

PUBLICATIONS OF THE UNIVERSITY OF BRITISH COLUMBIA

The University
OF
British Columbia



CALENDAR

THIRTY-SEVENTH SESSION
1951-1952

VANCOUVER, BRITISH COLUMBIA
1951

VOL. 37

GENERAL SERIES

No. 1

TIME TABLES

Schedules showing hours and rooms for lectures and laboratories will be available during the registration period beginning September 17th.

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, 1951.

The University
OF
British Columbia



CALENDAR

THIRTY-SEVENTH SESSION
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1951

1951-52

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JULY, 1951							AUGUST, 1951							SEPTEMBER, 1951							OCTOBER, 1951												
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S						
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8	9	10	11	12	13	14	8	9	10	11	12	13	14	8	9	10	11	12	13	14	8	9	10	11	12	13	8	9	10	11	12	13	14
15	16	17	18	19	20	21	15	16	17	18	19	20	21	15	16	17	18	19	20	21	15	16	17	18	19	20	15	16	17	18	19	20	21
22	23	24	25	26	27	28	22	23	24	25	26	27	28	22	23	24	25	26	27	28	22	23	24	25	26	27	22	23	24	25	26	27	28
29	30	31	29	30	31	29	30	31	29	30	31	29	30	31	
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NOVEMBER, 1951							DECEMBER, 1951							JANUARY, 1952							FEBRUARY, 1952												
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11	12	13	14	15	16	17	11	12	13	14	15	16	17	13	14	15	16	17	18	19	10	11	12	13	14	15	16	
18	19	20	21	22	23	24	18	19	20	21	22	23	24	20	21	22	23	24	25	26	17	18	19	20	21	22	23	
25	26	27	28	29	30	25	26	27	28	29	30	27	28	29	30	31	24	25	26	27	28	29	
.....	30	31	
MARCH, 1952							APRIL, 1952							MAY, 1952							JUNE, 1952												
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16	17	18	19	20	21	22	16	17	18	19	20	21	22	18	19	20	21	22	23	24	15	16	17	18	19	20	21	
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30	31	27	28	29	30	29	30	

ACADEMIC YEAR

1 9 5 1

August		
	1st Wednesday	Last day for submission of applications for supplemental examinations.
	15th Wednesday	Last day for submission of applications for admission to First Year Nursing.
	15th Wednesday	Last day for submission of applications for bursaries.
	16th Thursday	} Supplemental examinations—First Year Nursing.
	17th Friday	
	23rd Thursday	
	31st Friday	
September		Supplemental examinations.
	1st Saturday	ACADEMIC YEAR begins.
	3rd Monday	Labour Day. University closed September 1st to 3rd, inclusive.
	4th Tuesday	Registration, First Year Medicine.
	5th Wednesday	Registration, Second Year Medicine.
	6th Thursday	Lectures begin, Faculty of Medicine.
	7th Friday	Counselling tests, see page 36.
	17th Monday to	} Registration in person for Winter Session as follows:
	22nd Saturday	
		Arts and Science, Agriculture, Pharmacy and Graduate Studies.
		First and Second Years, 17th to 22nd, inclusive.
		Other years, 18th to 22nd, inclusive.
		Applied Science, Forestry, and Law
		All years, 19th to 22nd, inclusive.
		Hours: Monday to Friday, 9 a.m. to 4 p.m.
		Saturday, 9 a.m. to 12 noon.
	22nd Saturday	Last day for registration of all students, both undergraduate and graduate, except those in Extra-Sessional Classes and Correspondence Courses.
	24th Monday	Lectures begin at 8:30 a.m.
	24th Monday	President's Address to all new students at 12:30 p.m. in Auditorium.
October		
	1st Monday	Last day for handing in graduation essays and theses (Autumn Congregation.)
	5th Friday	Last day for change in students' courses.
	5th Friday	Meeting of the Faculty Council. (Subsequent meetings to be held at the call of the President).
		Thanksgiving Day. University closed Saturday to Monday, inclusive.
	10th Wednesday	Last day for payment of balance of First Term fees.
	10th Wednesday	Meeting of the Faculty of Arts and Science.
	12th Friday	Meeting of the Faculty of Agriculture.
	15th Monday	Last day for handing in applications for course leading to Master's degree.
	16th Tuesday	Meeting of the Faculty of Law.
	17th Wednesday	Meeting of the Senate.
	26th Friday	Congregation.
December		
	5th Wednesday	Meeting of the Faculty of Arts and Science.
	7th Friday	Meeting of the Faculty of Agriculture.
	10th Monday	Meeting of the Faculty of Law.
	12th Wednesday	Meeting of the Senate.
	19th Wednesday	First Term ends.
	25th Tuesday	Christmas Day. University closed December 24th to 26th, inclusive.

January

1st Tuesday New Year's Day. University closed January 1st and 2nd.
 3rd Thursday Second Term begins.
 15th Tuesday Last day for submitting applications for admission to Faculty of Medicine.
 19th Saturday Last day for payment of Second Term fees. Payment of second instalment of scholarship money.
 30th Wednesday Meeting of the Faculty of Arts and Science.

February

1st Friday Meeting of the Faculty of Agriculture.
 4th Monday Meeting of the Faculty of Law.
 13th Wednesday Meeting of the Senate.

March

15th Saturday Last day for handing in applications for graduate scholarships.

April

11th Friday Good Friday. University closed April 11th and 12th.
 16th Wednesday Last day of lectures.
 16th Wednesday Last day for handing in graduation essays and theses.
 18th Friday Sessional examinations begin.

May

2nd Friday Sessional examinations end.
 2nd Friday Last day for handing in applications for undergraduate scholarships.
 5th Monday Field work in Applied Science begins immediately at the close of the examinations.
 10th Saturday Meeting of the Faculty of Agriculture.
 12th Monday Meeting of the Faculty of Arts and Science.
 12th Monday Meeting of the Faculty of Law.
 13th Tuesday Meeting of the Senate.
 15th Thursday Congregation.
 16th Friday Congregation.
 16th Friday Meeting of Convocation.
 24th Saturday Victoria Day. University closed.

June

.....
 7th Saturday King's Birthday. University closed.
 Counselling tests, see page 36.

July

1st Tuesday Dominion Day.
 2nd Wednesday Summer Session begins.

August

1st Friday Last day for submission of applications for supplemental examinations.
 19th Tuesday Summer Session ends.
 26th Tuesday Meeting of the Faculty of Arts and Science.
 27th Wednesday Meeting of the Senate.
 31st Sunday ACADEMIC YEAR ends.

The University of British Columbia

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British Columbia.

CHANCELLOR

THE HON. ERIC W. HAMBER, C.M.G., B.A., LL.D.
SHERWOOD LETT, C.B.E., D.S.O., M.C., E.D., K.C., B.A., LL.D.,
Chancellor Designate, to take office May 28th, 1951.

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NORMAN A. M. MACKENZIE, C.M.G., M.M. and Bar, K.C., B.A., LL.B., LL.M.,
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Designate, to take office May 28th, 1951.
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Term expires 1951.
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Term expires 1953.

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Term expires 1951.
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GEORGE T. CUNNINGHAM, Vancouver. Term expires 1953.
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D'ARCY J. BALDWIN, M.B.E. Term expires 1955.

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Designate, to take office May 28th, 1951.
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 B.S.P.

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 O.B.E., B.A., M.D., M.A., M.R.C.P. (London), F.R.C.P. (C).

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 JAMES, M.A., Ph.D., F.R.S.C.

Terms expire 1951

(c) Appointed by the Lieutenant-Governor in Council:

H. N. MACCORKINDALE, B.A., Vancouver. Term expires 1952.

FRANCIS J. BURD, C.B.E., Vancouver. Term expires 1952.

H. C. HOLMES, M.A., Victoria. Term expires 1952.

(d) The Principal of the Provincial Normal School, Vancouver, T. R. HALL,
 B.A.

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 1953.

(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., D.D. Term expires 1951.

(g) Elected by Convocation:

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KENNETH P. CAPLE, M.S.A., Vancouver.

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H. V. WARREN, B.A., B.A.Sc., B.Sc., D.Phil., Assoc.Inst.M.M. F.G.S.A., F.R.S.C., Vancouver.

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

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

MISS FLORENCE S. MULLOY, M.A., Vancouver. Term expires 1952.

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SHERWOOD LETT, C.B.E., D.S.O., M.C., E.D., K.C., B.A., LL.D., Chancellor Designate, to take office May 28th, 1951

E. DOUGLAS SUTCLIFFE, B.A.Sc., Secretary.

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- JOHN D. LEE, Superintendent of Buildings and Grounds.

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- The Deans (ex officio),
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R. C. M. RUSSELL, B.A. (Brit. Col.), Lecturer. (Session 1950-51).

Part-time Lecturers:

Miss **C. S. Black**, B.Sc. (H.Ec.), A.M.; Miss **S. M. Boyles**, M.A.; Mrs. **M. Brown**, B.Sc. (Phys. Ed.); Mrs. **E. M. Cragg**, M.A., Ph.D.; **J. B. DeLong**, B.A., LL.D.; **W. L. Grant**, B.A., A.M., Ph.D.; Miss **M. Henderson**, B.A., A.M.; **A. B. Laithwaite**, Dip. in Phys. Ed.; **W. Putnam**, B.A.; Miss **M. McManus**, Mus. Bac., M.A.; **R. F. Osborne**, B.A., B.Ed.; **E. G. Ozard**, B.A.; **S. Risk**, M.A.; Miss **D. Somerset**, A.B.; **H. D. Whittle**, B.P.H.E.

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Department of French

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MISS DOROTHY DALLAS, M.A. (Brit. Col.), Docteur de l'Université de Paris, Professor.

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 WILLIAM WOLFE, B.A., B.A.Sc. (Brit. Col.), M.Sc. (Case School of Ap. Sc.), Associate Professor.
 PETER VAJDA, Grad. Polytechnic (Zurich), Instructor.
 WM. E. J. STEEL, B.A.Sc. (Brit. Col.), Instructor.
 J. P. DOYLE, B.A.Sc. (Brit. Col.), Instructor.
 JOHN GRAHAM, B.A.Sc. (Brit. Col.), Instructor.
 J. E. HOLDSWORTH, B.A.Sc. (Brit. Col.), Instructor.
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Department of Mining and Metallurgy

- FRANK A. FORWARD, B.A.Sc. (Toronto), M.C.I.M., Mem.A.I.M.E., M.Aust. I.M.M., Professor and Head of the Department.
- LESLIE G. R. CROUCH, B.Sc. (Victoria, Australia), M.Sc. (Utah), M.C.I.M., Professor of Mining Engineering.
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- C. S. SAMIS, M.Sc. (Manitoba), Ph.D. (London), M.C.I.M., Associate Professor of Metallurgy.
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- HARRY ADASKIN, Professor of Music.
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- MISS BARBARA PENTLAND, Instructor.

School of Nursing

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- MISS PAULINE CAPELLE, B.A., B.A.Sc. (Brit. Col.), M.A. (Chicago), R.N., Assistant Professor.
- 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.
- MISS MARGARET W. DUNCAN, B.A., B.A.Sc. (Brit. Col.), M.S. (Chicago), R.N., Instructor.

Part-time Lecturers:

- F. A. Boyes, M.A. (Brit. Col.); C. E. Dolman, M.R.C.S. (England), L.R.C.P., M.B., B.S., D.P.H., Ph.D. F.R.C.P. (London), F.A.P.H.A., F.R.S.C.; Margaret J. Johnson, B.A. (Brit. Col.), M.S.W. (Washington); Donna Kerr, M.A. (Brit. Col.); L. E. Ranta, M.D., D.P.H. (Toronto), and others to be appointed.

Department of Philosophy and Psychology

- S. N. F. CHANT, O.B.E., M.A. (Toronto), Professor and Head of the Department.
- BARNETT SAVERY, A.B. (Washington), A.M., Ph.D. (Harvard), Professor and Chairman of the Department.
- J. RANTON McINTOSH, B.A., M.Ed. (Sask.), Ph.D. (Columbia), Professor of Education and Psychology.
- ALEXANDER P. MASLOW, A.B., A.M. (Michigan), Ph.D. (California), Associate Professor.
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- EDRO SIGNORI, B.A. (Alta.), M.A., Ph.D. (Toronto), Associate Professor.
- EDMUND MACDONALD, B.A. (Queen's), Lecturer.
- W. G. BLACK, B.A. (Brit. Col.), M.A., Ph.D. (Chicago), Lecturer.
- J. W. A. FLEURY, M.A. (Brit. Col.), Lecturer.

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 G. H. HUTTON, M.D., D.P.H. (Toronto), Lecturer.
 DOUGLAS KENNY, B.A., M.A. (Brit. Col.), Lecturer.
 LUCILLE KENNY, B.A. (Hunter College), Lecturer.
 AVRUM STROLL, B.A., M.A. (California), Lecturer. (Session 1950-51).
 HUGH McLEOD, B.A. (Brit. Col.), M.A. (Toronto), Lecturer (Session 1950-51).

Department of Physical Education

- ROBERT F. OSBORNE, B.A., B.Ed. (Brit. Col.), Associate Professor and Director of Physical Education, Men.
 MISS MARIAN 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.
 MRS. MAY BROWN, B.Sc. (Phys. Ed.) (McGill), Instructor.
 HJALMAR ANDERSEN, B.A. (Health and P.E.) (Washington), Instructor.
 RICHARD PENN, B.P.E. (Brit. Col.), Instructor.
 MISS MARJORIE MILLER, B.S. (Oregon State College), Instructor.
 MISS HELEN BRYAN, B.Sc. (Phys.Ed.) (McGill), Instructor.

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- F. H. SOWARD, B.A. (Toronto), B.Litt. (Oxon.), F.R.S.C., Director.
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- EDGAR C. BLACK, M.B.E., B.A. (McMaster), M.A. (Brit. Col.), Ph.D. (Pennsylvania), Associate Professor of Physiology.

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- J. E. HARRISON, M.D., C.M. (McGill), Clinical Associate Professor of Obstetrics and Gynecology.
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- G. H. HUTTON, M.D., D.P.H. (Toronto), Dipl.Psych., Lecturer in Psychiatry.

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- JOHN W. KER, B.A.Sc. (Brit. Col.), Assistant Professor.
- JOHN H. G. SMITH, B.S.F. (Brit. Col.), M.F. (Yale), Instructor (Session 1950-51).
- IAN H. SCHIEDEL, B.A.Sc. (Brit. Col.), Resident Forester.
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- L. B. DIXON, Part-time Lecturer in Lumber Grading.
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- KENNETH GRAHAM, B.A. (Brit. Col.), M.Sc. (McGill), Ph.D. (Toronto), Professor of Forest Entomology.
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Members of Faculty representing other Departments:

- E. D. MacPhee, M.M., M.A., B.Ed.; I. McTaggart-Cowan, B.A., Ph.D., F.R.S.C.; D. G. Laird, B.S.A., M.S., Ph.D.; W. O. Richmond, B.A.Sc., M.S., Mem.A.S.M.E.; E. V. White, B.A.Sc., M.Sc., Ph.D.; W. G. Heslop, B.A.Sc., M.E.I.C., Assoc.C.I.M.

Department of University Extension

- GORDON MERRITT SHRUM, O.B.E., M.M., E.D., M.A., Ph.D. (Toronto), F.R.S.C., 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.), Supervisor, Visual Education.
- MISS MARJORIE V. SMITH, B.A. (Sask.), Supervisor, Study Groups.
- 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), Supervisor, Home Economics.
- CLIFFORD ROBINSON, Instructor in Arts and Handicrafts.
- GODFREY L. HEARN, B.A. (Brit. Col.), Instructor in Extension.
- ALLAN DES CHAMPS, B.S.A. (Manitoba), Instructor in Agriculture.
- MISS MARGARET M. KEYS, B.A. (Toronto), Instructor in Home Economics.

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.

C. H. GUNDRY, M.D. (Toronto), Psychiatrist, Metropolitan Health Committee.

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.

MISS DOROTHY LADNER, B.A.Sc. (Brit. Col.), R.N., Public Health Nurse.

MRS. KATE ROBINSON, R.N., Public Health Nurse.

Counselling, Placement, Staff Personnel, Veterans' Services

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

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

W. R. LUYENDYK, B.A. (Brit. Col.), Assistant Counsellor.

Library Staff

ANNE M. SMITH, B.A. (Brit. Col.), B.S. in L.S. (Wash.), M.A. (Mich.), Acting Librarian.

Acquisitions Division:

SAMUEL ROTHSTEIN, M.A. (Brit. Col.), B.L.S. (Calif.), Head.

Catalogue Division:

DOROTHY M. JEFFERD, Head.

ANN S. BARTON, B.A. (N.B.), B.L.S. (Tor.), Junior Professional.

MAY ELIZABETH NORBURY, B.A. (Brit. Col.), B.L.S. (McGill), Junior Professional.

CATHERINE E. PEARCE, B.A. (Brit. Col.), B.L.S. (McGill), Junior Professional.

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ELEANOR B. MERCER, M.A. (Brit. Col.), B.A. in Librarianship (Wash.), First Assistant.

Reference Division:

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MARY D. RENDELL, B.A. (Brit. Col.), B.L.S. (Tor.), First Assistant.

MARGARET A. MACKENZIE, B.A. (McMaster), B.L.S. (Tor.), Senior Professional.

M. JOAN O'ROURKE, B.A. (Alta.), B.L.S. (Tor.), Senior Professional.

ANN VLAG, B.A. (Brit. Col.), B.L.S. (Tor.), Senior Professional (Medical Library).

GRACE L. KENT, B.A. (Tor.), B.L.S. (Tor.), Junior Professional.

HELEN M. LAMONT, B.A. (Sask.), B.L.S. (Tor.), Junior Professional.

Serials Division:

ROLAND J. LANNING, B.A. (Brit. Col.), B.L.S. (Wash.), Head.

M. DOREEN E. FRASER, B.A. (Alta.), B.L.S. (Tor.), First Assistant.

Extension Library:

EDITH M. STEWART, B.A. (Man.), B.S. in L.S. (Wash.), Senior Professional.

GENERAL INFORMATION

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. Upon his retirement on May 28th, 1951, he will be succeeded by Brigadier Sherwood Lett, one of the first graduates of this University.

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 the 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.

In 1945, the Provincial Government authorized the construction of further permanent buildings. Under this programme, the Physics Building was completed in 1947; a wing was built on the Library in 1948, and, in the same year, the Power House was enlarged. The Home Economics Building was finished in 1949. In 1950 the Engineering Building and the Biological Sciences and Pharmacy Building were opened. As the calendar goes to press, three wings of the Women's Residences are ready for occupancy, the War Memorial Gymnasium is virtually completed, work is proceeding on the interior finishing of a building for Bacteriology and medical services, and construction of the Law Building has been commenced.

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 instruction 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 Library collections number approximately 275,000 volumes, including representative works in all fields in which the University gives instruction and several noteworthy groups of materials. The collection is strong in serial publications, including scholarly periodicals and transactions of learned and scientific societies; and in certain fields, notably Canadiana and forestry, the Library has rich holdings. The Howay-Reid Collection, which is maintained in a separate room, comprises 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 Canadian history, the Pound Collection of Canadian literature, and the A. J. T. Taylor Collection of material pertaining to the Arctic. Extensive acquisitions of publications on forestry have been made possible by the fund provided by Dr. H. R. MacMillan, and the Koerner Art Fund and the B. C. Packers Fund have enriched the collections in fine arts and fisheries, respectively.

The University Library is housed in a spacious building, the first part of which was occupied in 1925. The North Wing, which was completed in 1948, more than doubled the space which had been available for readers, books, and staff. A general reading room, a Fine Arts Room, and the Howay-Reid Collection are maintained in the older part of the building; and a reserve book reading room, a periodicals reading room, seminar rooms, and the Ridington Reference Room are provided in the new. The last, named in honor of the late John Ridington, first Librarian of the

University, contains a large number of encyclopedias, dictionaries, indexes, and other works for consultation which are available on open shelves for convenient use.

The Library is organized in five divisions, Acquisitions, Cataloguing, Serials, Circulation, and Reference, each of which is administered by experienced, professional librarians. The Library also administers the book collections of the Extension Department which number about 3,000 volumes and 6,000 plays. These materials are available to persons who register with the Extension Department.

While classes are in progress, the University Library is open regularly from 8:00 a.m. until 10:00 p.m., Mondays through Fridays, and from 8:00 a.m. until 5:00 p.m. on Saturdays. Between terms, and at certain other times, the Library usually is open from 9:00 a.m. until 5:00 p.m., Mondays through Fridays, and from 9:00 a.m. until 1:00 p.m. on Saturdays. Access to the book stacks, desks for study, and other facilities are furnished to graduate students whenever possible. A microfilm reading machine is available for use in the Library, and photographic copies of materials in the collections can be obtained for a fee through the Film Library in the Extension Department.

The collections and services of the Library, though maintained primarily for the students and staff of the University, may be utilized by persons outside of the University who are engaged in studies which cannot be advantageously pursued in other libraries in the Province. Persons who wish to qualify as "extra-mural readers" must make application to the Librarian and are required to pay a fee of \$1.00 per calendar year. In addition, they pay any mailing charges which may be necessary and are required to place a deposit sufficient to cover losses incurred in this manner.

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 Dr. H. R. MacMillan; the Buttmer 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, Forestry and Geology Building; (3) the Zoological Museum, housed in various rooms of the Biological Sciences Building; (4) the Botanical Collections and Herbarium.

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, 1,170 catalogued items, is from the Melanesian Islands of the South Pacific, but Indonesia 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, a mounted specimen of *Lambeosaurus* (species), a duck-billed dinosaur, and many other things of interest.

The Zoological Museum, containing material representative of both the vertebrate and the invertebrate fields, is housed in the new Biological

Sciences Building. The collection of marine invertebrates of the north-eastern Pacific Ocean is one of the largest extant. The collection of vertebrates exclusive of fish numbers 6,417 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, Forestry and Geology Building, and a fine suite of African game horns, donated by Mr. W. F. Byers, hangs in Room 120 of the same building.

The Herbarium consists of dried plant specimens housed in cases in the Biological Sciences Building. All groups from the Algae to the Flowering Plants are represented. An effort is being made to preserve in this collection all species known to occur in the province. Its value in this regard has been greatly augmented recently through the donation of several thousand B. C. specimens by Mr. J. W. Eastham. In addition it contains a number of smaller collections by other botanists working in the province.

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.

War Memorial Gymnasium

A new gymnasium, costing in excess of \$700,000, is now nearing completion. This building, the result of a Student-Alumni campaign to honour the men and women of British Columbia who served in World War I and World War II, was financed by public subscription, a Provincial Government grant, and a special student levy.

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-sized fields and a number of smaller areas set aside for outdoor games. A new section of the playing field area is now being developed adjacent to the War Memorial Gymnasium.

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 Department of Physical Education also uses certain temporary accommodation. 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.

The Art Centre (Gallery and Workshop)

The University Art Centre is a recent development which, for a rapidly increasing number of students and staff, is serving as the focal point for campus activity in the visual arts. It was initiated, equipped and, in December, 1948, officially opened, through the generous gifts of the University Chapter of the I.O.D.E. and other donors, as a memorial to the late Dean Mary L. Bollert; and it continues to be substantially financed by the University Chapter, I.O.D.E. It is included among the activities of the Fine Arts Committee, and is under the direct supervision of the Visual Arts Committee.

The Art Centre includes a Workshop and an Art Gallery which, between them, perform as many as possible of the functions of a Fine Arts Department which, it is anticipated, will soon evolve from these beginnings. The Workshop is equipped for, and gives, courses in ceramics, painting, sculpture, weaving and other applied arts. These courses, which are open to students, staff and extra-mural registrants, are well attended. Since, however, there is, as yet, no Fine Arts Department, the courses cannot be offered for credit, and a special fee must be charged for registration in them. The Workshop is under the joint direction of the Visual Arts Committee and the Handicrafts Committee.

The Art Gallery, though it has no permanent collection, maintains a continuous display of loan exhibitions, which are ordinarily shown two at a time, for periods of three weeks. These exhibitions are rented or borrowed from the National Art Gallery, the Museum of Modern Art, the Western Canada Art Circuit, the Western (American) Association of Museum Directors and other galleries and circuits; or they are displayed, on the invitation of the Gallery, by local (and other) artists, art organizations and institutions. Because it has these numerous sources of material, the Art Gallery is able to bring to the University a wide variety of exhibitions which are representative of the principal trends in art. Many of these exhibitions are accompanied by explanatory talks given by the painter of the pictures, the Curator of the Gallery, or some member of the Faculty. The Gallery is open, under the supervision of the Curator, for five days of each week; and it is under the direction of the Visual Arts Committee.

Forest Products Laboratory

The Vancouver Laboratory is a unit of the Forest Products Division of the Forestry Branch, Department of Resources and Development, Canada, and is maintained by the Federal Government for the conduct of research in wood products. The Laboratory is housed in six buildings on the University Campus. Three of these buildings have been provided and are maintained through a co-operative agreement between the University and the Federal 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 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 will, in the fall of 1951, be housed in the building now being completed for Bacteriology and medical services.

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. In order to complete registration in the Faculty of Medicine, successful applicants who are taking a pre-medical course at the University of British Columbia are required to pass a physical examination at the University Health Service in the month of April preceding admission. Successful applicants from other institutions must pass this examination at the earliest practicable date in their first term of residence. Registration is not considered to be completed until the examination has been taken and passed. Immunization against certain diseases is required.

