structure, soil moisture, air, and temperature relations.

Prerequisites: Agronomy 211 and Physics 100 or 101 or approval of instructor.

Reference: Baver, *Soil Physics,* latest edition.

Two lectures and one laboratory period a week. First Term. 1½ units.

314 [14]. *Soil Conservation.*—Utilization of soil and water resources past and present. A study of the physical and chemical properties of soils, land use, tillage and cropping practices as they pertain to conservation of soil and water resources. Assigned reading.

Prerequisite: Agronomy 313 or approval of instructor.

Two lectures and one laboratory period a week. Second Term. 1½ units.

415. *Chemical Properties of Soils.*—Chemical properties in relation to plant growth. A study of soil colloids, base exchange soil acidity and alkalinity; factors affecting the supply, fixation, and availability of nutrient elements.

Prerequisite: Agronomy 211.

References: Russell, *Soil Conditions and Plant Growth,* latest edition; assigned reading.

Two lectures and one laboratory period a week. 3 units.

416. *Soil Genesis, Morphology, and Classification.*—Factors of soil formation; principles underlying the classification of soils; soil surveying and soil maps. Special emphasis is given to the soils and soil maps of British Columbia. Analytical study of soil horizons.

Two lectures and one laboratory period a week. Second Term. 1½ units.

417. *Soil Surveying.*—Two to three months of field work under direction of an accredited soil surveyor. 1½ units.

NOTE. Second Class standing in Agronomy 416 must be obtained and an essay submitted on field work before credit will be granted in Agronomy 417.

Field Crops and Soils

421. *Biometry.*—Studies in biological variation; graphs; machine calculation of central tendency and dispersion; elementary analysis of variance; simple linear correlation and regression; *chi* square tests.

One lecture and four hours laboratory a week. First Term. 1½ units.

423. *Undergraduate Seminar.*—Discussion of literature relative to student problems. 1 unit.

425. *Undergraduate Essay.*—The preparation of a report on an applied problem. 3 units.

430. *Directed Studies.*—Systematic work on an approved problem. 3 units.

Courses for Graduate Students

500. *Applied Plant Genetics.*—The genetics of crop plants. Lectures, seminar periods, and research. 3 to 5 units.

510. *Field Crops.*—Special phases of field crop production, management, and improvement, with particular emphasis on the application of recent research findings.

Lectures, seminar periods, and research. 3 to 5 units.

512. *Advanced Soil Bacteriology.*—Directed studies on an approved problem. 3 units.

515. *Directed Studies.*—Research in problems related to chemical or physical properties of soils. 3 units.

518. *Graduate Seminar.* 2 units.

Department of Animal Husbandry

General Animal Husbandry.—(Included in Agriculture 100 in the First Year.)

215 [15]. *Fundamentals of Animal Husbandry.*—An introductory course. The judging of livestock and a study of the origin, development, characteristics, and adaptations of the various breeds of cattle, horses, sheep, swine, and goats; principles of breeding, selection, feeding, management, and marketing; disease problems. Students may be required to visit conveniently located farms.

Reference: MacEwen, *Breeds of Farm Livestock in Canada,* Nelson.

Two lectures and one laboratory period a week. 3 units.

316. *Fundamentals of Fur Production.*—The development of fur farming in Canada, together with the origin and improvement under domestication of the various species suitable for fur production. Selection of ranch sites, suitable layouts, buildings, and equipment. Fur farm management practices, including: (a) breeding, rearing of young, feeding, priming, and pelting; (b) sanitation and hygiene as related to production.

Two lectures and one laboratory period a week. 3 units.

320. *Comparative Anatomy of Domestic Animals.*—The gross anatomy of farm animals, with laboratory dissection study of the muscular, respiratory, circulatory, digestive, urinary and reproductive systems. Special attention will be given to embryological and fetal development, placental membranes and their attachment within the uterus of all the important farm animals.

Text-book: To be announced.

Two lectures and one three-hour laboratory period a week. 3 units.

322 [22]. *Animal Nutrition.*—The elements and compounds important to animal nutrition and their relation to the animal organism; the digestive system; the digestion, absorption, assimilation, and disposition of food materials; the causes and effects of malnutrition.

References: Morrison, *Feeds and Feeding,* 20th edition; Maynard, *Animal Nutrition,* 1947.

Two lectures and one laboratory period a week. 3 units.

324. *Advanced Livestock Judging.*—Open only to Third Year students in Animal Husbandry. An intensive laboratory course in judging dairy cattle. Students will be required to make judging trips to near-by farms.

Prerequisite: Animal Husbandry 215.

One laboratory period, 3-5 hours a week. Second Term. 1½ units.

406. *Identification and Standards.*—A study of the grades and definitions for animals and animal products.

Open only to students taking the Food Technology Option, or with the approval of the Head of the Department.

Reference: *Readings on By-Products of the Meat Packing Industry,* University of Chicago.

Two lectures and one laboratory period a week. Second Term. 1½ units.

418 [18]. *Livestock Marketing and Management.*—A study of the requirements of livestock markets, marketing livestock products, and breeding stock; the management of the range, ranch, and farm for the production of livestock.

Reference: Dowell and Bjorka, *Livestock Marketing,* McGraw-Hill.

Two lectures and one laboratory period a week. 3 units.

419 [19]. *Seminar.*—Open to all students interested in animal husbandry. Research and experimental problems; preparation of reports and bulletins; private libraries of research reports, bulletins, and periodicals; livestock advertising and sales, exhibitions, field service, and promotion work. Conducted by staff in Animal Husbandry.

Three periods a week. 3 units.

421. *Physiology of Domestic Animals.*—A study of the physiological functions of the animal body, organs and system. Special study of the body fluids, circulation, respiration, digestion and absorption, and elimination, together with endocrine influence on growth, nutrition, reproduction and the general reaction of the body to disease, injury and parasitism.

Text-book: Dukes, *Physiology of Domestic Animals,* Comstock Pub. Co.

Two lectures and one laboratory period a week. 3 units.

422 [17]. *Animal Feeding.*—A study of feeds and their suitability to the various kinds and classes of livestock; the importance of home-grown materials; the economic and other problems involved in the feeding of all classes of livestock.

References: Morrison, *Feeds and Feeding,* 21st edition, McEwan, *The Feeding of Farm Animals,* 1945.

Two lectures and one laboratory period a week. 3 units

423 [23]. *Animal Breeding.*—A study of variation and inheritance in animals; selection and mating systems for the improvement of livestock; herd, flock, and pedigree studies; hereditary defects and lethals; methods of analyzing animal breeding data.

Reference: Lush, *Animal Breeding Plans,* Collegiate Press, Inc., Ames, Iowa.

Three lectures a week. 3 units.

425 [25]. *Undergraduate Essay.* 3 units.

430 [30]. *Directed Studies.* 3 units.

500 [50]. Research in production, management, and marketing of animals and animal products. 3 to 5 units.

501 [51]. Research in problems associated with physiological disturbances in animals. 3 to 5 units.

502. *Research in Animal Nutrition.*—Directed research in nutritional problems related to animal production. 3 to 5 units.

503. *Research in Animal Breeding.*—Directed research in problems associated with improving the hereditary worth of farm animals. 3 to 5 units.

504. *Graduate Seminar.*—A seminar period for all graduate students in Animal Husbandry.

One hour a week. 1 unit.

522. *Advanced Animal Nutrition.*—A study of special phases of animal nutrition. The course includes a study of the nutritional deficiency state, bioenergetics, and growth.

Reference: Brody *Bioenergetics, and Growth,* 1945.

Prerequisite: Animal Husbandry 322.

Two lectures and one laboratory period a week. 3 units.

530. *Directed Studies.* 3 to 5 units.

Department of Bacteriology and Preventive Medicine

201. *Introductory Bacteriology.*—As in Arts. (See page 165). 3 units.

301. *Immunology.*—As in Arts. (See page 166). 3 units.

Department of Biology and Botany

Biology

100. *Introductory Biology.*—As in Arts. (See page 168). 3 units.

330. *Principles of Genetics.*—As in Arts. (See page 169). 3 units.

400. *General Physiology.*—As in Arts. (See page 169). 3 units.

430. *Seminar in Genetics.*—As in Arts. (See page 170). 3 units.

431. *Problems in Genetics.*—As in Arts. (See page 170). 3 units.

Botany

200. *Botany Introductory.*—As in Arts. (See page 171). 3 units.

304. *Taxonomy of Vascular Plants.*—As in Arts. (See page 171). 1½ units.

310. *Morphology.*—As in Arts. (See page 172). 2 units.

315. *Mycology.*—As in Arts. (See page 172). 3 units.

316. *Plant Pathology Elementary.*—As in Arts. (See page 172). 2 units.

330. *Plant Physiology.*—As in Arts. (See page 172). 2 units.

340. *Histology.*—As in Arts. (See page 172). 2 units.

516. *Plant Pathology Advanced.*—As in Arts. (See page 175). 3 units.

Department of Chemistry

100. *General Chemistry.*—As in Arts. (See page 176). 3 units.

105. *General Chemistry.*—As in Arts. (See page 177). 3 units.

200. *Qualitative and Quantitative Analysis.*—As in Arts. (See page 177). 3 units.

300. *Organic Chemistry.*—As in Arts. (See page 178). 3 units.

304. *Theoretical Chemistry.*—As in Arts. (See page 178). 3 units.

310. *Advanced Quantitative and Qualitative Analysis.*—As in Arts. (See page 178). 3 units.

409. *Advanced Organic Chemistry.*—As in Arts. (See page 179). 1½ units.

425. *Outlines of Biochemistry.*—As in Arts. (See page 180). 3 units.

Department of Commerce

251. *Fundamentals of Accounting.*—As in Arts. (See page 190). 3 units.

361. *Marketing.*—As in Arts. (See page 190). 3 units.

453. *Advanced Accounting.*—As in Arts. (See page 191). 3 units.

471. *Business Finance.*—As in Arts. (See page 191). 3 units.

481. *Industrial Management.*—As in Arts. (See page 191). 3 units.

491. *Commercial Law.*—As in Arts. (See page 192). 3 units.

559. *Industrial Accounting.*—As in Arts. (See page 196). 2 units.

Department of Dairying

General Dairying.—(Included in Agriculture 100 in the First Year.)

203. *Fundamentals of Dairying.*—An introductory course. Principles underlying the hygienic aspects of milk production; the processing, testing, and grading of market milk and related products.

Text-book: Herrington, *Milk and Milk Processing,* McGraw-Hill.

Two lectures and one laboratory period a week. 3 units.

301. *Dairy Technology.*—The principles and practices concerned with the manufacture of butter, cheese, ice cream, and concentrated milk products.

References: Hunziker, *The Butter Industry;* Van Slyke and Price, *Cheese,* Orange Judd Pub. Co. Inc.; Turnbow, Tracy, and Raffetto, *Ice Cream,* Wiley.

Prerequisites: Dairying 203; also Dairying 304 and 305, which may be taken concurrently.

One lecture and six hours laboratory a week. 3 units.

304 [4a] *Dairy Bacteriology.*—The bacteriology of milk; sources of bacteria in milk, and quantitative and qualitative determinations of the bacterial content of milk; normal and abnormal fermentations of milk and a study of certain organisms responsible therefor.

References: Orla-Jensen, *Dairy Bacteriology,* latest edition, Churchill; Hammer, *Dairy Bacteriology,* latest edition, Wiley.

Prerequisite: Bacteriology 201.

Four hours a week. First Term. 1½ units.

305 [4b]. *Dairy Bacteriology.*—The physical and chemical properties of milk and their influence on the growth of bacteria in milk and in milk products; the handling and management of milk for city consumption; the grading of milk and milk products on bacterial standards.

References: Rogers, *Fundamentals of Dairy Science,* latest edition, A.C.S. Monograph; *Standard Methods for the Examination of Dairy Products,* latest edition.

Prerequisite: Bacteriology 201.

Four hours a week. Second Term. 1½ units.

406. *Identification and Standards.*—Laws and regulations relating to the production, manufacturing, and sale of dairy products; the scoring and grading of dairy products; standard methods of bacteriological and chemical analysis.

References: *Standard Methods for the Examination of Dairy Products,* latest edition; *Methods of Analysis of the Association of Official Agricultural Chemists,* latest edition.

Open only to students taking the Food Technology Option, or with the approval of the Head of the Department.

Two lectures and one laboratory period a week. Second Term.

FOR SENIOR OR GRADUATE STUDENTS ONLY

407 [7]. *Advanced Dairy Bacteriology.*—The ripening of hard-pressed cheese and a systematic study of the lactic acid bacteria.

Reference: Orla-Jensen, *The Lactic Acid Bacteria,* Copenhagen.

Prerequisites: Bacteriology 201; Dairying 304 and 305.

One lecture and two laboratory periods a week. 3 units.

413. *Dairy Mycology.*—A study of the molds concerned with the ripening of cheese and the molds and yeasts associated with the spoilage of butter and other dairy products.

Prerequisites: Dairying 304 and 305.

Reference: Henrici, *Molds, Yeasts, and Actinomyces,* Wiley, latest edition.

One lecture and two laboratory periods a week. Second Term. 1½ units.

425 [25]. *Undergraduate Essay.*—A written report on a prescribed laboratory study. Fourth Year. 3 units.

430. *Undergraduate Seminar.*—The presentation, discussion and criticism of scientific and technical papers pertaining to the Dairy Industry. 3 units.

PRIMARILY FOR GRADUATE STUDENTS

500. *Graduate Seminar*—Required of all graduate students in the Department. 3 units.

501. *Metabolism of the Lactic Acid Bacteria.*—A study of the physiological and metabolic processes of the Lactic Acid Bacteria.

Prerequisites: Dairying 304 and 305; Chemistry 425, which may be taken concurrently.

Three lectures a week. 3 units.

(Given in 1949-50 and alternate years)

502. *Laboratory Methods and Procedures.*—Quantitative analytical laboratory methods used in the study of the fermentative and oxidative metabolism of microorganisms associated with dairy products.

Prerequisites: Chemistry 425, which may be taken concurrently.

Six hours a week. 3 units.

Given in 1950-51 and alternate years.

503. *Directed Studies.*—Systematic work on an approved problem. 3 to 5 units.

Department of Economics

200. *Principles of Economics.*—As in Arts. (See page 197). 3 units.

300. *Money and Banking.*—As in Arts. (See page 197). 3 units.

310. *International Trade.*—As in Arts. (See page 198) . 3 units.

335. *Statistics 1.*—As in Arts. (See page 199). 3 units.

400. *Advanced Economic Theory.*—As in Arts. (See page 199). 3 units.

435. *Statistics 2.*—As in Arts. (See page 201). 3 units.

Department of English

100. *Literature.*—As in Arts. (See page 213).
101. *Composition.*—As in Arts. (See page 213). } 3 units.

200. *Literature.*—As in Arts. (See page 213). 3 units.

205. *Composition.*—A course in composition especially designed to meet the needs of students in the Faculty of Agriculture, offering training in economical and accurate objective writing. The work consists of (1) essays, class exercises, and selected reading, and (2) written examinations. Students will be required to make a passing mark in each of these two parts of the work.

Text-book: To be announced.

Three hours a week. 3 units.

Department of French

101. As in Arts. (See page 219). 3 units.

Department of Geology and Geography

Geology

201. *General Geology.*—As in Arts. (See page 223). 2 units.

202. *Laboratory Exercises.*—As in Arts. (See page 223). 1 unit.

Department of German

90. *Beginners' Course.*—As in Arts. (See page 233). 3 units.

100. *Intermediate Reading and Composition.*—As in Arts. (See page 233). 3 units.

101. *Scientific German.*—As in Arts. (See page 233). 3 units.

Department of History

101. *Main Currents in Twentieth-Century History.*—As in Arts. (See page 235). 3 units.

Department of Horticulture

General Horticulture.—(Included in Agriculture 100 in the First Year.)

213 [13]. *Practical Horticulture.*—A detailed study of the principles involved in tree-fruit and small-fruit growing, in plant propa-

gation, and in nursery and greenhouse management, supplemented by orchard, garden, laboratory, nursery, and greenhouse practice in the various horticultural operations.

Two lectures and one laboratory period a week. 3 units.

314 [14]. *Commercial Horticulture.*—A study of the problems connected with the handling of fruits and vegetables—harvesting, grading, packing, shipping, storing, marketing; packing and storage houses; costs of production and of marketing.

Two lectures and one laboratory period a week. First Term. 1½ units.

315 [15a]. *Horticultural Products and By-Products.*—A study of the principles and practices involved in canning of fruits and vegetables; preparation of fruit juices; vinegar making; preservation by freezing; dehydration; etc.

Two lectures and one laboratory period a week. Second Term. 1½ units.

Note. Course 315 takes the same hours as Course 314 in the time table, to give a combined 3 units of work in the marketing and processing of horticultural crops.

316 [16]. *Landscape Gardening and Floriculture.*—The course aims to give the student a working knowledge of the selection, planting, and care of ornamental plants—trees, shrubs, and flowers; with the principles for the improvement of home grounds, school grounds, city streets, and parks. The course includes practice in identification of plant materials; also practice in making of planting plans.

Two lectures and one laboratory period a week. First Term. 1½ units.

NOTE. For students who have had Horticulture 316 as described, further work may be given in the Second Term for an additional 1½ units of credit.

317 [17]. *Vegetable Gardening.*—A study of the problems connected with the commercial growing of vegetables, including the selection of a location, soil requirements, fertilizing, irrigating, and special cultural methods for the more important vegetables. This course also deals with the forcing of vegetable crops.

Two lectures and one laboratory period a week. Second Term. 1½ units.

406. *Identification and Standards.*—A study of horticultural crops and products with particular emphasis on identification and on government grades for fruits and vegetables, both fresh and processed.

Open only to students taking the Food Technology Option or with the approval of the Head of the Department.

Two lectures and one laboratory period a week. First Term. 1½ units.

416. *Landscape Design.*—Historical and critical study of landscape design and architecture; economic, sociological, geographic, and climatic factors affecting design and selection of materials—lawns, walks, walls, rockeries, shrubs, and trees—for different locations. Visits to landscaped sites. Problems in conjunction with Architecture 350.

One lecture and one two hour laboratory a week. 2 units.

(This course is the same as Architecture 371.)

418 [18]. *Systematic Horticulture.*—The description, identification, classification, displaying, and judging of horticultural crops—tree fruits, small fruits, and vegetables.

One lecture and two laboratory periods a week. First Term. 1½ units.

419 [15b]. *Special Horticultural Crops.*—A brief study of the origin of horticultural plants; horticultural history; plant exploration and introduction, together with a study of special horticultural crops, such as citrus fruits, bananas, pineapples, dates, avocadoes, various nut crops; other horticultural crops of world economic importance but not commonly grown in Canada.

Three lectures a week. Second Term. 1½ units.

420 [19]. *Methods of Research.*—A study of the methods of research, with special reference to problems in horticulture, including the breeding of horticultural crops and variety adaptations; and a review of horticultural and related investigational work in other institutions. There will also be practice in outlining investigations and in preparing reports.

Three lectures a week. 3 units.

425 [25]. *Undergraduate Essay.*—A satisfactory report on some approved subject upon which the student has done special investigational work. 3 units.

430 [30]. *Research in Horticulture.*—Directed study on some special problem in the applied phases of horticulture. 3 units.

500 [50]. *Research in Horticulture.*—Directed study on some special problem in systematic horticulture, plant propagation, genetics as related to horticultural crops, etc. 3 to 5 units.

510 [60]. *The Structure of Economic Plants.*—A detailed study from growing material supplemented by microscopic slides of a number of important crop plants. (To be taken only with consent of instructor.)

Three laboratory periods a week. First Term. 1½ units.

Plant Nutrition

340. *Food Values of Horticultural Crops.*—A study of the food values of horticultural crops. This course comprises a consideration of factors which affect these values, such as variety, locality, climate, photoperiod, soil type, fertilizer, and cultural practice. Comparisons are made of local B. C. grown fruits and vegetables with similar imported competing produce; also crops ordinarily grown under glass as contrasted with field grown. Various methods of food assay, chemical and biological, vitamin determinations, etc. are studied in this course.

Text-book: Peterson, *Elements of Food Biochemistry,* 1946, Prentice-Hall, New York.

Two lectures and one laboratory period a week. 3 units.

441 [41]. *Plant Nutrition (a).*—This course comprises a study of the organic constituents of plants and the physiological changes occurring during plant growth.

Two lectures and four hours laboratory work a week. First Term. 2 units.

Two hours laboratory a week to be arranged with the consent of the instructor only. Second Term. 1 unit.

Text-book: Steele, *Introduction to Plant Biochemistry,* latest ed., Bell & Sons Ltd., London.

References: Haas & Hill, *The Chemistry of Plant Products,* vol. i, latest edition, Longmans; Harvey, *Plant Physiological Chemistry,* Appleton-Century. This course may be counted for credit in Botany.

442 [42]. *Plant Nutrition (b).*—Diagnosis and control of plant deficiency diseases; nutrient solutions; hydroponics (tank farms); photoperiodism; growth hormones; and the latest developments of such subjects as utilization of inorganic elements, nitrogen relations, plant buffer systems, permeability, photosynthesis, respiration, enzyme action, and growth rates. This course includes laboratory and greenhouse experiments, designed to train students of the plant sciences in an understanding of the interrelations of plants and soils.

Text-book: Hoagland, *Inorganic Plant Nutrition,* latest edition, Chronica Botanica.

Reference: Miller, *Plant Physiology,* latest edition, McGraw-Hill.

Two lectures and four hours laboratory work a week. Second Term. 2 units.

For Forestry students this course is known as Botany 332.

443 [43]. *Seminar in Plant Nutrition.*—This course comprises a discussion of papers on modern views of plant nutrition, together with more recent papers on applied plant physiology.

Two hours a week. 2 units.

545 [51]. *Research in Plant Nutrition.*—Directed study on some special problem in plant nutrition or applied plant physiology. 3 to 5 units.

547 [54]. *Advanced Plant Nutrition.*—An advanced study of the physiology and the organic constituents of plants and plant products. Special attention is given to specific problems in this Province which require a knowledge of the correlation of the various sciences to plants and plant products. Food values of horticultural crops, and factors which affect these, are emphasized.

(Open to graduates or to others with the permission of the instructor.)

Two lectures and four hours laboratory a week. 4 units.

Department of Mathematics

100. *Algebra, Geometry and Trigonometry.*—As in Arts. (See page 247). 3 units.

200. *Algebra and Geometry.*—As in Arts. (See page 247). 3 units.

201. *The Mathematical Theory of Investments.* — As in Arts. (See page 247). 3 units.

202. *Calculus.*—As in Arts. (See page 248). 3 units.

Department of Philosophy and Psychology

100. *Introductory Psychology.*—As in Arts. (See page 254). 3 units.

Department of Physics

100. *Elementary Physics.*—As in Arts. (See page 264). 3 units.

101. *Elementary Physics.*—As in Arts. (See page 264). 3 units.

200. *Mechanics, Molecular Physics, and Heat.*—As in Arts. (See page 265). 3 units.

Department of Poultry Husbandry

General Poultry Husbandry.—(Included in Agriculture 100 in the First Year.)

200 [12a]. *Fundamentals of Poultry Husbandry.*—Feeds, feeding management, poultry housing, sanitation, hygiene, and diseases.

References: Lippincott and Card, *Poultry Production,* seventh edition, 1946, Lea and Febiger; Winter and Funk, *Poultry Science and Practice,* Lippincott.

Two lectures and one laboratory period a week. First Term. 1½ units.

201 [12b]. *Fundamentals of Poultry Husbandry.*—Breeds, breeding, judging, selection, culling, incubation, brooding, egg grading, marketing, general management.

References: *American Standard of Perfection,* 1942-1944; Lippincott and Card, *Poultry Production,* seventh edition, 1946, Lea and Febiger; Jull, *Poultry Husbandry,* second edition, McGraw-Hill.

Two lectures and one laboratory period a week. Second Term. 1½ units.

300 [13a] *Markets and Marketing.*—Poultry products in British Columbia, the British Columbia market, inter-provincial trade, export trade, egg grading, Dominion and Provincial regulations, channels and functions of marketing, care and preparation of eggs and poultry for market, judging, culling, and selection for egg and meat production, killing, dressing, grading, packing, and storing of poultry meats, marketing baby chicks and breeding stock, cooperative marketing, prices.

Reference: Benjamin and Pierce and Termohlen, *Marketing Poultry Products,* fourth edition, Wiley.

Two lectures and one laboratory period a week. First Term. 1½ units.

301 [13b]. *Advanced Marketing.* — Organization in marketing, including the history and development of cooperative marketing of eggs and poultry; domestic and export trade.

Two lectures and one laboratory period a week. Second Term. 1½ units.

302. *Turkey Production.*—Principles and practice of breeding and management, modern methods of marketing.

References: Marsden and Margin, *Turkey Management,* 4th ed., 1946, Interstate Printing Co.; Jull, *Raising Turkeys, Ducks, Geese, and Game Birds,* 1947, McGraw-Hill. 1½ units.

(Given in 1950-51 and alternate years).

306. *Identification and Standards.*—Standards used in grading eggs and poultry meat; laws and regulations applying to marketing; processing; trade practices.

Reference: *The Food and Drug Act.*

Open only to students taking the Food Technology Option, or with the approval of the Head of the Department.

Two lectures and one laboratory period a week. Second Term. 1½ units.

310 [14a]. *Breeding and Judging.*—The breeds of poultry, their history, origin, and economic qualities; judging and selection for egg and meat production.

Reference: Rice, Hall, and Marble, *Judging Poultry for Production,* Wiley.

Two lectures and one laboratory period a week. First Term. 1½ units.

311 [14b]. *Advanced Breeding.*—Theories of inheritance; study of progeny tests.

Reference: Jull, *Poultry Breeding,* second edition, Wiley.

Two lectures and one laboratory period a week. Second Term. 1½ units.

400 [16a]. *Poultry Farm Management.*—Types of poultry farms and their respective problems; farm lay-outs; poultry-house construction; investment of capital in land, buildings, stock, and equipment; efficiency in labour, housing, production, and personnel; farm income, labour income, and profit as based on farm surveys; cost of production. Visits to farms.

References: Jull, *Successful Poultry Management,* McGraw-Hill; Charles and Stuart, *Commercial Poultry Farming,* fifth edition, Interstate Printing Co.; Knandel, *Profitable Poultry Keeping,* Orange Judd.

Two lectures and one laboratory period a week. First Term, Fourth Year. 1½ units.

(Given in 1950-51 and alternate years).

401 [16b]. *Incubation and Hatchery Management.*—An advanced course dealing with the principles and practices of incubation. Students will study and be required to operate different types of incubators and brooders. Inspection of hatcheries and survey of hatchery business methods and costs.

References: Hartman and Vickers, *Hatchery Management,* revised 1946, Lippincott and Card, *Poultry Production,* seventh edition, Lea and Febiger; Winter and Funk, *Poultry Science and Practice,* revised edition, 1946, Lippincott.

One lecture and two laboratory periods, or one laboratory period of four hours' duration a week. Second Term, Third or Fourth Year. 1½ units.

(Given in 1950-51 and alternate years).

405 [20]. *Seminar.*—Poultry literature; research and experimental problems; preparation of reports and bulletins; marketing problems; advertising poultry products; poultry services and organizations.

One lecture and one laboratory period a week. 2 units.

410 [19a]. *Poultry Nutrition.*—A general study of the underlying principles and recent advances in the field of nutrition, involving a detailed examination of the nutrients, the physiology of digestion, and the requirements of the body for maintenance and production. Students are required to conduct personally or observe nutritional experiments.

References: Sherman, *Chemistry of Food and Nutrition,* latest edition, Macmillan; Maynard, *Animal Nutrition,* 2nd edition, McGraw-Hill.

Two lectures and one laboratory period a week. First Term, Fourth Year. 1½ units.

411 [19b]. *Feeding Management.*—Study of feed-stuffs; compounding of rations for poultry; feeding practices and costs; feeding chicks, growing stock, laying hens, breeding males and females; turkeys, ducks, and geese; use of lights; study of standard methods of routine management. Problems and assigned reading. Survey of recent literature on poultry feeding.

References: Jull, *Poultry Husbandry,* second edition, McGraw Hill; Morrison, *Feeds and Feeding,* 21st edition, Morrison Publishing Co.

Two lectures and one laboratory period a week. Second Term, Fourth Year. 1½ units.

415 [18]. *Diseases and Hygiene.*—Anatomy and physiology of the fowl; poultry sanitation and hygiene; common ailments of poultry and their treatment; external and internal parasites; bacterial diseases of poultry, chicks, turkeys, geese, and ducks; virus diseases. Study of micro-organisms pathogenic for poultry. Practice in serological tests. Microbial content of eggs. Autopsies. Study of the literature. Inspection of farms.

References: Barger and Card, *Poultry Diseases,* Lea and Febiger; Biester and Devries, *Diseases of Poultry,* 2nd ed., Iowa State College.

Two lectures and one laboratory period a week. Second Term, Fourth Year. 1½ units.

420 [17]. *Physiology of Sex, Reproduction, and Endocrinology.*—An advanced course dealing with the fundamentals of egg production and reproduction in the domestic fowl. Recent advances in the knowledge of endocrinology as affecting poultry. Study of recent literature.

References to be assigned.

One lecture and two laboratory periods a week. Second Term, Fourth Year. Credit for graduate work is given for this course. 1½ units.

425 [25]. *Undergraduate Essay.* 3 units.

430 [30]. *Research* (Directed). 3 units.

500 [19c]. *Seminar in Poultry Nutrition.*—This course comprises a study of current problems and literature in poultry nutrition. Students will be required to conduct biological tests with chicks.

Reference: Ewing, *Handbook of Poultry Nutrition,* revised edition, W. R. Ewing, South Pasadena, California.

Laboratory work to be arranged. 1½ units.

540 [50]. *Research* (Directed) 3 to 5 units.
(Open to graduates only.)

Slavonic Studies

100. *Basic Russian.*—As in Arts. (See page 274). 3 units.

110. *Basic Polish.*—As in Arts. (See page 275). 3 units.

Department of Spanish

90. *Beginners' Course.*—As in Arts. (See page 282). 3 units.

101. *Review of Grammar, etc.*—As in Arts. (See page 282). 3 units.

Department of Zoology

200. *General Zoology.*—As in Arts. (See page 286). 3 units.

300. *Comparative Anatomy of Vertebrates.*—As in Arts. (See page 286). 3 units.

302. *Introduction to Entomology.*—As in Arts. (See page 286). 3 units.

303. *Histology.*—As in Arts. (See page 286). 3 units.

304. *Vertebrate Embryology.*—As in Arts. (See page 287). 3 units.

305. *Economic Entomology.*—As in Arts. (See page 287). 2 units.

405. *Fisheries Technology.*—As in Arts. (See page 290). 1½ units.

THE FACULTY OF LAW

1949-1950

FACULTY OF LAW

General

The course in the Faculty of Law covers a period of three years and prepares students for admission to the practice of law and for business and government service. The curriculum is based on the standard curriculum adopted by the Canadian Bar Association for instruction in the common law system. The degree granted is that of Bachelor of Laws (LL.B.)

Admission

The general requirements for admission to the University are given on pages 40-45 of the University Calendar.

Candidates must complete the required admission form and present evidence of having (a) graduated from an approved university or (b) successfully completed not less than the First and Second Years in the course leading to the degree of Bachelor of Arts in the University of British Columbia, or its equivalent at an approved university; candidates who fail or have other deficient standing in any year of a law course at another institution must obtain full standing in that year before being considered for admission for repetition or otherwise to the Faculty of Law.

Advanced Standing

Undergraduates in other faculties or schools of law may, upon application, be granted such standing as the Faculty may determine.

General University Regulations

General University regulations concerning discipline, health, and other matters as detailed on pages 35-40 of the University Calendar are applicable to students in the Faculty of Law.

Registration

Application for entrance to the Faculty of Law must be made to the Registrar of the University not later than September 19th.

It is recommended that those planning to enter the Faculty interview the Dean as early as possible in their University course.

Combined Course

Students who have completed their matriculation requirements may take a combined course in the Faculties of Arts and Science and of Law consisting of three years in the course leading to the degree of B.A. at this University and three years in the Faculty of Law. See *Double Degrees,* section III (page 462).

Attendance and Examinations

A student who fails to comply with the regulation in respect of attendance at lectures, except for reasons deemed satisfactory by the Faculty, may, upon the recommendation of the Faculty, be required by the Senate either to repeat the work of the year or to withdraw from the Faculty.

Examinations will be held in April at the close of each session except in respect of those subjects which are given in the First Term only, when examinations will be held immediately prior to the Christmas vacation.

A student, in order to pass, must obtain at least 50 per cent. in each subject. Successful candidates will be graded as follows:

First Class, an average of 80 per cent. or over; Second Class, 65 to 80 per cent.; Passed, 50 to 65 per cent.

A student must pass in all subject of his year before being admitted to the succeeding year.

A student who has failed at the regular examinations in not more than two subjects but has made an average of at least 50 per cent. on the work of the year may be granted supplemental examinations in the subject or subjects in which he has failed. Notice will be sent to students to whom such supplemental examinations have been granted.

Supplemental examinations will be held in September. Applications for supplemental examinations must be in the hands of the Local Registrar on or before August 1st, and must be accompanied by the required fee.

A student who does not meet the above requirements in any year may, on the recommendation of the Faculty, be required by the Senate either to repeat the work of the year or to withdraw from the Faculty.