Applicants having physical handicaps which require periodic medical attention, or which interfere with normal activities, must submit a medical certificate with their application. In this certificate, the examining physician should describe the extent of the deformity or lesion and estimate its effect upon the applicant's future ability to practice medicine.

5. Students who are members of athletic teams must have a yearly medical examination preceding active participation. The team manager will make the appointment and will check each student's physical capacity card before the first game.

6. 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.

1. Tuberculosis.

A Chest X-ray examination is provided by the University Student Health Service, in cooperation with the Provincial Board of Health, Tuberculosis Division. It 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.

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 two days 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 advised of absence from classes or examinations because of illness.

For further regulations refer to the form "Routine regarding Sickness and Injury" given to each student at the time of registration.

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*.

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

As far as the capacity of the Residences makes it possible, out of town women students coming to the campus for the first time and entering First or Second Year will be expected to live in the new Women's Residences. Students who have special reasons for preferring not to live in should consult the Dean of Women. Since space in the Women's Residences is limited, students new to the campus should apply for accommodation in good time; after August 1st, accommodation in the Residences will be made available to students other than those listed above. It is intended that the right to reside in the Women's Residences should be considered a privilege. Any student who fails to subscribe to the high code expected or who is manifestly neglecting her studies will not be permitted to continue as a resident. The Residences offer mostly double rooms. Only Senior students or those who have special requirements can be assigned to single rooms.

There will be some accommodation, in both single and double rooms, for Senior women students *only*, at Acadia Camp.

The charge for residence in University accommodation has not yet been fixed. In 1950-51, between \$49.00 and \$50.00 a month was charged. Only in very exceptional cases will students leaving before the end of a term receive a refund. The charge for single rooms will be slightly higher than that for double rooms.

Application forms for reservations in the Women's Residences or in Acadia Camp are available on request in the Dean of Women's office.

Information concerning accommodation for women students in private homes is also listed in the Dean of Women's office. A preliminary list, indicating vacancies made obvious at the close of term, is prepared in the spring. After that, it is not usually possible to bring out any further lists until the autumn when the information made available is sent out in the order in which requests have been received during the summer. Those expecting to need accommodation of this type should, therefore, make application to the Dean of Women's office in good time.

The office of the Dean of Women undertakes to inspect all accommodation offered for women students. Any residence accommodation arranged by women students for themselves must also meet with the approval of the Dean of Women. 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.

The cost of board and room varies from \$45.00 to \$55.00 a month. Students should make sure whether they are being offered two or three meals a day at the price quoted. Room and breakfast can be obtained at from \$25.00 to \$30.00. Light housekeeping accommodation is also avail-

able at from \$20.00 to \$30.00 a month. Meals and light refreshments can be obtained at several places on the campus.

Men

Accommodation in Private Homes

Information concerning accommodation available for men may be obtained by applying to the office of the Housing Administrator, Room 205A, Physics Building. Charges for board and room vary from \$45.00 to \$55.00 a month, for room and breakfast from \$30.00 to \$35.00 a month, and for room alone from \$20.00 to \$25.00 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.

Accommodation in the Dormitories

The University has provided accommodation for approximately 700 men students in single and double rooms in two Camp Dormitories. These are located on or adjacent to the campus and offer most of the advantages usually found in more permanent dormitories. During 1950-51 the charge for room and board was \$49.00 per month. Students leaving before the end of the terms will receive refunds only in very exceptional cases. The charge for single rooms will be slightly higher than for double rooms. Students wishing accommodation in either Acadia or Fort Camp dormitories should apply to the Housing Administrator at the University. Preference will be given to returned service men.

Counselling and Placement Office

In conjunction with the University Veterans' Bureau, the Counselling and Placement Office 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:

Saturday, June 9, 1951—1:30 p.m.

Friday, September 7, 1951—1:30 p.m.

On Friday, September 7, at 10:00 a.m., the Dean of Administrative and Inter-Faculty Affairs will describe the courses in the various faculties. All new students are invited to attend.

The Placement Office also endeavors, in cooperation with the various faculties concerned, to assist in securing 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.

Self-Help Programme

Employment opportunities for a limited number of students are available for work on the campus in the library, bookstore, janitorial and maintenance departments, and the food services. In order that there may be as little interference with studies as possible, and in order to take care of the maximum number of applicants, jobs will be normally limited to ten hours per week. Applicants for bursaries may be offered employment of this kind either in place of a bursary or as a supplement to a bursary. Note section under Special Bursaries, page 76. In all cases applicants will be chosen on a basis of scholarship and need.

Enquiries should be addressed to Director of Student Services, University of British Columbia.

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 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.

Attention of veterans on grants is called to "University Student Veteran Loan Fund" (page 88):

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.

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 38, and for *Registration and Attendance*, see page 40.

Courses of Study

The University offers instruction in each of the eight faculties, Arts and Science, Applied Science, Agriculture, Law, Pharmacy, Medicine, Forestry, and Graduate Studies. The Faculty of Arts also includes the Schools of Commerce, Education, Home Economics, and Social Work; and the Faculty of Applied Science, the Schools of Architecture and Nursing.

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 Nursing,
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 MEDICINE:

Doctor of Medicine.

FACULTY OF FORESTRY:

Bachelor of Science in Forestry.

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, courses are offered in the Faculty of Arts and Science leading to a Teacher Training Diploma and to a Diploma in Hospital Administration respectively, and in the Faculty of Graduate Studies a course is offered leading to a diploma in Community and Regional Planning.

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 gown 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.N.	scarlet with twisted cord of University blue and white,
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.Arch.	same with white cord,
B.S.A.	maize,
LL.B.	amethyst violet,
M.D.	dark green,
Ph.D.	blue and gold.

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

ADMISSION TO THE UNIVERSITY

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

Students proposing to apply for admission to the Faculty of Medicine are referred to page 297 for details regarding procedure.

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 First Year of the course in Medicine, the Second Year of the course in Pharmacy, and the First Year of the combined course in 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 in special circumstances, no student under the age of sixteen is admitted to the University. For admission to the course in Social Work a student must be 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 Certificate 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, Forestry, Law, Medicine, Pharmacy, and Graduate Studies, and are given under the heading of *Admission* in the sections of the Calendar concerned.

3. Students with full University Entrance standing who have passed Senior Matriculation examinations are admitted to the First Year of Arts and Science or Agriculture with credits in each Senior Matriculation subject passed with a grade of 50% or over, insofar as the subjects passed meet the requirements of the First Year in the course proposed. For further information see page 102, under *Senior Matriculation Credits*.

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 the original certificates to the Registrar. 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 in 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 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 sum of \$10.00, the first instalment of the fees for the First Term, must be paid *in person* at the time of registration. It should not be forwarded by mail with the application for either first or subsequent registration. No student will be permitted to complete registration or attend classes until it is paid.

The holder of a scholarship or bursary must pay the fee of \$10.00 required at the time of registration. If the first instalment of the scholarship or bursary is less than the balance of the First Term fees, the difference must be paid by October 10th.

Attention is called to the days during which registration must be completed in person (see page 5). A student is not normally permitted to register late, but if permission is given, a late fee of \$10.00, additional to all other fees, will be charged. This fee must also be paid at the time of registration.

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) Occasional students—students not belonging to one of the two 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.

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

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 and 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 Winter Session will be accepted after Friday, October 5th, 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 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. Occasional 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 two days 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, the 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.

FEES

1. The University reserves the right to make changes without notice in its published schedule of fees.

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

3. In the Winter Session, students taking not less than 12 units are subject to the same fees as full-time students.

4. The schedules below for full-time and partial students give the total fees payable by students in each Winter Session. These totals include the "sessional" fee and "Alma Mater" fee. A special caution and laboratory fee of \$15.00 is also included in the Faculty of Medicine.

5. The Alma Mater fee, authorized by the Board of Governors, is exacted from all students in the Winter Session for the support of the Alma Mater Society. This fee is \$16.00 for students taking more than 6 units of work, and \$9.00 for others. Inquiries with respect to this fee should be directed to the Alma Mater Society (Brock Memorial Building).

6. In the Winter Session, no refund will be made for First Term fees after October 31st, and for Second Term fees after January 31st. Application for a refund prior to these dates must be made to the Accountant within a two-week period after the student has discontinued his work.

7. Of the First Term fees, \$10.00 must be paid at the time of registration. This sum is not returnable. Students are not entitled to admission to classes until they have registered.

8. Fees are not transferable from one session to another.

9. Registration is not complete until the First Term fees have been paid.

10. The holder of a scholarship or bursary must pay the fee of \$10.00 required at the time of registration. If the first instalment of the scholarship or bursary is less than the balance of the First Term fees, he must also pay the difference before October 10th; if the second instalment is less than the Second Term fees, he must pay the difference before January 19th.

11. A student whose fees are not fully paid by the due date (October 10th for the First Term and January 19th for the Second Term) will be charged an additional fee of \$10.00. If all outstanding fees, including this penalty, are not paid by October 31st in the case of First Term fees, or February 20th in the case of Second Term fees, the student will, without recourse, be excluded from classes and his registration will be cancelled.

12. When permission to register late is granted, a late fee of \$10.00 additional to all other fees, will be charged. This fee must be paid at the time of registration together with the first instalment (\$10.00) of the First Term fees.

Full-time Students

First Term Fees—\$10.00 payable at the time of registration, and the balance on or before October 10th.

Second Term Fees—Payable on or before January 19th.

Note: The First Term fees stated in the following schedules include the Alma Mater fee (paragraph 5, above) and the first instalment of the sessional fee.

Faculty and Course:	1st Term	2nd Term	Total
1. Arts and Science—			
Arts and Science (B.A.)	\$133.00	\$105.00	\$238.00
Commerce (B.Com.)	133.00	105.00	238.00
Education (B.Ed.)	133.00	105.00	238.00
Home Economics (B.H.E.)	133.00	105.00	238.00
Physical Education (B.P.E.)	136.00	105.00	241.00
Social Work (B.S.W.)	158.00	130.00	288.00
*Social Work (M.S.W.)	133.00	105.00	238.00
Teacher Training	133.00	105.00	238.00

2. Applied Science—			
Architecture (B.Arch.)	\$158.00	\$130.00	\$288.00
Engineering (B.A.Sc.)	158.00	130.00	288.00
Nursing (B.S.N. or Certificate)	133.00	105.00	238.00

(a) For Second, Third, and Fourth Year students in Nursing (i.e. students in the affiliated hospital) the total fees are \$5.00, payable on registration, which include a sessional fee of \$1.00 and an Alma Mater fee of \$4.00.

(b) Students admitted to a one-year course for graduate-nurses and proceeding to the Certificate on the basis of part-time attendance over two or more years will register as partial students.

(c) In calculating the probable expense of the course students in Nursing should allow for field work costs. The sum of \$100 is approximately the minimum required.

3. Agriculture—			
Agriculture (B.S.A.)	\$133.00	\$105.00	\$238.00
Occupational	88.00	60.00	148.00

Students transferring credit from the Occupational to the Degree Course must pay the difference in fees.

4. Law (LL.B.)	\$158.00	\$130.00	\$288.00
5. Medicine (M.D.)	243.00	200.00	443.00
6. Pharmacy (B.S.P.)	158.00	130.00	288.00
7. Forestry (B.S.F.)	158.00	130.00	288.00
8. Graduate Studies	133.00	105.00	238.00

(a) Candidates for a Master's degree who take more than one session to complete their programme may pay sessional fees (see paragraph 4 above) at the rate of \$15.00 per unit until a maximum of \$225.00 has been reached. The Alma Mater fee must be paid each session.

(b) Graduate students required to make up prerequisites to the Master's course are subject to sessional fees at the rate of \$15.00 per unit for such prerequisite courses in addition to the full sessional fee for the Master's degree and the annual Alma Mater fee.

Graduate students who are not candidates for a higher degree are subject to sessional fees at the rate of \$15.00 per unit for courses taken, as well as to Alma Mater fees.

*See paragraphs (a) and (b) under Graduate Studies.

(c) Candidates for the Ph.D. degree 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 \$15.00 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.

Partial Students

1. For a course of 12 units or more:

The same as for full-time students.

2. For a course of from 7 to 11 units:

First Term—\$10.00 payable at the time of registration, and the balance on or before October 10th:

Alma Mater fee	\$16.00
Sessional fee per unit	8.00

Second Term—payable on or before January 19th:

Sessional fee per unit	7.00
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3. For a course of 6 units or less:

First Term—\$10.00 payable at the time of registration, and the balance on or before October 10th:

Alma Mater fee	\$ 9.00
Sessional fee per unit	8.00

Second Term—payable on or before January 19th:

Sessional fee per unit	7.00
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Extra-Sessional Courses

First Term—\$10.00 payable at the time of registration, and the balance on or before October 10th:

Sessional fee per unit	\$ 7.00
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Second Term—payable on or before January 19th:

Sessional fee per unit	\$ 7.00
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Summer Session

Fees payable on registration:

Minimum Class Fee	\$21.00
Per Unit	14.00
Summer Session Association	2.00

Correspondence Courses

Correspondence fee at \$14.00 per unit, payable in three equal instalments as follows:

First Instalment: at time of registration;

Second Instalment: in advance of receiving ninth paper;

Third Instalment: in advance of receiving eighteenth paper.

Correspondence courses must be completed within two years of the initial registration.

Special Fees

For late registration, Winter Session	\$10.00
For late registration, Extra-Sessional or Summer Session.....	2.00
For late payment of fees	10.00
*Regular supplemental examination, per paper	5.00
*Supplemental examination at other centres, per paper	7.50
*Special examination (Applied Science, Agriculture, Forestry), per paper	7.50
*Re-readings, per paper	5.00
*Supplemental examination fees in respect to Winter Session supplementals must be paid by August 1st, when application for examination is made. Special examination fees and fees for re- reading are payable with application.	
Library (mailing deposit)	\$ 2.00
Students borrowing books from the Library for preparatory reading will be required to make this deposit to cover mailing costs.	
Laboratory coupons, per book	\$ 3.00
These coupons may be used to pay for breakages in laboratory equipment, to pay Library fines, or for such other purposes as may be determined by the Board of Governors.	

MEDALS, FELLOWSHIPS, SCHOLARSHIPS, PRIZES, BURSARIES AND LOANS

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. Awards, when announced by the University, are final.

2. Medals, scholarships, fellowships, 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, fellowship, 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. Where credit has already been obtained in a required subject, however, another course may be substituted, with permission of Faculty.

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, fellowships, prizes, and bursaries 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 awards or loan funds.

7. Scholarships, fellowships, and bursaries under the jurisdiction of the University are payable in two instalments, one at the beginning of each term. 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 a student 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 Dean of Administrative and Inter-Faculty Affairs.

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

9. If invested funds do not provide the necessary revenue for any endowed scholarship, fellowship, prize or bursary, payment of the award will be reduced or withheld.

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. All inquiries regarding fellowships, scholarships, prizes, bursaries, and loans should be addressed to the Dean of Administrative and Inter-Faculty Affairs.

13. Cheques in repayment of loans should be made payable to "The University of British Columbia" and forwarded to the office of the Accountant.

AWARDS FOR HEADS OF THE GRADUATING CLASSES

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, Professor 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 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.

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 for Pharmacy—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 British Columbia Parent-Teacher Federation Prize—A prize of \$100, the gift of the British Columbia Parent-Teacher Federation, will be awarded to the student standing at the head of the graduating class for the B.H.E. degree.

The Canadian Association for Health, Physical Education, and Recreation Medal and Prize—A medal and prize, given by the B. C. Branch, Canadian Association for Health, Physical Education, and Recreation, will be awarded to the student standing at the head of the graduating class for the B.P.E. degree.

The University Nurses' Club Prize—This prize, the gift of the University Nurses' Club, will be awarded to the student standing at the head of the graduating class for the degree of B.S.N.

The H. R. MacMillan Prize in Forestry—A prize of \$100, the gift of H. R. MacMillan, Esq., C.B.E., D.Sc., will be awarded to the student standing at the head of the graduating class for the degree of B.S.F.

FELLOWSHIPS AND SCHOLARSHIPS FOR GRADUATES

Fellowships and scholarships for graduate study are awarded only on application. Applications, on forms available at the Registrar's office, must be received by the Dean of Administrative and Inter-Faculty Affairs not

later than March 15th, except where another date is given in the description. Unless the description indicates otherwise, awards are tenable only at this University and in the Winter Session.

For other awards available for graduate study, students are referred to pages 53 and 90.

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.

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.

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.

The Dr. F. J. Nicholson Scholarships—Out of the proceeds of a fund donated by the late 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.

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.

The John and Annie Southcott Memorial Scholarship — A scholarship of \$100, provided annually from the estate of the late 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.

The Native Daughters of British Columbia Scholarship—A scholarship of \$100 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.

The Vancouver B'nai B'rith Hillel Foundation Scholarships—Vancouver B'nai B'rith Hillel Foundation will award two scholarships of the value of \$125 each in the Session 1951-52. These awards replace the scholarships formerly given in the name of District Grand Lodge No. 4 B'nai B'rith. 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.

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.

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. Recipients must be qualified to undertake the research work in respect of scholarship, research ability, personality, and health. Applications must be received not later than December 10th.

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 1951-52. 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. Recipients must be qualified to undertake the research work in respect of scholarship, research ability, personality, and health. Applications must be received not later than December 10th.

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 to undertake graduate and research work in respect of scholarship, research ability, personality, and health.

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 or a subject with application to the pulp and paper industry, in this or any other approved university.

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.

The Cominco Fellowship—The Consolidated Mining and Smelting Company of Canada, Limited, offers annually a fellowship of \$1000 for research in some field of pure or applied science preferably related to the mining, metallurgical or chemical industry in which The Consolidated Mining and Smelting Company of Canada, Limited, is interested. An additional sum of \$200 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 sciences. The topic of research will be chosen after consultation with the department concerned 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 must be received 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.

The Canadian Pulp and Paper Association, Western Branch, Fellowships—The Canadian Pulp and Paper Association, Western Branch, Vancouver, offers two fellowships of \$500 each, renewable annually, and tenable at any approved forest school, to students who are graduates of the University of British Columbia in Forestry, or in allied courses such as Forest Entomology or Forest Pathology. Winners of these awards must have high scholastic standing and ability to do research. During tenure of the fellowships they are expected to undertake graduate study and pursue investigation of some problem approved by the Faculty of Forestry of the University of British Columbia. In consideration of worthy cases, these fellowships may be supplemented at the discretion of the Executive Committee of the Canadian Pulp and Paper Association, Western Branch.

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 the 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.

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.

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.

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 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 Studies. 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, schools, or faculties concerned. Selection will be made on the basis of scholastic standing and ability in research. Recommendations must be submitted to the Dean of Administrative and Inter-Faculty Affairs not later than March 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 who is entering the Second Year and whose record in the First Year is the most outstanding. Students proceeding directly from the First Year to the Second Year or returning from a period of employment after the First Year are eligible for consideration.

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 Gault Brothers Limited Graduate Scholarship in Commerce—This scholarship of \$700, established in 1949 by Gault Brothers Limited to commemorate its Fiftieth Year in British Columbia, will be awarded annually to a graduate in Commerce of any Canadian university, and will be available for a year's graduate study, in the field of business administration, at any approved institution. Selection of the winner will be made by the Scholarship Committee and the School of Commerce of the University of British Columbia. Full details of the award may be obtained from the Dean of Administrative and Inter-Faculty Affairs.

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

The B. C. Electric Company Service Award in Home Economics—An opportunity for twelve months' experience, with an allowance of \$100 per month, offered by the B. C. Electric Company, is available annually for a student graduating in Home Economics from this University. The recipient will be given experience at the B. C. Electric Home Service Centre in a programme approved by the School of Home Economics. Selection of the recipients will be made by the Director of this School, in consultation with the Home Service Supervisor of the B. C. Electric Company. In making the choice, consideration will be given to scholarship, personality, adaptability, and interest in extra-curricular activities.

The British Columbia Electric Railway Company Limited Fellowship in Agriculture—This fellowship of \$800, the gift of the British Columbia Electric Railway Company Limited, will be available for a student proceeding to a graduate degree in Agriculture at this University. The recipient of this award will be chosen on the basis of scholastic record and promise of ability in research by the Joint Faculty Committee on Prizes, Scholarships, and Bursaries, in consultation with the research committee of the Dean of Agriculture.

The Research Corporation Scholarship—This scholarship of \$250 was made available from the Research Corporation, Electrolytes Conductance, grant. It was awarded in the Session 1950-51 to a student for study and research on the conductance of solutions in acetonitrile.

The Bloedel, Stewart and Welch Limited Fellowship in Oceanography—This fellowship, of the value of \$1750, given by Bloedel, Stewart and Welch Limited, was made available in the Session 1950-51 for special investigation and research in oceanography. The research was carried on by arrangement with the University at the Nanaimo Biological Station.

The Canadian Women's Press Club (Vancouver Branch) Scholarship—This scholarship was made available for award in May, 1951, under the following terms: a scholarship of \$500, donated by the Vancouver Branch of the Canadian Women's Press Club, will be awarded to a woman student with a proven capacity for good writing who intends to make writing a career. Competence and creative ability may have been demonstrated by journalism, fiction, drama, periodical articles, scripts for films or radio, or the like. Applicants must have a good general academic record; must be about to enter the University of British Columbia or be already in attendance; must spend the academic year following the award in attendance either at this University or at some other approved institution, either as undergraduate or graduate students. Consideration will be given to the financial circumstances of applicants. The scholarship may be withheld if no suitable candidate makes application. Application forms, obtainable at the Registrar's office, must be submitted to the Dean of Administrative and Inter-Faculty Affairs by March 31st.

UNIVERSITY ASSISTANTSHIPS AND FELLOWSHIPS

University assistantships and fellowships, involving part-time duties, are available in a number of departments for students taking graduate work. These include:

(1) **Graduate Assistantships**, which are open to students proceeding to studies beyond the level of a Bachelor's degree. The sessional value of

a graduate assistantship ranges upward from \$400, depending upon the duties involved.

(2) **University Teaching Fellowships**, which are open to students who have spent at least one academic year in graduate study and who have outstanding scholastic records. Duties are mainly teaching or laboratory instruction. The minimum sessional value is \$700.

(3) **University Research Fellowships**, which are open to students who have obtained at least a Master's degree or have completed equivalent graduate study, have outstanding scholastic records, and have given evidence of ability in research. These fellowships will be available for students engaging in research approved by the department concerned. The minimum sessional value is \$700.

All inquiries regarding the above assistantships and fellowships should be addressed to the head of the department concerned. Awards of fellowships are subject to approval by Senate, through the Joint Faculty Committee on Prizes, Scholarships, and Bursaries.

(4) **Residence Fellowships**—Two appointments of Junior Dons for the Women's Residences will be made annually. Requests for application forms should be made to the Dean of Women, who will make selections on the basis of scholastic record and interest and experience in personnel work with young people. Applicants must be university graduates who plan to enrol in the Faculty of Graduate Studies or to take professional training on the campus. In exchange for the duties of Junior Don, the fellowship entitles the holder to a suite in the Women's Residence, valued at approximately \$300 for the session. The award does not include meals which must be paid for by the student.

SCHOLARSHIPS FOR UNDERGRADUATES

Unless noted otherwise in the description, undergraduate scholarships are tenable only in the regular Winter Session and at this University. Except in a few cases, where application forms must be submitted, these scholarships are awarded on the basis of academic standing.

1. In More Than One Faculty

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 Dean of Administrative and Inter-Faculty Affairs 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 Dean of Administrative and Inter-Faculty Affairs 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 52.

The Nancy Ryckman Scholarship—As on page 66.

The Canadian Women's Press Club (Vancouver Branch) Scholarship—As on page 53.

The British Columbia Electric Railway Company Limited Special Scholarships—As on page 66.

The Plimsoll Club Scholarships in Chemistry (donated by International Paints (Western) Limited)—Two scholarships of \$125 each were available in the session 1950-51 for students proceeding to their final undergraduate year. Of these scholarships, one was awarded to a student in Chemical Engineering in the Faculty of Applied Science, and the other to a student taking an Honours Course in Chemistry in the Faculty of Arts and Science. In each case the award was made on the basis of proficiency in the chemistry courses of the Third and lower years. In the Session 1951-52 the scholarship for Chemical Engineering will again be available.

2. In the Faculty of Arts and Science

(a) General

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.

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

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 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 Dean of Administrative and Inter-Faculty Affairs not later than the last day of the final examinations.

The Alan Boag Scholarship—As on page 51.

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.

The Plimsoll Club Scholarship in Economic Geography (donated by the Canadian Transport Company Limited)—This scholarship of \$100 is available for Third Year students in Arts and Science who are taking Honours or majors in Geography, or for Third Year students in Commerce (Foreign Trade option) with elective subjects in Geography. The award will be made to a student who has obtained high standing in Geography 201 (Economic Geography) in his Second Year, and the highest aggregate standing in the Third Year of Arts and Science or of Commerce in six units chosen from Geography 303 (World Regional Geography), Geography 306 (Natural Resources and World Affairs), Geography 307 (Human and Political Geography), Geography 406 (Geography of Asia), Geography 408 (Regional Geography of Europe), and Geography 409 (Regional Geography of North America).

(b) In a Course for the B.A. Degree

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 106). 2. To the student standing highest with majors in group (2). (See page 106). 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.

University Scholarships for Trois-Pistoles—Two scholarships of \$185 each, given by the University of British Columbia, will be available annually to enable students to attend the French Summer School at Trois-Pistoles. The winners will be chosen by the Joint Faculty Committee in consultation with the Department of French.

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.

*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 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.

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, 404, 420, 426).

The John and Annie Southcott Memorial Scholarship—As on page 48.

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 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 Daniel Buchanan Scholarship in Mathematics—As a memorial to Daniel Buchanan, Dean of the Faculty of Arts and Science (1928-1948), and 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 an Honours Course in Mathematics and proceeds to the Fourth Year in that course.

The Bene Scholarship—As on page 52.

*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.

(c) In the School 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 Third Year of Commerce and proceeding to the final year of that course. The winning of this award does not preclude the holder from enjoying the proceeds of other awards.

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 First Year Commerce and is proceeding to the Second Year of that course. To be eligible for this award the student must take Commerce 151 in the First Year.

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 Second Year of the course in Commerce and proceeding to the next year in 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 Second Year with high standing in the final examinations, and is proceeding to his Third 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, on forms available at the Registrar's office, must be submitted to the Dean of Administrative and Inter-Faculty Affairs not later than the last day of the final examinations.

The Morrow Scholarship in Commerce—In honour of Professor Ellis Henry Morrow, from 1938 to 1950 Head of the Department of Commerce, and in recognition of his service to the University and the community, a fund of \$2,000 has been established by the generosity of Walter and Leon Koerner. The annual proceeds of this fund will be given as a scholarship to the outstanding student enrolled in Commerce 281.

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 Second Year Commerce who obtains highest standing in Commerce 261 and is proceeding to the Third Year.
2. The sum of \$125 will be awarded to the student in Third Year Commerce who obtains highest standing in Commerce 362 and is proceeding to the Fourth Year.

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

The Western Daily Newspaper Advertising Managers' Association Scholarship—A scholarship of \$200, the gift of the Western Daily Newspaper Advertising Managers' Association, is available annually for students in Second 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 Third 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 Elmer Johnston Memorial Scholarship—A scholarship of \$150, donated by 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 341) and is proceeding to the course in Motor Highway Transport Problems (Commerce 445).

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., or who propose on graduation to study chartered accountancy. Two scholarships will be awarded, one to a student proceeding to the Third Year and the other to a student proceeding to the Fourth Year. The awards will be made to candidates of outstanding merit who are recommended by the School of Commerce.

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 School of Commerce. If, in the opinion of the School, 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 Gault Brothers Limited Scholarships in Commerce—Commemorating its Fiftieth Year in British Columbia, Gault Brothers Limited, in 1949, established a number of scholarships for students in Commerce. In accordance with the terms of the gift, six scholarships of \$300 each will be awarded annually, three to students entering the Third Year and three to those entering the Fourth Year. These awards will be made to students who have completed the previous year's work with high aggregate standing, have shown marked ability in at least one of the fields of marketing, manufacturing and finance, and who intend, on graduation, to follow a career in this field. In the selection of winners, consideration will also be given to personal qualities and character. Third Year holders of the scholarships who maintain their standing to the satisfaction of the School of Commerce will be eligible for the scholarships in the Fourth Year. Selection will be made by the Joint Faculty Committee on Prizes, Scholarships, and Bursaries, in consultation with the School of Commerce.

The Plimsoll Club Scholarship in Foreign Trade and Transportation (donated by Dale and Company Limited)—This scholarship of \$250 will be awarded to a Third Year student in Commerce who has obtained high standing, not only in the year's work, but also in the course on Transportation Practices and Policies (Commerce 341). To be eligible, he must be proceeding to the course in Foreign Trade Problems (Commerce 464). In making this award, the financial circumstances of students may be taken into consideration.

The Plimsoll Club Scholarship in Commerce (donated by the North Pacific Shipping Company Limited)—This scholarship of \$250 will be available for a student who has completed the Third Year of the course leading to the degree of B.Com. and is proceeding to the final year. Selection of the winner will be made on the basis of character, industry, ability and proficiency in all phases of the course work.

The Plimsoll Club Scholarship in International Trade Problems (donated by the Empire Shipping Company Limited)—This scholarship of \$250 will be available for a student in Second or Third Year Commerce who has obtained high standing in the work of the year and the highest standing in Economics 310 (International Trade). During the year in which he holds the scholarship he must continue in Foreign Trade or Transportation

options and include one of the courses Commerce 341 (Traffic Management) or Commerce 464 (Foreign Trade Problems).

(d) In the School of Home Economics

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.

(e) In Physical Education

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.

3. In the Faculty of Applied Science

(a) In Engineering

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.

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 Chapter No. 77 Scholarship—A scholarship of \$50, given by the Women's Chapter 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.

*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 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 Plimsoll Club Scholarship in Machine Design and Theory (donated by the Canada Shipping Company Limited)—This scholarship, of the value of \$250, will be awarded to a student or students who have outstanding records in Third Year Mechanical Engineering and are proceeding to the final year of the course leading to the degree of B.A.Sc. The award will be made to such students obtaining the highest aggregate standing in Mechanical Engineering 352 (Mechanical Drawing), Mechanical Engineering 363 (Machine Design), and Mechanical Engineering 365 (Dynamics of Machines).

The Plimsoll Club Scholarship in Mechanical Engineering (donated by the Hon. Clarence Wallace, C.B.E.)—This scholarship of \$250 is available for students registered in the Third Year of Mechanical Engineering and proceeding to the final year of that course. It will be awarded to a student or students who have attained high standing in both the theoretical and practical parts of the year's work.

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 Boulton-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. Boulton 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 Lumber 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 recommendations 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 Dean of Administrative and Inter-Faculty Affairs 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 Road Builders and Heavy Construction Association Scholarship—A scholarship of \$250, gift of the Road Builders and Heavy Construction Association, is available annually for students who have completed Second or Third Year Applied Science and are proceeding to the next year in Civil Engineering. In order to be eligible candidates must not only have high scholastic standing but also have been engaged during the summer in highway engineering or heavy construction work. Selection of the winner will be made on the basis of confidential reports submitted to the University by summer employers, on academic records in subjects basic to highway engineering and heavy construction work, and on ability, experience, and interest in these fields. Students who write their summer essays on topics related to the above fields will be given special consideration. Applications, on forms available at the Registrar's office, must be received by the Dean of Administrative and Inter-Faculty Affairs not later than September 30th. Applicants are advised to consult the Dean of Administrative and Inter-Faculty Affairs for further details.

(b) In the School of Architecture

The Hobbs Glass Limited Scholarship—A scholarship to the value of \$250 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 School of Architecture in conjunction with the Company. The award will be made on the recommendation of the School.

The McCarter and Nairne Scholarship—A scholarship to the value of one year's tuition fee, provided by a gift of \$2500 from McCarter and Nairne, Architects, will be awarded annually to the student in Third Year Architecture obtaining the highest standing.

The Schlage Lock Company Scholarship—A scholarship to the value of one year's tuition fee (\$258), the gift of Schlage Lock Company of Canada, will be awarded annually to a student in the School of Architecture. The award will be made to the student obtaining highest standing in the Second Year and proceeding to the Third Year.

(c) In the School of Nursing

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 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 Dean of Administrative and Inter-Faculty Affairs not later than December 1st.

The Vancouver Registered Nurses' Award—An award of \$250, provided by the Vancouver Chapter of the Registered Nurses' Association of British Columbia to encourage post graduate studies, is available for students in the Teaching and Supervision course of the School of Nursing at the University of British Columbia. Both degree and certificate students are eligible. In order to permit the winner to obtain further practical experience for continuing her studies, the award may be claimed up to three years from the date of award.

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, of the Nursing and Health course.

4. In the Faculty of 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 (1939) 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 Dean of Administrative and Inter-Faculty Affairs not later than March 15th.

The Hogarth Scholarships (donated through the Vancouver Men's Canadian Club)—Two scholarships of \$125 each, the gift of the late 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.

The Carr Scholarship in Dairying—This scholarship, of the annual value of \$100, donated by Ernest C. Carr, Chairman of the Milk Board of the Province of British Columbia, will be awarded to a student who completes the Third Year of his course in Agriculture with scholarship standing and is proceeding to the Fourth Year, the year in which the scholarship shall be enjoyed. To be eligible candidates must be majoring in Dairying and have obtained satisfactory standing in Agricultural Economics 301, must have a basic knowledge of and general experience in the dairy industry, and must utilize the period between their Third and Fourth Years in furthering their knowledge of the industry in the Province of British Columbia. Participation in other University activities will also be considered. Although selection of the winner will be made in May, the award will be subject to satisfactory completion of the summer programme. Applications, on forms available at the Registrar's office, must be submitted by March 31st.

5. In the Faculty of Law

The Norgan Scholarships—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 51.

6. In the Faculty of 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—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.

7. In the Faculty of Medicine

The Osler Society Scholarship—This scholarship of \$100, the gift of the Osler Society of Vancouver, will be awarded annually, after the establishment of the full four-year course in Medicine at the University, to the student or students who are proceeding to the Fourth Year and who, in the opinion of the Faculty, have the most outstanding records in the study of Internal Medicine. Pending the establishment of the four-year course, the award will be made in the session 1950-51 for the best record in Physiology, and in the session 1951-52 for the best record in Microbiology.

The Schinbein Scholarship—This scholarship of \$250, given by Mrs. A. B. Schinbein and John Schinbein in memory of Austin Birrell Schinbein, O.B.E., M.B., F.A.C.S., is available annually for a student in the Faculty of Medicine. The award will be made in May, 1951, to the First Year student obtaining the highest standing in Anatomy, and in May, 1952, to the Second Year student obtaining the highest standing in Pathology. Thereafter, the scholarship will be awarded to the student in the Third Year obtaining the highest standing in the subject of Surgery.

8. In the Faculty of Forestry

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 Canadian Forest Industries Entomological Scholarships—As on page 62.

The Plimsoll Club Scholarships in Forestry (donated by the Seaboard Shipping Company Limited, Vancouver)—Two scholarships, each of the value of \$150, are available for students registered in the Third Year of the Faculty of Forestry. Of these awards, one will be awarded to a student taking the Forest Business Administration option and the other to a student taking the General Forestry option. Selection of the winners will be made on the basis of proficiency in the year's work.

9. University Entrance and Senior Matriculation Scholarships

The Vancouver Sun Scholarships for Carriers—The Vancouver Sun offers annually two scholarships of \$400 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 for-

warded to the Dean of Administrative and Inter-Faculty Affairs 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, up to a total of five payments in all, for extra grants of \$400 each year. The winning of this scholarship will not preclude the holder from enjoying the proceeds of another award.

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, Canadian Boxes Limited, Northern Pulpwood Limited, and Bad-water 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 or her 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 Dean of Administrative and Inter-Faculty Affairs 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 Dean of Administrative and Inter-Faculty Affairs 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 in University Entrance, Senior Matriculation, Victoria College, or the University.

The T. E. and M. E. Ladner Memorial Scholarship—As on page 54.

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 districts:

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, 17, and 77;
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, 34, 75, and 76;
5. School Districts Nos. 35, 36, 37, 38, and 42;
6. School District No. 39, Britannia, Grandview, John Oliver, and Technical High Schools, and any private schools in the area;
7. School District No. 39, Fairview, King Edward, King George, Kit-silano 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 Schools, 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.

Winners of these scholarships must notify the Dean of Administrative and Inter-Faculty Affairs before September 1st of their intention of attending the University (or Victoria College, in the case of a winner from School Districts 61 to 66 inclusive) during the following session; failing such notification, the winner's rights will lapse.

The Chris Spencer Foundation Scholarships for University Entrance—Fifteen scholarships of \$225 each, the gift of the Chris Spencer Foundation, will be awarded to the candidates selected by the University to receive the University Scholarships for University Entrance described above. Through this gift each of the winners will therefore receive a total scholarship of \$400. These supplementary scholarships are subject to the same conditions and regulations as those governing the University Scholarships for University Entrance.

The Chris Spencer Foundation Special Scholarships—Two scholarships, each of the value of \$400 a year and renewable annually for a maximum of five years (to a total of \$2000), are offered to students entering the University of British Columbia or Victoria College for the first time and proceeding to a degree at this University. These scholarships, the gift of the Chris Spencer Foundation, are available only for students whose ordinary private domicile, home, or residence is in the Province of British Columbia. Applicants will be considered, not only on the basis of schol-

astic ability, but also with respect to extra-curricular activities such as outdoor sports, debating, dramatics, music, etc., and on indication, during the period of high school, of moral force of character and of instincts to lead and take an interest in classmates. Students holding these scholarships in any year of their course will be permitted to retain it for the following year only provided they obtain an average of at least 80% in the final examinations for the year or rank in the upper 10% of their class (i.e., the year and faculty in which they are registered) in the work of the year. Selection of applicants will be made by a committee representing the Foundation and the University. Applications, on forms obtainable from the office of the Dean of Administrative and Inter-Faculty Affairs, University of British Columbia, Vancouver, must be received not later than May 1st.

Royal Institution Scholarships for Senior Matriculation—Six general proficiency scholarships will be awarded on the results 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, 74, 75, 76, and 77.

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 Senior Matriculation scholarships must notify the Dean of Administrative and Inter-Faculty Affairs at the University before September 1st of their intention of attending the University during the following session; failing such notification, the winner's rights will lapse.

10. In Summer Session

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-session classes, or correspondence courses and must be proceeding to a higher year in the University of British Columbia.

The Summer Session Students' Association Scholarship No. 2—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-session classes, or correspondence 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 correspondence 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 correspondence courses, and must continue in his Fourth Year at the University of British Columbia.

MEDALS AND PRIZES

1. In More Than One Faculty

The Lefevre Gold Medal—As on page 48.

The University Essay Prize—A book prize of the value of \$25 will be awarded to a student in the final undergraduate year 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 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 1951-52 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 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.

Frances Willard Prize—As on page 70.

The Macmillan Company of Canada Prizes in Creative Writing—Two prizes of \$25 each, the gift of the Macmillan Company of Canada, Publishers, will be awarded for the best original short story and the best original poem, respectively, written by an undergraduate or graduate student while enrolled in the University. The awards will be made on the recommendations of the Head of the English Department and the instructor in English 401, in consultation with the Committee on Prizes and Scholarships. Entries must be submitted to the Department of English by April 1st.

The B. C. Coast Woods Trade Extension Bureau Prizes—These awards, consisting of a first, second, and third prize of \$100, \$75, and \$50 respectively, and three additional prizes of \$25 each, are offered annually by the B. C. Coast Woods Trade Extension Bureau to students who have completed at least one year of university, are proceeding to the degree of B.A.Sc. (any branch), B.Arch., or B.S.F., and are continuing their undergraduate studies for a further year at this University. To be eligible for these prizes, which will be awarded in the fall, students must have been actively engaged during the summer in employment in any capacity related to the manufacture, treatment, fabrication, sale or application of B. C. coast woods or wood products, and must have signified their intention of competing not later than one month before the conclusion of the preceding regular University session. The prizes will be awarded for the six best reports on the summer work pertaining to the manufacture or use of lumber. In co-operation with the University Employment Bureau, the B. C. Coast Woods Trade Extension Bureau will endeavour to find employment for as many students as possible. Essays must be submitted by October 1st to the office of the Dean of Applied Science. Further details are available at the offices of the Dean of Administrative and Inter-Faculty Affairs, the Dean of Applied Science and the University Employment Bureau.

2. In the Faculty of Arts and Science

(a) General

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 1951-52 on recommendation of the Director of the School of Education and the Head of the Department of Economics, Political Science, and Sociology. Essays must be submitted by April 10th, 1952. If in any year no student reaches the required standard the award will be withheld.

(b) In a Course for the B.A. Degree

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 prize 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 Chemical Institute of Canada Book Prizes—See page 69.

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 Prize of the Minister of Switzerland—This book prize was awarded in the Session 1950-51 to an outstanding student of French Language and Literature.

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 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 Ukrainian Community Centre Prize—This prize, of value \$100, was awarded to the student in the graduating class who, in the opinion of the Department, had the most outstanding record of work in Slavonic Studies in the Session 1950-51.

(c) In the School of Commerce

The Transportation and Customs Bureau of the Vancouver Board of Trade Awards—Cash awards to the total of \$300, the gift of the Transportation and Customs Bureau of the Vancouver Board of Trade, were donated in May, 1951, for the best major reports submitted by students enrolled in the School of Commerce in the course on Traffic Management (Commerce 341). Four awards of \$75 each, covering Airways, Highways, Railways, and Waterways, were made.

The B. C. Tree Fruits Limited Prizes—Three special prizes, an annual gift of B. C. Tree Fruits Limited, Kelowna, will again be awarded in May, 1952, to the three students obtaining the highest standing in Geography 201 during the session 1951-52. These awards, each of the value of \$100, will enable the recipients at the beginning of the fall term to visit centres in the Okanagan to survey the fruit industry.

(d) In the School of Home Economics

The Home Economics Second Year Prize—A cash prize of \$50 will be awarded to the student obtaining highest standing in the work of the Second Year in Home Economics.

3. In the Faculty of Applied Science

(a) In Engineering

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 Chemical Institute of Canada Book Prizes—See page 69.

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. Students intending to compete must notify the instructor of the course by January 15th.

The B. C. Coast Woods Trade Extension Bureau Prizes—See page 70.

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 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 Civil Engineering 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. 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 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).

The American Society of Mechanical Engineers (U. B. C. Branch) Prize—This prize of \$25, the gift of the University of British Columbia Student Branch of the American Society of Mechanical Engineers, will be awarded to the student in the final undergraduate year of Mechanical Engineering who, during the year, submits the best design in the course M.E. 463.

The H. R. MacMillan Prize in Forest Engineering—A prize of \$100, the gift of H. R. MacMillan, Esq., C.B.E., D.Sc., will be awarded to the student graduating with highest standing in the course for the B.A.Sc. degree in Forest Engineering.

The Canadian Institute of Mining and Metallurgy, B. C. Section, Prizes—Three book prizes to the value of \$20 each, the gift of the B. C. Section of The Canadian Institute of Mining and Metallurgy, are offered annually to students registered in the Third Year of Applied Science and enrolled in Geology, Mining, or Metallurgy. These prizes, one in each of the above fields, will be awarded to members of the G. M. Dawson Club for the best essays written during the summer between the Second and Third Years.

(b) In the School of Architecture

The Architectural Institute of British Columbia Prizes—Prizes to the total of \$200, given annually by the Architectural Institute of British Columbia, are available for leading students in the three senior years of Architecture. These prizes, which consist of books and an Award of Merit, 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 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 Charles J. Thompson Prizes—Two prizes of \$50 each, made possible through a gift of \$1000 by Mr. Charles J. Thompson, are offered annually to students in Architecture. Of these prizes, one will be awarded to the Second Year student obtaining highest standing in the course in the History of Architecture. The other will be similarly awarded to a student in the Third Year. To be eligible for an award a student must obtain a minimum mark of 75% in the course and an aggregate in all the subjects of the year of not less than 70%.

The Royal Architectural Institute of Canada Medal—This medal is available for a student in the graduating class for the degree of Bachelor of

Architecture. The award will be made only to a student who has attained a high proficiency in the courses and shows those qualities of character and ability which promise outstanding achievement in the profession. The award will not necessarily be made every year.

B. C. Coast Woods Trade Extension Bureau Prizes in Architecture—Prizes to the total of \$250, the gift of the B. C. Coast Woods Trade Extension Bureau, are available annually in the School of Architecture as follows: (a) for the best set of wood construction details and working drawings in connection with a design project in Second Year Architecture, a first prize of \$75 and a second prize of \$25; (b) for a special design project in the Fourth and Fifth Years of Architecture in which the use of wood as a building and design medium would predominate, a first prize of \$100 and a second prize of \$50. For other prizes offered by the Bureau see page 70.

(c) In the School of Nursing

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.

4. In the Faculty of 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 H. R. MacMillan Export Company Prizes in Agriculture—Prizes to the total of \$150, the gift of the H. R. MacMillan Export Company Limited, are available annually for students registered in the Fourth Year of Agricultural Mechanics. These prizes will be awarded, on the recommendation of the Department, to the students submitting the best reports on an assigned study involving the use of Douglas Fir plywood for agricultural purposes. Details of the study to be undertaken may be obtained from the Head of the Department of Agricultural Mechanics.

5. In the Faculty of 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—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 approved 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, 1951, 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.

The Canada Permanent Trust Company Prize—A prize of \$50, the gift of The Canada Permanent Trust Company, will be awarded to the student in the Second Year of Law obtaining the highest standing in the course on Property.

The Canada Permanent Mortgage Corporation Prize—A prize of \$50, the gift of the Canada Permanent Mortgage Corporation, will be awarded annually to the student in the Third Year of Law obtaining the highest standing in the course on Mortgages.

6. In the Faculty of 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 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 Prize 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.

7. In the Faculty of Medicine

The Horner Gold Medal and Prize—A gold medal and a cash prize of \$100, given by Frank W. Horner Limited of Montreal, will be awarded annually to the Fourth Year student who has obtained the highest aggregate standing in the four-year course in the subject of Medicine. Until Fourth Year work is given at the University, the cash prize will be awarded under the same terms to a student in the most advanced year offered in the Faculty.

8. In the Faculty of Forestry

The B. C. Coast Woods Trade Extension Bureau Prizes—See page 70.

STUDENT ASSISTANCE

Students who require financial assistance to continue or begin their studies at the University of British Columbia are referred to the sections of this Calendar describing the Self-Help Programme (page 36), Bursaries (in the next section), Loan and Special Funds (page 87), and the Dominion-Provincial Youth Training Bursaries and the Provincial Loan Fund (the inside front cover of this Calendar). Attention of veterans on grants is directed to the University Student Veteran Loan Fund (page 88). Women students are advised to consult the Dean of Women.

BURSARIES

1. For the Winter Session

Applications for bursaries awarded by the University and tenable in the Winter Session must be received by the Dean of Administrative and Inter-Faculty Affairs not later than August 15th. Application forms are available at the Registrar's office.

Unless indicated otherwise in the Calendar description, bursaries are available only for undergraduates who are taking a full course at the University of British Columbia. To be eligible for a bursary, a student must normally show evidence of financial need and have at least Second Class standing in the examinations last written.

A student applying for a Special Bursary (described below) will be considered as an applicant for any other bursary given by the University. Only one bursary application is therefore required for the session. Separate application must be made, however, for assistance from the Dominion-Provincial Bursaries and Provincial Loan Fund. Application forms for this assistance, obtainable from the Department of Education, Technical Education Branch, Victoria, B. C., must be received by the Department of Education not later than August 15th.

Special Bursaries—For the session 1951-52 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 Dean of Administrative and Inter-Faculty Affairs 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 Calendar.

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. Applications 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.

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 not later than August 15th. These bursaries are also open to students from Victoria College proceeding to a course of study in the University.

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 1951-52 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.

The University Women's Club Bursary—A bursary of \$200, 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.

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. The award will be made on the recommendation of the Dean of Women.

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.

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 1951-52 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.

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.

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.

The Faculty Women's Club Bursary—A bursary of the value of \$125, 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.

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.

The Victoria Home Economics Association Bursary—This bursary of \$50, the gift of the Victoria Home Economics Association, will be awarded annually to a woman student whose home is in Victoria or some other centre on Vancouver Island, and who is entering the Second, Third, or Fourth Year in Home Economics at this University. The award will be made on the basis of financial need to a student of good academic standing.

The Phil Wilson Bursary in Forestry—A bursary of \$300, given by the British Columbia Loggers' Association, will be awarded to a student registered in Fourth Year Forestry or Forest Engineering. 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.

The Panhellenic Association and the Inter-Fraternity Council Bursary Fund—The annual income from this fund, established in January, 1950, by the Panhellenic Association and the Inter-Fraternity Council, representing the sororities and fraternities on the campus, is used to provide a bursary for an undergraduate in need of financial assistance. The award is available for a student in any year and faculty. Selection of the student will be made by the Joint Faculty Committee on Prizes, Scholarships, and Bursaries.

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, Prizes, and Bursaries 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.
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.

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.

The W. Jack H. Dicks Bursary—A sum of \$200 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.

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.

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.

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.

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.

The Gamma Phi Beta Bursary—A bursary of \$75, 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.

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.

University Women's Club General Bursary—A bursary of \$200, 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.

The Jack Cohen Bursary—A bursary of \$150, the gift of Mr. S. J. Cohen, is available for a student who has completed the Second Year in Commerce and is proceeding to the work of the Third Year. To be eligible for this award, the student must have high scholastic standing, and financial need.

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 1951-52. 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 or Forestry. 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.

The B. C. Credit Union League Bursary—A bursary of \$100, donated by the B. C. Credit Union League, is available for an undergraduate who has completed the Second Year in Arts and Science, and is taking a major or an Honours Course in Economics. The bursary will be awarded to a student who submits evidence of special interest in or knowledge of co-operatives and credit unions. In making the award, consideration will be given to the financial need of applicants.

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.

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.

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.

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.

The Lions' Ladies Club Bursary—This bursary of \$200, the gift of the Lions' Ladies Club of Vancouver, will be available for a student who is continuing with the work in the Second Year of the course in Social Work and needs financial assistance. Preference will be given to a student interested in the social problems of older citizens. The award will be made through the Joint Faculty Committee on Prizes, Scholarships, and Bursaries in consultation with the School of Social Work.

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.

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.

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.

The Vancouver Bar Association Bursaries—Three bursaries of \$100 each, the gift of the Vancouver Bar Association, will be awarded in the session 1951-52 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.

The Plimsoll Bursary for Law (donated by the Anglo-Canadian Shipping Company Limited)—This bursary of \$300 is available for students registered in any year of the Law course. It will be awarded to a student or students who, by their records, show promise of success in Law, and who not only would be unable to continue their courses without financial assistance, but are also worthy and deserving of it.