For regulations regarding re-reading of papers see *Faculty of Arts and Science* "Examinations and Advancement", section 5 (page 163).

Admission as Barristers and Solicitors

Admission to the Bar of the Province of British Columbia is governed by the provisions of the Legal Professions Act and the regulations of the Law Society of British Columbia. Information concerning the requirements may be obtained on application to the Secretary of the Law Society, Court House, Vancouver, B. C.

The examinations held in the Faculty are co-examined by examiners appointed by the Law Society, and applicants for admission

to the Bar who hold the degree of LL.B. from the University are granted exemption by the Law Society from the professional examinations prescribed by the regulations of the Society, which form part of the qualifications for admission to the Bar.

Prizes, Bursaries, Scholarships

A number of University prizes, bursaries, and scholarships, are open to students in the Faculty of Law. See pages 50-117 of the University Calendar.

Moot Court

Students in the Faculty will be required to argue at least one case before the Moot Court in their First Year and one in their Second Year.

COURSES OF INSTRUCTION

FIRST YEAR

Contracts

101. References: Wright, *Cases on the Law of Contracts;* Cheshire and Fifoot, *Law of Contracts;* Anson, *Law of Contract;* Williston, *Contracts;* Pollock, *Principles of Contracts;* Salmond and Williams, *Contracts.*

Three hours a week. Mr. Read.

Criminal Law

104. References: Criminal Code; Tremeear; Crankshaw; Kenny, *Outlines of Criminal Law.*

Two hours a week. Mr. Remnant.

History of English Law

107. References: Potter, *Historical Introduction to English Law;* Maitland and Montague, *Sketch of English Legal History;* Windeyer, *Legal History;* MacRae, *History of English Law;* Holdsworth, *History of English Law;* Pollock and Maitland, *History of English Law.*

Two hours a week. Mr. Curtis.

Procedure I

110. References: Supreme Court Act; County Court Act.

Two hours a week. Mr. Kennedy.

Property I

113. References: Read and Macdonald, *Cases on Personal Chattels;* Williams, *Personal Property;* Goodeve, *Personal Property;* Brown, *Personal Property;* Cheshire, *Modern Real Property;* Megarry, *Law of Real Property.*

Three hours a week. Mr. Carrothers.

Torts

116. References: Wright, *Cases on the Law of Torts;* Prosser, *Torts;* Salmond, *The Law of Torts;* Pollock, *The Law of Torts;* Winfield, *Text-book on the Law of Tort.*

Three hours a week. Mr. MacIntyre.

SECOND YEAR

Agency and Partnership

201. References: Wright, *Cases on Agency;* Pollock, *Law of Partnership.*

Two hours a week. Mr. Carrothers.

Bills and Notes

204. References: Russell, *Bills of Exchange;* Falconbridge, *Banking and Bills of Exchange;* Maclaren, *Bills, Notes, and Cheques;* Britton, *Bills and Notes.*

Two hours a week. Second Term. Mr. Read.

Company Law

207. References: Palmer, *Company Law;* Stiebel, *Company Law and Precedents;* MacRae, *Material on Company Law;* Companies Act of British Columbia.

Two hours a week. Mr. Curtis.

Equity

210. References: Smith and Read, *Selection of Cases on Equity;* Ashburner, *Equity;* Hanbury, *Modern Equity;* Maitland, *Equity.*

Two hours a week. Mr. Sheppard.

Insurance

213. Reference: Insurance Act of British Columbia.

Two hours a week. First Term. Mr. Curtis, Mr. Brown.

Labour Law

216. References: To be announced.

Two hours a week. Mr. Westlake.

Property II

219. References: Williams, *Canadian Law of Landlord and Tenant;* Hill and Redman, *Law of Landlord and Tenant;* Selected Cases on Future Interests.

Two hours a week. Mr. MacIntyre.

Procedure II

222. References: Odgers, *Pleading and Practice;* Supreme Court Rules.

Two hours a week. Mr. Justice Wilson, Mr. Schultz.

Public International Law

225. References: Oppenheim, *International Law;* Brierly, *The Law of Nations;* MacKenzie and Laing, *Canada and the Law of Nations;* Schuman, *International Politics;* Nussbaum, *Concise History of the Law of Nations.*

Two hours a week. Mr. MacKenzie.

THIRD YEAR

Administrative Law

301. References: To be announced.

Three hours a week. Second Term. Mr. Westlake.

Conflict of Laws

304. References: Cheshire, *Private International Law;* Falconbridge, *Essays on the Conflict of Laws;* Cook, *Logical and Legal Bases of the Conflict of Laws.*

Three hours a week. Second Term. Mr. Kennedy.

Constitutional Law

307. References: MacRae, *Materials on Constitutional Law;* O'Connor, *Report on B.N.A. Act.*

Two hours a week. Mr. Westlake.

Domestic Relations

310. Reference: Eversley, *Domestic Relations.*

Three hours a week. First Term. Mr. Read.

Evidence

313. References: Phipson, *Law of Evidence;* Cockle, *Leading Cases on Evidence;* Wigmore, *Evidence.*

Two hours a week. Mr. Justice Coady.

Mortgages and Suretyship

316. References: Falconbridge, *Mortgages;* Hanbury and Waldock, *Law of Mortgages;* Turner, *Equity of Redemption.*

Two hours a week. First Term. Mr. MacIntyre.

Procedure III

319. References: Court of Appeal Act and Rules; Supreme Court Act (Dom.) and Rules.

Two hours a week. Mr. McFarlane.

Shipping

322. References: Mayers, *Admiralty Law and Practice;* Roscoe, *Admiralty Practice;* Canada Shipping Act; Admiralty Act; Water Carriage of Goods Act.

Two hours a week. First Term. Mr. Bird.

Taxation

325. References: Willis, *Lectures on Taxation;* Magill, *Taxable Income;* Stikeman, *Lectures on Taxation;* Ratcliffe and McGrath, *Income Tax Law;* Hannan, *Principles of Income Taxation;* LaBrie and Westlake, *Deductions Under the Income Wax Tax Act;* Plaxton, *Canadian Income Tax Law.*

Two hours a week. Second Term. Mr. Curtis, Mr. Ladner.

Trusts

328. References: Keeton, *Trusts;* Hanbury, *Modern Equity;* Scott, *Trusts;* Trustee Act.

Four hours a week. First Term. Mr. Kennedy.

Wills

331. References: Bailey, *Wills,* Widdifield, *Executors' Accounts;* Administration Act; Wills Act.

Two hours a week. Second Term. Mr. Kennedy.

THE
FACULTY
OF
PHARMACY

1949-1950

FACULTY OF PHARMACY

General

The course in Pharmacy covers a period of four years following First Year Arts and Science, including twelve months of practical training. The curriculum is based on the standard curriculum adopted by the Canadian Conference of Pharmaceutical Faculties. The degree granted is that of Bachelor of Science in Pharmacy (B.S.P.).

Admission

The general requirements for admission to the University are given on pages 40-45.

For admission to Pharmacy it is required that the student shall have completed the First Year in Arts and Science with credit for the courses shown below and an average grade of at least 60%, or that he shall have fulfilled these requirements by Senior Matriculation or similar work taken outside the University.

The required subjects are Chemistry 100 or 105; English 100 and 101; Mathematics 100; Physics 100 or 101 or Biology 100; and one optional subject to be chosen from the list in paragraph (f) page 123.

Registration

Candidates are enrolled in the course on being accepted as Registered Students by the Pharmaceutical Association with the approval of the Faculty. Applications should be forwarded to the Registrar, Pharmaceutical Association of British Columbia, 310 Dominion Bank Building, 207 Hastings Street, Vancouver, before September 15th.

Examinations and Advancement

Regulations are as stated on pages 162-164, except that classes of each year of the Pharmacy course are prerequisite to those of the following year.

Prizes, Bursaries, Scholarships

A number of prizes, bursaries and scholarships are open to students in the Faculty of Pharmacy. See pages 50-117.

Curriculum

First Year

A twelve month period of practical training under the supervision of a qualified pharmacist, supplemented by courses of study in Elementary and General Pharmacy directed by the Faculty. The passing grade in the examinations based on this work is 60%.

Second Year

Biology 100 or Physics 100 or 101, Chemistry 200, English 205 or English 200, Pharmacy 201, 202, 203, 204.

On account of limited laboratory accommodation the number of students admitted to the Second Year is restricted to 50, selected as follows from candidates who have met all requirements of the First Year and practical training, and who have passed the Entrance Examination:

(a) Veterans, and applicants with 18 months or more of practical experience as registered students will be admitted on a preferred basis.

(b) Applicants with from 12 to 18 months practical experience as registered students other than veterans will be listed in order of merit, as determined by an average of the First Year average mark and the Entrance Examination mark, and the top candidates will be admitted to the extent that the maximum of 50 students for the year will permit.

Third Year

Bacteriology 153 or 201, Biology 400, Chemistry 300, Commerce 359, Commerce 369, Pharmacy 301, 302, 303.

(Students taking Bacteriology 201 must select Bacteriology 301 as one of their optional subjects in the Fourth Year).

Fourth Year

Chemistry 425, Pharmacy 401, 402, 403; six units of optional subjects to be selected with the approval of the Head of the Department and the Dean from the following list: Bacteriology 301, Botany 200, Botany 341, Chemistry 304, 410, Commerce 499, Economics 200, English 200, or other courses in English for which necessary prerequisites have been taken. French 202, Geology 201 and 202, German 90 or 101, History 202, Mathematics 200 or 201 or 202, Pharmacy 411, 412, 413, 421, Physics 220, Psychology 100, Psychology 300, Slavonic Studies 100 (Russian), Sociology 200, Spanish 90 or 101, Zoology 200.

Courses of Instruction

201. *General Principles and Processes of Pharmacy.*—A survey of the operations and apparatus used in the manufacture, testing, and dispensing of medicinal products, with special reference to the general principles involved.

Text-books: Burlage, Burt, Lee, and Rising, *Fundamental Principles and Processes of Pharmacy,* McGraw-Hill; *British Pharmacopoeia,* 1948, Constable.

Two lectures and four hours laboratory a week. **3 units.**

202. *Metrology and Pharmaceutical Calculations.* — A study of weights and measures and of the common types of calculations involved in pharmaceutical work.

One lecture a week. 1 unit.

203. *Pharmacognosy and Elementary Materia Medica.*—A detailed study of important official and non-official drugs of plant and animal origin, followed by an introduction to the study of chemical drugs.

Text-book: To be announced.

Two lectures and two hours laboratory a week. 3 units.

204. *Pharmaceutical History, Literature, and Latin.*—This course provides a survey of the development of pharmacy from ancient times to the present day, with special reference to the growth of the knowledge of drugs and the conditions of pharmaceutical practice. It also includes an introduction to the various types of pharmaceutical literature, and a study of the form and language of prescriptions.

Students who have not obtained standing in Latin 90 or its equivalent will be required to attend an additional lecture a week for the study of Latin grammar.

Text-book: Kremers and Urdang, *Pharmaceutical History,* Lippincott.

Two lectures a week. 2 units.

301. *Pharmaceutical Preparation.*—This course includes a survey of the various types of official, non-official, and commercial pharmaceutical preparations, and a detailed study of the more important representatives of each type.

References: *British Pharmacopoeia,* 1948, Constable; Gutman, *Modern Drug Encyclopedia,* Yorke.

Two lectures and three hours laboratory a week. 3 units.

302. *Pharmaceutical Law and Ethics.*—A study of the Provincial and Dominion legislation affecting the practice of pharmacy and the sale of drugs and poisons, and discussions of the ethical principles and responsibilities involved.

One lecture a week. 1 unit.

303. *Inorganic Pharmaceutical Chemistry.*—The applications of analytical and physical chemical methods and principles in pharmaceutical procedures, and a study of medicinally important inorganic chemicals including radioactive material. The laboratory work includes manufacture, assaying, and testing of chemical drugs and preparations.

Reference: Chapin and Steiner, *Second Year College Chemistry,* Wiley.

Two lectures and three hours laboratory a week. 3 units.

401. *Dispensing and Prescriptions.*—A study of the types of extemporaneous preparations, and extensive practice in the reading, compounding, and dispensing of typical prescriptions.

Text-book: Cooper & Gunn, *Dispensing for Pharmaceutical Students,* Pitman.

References: *British Pharmacopoeia,* 1948, Constable; Husa, *Pharmaceutical Dispensing,* Husa Brothers.

Two lectures and four hours laboratory a week. 3 units.

402. *Pharmacology and Biopharmacy.*—This course first deals with the mode of action of drugs on the living body, with special reference to therapeutic uses, toxic properties, and biological methods of assay; it then proceeds to a survey of modern types of biological medicinal products, including hormones, antibiotics, serums, and vaccines, etc.

Text-book: Davison, *Synopsis of Materia Medica, Toxicology, and Pharmacology,* Mosby.

Three lectures a week. 3 units.

403. *Organic Pharmaceutical Chemistry.*—A study of natural and synthetic organic medicinal compounds based on their chemical relations and properties. The laboratory work includes synthesis and testing of representative synthetic drugs, alkaloidal assays, tests of fixed and volatile oils, etc.

Text-book: Jenkins and Hartung, *Chemistry of Organic Medicinal Products,* Wiley.

Three lectures and three hours laboratory a week. 3 units.

411. *Advanced Pharmaceutics.*—This course deals with the more difficult types of pharmaceutical procedures and preparations, and includes practical assignments involving extensive review of cur-

rent literature. The laboratory work is largely concerned with independent investigations of official and commercial drug products.

One lecture and four hours laboratory a week. 3 units.

412. *Manufacturing Pharmacy.*—The apparatus, methods, and problems of large scale production of pharmaceutical products.

One lecture and four hours laboratory a week. 3 units.

413. *Advanced Pharmaceutical Chemistry.*—A study of the more recent advances in the chemistry of organic medicinal products. The laboratory is devoted to individual problems related to synthesis and the isolation of active principles from crude drugs.

One lecture and four hours laboratory a week. 3 units.

421. *Advanced Dispensing Practice.*—A study of unusual and more difficult types of standard and extemporaneous pharmaceutical preparations. Problems involving library and laboratory work are assigned for individual study and report.

One conference a week. 1 unit.

Other Departments

For descriptions of courses offered by other departments see under Arts and Science.

THE FACULTY OF GRADUATE STUDIES

1949-1950

FACULTY OF GRADUATE STUDIES

The degrees offered in the Faculty of Graduate Studies are Master of Arts (M.A.), Master of Applied Science (M.A.Sc.), Master of Science in Agriculture (M.S.A.), Master of Forestry (M.F.), and Doctor of Philosophy (Ph.D.).

COURSES LEADING TO THE MASTER'S DEGREE

1. Students registering as graduates must hold either a Bachelor's degree from this university or its equivalent. In the Faculty of Arts and Science and the Faculty of Agriculture, however, students who lack not more than six units towards the Bachelor's degree may register in courses open to graduate students (provided that they keep within an over-all maximum of eighteen units), but may receive graduate credit for such courses only if they subsequently register as graduate students.

2. A graduate of another university applying for permission to enter as a graduate student is required to submit with his application to the Registrar, on or before September 1st, an official statement of his graduation, together with a certificate of the standing gained in the several subjects of his course. The Executive Committee of the Graduate Faculty will determine the standing of such a student in this University.

3. Graduate students must register in the same registration period as undergraduates.

4. The Master's degree is offered
   (a) by a single department, or
   (b) by a combination of departments, provided that the thesis covers work in both departments and is approved by both departments.

5. Candidates for the Master's degree must hold a Bachelor's degree with
   (a) Honours in the field of the proposed Master's course, or
   (b) First Class standing in at least two of the courses and Second Class standing in the remaining courses of third and fourth year work prescribed by the department or departments concerned as prerequisite to the Master's course.

Candidates must satisfy the Executive Committee of the Graduate School that they are competent to proceed to the course of study proposed.

6. Graduate students who do not meet the full requirements of Section 5 (a) or (b) may be permitted to make up any deficiencies concurrently with the Master's course, except that credit will not be given for more than eighteen units of undergraduate and graduate work (or the equivalent in the departments of the Faculty of Applied Science) in any regular Winter Session.

7. Candidates for the Master's degree are required
   (a) to spend at least one regular Winter Session in resident graduate study, or
   (b) in the departments of the Faculty of Arts and Science only, to do two or more years of work under University supervision, during which not more than six units of credit may be counted for reading courses.

8. Graduate students who are assistants, receiving sessional remuneration exceeding $600, will not be allowed to come up for final examination in less than two academic years after registration as graduate students. Graduate students who are assistants, receiving sessional remuneration not exceeding $600, may be permitted to qualify for the Master's degree after one regular Winter Session of University attendance provided that in the summer vacation they have done research work in the nature and extent satisfactory to the department or departments concerned. Such students must be registered as graduate students and must have received the approval of the Head of the department concerned and the Executive Committee of the Graduate Faculty before entering upon the research in question.

9. The Master's course will require a thesis counting from three to six units and courses numbered 300 or above so that the total number of units, including the thesis, is at least eighteen (or the equivalent in departments of the Faculty of Applied Science). The course will normally include at least six units of courses numbered 500 or above. If the degree is to be taken in a single department, at least three and not more than six units must be taken in related fields outside the department. The course or courses in related fields may be taken in departments of any of the three Faculties of Arts and Science, Applied Science, and Agriculture.

10. Candidates for the Master's degree, if they have not obtained credit for French 202 or German 200, must satisfy the head of the department in which their graduate work will be done that they have a working knowledge of one of these languages or of some other language suitable for the work of the department concerned.

11. The Master's course must be chosen in consultation with the department or departments concerned, and be approved by the

Executive Committee of the Graduate Faculty. At least Second Class standing is required in each course.

12. Candidates for the Master's degree must submit in its final form three typewritten copies of the thesis, with a certificate signed by two members of the department or departments concerned stating that the required standards of a Master's thesis have been met, and an abstract approved by the department or departments concerned. The date of submission for a Spring Congregation is the last day of lectures in the second term and for an Autumn Congregation the date is October 1st. (See circular entitled *Instructions for the Preparation of Master's Thesis*).

13. A general examination in the field of the Master's course will be held at the discretion of the department or departments concerned. Examinations may be written or oral, or partly written and partly oral.

14. To become candidates for the Master's degree, graduate students must complete application forms, which may be obtained at the Registrar's office, and file them with the Registrar on or before October 15th of the year prior to the Spring or Autumn Congregation at which they expect to receive the degree. Graduate students who expect to take more than one year to complete the requirements for the Master's degree are strongly advised to become candidates as early as possible.

15. At a Spring or Autumn Congregation only those candidates will be eligible for the Master's degree whose applications have been completed and submitted on or before October 15th of the preceding year. The applications of students who expect to receive the Bachelor's degree at an Autumn Congregation and the Master's degree in the following year will not be finally approved until the Bachelor's degree is conferred.

The following special requirements are prescribed by the departments.

DEPARTMENTS IN THE FACULTY OF ARTS AND SCIENCE

Bacteriology and Preventive Medicine

Prerequisites: At least nine units in the Department, including Bacteriology 201, 301, 401.

M.A. Course: Thesis, counting at least five units, and courses to complete the requirements of section 9 above.

The number of M.A. students who can be accepted in any one year is limited.

Biology and Botany

Prerequisites: Honours; or Biology 100, Botany 200, and eight additional units, including Zoology 200.

M.A. Course: Thesis, counting at least five units, and courses to complete the requirements of section 9 above.

Chemistry

Prerequisites: Honours in Chemistry.

M.A. Course: Thesis, counting at least three units, nine or ten units of Graduate courses in Chemistry and other courses to complete the requirements of section 9 above.

Classics

Prerequisites: Honours; or fifteen units in the department chosen from courses offered in the Third and Fourth Years.

M.A. Courses: Thesis, counting at least three units, and courses to complete the requirements of section 9 above.

Candidates are expected to have a reading knowledge of French and German.

Economics

Prerequisites: Honours; or Economics 200, 300, 330 or 400, and 335, and six units other than Economics 200 in Economics, Political Science, or Sociology.

M.A. Course: Thesis, counting three units, Economics 440 and 500, and other courses to complete the requirements of section 9 above.

Education

Prerequisites: The Teacher Training Course with at least Second Class standing in each of Education 500 to 503 inclusive, and First Class standing in at least one of these; or an approved equivalent.

M.A. Course: Thesis, counting at least three units, and courses to complete the requirements of section 9 above. Attendance at a seminar may be required, and, when necessary, Education 582 or its equivalent will be required.

Students may not take Education courses for credit towards the M.A. degree without approved teaching experience.

English

Prerequisites: Honours, or at least fifteen units in the Department chosen from courses offered in the Third and Fourth Years.

M.A. Course: Thesis, counting three units, English 442 or its equivalent, and other courses to complete the requirements of section 9 above.

An examination on the history of English literature is required.

French

Prerequisites: Honours; or French 101, 202, and twelve additional units in the Department chosen from courses in the Third and Fourth Years.

M.A. Course: Thesis, counting at least three units, French 501 and other courses to complete the requirements of section 9 above.

Geography

Prerequisites: Honours; or twelve units in advanced courses in Geography.

M.A. Course: Thesis, counting three units, and courses to complete the requirements of section 9 above. All graduates must attend the Geography Honours seminar.

Geology

Prerequisites: Honours; or Geology 201, 202, 302, and eighteen additional units in Geology.

M.A. Course: Thesis, counting at least three units, and courses to complete the requirements of section 9 above.

German

Prerequisites: Honours; or German 100, 200, and twelve additional units in the Department chosen from courses in the Third and Fourth Years.

M.A. Course: Thesis, counting three units, German 500 and 502, and other courses to complete the requirements of section 9 above.

A comprehensive written and oral examination on the history of German literature is required of all candidates.

History

Prerequisites: Honours; or one of History 101, 202, 203, 204, or an equivalent course in Senior Matriculation; fifteen units to be chosen from the Third and Fourth Year courses in History, and the Third and Fourth Year Honours seminars.

M.A. Course: Thesis, counting at least three units, and courses to complete the requirements of section 9 above.

All candidates must attend a M.A. seminar, counting three units.

Latin

Prerequisites: Honours; or Latin 310, 410 and twelve additional units in the Department chosen from courses offered in the Third and Fourth Years.

M.A. Course: Thesis, counting at least three units and courses to complete the requirements of section 9 above.

Candidates are expected to have a reading knowledge of French and German. Acquaintance with Greek also is of high importance.

Mathematics

Prerequisites: Honours; or Mathematics 300, 302, 401, 440, Physics 200, and eight additional units in the Department chosen from courses in the Third and Fourth Years.

M.A. Course: Thesis, counting at least three units, and courses to complete the requirements of section 9 above.

Philosophy

Prerequisites: Honours; or Philosophy 100 or 205, 202, and nine additional units in Philosophy, including at least two of Philosophy 210, 310, 410, 415.

M.A. Course: Thesis, counting at least three units, and courses to complete the requirements of section 9 above.

Physics

Prerequisites: Honours; or Physics 200, 300, 304, 308, 401, 402.

M.A. Course: Thesis, counting at least three units, Physics 500, 501, 502, 503, and courses to complete the requirements of section 9 above.

Political Science

Prerequisites: Honours in Political Science; or in Economics; or in Economics in combination with some other subject; or nine units in Political Science and six additional units in Economics or Political Science.

Three units in Political Science or three units in Economics or three units in each may be replaced by an equivalent number of units chosen from History 309, 310, 311, 312, 419, 420, International Studies, and Slavonic Studies 308, 310.

M.A. Course: Thesis, counting three units, and other courses to complete the requirements of section 9 above.

The courses listed in the preceding paragraph may, with the approval of the Department, be counted as courses in Political Science.

All candidates for the M.A. degree must attend the Honours seminar, counting three units.

Psychology

Prerequisites: Honours; or Psychology 100 and twelve additional units in Psychology; Philosophy 100 or 205 and Philosophy 202; and any six units in Mathematics or a science.

M.A. Course: Thesis, counting at least three units, and courses to complete the requirements of section 9 above.

Slavonic Studies

Prerequisites: Honours; or Russian 100, 200, Russian 203 or Polish 110, and twelve additional units chosen from courses in the Department.

M.A. Course: Thesis, counting at least three units, and courses to complete the requirements of section 9 above.

Sociology

Prerequisites: Honours; or any three of Sociology 300, 325, 330, 400, 425, 430, 435, and three additional units in Economics, Political Science, or Sociology chosen from courses in the Third and Fourth Years.

M.A. Course: Thesis, counting three units, and other courses to complete the requirements of section 9 above.

All candidates for the M.A. degree must attend the Honours seminar, counting three units.

Zoology

Prerequisites: Honours; or Biology 100, Zoology 200, Botany 200, Chemistry 100 or 105, Physics 100 or 101, and eighteen additional units in Zoology.

M.A. Course: Thesis, counting six units, and courses to complete the requirements of section 9 above.

The number of M.A. students who can be accepted in any one year is limited.

DEPARTMENTS IN THE FACULTY OF APPLIED SCIENCE

Chemical Engineering

Prerequisites: B.A.Sc. in Chemical Engineering and the completion of the requirements of section 5 (b) above.

M.A.Sc. Course: Thesis, counting normally six units, Chemistry 530, 550, three units chosen from graduate courses in the department and other courses to complete the requirements of section 9 above.

Civil Engineering

Prerequisites: Graduation in Civil Engineering and the completion of the requirements of section 5 (b) above.

M.A.Sc. Course: Thesis, counting normally six units, at least one course (or three units) chosen from graduate courses in the department, and other courses to complete the requirements of section 9 above.

Electrical Engineering

Prerequisites: Graduation in Electrical Engineering and the completion of the requirements of section 5 (b) above.

M.A.Sc. Course: Thesis, counting normally six units, at least one course (or three units) chosen from graduate courses in the department, and other courses to complete the requirements of section 9 above.

Engineering Physics

Prerequisites: Graduation in Engineering Physics and the completion of the requirements of section 5 (b) above.

M.A.Sc. Course: Thesis, counting normally six units, at least six units chosen from graduate courses in the department, and other courses to complete the requirements of section 9 above.

Forestry

Prerequisites: B.S.F. or B.A.Sc. in Forest Engineering and the completion of the requirements of section 5 (b) above.

M.F. Course: Thesis, counting at least three units, at least three units chosen from graduate courses in the department, and other courses to complete the requirements of section 9 above.

Geological Engineering

Prerequisites: Graduation in Geological Engineering and the completion of the requirements of section 5 (b) above.

M.A.Sc. Courses: Thesis, counting at least three units, the required courses in the chosen option, and other courses to complete the requirements of section 9 above.

Options:

Economic Geology: Geology 526 or 536 and three units chosen from Geology 520, 523, 524 or 525.

Mineralography: Geology 524 and three units chosen from Geology 523, 525, 526 or 536.

Mineralogy: Geology 523 and three units chosen from Geology 520, 524, 525, 526 or 536.

Palaeontology: Geology 521 or 531 and three units chosen from Geology 520, Biology 400, Zoology 200, 300 or 301.

Petrology: Geology 523, 524, 526 or 536.

Stratigraphy: Geology 520 and three units chosen from Geology 521 or 531, 525 and Agronomy 415.

Mechanical Engineering

Prerequisites: Graduation in Mechanical Engineering and the completion of the requirements of section 5 (b) above.

M.A.Sc. Course: Thesis, counting normally six units, at least one course (or three units) chosen from graduate courses in the department, and other courses to complete the requirements of section 9 above.

Metallurgical Engineering

Prerequisites: Graduation in Metallurgical, Mining or Mechanical Engineering and the completion of the requiremets of section 5 (b) above.

M.A.Sc.Course: Thesis, counting normally six units, at least one course (or three units) chosen from graduate courses in the department, and other courses to complete the requirements of section 9 above.

DEPARTMENTS IN THE FACULTY OF AGRICULTURE

Agricultural Economics

Prerequisites: Honours; or at least 12 units in the department and Economics 200, 335 and 400.

M.S.A. Course: Thesis, counting at least five units, and courses to complete the requirements of section 9 above.

Agricultural Mechanics

Prerequisites: Second Class standing at end of fifth year of Honours course in Agricultural Mechanics.

M.S.A. Course: Thesis, counting six units, and courses to complete the requirements of section 9 above.

Agronomy

Prerequisites: Honours; or completion of required undergraduate courses in the option selected for graduate study.

M.S.A. Course: Thesis, counting at least five units, research and other courses to complete the requirements of section 9 above.

Animal Husbandry

Prerequisites: Honours; or at least twelve units in the department chosen from courses offered in the Third and Fourth Years.

M.S.A. Course: Thesis, counting at least five units, and courses to complete the requirements of section 9 above.

Dairying

Prerequisites: Honours; or at least twelve units in the department chosen from courses offered in the Third and Fourth Years.

M.S.A. Course: Thesis, counting at least five units, and courses to complete the requirements of section 9 above.

Horticulture

Prerequisites: Honours; or completion of required undergraduate courses in the option selected for graduate study.

M.S.A. Course: Thesis, counting at least five units, research and other courses to complete the requirements of section 9 above.

Poultry Husbandry

Prerequisites: Honours; or completion of required undergraduate courses in the option selected for graduate study.

M.S.A. Course: Thesis, counting at least five units, research and other courses to complete the requirements of section 9 above.

COURSES LEADING TO THE DEGREE OF Ph.D.

1. To become a candidate for the Ph.D. degree graduate students must complete application forms which may be obtained from the Registrar's Office and file them with the Registrar. Such appli-

cations should be submitted before March 1st and will not be accepted after September 1.

2. Candidates for the Ph.D. degree must satisfy the Executive Committee of the Graduate Faculty that they are competent to proceed to the course of study proposed and must hold either

(a) a Master's degree (or the equivalent), or

(b) a Bachelor's degree with Honours (or the equivalent), in which case additional work will be required.

3. The Executive Committee of the Graduate Faculty may require students who have taken all (or the greater part) of their previous work at the University of British Columbia to broaden their experience by spending at least one year at another research institution before receiving their Ph.D. degree.

4. The progress of all Ph.D. candidates will be reviewed in the spring of each year, and the Executive Committee of the Graduate Faculty may require any candidate to withdraw if his work has not been satisfactory.

5. Candidates for the Ph.D. degree normally will be required to spend three regular Winter Sessions at the University, though candidates qualified under 2 (a) may have this time reduced in exceptional cases by the Executive Committee of the Graduate Faculty.

6. Unless, in the opinion of the Executive Committee of the Graduate Faculty the delay has been justified by circumstances that are altogether exceptional, candidates who have not received their degree at the end of six regular Winter Sessions will be required to withdraw.

7. Candidates must satisfy the Executive Committee of the Graduate Faculty by the spring after registration at least of their ability to read technical material in French, German, and any additional language or languages that may be required by the individual department concerned.

8. The work of each candidate will be supervised by a Candidate's Committee consisting of not less than three members, at least one of whom may be chosen from a department other than that in which the candidate is writing his thesis. This Committee will assist the candidate to plan his work, supervise his research, and direct the preparation of his thesis.

9. The programme of study proposed by a candidate must be approved both by the Candidate's Committee and by the Executive Committee of the Graduate Faculty. Work for the Ph.D. degree will

consist of seminars, assigned readings, consultations, and such formal courses as may be deemed essential for the fulfilment of the requirements for the degree. A major part of a candidate's work will consist of a thesis embodying the results of original and independent research. The Executive Committee of the Graduate Faculty may require the thesis to be submitted to an outside examiner or examiners, and may also require its publication in whole or in part as a condition of granting the Ph.D. degree.

10. A candidate's thesis must be presented in the form prescribed in the leaflet entitled *Preparation of Ph.D. Thesis,* copies of which may be obtained from the Registrar.

11. As the number of candidates that can be accommodated is limited, students, no matter how well qualified, can be accepted only if there is a vacancy in the specific field in which they propose to major.

12. Candidates will normally be required to take courses totalling not less than 6 units in their major field and at least 6 units in related subjects, but they may be required to take any additional courses that, in the opinion of the Department concerned, are necessary to complete their knowledge of their chosen field of study.

13. The examinations required will be determined by the Department concerned, with the approval of the Executive Committee of the Graduate Faculty. Generally speaking these will consist of the following: (a) course examinations, in which candidates are required to secure at least second class standing; (b) examinations to test the candidate's ability to read the foreign languages required for his programme of study (see regulation 7 above); (c) a comprehensive examination, which normally will be held when the candidate has completed all course work required, and which is intended to test his grasp upon his chosen field of study as a whole, and (d) an oral examination upon his thesis.

14. At the end of the first year, i.e., in April, candidates will be required to write examinations in at least 3 units of work in their major field and at least 3 units of the related subjects. Examinations in the remainder of the formal course work must be written before a candidate takes the oral examination on his thesis.

15. A candidate may not assume teaching duties for which he receives sessional remuneration exceeding $600 without the permission of the Executive Committee of the Graduate Faculty.