Best Mimeograph and Printing Company Bursaries—Two bursaries of \$125 each, the gift of Best Mimeograph and Printing Company, Vancouver, are offered annually to students in the Faculty of Law. Of these bursaries, one will be awarded to a student who has completed the First Year and is proceeding to the Second, and the other to a student who has completed

the Second Year and is proceeding to the Third. The awards will be made to students who have good academic standing and who, without financial assistance, would be unable to continue their studies at the University. The awards carry with them a gift of some of the U. B. C. Case Books required for use in the year in which the awards are held.

The North Shore Medical Society Bursary—This bursary of \$100, the gift of the North Shore Medical Society, is available for a student in the Faculty of Medicine who has good academic standing and needs financial assistance to proceed with his course. It will be awarded to a student whose permanent residence is and has been for some time in the City or District of North Vancouver.

The British Columbia Medical Association Bursary—This bursary of \$100, the gift of the British Columbia Medical Association, will be awarded to a student registered in the Faculty of Medicine in the session 1951-52. The award will be made to a student who has high standing and need of financial assistance.

The Plimsoll Club Bursary in Medicine (donated by the Empire Stevedoring Company Limited)—This bursary of \$300 is available for award in the Faculty of Medicine at the University of British Columbia. It will be awarded to a worthy and promising woman student who is registered in the Faculty of Medicine and is continuing in studies leading to the degree of M.D.

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.

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 registered in the Social Work course, or for an undergraduate in the Second, Third, or Fourth Year of Arts and Science who is planning to enter the Social Work course. To be eligible for this award, an applicant must have financial need and high scholastic standing.

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.

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 Dean of the Faculty to a student who has shown definite ability and has need of financial assistance.

The National Paper Box Limited Bursaries—Two bursaries of \$200 each, the gift of National Paper Box Limited, are available for the session 1951-52. 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.

The Elizabeth Dobeson Bursary—The sum of \$200, given by the Bastion Chapter of the Imperial Order Daughters of the Empire, will be available in the session 1951-52 to provide bursaries for student veterans from Nanaimo. These bursaries, which are open to students in any year and

faculty, will be awarded on the basis of ability and need of financial assistance.

The Sea Going Hacks Bursary—A bursary of \$200, given by the Sea Going Hacks, 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.

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.

The Triple Entente Chapter, I. O. D. E., Bursaries—Two bursaries of \$75 each and one of \$50, the gift of the Triple Entente Chapter of the I. O. D. E., are available for veterans or veterans' sons or daughters. To be eligible the students must have financial need and high scholastic standing.

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.

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 School of Home Economics for the first time. In making the award, consideration will be given to academic ability and Junior Farmer Club membership.

The Baynes Manning Limited Bursary—A bursary of \$300, 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.

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.

The John MacRae Memorial Bursary—A bursary of \$150 will be awarded annually from the proceeds of an endowment made by Mrs. John MacRae to commemorate the ideals of her husband, who was among the early practitioners of pharmacy in this community. The award will be made to a student of good academic standing in the Faculty of Pharmacy who is in need of financial assistance and whose qualities of character indicate that he will regard his profession as a means of public service. It is the donor's hope that the recipient, without obligation, will in due course assist others in a similar manner.

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.

The Valcartier Camp Chapter, I. O. D. E., Bursary—A bursary of \$50, given by the Valcartier Camp Chapter, I. O. D. E., will be awarded annually to a woman student who has good academic standing and is in need of financial assistance. This bursary is available for a student proceeding to her first undergraduate degree.

The Irish Fusiliers Vancouver Regiment Bursary Fund—This fund was established to provide financial assistance for the son or daughter of a member of the Officers' Mess of the Irish Fusiliers Vancouver Regiment who was killed in action or on active service in the Second World War. Awards are made by Senate on the recommendation of the Joint Faculty Committee, acting in consultation with a representative of the donors.

The Evelyn Stewart Hamilton McLennan Memorial Bursary—A bursary of \$100, established as a memorial to the late Mrs. Evelyn Stewart Hamilton McLennan, will be available each year for a period of five years. In successive years, the award will be made to students of different faiths. This bursary, provided by a donation from Mr. I. J. Klein of Vancouver, will be open to students in any year or faculty who have good scholastic standing and are in need of financial assistance.

The Low-Beer Bursaries—Bursaries to the total of \$250, the gift of Mr. M. A. Low-Beer of Vancouver, were made available in the session 1950-51 for undergraduates registered in any year and faculty. The awards were made to students with good academic standing who, without financial assistance, would have been unable to continue their courses.

The Grace MacDonald Bursaries—The sum of \$125, the gift of Miss Grace MacDonald, was used to provide bursaries in the session 1950-51 for student veterans.

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.

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.

The B. C. Chapter of Alpha Delta Phi Fraternity Bursary—A bursary of \$50, the gift of the B. C. Chapter of Alpha Delta Phi Fraternity, is available for a male undergraduate in any year and faculty who has good academic standing and needs financial assistance to continue at University.

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.

The British Columbia Chapter of Delta Upsilon Fraternity Bursary—A bursary of \$100, 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 (1) good scholastic standing or (2) good scholastic and athletic standing, who is in need of financial assistance.

The Lighthall Memorial Bursary—A bursary of \$50, given by Sigma Phi Delta Fraternity in memory of Professor A. Lighthall, a member of

the Department of Civil Engineering of this University from 1920 to 1945, 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.

The New Westminster Rotary Club Bursary—A bursary of \$250, the gift of the Rotary Club of New Westminster, is available for undergraduates whose 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.

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 and 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.

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 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 assistance.

Pi Gamma Chapter of Phi Gamma Delta Fraternity Bursary—A bursary of \$50, the gift of the Pi Gamma Chapter of Phi Gamma Delta Fraternity, is available annually for a male undergraduate of good scholastic standing who is in need of financial assistance.

The Right Honourable Anthony Eden Chapter, I. O. D. E., Bursary—This bursary of \$50, the gift of the Right Honourable Anthony Eden Chapter, I. O. D. E., is available for a First Year student who has high standing and who, without financial assistance, would be unable to attend the University.

The British Columbia Psychological Association Bursary—A bursary of \$50, the gift of the British Columbia Psychological Association, is available for a student taking an 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 be in need of financial assistance.

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.

The Anne S. Campbell Bursaries—The annual income from a fund bequeathed by the late Anne S. Campbell will be used to provide bursaries for undergraduates who show qualities of leadership and who need financial assistance.

The International Student Service Bursary Fund—This fund, created in February, 1950, by a donation from the International Student Service of Canada (University of British Columbia Branch), has been established to help needy students from foreign countries. The fund is administered by

the Joint Faculty Committee on Prizes, Scholarships, and Bursaries. For the session 1951-52, the sum of \$500 is available.

The Jonathan Rogers Awards—The annual income from a fund bequeathed by the late Jonathan Rogers will be used to provide scholarships for undergraduates who require financial assistance and who have high scholastic standing. Selection of the recipients will be made by the Joint Faculty Committee on Prizes, Scholarships, and Bursaries in accordance with the terms of the bequest.

The Plimsoll Club Bursary (donated by the Canadian Stevedoring Company Limited)—This bursary, in the amount of \$300, is available for a student registered in any year and faculty. It will be awarded to a deserving student who has satisfactory standing but who, without financial assistance, would be unable to begin or continue his studies at the University.

The Plimsoll Club Bursary (donated by Louis Wolfe and Sons (Vancouver) Limited)—This bursary of \$300 has been made available for undergraduates in any faculty at the University. It will be awarded to deserving students who have good academic records, and who, without financial assistance, would be unable to begin or continue their studies at the University.

The Plimsoll Club Bursary in Engineering (donated by Pacific Drydock Company Limited)—This bursary of \$250 was available in the session 1950-51 for students in Civil, Electrical, or Mechanical Engineering, and was awarded to students on the basis of proficiency and promise in their chosen field of study. The award was made to students who, without financial assistance, could not continue their studies at the University.

Acadia Camp Residence Bursaries—Four bursaries of \$50 each, gift of the Acadia Camp Residence Council, The University of British Columbia, were made available in the Session 1950-51 for students residing in Acadia Camp and in need of financial assistance.

The Esmond Lando Bursary—A bursary of the annual value of \$100, the gift of Mr. Esmond Lando, Vice-President of Queen Charlotte Airlines, will be awarded to a student registered in the Third Year of the School of Commerce, and requiring financial assistance to enable him to continue studies at the University. In making this award, consideration will be given to the academic record of the applicant and his interest in air transportation.

The Department of French Bursary—A bursary of \$30, the proceeds from a play performed by Second Year students under the direction of members of the Department of French, will be available for a student who has completed French 202 and who proposes to specialize in French in his Third Year. The award will be made to a student who has good academic standing and needs financial assistance.

2. For Summer Session

The Sir Charles Tupper Chapter, I. O. D. E., Bursary—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 Dean of Administrative and Inter-Faculty Affairs not later than May 31st. A copy of the last inspector's report must accompany the application.

University Summer Session Bursaries—Twenty bursaries of \$50 each are available in the Summer Session, 1951, 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 31st.

Summer School of the Theatre Bursaries—Four bursaries, each of the amount of the tuition fee, are available for selected students attending the Summer School of the Theatre in 1951.

3. For Study Elsewhere

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 received by the Dean of Administrative and Inter-Faculty Affairs not later than June 15th.

LOAN AND SPECIAL FUNDS

Inquiries regarding the following loan funds should be addressed to the Dean of Administrative and Inter-Faculty Affairs, Room 10, Arts Building, unless the description indicates otherwise. Women students are advised to consult the Dean of Women.

Winter Session Loan Funds

The Paul E. Murphy Student Aid Fund—From this fund, bequeathed by the late Paul E. Murphy of Ocean Park, loans may be obtained by undergraduates and graduates who have satisfactory standing and who are beginning or continuing their studies in the Winter Session at the University of British Columbia. Loans from this fund bear interest only after the recipient leaves the University, and are repayable in periodical instalments commencing one year after the date of leaving. Loans must be secured by a promissory note signed by the recipient and two guarantors. The recipient is also required to protect the loan by a policy of life insurance, in which the University shall be beneficiary to value, in an amount adequately covering advances made from the fund, until full repayment is made. Premiums for new or existing insurance may, however, be included as part of the loan. Attention is called to the following clause in the agreement between the University and the late Paul E. Murphy:

"The donor and the University share the hope that students who have had help from this fund will themselves help others, as their means may allow, either by contributing to this fund or by establishing similar funds."

Further details may be obtained from the Dean of Administrative and Inter-Faculty Affairs.

University General Loan Fund—The General Loan Fund was established by the Board of Governors. This fund, available for loans of limited amount, is open to undergraduates in need of pecuniary assistance. Loans, which must be repaid within one year, bear interest at the rate of 5 per cent per annum commencing on May 31st of the academic year in which they are granted. They must be secured by an approved promissory note signed by the applicant and his parent or guardian. Application should be made to the Dean of Administrative and Inter-Faculty Affairs.

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.

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. Application should first be made to the Dean of Administrative and Inter-Faculty Affairs. Terms are the same as for the University General Loan Fund.

The E. M. Kierstead Student Aid Fund—This fund, established in memory of Professor E. M. Kierstead, a beloved professor in Acadia and McMaster Universities, has been made available to provide loans for students requiring limited financial assistance in emergency situations. Fuller information may be obtained from the Dean of Administrative and Inter-Faculty Affairs.

The H. R. MacMillan Special Loan Fund—This fund has been established by Mr. H. R. MacMillan to provide assistance, in the form of loans, for the sons and daughters of employees of the H. R. MacMillan Export Company Limited, the British Columbia Packers Limited, or subsidiaries of these companies. Loans, which are available only for study at this University, are for limited amounts. They are repayable commencing one year after termination of studies at the University, until which time they do not bear interest. Further information may be obtained from the Dean of Administrative and Inter-Faculty Affairs.

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. Terms are the same as those for the University General Loan Fund. 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. Application for assistance must be made to the Dean of Administrative and Inter-Faculty Affairs.

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 attained satisfactory academic standing. Loans to any one student are limited to a total of \$100. Loans are subject to the same terms as those from the University General Loan Fund.

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. Loans from this fund are subject to the same terms as those of the University General Loan Fund.

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.

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 loans. Loans are issued for a period of one year and without interest for that period. Thereafter the rate is 5% per annum. The promissory note requires a guarantor. The order of preference is (a) ex-service personnel and former members of the Merchant Navy; (b) dependents of those above; (c) the student body at large.

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 School of Home Economics. Application forms may be obtained at the office of the Dean of Administrative and Inter-Faculty Affairs.

The Dean Clement Student Aid Fund in Agriculture—In honour of Frederick M. Clement, who served as a member of the Faculty of Agriculture from 1916 to 1949 and as Dean from 1919 to 1949, and in recognition of his contributions and achievements, the Agricultural Undergraduate Society has established a loan fund to assist undergraduates in Agriculture, who, during the session, require emergency financial assistance. Loans from this fund are subject to the approval of the Dean of Agriculture. Further information may be obtained from the offices of the Dean of Women, the Dean of Agriculture, or the Dean of Administrative and Inter-Faculty Affairs. It is the hope of the Agricultural Undergraduate Society that those who have been assisted from this fund or those who have benefited from Dean Clement's guidance and instruction in past years will contribute to this undergraduate student effort.

Special Funds for Women Students

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. During the session 1950-51 contributions were received from the following:

The Marion McElhanney Memorial—Maintained by the Alumnae of the University of Toronto by an annual contribution of \$50.

The Kappa Kappa Gamma Sorority—Who donated \$50 during the 1950-51 session.

The Kappa Kappa Gamma Mothers' Club—Who donated \$100 during the 1950-51 session.

The Kappa Kappa Gamma Alumnae—Who are making annual contributions of \$100.

The Alpha Phi Chapter of Delta Gamma Sorority—Who are making annual contributions of \$50.

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.

Judge Helen Gregory MacGill Memorial Student Aid Fund—A loan fund initiated by the Phi Delta Delta Legal Sorority has been established in memory of Judge Helen Gregory MacGill who from 1902 to 1947 worked ceaselessly for better laws and conditions for women and children in Canada. Loans from this fund, intended for use in emergency situations to assist women students in the final year of the Law course or the degree course in Social Work, 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.

Summer Session Loan Funds

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 one year of the date of receipt of the loan, and until the expiration of the one-year period no interest will be charged. Loans, which may be repaid at any time during the 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.

AWARDS ANNOUNCED BY THE UNIVERSITY BUT MADE BY OTHER INSTITUTIONS

Scholarships and Fellowships

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 (at Oxford or elsewhere abroad) may be authorized in proper cases.

A candidate must be an unmarried male Canadian citizen or 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 for the scholarship for 1952 must have passed his 18th birthday but not have reached his 24th birthday by October 1st, 1951.

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, kindness, 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 or character, or both, 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, 1951, and, if elected, to go to Oxford in October, 1952. 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 universities from which nominations for scholarships allotted 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 per-

petuate 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 \$2000 each are offered annually, one in each province of the Dominion. The conditions under which they are awarded may be obtained from the Dean of Administrative and Inter-Faculty Affairs. 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 \$1500, 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 \$1000, 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 \$1000, 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, Professor Doris B. Saunders, Department of English, University of Manitoba, Winnipeg, Manitoba. Applications and recommendations must be received not later than February 1st.

French Government Scholarships—Scholarships of the present value of approximately \$800 are donated by the French Government for graduate study in France. They are tenable for one year. Travelling expenses for the return to Canada 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.

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., a 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 post-graduate study at an institution of higher learning to be approved by a 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 at an approved law school. The award will 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. Applications must be in the hands of the Secretary-Treasurer of the Association by December 31st.

The Imperial Oil Graduate Research Fellowships—Imperial Oil Limited, in 1946, established for annual competition four Graduate Research Fellowships now having a potential value of \$3750 each (\$1250 a year payable in Canadian funds for a maximum of three years). The fellowships are open to graduates of any approved university in Canada and are offered for research leading to a Doctor's degree in the field of Chemistry and/or Engineering (2 fellowships), Geology (1 fellowship), and Economics or Industrial Relations or Business Administration (1 fellowship). Nomination of students for the fellowships is made by the University—such nominations to be received by the Imperial Oil Scholarship Committee, Imperial Oil Limited, 56 Church Street, Toronto, not later than June 1st of 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.

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, \$600; Studentship, \$900; and Fellowship, \$1200. Applications must be received in Ottawa before February 1st. Application forms and regulations governing the awards may be obtained from the office of the Dean of Administrative and Inter-Faculty Affairs, or from 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 an indefinite period. 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 Pilkington Glass Limited Travelling Scholarship in Architecture—A travelling scholarship, for the purpose of post-graduate study in England, 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 in Canada having a five-year course and will be of an annual value of \$1500 plus travelling expenses, cabin class, to and from England. A second and a third prize of \$100 and \$50 respectively will also be awarded. The period of the scholarship is eight months, of which the holder is required to spend six months in Britain (of which two may be spent in an office) and two months in selected travel abroad or otherwise. A report will be required on original research in a field of study made possible by the scholarship. Architectural students at the University of British Columbia are eligible to enter the competition. Further details may be obtained from the Director of the School of Architecture or from Pilkington Glass Limited, 27 Mercer Street, Toronto, Ontario.

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.

The R. C. E. Memorial Scholarships—Scholarships of \$125 each were offered in the Session 1950-51 to a number of universities in Canada, of which the University of British Columbia was one. These scholarships, established in memory of all ranks of the Corps of Royal Canadian Engineers who gave their lives in the Second World War, were awarded to selected students who had successfully completed their second to last year in a course leading to a degree in Applied Science or Architecture, who were in good standing in the Officers' Training Corps at the University, and had successfully completed at least one summer season's training with, or as a member of such a unit. Awards, made by the R. C. E. Memorial Scholarship Committee, Ottawa, were based on academic standing and qualities of leadership, as evidenced by participation in activities of the Officers' Training Corps and student affairs generally. Where two or more candidates from one university were considered equally meritorious, preference was given, firstly to a cadet who was the son of a member or a former member of the Corps of Royal Canadian Engineers, and secondly, to a candidate who is enrolled in the Royal Canadian Engineers Wing of his Officers' Training Corps.

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.

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 ability, character, leadership, and participation in the activities of the School. The winner will be selected by the Headmistress and Staff.

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 Women's Institute Memorial Scholarship—This scholarship of \$250, awarded annually by the Provincial Board of Women's Institutes, is available for a rural student who is taking the Home Economics Course at the University and is the daughter of an Institute member of at least three years' standing. Nominations for this scholarship should be forwarded to Mrs. R. Doe, Box 35, Salmon Arm, 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.

Leonard Foundation Scholarships—This National Foundation awards each year a number of scholarships for which students of the University of British Columbia are eligible. Application forms and further information may be secured from Professor F. H. Soward, a member of the General Committee of the Foundation. These forms should be forwarded to the Honorary Secretary of the Foundation, c/o Toronto General Trusts Corporation, 253 Bay Street, Toronto, not later than March 31 of each year. Whenever possible these applications should be filed in February. The awards are made at the annual meeting of the General Committee on the last Friday in May.

The Athlone Fellowships—The United Kingdom Government offers annually a limited number of fellowships to enable Canadian graduates in Engineering to undertake special or advanced training in industry or in educational or research establishments in the United Kingdom. The fellowships cover the cost of travel, tuition, and maintenance, and are tenable for a period of two years. Further particulars may be obtained from the Dean of Administrative and Inter-Faculty Affairs, the Dean of Applied Science or the Head of the Department of Mechanical Engineering.

Bursaries

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 May 31st or to the Grand Secretary, 144 Hastings Street West, Vancouver, not later than June 30th. All applications must be sponsored by an Odd Fellows Lodge, Rebekah Lodge, or Encampment.

The I. O. D. E. Second War Memorial Bursaries—These bursaries were established as a memorial to Canadian men and women who gave their lives in the Second World War. They are open to sons and daughters of deceased or permanently disabled men and women of the services. Provided there are suitable candidates, one bursary will be awarded in each Province and one in the Yukon. Each bursary has the value of \$400 a year for four years, renewal each year being subject to satisfactory standing. Awards will be made to candidates who meet the entrance require-

ments of the university of their choice. To be eligible applicants must write the departmental examinations of their province. Application forms and further information may be obtained from Mrs. F. Stead, Provincial Educational Secretary, I. O. D. E., 517 Ford Building, 193 East Hastings St., Vancouver.

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 for 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.

British Columbia Library Association Bursary—A bursary of not less than \$150, given by the British Columbia Library Association, is available annually for a student intending to adopt librarianship as a profession. To be eligible an applicant must be eligible for acceptance in an accredited library school. 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. It is to the student's advantage to have had some library experience. 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 Mrs. Alison C. Riddell, Vancouver Public Library, Vancouver, B. C.

The Eastern Star Bursary—This bursary, provided by the interest on a \$1000 Dominion of Canada Bond, is given annually by the Order of the Eastern Star to a student who is attending the University of British Columbia, in the Faculty of Arts and Science, and in whose immediate family there is a member of the Order. Names of eligible students are forwarded each year by the various chapters to the Secretary of the Grand Chapter of British Columbia. The award is made to that student who attains the highest average in regular subjects during the first three years of attendance at the University. Further information may be obtained from the Grand Secretary, Mrs. Hazel Freeze, 4767 Collingwood Street, Vancouver, B. C.

Prizes and Medals

French Government Medal—A medal will be awarded by the French Government for distinguished work in French Literature, on the recommendation of the Head of the Department of French.

French Government Book Prizes—Book prizes, offered by the French Government, will be awarded to students in French on the recommendation of the Head of the Department of French.

The Yale County Judges' Prize—This prize of \$100, gift of Their Honours Judge Colquhoun and Judge Archibald, was awarded at the close of the Session 1949-50 to the student in the graduating class of the Faculty of Law who ranked highest among those articulated to a member of the Bar practising in Yale County.

Loan Funds

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 largely on the basis of character and qualities essential to leadership. Application blanks may be obtained from the office of the Dean of Administrative and Inter-Faculty Affairs.

The P. E. O. Sisterhood Educational Loan Fund—The P. E. O. Sisterhood will assist young women of the age of 18 years or over with educational loans. Students enrolled in a four-year course must have satisfactorily completed the first term of work in order to be eligible. The maximum sum advanced to a student for one year's study is \$400 and for two or more years \$800, which latter sum must be the full indebtedness of the student. Interest is charged at the rate of 3% annually and loans must be repaid within five years from graduation. Further information may be obtained from the Dean of Women.

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.

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.

The H. R. MacMillan Lectureship in Forestry—Through the generosity of Mr. H. R. MacMillan, C.B.E., a fund of \$2500 was established to provide an annual lecture, for Forestry students, by an outstanding national figure in forestry or the forest industries.

1951-52

**THE
FACULTY
OF
ARTS and SCIENCE**

1951-1952

1951-52

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 leading to a Diploma in Teacher Training is provided in the School of Education, and a course leading to a Diploma in Hospital Administration in the School of Commerce.

COURSES LEADING TO THE DEGREE OF B.A.

The degree of B.A. is granted as an Honours degree or as a General Course degree. A General Course degree will be granted on completion of courses amounting to a minimum of 60 units chosen in conformity with Calendar regulations; an Honours degree will, similarly conforming, require 66 units. For departmental regulations in regard to Honours Courses see pages 106-116.

For regulations governing courses leading to double degrees see *Double Degrees*.

Course credits are described in terms of units. The unit values are given in the various course descriptions (page 119).

Registration and Admission

1. Registration must be completed during the period September 17-22, as described on page 5 and pages 40-42 inclusive.
2. After October 5th, except under very special circumstances and with the permission of Faculty, no student may alter the courses for which he has registered or enter classes for the first time.
3. All changes in registration must be made by the student at the Registrar's office. A student may not take courses for which he has not registered, and will be considered as having failed in all courses dropped without permission.

Summer Session and Other Credits

1. Although the degree of B.A. is normally granted on completion of the required units in the Winter Session, credits obtained in Summer Session may be combined with those obtained in Winter Session to complete the required number of units for the B.A. degree. The degree of B.A. will not be granted, however, in less than four years from University Entrance or three years from Senior Matriculation.
2. The maximum credit for Summer Session work in any one calendar year is 6 units.
3. The maximum credit for work other than that of the Winter and Summer Sessions is 3 units in each academic year, not exceeding a total of 15 units subsequent to Senior Matriculation or First Year.
4. No credit will be granted for work done at other universities in the same academic year in which work has been attempted in this University, whether in the Summer Session, the Winter Session or otherwise. Extra-mural work done at other universities prior to registration at this University may be accepted, if approved by Faculty, but may not exceed 3 units in respect of any one academic year or a maximum of 15 units subsequent to Senior Matriculation.

5. Students in attendance at the University of British Columbia may not register for extra-mural work to be taken concurrently.

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

Senior Matriculation Credits

Credit will be given in the *First Year only* for subjects passed in the Senior Matriculation Examinations, and only insofar as these subjects meet the requirements of the First Year. No credit will be given, however, for Senior Matriculation subjects which are passed subsequent to completion of the First Year, nor will subjects of the First Year completed prior to subjects of Senior Matriculation be transferred to a higher year.

Religious Knowledge Options

Students in any of the affiliated Theological Colleges who file with the Registrar a written statement expressing their intentions of graduating in Theology will be allowed to offer in each year of their Arts course, in place of the 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.

General Regulations

1. Students who are accepted from other institutions may not receive the B.A. degree unless they complete at least 15 units of the final year in attendance at the University of British Columbia.

2. Students who take more than 15 units in the First or Second Year may not receive credit in a higher year for these extra units unless they have previously completed at least 3 units of the year in which they are registered.

3. Subjects credited to one year may not be transferred later to a higher year.

4. Without the special permission of Faculty, no student may take less than 15 units in each Winter Session.

5. No student may take more than 18 units in each Winter Session.

6. Students may not receive university credit for courses passed in University Entrance whether taken among the required credits or as extra subjects.

7. Students may not continue with work in a higher year, unless they take concurrently all courses of the previous years (or permissible substitutes) for which they have not obtained credit. The total of all work taken may not exceed 18 units. They may not continue subjects, the prerequisites for which they have not successfully completed.

8. Students are responsible for ensuring that their courses have been chosen in conformity with Calendar regulations.

9. Attention is drawn to regulations concerning Examinations and Advancement, pages 117-118.

First and Second Years

In the First Year a minimum of 15 units is required*. In the Second Year of a General Course and of some Honours Courses, at least 15 units are required. In certain Honours Courses, however, 18 units must be taken.

Courses in each of the First and Second Years must be chosen to conform, not only with the rules and regulations in the preceding pages, but also with requirements A - F of the the First Year and requirements G - M of the Second Year, as set forth in the following tables and notes.

*For credit that can be given for Senior Matriculation standing, see pages 89 and 102.

Requirement Designation	First Year	Units	Refer to Notes :
A	English 100 and 101.....	3	.....
B	Language (other than English).....	3	1, 2, 5
C	Mathematics 101..... or Music 105..... or additional Language.....	3	2, 6 2, 6, 7 1, 2, 6, 7
D	Elective	3	1, 2, 4, 6
E	Elective	3	1, 2, 4, 6
F	Compulsory Physical Education.....	.....	9

Requirement Designation	Second Year	Units	Refer to Notes :
G	English 200.....	3	.....
H	Language (other than English).....	3	1, 3, 5
I	Elective	3	1, 3, 4, 6
J	Elective	3	1, 3, 4, 6
K	Elective	3	1, 3, 4, 6
L	Special Honours Elective.....	3	1, 3, 6, 8
M	Compulsory Physical Education.....	.....	9

REFERENCE NOTES

1. Not more than one course numbered below 100, taken at the University or by Senior Matriculation, may be counted for credit in the units required for the B.A. degree.

2. All courses for First Year credit (requirements A - E inclusive) must be selected from the following list. For prerequisites and other details consult pages 119-164.

Bacteriology 100	German 90, 100 or 101	Philosophy 100
Biology 100	Greek 90, 101	Physics 100 or 101 or 103
Chemistry 100 or 101	History 101, 202	Polish 110
Economics 100, 140	Latin 90, 101	Psychology 100
English 100 and 101	Mathematics 101	Russian 100
French 101	Music 105	Spanish 90, 101
Geography 101		

3. All courses for Second Year credit (requirements G - L inclusive) must be selected from the list in Note 2 or from the following additional subjects. For prerequisites and other details consult pages 119-164.

Anthropology 200	Geography 201, 202	Philosophy 202, 205, 210
†Architecture 150 and 160	Geology 200, 301, 302	Physics 200 or 203 or 220
Bacteriology 200	German 200	Polish 210
Biology 330	Greek 202, 314-15	Psychology 200, 201, 202
Botany 200	History 203, 304	Russian 200, 203
Chemistry 200, 205, 210	Home Economics 210	Slavonic Studies 205
†Commerce 151	Latin 202	Sociology 200
†Economics 200	Mathematics 200, 201, 202, 205	Spanish 201
English 200, 205	202, 205	Zoology 200
French 202, 203	Music 205	

†Architecture 150 and 160, Commerce 151, and Economics 200 are open only to those students who are permitted to register in the Second Year.

4. Of the electives under D, E, I, J, K:

(i) at least one course must be a laboratory science chosen from Bacteriology, Biology, Chemistry, Geography (except 201), Geology, or Physics. A student who takes at least 18 units of languages (other than English) in the combined First and Second Years may, however, defer this science course until his Third or Fourth Year;

(ii) at least one course must be chosen from Anthropology, Economics, Geography (201 only), History, Philosophy, Psychology, Slavonic Studies (205 only), or Sociology. A student who takes at least 12 units of laboratory science courses in the combined First and Second Years may defer this course until his Third or Fourth Year.

5. Courses under B and H must be chosen from French, German, Greek, Latin, Russian, and Spanish. Students must meet these requirements in accordance with *one* of the following plans:

(i) they may take a language course numbered 100 or 101 under B; and a course in the same language numbered 200, 201, 202, or 203 under H;

(ii) they may take a language course numbered 90 under B, a course in the same language numbered 100 or 101 under H, and, in the same language, a course numbered 200, 201, 202, or 203 as an *extra* subject in the Third or Fourth Year. *If this plan is chosen, 3 extra units will be required for the B.A. degree.*

(iii) if their courses include at least 12 units of laboratory science [see Note 4(i)] or at least 9 units of laboratory science and 6 units of Mathematics, they may take, under B and H respectively, any two of French 101, 202, German 90, 100 or 101, 200, Greek 90, 101, 202, Latin 90, 101, 202, Russian 100, 200 or 203, Spanish 90, 101, 201. Only one course numbered 90, however, may be selected.

Students whose courses in the combined First and Second Years include 18 units of laboratory science may defer the language of the Second Year to their Third or Fourth Year.

(iv) if they have taken French 101, German 100, or Latin 101 under Group I of the optional subjects of University Entrance, they may select French 202, German 200, or Latin 202 respectively under either B or H, and an elective in place of the other subject under B or H. If this language course is taken under B, a Third Year course in the language may be chosen for the elective under H.

6. Before making the choice under C, students should note:

(i) that Mathematics 101 is required for all courses in Architecture, Bacteriology, Biology (except 100), Botany (except 200), Chemistry, Commerce, Economics (except 100 and 140), Engineering, Forestry, Geography (except 101 and 201), Geology, Mathematics, Physics (except 103, 110, 203, for all of which Mathematics 91 of High School is prerequisite), Nursing, Pharmacy, Political Science, Pre-Medical and Pre-Dental courses, Sociology (except 200), and Zoology (except 200). It is also a prerequisite for majors or for Honours in all departments listed above and also for Honours in Philosophy, Psychology, and International Studies. Students will not be permitted to register for these courses unless they have previously taken Mathematics 101, except in the case of Bacteriology 100, Chemistry 100 or 101, and Physics 100 or 101, with any of which it may be taken concurrently.

(ii) that although Mathematics 91 is the prerequisite for Mathematics 101, students who have completed only Mathematics V of University Entrance will be permitted to take the course. Enrolment, however, may be restricted. An additional three hours of instruction per week in this course will, however, be required of all students who have taken only Mathematics V. The work taken in these extra hours will be considered as laboratory, and regulation 3 under "Examinations", page 117, is applicable to it.

7. Students who do not select Mathematics 101 under C must take one of Music 105, French 101, German 90, 100 or 101, Greek 90, 101, Latin 90, 101, Polish 110, Russian 100, Spanish 90, 101.

8. The special elective under L, which must be chosen from the subjects listed in Notes 2 and 3, need be taken only by students who are proceeding to these Honours Courses which require 18 units in the Second Year. The individual departments should be consulted. See also pages 106-116.

9. The compulsory courses in Physical Education are described on pages 164-167 inclusive. No units of credit are given for these courses.

Special Requirements

(For Applied Science, Commerce, Forestry, Law, Medicine, Pharmacy, Social Work, Teacher Training)

Students proposing to enter Social Work or Teacher Training after obtaining the B.A. degree should refer to pages 197 and 189 respectively, to ensure that they complete the necessary requirements. Students who are taking work in Arts and Science preparatory to entering Applied Science, Commerce, Forestry, Law, Medicine, or Pharmacy, should refer to the sections in the Calendar in which the admission requirements are set forth. Students planning to apply for entrance to other medical schools should obtain the specific requirements from those schools. Because of the limited number of applicants who can be accepted at this or other medical schools, they are advised to consult the deans, heads of departments, and counselling services, with respect to alternative careers for those who do not gain admission.

Third and Fourth Years

The requirements for a B.A. in the General Course and in an Honours Course, single or combined, are described in the following sections.

Credit will not be given toward the B.A. degree for courses in Commerce (except 151 and 371), Home Economics (except 210), Physical Education, and Social Work (except 499). Credit for courses in other Faculties will not be granted unless they are listed among the courses offered in the Faculty of Arts and Science or the student has obtained special permission from the Committee on Admissions, Standing, and Courses.

Graduation standing in either a General or an Honours Course is determined on the results of all courses taken in the Third and Fourth Years combined.

General Course Curriculum

In the combined Third and Fourth Years a minimum of 30 units, of which at least 15 units should be taken in the Third Year, are required. Depending on the selection of major subjects, as described later, courses must be selected in conformity with the requirements listed in Plan A or Plan B of the following table and reference notes.

Requirements for Third and Fourth Years (combined)	Units for Plan A	Units for Plan B	Refer to Notes:
Courses in first major subject.....	9	9	1, 2, 3
Courses in second major subject.....	6	9	1, 2, 3
Courses not in major subjects.....	6	6	1, 4
General electives.....	9	6	1, 5

REFERENCE NOTES

1. Not more than 6 units in courses numbered less than 300 may be taken for credit in the combined Third and Fourth Years. For the purpose of this regula-

tion, however, the following are considered as the equivalent of courses numbered 300 or higher: one only of Botany 200 and Zoology 200 (if both are taken); Geography 202; Geology 200; German 200; Greek 202; Latin 202; one of Mathematics 200, 202, 205 (if one of these has been taken in the Second Year); Philosophy 202, 205, 210; Psychology 200, 201, 202; Russian 203; Slavonic Studies 205; Sociology 200; Spanish 201; and also subjects deferred in accordance with Notes 4 and 5, page 104.

2. The subjects leading to a General Course degree are divided into two groups:

Group (1): Bacteriology, Biology and Botany, Chemistry, Geography, Geology, Mathematics, Physics, Psychology, Zoology.

Group (2): Anthropology, Economics, Education (not more than 6 units, chosen from Education 509, 510-582 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 (including Polish and Russian), Sociology, Spanish.

Each student must select two different major subjects. Work in the First or Second Year is required in each of these major subjects except Anthropology, Education, International Studies, and Political Science. In certain cases, however, the required First or Second Year course may be taken in the Third Year (subject to the limitation in Note 1), but a course thus taken may not be counted among the required units for a major.

If both major subjects are in the same group, Plan A must be followed. If the two major subjects are in different groups, Plan B must be followed.

3. Students who intend to enter Teacher Training should consult Section 3, page 189.

4. In the combined Third and Fourth Years at least 6 units must be taken in some subject or subjects other than those chosen as majors.

5. The general electives may be courses, not already chosen, selected in the major subjects or otherwise.

Honours Curriculum

The B.A. in an Honours Course requires the completion of the First and Second Years in conformity with the regulations above and of a minimum of 51 units in the combined Second, Third, and Fourth Years, of which not less than 15 units should be taken in each year. The following regulations govern Honours Courses:

1. A student who proposes to take an Honours Course must obtain the consent of the departments concerned. This consent will normally be granted only to a student who has a clear academic record at the end of his Second Year with at least Second Class standing in the subject or subjects of specialization, and who has taken the courses and fulfilled the prerequisites outlined below. A student may not continue in an Honours Course after the Third Year without the permission of the departments concerned. (Cards of application for admission to Honours Courses must be completed during the Registration period.)

2. 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 combined Third and Fourth Years must be taken in the department concerned, and at least 6 units outside it. For Honours in combined courses, at least 12 units in the combined Third and Fourth Years are required in each of two subjects. Particulars of these courses are given below.

3. A candidate for Honours may be required to present a graduating essay, which may count for not less than 3 and not more than 6 units. The latest date

for receiving graduating essays in the Second Term is the last day of lectures; and the corresponding date for the Autumn Congregation is October 1st.

4. A candidate for Honours is required to take at the end of his 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.

5. Honours are of two grades, First Class and Second Class. A student who does not attain a sufficiently high ranking may be awarded a General Course degree.

6. It is hoped to offer the following Honours Courses during the session 1951-52. 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

Anthropology

Prerequisites: A reading knowledge of a modern language, and a First Class or high Second Class standing in any two of Geography 201, Sociology 200, Economics 200, Psychology 201, Slavonic Studies 205, Philosophy 100 or 205, Biology 100.

Course: In the Third and Fourth Years, 12 units in Anthropology and 6 units from courses in Sociology or Psychology, Linguistics 319, or Zoology 300.

Bacteriology and Preventive Medicine

Prerequisites: Bacteriology 100, Biology 100, Chemistry 100 or 101, and Mathematics 101 must be completed by the end of the Second Year.

Course: In the Second Year, Bacteriology 200; in the Third and Fourth Years, Bacteriology 300 and 400 and at least 12 units selected in consultation with 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 101, Mathematics 101.

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 100 for Pathology options), Chemistry 200 (replaced by Geology 200 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 11 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 6 additional units to be chosen in consultation with the Department and in agreement with the option chosen.

Chemistry

Prerequisites: Chemistry 100 or 101, Mathematics 101, and Physics 100 or 101.

Course: In the Second Year, Chemistry 200, Mathematics 202, Physics 200, and 9 additional units to be chosen in consultation with the Depart-

ment; in the Third Year, Chemistry 300, 304, 310, Mathematics 300, and 6 additional units; in the Fourth Year, Chemistry 407, 409, 410, 411, 412, 449, and 3 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 101, a reading knowledge of French, German or Russian, and a First Class or a high Second Class in Economics 200.

Course: In the Third and Fourth Years, Economics 300, 301 (unless 400 has been taken), 335, 440, 441, 449 and two of 310, 320, 325, 330, 401, 405, 435 and Slavonic Studies 314.

If 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.

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: English Literature, 1100 to 1500.....	3
—442: English Literature and Language, 700 to 1100.....	3
—444: Bibliography	1
—445: Seminar	2
—449: Graduating Essay	3
— Courses which may be taken <i>either in or outside</i> the Department of English.....	18
— Courses which <i>must be taken outside</i> 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 may be required to write an examination in that subject.

Candidates will present evidence, by the end of the Fourth Year, of a reading knowledge of French, 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 and French 203; in the Third and Fourth Years, 18 units of French chosen from courses numbered 300 and above, a graduating essay (3-6 units), and other courses to complete the Honours requirements, chosen in consultation with the Department.

Geography

Prerequisites: In the First and Second Years, Mathematics 101, Geography 101, and two years of Russian, French or German.

Course: Geography 201 is recommended in the Second Year for those in the Social Sciences. The Honours Course requires 15 units chosen from any Third and Fourth Year Geography courses, and also a graduating essay to count 3 units. Because of the breadth of field encompassed by geography, some courses in Agriculture, Anthropology, Economics, Forestry, 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 101, Mathematics 101, Physics 100 or 101, a modern language, and, if possible, Biology 100.

Course: In the Second Year, Geology 200; Biology 100 or Zoology 200 (if Biology 100 has been taken); in the Third and Fourth Years, Geology 301, 302, 303, 304, 406, 407, 408, 409, 410, and 412 must be taken. Zoology 200 is recommended for the Third Year. A graduating essay (Geology 449) 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 18 units selected from German 300, 301, 302, 303, 400, 402; three units selected from History 314, Philosophy 205, or Slavonic Studies 330; and a graduating essay counting 3 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 in German, Russian, or Spanish); one of History 202 or 203; and two elective courses. 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 or 203.

Third and Fourth Year students must elect either History 304 or 309, write a graduating essay which will count 3 units, and take 12 other units which must be chosen from courses offered in the Third and Fourth Years. They must also attend the Honours Seminars 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 in German, Russian, or Spanish, 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 in German, Russian, or Spanish); Geography 201, History 101 (if not already taken) or History 202 (if not already taken). Slavonic Studies 205 is also recommended.

In the Third Year, a language course, International Studies 300, 301, or 310, the Seminar in Political Science (440) or the Seminar in Slavonic Studies (448); two of History 310, 312, 320, Slavonic Studies 308, 311, Geography 306, Economics 310, 325, Political Science 300.

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 Geography 307, History 415, 417, 419, 427, Economics 330, Political Science 400, 410, 435, Slavonic Studies 310, 312, 330, 412.

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 3 units. The candidates 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

Students may take Honours in

- (a) Mathematics,
- (b) Mathematics (Actuarial Option),
- (c) Applied Mathematics.

Prerequisites: Mathematics 101, Physics 100 or 101, Economics 100 or Psychology 100 (Actuarial Option), Chemistry 100 or 101 (Applied Mathematics). A reading knowledge of French, German or Russian is highly desirable. Students should elect at least one of these languages in the First or Second Year.

Course: In the Second Year, Mathematics 200, 202, Physics 200 (replaced by Mathematics 201 in the Actuarial Option), and 9 additional units; in the Third Year, Mathematics 320, 321, 322, and 9 or 10 additional units; in the Fourth Year, Mathematics 401, 402, 440, and 9 or 8 additional units. The additional units in any year must satisfy the general requirements for the B.A. degree in an Honours Course and must include courses chosen in consultation with the Department from one of the following groups:

- (a) Mathematics. Mathematics 306, 307, 400, 403, 405.
- (b) Mathematics (Actuarial Option). Mathematics 205, 306, 307, 405; Commerce 151; Economics 200, 300, 335, 410, 435; English 205; History 202, 312; Physics 200; Spanish 90, 101.
- (c) Applied Mathematics. Mathematics 306, 307, 400, 403, 405, 441; Physics 300, 302, 304, 308, 406.

Philosophy

Prerequisites: Mathematics 101, Psychology 100, Philosophy 100 (or 205 by permission only), and 3 units of a science.

Course: Philosophy 202, 210, 305, 310, 302 or 304, and 3 units of Physics.

Physics

Prerequisites: Chemistry 100 or 101, Mathematics 101, and Physics 100 or 101.

Course: In the Second Year, Mathematics 200, 202, Physics 200, and 9 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 101, a reading knowledge of French, German or Russian, and a First Class or high Second Class standing in Economics 200.

Course: In the Third and Fourth Years, Political Science 300, 400, 440, 441 and 449 and any three of Economics 320, Political Science 330, 425 and 435, History 309 and 419, Slavonic Studies 308, 330 and 412.

Psychology

Prerequisites: Biology 100, Mathematics 101, Philosophy 100 or 205, Psychology 100. At least Second Class standing must be obtained in the work of the Second Year.

Course: Psychology 200, 202, 301, 303, 400, 403; 404 or 405; Philosophy 202; Mathematics 205; Biology 304.

Slavonic Studies

Prerequisite: Russian 100.

Course: In the Second Year, Russian 200 or 203, and one of Slavonic Studies 205, Polish 110; in the Third and Fourth Years Russian 300 and Russian 400, and 12 units chosen from the following courses: Slavonic Studies 306, 308, 310, 312, 314, 330, 412, 448, Russian 319, 401, 402, 502, Polish 210, 318, History 415, International Studies 400.

Sociology

Prerequisites: For admission to the Third Year of the Honours Course, a First or high Second Class standing in Sociology 200 together with demonstrated competence in a foreign language.

Course: In the Third and Fourth Years, 9 units selected from lecture courses in Sociology and 9 units selected in consultation with the Department from lecture courses in other Social Sciences. Both Sociology 440 and 441 must be attended and an Honours Essay (Sociology 449) must be completed. Nine additional units of credit will be given in Sociology for this work. Sociology 439 or a Seminar in one of the other Social Sciences may be presented in lieu of one of the Sociology Seminars.

Spanish

Prerequisite: Spanish 101.

Course: In the Second Year, Spanish 201; in the Third and Fourth Years, 18 units of Spanish chosen from courses numbered 301 and above, a graduating essay (3-6 units), and other courses to complete the Honours requirements, chosen in consultation with the Department.

Zoology

Prerequisites: English 100-1, French 101, Mathematics 101, Biology 100, Chemistry 100 or 101.

Course: In the Second Year, English 200, German 90 or 101 or Russian 100, Zoology 200, Botany 200, Chemistry 200 (or Chemistry 210 with special permission), 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 unless exemption is given by the Department, a course from Note 4 (ii), page 104, Zoology 449 and three or four options.

Optional Courses: Zoology 302, 305, 306, 307, 308, 400, 401, 402, 403, 406, 412, 413; courses in Botany; Biology 400, 430, 431; Geology 406; Agronomy 421; Mathematics 405.

Within the Honours programme a student may proceed to a 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:

Anthropology, 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:

Anthropology

Prerequisites: A reading knowledge of a modern language, and a First Class or high Second Class in any two of Geography 201, Sociology 200, Economics 200, Psychology 201, Slavonic Studies 205, Philosophy 100 or 205, Biology 100.

Course: In the Third and Fourth Years, 12 units in Anthropology.

Bacteriology and Preventive Medicine

Prerequisites: Bacteriology 100, Mathematics 101, Chemistry 100 or 101, and Biology 100 must be completed by the end of the Second Year.

Course: In the Second Year, Bacteriology 200; in the Third and Fourth Years, Bacteriology 300 and 400 and 9 additional units selected in consultation with the Department. A research problem (3 units) must be undertaken.

Biology and Botany

Prerequisites: Biology 100, Chemistry 100 or 101, Mathematics 101.

Course: In the Second Year, Botany 200 and Chemistry 200 or the equivalent. In the Third and Fourth Years, 12 units selected from Third and Fourth Year courses in consultation with the Head of the Department.

Chemistry

Prerequisites: Chemistry 100 or 101, Mathematics 101, 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 12 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 of Latin 303, 304, 405, 406.

Economics

Prerequisites: For admission to the Third Year of the Honours Course, Mathematics 101, 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 Third and Fourth Years, Economics 300, 301 or 330, 335 and 3 further units in Economics courses numbered above 300. These 3 units may be replaced by the graduating essay (Economics 449) if it is written in Economics. In this case Economics 440 and 441 must be taken in 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, German or Russian.

Course: English 440, 444, 445, and any three of the English courses specified for the Third and Fourth Years.

Candidates will be required to take the following final Honours examinations on the history of English literature:

(1) 1500-1700; (2) 1700-1800; (3) 1800-1914.

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, 203; in the Third and Fourth Years, French 300, 302, and 6 additional units; 12 units in the second subject selected in consultation with the department concerned; and a graduating essay (3-6 units) in one or the other field.

Geography

Prerequisites: Geography 101 and Mathematics 101.

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 101, Mathematics 101, and Physics 100 or 101.

Course: In the Second Year, Geology 200; in the Third and Fourth Years 12 units selected in consultation with the Head of the Department; a graduating essay of value 3 units.

Geology and Geography

Prerequisites: Chemistry 100 or 101, Geography 201, Mathematics 101, and a modern language.

Course: In the Second Year, Geology 200 (Geography 101 passed with at least 75 per cent. accepted in lieu of Geology 200); in the Third and Fourth Years, 12 units in each of Geology and Geography selected in consultation with the Head of the Department, and a graduating essay counting 3 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, 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 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 101 (if not taken in the First Year), 202 or 203, and two other courses, one of which must be in the other Honours field.

Third and Fourth Year students must elect either History 304 or 309, and any 9 additional units of Third and Fourth Year History, of which the graduating essay, if written in History, will count 3 units. Students must also attend the Honours Seminars 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 101, Physics 100 or 101.

Course: Mathematics 200, 202, and 12 additional units in the Second Year; Mathematics 320, 321, 322, and 9 or 10 additional units in the Third Year; Mathematics 440 and any two of Mathematics 400, 401, 402, 403 and additional units to total 16 or 15 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 101, Philosophy 100 (or 205 by permission only), Psychology 100, and 3 units of science.

Course: Philosophy 202, 210, 305, 310; 302 or 304.

Physics

The following are the requirements for Physics combined with a subject other than Mathematics.

Prerequisites: Mathematics 101, 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 4 additional units in the Department.

Physics and Mathematics

Prerequisites: Chemistry 100 or 101, Mathematics 101, Physics 100 or 101.

Courses: In the Second Year, Mathematics 200, 202, Physics 200 and 9 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 101, a reading knowledge of French, German or Russian, and a First Class or high Second Class standing in Economics 200.

Course: In the Third and Fourth Years, Political Science 300, 400 and 6 units to be chosen from Economics 320, Political Science 425, 435, History 309 and 419, International Studies 400 and Slavonic Studies 412. Three of the 6 units mentioned may be replaced by the graduating essay (449) if it is written in Political Science. In this case, Political Science 440 and 441 must be taken in Third and Fourth Years.

Psychology

Prerequisites: Mathematics 101, Psychology 100, Philosophy 100 or 205.

Course: Fifteen units in Psychology selected in consultation with the Department, of which 12 units must be taken in the Third and Fourth Years.

Slavonic Studies

Prerequisite: Russian 100.

Course: In the Second Year, Russian 200 or 203; in the Third and Fourth Years, Russian 300 and 9 units selected from Slavonic Studies 306, 308, 310, 312, 314, 318, 400, 401, 402, 502.

Sociology

Prerequisites: For admission to the Third Year of the Honours Course, Mathematics 101, a reading knowledge of French, German or Russian, and a First Class or high Second Class standing in Sociology 200.

Course: In the Third and Fourth Years, 9 units selected from lecture courses in Sociology, and either Sociology 440 or 441. If the graduating essay, Sociology 449, is written in Sociology, it may be substituted for 3 of these units.

Spanish

Prerequisite: Spanish 101.

Course: In the Second Year, Spanish 201; in the Third and Fourth Years, 12 units of Spanish chosen from courses numbered 301 and above; 12 units in the second subject selected in consultation with the department concerned; and a graduating essay (3-6 units) in one or the other field.