At present Ph.D. courses are offered by the following departments only. Particulars of the fields in which this work is offered follow:

Department of Biology and Botany

1. Courses are offered in two major fields:
   (a) *Plant Morphology.* Thesis direction is offered in Cytology and Histology and in the Taxonomy of Spermatophytes, Fungi and Algae.
   (b) *Physiology.* Specialization will be in the following fields: Hormones, Vitamins, Respiration and the Chemical aspects of Plant Metabolism.
2. Related Subjects:
   (a) If the candidate is taking the major in Plant Morphology related subjects may include: Animal Embroyology, Histology, Taxonomy; Dendrology; courses at marine stations, and courses offered by this Department in subjects other than the major.
   (b) If the candidate is taking the major in Physiology related subjects may include: Comparative Physiology, Taxonomy, Embryology, Histology, Biophysics, Nutrition, Bacteriology and Chemistry.
3. The following courses will be accepted for Ph.D. credit:
   (a) Graduate courses (numbered 500 or above) offered in the Department provided that credit has not already been obtained for such courses.
   (b) Certain courses numbered 400 or above in related subjects as approved in particular cases on the recommendation of the Departments concerned.

The Department of Forestry in Co-operation With the Department of Biology and Botany

1. Courses are offered in five major fields:
   (a) Forest Ecology.
   (b) Forest Genetics.
   (c) Forest Pathology.
   (d) Wood Anatomy.
   (e) Tree Physiology.
2. Related subjects:
   These may include Agronomy, Biology, Botany, Chemistry, Forestry, Geography, Geology, Horticulture, Mathematics, Physics, Zoology.

3. The following courses will be accepted for Ph.D. credit:
   (a) Graduate courses (numbered 500 and above) offered in the Department concerned with the major field provided that credit has not already been obtained for such courses.
   (b) Certain courses numbered 400 or above in related subjects as approved in particular cases on the recommendation of the Departments concerned.

The Department of Forestry in Co-operation With the Department of Zoology

1. Courses are offered in two major fields:
   (a) Forest Entomology.
   (b) Wild Life Biology.
2. Related subjects:

   These may include Agronomy, Biology, Botany, Chemistry, Forestry, Geography, Geology, Horticulture, Mathematics, Physics, Zoology.
3. The following courses will be accepted for Ph.D. credit:
   (a) Graduate courses (numbered 500 and above) offered in the Department concerned with the major field provided that credit has not already been obtained for such courses.
   (b) Certain courses numbered 400 or above in related subjects as approved in particular cases on the recommendation of the Departments concerned.

Department of Physics

1. The Department offers opportunities for Ph.D. work in the following major fields: Nuclear Physics, Spectroscopy, and Biophysics.
   (a) For work in *Nuclear Physics* there is considerable equipment, including a 4 Mev Van de Graaff Generator, and such ancillary apparatus as beta-ray spectrometers, magnets, scalers, and Geiger counters.
   (b) In *Spectroscopy,* the Department has the following: vacuum grating, 21′ grating, quartz spectrographs, Perkin-Elmer infra-red spectrometer, moll-microphotometer measuring micrometers, and also wave guides, sources, and detectors for micro-wave work.

(c) Some equipment is available for work in *Biophysics* and it is expected that, with the establishment of a Medical School, further facilities will be available.

2. Related Subjects:

These may include Mathematics, Chemistry, Electrical Engineering and Metallurgy.

3. The following courses will be accepted for Ph.D. credit:
   (a) Graduate courses (numbered 500 or above) offered in the Department provided that credit has not already been obtained for such courses.
   (b) Certain courses numbered 400 or above in related subjects as approved in particular cases on the recommendation of the Departments concerned.

Department of Zoology

1. Courses are offered in three major fields:
   (a) *Fisheries and Marine Zoology.* Research in the fundamental and applied biology of fishes and marine invertebrates.
   (b) *Wildlife Biology.* Research in the ecology of the birds and mammals of British Columbia, particularly those referred to as game animals.
   (c) *Experimental Zoology.* Research in the responses of animals and animal populations to environmental conditions and the comparative physiology or animal species.

2. Related Subjects in which courses may be taken are as follows: Agronomy, Animal Husbandry, Bacteriology, Chemistry, Forestry, Geology, Mathematics and Physics.

3. The following courses will be accepted for Ph.D. credit:
   (a) Graduate courses (numbered 500 or above) offered in the Department provided that credit has not already been obtained for such courses.
   (b) Certain courses numbered 400 or above in related subjects as approved in particular cases on the recommendation of the Departments concerned.

4. A candidate who has not previously spent a study period at a Marine Biological Station will be encouraged to do so before the completion of his Ph.D. course.

DOUBLE COURSES

DOUBLE DEGREES

Students who intend to take two Bachelor's degrees are advised to spend the full time required for each. For those who are unable to do so, the following regulations have been made. Attention is drawn in all cases to notes (a) to (d) below.

I. The Degree of B.A. combined with the Degree of B.A.Sc. (Engineering), B.Arch., B.Com., B.H.E., B.P.E., B.S.A., B.S.F., or B.S.P.

A student taking a course of study leading to the degree of B.A.Sc. (Engineering), B.Arch., B.Com., B.H.E., B.P.E., B.S.A., B.S.F., or B.S.P. may obtain the B.A. degree in the General course by completing not less than 48 units in courses regularly offered for the B.A. degree. Of these 48 units, credit up to a maximum of 15 units may be granted for courses which are taken to meet the requirements for the other degree, but only in the case of subjects numbered under 300. The remaining units, 33 or more, must be chosen so that the student's combined course meets the requirements of the First and Second Years in Arts and Science, as outlined on pages 122-127. In addition they must include at least 15 units of courses numbered 300 or higher. Courses involving a duplication of work required for the other degree will not be counted.

II. The Degree of B.A. combined with the Degree of B.A.Sc. (Nursing)

First, Second, and Third Years

Students register in the Faculty of Arts and Science for three years' work as follows: English 100 and 101, Mathematics 100, a language course numbered 100-199, Chemistry 100 or 105, Biology 100, in the First Year; English 200, the second course in the language numbered 200-299, Bacteriology 201, in the Second Year; Physics 110, Zoology 200, Psychology 100, in the First, Second, or Third Year; Bacteriology 301, Nursing 151, Nursing 152, in the Third Year; nine additional units to be chosen from courses regularly offered for the B.A. degree, numbered 300 or higher.

Fourth, Fifth, and Sixth Years (Professional)

Upon completion of the professional years the student is granted the degree of B.A. by the University and the diploma by the hospital school of nursing.

FINAL YEAR

As in Nursing A; i.e., a choice between the two courses, Nursing B and Nursing C. The degree of B.A.Sc. (Nursing) is granted upon completion of the final year.

The degree of B.A.Sc. (Nursing) may also be awarded to other candidates holding the degree of B.A. who have fulfilled all requirements for the degree of B.A.Sc. (Nursing).

III. The Degree of B.A. combined with the Degree of LL.B.

Completion of at least 48 units in courses regularly offered in the Faculty of Arts and Science for the B.A. degree and of three complete years in Law, is required for the combined degrees of B.A., LL.B. The 48 units must be chosen to meet the requirements of the First and Second Years of Arts and Science, as outlined on pages 122-127, and in addition must include at least 15 units of courses numbered 300 or higher. Courses in Arts and Science may not be taken concurrently with work in Law.

Notes

(a) Courses for the degree of B.A. combined with the degree of B.Com., B.H.E., or B.P.E. must be approved by the Dean of the Faculty of Arts and Science and the head of the department concerned. Courses for the degree of B.A. combined with the degree of B.A.Sc., B.Arch., B.S.A., B.S.F., B.S.P., or LL.B. must be approved by the deans of the faculties concerned.

Students who intend to study for a double degree are advised to obtain approval of their courses as early as possible. Failure to do so may mean that they are unable to qualify in the minimum time or with the minimum number of units.

(b) The B.A. degree will not be conferred until the student has obtained full standing in all but the final year of his course for the other degree.

(c) Students taking a combined course who are fulfilling the language requirements as indicated in note 1, page 123, must complete the third course in the language, unless they qualify under note 6, page 124.

(d) Credit toward the combined degrees for courses taken at other universities is limited to courses in the First Year.

UNIVERSITY SUMMER SESSION

Seven Weeks—July 3rd-August 18th

The announcement of the courses to be offered in the Summer Session will be issued before Easter, if possible.

The regulations, etc., governing the Summer Session, the Directed Reading courses, and the Extra-sessional classes follow.

COURSES LEADING TO THE DEGREE OF B.A.

1. The degree of B.A. will be granted on completion of courses amounting to a minimum of 60 units chosen in conformity with Calendar regulations. (See pages 121-143).

2. Candidates for the degree are advised to attend at least one Winter Session, preferably that of the Fourth Year.

3. The maximum credit for Summer Session work in any one calendar year is six units.

4. A limited number of Directed Reading courses may be offered mainly for students not in attendance. The following regulations pertain to these courses:

(a) A minimum registration of twenty in each course is required.

(b) An applicant for a Directed Reading course (1) must be at least 18 years of age; (2) must qualify for registration at least as a Second Year student (full undergraduate or conditioned), or must hold a Normal School diploma; and (3) must have completed the course prerequisite for the Directed Reading course for which he is applying.

(c) The final examinations will be held at the University.

(d) If the Directed Reading course is one on which there is a sessional examination in April, the student may write either this sessional examination in April or the Directed Reading course examination at the opening of the Summer Session, otherwise only at the opening of the Summer Session.

(e) No Directed Reading course may be taken for undergraduate credit concurrently with an Extra-sessional course, except by special permission of the Faculty.

(f) Not more than one Directed Reading course may be taken during the academic year.

5. Extra-sessional classes to be held at the University may be arranged, and, if so, may be taken for credit by students proceeding to the B.A. degree, who are at least 18 years of age, who are qualified for registration as Second Year students (full undergraduate or conditioned), or who hold Normal School diplomas, and who have the prerequisite standing.

6. The maximum credit for work other than that of the regular Summer and Winter Sessions may not exceed 15 units subsequent to Senior Matriculation or First Year Arts, nor 3 units in any one academic year.

7. Extra-mural work done at other universities prior to registration at this University may be accepted if approved by Faculty, but may not exceed the total number of units of credit obtainable at this University without attendance at either Winter or Summer Session.

8. If credit is granted for extra-mural work taken elsewhere, the total amount of work which the student concerned may take at this University without attendance at a Winter or Summer Session will be correspondingly reduced.

9. No credit will be granted for extra-mural work done at other universities in the same academic year in which any work has been attempted at this University, whether in the Summer Session or in the Winter Session or by Reading courses or Extra-sessional classes.

REGISTRATION AND ATTENDANCE

1. *Students are required to register on or before the opening day of the session. A fee of two dollars ($2.00) will be charged for late registration.*

2. All students desiring to obtain formal credit for work done in the Summer Session must, upon entrance, present evidence of University Entrance standing of this Province, or its equivalent.

3. Summer Session students will be classified in accordance with the regulations given on page 43 under Registration and Attendance.

4. Students must attend regularly the classes in a course for which they register. Those whose unexcused absences from such a course exceed one-eighth of its total number of meetings will not be credited with attendance in that course.

FEES

For statement of fees, see page 50.

EXAMINATIONS AND ADVANCEMENT

1. Summer Session examinations are held at the close of the Summer Session. Students attending Extra-sessional classes will be tested by the ordinary Winter Session examinations.

2. The passing mark on each paper is 50 per cent. Credit, however, will not be granted for any part of a course until the whole

course has been completed. Part courses in different subjects may not be combined.

3. In any course which involves both laboratory work and written examinations, students may be debarred from examination if they fail to present satisfactory results in laboratory work, and they will be required to pass in both parts of the course.

4. Supplemental examinations may be granted by Faculty to students attending the Summer Session or the Extra-sessional classes in the subject or subjects in which they have failed, but a student obtaining less than 30 per cent. in a subject will not be granted a supplemental in that subject. Supplemental examinations on Summer Session courses are held in the first week of the Summer Session. If the course is given again in the current Summer Session, the candidate may write the final examination in this course as a supplemental.

DEPARTMENT OF UNIVERSITY EXTENSION

Under a grant from the British Dominions and Colonies Fund of the Carnegie Corporation of New York, the University of British Columbia organized early in 1936 a Department of University Extension. This department carries on a comprehensive and varied programme of adult education.

The grant from the Carnegie Corporation enabled the University to collect much valuable information on the special requirements of adult education in British Columbia. Various experimental projects were tried and, in accordance with the experience gained, were rejected, modified, or accepted as the basis for a more permanent programme. As a result a practicable policy has been evolved—one adapted to local conditions, yet within the financial resources of the University. Through the activities of the Department of University Extension, the University is contributing enduring benefits to the educational, cultural and economic life of the Province.

The Dominion-Provincial Youth Training Programme, which was carried on by the Department from 1938 to 1941, was resumed in January, 1947, with an eight-week Short Course held at the Acadia Camp. This programme is sponsored jointly by the Dominion Department of Labour and the Provincial Departments of Education and Agriculture.

Since 1940 the Department of University Extension has been cooperating with the Dominion Department of Fisheries in providing an educational programme for British Columbia fishermen. The Department also assists in the administration and supervision of rural film circuits for the National Film Board, and also acts as coordinating agency for the B. C. Circulating Film Exchange.

The present activities of the Department include the following:

(a) Extension Lectures.

Through the Department arrangements are made for members of the University teaching staff to give lectures at various centres throughout the Province.

(b) Evening Classes.

Each year evening classes on various subjects are held in the city of Vancouver and adjacent centres.

(c) Discussion and Study Groups.

Discussion group courses are offered each year. These include:

Child Psychology for Parents.
Marriage and Family Life.
Cooperative Play Groups for Children Under Six.
Understanding Adolescents.
Citizen's Forum.
Farm Forum.
Dominion-Provincial Relations.
Know Your Government.
The Changing Far East.
East and West of Suez.
The UN—How It Works—What It Has Done.
The Economic Planning of the UN.
Canadian Immigration Problems.
Acting.
Public Speaking.
Modern Literature.
Creative Writing.
Art Appreciation.
Music Appreciation.
Special Music Courses.
Credit Unions.

(d) Visual Education.

(i) Lantern Slide and Filmstrip Service. Approximately 1100 sets of lantern slides and filmstrips, many with lectures, are available for loan to schools, churches, and other organizations. Suitable projection equipment can be supplied if necessary.

(ii) Motion Picture Service. A Film Library of 1000 educational subjects has been established. Films from the National Film Board and the National Film Society are distributed in British Columbia through the Ex-

tension Department. A limited number of 16 mm. sound motion picture projectors is available. A catalogue listing the films may be obtained upon application.

(e) Dramatics.

The regular Summer School of the Theatre is held during the months of July and August, and during certain seasons of the year the Department offers short courses in dramatics. Correspondence courses and general assistance are available to drama groups throughout the Province. A large lending library of plays and books on the theatre has been established.

(f) Agriculture.

Through its agricultural services the Department makes the facilities of the Faculty of Agriculture available to groups and individuals throughout the Province. Various short courses are arranged in cooperation with agricultural organizations and the Provincial Department of Agriculture. Discussion group outlines and pamphlets on agricultural subjects are available.

(g) Home Economics.

The Extension Department offers lectures and workshops related to Homemaking. Information and pamphlets concerning foods, clothing, textiles and home crafts are available upon request.

(h) Handicrafts.

To meet the needs of those interested in handicrafts, the Extension Department offers information about decorative and printing processes, leatherwork, weaving and many other crafts. Instruction is available in the form of short courses, lectures, demonstrations, books, pamphlets and films.

(i) Parent Education.

Lectures, *short courses,* printed materials, films, and advisory services are included in the Department's programme for individuals and groups interested in child development and pre-school education.

(j) Extension Library.

The University Extension Library is maintained for the purpose of providing good books in fields of current interest for groups and individuals throughout the Province. Pamphlets on a wide variety of topics are available on request.

(k) Radio.

For the past eight years the Department has cooperated with the National Farm Radio Forum in organizing listen-groups throughout the Province of British Columbia. During the past six years it has also cooperated with the Canadian Broadcasting Corporation and the Canadian Association for Adult Education in organizing groups for the programme "Citizens' Forum."

(l) Art and Music.

Courses in Music Appreciation and Art Appreciation have been specially prepared by well-known artist-teachers. Through the facilities provided by the Carnegie Music Set the Department is able to offer a phonograph record loan service, and, in cooperation with the Federation of Canadian Artists, B. C. Region, it sends out travelling art exhibitions each year. These services are all available to groups throughout the Province.

(m) Educational Programme for British Columbia Fishermen.

Through assistance received from the Dominion Department of Fisheries, the University has been able to offer courses on Credit Unions and Cooperatives to British Columbia fishermen.

(n) Public Relations.

A regular news coverage of university activities is provided for newspapers, radio stations, and other news agencies. A monthly news sheet is mailed to all those requesting it. The Department of University Extension offers its services to any individual, group, or organization requiring information regarding the University.

Full particulars regarding any of the above services will be furnished upon application to the Director, Department of University Extension.

UNIVERSITY SERVICE TRAINING CORPS

Students who can meet the physical requirements may take training in either the University Contingent of the Canadian Officers' Training Corps, the University Naval Training Division, or the University Flight, R.C.A.F. (Aux.). All service training on the campus is under the jurisdiction of a Joint Services University Training Committee composed of the President of the University, the Commanding Officers of the C.O.T.C., U.N.T.D., and R.C.A.F.

(Aux.) University Flight, the Deans of the Faculties of Arts and Science, Agriculture, and Applied Science, and representatives from the Navy, the Army, and the Air Force.

(a) Canadian Officers' Training Corps.

The U. B. C. contingent of the C.O.T.C. was re-established in 1928 and has operated continuously since that time. At the outbreak of World War II it was the only military unit in British Columbia organized for the specific purpose of training and qualifying officers. Until Active Service Officer Training Centres were established, University graduates were permitted to join the C.O.T.C. and take the examinations for officer candidates. Many took advantage of this opportunity and as a result in the early years of the war the supply of reinforcement officers for British Columbia units came largely from the C.O.T.C.

The strength of the unit reached its greatest height in November, 1942, when there were 1,595 all ranks on strength.

During World War II 1,452 men left the C.O.T.C. to go on active service with the Navy, Army, and Air Force. There are many former members of the unit who joined the Services after leaving the University and, unfortunately, there is not, as yet, a complete record of these men.

From 1928 to 1945 all ranks of the C.O.T.C. waived their local headquarters training pay. The total amount so waived exceeding $125,000.00. Approximately $100,000.00 of this was used to construct and furnish the University Armoury, the first unit of which was opened on November 22nd, 1941. The second unit was completed on September 22nd, 1943. The remainder of the funds has been placed in trust for the unit and for the promotion of military training at the University. Commencing in September, 1945, the practice of waiving pay was discontinued.

With the return of peace, military training has been placed on a voluntary basis. The newly-revised programme governing training in the C.O.T.C. provides an opportunity for selected students to qualify for commissions in the Canadian Army, Active and Reserve. Prospective officer candidates are required to apply in writing for admission to the C.O.T.C. Upon acceptance, the candidate is appointed as an Officer Cadet and is required to devote a minimum of three hours per week in Local Headquarters Training and from 3½ to 4 months each Summer in Training at the various Active Force Corps Schools across Canada under Active Force officers and instructors. On the successful completion of his

military training and upon graduating from the University, the Officer Cadet may emerge qualified for the rank of Captain in the Reserve Force and for the rank of Lieutenant in the Active Force. A limited number of these officers may be accepted into the Active Force each year.

All inquiries for information should be directed to the Officer Commanding. Consultation with the Resident Staff Officer may be had at the C.O.T.C. Orderly Room situated in the University Armories.

(b) University Naval Training Division.

On March 29th, 1943, the Board of Governors approved the establishment of a University Naval Training Division on the campus. Lieut. H. M. McIlroy of the C.O.T.C. was appointed by the Naval Service as Commanding Officer of the U.N.T.D. with the rank of Lieut. Commander (Special Branch). During the war the U.N.T.D. served as a preliminary training establishment for University students who intended to serve with the Navy. Since the close of the war the U.N.T.D. is functioning as a permanent peace-time Naval Training Unit for students who are interested in the Navy. In September, 1947, A/Lieut.-Commander (g) F. J. E. Turner, R.C.N. (R.) took over command of the unit when Lieut.-Commander McIlroy, R.C.N. (R.) retired with the rank of Commander. Members of the U.N.T.D. are attested in the Fall, as ratings in the R.C.N. (Reserve) on Divisional Strength at H.M.C.S. "Discovery." Prior to February 1st they appear before an Officers' Selection Board and if passed by the Board, become Officer Cadets. Upon completion of a four-year training syllabus, Cadets qualify for a commission in the R.C.N. (Reserve) and may apply for a permanent force commission. Training involves twenty three-hour parades during the University session and a minimum of two full summers' training during vacation periods, and at least two weeks' duty in two other vacation periods. Provision is also made for those who desire additional sea duty.

(c) R.C.A.F. (Auxiliary) University Flight.

On June 28, 1943, the Board of Governors approved the establishment of the University Air Training Plan. Dr. J. Allen Harris was appointed Commanding Officer of No. 6 University Air Squadron, and the Late Dr. William Ure and Professor W. H. Gage were appointed instructors. The Squadron was disbanded on January 6, 1945.

The Royal Canadian Air Force officially returned to the campus on November 29th, 1948, when the Board of Gover-

nors approved the formation of the R.C.A.F. (Auxiliary) University Flight.

The University Flight offers students an opportunity to qualify for commissions in the R.C.A.F. Regular, Auxiliary, or Reserve. Applicants are carefully selected and are medically examined. Successful applicants are enrolled as Flight Cadets. Training involves attendance at weekly parades during the University Session and attachment to Regular Air Force units for approximately five months during the summer recess. The training syllabus extends over three University Sessions and three summer periods.

The University Air Training Plan offers some Flight Cadets an opportunity to learn aircrew trades.

Full information may be obtained at the R.C.A.F. (Auxiliary) U. B. C. Flight Orderly Room in the University Armouries.

UNIVERSITY OF B. C. VETERANS' BUREAU

The University provides an advisory and counselling service for student veterans. Full-time counsellors appointed to the University staff are available to confer with students regarding their admission, courses, and progress. Incoming students are advised to report to the bureau on arrival. Students requiring assistance with their courses are invited to consult the counsellors. Cheques for the payment of rehabilitation benefits are distributed at the bureau and a close liaison is maintained with the Department of Veterans' Affairs on all matters affecting the rehabilitation of veterans.

University Student Veteran Loan Fund

This fund has been established by the Department of Veterans' Affairs for the assistance of ex-service students under allowances who are in need of financial assistance. It applies only to students who have, subsequent to discharge, completed at least one year's academic work in a university. Loans are for limited amounts and are repayable on January 1st next following completion of training. The Fund is administered by the University. Information may be obtained by enquiring at the Veterans' Bureau, Hut M7.

STUDENT ORGANIZATION

Alma Mater Society

President: David M. Brousson.
Secretary: Nancy Davidson.
Treasurer: Paul Plant.

The Alma Mater Society with its governing executive, the Students' Council, handles all student activities. Each student on

admittance to the University automatically becomes a member of the Society. The eleven members of Students' Council are elected every spring, to take office the following year. They control activities of the students and of the clubs and societies under the Alma Mater Society, and are responsible for student discipline.

Funds for the Society are obtained from the compulsory fee of $8.00 per student, plus a compulsory levy of $5.00 for the War Memorial Gymnasium Fund and a fee of $3.00 for the Pass System, a total of $16.00.

Students may take part in many sports, in debating and public speaking, and in other activities noted below. No student, however, will be allowed during the session to take part in athletic competition or games for any team or organization other than a University team, without the consent in writing of the Men's or Women's Athletic Association duly approved by resolution of the Students' Council.

Administrative Facilities

For the use of the students, and to carry on the business of the Society, the Students' Council maintains an office in the Brock Memorial Building. The services offered at this office are outlined in the student handbook, the *Tillicum,* issued each year. Members of Council may be interviewed at the office. A room-booking office is maintained in the Auditorium Building in cooperation with the University.

Book Exchange

This bureau operates to exchange second-hand books between students in the most convenient manner possible. The office of the exchange will be located in the Armories.

Publications Board

The Publications Board has charge of the *Ubyssey,* the student newspaper published four times a week; of the *Totem,* the Society's yearbook; of the *Thunderbird,* the society's quarterly magazine; of the *Student Directory,* which lists addresses and telephone numbers of all members of the Society; and of the *Tillicum,* the student handbook issued to all freshmen.

The Literary and Scientific Executive

President: Roger Pedersen.
Secretary: Margaret P. Low-Beer.

The Literary and Scientific Executive comprises the full membership of the following campus clubs which are classified into two

groups, Major Clubs and Minor Clubs. The Major Clubs are the Players' Club, Musical Society, Radio Society, Mamooks, Parliamentary Forum and Student Christian Movement. The presidents of these Major Clubs and five presidents of Minor Clubs elected at a general meeting constitute the Major Executive of the L.S.E. The Major Executive controls the finances and activities of the constituent organizations and its chairman represents them on Students' Council.

The Players' Club presents to the public four one-act plays at Christmas, one of which will be entered in the Inter-Varsity Drama Festival, and a full-length play in the spring which tours the province. Membership is granted after competitive tryouts.

The Musical Society presents its annual operetta in the spring and maintains a strong Glee Club; the orchestra and chorus are under professional leadership. Membership in the Musical Society is achieved through participation in tryouts.

The Radio Society broadcasts several weekly radio programmes. It has its own campus studio in the basement of Brock Hall. Membership is open to persons interested in script writing, announcing, producing, or technical work.

The Mamooks is the campus service organization which handles the painting and posters, the selling of tickets and the decorations for social functions.

The Student Christian Movement, the Newman Club, the B'nai B'rith Hillel Foundation, the Varsity Christian Fellowship, the Engineers' Christian Fellowship, the Lutheran Students' Organization and the Christian Science Organization provide opportunity for fellowship and worship to adherents of various Christian denominations and the Jewish faith.

The public speaking and debating clubs are the Parliamentary Forum, open to all students, which is a member of the Western Universities Debating League featuring the McGoun Cup Debates; and the Women's Public Speaking Club and the Men's Public Speaking Club, which provide an opportunitly for inexperienced speakers to achieve confidence through mutual criticism and coaching.

Instrumentalists may play in the Varsity Band, the Varsity Dance Band, the Musical Society Orchestra, the University Symphony Orchestra, or the Pipe Band.

The engineering clubs are the Civil Engineering Club, the G. M. Dawson Club, the Forest Club, the American Institute of Electrical Engineers, the American Society of Mechanical Engineers, the American Institute of Chemical Engineers, the Engineering Institute of Canada, the Chemical Institute of Canada, and the Engineering Physics Society.

The Thunderbird Gliding and Soaring Club constructs gliders and instructs its members in flying operations.

The Film Society trains its members in projection technique and presents films to the student body throughout the year.

Clubs open to students in the upper years are the Economics Society, El Circulo Latino Americano, the Letters Club, the Russian Circle, the Historical Society, the International Relations Club, the Biological Discussion Club, the Mathematics Club, the Physics Society, the Physics Exchange, the Psychology Club, Le Cercle Français, the B. C. Teachers' Federation, the Architectural Club, Pre-Optometry, the Geography Club, the Pre-Dental Club, the Society of Microbiologists, and the Junior Agriculture Institute of Canada.

Other clubs not restricted to any year are the Social Problems Club, the Student C.C.F. Club, the Student Liberal Club, the Student Progressive Conservative Club, the Student L.P.P. Club, the Student Technocracy Study Group, the Student Civil Liberties Union, the United Nations Society, the Chess Club, the Jazz Society, the Music Appreciation Club, the Philatelic Society, the Pharmaceutical Society, the Chinese Students' Club, the Hansard Society, the Scottish Country Folk Dance Club, the Fish and Game Club, and the Rover Club.

Recognition of outstanding members of the L.S.E. takes the form of election to the Literary and Scientific Honorary Society. A limited number of students, nominated by their respective clubs, are voted this award each year.

Women's Undergraduate Society

The Women's Undergraduate Society unites all the women of the University under a representative executive body. The object of the society is to consider and advance the interests of the women students through the promotion of extra-curricular activities. These activities include a welcome to the women of the freshmen class, many social functions such as tea dances, mixers, a Coed Ball, Hi-Jinx, and various other functions throughout the year.

Women's Athletics

The Women's Athletic Association, under the jurisdiction of the Women's Athletic Directorate, includes all the women's athletic clubs of the University and is affiliated with the Women's Amateur Athletic Federation of Canada. The W. A. D., made up of the President of the W. A. A., the Director of Physical Education for Women, two faculty members, and seven students, cooperates in administering the athletic programme of the University. The Directorate is

designed to carry out long-term policies by establishing a continuity in the personnel.

The chief clubs in the Women's Athletic Association are the Women's Basketball Club, which enters two teams in the City Cagette League, and plays challenge games, and the Grass Hockey Club, which enters two teams in the Lower Mainland League and also plays challenge games.

Women may also join the Badminton, Fencing, Archery, Swimming, Tennis, Golf, Outdoor Ski, and Fish and Game Clubs.

Women's gymnasium classes meet during morning and afternoon hours under a physical instructor. Inter-class matches are arranged in basketball, badminton, archery, volley-ball, swimming, etc., for which points are awarded, the winning classes being the holders of the Chris Spencer Cup for the ensuing year. Individual awards are also given.

Big Blocks are awarded to outstanding members of women's teams. The Women's Big Block club was organized to maintain a high standard of awards.

Detailed information may be obtained from the *Student Handbook* or from any of the executive of the Women's Athletic Directorate.

Men's Athletics

All men students in the Alma Mater Society are members of the Men's Athletic Association. The Association is a local board of the Amateur Athletic Union of Canada, and the Evergreen Conference consisting of American colleges of the Pacific Northwest.

Supervising the Association is the Men's Athletic Directorate, made up of the president of the Alma Mater Society, the president of the Men's Athletic Association, two faculty members, the Director of Physical Education, the four senior managers of the four major sports, namely, basketball, American football, English rugby, and soccer, a representative from minor sports, an Alumni Association representative, a treasurer, a secretary, and an ex-officio member of the Publication Board.

A certain scholastic standing is required of students wishing to represent the University on any team, and this is sufficiently high to ensure that scholastic achievement is not subordinated to athletic prowess. By this means, athletics at the University are maintained on a sound and healthy level.

Detailed information may be obtained from the *Student Handbook* and from any of the executive of the above sports or the Men's Athletic Directorate.

SUMMER SESSION STUDENTS' ASSOCIATION

1948-1949 EXECUTIVE

President: S. J. Heywood.
Secretary: D. A. Smith.
Treasurer: Miss G. Owen.

The Summer Session Students' Association of the University of British Columbia is composed of all students in attendance at the Summer Session. All members are required to pay a fee of $2.00, payable at time of registration.

This student organization originated as a body to care for the purely social requirements of the Summer Session. Growth and expansion down through the years have made it of major importance on the summer campus.

Dances, banquets, teas, musicals, lectures, variety programmes, athletic tournaments embracing golf, tennis, badminton, horseshoes, soft-ball, and table tennis, all fall within the Association executives' scope. On the more serious side the executive deals with student resolutions, fees, matters of constitution; in reality, all matters pertaining to student life at the Summer Session. It serves as a liaison group between the student body and the various governing bodies of the University and helps to provide a proper balance between academic pursuit and recreation.

The Summer Session Students' Association holds at least two general meetings each summer. The executive meets at least weekly during the summer and as often as is deemed necessary throughout the year.

Fraternities

Fraternities are officially recognized as active student organizations. They are governed by an Inter-fraternity Council composed of representatives of each of the fraternities and a member of the Faculty. Mutual friendship and interest in the University are stressed by the individual fraternities. Membership is by invitation.

Sororities

Sororities, also, are officially recognized by Senate as active student organizations. The Women's Panhellenic Association is established to regulate all matters of common interest to the sororities on the campus, and to advise and foster sorority and inter-sorority relations. Membership in sororities is by invitation.

ALUMNI ASSOCIATION

OFFICERS OF THE ALUMNI ASSOCIATION

President: Winston A. Shilvock, B.A., B.Com.
1st Vice-President: John M. Buchanan, B.A.
Secretary-Manager (Permanent): Frank J. E. Turner, B.A., B.Com.
Treasurer: Harry A. Berry, B.A., B.Com.
Chairman, Publications Board: Ormonde J Hall, B.Com., LL.B.

The Alumni Association of the University of British Columbia is composed of Honorary, Active, and Associate members. Honorary membership includes all members of the Board of Governors and any honorary life members appointed by the Association from time to time. Active membership includes all Association members who have contributed to the Alumni-U. B. C. Development Fund or who have paid their annual fee of $3.00 or the life membership fee. Associate membership includes all other graduates of the University or former students at University of British Columbia, Victoria College or old McGill College, who successfully completed fifteen units during attendance.

The aims and objects of the Association are:

(a) to bring about the unity of all graduates and former students at the University of British Columbia and to further among them the spirit of friendship of undergraduate days;

(b) to instill in all graduates and former students at the University of British Columbia a feeling of loyalty to the University and a sense of responsibility for the continuance of the educational work of the University and for service to the public of British Columbia;

(c) to support suitable undertakings for the facilitation of the work of the University or of education in general, and to cooperate with organizations with similar aims and objects;

(d) to educate public opinion regarding the use and benefit of the University of British Columbia, and education in general;

(e) to adopt a definite policy on any question directly or indirectly affecting the University of British Columbia, education in the Province of British Columbia, Alumni of the University of British Columbia, or persons engaged in educational work in the Province of British Columbia.

The new constitution of the Alumni Association has provided for a system of branches to be organized in any place where there are a sufficient number of University of British Columbia alumni to make an active organization.