EXAMINATIONS AND ADVANCEMENT

Examinations

1. Examinations in the Winter Session are held in December and April. In December they are held in all First and Second Year courses, and except where special exemption has been granted by Faculty, in all upper year courses. In April they are held in all courses except those final at Christmas. These examinations are obligatory for all students.

2. 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 of illness, a medical certificate must be presented on the appropriate form which may be obtained from the University Health Service.

3. In any course which involves both laboratory work and written examinations, students will be required to make satisfactory standing in both parts. Results in laboratory work will be announced prior to the final examination, and students who have not obtained a mark of at least 50% will neither be permitted to write the examination nor to receive any credit for the course. If the course is repeated no exemption will be granted from the work in either part.

Standing and Credit

1. Candidates taking at least 15 units of work, and obtaining at least 50% in each subject, will be graded as follows: First Class, an average of 80% or over; Second Class, 65 to 80%; Passed 50 to 65%.

2. (a) A student taking 9 or more units in the Winter Session will receive credit for a course only if, as a result of the final examinations of that Session, he passes in courses totalling at least 9 units, including the course in question. The passing grade for a course is 50%.

(b) A student taking less than 9 units in the Winter Session will receive credit for a course only if, as a result of the final examinations of that Session, he passes in all his courses. The passing grade for a course is 50%.

(c) A student in the Summer Session or in Extra-Sessional or Correspondence courses will receive credit for each course in which he obtains a grade of at least 50%.

3. Courses for which credit has not been obtained must be repeated, or permissible substitutes taken, in the next regular session attended. In the Winter Session the total of all courses taken may not exceed 18 units.

4. 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.

Supplementals

1. (a) In the Winter Session, a candidate will be granted a supplemental in a subject which he has taken during the Session provided (i) he has written the final examination and has obtained a final mark of not less than 35%; and (ii) he has obtained at least 9 units of credit in that Session. In any one session, no candidate will be granted supplementals in more than 6 units.

(b) In the Summer Session, a candidate will be granted a supplemental in a subject which he has taken during that session provided (i) he has written the final examination and has obtained a final mark of not less than 35%; and (ii) he has obtained 3 units of credit in that Session.

(c) In an Extra-Sessional or Correspondence course, a student will be granted a supplemental in a subject in which he has obtained a final mark of not less than 35%.

2. If a supplemental granted in a course is passed with a grade of at least 50%, credit will be given for the course.

3. In all but the final year a candidate who has been granted a supplemental may write it only once. If he fails, he must repeat the course or take a permissible substitute. In the final year he may write it twice (subject to the limitation in paragraph 3 under "Standing and Credit".)

4. 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.

Local centres for supplemental examinations in August 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 in addition to the regular fee of \$5.00 a paper for a supplemental examination.

5. 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.

Re-Readings

1. 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 \$5.00, which will be refunded only if the mark is raised.

2. 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.

3. 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 9 units or less or in the work of one Summer Session.

Unsatisfactory Standing

1. A student with standing defective in respect of more than 3 units, although he will not be permitted to register in a higher year, may be allowed to continue by registering in the lower year and by taking courses in accordance with Paragraph 3 under "Standing and Credit".

2. A student who, twice in succession, fails to obtain credits in the Winter Session may, upon the recommendation of Faculty, be required by Senate to withdraw from the Faculty.

3. 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.

COURSES IN ARTS AND SCIENCE

The number of units assigned to a course is given in round brackets immediately following the course number. Thus 200 (3) under Anthropology indicates that Anthropology 200 is a three-unit course.

The hours assigned for laboratory, lectures, and tutorials in a course are indicated as follows:

2 lectures and 3 hours laboratory per week, both terms.	[2-3; 2-3]
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]
2 lectures, 3 hours laboratory and 2 hours tutorial or discussion per week, both terms.	[2-3-2; 2-3-2]
2 lectures, 3 hours laboratory, and 2 hours tutorial or discussion per week, either term.	[2-3-2]

Anthropology

For Honours requirements in Anthropology see pages 107 and 113.

Anthropology 200 is the introductory and prerequisite course in this field. For additional background material the following courses are recommended: Geography 201, Economics 200, Sociology 200, Psychology 201, Philosophy 304, Biology 304, Slavonic Studies 205.

Students intending to do advanced work in Anthropology should prepare to take Linguistics 319 and Zoology 300.

200. (3) Introduction to Anthropology.—A comparative study of cultural institutions in the primitive world; of social grouping; of economic and political life, language, art, religion; brief considerations of the origins of man and culture, of the races of mankind and the meaning of race. Text-books: Hoebel, *Man in the Primitive World*; Jacobs and Stern, *General Anthropology*. [3-0; 3-0]

300. (3) Cultural Anthropology.—A more detailed study of primitive economics, art, language, religion, social and political organization, and the relationships between culture and the individual. References: Kroeber, *Anthropology*, 1948 edition; Gillin, *The Ways of Men*; Herskovits, *Man and His Works*; Nadel, *The Foundations of Social Anthropology*. Mr. Hawthorn. [3-0; 3-0]

430. (3) Theory of Culture.—A consideration of the growth and nature of cultural institutions, with a detailed study of selected culture. (May not be given in 1951-52). [3-0; 3-0]

400. (3) The Changing Primitive.—The impact of Western cultures upon the native peoples of Africa, Asia, the Pacific and the Americas with reference to government programmes. Mr. Hawthorn. [3-0; 3-0]

401. (3) Indians of British Columbia.—The pre-European cultures of British Columbia. [3-0; 3-0]

402 (3) Peoples of the Pacific.—(May not be given in 1951-52). [3-0; 3-0]

410. (3) Peoples of China, Japan and S.E. Asia.—(May not be given in 1951-52). [3-0; 3-0]

420. (3) Archaeology of British Columbia.—Theories on the prehistory of British Columbia. Methods and techniques employed in archaeological research. Each student will devote at least one afternoon a week to field and laboratory work and carry out a field study in archaeology. Mr. Borden. [2-3; 2-3]

440. (3) **Honours Seminar.**—Third Year Honours credit. Credit requisite: Honours or graduate standing.

441. (3) **Honours Seminar.**—Fourth Year Honours credit. Credit requisite: Honours or graduate standing.

449. (3) **Honours Essay.**

540. (3) **Master's Seminar.**

549. (3) **Master's Thesis.**

Architecture

150. (2) As in Applied Science.

160. (2) As in Applied Science.

451. (3) As in Applied Science.

Bacteriology and Preventive Medicine

For Honours requirements in Bacteriology and Preventive Medicine see pages 107 and 113.

Note: Courses 304, 305, and 407 in Dairying and Course 312 in Agronomy may be counted for credit in Bacteriology by students in Arts and Science.

100. (3) **Introductory Bacteriology.**—History of bacteriology; bacteria in nature; classification of bacterial forms; methods of culture and isolation; relation of bacteria to agriculture, industry, veterinary science, public health and sanitation. Prerequisites: Chemistry 100 or 101, either of which may be taken concurrently. This course is prerequisite to all more advanced courses in the Department. Special laboratory sections will be available for Pharmacy and Home Economics students. [1-4; 1-4]

200. (3) **Bacteriological Techniques.**—Theoretical principles underlying different methods of sterilization; preparation of differential media and stains; use of the microscope, centrifuge and other bacteriological apparatus; inoculation procedures. Practical experience in the glassware-cleaning and sterilizing, and media-making departments. Prerequisite: Bacteriology 100. This course must be taken by all students seeking a major or Honours degree in the Department. (Will not be given in 1951-52.) [1-4; 1-4]

300. (3) **Immunology.**—Protective reactions of the animal body against pathogenic micro-organisms; cellular and humoral immunity. Prerequisites: Bacteriology 100 and 200. This course must be taken by all students seeking a major or Honours degree in the Department. [1-4; 1-4]

302. (3) **Methodology of Bacteriological Research.**—Seminars and tutorials on literature of bacteriology and preventive medicine; execution of limited research problem; design of protocols with general presentation of results. Prerequisites: Bacteriology 200 with at least Second Class standing, and Bacteriology 300, with which this course may be taken concurrently. Restricted to students enrolled for an Honours degree in the Department.

303. (1½) **The Microbiology and Sanitation of Foodstuffs.**—The normal and abnormal microbiology of common foods, including milk and water. The significance of micro-organisms as indices of sanitation, and their role in food-borne infections and toxæmias. Prerequisites: Bacteriology 100 and 200. [0-0; 2-2]

400. (3) **Advanced Bacteriology and Immunochemistry.**—Chemical and antigenic structure of bacteria and viruses; theories of susceptibility and immunity; sensitization. Prerequisites: Bacteriology 200 and 300, with at least Second Class standing in both courses; and Chemistry 300. [2-2; 2-2]

402. (1½) Microbiological Physiology.—Physiology of bacteria, yeasts and molds, including growth, nutrition, respiration, and other aspects of metabolism; microbial physiology in medicine, sanitation and industry. Prerequisites: Bacteriology 200 and 300 with at least Second Class standing in both courses. [2-2; 0-0]

403. (1½) Pathology of Infection.—Stages in the development of host-parasite relationships. The gross and microscopic manifestations of certain infections of man and animals. Prerequisites: Bacteriology 200 and 300 with at least Second Class standing in both courses. [0-0; 2-2]

404. (3) Directed Studies in Bacteriological Literature.—Critical discussion of an advanced problem, followed by written or oral examination. Available to Honours students only.

405. (1) Seminar.—Reviews of bacteriological problems by Bacteriology 302, 404 and 406 students. Compulsory for Honours.

408. (1½) Animal Reservoirs of Human Infection.—Animal pathogens which are transmissible to man; the nature of such communicable infections in the animal body and their possible modes of conveyance to man. Prerequisites: Bacteriology 200 and 300 with at least Second Class standing in both courses. [2-2; 0-0]

409. (1½) Introduction to Viruses.—Properties of the simpler viruses. Techniques used for their growth, identification and assay. Prerequisites: Bacteriology 200 and 300 with at least Second Class standing in both courses; and Bacteriology 400, which may be taken concurrently. (This course may not be given in 1951-52). [0-0; 2-2]

410. (1½) Advanced Public Health Laboratory Techniques.— Prerequisites: Bacteriology 200 and 300, with at least Second Class standing in both courses. Recommended for students planning to undertake public health laboratory work after graduation. [2-2; 0-0]

411. (1) Pathogenic Fungi.—Morphology and physiology of fungi with special emphasis on pathogenic forms. Prerequisites: Bacteriology 200 and 300, with at least Second Class standing in both courses. [1-2; 0-0]

412. (1) Haematology.—Introduction to haematological techniques. The blood cell responses of the host to infections, toxic and degenerative processes. Prerequisites: Bacteriology 200 and 300, with at least Second Class standing in both courses. [0-0; 1-2]

449. (3) Research Problem.—In the final year of Honours, an investigation approved by Head of Department. The results form the graduating essay, to be reviewed by oral examination.

501. (1) History of Bacteriology and Epidemiology.—Reviews of classical reports in the field of microbiological discovery and their significance in the evolution of immunology and epidemiology. [1-0; 1-0]

502. (2) Virus Diseases.—Prerequisites: Bacteriology 200, 300 and 408, with at least Second Class standing in all. (This course may not be given in 1951-52).

503. (3) Directed Studies in Bacteriological Literature for Graduates.

549. (3-5) Master's Thesis.

Biology

For Honours and major requirements in Biology and Botany see pages 107 and 113.

Biology 100 is prerequisite to all other courses in Biology and Botany, and to all courses in Zoology.

100. (3) 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. Principles of biology; 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*. Members of the Department.
[2-2; 2-2]

304. (3) **Basic Physiology**.—Elementary human physiology. Course for Home Economics, Physical Education, Honours Psychology students, and students taking a Biology major and proceeding toward Teacher Training. Text-book: Best and Taylor, *The Living Body*. Prerequisites: Biology 100, Chemistry 100 or 101. Mr. Goranson.
[2-2; 2-2]

320. (3) **Basic Ecology**.—Primary methods and principles of ecology; bioecological view point. Laboratory and field exercises. References: Shelford, *Laboratory and Field Ecology*; Weaver and Clements, *Plant Ecology*; Clements and Shelford, *Bioecology*; Oosting, *The Study of Plant Communities*. Prerequisites: Botany 200, Zoology 200. Mr. Pillsbury.
[2-3; 2-3]

330. (3) **Principles of Genetics**.—Development of genetics; animal, plant and human examples. Text-book: Sinnott and Dunn, *Principles of Genetics*. Prerequisite: Biology 100. Mr. Hutchinson, Mr. Brink, Mrs. Brink.
[2-2; 2-2]

331. (2) **Principles of Forest Genetics**.—As Biology 330, adapted for Forestry. Department to be consulted. Prerequisite: Biology 100. Mr. Hutchinson, Mr. Allen, Mrs. Brink.
[0-0; 2-4]

400. (3) **General Physiology**.—Nature of animal and plant life processes. Text-book: Mitchell, *General Physiology*. Laboratory Manual: Zoethout, *Laboratory Experiments in Physiology*. Prerequisites: Biology 100, Chemistry 210 or 300, Physics 100 or 101. Mr. Allardyce.
[2-3; 2-3]

430. (3) **Seminar in Genetics**.—Review of advanced phases and more recent developments in genetics. Prerequisite: Biology 330. Two hours a week and essays. Mr. Hutchinson, Mr. Brink, Mrs. Brink.

431. (3) **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. For students majoring in Genetics. Prerequisite: Biology 330. Mr. Hutchinson, Mr. Brink, Mrs. Brink.
[2-5; 2-5]

448. (1-3) **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.

449. (3) **Graduating Essay**.—Students should consult the Department during the Third Year.

500. (3) **General Physiology Problems**.—Physiological controls with particular reference to vitamins and hormones. Prerequisite: Biology 400. Mr. Allardyce.
[2-2; 2-2]

501. (3) **Intermediary Metabolism and Biological Oxidations**. — Phosphorylations, energy transformations; electrophoresis. Prerequisites: Biology 400 or Zoology 412. Mr. Goranson.
[1-4; 1-4]

502. (3) **General Physiology: Recent Advances**.—Seminar. Prerequisite: Biology 400. Mr. Allardyce.
[1-4; 1-4]

530. (3) **Advanced Genetics**.—Prerequisite: Honours or a major in Genetics. The Department is to be consulted.

540. (3) Advanced Cytology.—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. Mr. Hutchinson. [1-6; 1-6]

549. Master's Thesis.

649. Ph.D. Thesis.

Botany

For Honours and major requirements see pages 107, 113.

Botany 200 is prerequisite to all other courses in Botany, and for Honours in Zoology.

200. (3) General Botany.—General perspective of the plant kingdom, physiological anatomy, ecological relations, and developmental trends. Text-book: Hill, Overholts, and Popp, *Botany*. Prerequisite: Biology 100. Mr. Taylor. [3-2; 3-2]

303. (2) Dendrology.—Identification and distribution of North American trees, designed particularly for Forestry students. Text-book: Harlow and Harrar, *Textbook of Dendrology*. Prerequisite: Botany 200. Mr. Taylor. [0-4; 0-4]

304. (3) Introduction to Systematics of Vascular Plants.—Text-book: Pool, *Flowers and Flowering Plants*. Prerequisite: Botany 200. Mr. Taylor. [1-4; 1-4]

312. (3) Bryology.—Mosses and liverworts. The systematic, anatomical and ecological phases. Prerequisites: Botany 200. Mr. Krajina. (Given in 1952-53 and alternate years). [1-4; 1-4]

315. (3) Mycology.—Taxonomy of fungi. Prerequisite: Botany 200. Mr. Dickson. [1-4; 1-4]

316. (2) Plant Pathology (Elementary).—Basic concepts of plant disease and plant disease control. Text-book: Heald, *Introduction to Plant Pathology*. Prerequisite: Botany 200. Mr. Dickson. [0-0; 2-4]

318. (3) General Forestry Pathology.—Life histories, control, and economics of diseases in relation to forest trees and forest products in Western North America. Text-book: Boyce, *Forest Pathology*. Prerequisite: Botany 200. Mr. Buckland. [2-2; 2-2]

330. (2) Plant Physiology.—Introduction to physiological processes of plants. Photosynthesis, transpiration, absorption, enzymes, respiration, plant hormones, and growth. Text-book: Meyer and Anderson, *Plant Physiology*. Prerequisite: Botany 200. Mr. Wort. [2-4; 0-0]

340. (3) Histology.—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*; Sorensen, *Plant Microtechnique*. Prerequisite: Botany 200. Mr. Hutchinson. [1-4; 1-4]

410. (3) Phylogenetics.—The origin and development of plant groups. Prerequisite: Botany 200. Mr. Krajina. [2-3; 2-3]

411. (2) Phycology.—A basic course on Algae. References: Smith, *Freshwater Algae of the United States*; Fritsch, *The Structure and Reproduction of the Algae*, Vols. I, II. Prerequisite: Botany 200. Mr. Davidson, Mr. Hutchinson. [0-0; 2-4]

418. (3) Applied Forest Pathology.—Laboratory and field techniques in handling forest pathological problems. Text-book: Boyce, *Forest Pathology*. Prerequisite: Botany 318, 315 or 316. Mr. Buckland. [1-4; 1-4]

420. (3) Forest Ecology and Geography.—Interrelations of forest trees and their environment; forest types and regions. References: Weaver and Clements, *Plant Ecology*; Halliday, *A Forest Classification for Canada*; Oosting, *The Study of Plant Communities*; Daubenmire, *Plant Ecology*. Two lectures and one period of field and practical work a week. Field trips. Mr. Pillsbury. [2-3; 2-3]

421. (3) Forest Associations.—The basis of forest sociological units. Prerequisites: Botany 303 and Biology 320 or Forestry 250. Mr. Krajina. [2-3; 2-3]

430. (2) Synthetic Processes of the Plant; Anabolism.—A study of constructive metabolism and related processes—absorption, translocation, synthesis of carbohydrates, fats and proteins, and derivatives. Prerequisites: Botany 330, Chemistry 300. Mr. Wort. (Given in 1951-52 and alternate years). [0-0; 2-4]

431. (2) Plant Enzymes and Catabolism.—Plant enzymes, digestion, and respiration. Prerequisites: Botany 330, Chemistry 300. Mr. Wort. (Given in 1952-53 and alternate years). [0-0; 2-4]

448. (1-3) 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.

449. (3) Graduating Essay.—Students should consult the Department during the Third Year.

500. (1) General Botanical Seminar.—Required of all graduate students in the Department.

503. (3) Systematics of Woody Plants.—Before registration in this course students are required to collect at least 75 species of woody plants. Part of the laboratory mark for the course is assigned to this collection. Prerequisite: Botany 303 or 304. Mr. Taylor. (Given in 1952-53 and alternate years). [1-4; 1-4]

504. (3) Systematics of Herbaceous Plants.—Before registration in this course students are required to collect at least 150 species of flowering plants. Part of the laboratory mark for the course is assigned to this collection. Prerequisite: Botany 304. Mr. Taylor. (Given in 1951-52 and alternate years). [1-4; 1-4]

514. (1) History of Plant Pathology.—The history of the science from ancient times to the present. Text-book: Whetzel, *An Outline of the History of Phytopathology*. Prerequisites: Botany 315 and 316. Mr. Dickson. [1-0; 1-0]

516. (3) Plant Pathology (Advanced).—For Honours or graduate students. Technique, isolation, and culture work; inoculations; progress of plant diseases; detailed study of control measures. Text-book: Rawlins, *Phytopathological Methods*. Prerequisites: Botany 315 and 316. Mr. Dickson. [1-4; 1-4]

517. (1-3) 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.

518. (3) Advanced Forest Pathology.—Detailed study of life histories and economics of forest tree diseases; pathology of forest products. Prerequisite: Botany 318 or equivalent. Mr. Buckland. [2-2; 2-2]

519. (1) Seminar on Plant Virus Diseases.—Required of all Honours and graduate students in plant and forest pathology. [1-0; 1-0]

520. (3) Problems in Plant Ecology.—Prerequisite: Biology 320 and 3 units additional in Ecology. The Department. [1-4; 1-4]

534. (2) Plant Microchemistry.—Isolation and identification of organic and inorganic substances in plant tissues, by microtechnical methods. Prerequisite: Botany 330. Desirable antecedent: Chemistry 300. Mr. Wort. (Given in 1952-53 and alternate years). [0-0; 2-4]

535. (2-3) Problems in Plant Physiology.—Recent advances in bio-physical and biochemical aspects of plant life. Original investigation of a problem is expected. Prerequisites: Botany 330, Chemistry 300, Physics 100 or 101. Mr. Wort. (Given in 1951-52 and alternate years). [0-0; 2-4]

549. Master's Thesis.

649. Ph.D. Thesis.

Evening and Short Courses in Botany

Open to all interested in the study of plant life of the Province. Illustrative material from the flora of British Columbia. Classes meet every Tuesday evening during the University session. A detailed statement is issued as a separate circular. Copies may be obtained on request from this or the Extension Department.

Chemistry

For Honours courses in Chemistry, see pages 107 and 113.

For courses in Biochemistry, see Faculty of Medicine.

100. (3) General Chemistry.—Designed to follow Chemistry 91 and primarily for science and engineering students. Fundamental theories, periodic table, inorganic reactions, chemical calculations. Text-books: Pauling, *College Chemistry*; Malm and Franz, *College Chemistry in the Laboratory*; Schaum, *Outline of Theory and Problems*. Prerequisites: University Entrance Chemistry 91, and Mathematics 101. The latter may be taken concurrently. [3-3; 3-3]

101. (3) General Chemistry.—For students with no previous chemistry. Includes the topics of both Chemistry 91 and Chemistry 100. Mathematics 101 must precede or be taken concurrently. Text-books: same as for Chemistry 100. [4-3; 4-3]

200. (3) Quantitative and Qualitative Analysis.—Principles of chemistry with special emphasis on analytical procedures; reactions of the common ions; ionic equilibria in solution. Text-books: Hamilton and Simpson, *Talbot's Quantitative Analysis*; Curtman, *Introduction to Semimicro Qualitative Analysis*. Prerequisite: Chemistry 100 or 101. [2-6; 2-6]

205. (3) Inorganic and Analytical Chemistry.—A course with less laboratory work and a greater range of lecture material than Chemistry 200. Systematic inorganic chemistry, properties of matter from a kinetic standpoint, equilibria in solution, physical chemistry useful in related sciences. Text-books: Chapin and Steiner, *Second Year College Chemistry*; Curtman, *Introduction to Semimicro Qualitative Analysis*. Prerequisite: Chemistry 100 or 101. Credit will not be given for both Chemistry 200 and 205. [2-3; 2-3]

210. (3) Elements of Organic Chemistry.—A general survey with reference to applications. Text-book: Lowry, Harrow and Apfelbaum, *An Introduction to Organic Chemistry*. Laboratory text-book: Boord, Brode and Bossert, *Laboratory Outlines and Notebook for Organic Chemistry*. Prerequisite: Chemistry 100 or 101. Credit will not be given for both Chemistry 210 and 300. [2-3; 2-3]

300. (3) Organic Chemistry.—Fundamental principles as illustrated by the main classes of organic compounds in the aliphatic and aromatic series. Text-book: Fieser and Fieser, *Textbook of Organic Chemistry*. Laboratory Manual: to be announced. Prerequisite: Chemistry 200. [3-3; 3-3]

304. (3) **Physical Chemistry.**—Theory and chemical properties of gases, liquids and solids; thermodynamics; solutions of non-electrolytes and electrolytes. Text-books: Daniels, *Outlines of Physical Chemistry*; Daniels et al, *Experimental Physical Chemistry*. Prerequisites: Chemistry 200 (except for students taking Honours in Physics) and Mathematics 202. Mathematics 300 concurrently is recommended. [3-3; 3-3]

305. (2) Same as Chemistry 304 with the omission of the laboratory. [3-0; 3-0]

310. (3) (a) **Advanced Quantitative Analysis**; (b) **Advanced Qualitative Analysis**.

(a) The more difficult estimations in analysis of rocks and certain constituents 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*; or Treadwell-Hall, *Quantitative Analysis*, Vol. II. Prerequisite: Chemistry 200. [2-6; 0-0]

(b) Detection and separation of the less common metals, particularly those that are important industrially. Text-book: Vogel, *Qualitative Analysis*; or Treadwell-Hall, *Analytical Chemistry*, Vol. I. References: Noyes and Bray, *Qualitative Analysis of the Rarer Elements*; McAlpine and Soule, *Qualitative Chemical Analysis*. [0-0; 2-6]

350. (3) **Introduction to Chemical Engineering.**—As in Applied Science. [3-3; 3-3]

407. (3) **Advanced Physical Chemistry.**—A continuation of Chemistry 304. Thermochemistry; chemical thermodynamics; elementary statistics; electrochemistry; atomic structure; kinetics of reactions; catalysis and surface chemistry. Text-books: Glasstone, *Text-book of Physical Chemistry*; Daniels et al, *Experimental Physical Chemistry*. Prerequisites: Chemistry 304; Mathematics 300, which may be taken concurrently. [3-4; 3-4]

409. (1½) **Qualitative Organic Analysis.**—Systematic identification of organic compounds and functional group reactions. Text-book: Shriner and Fuson, *Identification of Organic Compounds*. Prerequisite: Chemistry 300. [1-6; 0-0]

410. (1½) **Organic Reactions.**—Continuation of Chemistry 300. Alicyclic, carbocyclic and heterocyclic compounds, mechanism of organic reactions. Text-book: to be announced. Prerequisite: a Second Class in Chemistry 409. [0-0; 2-3]

411. (1) **History of Chemistry.**—Survey of chemical knowledge from the earliest times to the present day, with emphasis on chemical theory. Note: this course is open only to students taking Chemistry 407 and 409. [2-0; 0-0]

For Fourth Year or Graduate Students

412. (2) **Physical Inorganic Chemistry.**—Chemical properties of elements and their compounds from the point of view of simple atomic and molecular structure. Reference: L. Pauling, *Nature of the Chemical Bond*. [2-0; 2-0]

449. (3) **Thesis.**—Experimental, under the direction of a staff member.