The governing body of the Association is composed of a general executive elected at the annual meeting and the president of each organized branch. This body conducts the affairs of the Association and maintains contact with the branches, University of British Columbia alumni, and persons interested in education generally, through the Secretary-Manager. The latter is employed by the Association on a full-time basis.

In the Fall of 1948, a new Society was formed known as the "Trustees of the Alumni-U. B. C. Development Fund." This Society receives donations from Alumni and these donations are income tax exempt. The Alumni Association agreed to appoint a Board of Directors for this annual giving programme and organize annual collections of monies to be used for the general purposes of the University and the encouragement and advancement of education in the Province. Mr. Joseph F. Brown, Jr. (Arts '23) was selected as the first Chairman of the Directors, while the Alumni Secretary-Manager was appointed Executive Secretary.

The Association magazine, formerly called *The Graduate Chronicle,* is now called the *U. B. C. Alumni Chronicle,* and is issued quarterly throughout the calendar year. *The Chronicle* is mailed to all contributors to the Alumni-U. B. C. Development Fund and other Association members.

Further information concerning the Association may be obtained through the Alumni Office, Brock Hall, U. B. C. (ALma 3044).

Notices of change of address and reports in regard to the activities of members should be sent to the Alumni Office.

INTER-UNIVERSITY EXCHANGE OF UNDERGRADUATES

Through this plan the National Federation of Canadian University Students offers to Canadian students the opportunity to study for one year at a university in another part of Canada. The favoured students, whose number must not exceed one per cent. of the total enrolment, are chosen by a selection committee from their own universities, and the university which the student selects for the year's study remits the fees for that year. The only prerequisite is that any student who desires to take advantage of this opportunity must have completed at least two years of study with at least second class standing in the second year, and must be an undergraduate below the final year. All applications must be in the hands of the Registrar on or before the first day of March. Further information may be obtained from the Registrar.

VICTORIA COLLEGE

VICTORIA, B. C.

(In Affiliation with the University of British Columbia)

Staff

JOHN M. EWING, B.A. (Queen's), D.Paed. (Toronto), Principal, Professor of Philosophy and Psychology.

JEFFREE A. CUNNINGHAM, B.A. (Queen's), Vice-Principal, Associate Professor of Biology, Botany and Zoology.

GEORGE P. BLACK, M.A., (Man.), Associate Professor of Classics.

W. HARRY HICKMAN, M.A. (Brit. Col.) D. Lett. (Univ. of Paris), Associate Professor of Modern Languages.

JAMES H. AITCHISON, B.A., B.Ed. (Sask.), B.Sc. (London), Associate Professor of Economics and Commerce.

WILLIAM H. HUGHES, B.A. (Queen's), B.Sc. (Sask.), Associate Professor of Physics.

ROBERT T. D. WALLACE, M.A. (Brit. Col.), Associate Professor of Mathematics.

LEWIS J. CLARK, B.A. (Brit. Col.), M.Sc. (Washington), Associate Professor of Chemistry.

SYDNEY G. PETTIT, M.A. (Brit. Col.), Assistant Professsor of History and Sociology.

ROGER J. BISHOP, B.A. (Brit. Col.), M.A. (Toronto), Assistant Professor of English.

EDWARD J. SAVANNAH, A.B., S.B. (Calif.), Assistant Professor of Chemistry.

RODNEY P. D. POISSON, M.A., (Brit. Col.), Assistant Professor of English.

W. GORDON FIELDS, B.A. (Brit. Col.), Assistant Professor of Biology.

MISS PHYLLIS BAXENDALE, B.A. (Brit. Col.), Assistant Professor of German.

WILLIAM H. GADDES, M.A., (Brit. Col.), Assistant Professor of Psychology.

MRS. O. PHOEBE NOBLE, B.A., (Brit. Col.), Instructor in Mathematics.

CHARLES H. HOWATSON, M.A. (Brit. Col.), Assistant Professor of Geology and Geography.

G. GRANT MCORMOND, M.A. (Sask.), Instructor in English.

MISS CECILY GIRVAN, B.Sc. (Mt. Allison), Instructor in Physics.

MISS NELLIE SALAMANDICK, B.A. (Alberta), Instructor in Home Economics.

MISS DOROTHY M. CRUICKSHANK, B.A. (Brit Col.), Registrar.

MRS. E. JOYCE MCKAY, B.A. (Man.), Assistant Registrar.

MISS KATHLEEN R. MATHEWS, B.A. (McMaster), M.S. (Columbia), Librarian.

MISS PATRICIA SULLIVAN, B.A., (Sask.), Assistant to the Registrar.

The College at Victoria, B. C., gives instruction in the first two years of the course in Arts and Science (including Commerce), and in Home Economics. The courses offered are as follows:

First and Second Years

1. The requirements of the First Year consist of 15 units. In the Second Year, students proceeding to a B.A. degree in the General Course must take 15 units; those proceeding to a B.A. degree in an Honours course must take 15 to 18 units, according to the requirements of individual departments. Courses in the first two years must also be chosen in conformity with the requirements (a) - (f) below and the special regulations in notes 1-15. Details of courses are given under the various departments.

Each student must take: Units

(a) In the First Year English 100 and 101, and in the Second Year English 200 6

(b) The first two courses in a language offered for University Entrance, one course in each year 6
(See notes 1-6)

(c) In the First Year Mathematics 100 or the option indicated in Note 10 3
(See notes 7-12)

(d) One course chosen from:
Economics 100, 200; Geography 201; History 101, 202, 203, 304; Philosophy 100, 205; Psychology 100; Sociology 200 3
(See notes 7, 13, 15)

(e) One course chosen from:
Biology 100; Chemistry 100; Geography 101; Physics 100, Physics 103 3
(See notes 6-9, 13, 15)

(f) At least three courses—not already chosen—selected from the following:
Biology 100; Botany 200; Chemistry 100, 200, 225; Commerce 251; Economics 100, 200; English 205; French 101, 202, 203; Geography 101, 201, 202; German 90, 100 or 101; Greek 90; Greek A*, 101, 202; History 101, 202, 203, 304; Latin 90, 101, 202; Mathematics 90, 100, 200, 201, 202; Philosophy 100 or 205; Physics 100 or 103, 200; Psychology 100, 200 or Sociology 200; Zoology 200 ..... 9 or 12
(See notes 4-9 and 12-15)

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* See note 2.

For notes 1-15 see Victoria College Calendar, pages 23-27.

The rules and regulations governing the College are the same as those in force at the University.

Information regarding Victoria College and calendars of the College may be obtained on application to the Registrar, Victoria College, Victoria, B. C.

UNION COLLEGE OF BRITISH COLUMBIA

(United Church of Canada)

VANCOUVER, B. C.

(In affiliation with the University of British Columbia)

Principal

REV. W. S. TAYLOR, M.A., B.D., Ph.D.

Registrar

REV. PROFESSOR S. V. FAWCETT, B.A., B.D.

Union College offers courses of instruction in Theology leading to the degree of B.D., B.Th. and B.R.E. and to diplomas in Theology and in Regilious Education, and, under the general regulations of the University with reference to affiliated Theological Colleges, provides Religious Knowledge options, for which credit is given in the course leading to the B.A. degree. (See page 122).

For further information in reference to Faculty, courses of study, etc., see Calendar of Union College.

THE ANGLICAN THEOLOGICAL COLLEGE OF BRITISH COLUMBIA

VANCOUVER, B. C.

(In affiliation with the University of British Columbia)

Principal

REV. K. E. TAYLOR, O.B.E., M.A., B.D., D.D.

Registrar

REV. D. P. WATNEY, M.A., B.D., D.D.

The Anglican Theological College offers courses in Theology leading to the Diploma of Licentiate in Theology, the Diploma of Scholar in Theology, and the degrees of B.D. and D.D., and, under the general regulations of the University in reference to affiliated colleges, provides Religious Knowledge options, for which credit is given in the course leading to the B.A. degree. (See page 122).

For further information in reference to Faculty, courses of study, etc., see Calendar of the College.

REGISTRATION FOR 1948-49

FACULTY OF ARTS AND SCIENCE	*Men*	*Women*	*Total*
First Year Arts	778	368	1146
First Year Home Economics	.....	43	43
First Year Physical Education	15	5	20
Second Year Arts	723	279	1002
Second Year Commerce	132	14	146
Second Year Home Economics	.....	66	66
Second Year Pharmacy	65	9	74
Second Year Physical Education	29	12	41
Third Year Arts	653	232	885
Third Year Commerce	207	9	216
Third Year Home Economics	.....	57	57
Third Year Pharmacy	61	11	72
Third Year Physical Education	25	7	32
Fourth Year Arts	532	242	774
Fourth Year Commerce	210	14	224
Fourth Year Home Economics	.....	54	54
Fourth Year Pharmacy	43	5	48
Fourth Year Physical Education	38	11	49
Graduates	280	65	345
Doctor of Philosophy	9	.....	9
Bachelor of Social Work	39	69	108
Master of Social Work	13	14	27
Teacher Training	110	35	145
Extra-Sessional Students	121	13	134
Directed Reading Students	90	46	136
Less Double Registrations	-110	-21	-131
	4063	1659	5722

FACULTY OF APPLIED SCIENCE	*Men*	*Women*	*Total*
First Year	275	.....	275
First Year Architecture	35	.....	35
First Year B.S.F.	36	1	37
Second Year	453	.....	453
Second Year Architecture	33	2	35
Second Year B.S.F.	70	.....	70
Third Year	565	.....	565
Third Year Architecture	20	.....	20
Third Year B.S.F.	77	.....	77
Fourth Year	352	1	353
Fourth Year Architecture	8	.....	8
Fourth Year B.S.F.	41	.....	41
Graduates	39	.....	39
	2004	4	2008

NURSING		*Women*	*Total*
First Year	.....	18	18
Second Year	.....	17	17
Third Year	.....	14	14
Fourth Year	.....	16	16
Certificate Course	.....	35	35
	.....	100	100

FACULTY OF AGRICULTURE	*Men*	*Women*	*Total*
First Year	57	8	65
Second Year	87	12	99
Third Year	123	13	136
Fourth Year	131	16	147
Fifth Year	12	1	13
Graduates	24	8	32
Occupational Course	14	1	15
	448	59	507

FACULTY OF LAW	*Men*	*Women*	*Total*
First Year	167	13	180
Second Year	154	7	161
Third Year	128	4	132
	449	24	473
TOTALS	6964	1846	8810

Veterans—Men:	3046
Women:	184
Non Veterans—Men:	3918
Women:	1662
	8810

SUMMER SESSION 1948	*Men*	*Women*	*Total*
All Years	1145	533	1678
BOTANY EVENING CLASS—1948-49	5	7	12

DEGREES CONFERRED

MAY, 1948

THE DEGREE OF DOCTOR OF LAWS
(Honoris Causa)

His Excellency Field Marshal the Right Honourable, the Viscount Alexander of Tunis, Governor-General of Canada
Arthur Danford Patrick Heeney, B.A., M.A., B.C.L., K.C.
George Moir Weir, B.A., M.A., D.Paed.

THE DEGREE OF DOCTOR OF SCIENCE
(Honoris Causa)

Daniel Buchanan, M.A., Ph.D., LL.D., F.R.S.C.

Faculty of Arts and Science

THE DEGREE OF MASTER OF ARTS

Archer, Douglas Harley, B.A. ..... Major: Physics
Minor: Mathematics
Thesis: "The Spectra of Indium"

Bakony, Edward Gregory Joseph, B.A., B.Com. ..... Major: Economics
Minor: Commerce
Thesis: "Economic Factors Contributing to the Outbreak of War in Asia"

Barraclough, William Edward, B.A. ..... Major: Zoology
Minor: Zoology

Thesis: "The Sunken Gill-net Fishery, and an Analysis of the Availability of the Dog-fish *(Squalus suckleyi Girard)* and the Soup-fin Shark *(Galeorhinus galeus Linnaeus)* in British Columbia Waters from 1943 to 1946"

Barton, George Marwick, B.A. ..... Major: Chemistry
Minor: Physics

Thesis: "The Catalytic Formation of Polyisoprene by Anodic Oxidation"

Brown, Harry, B.A. ..... Major: Physics
Minor: Mathematics

Thesis: "A Low Energy Beta-Ray Spectrometer"

Carter, David Southard, B.A. ..... Major: Physics
Minor: Mathematics

Thesis: "On the Quantum Mechanical Problem of a Particle in Two Potential Minima"

Chowdhury, Niranjan Krishna, M.Sc., (Dacca) ..... Major: Zoology
Minor: Chemistry

Thesis: "An Investigation of the Tryptic Enzymes Occurring in the Pyloric Caeca of Salmon with Special Reference to their Utilization as Leather Bates"

Codrington, Robert Smith, B.A. ..... Major: Physics
Minor: Mathematics

Thesis: "The Dielectric Properties of Natural and Synthetic Rubber-Sulphur Compounds"

Constabaris, George, B.A. ..... Major: Chemistry
Minor: Physics

Thesis: "Part I Studies in the Microanalysis of Gases;
Part II The Chemisorption of Water by an Activated Carbon"

Dodwell, Mrs. Doreen Elizabeth, B.A. ..... Major: Education
Minor: Mathematics

Thesis: "A Study of the Effect of an Organized Remedial Program in Freshman Mathematics"'

Edwards, Thomas Harvey, B.A. ..... Major: Physics
Minor: Mathematics

Thesis: "The Infrared Absorption Spectrum of Carbon Disulphide"

Gidney, Eileen Lee, B.A. ..... Major: Philosophy
Minor: English

Thesis: "The Philosophical Implications of the Poetic Impulse in Western Civilization"

Griffiths, David Albert, B.A. ..... Major: French
Minor: German

Thesis: "Romain Rolland: Sociologue et Ecrivain"

Groome, Leslie Jaquest, B.A., B.Ed. (Sask.) ..... Major: Education
Minor: History

Thesis: "A Study of Student Adjustment at Varying Grade Levels in High School"

Gurney, William Harold, B.A. ..... Major: History
Minor: Education

Thesis: "The Work of Reverend Father J. M. R. Le Jeune, O.M.I."

Hunter, John Gerald, B.A. ..... Major: Zoology
Minor: Biology and Botany
Thesis: "The Change in the Degree of Unsaturation of Body Fats During Acclimation of Goldfish *(Carassius auratus)* to High Temperature"

Khan, Muhammed Mujibur Rahman, M.Sc. (Dacca) ..... Major: Zoology
Minor: Chemistry
Thesis: "Antioxidant Glazes for Whole Dressed Fish"

Lyttleton, Hugh Attrill, B.A. ..... Major: Psychology
Minor: Economics
Thesis: "The Effects of Auditory Distraction on Visual Attention"

Mitchner, Morton, B.A. ..... Major: Physics
Minor: Mathematics
Thesis: "Infrared Absorption Spectra of Polyatomic Molecules"

MacDonald, John Campbell Forrester, B.A. ..... Major: Physics
Minor: Mathematics
Thesis: "The Raman Effect in Carbon Disulfide"

MacKenzie, Mrs. Mabel Laura Hunter, B.A. ..... Major: English
Minor: Spanish
Thesis: "A Study of the Life and Times of Dorothy Osborne as Found in her Letters"

MacLean, Harold, M.B.E., B.A. ..... Major: Chemistry
Minor: Physics
Thesis: "Emulsion Polymerization of Isoprene by Plant Enzymes and Inorganic Catalysts"

McMurtrie, Gilbert Eric, B.Sc. (Acadia) ..... Major: Physics
Minor: Mathematics
Thesis: "The Determination by Physical Means of Infestation in Fish"

Nicol, Eric Patrick, B.A. ..... Major: French
Minor: English
Thesis: "L'Idée de l'Europe"

Noble, John Goldthorpe, B.A. ..... Major: Philosophy
Minor: Psychology
Thesis: "A Study of Morality"

Ozeroff, Michael John, B.A. ..... Major: Physics
Minor: Mathematics
Thesis: "The Gamma-rays of Radium"

Pfeiffer, Egbert Wheeler, A.B. (Cornell) ..... Major: Zoology
Minor: Biology and Botany
Thesis: "Some Factors Affecting the Winter Ranges of Jasper National Park"

Pronger, Lester James, B.A. ..... Major: French
Minor: French
Thesis: "Les Théories Littéraires de Stendhal"

Robertson, Robert Frank Struan, B.A. ..... Major: Chemistry
Minor: Mathematics
Thesis: "A New Method for the Preparation of Rare Earth Bromates"

Rogers, Edward deLancey, B.A. ..... Major: Physics
Minor: Mathematics
Thesis: "The Infrared Spectrometer Applied to the Structure of Carbon Disulphide"

Semple, Robert Evans, B.A. ..... Major: Biology and Botany
Minor: Chemistry

Thesis: "The Amelioration of Experimental Hypertension by Hispidine and Ascorbic Acid"

Stewart, Ross, B.A. ..... Major: Chemistry
Minor: Physics

Thesis: "Some New Indicators Derived from Vanillin: 4-Hydroxy-3-Methoxy-Beta-Nitrostyrene and Homologues"

Withler, Frederick Curtis, B.A. ..... Major: Zoology
Minor: Biology and Botany

Thesis: "Fish Predation on the Young Sockeye *(Oncorhynchus nerka)* in Certain Lakes of the Skeena River Drainage as evaluated by Study of the Catches and Stomach Contents of Predators Obtained by Gill-netting"

THE DEGREE OF BACHELOR OF ARTS WITH HONOURS

Aish, Jane Anita ..... Second Class Honours in Chemistry
Alderdice, Ernest Terence ..... First Class Honours in Psychology
Alldritt, Marjorie Ann ..... First Class Honours in French and English
Angus, Anne Seton ..... First Class Honours in History
Argyle, Percy Edward ..... First Class Honours in Mathematics and Physics
Argyle, Sidney Charles ..... Second Class Honours in Mathematics and Physics
Berisford, Robert ..... Second Class Honours in Chemistry
Braide, David Ian William ..... First Class Honours in Economics and Political Science
Brooks, Allan Cecil ..... Second Class Honours in Zoology
Brown, Jack McDougall ..... Second Class Honours in Psychology
Burd, Helen Dorothy ..... Second Class Honours in Bacteriology and Preventive Medicine
Cannon, George Harry ..... Second Class Honours in Physics
Charnley, Elizabeth May ..... First Class Honours in Chemistry
Clark, Douglas Harvey ..... First Class Honours in Economics
Coghlan, William Richard Easton ..... Second Class Honours in Chemistry
Cooper, William Elton Henry ..... Second Class Honours in Physics
Cox, Albert Ernest ..... First Class Honours in Psychology
Cruchley, Emmanuel John ..... Second Class Honours in Chemistry
Day, Alison Elizabeth ..... Second Class Honours in Chemistry
Derrick, John Bryan Devereux ..... First Class Honours in Biology (Physiology Option)
Doe, Robert Eldon ..... First Class Honours in Mathematics and Physics
Dore, Burnell Vincent ..... Second Class Honours in Mathematics and Physics
Efford, Robert James ..... Second Class Honours in Bacteriology and Preventive Medicine

Ewart, Elizabeth May.....Second Class Honours in Bacteriology and Preventive Medicine
Faghin, Jack.....Second Class Honours in Bacteriology and Preventive Medicine
Fahlman, Gregory Alexander.....Second Class Honours in Chemistry
Farley, Albert Leonard.....First Class Honours in Geography
Frood, David Gordon.....Second Class Honours in Mathematics and Physics
Garside, Elisabeth Helena.....First Class Honours in Philosophy and Psychology
Godfrey, Harold.....First Class Honours in Zoology
Gough, William Arthur.....Second Class Honours in Mathematics and Physics
Goulson, Carlyn Floyd.....First Class Honours in History and English
Goundrey, Gordon Kenneth.....Second Class Honours in Economics
Grant, Douglas Robin.....Second Class Honours in Mathematics
Grunlund, Barbro Elizabeth.....First Class Honours in English
Grunlund, Jean Margaret.....First Class Honours in Chemistry
Guilhamoulie, Anne Marie Agnes.....First Class Honours in French
Hall, Ross Hume.....First Class Honours in Chemistry
Harrick, Nicolas James.....First Class Honours in Physics and Mathematics
Hayes, Ean.....Second Class Honours in English
Howard, William Alvin.....Second Class Honours in Mathematics
Irish, Ruth Irene.....Second Class Honours in Chemistry
Jeffrey, Mary-Lou Esther.....Second Class Honours in Biology and Botany
Jenkins, Leonard Cecil.....First Class Honours in Bacteriology and Preventive Medicine
Jensen, Henning.....First Class Honours in Philosophy
Johnson, Arthur Lee.....First Class Honours in Chemistry
Kay, Brian Ross Ronald.....First Class Honours in Psychology
Kay, Mrs. Eleanor Irene.....First Class Honours in Psychology
Kenney, James Harold.....Second Class Honours in Geography
Kinnear, James Kerr.....Second Class Honours in Physics and Mathematics
Laidler, Dorothy May.....Second Class Honours in Mathematics
Lang, Elizabeth Jean.....Second Class Honours in Political Science
Larsen, Edward Reynolds.....Second Class Honours in Mathematics
Lewis, Florence Nancy.....Second Class Honours in Philosophy
Mayo, Warren Gilbert.....Second Class Honours in Mathematics and Physics
Miller, Leonard Gordon.....First Class Honours in Philosophy
Moloney, Patrick James.....Second Class Honours in Zoology
Morrison, Stanley Roy.....First Class Honours in Mathematics and Physics
Morrow, Frederick Charles.....Second Class Honours in Mathematics

Moskovitz, Israel	Second Class Honours in Psychology and Zoology
McAllister, John Boyd	Second Class Honours in Psychology
McAllister, Robert Vernon	Second Class Honours in Psychology
McCrossan, Robert George	Second Class Honours in Geology
McCulloch, Thomas Alexander Hart	Second Class Honours in Psychology
McGeer, Patrick Lucey	First Class Honours in Chemistry
McGill, Allan Sydney	Second Class Honours in Economics
McLoughlin, Kathleen Florence	First Class Honours in French
McMynn, Robert Graham	Second Class Honours in Zoology
McRae, Dougal Harold	First Class Honours in Biology and Botany
Naish, Francis Theodore	First Class Honours in Mathematics and Physics
Ord, Alexander Harbinson	Second Class Honours in Mathematics
Oughton, John Melvin	Second Class Honours in Chemistry
Patrick, William Nicholas	Second Class Honours in Chemistry
Pearse, Charles Delaney	Second Class Honours in Physics
Plaskett, Mary Victoria	Second Class Honours in Latin and English
Potter, Gilbert David	Second Class Honours in Zoology
Rankin, David	First Class Honours in Mathematics and Physics
Rideout, Chester Franklin	Second Class Honours in Zoology
Rodenchuk, Eugenia	Second Class Honours in English
Ross, William LeBreton	First Class Honours in Chemistry
Sample, John Thomas	First Class Honours in Mathematics and Physics
Scovil, Henry Evelyn Derrick	First Class Honours in Physics
Service, Peter Kelvin Walker	Second Class Honours in Chemistry
Shand, Ronald	Second Class Honours in Physics
Smith, Donald Arthur	First Class Honours in Chemistry
Stone, Lorne Murray	Second Class Honours in Mathematics and Physics
Sykes, Paul Jay	First Class Honours in Mathematics and Physics
Tener, John Simpson	Second Class Honours in Zoology
Thomas, John Alexander	Second Class Honours in Chemistry
Thomas, Peter Danton	First Class Honours in Mathematics
Thompson, Basil Herbert Marshall	First Class Honours in Bacteriology and Preventive Medicine
Thomson, Patricia Grahame	First Class Honours in English
Urquhart, Helen Mary Ann	Second Class Honours in Physics
Waite, Peter Busby	Second Class Honours in History.
Waldichuk, Michael	Second Class Honours in Chemistry
William, Ian Havard	Second Class Honours in Chemistry
Wilson, William George	Second Class Honours in Chemistry

Witter, Patricia Alma.....Second Class Honours in Chemistry
Wong, Robert .....Second Class Honours in Chemistry
Wong, Wah .....Second Class Honours in Political Science
Wright, William Douglas.....Second Class Honours in Chemistry
Yule, David Lloyd George.....Second Class Honours in Psychology

THE DEGREE OF BACHELOR OF ARTS

General Course

Class I

Aitchison, Kenneth McBride
Benson, Edith Marion
Burt, Arthur Harvey
Butler, Alfred James
Cairns, Harold Newell
Conner, Orville Glendon
Fawcett, Evelyn Anne Grace
Fiddes, Ian Herbert
Gamey, Margaret Doreen
Harris, Gordon Sheffield
Howard, Mrs. Irene Thelma
Johnson, Joan Lena
Matheson, Marion Henderson
McMechan, Melville Young
Norris, John MacKenzie
Odlum, Harold Eustace
Plater, Leonard James
Pluym, Henry Adrian
Rally, Charles Robert Maurice
Rogers, Irene Patricia
Schellenberg, Abraham Walter
Simpson, Ernest James
Stone, James Stuart
Tubbs, Dorothy May

Class II

Abbott, John Arthur
Adams, John Rayson
Adams, Winifred Senhouse
Addy, Albert Gerald
Adshead, John Lester
Allen, Vivienne
Anderson, Gordon James
Andrews, William Robinson
Argyle, Catherine Maude
Armstrong, Robert James
Aspinall, Roy John Alfred
Austin, Shirley Esther Marie
Avery, Elsie Gwendolyn
Baker, Frank
Barclay, Lorne Cecil
Bartlett, Leslie Hamer
Bassett, Beverley Ann
Bayne, Margaret Joan
Beaton, Alexander John
Becker, Ruth Rachel
Beesley, James Frederick Bernard
Belkov, Gregory
Best, Helen Louise
Blair, David Crowe
Boes, Lillian Florence
Bow, Malcolm Norman
Boyle, Harry David
Braathen, Hans
Brandt, Beatrice Emmett
Brayshaw, Thomas Christopher
Brown, Agnes Brownlee
Brown, Helen Elizabeth
Brummitt, William Moore
Buchanan, Jean Isabel
Bulman, Lola Margaret
Burke, Ruth Elaine
Burnell, Joan Carolyn
Burnell-Jones, Harold Courtney
Burridge, Edward William
Burt-Smith, Kathleen Fernau
Busteed, Frank Ferguson
Butler, Reginald Michael Thomas
Calam, John Hellawell
Cameron, Angus Ewen Hamilton
Campbell, Ian James
Capstick, Edward Alfred
Chadwick, Helena Beatrice
Chalmers, Alan Bryce
Chaplin, Frances Elinor
Chernov, Eva Tania
Chisholm, Anita Grace
Christian, Patricia Maud

Clark, George Wadleigh Pollard
Clark, John Samuel
Clerkson, Gladys
Clucach, Moros, B.Com.
Coady, Mary Margaret
Cole, Dacre Patterson
Collison, Jocelyn Marion
Connal, Ross Gillespie
Coope, Felicity Mary
Corry, Geoffrey Donald
Cowley, Elizabeth Mary
Cox, Stanley John
Crerar, Alistair Donald
Croll, Robert Oliver
Darby, George Howard
Davison, Robert Leitch
Denholm, Isabella Maude
Denholm, Mary Patricia
D'Estrubé, Francette Marguerite
Dixon, Mary Margaret
Dow, Harry Grant
Dunfield, John Watkins
Egan, Thomas Joseph
Elder, Thomas Peter
Erskine, Helen
Evans, David
Evans, James Walwyn
Eyres, Roberta Joy
Fairfax, Eva Mercedes
Feast, Joan Elizabeth Campbell
Fell, Ralph Clarence
Fiamengo, Marya Ekaterina
Fraser, Geraldine Joan
French, Yvonne Louise
Freudiger, Ronald Hartley, B.Com.
Fry, Howard Calvin
Gall, Elizabeth Anita
Garner, Joseph John
Gemmill, Donald Lawrence
Giegerich, Margaret Ann
Giesbrecht, Herbert
Gillespie, John Thomas
Goostrey, Alexander Dunn
Govier, Oren Wheeler
Graham, Thomas Alfred
Green, Joanna Elizabeth
Green, Mary Carleton
Greer, Clifford Augustine
Griffith, Gwynneth Margaret
Griffiths, John Roderick
Gubbins, Patricia May
Guiguet, Charles Joseph
Gunn, Shirley Adelaide Marie
Hack, Otto Henry
Hadley, Arthur James
Hall, Beverley Elizabeth
Hallsor, June Carol
Handling, William Douglas
Harlow, Robert Grant
Harris, Lewis Harold
Harris, Robert Donald
Harris, Roger Paul
Harris, Shirley Marguerite
Hart, Suzanne Marie
Hartley, Gordon Francis
Hatton, Gwladys Nora
Henderson, Clifford Beavan
Henderson, Ronolee Ione
Henricksen, Alexander Brodie
Henry, Robert
Heslop, Marjorie
Hinchcliffe, Marjorie Irene
Hirtle, Walter Heal
Hobbs, Barbara Joan
Hodges, Barbara Monica
Hollins, Frank Edward
Horsfield, Mrs. Anne Millicent Hendry
Howell, Ruth Margaret
Hudson, Grace Byrn
Hummel, Brian Christopher Warren
Hunt, Edward George
Hunter, John Munro
Hurford, James Richard
Hutchison, Colin Campbell
Jackson, James Ivor
Jampolsky, Michael
Joe, Ruby
Johnson, Glendyne Helen
Jones, Neville Clegg
Jones, Robert Evan
Kaario, Edsel Archibald
Kelcey, Michael Frederick
Kenny, Edith Winchester
Ketchen, Sheila Janet
Ketcheson, Helen Ruth
King, Philip Joseph
Klein, John Oliver
Knight, Harold Arthur
Kouches, Mary
Kraminsky, Ralph Abram
Laird, Elizabeth Anne
Lawson, Richard Wallis
Laurence, Robert Howard
Legg, Peter George
Lemon, Ernest Arthur John
Leslie, Alexander Arthur
Leullier, Robert Arséne

Lewis, Carol Ann
Lewis, Marion
Little, Robin Wheatley
Lomas, Nancy Barbara
Longley, James Donald
Lorimer, Joan Duncan
Lott, Gordon Gatward
Malcolmson, Susana Mary Bell
Malensek, Clementine
Malysheff, Andrew
Marshall, Robert Edwin
Martens, Fred Lewis
Martin, William Robert James
Matheson, Lois Lenore
Matheson, Lorne Winfield
May, Gilbert Arthur
Menzies, Margaret Elizabeth
Messum, Roy Pallot
Montpellier, Alfred Louis
Morse, Inez Una
Mouat, Margaret Manson
Muir, Mrs. Irene Sarina
Myers, Gerard George
McAlpine, Mary
McClung, Paula Maxine
McConnell, Catherine
McConnell, Fleming
McDaniel, Francis Joseph
Macdonald, Eileen
Macdonald, Grace Victoria
McDonald, James Kelvin
MacDonald, Joan Angus
McGill, Trudabeth Ann
McGregor, Iona Marion
McGunigal, James Irwin
McIsaac, John Francis
Mackay, Bruce Sinclair
McKay, Donald
McKenzie, Archie Crawford
MacKenzie, Hugh Alexander
MacKenzie, Roderick
MacKinnon, Isabel Ferguson
MacKinnon, Jean Beatrice
Mackintosh, Murray Fraser
McLellan, Luella May
McLeod, Constance Dorothy
McLeod, Marilyn Julia
McMillan, Victor Dyke
MacQuarrie, Kenneth Taylor
McRae, Edward Davidson
Nation, Beryl Audrey Oke
Newport, Violet Gwendolin
Nickerson, Norman Dennis Lee
Noel, Mrs. Helen Roberta
Norbury, May Elizabeth
Norris, Mrs. Barbara Violet
Oldham, Philip Avril Jack
Oliver, Jean Elizabeth
Olson, Doris
Olson, Eugene Albert
Olson, Oswald Kenneth
Orme, Cyril Eric
Outram, Donald Noel
Paquette, Francis Dobel
Payne, Doris Deborah
Pearson, Gwendolyn Matilda
Penland, Patrick Robert
Perrault, Ernest George
Philpott, Elizabeth Joan
Pike, Gordon Chesley
Pincott, Clifford Earl
Purdie, Margaret Isles
Pye, Margaret Alicia Eleanor
Quin, James Wilkie
Rea, David Thompson, B.Com.
Reed, Florence Patricia
Reesor, Margaret Jean
Reynolds, Ileana Mary
Richards, Allan Edmund
Richards, Virginia Joyce
Rixon, Raymond Harwood
Robertson, Donald Wright
Routley, John Vernon
Rowse, Denis John
Salter, James Morley
Scott, James Stuart
Scutt, Alan Graham
Seale, Beverly Carl
Searle, Marion Eileen
Selfe, Conrad Anthony
Shaw, Lois Esther
Shepherd, Gordon William
Shirley, Frederick Steele
Shnitka, Samuel
Sibley, Isobel Mary
Sibley, Philippa Alice
Siddall, Charles Edwin
Smith, Helen Alexander
Smith, Thomas Henry
Snape, Margaret Anne Jardine
Solheim, James Elias
South, Donald Lyndon
Spencer, Herbert William
Stedman, Shirley-Ruth
Steuart, Kenneth Muir
Stewart, Kathleen Agnes
Stiles, John Gary
Stokes, John Whitley