458. (3) **Electrochemistry.**—As in Applied Science. [2-3; 2-3]

505. (1) **Theory of the Chemical Bond.**—Principles of quantum mechanics as applied to chemistry. The hydrogen molecule. Simple diatomic molecules. Hybrid orbitals and their relation to structural chemistry. Investigation of molecular structure by the method of molecular orbitals, as applied to polyatomic molecules. Reference: Eyring, Walter and Kimball, *Quantum Chemistry*. Prerequisite: Physics 500 or 504.

509. (1) **Seawater Analysis.**—Standard methods for the chemical analysis of seawater; salinity, oxygen, carbon dioxide, nutrient salts. [1-3; 0-0]

510. (1) **Chemistry of Seawater.**—Properties, reactions, and constitution of seawater. [0-0; 2-6]

512. (1) **Colloid Chemistry.**—Principles in the preparation and behaviour of disperse systems, including adsorption, catalysis, lyophobic and lyophilic systems. Prerequisites: Chemistry 300 and 304.

513. (1) **Chemical Thermodynamics: Principles.** — A discussion of the principles of modern chemical thermodynamics. First, second and third laws, general conditions of equilibrium, one-component systems. Text-book: Glasstone, *Thermodynamics for Chemists*.

514. (1) **Chemical Thermodynamics: Applications.** — Multi-component systems, chemical equilibria, properties of solutions of non-electrolytes, external forces. Text-book: As in Chemistry 513. Prerequisite: Chemistry 513.

515. (1) **Advanced Electrochemistry.**—Modern measurements of conductance, transport and electromotive force; Debye-Huckel interionic attraction theory; theoretical interpretations of activity coefficients; dissociation constants; electrode processes; polarography. Prerequisite: Chemistry 407. [1-0; 1-0]

518. (1) **Advanced Inorganic Chemistry.**—Properties of the elements considered in relation to the Periodic Table. Includes a study of the less common elements. Prerequisites: Chemistry 200 and 304. Reference: Hopkins, *Chemistry of the Rarer Elements*.

519. (1) **Radiochemistry.**—Natural and artificial radioactive elements, nuclear reactions, trans-uranic elements, tracer techniques and applications. Text-book: Friedlander and Kennedy, *Introduction to Radiochemistry*. Prerequisites: Mathematics 202, Chemistry 407. The latter may be taken concurrently and Mathematics 302 is recommended.

520. (1) **Molecular Structure.**—Physical methods for elucidating molecular structure. Prerequisite: Chemistry 407.

521. (1) **Statistical Mechanics.**—Fundamentals are developed and applied to the calculation of thermodynamic functions from molecular spectra. References: Gurney, *Statistical Mechanics*; Glasstone, *Theoretical Chemistry*.

522. (1) **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*. Prerequisite: Chemistry 407.

523. (1) **Chemical Kinetics.**—Kinetic theory, chemical equilibria, collision phenomena and activation, chain reactions, heterogeneous processes, reactions in solution, modern theories of absolute reaction rates. Text-books: Laidler, *Chemical Kinetics*; Hinshelwood, *The Kinetics of Chemical Change*. Prerequisite: Chemistry 407.

525. (1) **Physical Organic.**—Theoretical organic chemistry and selected organic reaction mechanisms. Text: to be announced.

526. (1) **Physical Chemistry of High Polymers.**—Nature and kinetics of vinyl and condensation polymerization; molecular weight determination; introduction to kinetic theory of rubber elasticity; relation between mechanical properties and gross molecular structure. Text-book: C. E. H. Bawn, *The Chemistry of High Polymers*. Prerequisite: Chemistry 407.

530-539. **Advanced Organic Chemistry.**—Individual discussions of selected subjects; courses offered in any year will be announced prior to the session.

531. (1) Stereochemistry.
 532. (1) Heterocyclic Compounds and Alkaloids.
 533. (1) Carbohydrates.
 534. (1) Conjugated Systems and Aromatic Character.
 535. (1) Polynuclear Hydrocarbons.
 536. (1) Isoprenoid Compounds.
 537. (1) Antibiotics.
 540. (1) Organic Analysis.—Macro, semi-micro and micro methods of analysis. [0-3; 0-3]
 548. Research Conference.—Attendance and presentation of a paper is required in each year of registration for the M.A. in chemistry. No unit value.
 549. (6) Master's Thesis.—Experimental, under direction of a staff member.

Economics

For Honours courses in the Department see pages 108, 113.

Economics 200 is a prerequisite for all other Economics courses except 100 and 140. Credit will not be given for both Economics 140 and 200.

100. (3) Economic History of Europe.—Influence of natural resources, climate, geography, discoveries, inventions, enterprise, investment, labour and government on the development of Europe from primitive times to the present day. Prerequisites: None. Text-book: Heaton, *Economic History of Europe*. Mr. Clark. [3-0; 3-0]

140. (3) Introduction to Political Economy.—A terminal course in fundamental economic concepts for students who do not propose to qualify for other courses in Economics. Nature of wealth; its production, accumulation, and exchange with particular reference to the framework, institutions and problems of the Canadian economy. Prerequisites: None. Text-book: Bladen, *An Introduction to Political Economy*. Mr. Harvey. [3-0; 3-0]

200. (3) Principles of Economics.—The agencies, institutions and processes involved in providing for society's material well-being; division of labour and exchange; roles of money, prices and profits; determinants of income, employment, and the standard of living. Prerequisites: First Year standing; Mathematics 101 (may be taken concurrently). Text-books: Logan and Inman, *A Social Approach to Economics*; Burns, Neil and Watson, *Modern Economics*; and another to be announced. Mr. Crumb and Mr. Jamieson. [3-0; 3-0]

300. (3) Money and Banking.—The origin and development of money, credit, and banking and the economic functions performed by commercial, savings, agricultural, and central banks in the world's principal countries. Foreign exchange, international banks; determinants of purchasing power; central banks as instruments of economic control. Text-books: Thomas, *Our Modern Banking and Monetary Systems*. References: James, *The Economics of Money, Credit and Banking*; Crumb, *Lessons in Money and Banking*. Mr. Crumb. [3-0; 3-0]

301. (3) Advanced Economic Analysis.—Theoretical foundations of economics with particular reference to the determinants of value; indifference; the concept of equilibrium; factor compensation. Prerequisites: Second Class standing in Economics 200. Text-book: Boulding, *Economic Analysis*. References: Stigler, *The Theory of Price*; Kierstead, *Essentials of Price Theory*. Mr. Crumb. [3-0; 3-0]

310. (3) International Trade.—The mechanism of international trade and finance with particular reference to exchange rate determination and trade policy. Price levels, purchasing power parity; government control of exchange rates; gold versus paper standards; protection and free trade; international cartels and monopolies; trade treaties and international agreements. Text-book: to be announced. Reference: Haberler, *The Theory of International Trade*. [3-0; 3-0]

320. (3) Government Finance.—Role of government. Theories of justice in taxation; characteristics of a good tax system. Principal expenditures and revenues of federal, provincial and municipal governments. Constitutional financial problems. Valuation of property; income and property taxes; succession duties. Dominion-Provincial fiscal relations; public borrowing and deficit financing. Text-book: Shultz and Harriss, *American Public Finance*, 5th edition. Mr. Clark. [3-0; 3-0]

325. (3) Labour Economics and Labour Problems.—Labour problems arising out of the factory system and large-scale enterprise; insecurity, unemployment and discrimination; working conditions, hours and wages. History, structure and functions of trade unions; employers' policies and associations; collective bargaining and industrial conflict; labour legislation and political action. Text-book: Reynolds, *Labor Economics and Labor Relations*. Reference: Bakke and Kerr, *Union Management and the Public*. Mr. Jamieson. [3-0; 3-0]

330. (3) History of Economic Thought.—Contributions of classical scholars, churchmen, philosophers and business-men to the development of economic ideas; the Mercantilists, Physiocrats, Cameralists; the work of Adam Smith; the distinguishing characteristics and the modern counterparts of the Classical, Historical, Socialist, and Marxian economic doctrines. Immediate background and present emphases of economics. Text-book: to be announced. [3-0; 3-0]

335. (3) Statistics 1.—Averages; dispersion; skewness; the normal curve; chi-square; index numbers. Sampling; time series analysis; correlation. Applications to business problems, vital statistics, forestry and agriculture. Text-books: Mills, *Statistical Methods; Lessons in Lettering, Book I, Vertical Single Stroke*; Clark, *Laboratory Manual for Elementary Statistics*. Mr. Clark. [3-2; 3-2]

401. (3) Business Cycles.—Analysis of the phenomena of recurrent periods of prosperity and depression. Theories 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*, Third edition. (May not be given in 1951-52.) [3-0; 3-0]

405. (3) Transportation.—Development of railway, highway, water, air and urban transportation agencies in Canada; theory and practice of rate-making; theory of the location of industry; governmental fixation of rates. Text-book: Jackman, *Economic Principles of Transportation*. Mr. Harvey. [3-0; 3-0]

410. (3) Economic History of the United States and Canada.—Major economic developments and trends in the United States and Canada, from colonial times to the present. Text-books: Shannon, *America's Economic Growth*; Currie, *Canadian Economic Development*. Mr. Jamieson. [3-0; 3-0]

435. (3) Statistics 2.—General theory of frequency curves; elementary theory of random sampling; advanced sampling problems; multivariate analysis. Recommended prerequisites: Second Class standing in Economics 335 and either Mathematics 200 or 202. Text-books: Smith and Duncan, *Ele-*

mentary Statistics and Applications, and Sampling Statistics and Applications.
Mr. Drummond. [2-2; 2-2]

440. (3) Honours Seminar.—Reports and group discussions under staff direction of important aspects of advanced economic study for Third Year Honours credit; credit requisite, Honours or graduate standing. [2-0; 2-0]

441. (3) Honours Seminar.—Same as 440 for Fourth Year Honours and graduate credit; credit requisite, Honours or graduate standing. [2-0; 2-0]

449. (3) Honours Essay. — Essay on some theoretical or institutional problem, to be selected in consultation with members of the departmental staff. Must be submitted in final form on or before the beginning of the examinations preceding the congregation at which the student expects to receive his degree.

500. (3) Contemporary Economic Theory.—The approach, major content and emphasis of contemporary economic thinking, with special reference to equilibrium, income analysis and employment theory. Prerequisites: Economics 301 or 400 and graduate standing. Text-books: Hicks, *Value and Capital*; Fellner and Haley, Editors, *Readings in the Theory of Income Distribution*. Mr. Drummond. [3-0; 3-0]

540. (3) Master's Seminar.—Readings, consultations and reports on such phases of contemporary theory and institutional practices as may be designed to meet the needs of candidates for the Master's degree in Economics. Credit requisite, graduate standing. May be held concurrently with the Honours seminars. [2-0; 2-0]

549. (3) Master's Thesis.—A comprehensive treatment of some theoretical or institutional problem to be selected in consultation with the Departmental staff. Must be submitted in final form on or before the beginning of the examinations preceding the congregation at which the student expects to receive the degree.

Other Courses which Qualify for Economics Credit

Geography 201. (3): recommended for economic majors and Honours candidates as a foundational course on economic institutions and arrangements.

Commerce 151. (3): recommended for Honours graduates contemplating careers as professional economists.

Commerce 371. (3): recommended for students interested in the financial organization of the economy.

Agricultural Economics 301. (3).

Agricultural Economics 500. (3).

Slavonic Studies 205. (3).

Slavonic Studies 312. (3).

Slavonic Studies 314. (3): recommended only for students, one of whose major subjects is Economics.

English

For Honours courses in English see pages 108 and 114.

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.

Students who have failed either part of English 100, 101 will be required to repeat both parts. No further courses in English may be taken until both parts have been passed.

English 200 is prerequisite to English courses above 400 for all students proceeding to a B.A. degree.

Students not proceeding to a B.A. degree may offer English 205 instead of English 200 as a prerequisite to certain English courses in the 400 group.

Every student is required to own a good dictionary; e.g., "The Concise Oxford Dictionary", "The American College Dictionary", "Webster's Collegiate Dictionary", "The Winston Simplified Dictionary".

First Year

100, 101. (3) Literature and Composition.—Elementary study of the short story, the play, the essay, the simpler sorts of poetry. Elementary principles of composition. Themes and exercises are required. This course is not divisible, for purposes of credit, into two parts. Texts: *A Little Treasury of Modern Poetry*, ed. O. Williams; *Masters of the Modern Short Story*, ed. Havighurst; Shakespeare, *Antony and Cleopatra*; Shaw, *Saint Joan*; *Century Collegiate Handbook*, ed. Greever and Jones, third edition. [4-0; 4-0]

Second Year

200 (3) Literature.—From Chaucer to Browning. Essays are required. Texts: *The College Survey* (Shorter Edition), ed. Whiting, et. al.; Shakespeare, *Hamlet*; *Stories from Hakluyt*, ed. Wilson; Swift, *Gulliver's Travels*; Fielding, *Joseph Andrews*; Austen, *Pride and Prejudice*; Dickens, *Great Expectations*. [3-0; 3-0]

205. (3) English Composition and Literature.—Designed for students in the Faculty of Agriculture, and in Architecture, Commerce, Physical Education, Pharmacy, and Home Economics. Training in advanced composition, in research, and in the preparation of term papers and reports. Selected readings from various types of modern writing. Reports and essays are required. Texts: Brooks and Warren, *Modern Rhetoric*; Blakey and Cooke, *The Preparation of Term Essays*. [3-0; 3-0]

Third and Fourth Years

401. (3) Creative Writing.—Practice in imaginative writing, particularly the short story, familiar essay, and literary article. Enrolment will be limited. Applicants must write to Mr. Birney before September 1st. [3-0; 3-0]

402. (3) Classics of European Literature.—(Not given in 1951-52).

405. (3) 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. [3-0; 3-0]

406. (3) English Poetry.—Critical studies of representative English poems grouped according to form and content. Offered only in Summer Session. [3-0; 3-0]

408. (3) Elizabethan Literature.—The lyric, the sonnet sequence, the pastoral, the prose romance, realistic prose and verse, literary criticism, the essay. Authors studied will include Sidney, Daniel, Drayton, Campion, Jonson, Bacon and Donne. The work of Spenser in detail. The King James version of the Bible and its influence will receive special attention. Texts: Hebel and Hudson, *Poetry of the English Renaissance*; *The Oxford Spenser*. [3-0; 3-0]

411. (3) The Drama to 1642.—Aristotle's theory of tragedy; certain influential Roman dramatists; miracle plays, morality plays, interludes; main

emphasis upon Elizabethan drama, its development, culmination, and decline. Texts: Parks and Beatty, *The English Drama 900-1642*; *The Complete Works of Shakespeare*, ed. Kittredge; or the *New Cambridge Shakespeare*, ed. Neilson and Hill. [3-0; 3-0]

412. (3) **Shakespeare.**—A careful study of about six of the plays. **Preliminary reading is required.** [3-0; 3-0]

420. (3) **The Drama Since 1660.**—A survey of the chief developments of dramatic art from the Restoration to the present day. [3-0; 3-0]

421. (3) **Theatre Practice.**—(a) Principles of acting, pantomime, interpretation of the role, acting scenes, participation in a play. (b) Breath control, tone quality, articulation, interpretation of the spoken line. (Not given in 1951-52.) [2-2; 2-2]

422. (3) **History of the Theatre.**—Western theatrical presentation from the Greek era to the present. Representative plays of important periods, with special emphasis upon the theatres, the art of the actors, scenic effects, styles of production, and dramatic theory. Students will participate in workshop presentations of plays. (Not given in 1951-52.) [3-0; 3-0]

425. (3) **Seventeenth-century Literature.** — Milton, with emphasis on *Paradise Lost*. The poetry of Donne and his followers. Development of prose styles. Texts: *Poetical Works of John Milton*; Coffin and Witherspoon, *Seventeenth Century Prose and Poetry*. [3-0; 3-0]

426. (3) **Eighteenth-century Literature.**—From the Restoration to the end of the eighteenth century: the Age of Dryden, the Age of Pope, and the Age of Johnson. The significant authors are related to the broad cultural movement of the age. Texts: *Selections from Dryden*; Swift, *Gulliver's Travels and Other Writings*; *The Best of Pope*; Boswell, *Selections from Life of Johnson*; *A Johnson Anthology*. [3-0; 3-0]

427. (3) **The English Novel.**—From Richardson to Hardy. **Preliminary reading is required.** [3-0; 3-0]

428. (3) **American Literature to 1865.**—Emphasis is given to Franklin, Poe, Emerson, Thoreau, Hawthorne, and Melville. Canadian writings are included. Texts: Norman Foerster, *American Poetry and Prose* (3rd ed.); A. J. M. Smith, *The Book of Canadian Poetry* (rev. ed.). (Given in 1950-51 and alternate years). [3-0; 3-0]

429. (3) **American Literature Since 1865.**—Emphasis is given to Whitman, Clemens, James, Dickinson, Dreiser, Wolfe, Hemingway, and Eliot. Canadian authors are also studied. Texts: to be announced. (Given in 1951-52 and alternate years). [3-0; 3-0]

430. (3) **The Romantic Period.**—Chiefly Wordsworth, Coleridge, Byron, Shelley, and Keats. Text: Campbell, Pyre, and Weaver, *English Poetry and Criticism of the Romantic Movement*. [3-0; 3-0]

431. (3) **Victorian Poetry.**—Chiefly Tennyson, Browning, and Arnold. A few weeks devoted to later poetry. Text: Stephens, Beck, and Snow, *Victorian and Later English Poets*. [3-0; 3-0]

432. (3) **Victorian Prose.**—Mill, Ruskin, Carlyle, Newman, Arnold, Darwin, Huxley, and Butler. Texts: Mill, *Utilitarianism and Liberty*; Ruskin, *Unto This Last*; Carlyle, *Sartor Resartus*; *Heroes and Hero Worship*; *Past and Present*; Newman, *Apologia Pro Vita Sua*; *Idea of a University*, ed. Yardley; Arnold, *Representative Essays*, ed. Brown; *Literature and Dogma*; Darwin, *Origin of Species*, Chapter IV; Huxley, *Readings from Huxley*, ed. Rinaker; Butler, *Erewhon*. [3-0; 3-0]

433. (3) **Contemporary Literature.**—Outstanding writers of the present generation; literary developments in the essay, poetry, and fiction. Texts:

An anthology of essays, to be announced; Untermeyer, *Modern American Poetry and Modern British Poetry*; three novels (inexpensive editions) to be announced. [3-0; 3-0]

440. (3) **English Literature, 1100 to 1500.**—A study of the more important works in medieval English literature, with special emphasis on the work of Chaucer. [3-0; 3-0]

442. (3) **English Literature and Language, 700 to 1100.**—A survey of Old English Literature and an elementary study of the English language in Anglo-Saxon times. [2-0; 2-0]

443. (3) **Language.**—The vocabulary, syntax, accent, and phonology of English from the historical point of view. The development of modern English. (Not given in 1951-52.) [3-0; 3-0]

444. (1) **Bibliography.**—Sources and methods. [1-0; 1-0]

445. (2) **The Simpler Methods of Criticism and Investigation.** [2-0; 2-0]

448. (3) **Aesthetics.**—The problem of aesthetic value; the function of criticism. (Not given in 1951-52.) [3-0; 3-0]

449. (3) **Graduating Essay.**

Graduate Courses

500. (3) **History of Criticism.**—From Plato and Aristotle to the present. Emphasis upon English critics. (Not given in 1951-52.) [3-0; 3-0]

504. (3) **Poetic Drama.**—Dramatic form and blank verse technique from Marlowe to T. S. Eliot. [3-0; 3-0]

549. **Master's Thesis.**

French

For Honours courses in French see pages 109 and 114.

Attention of students is called to Linguistics 319.

101. (3) **First Year University French.**—Reading of French authors. Review of grammar, composition, pronunciation. Texts: Irvin and King, *Lectures intermédiaires*; Mesnard, *A Review of French Grammar*. [3-0; 3-0]

202. (3) **Second Year University French.**—A study of the following texts: *Contes divers de trois siècles* (Lapp); *Stories from Balzac* (Buffum). Composition in French based on the above, and on Mesnard, *A Review of French Grammar*. One additional hour of conversational practice may be taken without credit. [3-0; 3-0]

203. (3) **Training in Speech and Writing.**—Preparatory course for Honours students. Texts: Faguet, *Ce que disent les livres*; Flaubert, *Madame Bovary*. [3-0; 3-0]

300. (3) **Literature of the Seventeenth Century.**—History and social conditions; development of the literature. Texts: Corneille, *le Cid*; Racine, *Andromaque*; Molière, *les Précieuses ridicules*, *le Tartuffe*; selected works of Malherbe, La Fontaine, Boileau and La Bruyère. This course is obligatory for all students taking Honours or majoring in French. It is open to all students of the Third and Fourth Years. [3-0; 3-0]

301. (3) **French Novel and Drama of the Twentieth Century.**—A study of representative works of the following authors: France, Gide, Mauriac, Malraux, Camus, Sartre. (Open to General Course students). [3-0; 3-0]

302. (3) **French Practice.**—Composition and phonetics; training in conversation and pronunciation. Text: Coindreau and Loy, *Contes et nouvelles du temps présent*. (This course is obligatory for all students taking Honours or majoring in French.) [3-0; 3-0]

400. (3) **Literature of the Nineteenth Century.**—A study of representative authors and works. Texts: Chateaubriand, *Atala, René* (éd. Weil); Balzac, *le Curé de Tours, un Début dans la vie*; Zola, *l'Assommoir*; Hugo, *Ruy Blas*; Becque, *les Corbeaux*; *French Lyrics of the Nineteenth Century* (Henning). [3-0; 3-0]

401. (3) **Literature of the Eighteenth Century.**—History of ideas from the *libertins* at the beginning of the century to the Revolution; development of the *mouvement encyclopédique*; interrelations of French, English and German thought and literature. Texts: Montesquieu, *Lettres persanes*; Voltaire, *Poésies choisies*; Diderot, *le Neveu de Rameau*; Rousseau, *Rêveries d'un promeneur solitaire*; Prévost, *Manon Lescaut*; Beaumarchais, *le Barbier de Séville, le Mariage de Figaro*. [3-0; 3-0]

402. (3) **Études pratiques.**—French institutions and current events. Oral and written practice, advanced composition, readings and discussions. [3-0; 3-0]

403. (3) **Course for Teachers.**—Advanced composition and syntax; phonetics and diction; oral practice. (This course is given in the Summer Session only.)

449. (3-6) **Graduating Essay.**—For Honours only.

Graduate Courses

501. (3) **The Middle Ages.**—A survey of French literature from the beginnings to the fifteenth century. Text: Karl Bartsch, *Chrestomathie de l'Ancien Français*. [3-0; 3-0]

502. (3) **Literature of the Sixteenth Century.**—A study of the French Renaissance based on readings from the works of Rabelais, Marot, Du Bellay, Ronsard and Montaigne. [3-0; 3-0]

503. (3) **Modern French Poetry.**—A study of French poetry from Baudelaire to the *surréalistes*. (May not be given in 1951-52). [3-0; 3-0]

549. (3-6) **Master's Thesis.**

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 on page 104, requirement in Note 4 (i) of the Calendar.

Note: Geology 305, Geology 412 are accepted as courses in Geography, except for Geology students.

101. (3) **Elementary Physical Geography.** — Introductory course; 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; laboratory: elementary surveying and map making; interpretation of climatic, distribution and topographic maps; the study of common minerals, rocks and fossils. Text: Thompson, *Fundamentals of Earth Science*, 1947. Mr. Mackay. [3-2; 3-2]

201. (3) **Human and Economic Geography.** — An introductory course dealing with man and his occupations; the effect of physical environment upon the distribution of world population; the distribution of natural resources and problems of trade. Text: Bengston and Van Royen, *Fundamentals of Economic Geography*, 1950, or Case and Bergsmark, *College Geography*, 1949. Mr. Robinson. [3-0; 3-0]

202. (3) **Weather and Climate.**—Elementary study of weather phenomena; practical weather observations and recording; analysis of daily weather maps; climatic classification and description; distribution of climatic types. Additional work required of those wishing Third or Fourth

Year credit. Text: Trewartha, *An Introduction to Weather and Climate*, 2nd edition, 1943. Mr. Chapman. [2-2; 2-2]

301. (3) **Cartography and Map Reading.**—Historical cartography, map projections, methods of showing relief, aerial photographs, distribution maps, statistical graphs and cartograms, and sources of maps; practical field mapping and methods of land utilization survey. Text: Raisz, *General Cartography*, 1948. Mr. Mackay. [2-2; 2-2]

303. (3) **World Regional Geography.**—Physical structure, resources, climate, population, transportation, and industry of the continents. Recommended for students taking only one course in Geography. Mr. Chapman. [3-0; 3-0]

306. (3) **Economic Geography (Natural Resources and World Affairs).**—Geographic interpretation of modern problems of peace and war: food supply, energy, natural resources, population, transportation, and trade. Mr. Warren, Mr. Griffith, Mr. Rowles. [2-2; 3-0]

307. (3) **Human and Political Geography.**—Influences of natural environment upon man; life and occupations of man in climatic regions such as the arctic, tropics, deserts, mountains; world population problems; boundary problems; development of geopolitics. Geography 201 should precede this course. Text: White and Renner, *Human Geography*, 1948, or Percy and Fifield, *World Political Geography*, 1948. Mr. Robinson. [3-0; 3-0]

406. (3) **Geography of Asia.**—Physical and human geography; topography, climate, resources, population distribution and industrial development. Special emphasis on the Soviet Union, India and Far East. Text: Cressey, *Asia's Lands and Peoples*, 1951. Mr. Mackay. [3-0; 3-0]

408. (3) **Regional Geography of Europe.**—Physical and human geography of Europe; climatic characteristics; development of resources; population; natural regions. Text: Shackleton, *Europe, A Regional Geography*, 3rd edition. Mr. Chapman. [3-0; 3-0]

409. (3) **Geography of North America.**—Regional geography with emphasis on Canada; physiography, climate, natural resources, population; primary industries. Text: Putnam, *Regional Geography of Canada*, 1951. Mr. Robinson. [3-0; 3-0]

445 (1½) **Honours Seminar.**—History, philosophy, scope and contents of geography; different fields of geography; professional opportunity. Required for all Third and Fourth Year Honours students. May be attended by senior majors without credit. [2-0; 2-0]

449. (3) **Honours Essay.**—Required for Fourth Year Honours students. Topic to be selected in consultation with the Department.