Stone, David Ross
Suttie, Alexander
Tannar, Norman Edgar
Taylor, Joan Ruthmary
Thiessen, Victor Frank
Tiedje, Patricia Ann
Toms, Humphrey Nicholas Wolferstan
Toren, Cyril Kirby
Tully, Ralph Wilbert
Unsworth, Charles
Vrublevski, Diane Gertrude
Wallace, William Harold
Warden, Geoffrey
Wardroper, John Edmund
Webster, Harry Reid
Wilkinson, Edith Joyce
Williamson, Gerald
Wilson, James Alexander
Wolverton, Harold Gordon
Wong, Elsie
Wood, Russel Byron
Wormsbecher, John Henry
Wright, Francis Robert
Wright, Paul Whitmore
Wylie, Joseph
Yeardye, Mary Ayearst
York, Glenn Alan
Yorkston, Doreen Mary
Young, Edith Bernice
Zuk, Peter

Passed

Adams, Ann-Ellen
Allen, Barney Paul
Allen, Harry Jay
Anderson, William Ian
Arthur, Charles Douglas
Auld, Jean
Baker, Rowena Muriel
Bakony, Stella Clara
Barltrop, John Adrian
Birch, Sophie
Bogas, Kenneth Peter
Brown, Richard Michael
Bryant, Charles Woodbury
Burns, Helen Marcia
Campbell, Frances Catherine
Campbell, Mary
Carson, Gordon William
Carter, Donald Grove
Carter, Walter Benjamin
Cawley, Stephen James Donald
Chambers, Joseph Earl
Christian, Catherine Joan
Clark, Duncan Leslie
Clarke, John William
Clarke, Olive Nora Jane
Cook, Katharine
Cowley, Kathleen Ruth
Cumming, Marion Spence
Dann, Roy William
Elart, Alice Jean
Elliott, Frederick George
Embleton, Charles Richard Anthony Waterlow
Evans, Arthur Malcolm
Fedoroff, Ludmilla
Finley, Russell Hilbert
Ford, Kathleen Patricia
Forrest, Hugh Lindsay
Forsyth, Beatrice Elaine
Fraser, Alan William
Freeze, George Allen
Fullerton, Peggy Anne
Funk, Henry Jacob
Galbraith, Joan
Gear, William Irvine
Gerrie, Eleanor Arvilla
Gilmore, John Robert
Grant, John William Robert
Greenius, Eric Osborne
Grigg, Naomi Isabel, B.Com.
Grimson, Julius Victor
Groll, Shirlie Noreen
Gummow, John Benjamin
Hamilton, Leila Margaret
Hamilton, Shaun Brian
Hanley, Richard Wilfred
Hanson, Mary Victoria
Haugan, Howard Jackson
Heisler, Earle Lawrence
Hopen, Clarence Edward
Idsardi, William Fitz-Hugh
Irwin, Lula Beatrice
Jarvis, Nancy Joan
Johnston, Helen May
Kabush, Harry
Karen, Walter
Kearney, Francis Joseph
Kenny, Ian Barr

Kerley, Donald Robert
Knapp, Katherine
Lee, George Nichols
Lees, William
Lockhart, Alan Douglas
Lomow, Donna Lou
Lowes, Betty Dale
Lubzinski, James Francis
Mason, Hugh Bailie
Massy, David Hampden
Miles, Elwood Ray
Minchin, Pharic Wyndham
Mock, Leslie Lorne
Moore, Joan Ida
Moore, Joseph Terrence
Morrison, George Edward
Muir, Thomas Walter
Murdoch, George William Mackay
Murphy, Margaret Loretta
Murray, Alan MacDonald
Murray, John Sutherland
McBride, Merwin
McCandless, John Gilmore
McDonald, Frances Stuart
Macdonald, Madeleine Allison
McGarry, Nora
McKeown, Robert John Esler
McKimm, Dennis Sidney
McLaren, Henry Moncrieff
MacLean, Eian Donald
MacLennan, Catherine
McLeod, John Forbes
MacLeod, Kenneth Ian
MacMillan, Lois Arlene
McTurk, Helen Gay
Nash, Clarence Wesley
Norcross, Iris Hope
Paterson, Hubert McMillan
Pearkins, Jon
Phillips, Paul Victor
Pike, Margaret Ursula Mary
Pitcairn, Evelyn Margaret
Powell, Marguerite Joan
Purse, Dorothy Anne Stanley
Quail, William Douglas
Redlich, Aline Berta
Reed, Beryl Catherine
Reitlo, Mrs. Eunice Mary
Rietchel, Helen Elizabeth
Ripley, Mary Eleanor
Rochfort, Constance Ann
Roddan, Stuart
Rogers, Mary Elizabeth MacLean
Rowley, Charles Ernest
Simpson, Marguerite Gladys
Slader, David John
Smith, Helen-Mary
Stewart, Catherine Agnes
Temoin, Maurice Douglas
Thomas, Raymond Burke
Thomson, Ian Gifford
Thomson, Marguerite Beatrice
Tkach, John Stephen
Travers, Mary Isabel
Turner, Patricia Ann
Turner, William Edward
Verrier, John Berrington
Wakelynn, Morris, B.Com.
Warkentyne, Henry Joel
Wayne, Gordon Peter
Webb, Norman Harold
Weir, Kathleen Marguerite
Wost, Kenneth Gordon
White, Douglas Allen
Wilson, Catherine Anne
Woodward, Shirley Annette
Wunderlich, Raymond John
Young, Sue Ngarn
Zoellner, William John

THE DEGREE OF B.A. IN DOUBLE COURSE

B.A. AND B.A.SC. (ENGINEERING)

Atherton, Donald Lawrence
Bluechel, Allan Joseph
Campbell, Malcolm Hood
Edgeworth, Leslie
Hester, Kenneth Donald
Lebedovich, Stephen
McCawley, Jack Douglas

B.A. AND LL.B.

Anderson, Richard Philip
Blake, Francis Humfrey
Caldwell, John Robert
Carrothers, Alexander Brian Beatty
Comparelli, David Edward
Cook, Neil Basil
Cowan, John Caldwell
Dewdney, Edgar
Eirikson, Eirik
Goldberg, Arthur Henry
Griffiths, Thomas
Herbert, Raymond Groo
Houghton, Kenneth Durward
Jackson, Robert Farrer
Leedham, David Allan
Lorimer, James Gibson
McGowan, Murray Edward
MacIvor, Harold Shearer Smith
McPherson, Ian Edward
Parsons, Leslie Stewart
Ross, Robert Duncan
Williams, David Ricardo
Wills, Charles Henry

THE DEGREE OF BACHELOR OF COMMERCE

Class I

Blake, Frederick Gordon
Burgess, Fred Owen
Kelly, Michael Joseph
Maltby, Richard Gosse
Mason, Frank Britten
MacDonald, Harry Ward

Class II

Addison, Hugh Philip Fleming
Ballard, Harold Raymond
Barrigan, Donald Bruce
Bergman, Elmer Oscar Elsmore
Bergstrom, Johan Adolph
Bossons, Frederick Harold
Botham, Arthur Douglas
Bourns, Stewart Alexander
Bramley, James Hall
Brewster, Donald Alexander
Brown, John Voysey
Brown, Robert Douglas
Bryce, Allan Armour Walker
Buerge, Ivar Melvin
Burch, Ivan Daniel
Burdett, Raymond
Cameron, James Magill
Carter, Kenneth Bruce
Christie, Lynn Armstrong
Clerihue, Clarence James
Cooper, George William
Coté, Robert Francis
Cousins, Frederick Taylor
Cowan, Patricia
Cumberbirch, Peter Roland
Cuthbert, Betty Jean
Davies, Marguerite Eilzabeth
Day, George Robert
Duckworth, Thomas Jackson
Dyer, Lawrence Neville
Elliot, Thomas Singleton
Evans, Lionel Dennis
Feldman, Solomon
Fielding, Greeson Cameron
Fish, John Hamilton
Forbes, James Wendell
Foster, Winston MacArthur
Fox, David Paul
Gardiner, John Huchison
Gardner, Howard James William
Garrard, Richard Arthur
Gibb, Henry David
Goodmurphy, Ralph MacKay
Gourlay, Robert Alexander
Graham, John Wallace
Grant, Francis Joseph
Green, Gordon Adair
Hadwen, Colleen Valerie
Hamilton, Drummond George
Hantke, Allan Philip Robert
Hardy, Lyle Edward
Hardy, Stafford Lee
Harvey, Harry John
Harwood, Robert Simpson
Henderson, Merrill Rex
Heywood, Joyce
Hicks, Ethel Sheila
Hooker, Harvey Frank
Hundleby, Douglas Rex
Isaacson, Clarence Theodore

Islaub, Stanley Kenneth
Johnstone, James Spence
Jones, Elin Kay
Keenan, Robert George
King, Donald Norman
Knight, George Ronald
Lade, Gordon William
Lammers, Rodney Gilmer
Latin, Frank Matthew
Lawrence, Henry Brooks
Lechtzier, Merton Richard
Leslie, Ian Travers
Lister, William Gordon
Lord, Bruce Sheridan
Manuel, Lloyd Westaway
Marshall, Frederick Lewis
Merrick, Richard Thomas
McCurdy, Daniel Kenneth
Macdonald, Alan Donald
MacGregor, Hector Cameron
McKeachie, James Gilmour
MacKenzie, Hugh Alexander
Mackie, David Anthony
MacKinnon, Robert Ross
Nichol, John Lang
Nobbs, Graham Wilfred
Olmstead, Leslie Dennis
Paulin, William Phillips, B.A.
Pinchin, Harold Raymond
Pudney, John William David
Richards, George Campbell
Rottluff, Robert Gordon
Sainas, Mary
Shaw, Barbara Phyllis
Shelley, Raymond
Shugg, Harold Francis
Smith, Kenneth Oswald
Smith, Leslie Frederick
Smith, Otto Berg
Stevenson, Gerald Hugh
Szende, Peter Paul
Tiernan, Patrick Allan
Walls, Lewis Jerrold
West, Charles John
White, William Andrew Telfer
Whittall, Hubert Victor
Whittall, Patrick Lanyon
Wilcox, Edie Alice
Wilkinson, Frank Cameron
Wilson, Robert Melville
Wood, James Alan

Passed

Algar, Lloyd George
Archer, Elmer Raymond
Barraclough, Lila Portia
Beatty, Walter George
Beebe, Bruce Wilson
Brigham, William James Hudson
Brolly, Peter Gerald
Bromley, Gordon Fraser
Brown, Thomas Lee
Campbell, Douglas Edward
Chambers, Gordon Joseph
Clarke, Thomas Grant
Craig, John Robert
Cumming, David Gordon
Duncan, Mary Louise
Edgett, James Robert
Elliot, Stuart Robert Chesser
Elworthy, Arthur Barrington
Epstein, Hirsch
Evison, Donald Scott
Fane, Harry Fuller
Field, John Terence
Forrester, Barbara Shirley
Francis, Alan John
Fraser, John Douglas
Gardiner, John Gerald
Gee, John William
Gillespie, Gray Alexander
Greenaway, Jean Elizabeth
Groberman, Lionel
Haas, Robert Leroy
Hall, Jean Elizabeth
Halpin, Roger Dowding
Harwood, Gordon Leonard
Herring, Stephen Harold Edward
Hogg, David Mason
Howat, Joseph David Watson
Iannacone, Ernest Michael
I'anson, Jack Lincoln
Jones, Stanley Clarence
Kay, Francis Dan
Kelly, Robert Dawes
Kirkland, James Wiseman
Kirkpatrick-Crockett, Denis
Laudrum, William Alfred
Maddin, Cameron Alexander
Marak, Peter
Mark, Harry Joseph
Moore, Frank Harold
Moore, Roy John

Murray, John Walter
Macdonald, Henry Angus
McDonough, Donald
McFarlane, Harold Ernest
McKay, William Thomas
McKinnon, Neil Crawford
Maclean, Murdoch Bruce Cambrai
Nairne, George Alastair
Neelands, Douglas Jack
O'Keefe, Charles James
Panton, John Andrew
Pawlowski, Walter William
Peart, Arthur Emerson
Peck, Douglas Cyrus
Richards, Rees
Rigby-Jones, Roy John
Roberts, Harry Andrews
Robertson, James Morris
Ross, Margaret Joan
Sabiston, Colin Alexander
Sanderson, James Hyslop Wilson
Saturley, Michael John
Sauder, William Lawrence
Scott, Bruce Spence
Shaffer, Marion Alice, B.A.
Sims, Norman Corry
Smith, William Henry
Stewart, George Craig
St. Louis, Archie Leopold
Taylor, Rodney Heaney Trevor
Thorne, Alice Georgina
Wall, William Busby
Whelen, George Edward
Wilks, Roderick John
Williams, Elmer
Wilson, Alan Joseph
Woodman, Mabel Emmeline
Woodside, Paul
Wright, Harold Clifford
Yearwood, Douglas Norman
Young, William Maurice

THE DEGREE OF BACHELOR OF HOME ECONOMICS

Class I

Bigsby, Elizabeth Jean
Stanley, Marie Elise
Turner, Blanche Marie

Class II

Baldwin, Betty Marjorie
Bennett, Mavis Georgina
Berry, Frances Edna
Bishop, Doris Mary
Blair, Ruth Mary
Bone, Margaret Mary
Breadon, Mary Louise
Christie, Eileen Alice
Cole, Donna-Marie
Collinson, Mrs. Eileen Mary Alfreda
Diamond, Rita
Dyrndahl, Lillian Christine
Franklin, Mary Elsie
Gee, Edith Roberta
Harris, Dorothy May
Haskins, Wendy Lois Joan
Hepburn, Phyllis Rankine
Hopkins, Mary Isabel
Jackson, Eileen Lola
Kirk, Mrs. Eva Winifred
Layton, Mary
Loutit, Kathleen Ann
Montgomery, Mary May
McCarter, Jean Leslie
McKinley, Frances Eva Jane
MacQueen, Margaret Jean
Paul, Thomasina Williamina
Smillie, Elsie Robena
Tredaway, Edna Patricia
Walling, Evelyn Jean
Wolfe, Margaret Iris

Passed

Bowe, Marguerite Wilson
Harrison, Mary Bernice
Klusendorf, Edith Marie
Lake, Yvonne Marguerite
Smith, Edna Adele

THE DEGREE OF BACHELOR OF EDUCATION

Class I

Burnham, Frank Lang, M.A.
George, Harold Frederick, B.A. (Sask.)
Jackson, Clarence Gordon, B.A. (Sask.)
Osborne, Robert Freer, B.A.
Parnall, John Enos Augustus, B.A.
Sutherland, Margaret Ruth, B.A. (Man.)
Todd, David Park, B.A.
Todd, Florence Steel, B.A. (Toronto)

Class II

Church, Edward John Maxwell, B.A.
Costley, Lloyd Johnstone, B.A.
Glass, George Ervin, B.A.
Hollins, Raymond Naylor, B.A.
Jenkins, Morgan, B.A.
Jones, Robert Harry, B.A.
Martens, Fred Lewis
McKie, Archibald, B.A.
Phillips, Sydney Conrad, B.A. (Sask.)
Rogers, Lloyd Pryce, B.A.
Sanford, Murray Borden, B.A.
Turner, George Anthony, B.A.

Passed

Oastler, John William, B.A.

THE DEGREE OF BACHELOR OF SOCIAL WORK

Class I

Farley, Dorothy Genevieve, B.A.
Furness, Anne Marie, B.A. (McGill)

Class II

Bartholomew, Marion Yvonne, B.A.
Beech, Emma Louise, B.A.
Bundy, Reginald William, B.A. (Man.)
Burke, Mary Elizabeth, B.A. (Sask.)
Caster, Garnet Hiram, B.A.
Collins, June Vivian Vera, B.A.
Connolly, Beatrice Catherine, B.A. (Sask.)
Cunliffe, Muriel Anne, B.A.
Dobbin, Mildred Mary, B.A.
Evans, Maureen Ethel, B.A.
Fagan, Mary Stewart, B.A.
Franklin, David St. George, B.A.
Fyfe, Margaret Noelle, B.A.
Gerrie, Catherine Lorraine, B.Sc. (Man.)
Gordon, John Pearson, B.A. (McMaster)
Hamilton, Glen Francis, B.A.
Hill, Ernest David Orlo, B.A.
Hooper, Grace Vanda, B.A. (Man.)
Kuhn, Gottfried John, B.A. (N. Dak.)
Langdale, Arthur Leslie, B.Com.
Laurence, Barbara Jean, B.A. (Toronto)
Lawrence, Mrs. Edna Marion, B.A.
Leung, Elizabeth Rochelle, B.A.
Lock, Gladys Marie, B.A.
Lough, Mrs. Beverley Margaret, B.A.
Menary, Lily Elizabeth, B.A. (Toronto)
Mickelson, Harvey Paul, B.A.
Millard, Gloria Inez, B.A.
Moore, Catherine Jean, B.A. (Alta.)
Morris, Joan Ina, B.A.
Myers, Gerard George
McCallum, Mary Freda, B.A.
MacDonald, Mary Alastair, B.A. (Man.)
McFarland, William Donald, B.A.
MacMillan, Kathleen Rose, B.A.
McRae, Edward Davidson
Nicholson, Katherine Mary, B.A.

Olivier, Mrs. Florence Ennis, B.A.
Pollock, John Orr, B.A.
Purvis, Jack Alexander, B.A. (Sask.)
Rasmussen, Wilfred, B.A.
Robb, Dorothy Caroline Margaret, B.A. (Man.)
Scott, Eileen Priscilla, B.A., B.Ed. (Sask.)
Seaman, Mrs. Helen Louise, B.A.
Seymour, Jane Denniss, B.A.
Sutherland, Mrs. Winifred Park, B.A.
Talbot, Robert, B.A.
Thompson, Andrew Ernest, B.A. (Toronto)
Thomson, Mrs. Mary Amelia, B.A. (Alta.)
Thomson, Patricia Grahame
Wiebe, John, B.A.
Wilson, Barbara Ruth, B.A.

Passed

May, Gilbert Arthur
Poyser, Olive Carolyn, B.A.

Faculty of Applied Science

THE DEGREE OF MASTER OF APPLIED SCIENCE

Diebel, John Keith, B.Sc. (Queen's) ..... Geological Engineering
Thesis: "The Mineralogy of the Bonanza Silver Deposit Great Bear Lake, N.W.T."

Gouin, Léon Olivier, B.A.Sc. ..... Geological Engineering
Thesis: "Metamorphism at the Andrew Yellowknife Property Northwest Territories"

Hodgson, Alexander Goldie, B.A.Sc. ..... Geological Engineering
Thesis: "The Geology of the Indin 'Break' N.W.T."

Lindenfeld, Peter, B.A.Sc. ..... Engineering Physics
Thesis: "The Beta Rays of Radium E and Antimony 124"

Seraphim, Robert Henry, B.A.Sc. ..... Geological Engineering
Thesis: "A Gold-Specularite Deposit, Unuk River, B.C."

Young, John Walter, B.A.Sc. ..... Geological Engineering
Thesis: "The Relationship between Lamprophyre Dykes and Ore Deposits with Special Reference to British Columbia"

THE DEGREE OF BACHELOR OF APPLIED SCIENCE

Agricultural Engineering

Class II

Calver, George L.

Chemical Engineering

Honours

Anderson, Reginald Stanley
Babb, Albert Leslie
Putters, Robert George
Rose, William Edwin
Schoening, Mervin Allan

Class II

Beggs, Adrian Edward
Bridges, Russell Bruce
Bruce, James Robert David
Dalla Lana, Ivo John
Darling, Peter Atwood
Johnson, Robert Walfred
Kolberg, Joseph
Loyd, Don Bruce
Marshall, James
Munro, Robert Cameron
McLellan, Gordon Nelson
McLellan, John William
Phare, George Rowland
Powley, Maurice Bruce
Shadwell, Howard Joseph
Shore, Albert George
Stokkeland, Margaret Constance
Stroud, Ross Cressman
Young, William Herbert

Passed

Archibald, Roy William
Jolly, Roy Douglas
Timmons, Anthony

Civil Engineering

Honours

Burnham, George Alan, B.A.
Gray, Robert Vernon
Jones, Cyril Peter, B.A.

Class II

Coté, Paul Thomas, B.A.
Fletcher, Alan Gordon
Hirtle, James Gordon Stuart
Jackson, Roy Ingvald
Joplin, Albert Frederick
Lessard, Joseph Irénée
Matson, Herbert Murrin
Narod, Leonard Kenneth
Peterson, Earl Reynolds
Pillman, Raymond Alfred
Read, Anthony Mark
Robertson, James Duncan
Stewart, Mervin John
Thompson, Mavor Stafford
Underwood, Clyde Eugene Fletcher
Wolfram, Gordon

Passed

Denluck, Robert Nichol
Gordon, Robert Neil
Grantham, Ronald Douglas
Illington, John
Jones, James Eric
Milligan, George Berry
Smith, Thomas Frederick, B.A.

Electrical Engineering

Honours

Davis, Evan Thomas
Hudak, Nicholas Edward
Kerr, James Sanford Stevenson
Wheatley, Gordon Hamilton

Class I

McGregor, Fredrick Christopher

Class II

Atherton, Donald Lawrence
Bain, William Arthur
Bartlet, Alexander William
Bluechel, Allan Joseph
Brodie, Malcolm Norman
Burgess, Harold Norman
Graig, Robert Alexander
Dundas, Robert Montague
Eagle, Malcolm
Harrison, Roland Sylvan
Humble, William Hodan
Korlie, William
Krmpotich, Michael Elias
Lebedovich, Stephen
Morrison, Robert John
McLennan, John Robert Bayley
Nastich, Milan, B.A.
Pellicano, Joseph
Prior, Charles Abrams
Robertson, Philip William
Sumpton, Murray George
Taylor, Chester Calvin
Wilson, James Thomas
Winter, Wallace Hubert

Passed

Baker, John Arthur
Gray, Walter James
Hrynchuk, Walter
Kaliski, Tadeusz
Kervin, Ronald Hodgson

Engineering Physics

Honours

Lambe, Edward Bryant Dixon
Lawson, Robert Davis
Lipsett, Frederick Roy
Woodward, Frank Arthur

Class II

Duffus, Henry John
Jeffery, Charles Barrie
Lawrie, William Eugene
Morgan, David William
Piercy, Joseph Edward
Holmes, David Charles

Forest Engineering

Honours

Holmes, David Charles

Class I

Vaughan, Victor Henry Dashwood

Class II

Burch, William Gerald
English, John Joseph Clifford
Kermode, Harry Douglas
Velay, Charles
Wellburn, Gerald Vernon

Geological Engineering

Honours

Campbell, Richard Bradford
Robinson, Malcolm Campbell

Class II

Billingsley, James Richard
Burns, Cecil Albert
Davies, Raymond David
Gabrielse, Hubert
Nelson, Samuel James
Roddick, James Archibald
Rudolph, John Clarence
Sheldon, Robert Frederick

Passed

Roberts, Arthur Kenneth

Mechanical Engineering

Honours

Burton, William Alexander
Golding, John Way
Harbell, Joseph Lachlan
Hobson, George Winslowe
Leith, William Cumming

Class II

Ard, Thomas Richard Albert
Barron, William Alexander
Bauder, Edward Marshall
Bene, Joseph
Borisuk, Michael
Brown, Robert Sproat
Campbell, Colin Graham
Carlyle, Allan Matthew
Cherniavsky, Peter Alexander
Choate, Deryck Charles Wilton
Dennys, Ronald Greville
Dobie, Thomas Thomson
Elia, Nicola
Forbes, Robert Nicholson
Fulton, Andrew Wilson
Harrison, Gerald E. G.
Harrison, John Haliburton
Hogan, Lewis Frank
Keller, John Robert
Lightbody, Alexander
Lindsay, John Roderick Arthur
McDill, William Alexander, B.E. (Colo. A.&M.), B.A.
McLeod, Donald Fraser
Newall, Norman
Paterson, Ian Cunningham
Rice, James Arthur
Scott, William LeVern
Sissons, William John
Stokes, Herbert Aldred Carden
Thomson, James Gifford
Watts, Bernard Greaves
Williams, Nicholas Trevor

Passed

Macdonell, Alexander Leslie Duff

Metallurgical Engineering

Honours

Carter, Ralph Edgar

Class II

Adams, William Sinclair
Beguin, Andre Charles
Bradley, Ralph Kenneth
Douglas, William Scott
Johnson, Robert
Morton, Raymond Lewis
Tait, Robert John Compton

Passed

Coulter, Roy Frederick
Crowley, Paul Bamford
McPherson, Dugald

Mining Engineering

Honours

James, Donald Henry

Class II

Charles, Richard Joseph
Durham, George Casper
Hagen, John Christopher, B.A.
McKenzie, Harold Arthur
Parker, John Manifold

THE DEGREE OF BACHELOR OF SCIENCE IN FORESTRY

Class I

Thomas, George Philip, B.A.
Wilson, David Arnold, B.A.

Class II

Brown, George Stuart, B.Com.
Burch, Percy Thomas, B.Com.
Clifford, Richard LePoer Trench, B.Com.
Doubleday, Douglas Corbin, B.Com.
Harris, Kingsley Friend, B.Com.
Johnston, George Redpath, B.A.
Quaite, Jack, B.A.
Robinson, Grant Thomas, B.A., B.Com.
Roff, Jack Watford, B.Com.
Wilson, William Laird, B.Com.

Passed

Castillou, Harry Greer, B.A.
Hardy, Gordon Pope, B.Com.
Noble, David Andrew, B.Com.

THE DEGREE OF BACHELOR OF APPLIED SCIENCE IN NURSING

Class I

Campbell, Margaret Amelia, B.A.
Greenhorn, Doreen Evelyn Jean
Willis, Marjorie Emily

Class II

Barber, Bernice Eugene
Clark, Mary Isabelle
Clarkson, Mrs. Marguerite Vivian
Earnshaw, Ethelberta Mary
Hume, Mrs. Pauline Mametz
Joh, Anita Davida
Montgomery, Nancy Joan
Reston, Mary McDonald, B.A.
Stafford, Cora-May
White, Eleanor Jeannette
Wilson, Mae Belle

Faculty of Agriculture

THE DEGREE OF MASTER OF SCIENCE IN AGRICULTURE

Grahame, Richard Wallbank, B.S.A. ..... Major: Agricultural Economics
Minor: Economics (Arts)

Thesis: "Factors Affecting Dairy Farm Incomes in the Lower Fraser Valley"

Killick, Stanley Reginald, B.S.A. ..... Major: Zoology
Minor: Poultry Husbandry (Nutrition)

Thesis: "A Biological Study of the Influence of the Bridge River Rapids on the Sockeye Runs of the Upper Fraser Watershed"

Mowatt, James Graham, B.S.A. ..... Major: Dairying
Minor: Agronomy

Thesis: "An Evaluation of the Microbiological Assay Technique for the Determination of the Amino Acids"

MacLean, Donald Wilson, B.S.A. ..... Major: Animal Husbandry
Minor: Agronomy

Thesis: "The Microscopic Anatomy of the Digestive Tract of Sus scrofa domestica"

Ney, Phyllis Winifred, B.S.A., B.A. ..... Major: Dairy Bacteteriology
Minor: Agronomy

Thesis: "A Study of the Intermediate Metabolism of Pseudomonas aeruginosa"

Nilan, Robert Arthur, B.S.A. ..... Major: Agronomy (Plant Breeding)
Minor: Botany

Thesis: "Breeding Behaviour in Interspecific Hybrids *(Medicago falcata* × *M. sativa)*, Parent Stock of Rhizoma Alfalfa"

Wilkinson, Barclay Robert, B.S.A. ..... Major: Plant Nutrition
Minor: Horticulture

Thesis: "Studies of Certain Factors Which Affect the Food Values of B. C. Fruits and Vegetables"

THE DEGREE OF BACHELOR OF SCIENCE IN AGRICULTURE

Class I

Burke, Stanley Louis
Campbell, Robert Harold
Clark, John Stitt
Drewry, Neil Thomas
Gibson, Margaret Player
Holob, Joseph
Horsfield, Eleanor Mary
Irwin, Robert Edward Thomas
King, Joyce Virginia
Knott, Douglas Ronald
Maxwell, Noel Ross
McIntosh, David Livingston
Norris, Flora Christina
Rae, Robert McConnell
Smith, Edward Roger
Tupper, Norman Eldon
Turnbull, Robert Ernest
Zacharias, John Victor

Class II

Arnason, Stefan Baldwin
Baker, Joseph
Batè, Clifford John
Bodaly, Ashley James
Caplette, John Florian
Coulter, Maureen Audrey
Cousins, Richard Harry
Craig, Robert Gavin
Davidson, George Albert
Devlin, Douglas Gerald
Doell, Jacob Carl
Eacrett, George Willis
Ewaniuk, Peter
Geddie, Talbot
Gibson, David Lachlan
Gilchrist, Montague Macdonald
Gillespie, Douglas Charles
Guest, Charles Russell
Gummow, John Benjamin
Hamilton, John Clifford
Hayes, George Wesley
Heal, Geoffrey Horace George
Heal, Stephen Jacks
Henderson, Arthur Donald Howard
Hennell, Paul Victor
Hicks, Ethel Sheila
Hill, Stanley Robert Garbutt
Holder, Ronald Maurice
Hutchings, Frederick Reginald
Hyde, Ronald Burns
Irwin, Elsie Louise
Jackson, Kathleen Elizabeth Ann
Jones, George Alexander
Kendall, Constance Jill
Kline, Cecil Maurice
Kneale, John
Laughton, David Benson
Lloyd, Robert Everton, B.Com.
Longfield, Howard Fletcher
Marlow, Diana Joan
Mason, John Leslie
Milan, Betty Eileen
Miltimore, James Earl
Murray, Gordon Arthur
McKinnon, Neil Crawford
Nelson, Clarence Harold
Peterson, Sigurd Bert
Pickles, Norman Richard
Pringle, Rodney
Reynolds, Robert Thomas
Riehl, Herbert
Senay, Charles Morin
Smith, Eric Sinclair
Spicer, Vivien Anna Mingay

Stockstad, Paul Leonard
Tait, Robert Sheldon
Todd, Stuart
Tonks, Norman Vincent
Tonning, Eila Maria
Triggs, Rosalie Elizabeth
Vincent, Ronald John Alfred
Wallick, Nancy Jane
Wiggins, Murray Magill
Wilkinson, Robert LeRoy
Wilson, Arthur Kenton
Wilson, Donald Davey
Wilson, George Arnold

Passed

Crawford, Donald Henry
Davis, Francis Russell
Ferries, Clarke Hunter
Harms, Harold Franklin, B.Com.
Patenaude, Wilfred Honor
Talbot, Mary Kathleen

Faculty of Law

THE DEGREE OF BACHELOR OF LAWS

Class II

Alexander, Ernest Archibald, B.A.
Blewett, John Campbell
Bonner, Robert William, B.A.
Botterell, Hugh Esterbrooke, B.A. (Toronto)
Carrothers, Alfred William Rooke, B.A.
Cobus, Anthony Edward, B.A.
Cross, Gerald Herbert
Ellis, Hugh MacKenzie
Gourlay, John Lowry, B.Com.
Gray, Leslie Thomas, B.A.
Hall, Ormonde James, B.Com.
Hanneson, Richard Stephen Marino, B.A. (Man.)
Irvine, Henry Charles
Lawrie, Frank Drinkwater, B.A.
Mann, Donald Edward
Marshall, Thomas Cathro, B.A.
Mead, William Richard
Millar, Perry Simington, B.Com. (Toronto)
Moresby, William John
McDonald, Leslie Malcolm
McIntosh, George Buchan, B.A. (McGill)
McKenzie, Lloyd George, B.A.
McKinlay, John Allin, B.A.
Perry, Frank Samuel
Pilkington, Roderick Alfred, M.A.
Ritchie, Hugh James, B.Com.
Spry, Franklin Russell
Stubbs, William Reginald, B.A. (Dalhousie)
Swinton, Anthony Hans, B.A.
Tupper, David Wilson Hibbert
Vaughan, David Lisle, B.A.
Walsh, John Walter
Warner, William Lee, B.A.

Passed

Campbell, William Ernest, B.A.
Cantell, Edward Thomas Leonard
Carmichael, Andrew John, B.Com.
Carmichael, Herbert Angus, B.Com.
Chambers, Stewart Leslie
Clark, Frank Borden, B.A.
Cunningham, Jack Ritchie
Fisher, Thomas Kemp
Fleishman, Neil Monte, B.A.
Forrest, Stewart Robert, B.A. (Wash.)
Hall, Arthur Henry, B.A.
Hayward, David Franklin
Johnson, Gordon Hugo
Lane, William Tierney, B.A., B.Com.
Lewis, Cecil James, B.A. (Alta.)
Long, Charles Frederick, B.Com.
Margach, John Angus
Martin, William John Gordon
McIllree, John Nugent
Picard, Horace Leslie, B.A. (McGill)
Plommer, Robert DeLorme
Quinn, Ivan Boyd, B.A. (McGill)
Strongitharm, Edward Drewry, B.A.
Thompson, William John, B.A. (Toronto)
Van Alstine, William Frank
White, Eleanor Jean, B.A.

DEGREES CONFERRED

OCTOBER 1948

THE DEGREE OF DOCTOR OF LAWS

(Honoris Causa)

John Bennett DeLong, B.A.
Ira Dilworth, B.A., M.A.
Luther Harris Evans, A.B., M.A., Ph.D., L.H.D., LL.D.
Francis Thrower Fairey, B.A.
Jessie Fisher Gordon
William Kaye Lamb, B.A., M.A., Ph.D.
Alexander Russell Lord, B.A.
William Stewart Wallace, B.A., M.A., F.R.S.C.

THE DEGREE OF MASTER OF ARTS

Alderice, Donald Francis, B.A. ..... Major: Zoology
Minor: Biology and Botany

Thesis: "The Action of Light and Temperature on the Activity of Simocephalus Serrulatus *(Koch)*"

Barton, Edgar Charles, B.A. ..... Major: English
Minor: Education

Thesis: "The Poetry of Cecil Day Lewis"

Bene, Mrs. Eve Mary, Dr. Oec. Publ. (Hungary) ..... Major: Psychology
Minor: Philosophy

Thesis: "Mothers' Attitudes and Nursery School Children's Adjustment"

Donaldson, John Stanley Ross, B.A. (Tor.), B.Ed. ..... Major: Psychology
Minor: Education

Thesis: "The Development of a Standardized Personality Rating Scale"

Dorchester, John Edmund Carleton, B.A. ..... Major: Zoology
Minor: Biology and Botany

Thesis: "The Effect of Dietary Fat on the Heat Tolerance of Goldfish *(Carassius auratus)*"

Giovando, Laurence Frank, B.A. ..... Major: Physics
Minor: Mathematics

Thesis: "The Spectra of Cadmium"

Hammett, Joseph Francis, B.A. ..... Major: Education

Thesis: "A Statistical Analysis of Some Aspects of the Johnson Temperament Analysis"

Lang, Francis Alexander, B.A. ..... Major: Physics
Minor: Mechanical Engineering

Thesis: "The Thermal Conductivity of Natural and Synthetic Rubber-Sulphur Compounds"

Mahadevan, Vaidyanatha Iver, B.Sc. (Travancore) ..... Major: Zoology
Minor: Chemistry

Thesis: "Physico-Chemical Changes Occurring in Fish Flesh During Freezing and Thawing as Measured Dilatometrically"

Mathews, Frank Samuel, B.A. ..... Major: Physics
Thesis: "The Gamma Rays of Radium and of its Disintegration Products"

Mill, Mary Margaret, B.A. ..... Major: Education
Minor: English
Thesis: "The Growth of Social Science Concepts in the Junior-Senior High School"

Morris, Arthur, B.A. ..... Major: Geology
Minor: Agronomy (Soils)
Thesis: "Genesis of the Sulphide Mineralization of the Big Ledge Property, B. C."

MacKay, Hector Ronaldson, B.A. ..... Major: French
Minor: Education
Thesis: "L'Influence de Sir Walter Scott sur Victor Hugo"

MacKirdy, Kenneth Alexander, B.A. ..... Major: History
Minor: English
Thesis: "The Secession Movement in Western Australia"

Plenderleith, Eileen Mavis, B.A. ..... Major: Psychology
Minor: English
Thesis: "A Study of British Columbia Teachers' Attitudes to Students' Behaviour Problems"

Remnant, Peter, B.A. ..... Major: Philosophy
Minor: Psychology
Thesis: "An Evaluation of Charles Peirce's Concept of Retroduction"

Roberts, Leslie Wilson, B.A. (Man.), B.Ed. ..... Major: Zoology
Minor: Biology and Botany
Thesis: "A Survey of the Carotene and Ascorbic Acid Content of Moose Browse"

Scagel, Robert Francis, B.A. ..... Major: Biology and Botany
Minor: Zoology
Thesis: "The Life History and Distribution of Macrocystis in British Columbia Coastal Waters"

Shepard, Michael Perry, B.A. ..... Major: Zoology
Minor: Biology and Botany
Thesis: "Responses of Young Chum Salmon, Oncorhynchus keta (Walbaum) to Changes in Sea Water Content of the Environment"

Thomas, Blodwen, B.A. ..... Major: Physics
Minor: Mathematics
Thesis: "A Microwave Spectroscope at One Centimeter Wavelength"

THE DEGREE OF MASTER OF SOCIAL WORK

Calnan, Wilfrid Michael, B.A.
Thesis: "The Effectiveness of Family Case Work"

Leydier, Mrs. Bernice Rae, B.A. (Man.), B.S.W.
Thesis: "Boarding Home Care for the Aged: A Study of the Social Welfare Aspects of Licensed Homes in Vancouver"

Morrow, Henry McFarlane, B.A., B.S.W.
Thesis: "The Community Services of First United Church"

Thomson, Mrs. Mary Amelia, B.A. (Alta.), B.S.W.
Thesis: "The Social Worker in the School: An Experimental Study of the Liaison and Service Functions of the Social Worker in a Vancouver Elementary School"

THE DEGREE OF MASTER OF APPLIED SCIENCE

Kudryk, Val, B.Sc. (Alberta) ..... Metallurgical Engineering
Thesis: "Factors Affecting the Leaching Stage of the Ammonia Leaching Process as Applied to Nickel Sulfide Ores and Concentrates"

Levelton, Bruce Harding, B.A.Sc. ..... Chemical Engineering
Thesis: "The Thermal Conductivities of Some Hydrocarbons"

McDonnell, Basil, B.A.Sc. ..... Chemical Engineering
Thesis: "Effect of Stress on Electrolytic Solution Potential"

Naylor, Thomas Kipling, B.A.Sc. ..... Electrical Engineering
Thesis: "The Echo Ranger, A Fault-Locator for Power Cables"

Selby, Roy Ellis, B.A.Sc. ..... Chemical Engineering
Thesis: "The Construction and Operating Method of a New Adiabatic Calorimeter for Measuring Specific Heats and Heats of Vaporization of Liquids"

Tsou, Shang-Jen, E. E. (Harbin Polytechnic Inst.) ... Electrical Engineering
Thesis: "An Investigation of Welded and Cast Joints for A.C.S.R. Conductors"

THE DEGREE OF MASTER OF SCIENCE IN AGRICULTURE

Kare, Morley Richard, B.S.A. (Man.) ..... Major: Poultry Husbandry
Minor: Biology and Botany
Thesis: " 1. A Study of Some Chemical Constituent Levels in the Blood of Fowl;
11. The Toxicity of Sodium Chloride and its Relation to Water Intake in Baby Chicks"

Shore, Alan Walter, B:S.A. ..... Major: Animal Husbandry
Minor: Agronomy
Thesis: "Some Aspects of Ketosis in Dairy Cattle"

Taper, Charles Daniel, B.S.A. ..... Major: Plant Nutrition
Minor: Horticulture
Thesis: "The Effects of Indolebutyric Acid and Irradiation on Tomato Fruit Set and Yield"

Faculty of Arts and Science

THE DEGREE OF BACHELOR OF ARTS

Honours

Alexander, Arthur Wilson ..... Second Class Honours in English Language and Literature

Baldwin, Robert George ..... First Class Honours in English Language and Literature

Baxter, John Scott ..... First Class Honours in English Language and Literature

Connolly, Muriel Annie ..... First Class Honours in French

Cowie, Lillian Matheson ..... Second Class Honours in Biology and Botany

Creal, Kenneth Howard Michael ..... First Class Honours in History

Desautels, Odille Marie ..... Second Class Honours in Chemistry

Dundas, Oenone Judith ..... First Class Honours in English Language and Literature

Egilson, Arnor Konrad ..... Second Class Honours in English Language and Literature

Finlayson, Douglas Gordon.....First Class Honours in Zoology
Grant, Mrs. Ella Kathleen.....First Class Honours in Latin and English
Harris, Howard MacKenzie.....Second Class Honours in English Language and Literature
Hill, Aubrey Gordon.....Second Class Honours in Economics
Hill, William Fawcett.....Second Class Honours in Psychology
Jensen, Robert Conrad.....Second Class Honours in Economics
King, Ralph Frederick Breach.....Second Class Honours in English Language and Literature
Owens, Noel Arthur Scott.....First Class Honours in History
Prizek, Mario Henry Dominique.....Second Class Honours in English Language and Literature
Ryder-Cook, Cecil William.....Second Class Honours in Political Science and Economics
Shepherd, Ronald Francis.....Second Class Honours in History
Thomas, Mrs. Hilda Louise.....Second Class Honours in Philosophy and English
Thomson, Anna Jean.....First Class Honours in English and French
Wilson, Beverley.....Second Class Honours in English Language and Literature

GENERAL COURSE

Class I

Arnell, Marie Genevieve
Blake, Frederick Gordon, B.Com.
Johnston, Jean Mary
McPhail, William James Archibald
Savard, Irene Marie

Class II

Allen, William Grenfell
Baird, James Alexander
Ballard, Harold Raymond, B.Com.
Bargen, Peter Frank
Bartlett, John Geoffrey Preece
Benny, Geoffrey Arthur
Bergstrome, Brant Eric
Berry, Susan
Blake, Elizabeth Helen
Bloom, Norma Edith
Bomford, Percy Edgar
Borthwick, John William
Braden, Mrs. Katharine Gertrude Fletcher
Bridger, Lawrence Scott
Bryenton, Joy Gertrude
Brynjolfson, Walter Charles
Burch, Donald Arthur
Burke, William Thomas
Byrnes, Margaret Joan
Chowne, Alfred William Tregent
Coffey, Doris Marguerite
Cumberbirch, Peter Roland, B.Com.
Ellis, Mrs. Vivian Maurette
Emmott, Alan Herbert
Girvin, James Alfred
Goldie, James
Hartree, Beverley Marguerite
Heaps, Philip Arthur
Heywood, Joyce, B.Com.
Hyde, Eric Norman
Johnston, Marjorie
Jones, Allan Ernest Brierley
Jordan, Laurence Theodore
Kilgour, Alma Jean
King, Arthur Baker
Kristjanson, Svava
Lang, Lorna
List, Joan Alice
Loyd, Mrs. Alisen Gertrude
Maltby, Richard Gosse, B.Com.
Marsh, Walter Cecil
McCannel, John Arthur
Macdonald, Donald George
McNab, William Shirley
Nordan, Harold Cecil
Palmer, John Harald
Pedley, Marie Euphemia
Reid, James Gordon
Reid, Laurens Vernon

Rheumer, George Alfred
Rivers, William Alexander
Roberts, John Ronnie
Roberts, Robert Henry Donald
Robinson, Mary Kathleen
Rowebottom, Lorne Edwin
Schroeder, Charlotte Hedy
Smallwood, Effie Isabelle Coralie Auldjo
Smith, Hazel Violet
Stewart, James Albert
Stewart, Sheila Frances
Sutton, Frank Norman
Taylor, Hugh
Thom, Margaret Helen
Thomas, Philip James
Thomasson, Augusta Margaret
Thomson, Howard Angus (Posthumous)
Travis, Robert Bradshaw
Tribe, Ernest Tucker
Walton, Howard William
Watson, Marion Idun
Weaver, Kenneth Reuben
Webster, Wilfred George
White, Massie Lesley
Wilson, Lawrence Leonard
Young, John Joseph

Passed

Allan, John Rodger
Aveling, Madeline Bernice
Bamford, Gwendolyn Joan Elaine
Baycroft, Bernice Winnifred
Bayliss, Joyce Hettie
Bianco, Joseph
Bowering, Ebbie
Bradley, John Louis
Brett, Cecil Carter
Bunn, John Arthur
Burns, Edward Charles
Burnside, Anson Dean Meldrum
Court, James Ellis Owen
Cousins, Alymer John
Curtis, John Stephen
Dewar, Harry Easton
Diamond, Robert Cahoon
Drain, Murray Jack
Falconer, Dickson Moses
Gittell, Irving Gene
Goldberg, Audrey Dolores
Goodwin, John Mark
Gray, Edward John
Gray, Elizabeth Phoebe
Grimmett, Joan Anne
Hall, John Gerald
Hatcher, Laurel Denise
Hawkshaw, Sidney John
Hewson, Edward Lorne
Holob, Victor
Johnson, Guy Algernon
Johnston, Winifred Eleanor
Kerr, Arthur Scott
Larson, Vernon Edward
Leshgold, Jack Bernard
Lipsey, Barbara-Mae
Louie, Alice Kwok Ching
Lymbery, Alice Roe
Mackend, John
Manley, Phebe-Nell Senkler
Meldrum, Donna Georgina
Mercer, John Alex
Mercer, May Rose
Mercer, Walter Edward
Moore, Ben
Muirhead, Kenneth William
McKenzie, David Garnet
McTaggart, Ralph Luther
Nightingale, Frank Harry
Niven, James Stanley
Oxley, Mary Howard
Palmer, Russell Eyre
Parker, Faye Valerie
Paterson, John Clarke
Pochin, Helen Rosaline
Pringle, William Alan Henry
Richards, Mrs. Eileen Evelyn
Rippon, Arthur William
Robinson, Theodore James
Roeher, Allan
Rogers, Mrs. Lynette Seymour
Rowe, Jack Fullerton
Semple, Jean Elizabeth
Steele, John Alfred
Stevenson, Mrs. Marcella Ruth
Sturgess, Mrs. Gwendolyn Bissell
Sutherland, Gerald Bonar
Taylor, Mrs. Marguerite Alice
Underwood, Peter James
Verrall, Vivian Mary
Walling, Oliver John
White, Doreen Lawrie
Whitehead, Calvin Joseph Ford
Wilson, Walter Thomas
Winchester, Donald Redmond
Wolfe, Leslie Henry
Zivot, Aaron

THE DEGREE OF B.A. IN DOUBLE COURSE FOR B.A. AND B.A.Sc. (Engineering)

Brockley, Christopher Anthony
Bullen, Edward Lester
Smith, James Alexander

THE DEGREE OF B.A. IN DOUBLE COURSE FOR B.A. AND LL.B.

Carey, James Edward
Currie, Donald Redfern
Gilmour, Gordon Hugh
Grey, Harvey Johnson
Milne, John Evans
Roach, William David Louis
Scott, William Burns
Street, William Arthur

THE DEGREE OF B.A. IN DOUBLE COURSE FOR B.A. AND B.S.A.

Jones, George Alexander, B.S.A.

THE DEGREE OF BACHELOR OF COMMERCE

Class II

Alexander, Gordon Forbes
Barraclough, Henry Newton
Bergstrom, Eugene
Billingsley, Harry George
Brown, John Braithwaite
Campbell, Darroch Duncan
Capozzi, Harold Peter, B.A.
Cook, Wesley Hutchinson
Dakin, John Kenneth
Dickson, Stewart Cuthbert Veasey
Fleming, Charles Samuel George Calderwood
Gennis, Emerson Hulme
Goulet, Lawrence Stephen
Gourlay, James Lauren
Gregson, George Kenneth
Greig, James Walter
Helmer, Lloyd Donald
Hudec, Theodore Peter
Johnstone, Robert
Kereluk, William
Marshall, Royce Stanley
Nelson, Robert Eugene
Palmer, John Harald
Richards, Harold John
Richardson, Gordon Alexander
Roddick, Mary
Russell, William John
Walker, Robert Barry

Passed

Anderson, Donald McLeod
Barker, John David
Broman, Kurt Ingmar
Brown, James Ramsay
Capozzi, Joseph Jasper
Clark, Lionel deLacey
Cohen, Jack Irving
Craig, George Louis
Cuthill, Leonard Douglas James
Field, Ralph Innes
Galt, Thomas Douglas
Garner, Donald Alexander Coleman
Gillespie, George Hebden
Gook, Peter Robert
Gosling, David Egbert Llynn
Hermon, Richard Bolton
Hickenbotham, Harold Harvey
Howard, Malvina Mary
Hrigorew, Andro
Hurst, Robert Cecil
Kelsberg, William Watson
Longmore, Dale Stewart
Marshall, Douglass William
Masson, Joseph Noel Gerard
Morris, Barrie Alexander
McBride, Russell Matthew
MacDonald, Charles Gordon Steuart
Macdonald, William Hugh
MacPherson, John Stewart
O'Brien, Thomas Lawrence
Olds, William Walker Glen
Rogers, John Blythe
Scarabelli, Joseph Robert
Strachan, Norma Hildred
Tempest, Jack Marshall
Todd, Harold Blair

THE DEGREE OF BACHELOR OF HOME ECONOMICS

Passed

Campbell, Marion Evelyn
Cotterall, Gertrude Annette
Hill, Shirley Joyce Estelle
Moase, Mrs. Esther Florence
McKenzie, Jean Berverly
Soon, Isabel Quen Ying

THE DEGREE OF BACHELOR OF EDUCATION

Class I

Affleck, Edward Lloyd, B.A.
Burgess, William Norman, B.A.
Jones, Robert Evan, B.A.
Linfield, Arthur George, B.A.
Litch, John Boardman, B.A.
MacKenzie, Donald Alastair, B.A.
McMechan, Melville Young, B.A.
Paterson, Roderick David, B.A. (Glasgow)
Smith, James, B.A.
Story, Jean Margaret, B.A.
Witherly, Erven Osgood, B.A. (Sask.)

Class II

Adams, Robert William, B.A.
Ball, Ernest Richard, B.A.
Bardsley, James Milton, B.A.Sc.
Braaten, Harry Carson, B.A.
Campbell, William Carlyle, B.A. (Man.)
Doell, Jacob Carl, B.S.A.
Duncan, Campbell Grey, B.A.
Flick, Frederick William, B.A.
Gracey, Andrew Scott, B.A., B.Com.
Gravlin, George Raymond, B.A.
Hunter, John Alexander Lyall, B.A.
James, Albert Hunter, B.A.
Johnson, Lillian Blanche, B.A. (Sask.)
Karen, Walter, B.A.
Menzies, Harold Hart, B.A.
MacAulay, James Malcolm, B.A. (Laval)
MacKenzie, William Hector, B.A.
McVea, John Morrison, B.A.
Pickersgill, Walter Firman, B.A. (Man.)
Sibley, Isobel Mary, B.A.
Smith, Clifford Hickie, B.A. (Sask.)
Smith, James Easton, B.A.
Spargo, Thomas, B.A.Sc.
Taylor, Paul Gilbert, B.Sc. (Sask.)
Tessman, Fred Bennett, B.A.
Thomson, George Alexander Victor, B.A.
Trueman, Allan Stanley, B.A. (Man.), M.A.
Wilkinson, John Bowman, B.A. (Queen's)
Young, Albert Charles, B.A.
Young, Honorée Gresty, B.A.

THE DEGREE OF BACHELOR OF SOCIAL WORK

Class II

Janssen, Minerva Elizabeth, B.Ed. (Alta.)
Pinkerton, Stanley Hay, B.A.
Sutherland, Mrs. Barbara Mary, B.A.
Weaver, Kenneth Reuben

Faculty of Applied Science

THE DEGREE OF BACHELOR OF APPLIED SCIENCE

Civil Engineering

Passed

Barrass, Cyril Wallace
Thorson, Emil

Geological Engineering

Passed

Ellard, Howard Ray
Pollock, William Oliver

Mechanical Engineering

Passed

Simonton, Robert Grant

Mining Engineering

Passed

Hunter, Stanley John

THE DEGREE OF BACHELOR OF SCIENCE IN FORESTRY

Passed

Selkirk, Daryl Ross, B.A.

THE DEGREE OF BACHELOR OF APPLIED SCIENCE IN NURSING

Class II

Ingram, Eileen
Mercer, Gabrielle Phyllis
McIntyre, Keitha Geraldine
Pullan, Edith Marion

Faculty of Agriculture

THE DEGREEE OF BACHELOR OF SCIENCE IN AGRICULTURE

Honours

Bluman, Nathan

Class I

Ladner, William Henry Douglas

Class II

Dudley, Gordon Gerhart
Maurer, Mrs. Elizabeth Marion
MacLeod, Donald Joseph
Ryall, John Philip Lindsey
Thorsteinson, James Edward

Passed

Akeroyd, James Henry
McRae, Kenneth Peter

Faculty of Law

THE DEGREE OF BACHELOR OF LAWS

Passed

Hunter, Douglas Lawrence, B.A.
Sutherland, Alexander Kent
Wark, Bruce Edward, B.A.
Whitelaw, Glenn Robert, B.Com.

MEDALS, FELLOWSHIPS, SCHOLARSHIPS, PRIZES AND BURSARIES

(December 31st, 1947, to December 31st, 1948)

HEADS OF THE GRADUATING CLASSES, MAY, 1948

The Governor-General's Gold Medal (Head of the Graduating Class for the B.A. Degree) ..... Elizabeth May Charnley

The University Medal for Arts and Science (Head of the Humanities and Social Science Group in the Graduating Class for the B.A. Degree)
Marjorie Ann Alldritt

The Wilfrid Sadler Memorial Gold Medal (Head of the Graduating Class for the B.S.A. Degree) ..... Flora Christina Norris

The Convocation Prizes, $50 each (Head of the Graduating Classes for the B.A.Sc. and B.S.F. Degrees)
Ralph Edgar Carter and Edward Bryant Dixon Lambe (equal)

The Law Society Gold Medal and Prize (Head of the Graduating Class for the LL.B. Degree) ..... George Buchan McIntosh, B.A. (McGill)

The Kiwanis Club Gold Medal and Prize, $50 (Head of the Graduating Class for the B.Com. Degree) ..... Frederick Gordon Blake

The Home Economics Graduation Prize, $50 (Head of the Graduating Class for the B.H.E. Degree) ..... Elizabeth Jean Bigsby

OTHER AWARDS

MEDALS

The Lefevre Gold Medal and Scholarship (approximately $150) for Chemistry ..... Elizabeth May Charnley

The United Empire Loyalists' Association Medal and Prize for History, $25.00
Mary Catherine Philpot

SCHOLARSHIPS FOR GRADUATES

The University Graduate Scholarship, $200
Awarded jointly to Marjorie Ann Alldritt $125 and Edward Bryant Dixon Lambe $75

The Anne Wesbrook Scholarship, $125 ..... Flora Christina Norris

The Dr. F. J. Nicholson Scholarships

1. For Chemistry, $500
   Relinquished by Elizabeth May Charnley to Emmanuel John Cruchley
2. For Geology, $500 ..... Richard Bradford Campbell

The John and Annie Southcott Memorial Scholarship, $100, (B.C. History)
Walter Henry Stuart, B.A.

The Native Daughters of British Columbia Scholarship, $50, (B. C. History)
Walter Henry Stuart, B.A.

The B'nai B'rith District No. 4 Hillel Foundation Scholarships, $125 each

1. Ralph Edgar Carter (Applied Science)
2. David Livingston McIntosh (Agriculture)

The Standard Oil Company of British Columbia Limited Fellowship, $950
Mervin Allan Schoening

The Powell River Company Limited Scholarship, $700
Ross Hume Hall, relinquished by Mr. Hall and not re-awarded

The British Columbia Electric Railway Company Limited Research Scholarship, $500 ..... William Cumming Leith

The Cominco Fellowship, $750.....John Bryan Devereux Derrick
The Edith Ashton Memorial Scholarship, $250.....Edward William Burridge
The Lions Club Fellowship, $1200 (renewal).....John Douglas Ross, B.A.
The Shell Oil Fellowship for Research, $750 and fees.....Robert George Butters
The Shanahan's Limited Scholarship, $500
Relinquished by Jean Margaret Grunlund to Arthur Lee Johnson
The Canadian Industries Limited Fellowship, $750.....William LeBreton Ross
The British Columbia Telephone Company Limited Scholarships
1. William Arthur Bain (Electrical Engineering) $500
2. Relinquished by Evan Thomas Davis (Electrical Engineering) to Charles Delaney Pearse (Physics) $500
3. Nicolas James Harrick (Physics) $500
4. Nicholas Edward Hudak (Electrical Engineering) $500
5. Edward Bryant Dixon Lambe (Engineering Physics) $500

The Swift Canadian Company Limited Fellowship, $1000.....No award
The H. R. MacMillan Export Company Limited Fellowship in Forestry, $750
David Charles Holmes
The British Columbia Sugar Refining Company Limited Scholarships
1. Alfred James Butler (Biology) $300
2. John Stitt Clark (Agronomy) $275
3. Relinquished by Eleanor Mary Horsfield (Agronomy) to Robert E. T. Irwin (Animal Husbandry) $275
4. Relinquished by Arthur Lee Johnson (Chemistry) to William Nicholas Patrick (Chemistry) $300
5. Margaret Gertrude Merry, B.A. (Zoology) $250
6. Malcolm Allan MacDonald, B.S.A. (Animal Nutrition) $300
7. Flora Christina Norris (Dairy Bacteriology) $300
8. Craig MacPhee, B.A. (Zoology) $250
9. Rosalie Elizabeth Triggs (Food Technology) $250

The British Columbia Packers Limited Special Research Scholarships, $400 each
1. William Roderick Hourston, B.A.
2. Frederick Dabell Smith, B.A., B.S.A.

The Britannia Mining and Smelting Company Limited Scholarships, $250
No award
The Cariboo Gold Quartz Mining Company Limited Scholarship, $100
No award
The Alan Boag Foundation Special Scholarship, $50.....Philip Avril Jack Oldham
The Laura Holland Scholarship for Social Work
Dorothy Genevieve Farley, B.A., B.S.W.
The G. H. Woods and Company Limited Medical Scholarship, $500
Cecil Leonard Jenkins

SCHOLARSHIPS FOR UNDERGRADUATES

I. IN ALL FACULTIES

The University Great War Scholarships (First Year, high standing), $200 each
1. Margaret Marion Moodie
2. Russell Edward Perret

The Players' Club Alumni Scholarship, $50.....Norma Edith Bloom
The T. E. and M. E. Ladner Memorial Scholarship, $300 (proficiency)
Gordon DeRupe Taylor

II. IN ARTS AND SCIENCE

Third Year

University Scholarships in Arts and Science (general proficiency), $200 each
Group 1: John Robert Hugh Dempster
Group 2: George Albert Pelter

The N. Leo Klein Memorial Scholarship (general proficiency, Commerce), $100
Stanley Magnus Oberg by reversion to Samuel Wither Skilling, by reversion to William John Russell.

The Edwin Waterhouse Scholarship (high standing, Commerce), $250
Samuel Withers Skilling

The Kiwanis Club Scholarship (general proficiency, Commerce), $150
Stanley Magnus Oberg

The Vancouver Women's Canadian Club Scholarship in Home Economics (general proficiency), $100.....Shirley Winifred Pinchin (nee Olsen)

The R. J. Pop Scholarship in Zoology, $150.....William Winston Mair

The Winspear, Hamilton, Anderson and Company Scholarship (Commerce), $150.....Relinquished by Samuel Withers Skilling to Ronald W. Hamilton

The Alaska Pine Scholarship in Wood Chemistry, $150.....Norman Edgar Phillips

The Cunningham Scholarship in Pharmacy (general proficiency), $100
Nicolas Brodoway

The Vancouver Daily Province Scholarship (Political Science), $250
John Napier Turner

The Alaska Pine Company Scholarship in Economics, $150
George Stewart Cumming, relinquished by Mr. Cumming to Percy Mortimer Cuttle

The Burbidge Scholarships (Mathematics and Physics), $125 each (in order of merit)
1. John Robert Hugh Dempster, by reversion to James Lewin McGregor
2. James Lewin McGregor by reversion to John Mullaney Bryan

The Woodward Scholarships, $125 each
1. John Kenneth Dakin (Marketing)
2. James Walter Greig (Advertising)

The British Columbia Daily Newspapers Association Scholarship (Advertising), $200.....Douglas C. Basil

The Daniel Buchanan Scholarship for Mathematics, $100.....Sydney Hellyer

The Automotive Transport Association of British Columbia Scholarship (Transportation Practices and Policies), $150.....Melburn Wilfred Paul

Second Year

University Scholarships in Arts and Science (general proficiency), $200 each (in order of merit)
1. Stanley Elmer Graham Tench
2. Robin Christopher Giles Thornton

The Shaw Memorial Scholarship (highest in two of English, Greek, Latin), $125.....Cecilia Magdalen Merrett

The McGill Graduates Scholarship (highest in English and French), $125
Lawrence Louis Bongie

The Terminal City Club Memorial Scholarship (highest in English and Economics), $100
Lawrence Louis Bongie by reversion to William Baskerville Gill

The Alan Boag Scholarship (best essay on Socialism), $250.....Murray D. Bryce

The Vancouver Women's Club Scholarship (Canadian History), $100
Dennis Trevor Guest

The Alaska Pine Scholarship in Commerce (general proficiency), $150
Joe David Shaw

The B. C. Drugs Limited Scholarship (highest standing, Pharmacy), $100
Richard Gordon Linburg

The Canadian Foundation for the Advancement of Pharmacy Scholarship (general proficiency), $100 ..... Marjorie Constance Daniel

The Canadian Association for Health, Physical Education, and Recreation (general proficiency) Scholarship, $50 ..... John Arnold MacDiarmid

The Winspear, Hamilton, Anderson and Company Scholarship (Commerce), $150 ..... Alison Malcolm Martin

First Year

Royal Institution Scholarship in Arts and Science (highest standing), $200
John Carling Ward

University Scholarship in Arts and Science (general proficiency), $200 each (in order of merit)
1. Dorothy Marilyn Hodgson
2. Robert Douglas Lee

The Beverley Cayley Scholarship (male student standing highest in English), $100
John Carling Ward and John Macdonald Beddome (equal) by reversion to John Macdonald Beddome.

The Pharmaceutical Association of the Province of British Columbia Entrance Scholarship, $100 ..... Peter David Zacharias

The Canadian Foundation for the Advancement of Pharmacy Entrance Scholarship, $100 ..... Walter Toni Janicki

The Vancouver Sun Scholarship for Carriers, $200 (renewal for proficiency)
Johann Erickson

The Vancouver Sun Special Scholarship, $200 ..... Denis R. T. White

III. IN APPLIED SCIENCE

Fourth Year

The Vancouver Women's Canadian Club Scholarship (general proficiency), Nursing, $100 ..... Waverlie Anne Watson

Third Year

The Dunsmuir Scholarship (highest in Mining Engineering), $150
Victor Jackson Pittson

The G. M. Dawson Scholarship (highest in Geological Engineering, Geological subjects), $50 ..... John Elgin Reesor

The B'nai B'rith Auxiliary No. 77 Scholarship (highest in Chemical Engineering), $50 ..... Jackson Eng

The R. Randolph Bruce Scholarship (highest in Metallurgical Engineering), $200 ..... James Fairley Stenhouse

The British Columbia Electric Railway Company Limited Scholarship (highest in Electrical Engineering), $200 ..... Joseph Anthony Stachon

The British Columbia Electric Railway Company Limited Scholarship (highest in Mechanical Engineering), $200 ..... William Marriott Brown

The Canadian Forest Products Limited Scholarships (highest standing in Forest Engineering), $150 each (in order of merit)
1. Henry Reginald Christie
2. David John Gardiner

The General Construction Company Limited Scholarship (proficiency in Civil Engineering), $150 ..... Graham Russell Dawson

The Lambert Scholarship (highest in Civil Engineering), $200
James Gordon Sutherland

The Alaska Pine Scholarship in Forestry (highest in Forestry, B.S.F. course), $150 ..... John Harry Gilbert Smith

The Boultbee-Bosustow Memorial Scholarship (general proficiency in Mining and Metallurgy), $250 ..... Alexander Cameron Ritchie

Second Year

University Scholarship in Applied Science (general proficiency, B.A.Sc. course), $200 ..... John Wallace Colbert

The University Scholarship in Nursing and Health (general proficiency), $200 (awarded in December, 1948) ..... Betty Anne Upham

The General Construction Company Limited Scholarship (high standing, Engineering), $200 ..... James Albert Stewart

First Year

Royal Institution Scholarship in Applied Science (general proficiency), $200
Eugene Critoph

IV. IN AGRICULTURE

University Scholarship in Agriculture (general proficiency in the First Year), $200 ..... Douglas George Routley

The David Thom Scholarship (general proficiency in the Second Year), $100
Relinquished by Hubert Reagh MacCarthy to Hans Christian Fisher

The British Columbia Fruit Growers' Golden Jubilee Scholarship (proficiency in Horticultural Options, Third Year), $125
William Henry Douglas Ladner

The Hogarth Scholarship (general proficiency, Third Year), $125 each (in order of merit)
1. Margaret Ellen Norris
2. Frederick James Brown and Earl Maurice King (equal, $62.50 each)

The Imperial Order of the Daughters of the Empire Scott Memorial Scholarship (Biology), $100 ..... Ursula Helen Knight

The Nabob Scholarship in Food Technology, $300 ..... Ian Frederick Greenwood

V. IN LAW

The Hon. R. L. Maitland Memorial Scholarship $150, (highest standing in Second Year Law) ..... W. Kirke Smith

The Norgan Scholarships, $150 each (proficiency in Second Year Law) (in order of merit)
1. Alexander Brian Beatty Carrothers
2. Arthur Fouks, Robert John Ohs (equal)

The Norgan Scholarships, $150 each (proficiency in First Year Law) (in order of merit)
1. Frank Urquhart Collier
2. William Donald Mitchell
3. Norman Leonard Oreck

VI. SUMMER SESSION AWARDS

The British Columbia Teachers' Federation Scholarship, $100
Gordon Allan Clarke

The Summer Session Students' Association Scholarship, No. 1, $75
Emil Albert Roseneau

The Summer Session Students' Association Scholarship, No. 2.....No award

SCHOLARSHIPS FOR SENIOR MATRICULATION

Royal Institution Scholarships for Senior Matriculation, seven awards as follows: $200 each
Kenneth Rowland Donnelly, Edward William Konesky, Selma Warkentin, Michael Roscoe, Jessie Weir Ramsay, Evelyn Charlotte Hrehorka, Marion Clair Irving

SCHOLARSHIPS FOR UNIVERSITY ENTRANCE

The Vancouver Sun Scholarships for Carriers, $200 each (in order of merit)
1. L. W. Elwood Flather
2. Ray Cope

University Scholarships for University Entrance, sixteen awards as follows:

$175.....Charles Patrick Stirling Taylor
$175.....Albert Ronald Forbes (Victoria College)
$175.....Heather Alleyne Clarke
$175.....relinquished by Carl Arthur Goresky to Jean Alloween Eraut
$175.....relinquished by Sylvia Margaret Day to William Earl Campbell
$175.....relinquished by Charlotte Froese to Hilda Jean Heslop
$175.....Gwen Margaret Johnson
$175.....William John Lund
$175.....relinquished by Elden Cole Whipple to Lavie Boxer
$175.....Dorothy Granville Scott
$175.....D. Jaqueline Donaldson
$175.....Diana Jane Elsdon
$175.....John Vincent MacDonald
$175.....Maureen Ann Cromie (Victoria College)
$175.....Gordon Wesley Young (Victoria College)
$175.....John Joseph Sheppy (Victoria College)

PRIZES

I. IN ALL FACULTIES

The University Essay Prize, ($25, books).....Anna Jean Thomson

The News-Herald Awards in Journalism, ($200, Senior Award)
Harold Raymond Pinchin

The News-Herald Awards in Journalism, ($150, Junior Awards)
Christopher Charles Crombie

The Chemical Institute of Canada Book Prizes, $25 each
1. Norman Edgar Phillips (Arts and Science)
2. Jackson Eng (Applied Science)

The Hewitt Bostock Memorial Lecture Prize, $25.....No award

II. IN ARTS AND SCIENCE

The David Bolocan Memorial Prize, $25 ..... Ernest Terence Alderdice

The Ahepa Prize, $100 ..... Orville Glendon Conner

The Armstead Prize in Biology and Botany, $50 ..... Dougal Harold McRae

The Llewellyn Jones Prize in Zoology, $50 ..... No award

The International Studies Prize, ($30, books) ..... (Mrs.) Helen Roberta Noel

The Transportation and Customs Bureau of the Vancouver Board of Trade Prizes:

1. Report on the Growth and Development of the Port of Vancouver
   First Prize, $50 ..... Roderick John Wilks
   Second Prize, $25 ..... Raymond Shelley
   Honourable Mention ..... Ivan Daniel Burch and Stuart Robert Elliott
2. Transportation
   First Prize, $50 ..... Frank Alfred Morrish (Third Year)
   Second Prize, $25 each
   Ivar Melvin Buerge, Gordon Adair Green, James Hyslop Wilson Sanderson
   Honourable Mention
   Bruce Sheridan Lord, Frank Harold Moore, Douglas Norman Yearwood

The Dorothy and William Dorbils Prize in Canadian History, $50
Harold Lindsay

The Frances Willard Prize, $50 ..... John Sinclair Morrison

The Frosst Proficiency Awards (Pharmacy)

(a) $50 each
   1. Joseph Bernard Wall
   2. William Thomas Ainsworth

(b) $25 each
   1. Norman Cornelius Zacharias
   2. Donald Kemp Stocks
   3. William Francis Baker
   4. Hilda May Wood
   5. William Roderick Donaldson

The Pharmaceutical Association of the Province of British Columbia Prizes, $25 each (in order of merit)

1. Joseph Bernard Wall
2. Norman C. Zacharias

The B. C. Tree Fruits Limited Prizes (survey trip to Kelowna to value of $100 each) (names in order of merit)

1. Argadie Becker, by reversion to John W. Gibson
2. John Douglas Howard
3. Stanley Herbert Wardill

The Home Economics Second Year Prize (general proficiency), $25
(Mrs.) Doreen Marie Reid

The Houghland Prizes in Dispensing, $50 each

1. Ross Harvie Sinclare
2. Hubert Joseph McCue

III. IN APPLIED SCIENCE

The Association of Professional Engineers Book Prizes (outstanding essays in Third Year), $25 each
1. Kenneth Donald Hester (Chemical)
2. Lloyd Harold Anderson (Civil)
3. Gordon James Roper (Electrical)
4. Robert Loring Christie (Geological)
5. Inglis Willard Edwards (Mechanical)

The British Columbia Lumber Manufacturers' Association Prizes (for the Session 1946-47)
1. $100—Cyril Peter Jones
2. $50 —Anthony Mark Read
3. $25 —Ronald Douglas Grantham

The British Columbia Lumber Manufacturers' Association Prizes (for the Session 1947-48)
1. $100—William M. Jorgensen
2. $50 —Robert A. Pollard
3. $25 —Raymond S. Cunliffe

The William N. Kelly Prize (proficiency in Machine Shop Practice, Third Year), $15 ..... John Douglas Morison

The Ingledow Prize, $50 (proficiency in Laboratory work, Third Year Electrical Engineering) ..... Rex Dawson Vance Merritt

The H. R. MacMillan Export Company Limited Essay Prizes in Forestry
1. Fire Protection—Ronald William Chorlton ($100)
2. General Topics—First Prize, $75, James Myles Kinghorn
   Second Prize, $50, Charles William Garrard
   Third Prize, $25, Victor Heath

The Engineering Institute of Canada Prize (proficiency and leadership), $25
John Harold Craven

The Engineering Institute of Canada (Vancouver Branch) Walter Moberly Memorial Prize, ($25, books) ..... Paul Thomas Coté, B.A.

The Provincial Department of Health and Welfare (Health Branch) Prizes, $50 each
1. Doreen Evelyn Jean Greenhorn
2. Hilda Joan Davis

The Timber Preservers Limited Prizes
1. $65—Raymond Alfred Pillman
2. $45—Mavor Stafford Thompson
3. $25—Albert Frederick Joplin
   and $15 each to George Alan Burnham, B.A., Joseph Irenee Lessard, Thomas Frederick Smith, B.A.

The Ingledow Prize, $50 ..... Gordon Hamilton Wheatley

The H. R. MacMillan Export Company Limited Prizes
1. Fire Protection—David Charles Holmes, $150
2. General Topics—First Prize, $75, Jack Quaite, B.A.
   Second Prize, $50, George Philip Thomas, B.A.
   Third Prize, $25, Percy Thomas Burch, B.A.

The Canadian Forest Products Limited Prizes, $100 each
1. David Charles Holmes
2. Victor Henry Dashwood Vaughan

The Northern Electric Company Limited Prize, $100
John Robert Bayley McLennan, James S. S. Kerr (equal, $50 each)

IV. IN AGRICULTURE

The Entomological Society of British Columbia Book Prize (Zoology)
Hubert Reagh MacCarthy
The Dr. D. A. McKee Memorial Prize (general proficiency in the Third Year)
Margaret Ellen Norris
The Northern Peat Moss Company Limited Essay Prize, $100
John Alvin Pelter

V. IN LAW

The Carswell Company Limited Prize, ($20, books)
George Buchan McIntosh, B.A. (McGill)
The Norgan Essay Prizes, $50 each
John Campbell Blewett, Stewart Robert Forrest, B.A. (Wash.)
The Toronto General Trusts Corporation Prize, $30 ..... Eric Brown
The Canada Law Book Company Prize (books)
George Buchan McIntosh, B.A. (McGill)
Special Book Prize, Anonymous Donor, $25 (high standing in Second Year Law) ..... Alan Brock Macfarlane
The Carswell Company Limited Prize, $20 (books), (proficiency in Second Year Law) ..... W. Kirke Smith
The Carswell Company Limited Prize, $20 (books), (proficiency in First Year Law) ..... Frank Urquhart Collier

VI. SPECIAL PRIZES FOR THE UNIVERSITY EXTENSION DEPARTMENT NIGHT COURSE ON TRANSPORTATION PRACTICES AND POLICY

The Transportation and Customs Bureau of the Vancouver Board of Trade Prizes, ($25 each)

First Year, S. J. Boggis (Woodward's Stores Ltd.)

Second Year, T. H. Whitson (Pacific Mills Ltd.)

Third Year, A. Ewart (Standard Oil Company), S. K. Jackson (Public Utilities Commission, Carrier Branch) equal

Fourth Year, R. Elmer (Kelly Douglas & Co. Ltd.)

BURSARIES

(IN ALL FACULTIES)

The Captain LeRoy Memorial Bursary, $150 ..... John F. Maguire
The Khaki University and Young Men's Christian Association Memorial Fund Bursaries, $100 each (names in alphabetical order)

John F. Cochran, Grace M. Gaines, Kathleen E. Gubbins, Alexander Smysnuk, Sigmund Techy

The American Woman's Club Bursary, $100 ..... Lila Scott
The University Women's Club Bursary, $100 ..... Marion Nyholm
The Vancouver Panhellenic Alumnae Bursary, $200 ..... Dorothy Tubbs
The Mildred Brock Memorial Bursary, $75 ..... Dorothy M. Harris
The Frances Milburn P.E.O. Bursary, $150 ..... Shirley E. Newsom
The Lady Laurier Club Bursary, $100 ..... Alice M. Beharrel
The Alliance Francaise Bursary, $25 ..... Edward J. Cheramy

The Faculty Women's Club Bursary, $75 ..... Barbara A. Percy
The Alumni Association Bursary, $50 ..... Gilbert F. Jacobs
The William MacKenzie Swan Memorial Bursary, $250 ..... John L. Cowan
The Mary C. Lipsett Bursary, $300 ..... Gordon McLemon Wilson
The Rotary Memorial Bursary, $200 each
Cyril Groves, Alder-Ann Harper, Wilfred E. Razzell, Harry L. Sharp, Henry Zitko
The Cooperative Seed Growers' Bursary, $100 ..... Jack A. Freeman
The Vancouver Section, National Council of Jewish Women, Bursary, $100
Barbro E. Grunlund
The Gamma Phi Beta Bursary, $50 ..... Edith L. Morgan
The Provincial Council of British Columbia, Canadian Daughters' League Bursaries, $100 each ..... Muriel A. Connolly, Winifred D. Grant
The University Women's Club General Bursary, $100 ..... Anna L. White
Bursaries for Proficiency (anonymous donor)
1. Aubrey C. Tanner (4th instalment, $287.50)
2. Rodney C. Elliott (2nd instalment, $250)
The Jack Cohen Bursary, $150 ..... Maurice O. P. Morrison
The Kiwassa Club Bursaries, $150 each
Isabella Denholm, Mary S. Fagan, Cecilia Fleetwood, Jean Moore
The McLean Bursaries
$200 ..... Ernest Bianco
$250 ..... Stephen G. Bonin
$125 ..... Loren Calder
$225 ..... Robert H. A. Wallace
$200 ..... Henry J. Wiebe
The Nat Bell Bursary, $150 ..... Parzival Copes
The R.C.A.F. Veterans' Bursary Fund, $100 each
Lamond A. Milne, John MacKay, Frederick D. Pettem
The Teamsters' Joint Council No. 36 Bursary, $250 ..... Robert B. Thomson
The Lauder Mercer and Company Limited Bursary, $250 ..... Terrence R. Watt
The Pattison Bursaries, $100 each ..... Rosemary Lansdowne, Robert J. Mitchell
The W. D. Shaffer Bursary, $200 ..... Douglas R. Grant
The Robert S. Day and Son Limited Bursary, $150 ..... Leslie C. Hoel
The Vancouver Bar Association Bursaries, $100 each
Allan Bate, John C. Cowan, John P. Van der Hoop
The American Woman's Club Bursary for Social Work, $100
Sheila J. Carlisle
The Ellen Ethel McHattie Memorial Bursary, $300 ..... David Franklin
The Allied Officers' Club Auxiliary Bursary, $75 ..... Ernest Anastasiou
The Louis Toban Bursary, $100 ..... Richard G. Linburg
The National Paper Box Company Bursaries, $200 each
Arthur J. Barker, John D. Howard
The General Construction Company Limited Bursary, $150
James Gordon Sutherland
The Phil Wilson Bursary in Forestry, $225 ..... John H. G. Smith

The David Thom Bursaries
No. 1 ($150)—William Earl Campbell
No. 2 ($75)—Melvin Earl Jacobs
No. 3 ($75)—Brian C. Appleby

The Delta Gamma Bursary for the Blind, $100 ..... No award

The Geldart Riadore Bursary, $150 ..... Richard Stace-Smith

The Flying Officer Reverend George Robert Pringle Memorial Bursary, $200
George R. Piercy

The Admiral Jellicoe Chapter, I.O.D.E. Bursaries, $50 each
Robert J. Cooper, Patricia J. James

The Triple Entente Chapter I.O.D.E. Bursaries, $75 each
Thomas W. Burke, Norman P. Nichols

The Worthington Memorial Chapter I.O.D.E. Bursary, $100
Woodland E. Erlebach

The Bastion Chapter of the Imperial Order of the Daughters of the Empire Bursary, $200 ..... Sam K. Thorneycroft

The B. C. Drug Travellers' Association Bursary, $200 ..... Doreen M. O'Grady

The Pacific Meat Company Limited Bursary, $200 ..... Len Maurice Kamm

The Alberta Meat Company Limited Bursary, $75 ..... Charles Melville Williams

The Allied Officers' Club Auxiliary Bursary Fund
$100 ..... Lockman W. Campbell
$100 ..... Rex D. V. Merritt
$75 ..... Douglas E. Matkin
$100 ..... John S. Hunter

AWARDS MADE BY OTHER INSTITUTIONS BUT ANNOUNCED BY THE UNIVERSITY

The Pacific Mills Limited Scholarship, $250 ..... John Vincent MacDonald

The United Odd Fellows Bursaries, $200 each
George Eric Barker, Jeanne Claire Bowyer, Walter George Freshwater, Eleanor Marie Martin, Peter Laurence Orasuk, Robert Randal Smith

The Summerland Scholarship, $250 ..... Richard Mason Palmer

The Vancouver Public Library Staff Association Bursary, $150 ..... Sheila Gow

The French Government Scholarships
John Brabazon, G. Cooper, Sadie Makinen, M.A., Eric Patrick Nicol, M.A., Ronald Oldham, M.A. (renewal)

The Crofton House Alumnae Scholarship, $175 ..... Shirley E. K. McLeod

The International Brotherhood of Pulp, Sulphite and Paper Mill Workers Scholarship, $250 ..... Award to Senior Matriculation Student

British Council Scholarship (renewal) ..... Robert T. McKenzie, B.A.

French Government Medals ..... Lester James Pronger, B.A., Anna Jean Thomson

French Government Book Prizes
Marjorie Ann Alldritt, David Albert Griffiths, B.A., (Mrs.) Irene Thelma Howard

The Rhodes Scholarship—Harry Ward MacDonald

The Imperial Order Daughters of the Empire War Memorial Scholarship (Overseas), $1600 (renewal)..... Patrick C. T. White, B.A.

National Research Council Special Scholarship..... Bertram A. Auld, B.A.Sc.

National Research Council Studentships ($750 each)

Bertram Neville Brockhouse, B.A., Harry Brown, B.A., Thomas LeGear Collins, M.A., Thomas McCaul Dauphinee, M.A., Philip Norman Daykin, B.A., John Campbell Forrester MacDonald, B.A., John Robinson, B.S.A., Albert Edwin Worthington, B.A.

National Research Council Bursaries ($450 each)

Percy Edward Argyle, Ralph Edgar Carter, Richard Hing Chow, B.A., Harold Godfrey, Nicolas James Harrick (relinquished), James Kerr Kinnear, Robert Davis Lawson, David William Morgan, Stanley Roy Morrison, David Aird Munro, B.A., Joseph Edward Piercy, Malcom Campbell Robinson, John Thomas Sample, H. E. Derrick Scovil, Lorna Margaret Silver, B.A., Helen Mary Ann Urquhart

Hudson's Bay Company Scholarship (Commerce), £450 and transportation
Robert Melville Wilson

The British Columbia Lumber Manufacturers' Association Prizes (prizes for students in the Department of Architecture submitting designs for the Lumberman's Arch)

1. First Prize, $100, Donald Lamont Sinclair
2. Second Prize, $75, Ernest Edward Middleton
3. Third Prize, $50, Frederick Victor Avery Meakes
4. Fourth Prize, $25, John Pennock Hoff

The Kappa Sigma Fraternity Scholarship, $300..... Alan Francis Pierce

The Dominion-Provincial Student Youth Training Bursaries and Provincial Loan Fund—Bursaries and Loans to approximately 260 students

The Viscount Bennett Scholarship (Calgary)..... David W. Buckley

The Canadian Forest Industries Entomological Scholarships, $200 each (names in alphabetical order)

1. G. Stuart Brown, B.Com., B.S.F.
2. James Myles Kinghorn

GIFTS, GRANTS, AND BEQUESTS

The following list acknowledges gifts, grant, and bequests received during the period September 1st, 1947 to August 31st, 1948.

Grants and Gifts for Research and Research Equipment

Atomic Energy Control Board—to the Department of Physics as a further grant toward the construction of a Van de Graaf Generator	$32,500.00
Geological Society of America—to the Department of Geology and Geography for research work in plant and sub-surface Geology	4,000.00
National Defence Research Board—to the Department of Physics for various research projects	20.850.00
National Research Council—	
(a) Grants in aid to members of staff	
Department of Botany	1,400.00
Department of Chemistry	4,000.00
Department of Dairying	1,800.00
Department of Mining and Metallurgy	1.700.00
Department of Physics	14,120.00
Department of Zoology	1,850.00
(b) Bursaries and Studentships	$11,550.00

Gifts for Chairs of Instruction, Lectureships, and Special Courses

British Columbia Forest Products Limited—grant for professorship in entomology	5,000.00
British Columbia Packers Limited—for continuation of work in fisheries	7,500.00
Campbell, Estate of the late Mrs. Anne S.—to assist needy students, and to assist in the establishment of a Faculty of Medicine, or to provide equipment in pre-medical courses; total to be received over a period of eleven years	26,800.00
Canadian Club of Vancouver—for special lectures by Judge J. E. Read	500.00
Canadian Foundation for the Advancement of Pharmacy—for assistantships in Pharmacy	600.00
Dominion Department of Fisheries—appropriation for extension of educational work in co-operative producing and selling among fishermen	10.000.00
Dominion Government Grant—appropriation for Social Work course	9,480.00
Fiddes, Mr. Robert—contribution to the Chair of Music	5,000.00
Fisher, Mrs. May C. (estate)—for work in aeronautics	750.00
Junior League of Vancouver—final instalment of grant for Social Work	3,000.00
MacMillan, Mr. H. R., C.B.E.—for work in silviculture. Second instalment	5,000.00
Powell River Company Limited—$5000 annually for three years to establish a professorship in Forest Pathology. First instalment	5,000.00
Vancouver Board of Trade, Advertising and Sales Bureau—to the Department of Commerce for the extension course in advertising	1,000.00

Special Trust Funds

British Columbia Packers Limited—from Directors of the Company, a fund to provide library material in Fisheries—$200 each from Messrs. J. B. Buchanan, George Kidd, Gordon Farrell, J. P. D. Malkin, J. S. McLean, H. R. MacMillan, A. C. Taylor, W. J. Van Dusen, R. E. Walker, A. H. Williamson	2,000.00

Law Society of British Columbia—memorial endowment fund, the interest on which is to be used to purchase works on legal history, etc., not usually included in law libraries 3,000.00

Rogers, Jonathan (from the estate)—to be held in trust pending decision on use 77,839.61

Stewart, Mrs. Douglas—for the President's Fund 200.00

Williamson, Mr. A. H.—for the President's Fund 10.00

Anonymous—for the President's Fund 10.00

Miscellaneous

Imperial Order, Daughters of the Empire—contributions to nursery school, Little Mountain 200.00

Various friends of the University—contributions toward conferences of the learned societies held in Vancouver during June, 1948 ..... 4,550.00

Gifts to the Library

Abel, Mr. W. H., Montesano, Washington—*Encyclopedia of the Laws of England,* volumes 1-15, and first and second annual supplements.

Berry, Dr. J. C.—143 items: books, booklets, yearbooks on art; periodicals (chiefly Masters in Art); librettos and scores.

Blakey-Smith, Dr. Dorothy—File of *Ubssey,* 1917-1918, 1918-1922; miscellaneous items.

Churchill, Mr. Dennis Michael—American Institute of Banking, *Bank Organization and Operation;* Corwin, *Thirteen by Corwin;* Dickens, *Tale of Two Cities;* Hobson, *American Jazz Music;* Jackson, *Newspaper Typography;* Sandage, *Advertising;* and several other volumes.

Coburn, Mr. Arthur—140 books (sets of Carlyle, Ruskin, etc.) and *Canadian Bar Review,* volumes 1-10, unbound.

Dorbils, Mr. William—*Kamloops and District Mining Gazette,* 9 numbers, January, 1899-March, 1900; Dun and Wiman, *Canadian Business Directory* (1885); Chittenden, *Queen Charlotte Islands,* 1884; Mason, *Bibliography of Oscar Wilde;* Royce, *a Balzac Bibliography;* McKay, *Bibliography of Robert Bridges;* 250 volumes of *Canadiana* and sundry copies of the *Canadian Annual Review, Canada Year Book, Debates of Senate and House of Commons, Annual Reports of B. C. Department of Mines, Geological Survey Memoirs,* etc.; Miscellaneous periodicals and documents.

Doull, Lieut.-Com. J. Ronald (from his mother)—Dicey, *Law of the Constitution;* Fry, *Specific Performance of Contracts;* Leage, *Roman Private Law;* Keir and Lawson, *Cases in Constitutional Law;* Kenny, *Cases Illustrative of English Criminal Law;* Moyle, *Institute of Justinian.*

Ketcheson, Mr. G. S.—*Journal of Heredity,* August, 1938-January, 1948, (incomplete).

Lefeaux, Mr. W. W.—*Report of Sirois Commission* (3 vols.) Appendices, (1-8), supplements (11 vols.)

McGregor, Mr. D. A., and Scott, Mr. Sydney—two cartons of envelopes of newspaper cartoons (continuation of previous gift); four cartons of miscellaneous pamphlets, government documents, periodicals, mimeographed material, etc.

MacKay, Louis A.—Meynell, *Alice Meynell a Memoir;* Watt, *Landfall, Who Dare to Live;* Webb, *Fifty-one Poems;* Jameson, *The Sultan of Jobat;* Milligan, *Siluria;* Runyon, *Poems for Men; Canadian Art in Brazil* (Press Review); Davidson, *Du Vieux Vin dans des Bouteilles Neuves.*

McLennan, Mr. Lester W., Richmond, California—Head, *The Imigrant* (second edition), London, 1846; Arfwedson, *The United States and Canada;* Casgrain, *Histoire de l'Hotel Dieu de Quebec.*

MacMillan, Mr. H. R., C.B.E.—Arrowsmith's Map, *Chart of the World on Mercator's Projection* (1790); two maps of Upper Canada; *Portlock's Voyage,* 1785-1788; Cox, *Adventures on the Columbia River;* Bent, *Life Histories of North American Birds of Prey;* three atlases and twenty-two maps, among them a set of Buache charts; National Park Forest Guides; Fleming, *Report Canadian Pacific Railway,* 1877; Dixon, *A Voyage Round the World,* 1789; Scottish National Park Forest Guides (Argyle); various publications of the Newcomen Society; and a number of other books.

Paul, Mr. J. David—*London Times,* September 21, 1946—June 4, 1948 (continuation of previous gift).

Pearson, Mrs. T. R., South Westminster, B. C.—*The History of the Revolutions in England Under the Family of the Stuarts from the year 1603 to 1690,* London (1711) (continuation of previous gift).

Scott, Mrs. C. O.—350 volumes of miscellaneous books.

Scott, Mr. Sydney and MacGregor, Mr. D. A.—See MacGregor, Mr. D. A.

Tulk, Mrs. Jessie—*The Drama,* vols. 1-18; *The Makers of Canada,* vols. 1-21; *The Student's Reference Shelf,* vols. 1-3; Rouff (ed.), *The Voluntary Library.*

University of Western Ontario Library—*Grip,* volumes 36, 37 (unbound); *Bulletins of Modern Art* (8 numbers); Roddick, *The Armistice and Other Poems;* Stringer, *Out of Erin.*

Vancouver Daily Province—*Vancouver Daily Province,* Magazine Sections 1924-1944, Financial Page 1945; Daily, September, 1946.

Vancouver Public Library—Buschings, *Wochentliche Nachrichten Von Neuen Landcharten, Geographischen, Statischen und Historischen Buchern und Sachen,* v. 1-15, 1773-1787; *British Columbia Directory* 1939.

Warren, Dr. H. V.—*London Times,* weekly ed., 1947, complete; *London Observer* (continuation of annual gift).

Willis, Mrs. S. J., Victoria—Humphrey (ed.), *The Works of Horace* (first edition printed in Canada).

Miscellaneous

Other useful and generous gifts from:

Adams, Mrs. W. E.; Allen, Mr. James G. (University of Colorado); Arab Office (Washington, D.C.); Association of British Insecticide Manufacturers' (London, England); Bailey Hortorium (Cornell); Bastin, Mr. C. H.; Bastin, Dr.; B. C. Research Council; Belgian Ambassador to Canada; Belgian Consul-General (Montreal); Brazilian Ambassador to Canada; British Columbia Federation of Trade and Industry; British Empire Cancer Campaign (London, England); Brooke, Dr. C. Vyner; Brown, Mr. Frank H.; Buchanan, Dean Daniel; Bunn, John A. (Lulu Island); Canadian Federation of Labour; Canadian Jersey Breeder (Montreal); Canadian Library Association (Ottawa); Canadian Medical Association (Montreal); Canadian Metal Mining Association (Toronto); Canadian National Live Stock Records (Ottawa); Canadian Newspaper Service (Montreal); Canadian Press Club (Winnipeg); Canadian Society of Forest Engineers (Maritime Section); Carl, Dr. Clifford (Victoria); Carnegie Foundation for the Advancement of Teaching (New York); Carnegie Institution of Washington; Castran, Mr. Peter G.; Chicago Natural History Museum; Class of Sociology 400 (University of British Columbia); Clayton, Mrs. H.; Commercial Intelligence Department, Canadian Manufacturer's Association (Toronto); Connaught Laboratories (Toronto); Consolidated Mining and Smelting Co. (Trail); Cooke, Professor A. C.; Cooper, Mr. J. B. G.; Cowan, Dr. I. McTaggart; Cran, Mr. G. A. (Vancouver Sun); Davidson, Mr. Fisher (Toronto); Department of Forestry (University of British Columbia); de Vries, Mr. W. P.; Division of Intercourse and Education, Carnegie Endowment for International Peace (New York); Draper, Mr. H. L. (Haney); Empire Club of Canada; Finnish Legation (Ottawa); Foster, Mrs. W. Garland (continuation of previous gifts); Gage, Professor W. H.; G. & C. Merriam Co. (Springfield, Mass.); Government of Sierra Leone (through Crown Agents for the Colonies, London); Guy Tombs Ltd., (Montreal); Hummel, Mrs. H. V.; Huntington Library (California); International Auxiliary Language Association, New York; James F. Lincoln Arc Welding Foundation (Cleveland); Joseph E. Seagram and Sons, Inc. (Louisville, Ky.); Klinck, Dr. L. S.; Larsen, Professor Thorleif; Latvian Legation (Washington, D.C.); Library of the Royal Veterinary and Agricultural College (Copenhagen); Lind, Mr. Walter J. (Canadian General Electric, Vancouver); Linde Air Products Co. (New York); Manson, Mr. James; Marton, Mrs. A.; Mount Allison University Library; Murdoch, Dr. D. C.; McCloy, Mr. T. R.; McCrossan, George (Estate); McCutcheon, Dr. R. H. (Estate); MacInnes, Dr. Isabel; National Academy of Sciences; National Association of Silo Manufacturers, (Norwich, N.Y.); National Fertilizer Association (Washington, D.C.); National Interfraternity Conference (Philadelphia); National Research Council (Washington); New Westminster Public Library; Norges Svalbard, Og Ishavs Undersokelser (Oslo); Northwestern University; Notre Dame University; Paradis, Mr. Rodolphe; Petersen, Mr. G. M.; Priest, Mr. Jack; Ranta, Dr. L. E.; Read, Professor F.; Rockefeller Institute for Medical Research; Rocky Mountain Regional Conference on Higher Education; Rowell, Mrs. Newton W. (Ottawa); Royal Bank of Canada Library (Montreal); Royal Danish Legation (Ottawa); Shepherd, Mr. G. H.; Swinton, Mr. George H.; Smithsonian Institution, Institute of Social Anthropology; Soward, Professor F. H.; Stanley, Professor G. F.; Stevens, Mr. R.; Stevens, Miss; Sun Directories Ltd.; Texas Engineers Library (College Station, Texas); Toronto Public Library; University of South California, Allan Hancock Foundation Library; University of Washington, College of Forestry Library; University of Western Ontario Library; Vancouver City Hall; Van Steenwyk, Miss C. J. de V.; Watson, Mrs. J. H.; Whelpley, Rev. J. Elmer.

Gifts to the Law Library, Faculty of Law

Bain, Mr. A. H.—B. C. Reports and Canada Law Reports.

Bough Allen, Mr. G. W.—Ontario Law Reports, Manitoba Law Reports, Western Weekly Reports, etc.

Butterworth and Company—Fortnightly Law Journal, Vol. 12, Part 6.

Chalmers, Mr. M. J.—Hansard, 1947.

Clute, Mr. A. R., K.C.—Nominate Reports and Law Journal Reports.

Hartley, Mrs. R. W.—Textbooks.

Law Society of British Columbia—Statutes Canada.

Maitland, Maitland & Hutcheson—Reports (W.W.R.), Statutes and other books.

McGeer, Mrs. G. G.—British Hansards, and miscellaneous.

McKeen, Senator S. S.—House of Commons and Senate Debates, Proceedings, etc.

MacKenzie, Senator Ian—Complete set of Hansard, volumes for the past several years.

Nemetz, Mr. N. T.—California Code.

Pratt, Mr. F. D.—Dominion Law Reports.

Smilie, Mr. H.—Various Statutes and textbooks.

Swanson, Estate of the late Judge J. D.—Reports, Digests, Canada Law Journal and textbooks.

Tyrwhitt-Drake, Mr. V. H., K.C.—B. C. Statutes.

University of Toronto—Four textbooks.

Anonymous—British Columbia Reports and Canada Bar Review; Halsbury Laws of England (1st ed.), Canada Year Book, Statutes, Miscellaneous Old Statutes, Nominate Reports, textbooks.

Miscellaneous Gifts

Department of Agricultural Engineering and Mechanics

B. C. Electric Railway Company Limited (New Westminster)—80 feet of radiant heating cable.

B. C. Tractor Equipment Company—complete Ford Tractor engine for hydraulic dynamometer unit.

Canadian Liquid Air Company—oxy-acetylene welding unit.

Finning Tractor Company—used engine parts for lecture use.

Massey-Harris Company—used engine parts for lecture use.

Mid-West Equipment Company—scrap metal for welding classes.

Pacific Tractor Equipment Company—used engine parts for lecture use.

Young Radiator Corporation, Racine, Wisconsin—cut-away radiator core.

Department of Animal Husbandry

British Columbia Packers Limited—200 pounds of whale meal.

Fur Breeders on Vancouver Island—gift of life mink.

Lower Mainland and Vancouver Island Fur Breeders Associations—fifty mink valued at $1500 to $2000.

Department of Architecture

Architectural Institute of British Columbia—for equipping a model-making and test department $800.00.

Walker, Mrs. R. E.—gift of over 200 books and periodicals from the collection of her father, the late Mr. Eveleigh.

Department of Biology and Botany

Hamilton, Mr. G. H. (Niagara Falls, Ont.)—Asimina triloba (young trees).
Iverson, Mr. Bayard O. (Kimberley, B. C.)—skull of grizzly bear.
Hahn, Mr. Paul (Toronto)—collection of living fern plants.

SEEDS AND SPECIMENS:

Canada	—Seeds and Specimens, Central Experimental Farm, Ottawa. Dr. M. Y. Williams, Vancouver.
Argentina Republic	—Gardin Botanico "Carlos Thays", Buenos Aires.
England	—Royal Botanic Gardens, Kew.
Finland	—Botanical Garden of the University Helsin' , Suomi.
France	—Musee National d'Histoire Naturelle, Par'
Holland	—Botanical Garden, Amsterdam.
Ireland	—Howth Demesne Gardens, Dublin; Bc .nic Gardens, Glasnevin, Dublin.
Portugal	—Jardin Botanique, Faculte des Sc.ences, Lisbon.
Sweden	—Botanical Garden, Gothenburg.
Switzerland	—Botanical Garden, University, Basel.

Department of Commerce

Bond Dealers' Association—Industrial manual, supplements thereto, and binder.

Department of Dairying

Provincial Department of Agriculture—for equipment in Dairy Technology .....$ 1952.00

Department of Forestry

Department of Lands and Forests, Toronto—large collection of trees from St. Williams Nursery.
Purdue University—collection of central hardwoods.
Recknagel, Professor A. B.—series of oil paintings by Canadian Artists of typical scenes in the logging and milling industry.
Roche, Mr. R. Gordon—tree seed.

Department of Geology and Geography

Chalmers, Mr. John C. (University of Oklahoma)—collection of labelled fossils.
Douglas, Mr.—speciment of halite and sylvite from Wilkie, Saskatchewan.
Ebbutt, Mr. F.—specimen of aikenite from Cobalt, Ontario.
Ede, Mr. A.—specimen of yukonite.
Foshag, Dr.—specimen of livingstonite (U. S. National Museum).
Frohberg, Dr. M. H.—several telluride specimens from Eastern Canada.
Jones, Mr. W. R.—suite of copper minerals from Peru; suite of tungsten ore from Emerald Mine, Salmo, B. C.
Lamb, Mr. J.—several suites of Slocan ores.
Reinbold, Mr. H.—Suite of minerals from Black Hills, South Dakota.
Roberts, Mr. K.—several native copper nuggets from Dezadeash Area, Yukon.
Taylor, Major E. D.—suite of Zeolite minerals from Goose Creek, Va.
Thompson, Dr. R. M.—several nickel sulphides from Frood Mine, Sudbury; several copper arsenides from Mohawk River, Michigan.
University of Mexico—suite of Mexican minerals.
University of Stockholm—suite of iron and lead bismuth minerals.
Warren, Dr. H. V.—Indian artifacts from near Kleena Kleena, B. C.
Whiting, Mr. Frank—suite of bismuth tellurides from Good Hope Mine, Hedley, B. C.

Department of Home Economics

Rogers, Mrs. Jonathan—portraits to be hung in Home Economics Building.

Department of Horticulture

Associated Fuels, Mitchell Island—20 units of sawdust.

Buckerfield's Ltd.—one-half ton of fertilizer.

Burke, Mrs. F. E.—collection of books, pamphlets and clippings on Ornamental Horticulture.

Dominion Department of Agriculture, Provincial Department of Agriculture, The B. C. Co-operative Seed Association, Brackman-Ker Milling Co.—contributions toward the cost of the Vegetable Seed Trial Project.

Dominion Experimental Station, Saanichton, B. C.—fruit specimens for systematic study.

Dominion Experimental Station, Summerland, B. C.—shipments of fruit specimens of pears, apples and grapes for systematic study.

Eastham, Mr. J. W.—collection of seeds and nuts; also collection of miscellaneous pamphlets of historical interest.

Robertson, Mr. W. H., Provincial Horticulturist, Victoria, B. C., and district horticulturist and field men—fifteen boxes of fruit variety specimens for systematic study.

Department of Mechanical and Electrical Engineering

Precise Engineering Limited, Vancouver, B. C.—a cylinder pressure gauge.

Department of Mining and Metallurgy

A1 Steel and Iron Foundry Ltd., Vancouver, B. C.—set of Gamma-ray negatives of casting inspections.

Britannia Mining and Smelting Co. Ltd., Britannia Beach, B. C.—300 pounds of grinding balls.

Carlyle, the late Mr. W. A.—library of mining and metallurgical books.

Denver Equipment Company, Denver, Colorado—Denver Mineral jig.

Howard, Professor H. M.—Fahrenwald Laboratory Flotation Cell.

International Nickel Company of Canada Limited, Copper Cliff, Ontario—portable spot-testing equipment; set of samples showing industrial uses of nickel and nickel alloys; set of technical bulletins for the metallurgical library.

Sherritt Gordon Mines, Limited, Sherridon, Manitoba—gas reducers; Electrolytic cell; Pachuca tank.

Vancouver Iron Works, Limited, Vancouver, B. C.—X-ray negatives to illustrate weld inspection methods.

Westland Iron and Steel Foundries Limited—graphite blocks and rods for laboratory melting equipment; Gamma-ray negatives for laboratory instruction.

Department of Pharmacy

Burroughs Wellcome and Company (Montreal)—assorted prescription specialties.

Canadian Pharmaceutical Association (Vancouver Convention Committee)—for a Pharmacy library or special equipment $500.00

Carter, Cummings and Company Limited (Windsor, Ont.)—assorted prescription specialties.

DeVilbiss Manufacturing Company (Windsor, Ont.)—assorted prescription specialties.

Druggists Bulletin Service (Vancouver)—price book and continuous revision service.

Ingram and Bell (Toronto)—assorted prescription specialties.

Merck and Company Limited (Montreal)—through Mr. J. Rosin—Merck Index, Manual of Therapeutics, and Materia Medica and Reagent Chemical and Standards.

Ortho Pharmaceutical Corporation (Canada) Limited—assorted prescription specialties.

Sharpe and Dohme (Toronto)—assorted prescription specialties.

Various manufacturing firms—material, equipment, etc., over the past year of the value of ..... $ 2,000.00

Department of Physics

Hennings, Dr. A. E.—number of complete sets of scientific journals.
Sidney Roofing Company—two sheets of Tentest board.

Slavonic Studies

Rockefeller Foundation (New York)—grant-in-aid of visit to principal centres of Slavic Studies on the Pacific Coast of the United States ..... $ 500.00
Ananymous—grant for work in Slavonic Studies 100.00

Department of Social Work

Cooper, Mrs. Alice (Parksville)—large collection of books and periodicals.
Community Chest and Council—donation towards the Camp Institute held for group work students in Social Work 50.00
Anonymous—numerous books and periodicals.

Department of Zoology

INSECTS

Bowles, Dr. and Mrs. A. W., New Westminster, B. C.—a text-book of Entomology.
Buckell, Mr. E. R., Kamloops, B. C.—1142 vials of B. C. Odonata with complete card map distributional records; 1800 card index references of The Canadian Entomologist.
Canadian Industries Ltd., New Westminster—samples of new insecticides.
Dozell, Miss M., Prince Rupert—a rare cave cricket.
Downes, Mr. W., Victoria—identification of thousands of Homoptera to species.
Eastham, Mr. J. W., and Mr. W., Vancouver—entomological literature.
French, Mr. O., Blue River—Ectoparasites of mammals.
Graham, Dr. K., Sault Ste. Marie—a large collection of Diptera.
Grant, Mr. James, Vernon—Ectoparasites of birds.
Hayes, Mr. Rex, Courtenay—Ectoparasites of beaver.
Hercules Powder Co., Wilmington, Delaware—samples of new insecticides.
Hopping, Mr. G. R., Vernon—many adult and immature stages of Coleoptera, identified to species.
Julius Hyman & Co., Denver, Colo.—samples of new insecticides.
Leech, Mr. Hugh B., Vernon—many Coleoptera identified to species; much entomological literature.
Mathers, Mr. W., Vernon—a collection of Lepidoptera.
Morrison, Dr. F. O., Macdonald College, Quebec—economic insects.
Munro, Mr. J. A., Okanagan Landing—Ectoparasites of birds, identification of bird hosts.
Williams, Dr. M. Y., Vancouver—Ectoparasites of birds and mammals.
Wynne, Mr. J., Vernon—Ectoparasites of birds.
Yarwood, Mr. J., Vancouver—Ectoparasites of birds and mammals.

OTHER INVERTEBRATES

Leech, Mr. Hugh B., Vernon—fresh water Crustacea.
Pillsbury, Mr. R. W., Vancouver—marine invertebrates.
Ray, Messrs. Carl and Michael, Vancouver—tarantula.
Smith, Mr. T. F., North Vancouver—marine Mollusca.
Taylor, Mrs. A. J. T., Vancouver—collection of limpets.

PARASITES

Cameron, Dr. T. W. M., and the Institute of Parasitology, Macdonald College, Quebec—collection of reprint literature of Parasitology.
Cowan, Dr. I. McT., Vancouver—a large collection of internal parasites of B. C. mammals and birds.
Fisher, Mr. H. D., Vancouver—Parasites of the seal.
Fowle, Mr. David, Toronto—slides of blood parasites of birds.

Godfrey, Mr. H., Vancouver—Parasites of the whitefish.
Guiguet, Mr. Charles, Vancouver—Endoparasites of birds and mammals of the Queen Charlotte Islands.
Hick, Mr. W. B. M., Vancouver—Parasites of cohoe salmon.
MacLean, Mr. E. D., Vancouver—Endoparasites of turkey.
Miller, Prof. R. B., University of Alberta, Edmonton—slides and preserved specimens of various stages of the prairie fish worm.
Musfeldt, Miss Iola, Vancouver—slides of muskrat worms.
Spencer, Prof. G. J., Vancouver—collection of worms from B. C.; fish, birds and mammals.
Tener, Mr. John, Vancouver—collection of parasites from ducks.
VanCleave, Prof. H. J., University of Illinois—slides of identified thorny-headed worms.

FISH

Breder, Dr. C. M., New York—specimens of blind fish.
California Academy of Sciences, San Francisco—barracuda leopard shark, sting ray, flying fish, shark sucker, electric ray.
Chang, Mr. H. W., Institute of Zoology, Shanghai—specimens of Chinese fishes.
Dominion Department of Fisheries, Vancouver—salmon and salmon eggs.
Fisheries Experimental Station, Vancouver—samples of fish oils and fats.
Hick, Mr. W. B. M., Vancouver—specimens of marine fishes.
Provincial Game Commission, Vancouver—trout fingerlings.
United States National Museum, Washington—angler fish.
Vancouver Aquarium, Vancouver—specimens of marine fishes.
Western Chemicals, Vancouver—samples of pilchard and herring oils.
Wilby, Mr. G. V., North Vancouver—specimens of marine fishes.

BIRDS AND MAMMALS

Allan, Mr. R. E., Vancouver—specimens of wood duck.
Gill, Mr. A. F., Princeton—1 mountain lion.
Goodall, Mr. Edward, Victoria—22 birds from British Guiana.
Hatter, Mr. James, Vancouver—3 specimens of white pelican.
Jobin, Mr. L., Williams Lake—6 specimens of rock rabbit.
Martin, Mr. P. W., Vancouver—specimens of Sabine Gull, Heerman Gull, Xantus murrelet, red phalarope, northern phalarope and magpie.
Mulligan, Mr. H. D., North Vancouver—specimens of rough-legged hawk, northwestern crow and several ducks for study.
Munro, Mr. J. A., Okanagan Landing—specimens of Ross goose.
Racey, Mr. Kenneth, Vancouver—specimens of brown thrasher.
Stewart, Mr. R. M., Massett—6 specimens of Queen Charlotte Pine Crosbeak, 2 sharp-tailed sandpipers.
Vancouver Parks Board, Vancouver—birds and mammals.

MUSEUMS

Biely, Mr. M., (Mexico City)—metate.
Douglas, Mr. William (Courtenay)—stone head found at Courtenay.
Herring, Mr. S. H. (New Westminster)—Indian hammers.
National Museum of Canada (Ottawa)—set of archaeological specimens.
Robson, Mr. Bert (Atnarko)—valuable collection of B. C. Indian Material.
United States Office of Indian Affairs (Washington, D.C.)—blueprints and photostats of the Museum of the Planis Indian.

GENERAL

Boak, Professor A. C. E.—original brief presented to the University Location Committee by the Lower Mainland University Committee.
Fallis, Miss Mary—donation to initiate the Women's Residence Program Fund $ 10.00
Harris, Dr. Lawren—gift of mouldings for the framing of silk screen reproductions.
Lady Davis Foundation—special grants.
MacMillan, Mr. H. R., C.B.E.—gift of silk screen reproductions.
National Research Council—German glider for the University Glider Club.

New Fellowships, Scholarships, Prizes, Bursaries, and Loan Funds

(List also includes awards offered under revised terms. Unless otherwise stated, the amount given is the total annual value.)

Fellowships

The H. R. MacMillan Export Company Limited—Fellowships in Forestry, $750 for two sessions $1,500.00
The Sherritt-Gordon Fellowship in Metallurgy, session 1947-48 only 1,600.00

Scholarships

The Automotive Transport Association of British Columbia—scholarship for students in Commerce 150.00
The Alan Boag Special Scholarship—special scholarship for essay on Socialism, session 1947-48 only 50.00
The British Columbia Daily Newspapers Association—scholarship for students in Commerce 200.00
The Daniel Buchanan Scholarship—given by the Department of Mathematics 100.00
The Canadian Forest Industries—two scholarships of $200 each, for Forestry students intending to enter the field of forest entomology.
(a) British Columbia Lumber Manufacturers' Association 200.00
(b) British Columbia Loggers' Association 200.00
Hobbs Glass Company Limited—scholarship for Architecture 250.00
The Laura Holland Scholarship—for students in Social Work 100.00
The Kiwanis Club of Vancouver—scholarship for Commerce 150.00
The Nancy Ryckman Scholarship—from a trust fund of $6297.97 donated by the late Nancy E. Ryckman 180.00
G. H. Wood & Company Limited—scholarship for student proceeding to medical school, session 1947-48 only 500.00

Bursaries

The Admiral Jellicoe Chapter, I. O. D. E.—two bursaries for veterans ..... $ 100.00
The Bastion Chapter of the Imperial Order of the Daughters of the Empire—bursary for veteran from Nanaimo, session 1948-49 ..... 200.00
The British Columbia Drug Travellers' Association Bursary—for students in Pharmacy 200.00
The National Paper Box Limited—two bursaries for students in Agriculture and Commerce 400.00
The Triple Entente Chapter, I. O. D. E.—two bursaries for veterans 150.00
The Sir Charles Tupper Chapter, I.O.D.E.—bursary for summer school 50.00
The Vancouver Bar Association—annual bursary for students in Law, replacing prize 100.00
The Vancouver Public Library Staff Association—bursary for students intending to enter library work 150.00
The Worthington Memorial Chapter, I. O. D. E.—bursary for veterans 100.00
Anonymous—contribution to bursary funds 110.00

Prizes

British Columbia Lumber Manufacturers' Association—special prizes for Architecture, session 1947-48 ..... $ 250.00
Dorbils, Dorothy and William—prize for Canadian History 50.00
Home Economics Graduation Prize 50.00
Home Economics Second Year Prize 25.00
Houghland, Mr. C. D.—two prizes for students in Pharmacy 100.00
Kiwanis Club of Vancouver—prize for students in Commerce 50.00
Law Society of British Columbia—prize for students in Law, to the value of the call and admission fee.
Mallinckrodt Chemical Works of Canada Limited—prize 25.00
Merck and Company, Montreal—book prizes for students in Pharmacy .....
The Timber Preservers Limited—increased from previous total of $135.00 ..... 180.00

Medals

The Architectural Institute of British Columbia—medals and prizes for students in Architecture ..... $ 200.00

Student Loan Funds

Bollert, Misses Grace and Florence—the Mary Bollert Loan Fund	$ 500.00
Home Economics Loan Fund	200.00
Lady Laurier Club—assistance for a woman student	500.00
MacMillan, Mr. H. R., C.B.E.—for Forestry Loan Fund	500.00
Phi Delta Delta Legal Sorority—for the Helen Gregory McGill Loan Fund	170.75
Summer Session Students' Association, 1948—for loan funds	800.00
United Distillers Limited—for emergency loans	250.00
Anonymous—for the general loan funds	500.00

Previously Established Awards Maintained in the Session 1947-48

(Unless otherwise stated, the amount given is the total annual value.)

Alan Boag—from the trustees of the estate, scholarship	$ 250.00
Alaska Pine Company Limited—scholarships	600.00
Alberta Meat Company Limited—bursary	50.00
Alliance Francaise—bursary	25.00
Allied Officers' Auxiliary—bursary (trust fund)	75.00
Alumni Association, University of British Columbia—bursary	50.00
American Woman's Club—bursaries	200.00
Armstead. Mr. and Mrs. Daniel M.—scholarship and prize	300.00
Association of Professional Engineers—book prize	125.00
B. C. Drugs Limited—scholarship	150.00
B. C. Tree Fruits Limited, Kelowna—prizes	300.00
Bell, Mrs. Angela—bursary (trust fund)	150.00
Beverley Cayley Scholarship (provided under the will of the late Mrs. Cayley)	100.00
B'nai B'rith District No. 4 Hillel Foundation—scholarship	250.00
B'nai B'rith Auxiliary No. 77—scholarship	50.00
Bolocan, Mr. and Mrs. J. L.—prize	25.00
Hewitt Bostock Lectureship prize (not awarded)	25.00
Britannia Mining & Smelting Company, Limited—scholarship	250.00
British Columbia Co-operative Seed Growers' Association—bursary	100.00
British Columbia Electric Railway Company Limited—scholarships	1,000.00
British Columbia Fruit Growers' Association—scholarship	125.00
British Columbia Loggers' Association—bursary	225.00
British Columbia Lumber Manufacturers' Association—prizes	175.00
British Columbia Packers Limited—scholarships	800.00
British Columbia Sugar Refining Company Limited—scholarships	2,500.00
British Columbia Telephone Company Limited—scholarships	2,500.00
British Columbia Teachers' Federation—scholarship	100.00
Burbidge, Mr. W. P.—scholarships	250.00
Canada Law Book Company—book prize	
Canadian Association for the Advancement of Pharmacy—scholarships	200.00
Canadian Association for Health, Physical Education, and Recreation—scholarship	50.00
Canadian Forest Products Limited—scholarships and prizes	500.00
Canadian Industries Limited—fellowship	750.00
Canadian Pulp and Paper Association, Western Branch—fellowship (not awarded)	1,000.00
Cariboo Gold Quartz Mining Company Limited—scholarship	100.00
Carswell Company Limited, Toronto—book prizes	60.00
Chemical Institute of Canada—prizes	50.00
Cohen, Mr. S. J.—bursary (trust fund)	150.00
Consolidated Mining & Smelting Company of Canada Limited—fellowship	1,200.00
Convocation, University of British Columbia, prizes	100.00

Crofton House Alumnae—scholarship	175.00
Cunningham, Mr. G. T.—prizes and scholarships (not awarded)	150.00
Robert S. Day & Son Limited—bursary	150.00
Delta Gamma Fraternity—bursary	75.00
Delta Gamma Fraternity—bursary for blind student	100.00
Dicks, Mr. W. J.——bursaries (trust fund)	150.00
Dorbils, Mr. William—scholarship (contribution of $500 a year for four years to provide a scholarship of $2,000 to be awarded in 1950)	
Dunsmuir Scholarship—(provided by a trust fund)	150.00
Engineering Institute of Canada—prize	25.00
Engineering Institute of Canada (Vancouver Branch)—book prize	25.00
Entomological Society of British Columbia—prize	15.00
Faculty Women's Club—bursary and scholarship	200.00
Frosst Proficiency Awards—provided through the Canadian Pharmaceutical Association	225.00
Gamma Phi Beta Sorority, Alpha Lambda Chapter—bursary	50.00
General Construction Company Limited—scholarships	500.00
Gladstone Chapter No. 6 C. J., Order of Ahepa—prize	100.00
Hogarth, Major-General D. M., Toronto—scholarships	250.00
Imperial Order Daughters of the Empire—scholarship (trust fund)	100.00
Ingledow, Mr. T.—prizes	100.00
John Inglis Company Limited, Toronto—scholarships	250.00
International Brotherhood of Pulp, Sulphite, and Paper Mill Workers, Local 312—scholarship	250.00
I.O.O.F. Grand Lodge, B. C.—bursaries	1,200.00
Llewellyn Jones, Mr. J. R. J.—prize	50.00
Khaki University and Y. M. C. A. Bursaries—(trust fund)	500.00
Kelly, Mr. William N.—prize	15.00
Kelly-Douglas Company Limited—scholarship	300.00
Kirk, Mrs. Thomas H.—scholarship	100.00
Kiwanis Club of Vancouver—prize and scholarship	200.00
Kiwassa Club of Vancouver—bursaries	600.00
Klein, Mr. I. J.—scholarship (trust fund)	100.00
Lambert, Brigadier Noel D.—scholarship	200.00
Ladner, Mr. Leon J., K.C., and family—scholarship	300.00
Lady Laurier Club—bursary	100.00
Lauder Mercer and Company Limited—bursary	250.00
Lefevre Gold Medal and Scholarship (provided by a trust fund established by the late Mrs. Lefevre)	150.00
Captain LeRoy Memorial Scholarship (trust fund established by Universities Service Club)	150.00
Lions Service Club—fellowship	1,500.00
Lipsett, Mrs. Mary C.—bursary	300.00
McGill Graduates (trust fund established by the McGill Graduates Society of B.C.)—scholarship	125.00
McHattie, Mr. C. T.—bursary	300.00
McKee, Mrs. D. A.—prize (provided by trust fund)	30.00
McLean, Mr. and Mrs. J. S., Toronto—bursaries	1,000.00
H. R. MacMillan Export Company Limited—prizes	550.00
Native Daughters of British Columbia—scholarship	50.00
News-Herald—prizes	350.00
Nicholson Scholarships (trust fund established by the late Dr. F. J. Nicholson)	1,000.00
Norgan, Mr. G. W.—scholarships and prizes	1,000.00
Northern Electric Company Limited—prize	100.00
Northern Peat Moss Company Limited—prize	100.00
Pacific Mills Limited—scholarship	250.00
Pacific Meat Company Limited—bursary	200.00
Pattison, Mr. J. W.—bursaries	200.00
P. E. O. Sisterhoods, Vancouver Chapters—bursary	150.00
Pharmaceutical Association of the Province of British Columbia—scholarship and prize	150.00
Players' Club Alumni—scholarship	50.00
Pop, Mr. R. J.—scholarship	150.00
Powell River Company Limited—scholarship (not awarded)	700.00
Price, Waterhouse & Co.—scholarship	250.00
Flying Officer Rev. George Robert Pringle Memorial Bursary (trust fund)	200.00
Provincial Council of British Columbia, Canadian Daughters' League—bursaries	200.00
Provincial Department of Health and Welfare (Health Branch)—prizes	100.00
R. C. A. F. Veterans' Fund (established by the Wartime Convalescent Homes, War Charity Fund, Inc.)	300.00

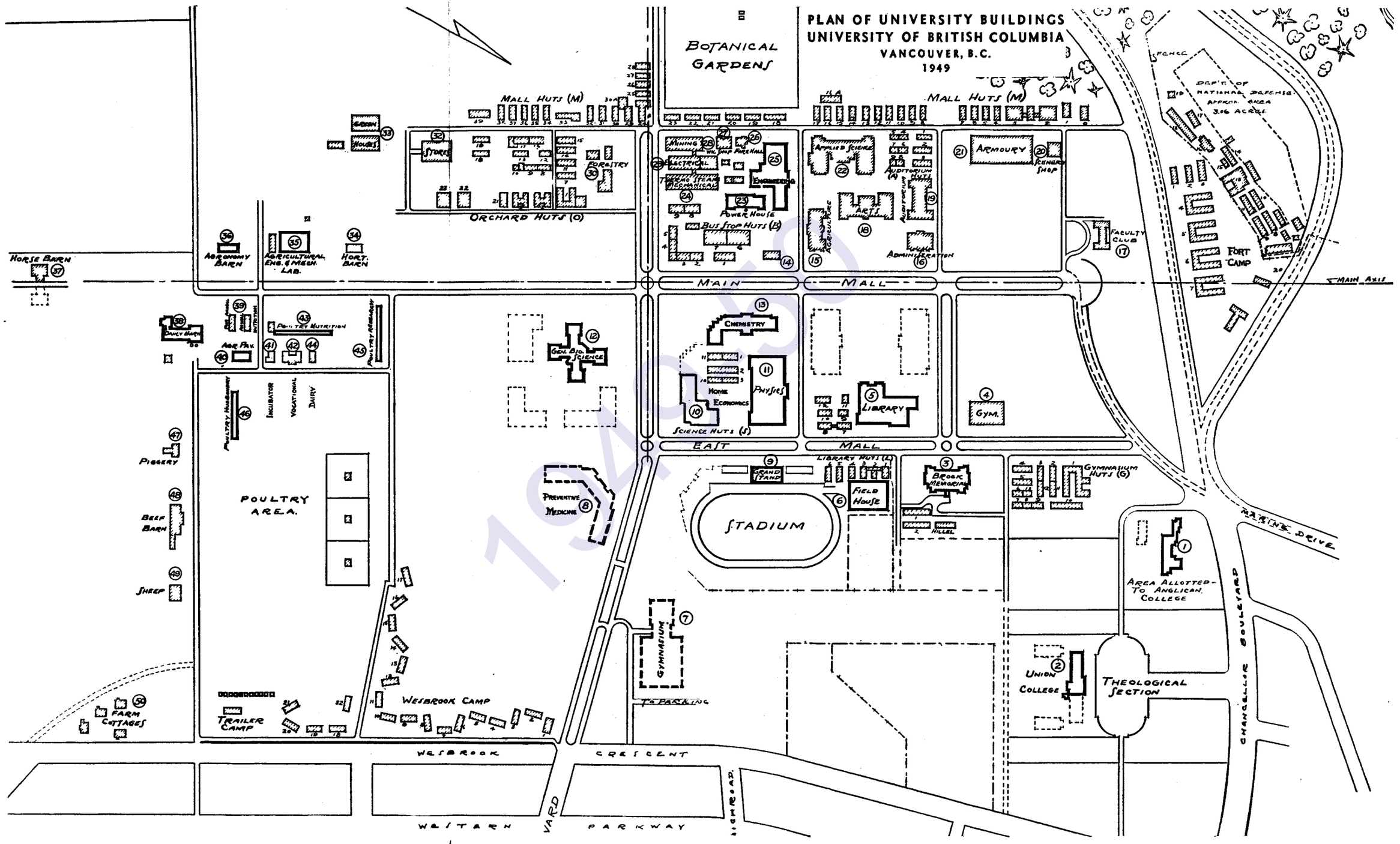
Rotary Club of Vancouver—bursaries	1,000.00
Royal Institution (trust funds)—scholarships	1,600.00
R. Randolph Bruce Scholarships (trust fund established by the late Honourable R. Randolph Bruce)	200.00
Shaffer, Miss Marion A.—bursary	200.00
Shanahan's Limited—scholarship	500.00
Shaw Memorial Scholarship (trust fund established by the friends of the late James Curtis Shaw)	125.00
Shell Oil Company of Canada Limited—fellowship	1,100.00
Standard Oil Company of British Columbia Limited—fellowship	1,100.00
Summerland Scholarship—established by the citizens of Summerland	250.00
Summer Session Students' Association—scholarships	150.00
Swan, Col. and Mrs. W. G.—bursary	250.00
Taylor, Mr. Austin C.—scholarship	250.00
Teamsters' Joint Council No. 36—bursary	250.00
Terminal City Club (trust fund established by Members of the Club)	100.00
David Thom Bursaries and Scholarships (provided by trust funds from the David Thom Estate)	400.00
Toban, Mr. Louis—bursary	100.00
Toronto General Trusts Corporation—prize	30.00
Transportation and Customs Bureau, Vancouver Board of Trade—prizes	250.00
United Empire Loyalists Association—silver medal and cash prize	25.00
University Women's Club—bursaries	200.00
Vancouver Bar Association—bursaries	200.00
Vancouver Daily Province—scholarship	250.00
Vancouver Panhellenic Alumnae Association—bursary	200.00
Vancouver Primrose Club—scholarship (trust fund)	150.00
Vancouver Sun—scholarships	800.00
Vancouver Section National Council of Jewish Women—bursary	100.00
Vancouver Women's Canadian Club—scholarships (partly maintained by trust fund)	300.00
Winspear, Hamilton, Anderson & Company—scholarships	300.00
Woman's Christian Temperance Union of British Columbia—prize	50.00
Woodward, Hon. W. C.—scholarships	250.00
Anonymous—G. M. Dawson Scholarship	50.00
Anonymous—International Studies Prize (provided from a trust fund)	30.00
Anonymous—book prize for Law	25.00

Special Awards

His Excellency the Governor-General of Canada—gold medal.
Frank W. Horner Limited, Montreal—gold medal.
Kiwanis Club of Vancouver—gold medal.
Law Society of British Columbia—gold medal.
Sigma Tau Upsilon Honorary Agricultural Fraternity—gold medal.

Acknowledgements

Contributors to the Dean of Women's Fund—
Kappa Kappa Gamma Sorority $15.00
Kappa Kappa Gamma Mother's Club 75.00
Dominion-Provincial Student Aid Fund and Provincial Loan Fund—approximately $40,000 in bursaries and loans awarded to 200 students in attendance at the University of British Columbia.
French Government Medals, Book Prizes and Scholarships—awarded to graduates of the University of British Columbia.
Government of Switzerland—scholarship to a graduate for study in Switzerland.
Hudson's Bay Company—scholarship of £450.
Imperial Order Daughters of the Empire—overseas scholarships awarded to graduates of the University of British Columbia.
Kappa Sigma Fraternity—bursary of $300 for a student in attendance during session 1948-49.
Lady Laurier Club—special assistance to woman veteran student.
National Research Council—bursaries and scholarships.
Rhodes Scholarship Trust.
Vancouver Men's Canadian Club—because of whose efforts many of the scholarships available for students were obtained.
Vancouver Primrose Club—$5230 for a trust fund for the Hon. R. L. Maitland Memorial Scholarship.


PLAN OF UNIVERSITY BUILDINGS
UNIVERSITY OF BRITISH COLUMBIA
VANCOUVER, B.C.
1949
BOTANICAL GARDENS
MALL HUTS (M)
MALL HUTS (M)
ORCHARD HUTS (O)
STORES
FORESTRY
MINING
ELECTRICAL
MECHANICAL
ENGINEERING
SHOP
PAGE HALL
POWER HOUSE
BUS STOP HUTS (B)
APPLIED SCIENCE
AUDITORIUM HUTS (A)
AUDITORIUM
ARTS
AGRICULTURE
ADMINISTRATION
ARMOURY
SCENERY SHOP
FACULTY CLUB
DEPT OF NATIONAL DEFENCE
APPROX AREA
3.06 ACRES
FORT CAMP
MAIN AXIS
MAIN MALL
EAST MALL
HORSE BARN
AGRONOMY BARN
AGRICULTURAL ENG. & MECH. LAB.
HORT. BARN
DAIRY BARN
ANIMAL NUTRITION
AGR. PATH.
POULTRY NUTRITION
POULTRY RESEARCH
POULTRY HUSBANDRY
INCUBATOR
VOCATIONAL
DAIRY
PIGGERY
BEEF BARN
SHEEP
POULTRY AREA
FARM COTTAGES
TRAILER CAMP
WESBROOK CAMP
GEN. BIO. SCIENCE
CHEMISTRY
HOME ECONOMICS
PHYSICS
SCIENCE HUTS (S)
LIBRARY
LIBRARY HUTS (L)
GYM.
GRAND STAND
FIELD HOUSE
STADIUM
BROCK MEMORIAL
HILLEL
GYMNASIUM HUTS (G)
PREVENTIVE MEDICINE
GYMNASIUM
TO PARKING
AREA ALLOTTED TO ANGLICAN COLLEGE
UNION COLLEGE
THEOLOGICAL SECTION
MARINE DRIVE
CHANCELLOR BOULEVARD
WESBROOK CRESCENT
WESTERN PARKWAY
SOUTH MARGINAL ROAD

REFERENCE NUMBERS

1. Anglican College
2. Union College
3. Brock Memorial
4. Gymnasium
5. Library
6. Field House
7. Memorial Gymnasium
8. Preventive Medicine
9. Stadium
10. Home Economics
11. Physics
12. General Bio-Science
13. Chemistry
14. Bus Stop
15. Agriculture
16. Administration
17. Faculty Club
18. Arts
19. Auditorium
20. Scenery Shop
21. Armoury
22. Applied Science
23. Power House
24. Mechanical Laboratories
25. Engineering
26. Fire Hall
27. Workshops
28. Mining Laboratories
29. Electrical Laboratories
30. Federal Forest Products Laboratories
31. Forest Nursery
32. Stores
33. Greenhouses
34. Horticultural Barn
35. Agricultural Engineering Laboratories
36. Agronomy Barn
37. Horse Barn
38. Dairy Barn
39. Fur Animal Laboratories
40. Agricultural Pavilion
41. Incubator
42. Vocational
43. Poultry Nutrition
44. Dairy Laboratory
45. Poultry Research
46. Poultry Husbandry
47. Piggery
48. Beef Barn
49. Sheep Barn
50. Farm Cottages

BUILDINGS

Administration	16	General Bio-Science	12
Agriculture	15	Greenhouses	33
Agronomy Barn	36	Gymnasium	4
Agricultural Engineering Laboratories	35	Home Economics	10
Agricultural Pavilion	40	Horse Barn	37
Applied Science	22	Horticultural Barn	34
Arts	18	Incubator	41
Armoury	21	Library	5
Auditorium	19	Mechanical Laboratories	24
Beef Barn	48	Memorial Gymnasium	7
Brock Memorial	3	Mining and Metallurgy	28
Bus Terminal	14	Physics	11
Chemistry	13	Piggery	47
Dairy Barn	38	Poultry Husbandry	46
Dairy Laboratories	44	Poultry Nutrition	43
Electrical Laboratories	29	Poultry Research	45
Engineering	25	Power House	23
Faculty Club	17	Preventive Medicine	8
Farm Cottages	50	Scenery Shop	20
Federal Forest Products Laboratories	30	Sheep Barn	49
Field House	6	Stadium	9
Fire Hall	26	Stores	32
Forest Nursery	31	Theological Colleges	1 & 2
Fur Animal Laboratories	39	Vocational	42
		Workshops	27

HUTS

Auditorium	"A" 1-9
Brock	"BROCK" 1-2
Bus Stop	"B" 1-9
Gymnasium	"G" 1-13
Library	"L" 1-12
Mall	"M" 1-39
Orchard	"O" 1-3 & 7-23
Science	"S" 1-3 & 10-11