Primarily for Graduate Students

The following seminar courses are open to senior students with proper prerequisites and departmental permission.

501. (1½) **Field Mapping and Cartographic Problems.**—Field methods with emphasis on population and land use mapping. The use of maps in research problems. Prerequisite: Geography 301. Mr. Mackay. [0-0; 2-2]

502. (1½) **Climatology.**—Advanced study in both theoretical and applied climatology. Prerequisite: Geography 202. Mr. Chapman. [2-2; 0-0]

503. (1½) **Problems in Canadian Geography.**—Research problems and discussion on certain geographic regions of Canada. Prerequisite: Geography 409. Mr. Robinson. [0-0; 2-2]

549. (3) **Master's Thesis.**

Geology

For Honours courses in Geology see pages 109, 114.

200. (3) General Geology. — Introductory course: "Physical Geology", including weathering, ground water, stream, glacier and wind action, the ocean and its work, earth structure, earthquakes, vulcanism, intrusions, metamorphism and mineral deposits; "Historical Geology" includes history of the earth and its life. Text: Longwell, Knopf, Flint, Schuchert, and Dunbar, *Outlines of Geology*, 1941. Students intending to continue in geology should purchase *Textbook of Geology*, Parts I and II, 1948, by the same authors instead of *Outlines of Geology*. Prerequisites: Chemistry 100 or 101 and Physics 100, 101, or 103 before or concurrently. Mr. Okulitch, Mr. White. [2-2; 2-2]

301. (1½) Morphological Crystallography.—Thirty-two crystal classes with reference to natural and artificial crystals; space lattices, symmetry elements, stereographic and gnomonic projections; optical activity, pyroelectricity and piezoelectricity in crystals. Prerequisites: Geology 200 or Second Class standing in Geography 101. Mr. Thompson. [2-2; 0-0]

302. (3) Mineralogy.—Elementary crystallography, physical, systematic, descriptive (and determinative) mineralogy of approximately one hundred rock-forming and ore minerals. Text: Dana, *Text-book of Mineralogy*, revised by Ford, 4th edition. Prerequisites: Geology 200, or Second Class standing in Geography 101. Mr. Warren, Mr. Thompson. [2-2; 2-2]

303. (1½) Optical Mineralogy.—The theory and use of the polarizing microscope in identifying the non-opaque minerals. Text: Rogers and Kerr, *Optical Mineralogy*. Prerequisites: Geology 301; 302. Mr. McTaggart. [0-0; 2-2]

304. (3) Structural Geology. — Primary and secondary structures in rocks; practice in solving structural problems. Text: Lahee, *Field Geology*, 1941. Prerequisites: Geology 200; 302 concurrently. Mr. White. [3-0; 3-0]

305. (2) Historical Geology.—A brief study of the development of the geological sciences, and the historical geology of North America. Text: Dunbar, *Historical Geology*, 1949. Prerequisite: Geology 200. Mr. Gunning, Mr. Okulitch. [2-0; 2-0]

307. (1) Petroleum and Natural Gas.—Origin and occurrence of petroleum, natural gas and structural materials. Text: Bateman, *Economic Mineral Deposits*, 1950. Prerequisites: Geology 200; 302 concurrently. Mr. Mathews. [1-0; 1-0]

308. (½) Coal.—Origin and occurrence of coal. Text: Bateman, *Economic Mineral Deposits*, 1942. Prerequisites: Geology 200; 302 concurrently. Mr. Mathews. [1-0; 0-0]

406. (3) Palaeontology.—Invertebrate and vertebrate fossils, their classification, identification, and geological distribution. Text: Twenhofel and Shrock, *Invertebrate Palaeontology*. Prerequisites: Geology 200. Biology 100 and Zoology 200 are recommended. For students majoring or taking Honours in Zoology, a reading course in historical geology may be substituted for Geology 200. Mr. Okulitch. [2-2; 2-2]

407. (3) Petrology.—The discipline and interpretive study of igneous, sedimentary and metamorphic rocks. Text: Tyrrell, *The Principles of Petrology*. Prerequisites: Geology 302, 303. Mr. McTaggart. [2-3; 2-3]

408. (3) Mineral Deposits.—Manner of occurrence, genesis, structure, and distribution of the principal metallic and non-metallic mineral deposits, with type illustrations. Text: Bateman, *Economic Mineral Deposits*, 1950. Prerequisites: Geology 302, 304; 453 or 407 must precede or accompany. Mr. White, Mr. Gunning. [3-0; 3-0]

409. (2) Mineralography.—Study and recognition of the opaque minerals by the reflecting microscope; practice in the cutting, grinding, and polishing of ore specimens, and micro-chemical methods of determination. Text: U.S. Geological Survey Bulletin 914, *Microscopic Determination of the Ore Minerals*; Edwards, *Textures of the Ore Minerals*, 1947. Prerequisites: Geology 408 must precede or accompany this course. Mr. Warren, Mr. Thompson.

[1-3; 0-4]

410. (1½) Field Geology.—Methods of observing, recording, and correlating geological facts in the field. The cost to each student may approach \$50. Text-book: Lahee, *Field Geology*, 4th edition, 1941. Prerequisites: Geology 302 and 304. Two hours a week in the Second Term and two to three weeks in the field at the close of examinations in the spring of the Junior year. Mr. White.

411. (3) Stratigraphy.—Stratigraphic principles and the geology of pre-Cambrian to Cenozoic formations with special reference to Canada and North America. Text: *Geology and Economic Minerals of Canada*, Geological Survey of Canada, Economic Geology Series No. 1, 1947. Prerequisites: Geology 305; 304 and 406 must accompany or precede. Mr. Okulitch, Mr. White.

[3-0; 3-0]

412. (3) Geomorphology.—For advanced students in geography and geology; a study of the processes, principals, and laws of land formation, types of land forms, and their distribution. Text: Hinds, *Geomorphology*, 1943. Prerequisite: Geology 304. Mr. Mathews.

[2-2; 2-2]

449. (3) Thesis.—Honours students must submit a graduating thesis on some subject approved by the Department.

520. (3) Sedimentation Seminar.—Text: Twenhofel, *Principles of Sedimentation*, 1950. Prerequisites: Geology 302 and 304; 411 must precede or accompany. Mr. Mathews.

[2-2; 2-2]

521. (3) Problems in Palaeontology.—Seminar; alternates with 531. Prerequisite: Geology 406. Mr. Okulitch.

[1-6; 1-6]

522. (1½) Advanced Mineralogy (Gems and Precious Stones).—Seminar; gem minerals and some of the more popular semi-precious stones. Text: Dana, *Text-book of Mineralogy*, revised by Ford, 4th edition; Smith, *Gemstones*. Prerequisites: Geology 301, 302. Mr. Warren, Mr. Thompson.

[1-4; 0-0]

Note: Course 522 may be taken as an undergraduate course, subject to the approval of the Department.

523. (3) Advanced Mineralogy.—Seminar; some of the rarer minerals, particularly those of economic importance. Text: Palache, Berman, Frondel, *Dana's System of Mineralogy, Vol. I*, 1944. Winchell, *Elements of Optical Mineralogy*, 1951. Prerequisite: Geology 408. Mr. Thompson.

[1-4; 1-4]

524. (3) Advanced Mineralography and/or Biogeochemistry.—Study of approved problems, using advanced techniques. Mr. Warren, Mr. Thompson.

[0-6; 0-6]

525. (3) Petrology.—Seminar. Prerequisite: Geology 407. Mr. McTaggart.

[2-2; 2-2]

526. (2-4) Mineral Deposits.—Seminar; character, origin, and structure of mineral deposits, with emphasis on ore deposits. Text: Lindgren, *Mineral Deposits*, 4th edition, 1933. Prerequisites: Geology 407, and 408. Mr. Gunning.

[2-4; 2-4]

531. (3) Advanced Invertebrate Palaeontology.—Given in 1951-52, alternate with Geology 521. Selected groups of fossils, special problems of palaeontology, palaeontological techniques. Prerequisite: Geology 406. Mr Okulitch.

[1-6; 1-6]

549. Master's Thesis.

German

For Honours courses in German see pages 109 and 115.

Attention of Third and Fourth Year students is called to Linguistics 319, page 144.

90. (3) **Beginner's Course.**—Greenfield, *An Outline of German Grammar*. Reader to be announced. [4-0; 4-0]

100. (3) Texts: Russon, *Complete German Course*; Kästner, *Die verschwendene Minitur*; Kurtz, *Drei Novellen*. Lyric book to be announced. Prerequisites: University Entrance or German 90. [3-0; 3-0]

101. (3) **Scientific German.**—Scientific German for students majoring in natural sciences; review of essentials in German grammar and composition. Text-books: Wild, *An Introduction to Scientific German*; Wild, *An Anthology of Scientific German*; Russon, *Complete German Course*. Prerequisites: University Entrance or German 90. [3-0; 3-0]

200. (3) Texts: Russon, *Complete German Course*; Werfel, *Jacobowsky und der Oberst*; Keller, *Kleider machen Leute*; Mann, *Tomio Kröger*; Bruns, *Book of German Lyrics*. Prerequisite: German 100 or 101 or the equivalent. [3-0; 3-0]

300. (3) **The Classical Period.**—Literature of the 18th century, with emphasis on Lessing, Goethe and Schiller. Text: Lessing, *Emilia Galotti*; *Minna von Barnhelm*; *Nathan der Weise*; Goethe, *Faust I*; *Iphigenie*; Schiller, *Die Jungfrau von Orleans*; *Maria Stuart*. [3-0; 3-0]

301. (3) **The Novelle.**—Development of the German Novelle, with emphasis on the 19th century. Texts: Fleissner, *Die Kunst der Prosa*; Röseler, *Deutsche Novellen des 19. Jahrhunderts*; Steinhauer, *Die Deutsche Novelle 1880-1933*; Coenen, *Auf höherer Warte*. Extensive independent reading will be expected. (Given in 1952-53 and alternate years). [3-0; 3-0]

302. (3) History of German civilization; intensive training in oral and written composition. Text: Jordan, *Deutsche Kulturgeschichte*. [3-0; 3-0]

303. (3) Survey of German literature to 1800.—Texts: to be announced. (Given in 1951-52 and alternate years). [3-0; 3-0]

400. (3) **Nineteenth Century German Drama.**—Text: Campbell, *German Plays of the Nineteenth Century*. [3-0; 3-0]

402. (3) **Middle High German.** — Text: Bachmann, *Mittelhochdeutsches Lesebuch*.

449. (3) **Graduating Essay for the B.A.**

500. (3) **Lessing, Goethe, and Schiller.**—Most important works. [3-0; 3-0]

501. (3) **Nineteenth Century German Fiction.**—Development of the German novel, with emphasis on 19th century. [3-0; 3-0]

502. (3) **History of the German Language.**—(Not given in 1951-52). [3-0; 3-0]

549. (3) **Master's Thesis.**

Greek

(Given by the Department of Classics)

A knowledge of the Greek language is not required for the courses in Greek Art (314), Greek Epic and Tragedy (315) and Greek History (331).

For Greek in Honours courses see pages 108 and 113.

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.

90. (3) **Beginners' Greek.**—The elements of Attic Greek. Text-book: Crosby and Schaeffer, *An Introduction to Greek*. [4-0; 4-0]

101. (3) **Introduction to Greek Prose Authors.**—Text-books: Crosby and Schaeffer, *An Introduction to Greek*; Robertson and Robertson, *The Story of Greece and Rome*, chap. I-XXXII. Text: Xenophon, *The First Four Books of Xenophon's Anabasis*, Goodwin and White. [4-0; 4-0]

202. (3) **Greek Literature of the Classical Period.**—Plato's account of Socrates' defence at his trial; a play of Aeschylus; practice in composition; brief survey of Greek literary history. Text-books: North and Hillard, *Greek Prose Composition*; C. M. Bowra, *Ancient Greek Literature*. Texts: Plato, *Apology*, Dyer and Seymour; Aeschylus, *Prometheus Vincitus*, Sikes and Willson. [4-0; 4-0]

Third and Fourth Years

The following courses are open to students who have completed Greek 202. Greek 314 and 315 may be taken by Second Year students.

303. (3) **Greek Drama.**—Development of Greek tragedy and comedy; scenic antiquities; representative plays of Sophocles, Euripides, and Aristophanes. Texts: Sophocles, *Antigone*, Jebb and Shuckburgh; Euripides, *Bacchae*, Dodds; Aristophanes, *Aves*, Hall and Geldart; Aeschylus, *Agamemnon*, Sidgwick. (Given in 1951-52). [3-0; 3-0]

305. (3) **Epic and Lyric Poetry.**—Selections from Homer's *Iliad* and from the Greek lyric anthology. Texts: Homer, *Iliad*, Monro, 2 vols.; *Greek Elegiac, Iambic, and Lyric Poets*, Harvard. (Given in 1952-53).

306. (3) **Greek Historians.**—Greek historical writing; selections from Herodotus and Thucydides. Texts: *Herodoti Historiae*, Hude; *Thucydides*, Jones, 2 vols. (Given in 1952-53). [3-0; 3-0]

310. (1½) **Composition.**—Obligatory for Honours students in the Third Year. Text-books: *Greek Prose Composition*, North and Hillard; *Greek Prose Composition*, Sidgwick. [2-0; 2-0]

314. (1) **Greek Art.**—Survey of architecture, sculpture and the minor arts from the Aegean period to the Hellenistic. [1-0; 1-0]

315. (2) **Greek Epic and Tragedy.**—Study, in translation, of the *Iliad*, the *Odyssey* and selected plays of Aeschylus, Sophocles, and Euripides. Collateral reading. Texts: *The Iliad*, Penguin Series; *The Odyssey*, Penguin Series; *The Oresteia of Aeschylus*, G. Murray; *The Theban Plays of Sophocles*, Penguin Series; *The Medea of Euripides*, Murray; *The Hippolytus of Euripides*; Murray; *The Frogs of Aristophanes*, Murray. [2-0; 2-0]

331. (1½) **Greek History.**—Background and rise of Greek civilization; special emphasis on political, economic and cultural life of fifth and fourth centuries. For a complementary course in Roman history in Second Term see Latin 331. Greek 331 and Latin 331, if both are taken, count for 3 units of credit in History. Text-book: Trever, *History of Ancient Civilization*, Vol. I. [3-0; 0-0]

407. (3) **Introduction to Greek Philosophy.**—Beginnings of Greek philosophical inquiry; selections from two of the major works of Plato and Aristotle. Texts: Plato, *Respublica*, Burnet; Aristotle, *Ethica Nicomachea*, Bywater. (Given in 1951-52). [3-0; 3-0]

410. (1½) **Advanced Composition.**—Obligatory for Honours students in the Fourth Year. Text-book: *Greek Prose Composition*, Sidgwick. [2-0; 2-0]

Primarily for Graduate Students

521. Aristotle's *Politics*. [3-0; 3-0]

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 Note 1, page 105, 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.

Students who intend to major in History, or to enter the Teacher Training Course with a major in History must obtain credit in at least one course normally offered in the first two years in addition to the three courses required in the Third and Fourth Years.

For Honours courses in History see pages 109 and 115.

A reading knowledge of French, Russian, German or Spanish 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 or Russian is recommended.

First and Second Years

101. (3) **Main Currents in Twentieth-Century History.**—This course offers a background for contemporary world problems and 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*, or Chambers, Grant, and Bayley, *The Age of Conflict*; Schmitt, *Triple Alliance and Triple Entente*; Fox, *The Super-Powers*, (for upper year credit). (Extra work will be required from Third and Fourth Year students taking this course). Mr. Soward. [3-1; 3-1]

202. (3) **The History of Canada.**—Introductory general course required for Second Year Honours credit. If credit has already been given for History 202, History 203 must be taken for Honours credit. History 202 is prerequisite for History 404, 420, 426, 427, 430, 433, 533. Text-book: McInnis, *Canada*. (Extra work will be required from Third and Fourth Year students taking this course). Mr. Tucker. [3-0; 3-0]

203. (3) **Canada West of the Great Lakes.**—Text-books: Howay, *British Columbia, the Making of a Province*; Sage, *Sir James Douglas and British Columbia*; Morton, *A History of the Canadian West to 1870-71*. (Extra work will be required from Third and Fourth Year students taking this course). Mr. Sage. [3-0; 3-0]

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, with special permission, be admitted.

Honour students must offer either History 304 or History 309.

304. (3) **Mediaeval Europe, 500-1300.**—A general outline of mediaeval history from the fall of the Roman Empire to the 13th century. Text-book: Thorndike, *History of Mediaeval Europe*. Miss Ormsby. [3-0; 3-0]

305. (3) **The Expansion of Europe.**—The history of European colonial expansion, and problems of colonial administration. Text-books: Muir, *Expansion of Europe*; Parry, *Europe and a Wider World, 1415-1715*; Townsend, *European Colonial Expansion Since 1871*; Walker, *Colonies*. Essays and reports will be assigned. (Not given in 1951-52). Mr. Cooke. [3-0; 3-0]

309. (3) British History to 1485.—Text-books: Trevelyan, *A History of England*; Hall and Albion, *A History of England and the British Empire*; Stephenson and Marcham, *Sources of English Constitutional History*; Adams, *Constitutional History of England*. Essays will be assigned throughout the session. Mr. Sage. [3-0; 3-0]

310. (3) The Development of the British Empire to Responsible Government.—Empire history and colonial policy to the middle of the 19th century. Text-book: Williamson, *A Short History of British Expansion*. Essays and reports will be assigned. Mr. Cooke. (Not given in 1951-52). [3-0; 3-0]

311. (3) From Empire to Commonwealth.—Empire and Commonwealth history and problems from responsible government to the present. Text-book: Knaplund, *The British Empire, 1815-1939*. Essays and reports will be assigned. Mr. Cooke. (Given in 1951-52 and alternate years). [3-0; 3-0]

312. (3) 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*, or Graven and Johnson, *The United States*. Miss Ormsby. [3-0; 3-0]

313. (3) The Rise of Modern Europe, 1300-1648.—A survey of the economic, political and cultural development of Europe from the later Middle Ages to the Peace of Westphalia. Text-books: Lucas, *The Renaissance and the Reformation*; Smith, *The Age of the Reformation*; Stearns, *Pageant of Europe*. Essays and reports will be assigned. Mr. Cooke. [3-0; 3-0]

314. (3) Europe from Westphalia to Waterloo, 1648-1815.—A survey of the economic, political and cultural development of Europe in the 17th and 18th centuries. Text-books: Ergang, *Europe from the Renaissance to Waterloo*; Brunn, *Europe in Evolution*; Gottschalk, *The Era of the French Revolution*; Stearns, *Pageant of Europe*. Essays and reports will be assigned. Mr. Cooke. (Given in 1951-52 and alternate years). [3-0; 3-0]

316. (3) 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-book: Pirenne, *An Economic and Social History of Mediaeval Europe*, and *Mediaeval Cities and the Revival of Trade*. (Not given in 1951-52). [3-0; 3-0]

320. (3) The History of China.—A survey of Chinese history and culture from ancient times to the present. Text-books: Latourette, *The Chinese, Their History and Culture*, or McNair, *China*. Essays will be assigned throughout the session. Mr. Ping-Ti Ho. [3-0; 3-0]

333. (3) Third Year Honours Seminar.—Historical method and the use of reference books. Text-book: Rowse, *The Use of History*. Miss Ormsby, Mr. Cooke. [2-0; 2-0]

Fourth Year

404. (3) The French in North America.—A study of a culture, using the historical approach. Reading will be emphasized, and a reading knowledge of French is required. Mr. Tucker. [3-0; 3-0]

415. (3) Europe, 1815-1914.—The political, social and economic history of the chief countries of continental Europe, with special attention to international relations. Text-books: Hays, *A Political and Cultural History of Modern Europe*, Vol. II; Hall and Davis, *The Course of Europe Since Waterloo*; Stearns, *Pageant of Europe*. Mr. Soward. [3-0; 3-0]

417. (3) Economic History of Western Europe Since 1500.—With special reference to Great Britain. Mr. Ping-Ti Ho. [3-0; 3-0]

418. (3) **Britain Under the Tudors and Stuarts, 1485-1688.**—An evaluation of the political, economic, social and cultural change of Britain in the period. Text-books: Innes, *England Under the Tudors*; Trevelyan, *England Under the Stuarts*; Smith, Goldwin, *A History of England*; Feiling, K., *A History of England*. (Not given in 1951-52). Mr. Davies. [3-0; 3-0]

419. (3) **Great Britain Since 1686.**—Text-books: Trevelyan, *British History of the Nineteenth Century* or Woodward, *The Age of Reform*. Mr. Davies. [3-0; 3-0]

420. (3) **The Evolution of the Canadian Constitution.**—Text-book: Kennedy, *The Constitution of Canada*. Mr. Tucker. [3-0; 3-0]

424. (3) **History of Latin America.**—(Not given in 1951-52).

426. (3) **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*; Creighton, *Dominion of the North*. Miss Ormsby. [3-0; 3-0]

427. (3) **Canadian-American Relations.**—A survey of British or Canadian diplomatic relations with the United States, affecting Canada, since the American Revolution. (Not given in 1951-52). [3-0; 3-0]

428 (3) **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*; Parrington, *Main Currents in American Thought*. Miss Ormsby. (Not given in 1951-52). [3-0; 3-0]

429. (3) **Eastern Europe from the Early Middle Ages.**—(Not given in 1951-52).

433. (3) **Fourth Year Honours Seminar.**—Development of Canadian external policy since Confederation. Prerequisite: History 202. Text-book: Glazebrook, *A History of Canadian External Relations*. Mr. Soward. [2-0; 2-0]

449. (3) **Graduating Essay in Honours.**

For Graduate Students

525. (3) **History of Historical Writing.**—Text-books: Barnes, *A History of Historical Writing*; Shotwell, *An Introduction to the History of History*; Gooch, *History and Historians in the 19th Century*. Mr. Sage and other members of the staff. [3-0; 3-0]

533. (3) **Master's Seminar.**—The history of British Columbia. Mr. Sage.

549. (3) **Master's Thesis.**

The following courses will be accepted for credit in History. Credit (3 units) in History will be given for Greek 331 and Latin 331 only if both courses are taken.

Greek 331 (1½).

International Studies 300 (3).

International Studies 400 (3).

Latin 331 (1½).

Slavonic Studies 310 (3).

Slavonic Studies 311 (3).

Slavonic Studies 330 (3).

Slavonic Studies 448 (3).

International Studies

For Honours courses in International Studies see page 110.

300. (3) The British Commonwealth and International Organization.—A survey of the growth of intra-Commonwealth cooperation since 1919, and an evaluation of the Commonwealth contribution to international security. Text-books: Carter, *The British Commonwealth and International Security*; Keith, *The Dominions as Sovereign States*. Mr. Davies. (Not given in 1951-52). [3-0; 3-0]

301. (3) International Organization Since 1919.—The structure, function and problems of international organizations since the appearance of the League of Nations. Textbook: to be announced. Mr. Davies. [3-0; 3-0]

310. (3) Far Eastern International Politics.—A survey of the diplomatic relations of China and Japan in the 19th and 20th centuries. Text-book: to be announced. Mr. Ho. [3-0; 3-0]

400. (3) The Great Powers and World Politics.—A study of the Great Powers and their international policies in the 19th and 20th centuries. Text-book: Strausz-Hupe and Possony, *International Relations*. Mr. Soward. [3-0; 3-0]

410. (3) 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. Text-book: Glazebrook, *A History of Canadian External Relations*. Mr. Soward. [2-0; 2-0]

449. (3) Graduating Essay.

Latin

(Given by the Department of Classics)

A knowledge of Latin is not required for the course in Roman History (331).

For Latin in Honours courses see pages 108, 110, 113, 115.

Latin 101 is open to students who have presented Latin for University Entrance or have taken Latin 90 in the University; Latin 202 is open to those who have passed in Senior Matriculation Latin or in Latin 101.

90. (3) Beginners' Latin.—For students with no previous knowledge of Latin; for credit only to students who have not offered Latin for credit at University Entrance. Text-book: *Latin Fundamentals, Third Edition*, Hettich and Maitland. [4-0; 4-0]

101. (3) Introduction to Latin Literature.—Selections from prose authors; selections from representative poets of the late Republic and early Empire; practice in composition; history of Rome. Text-books: *Latin Fundamentals, Third Edition*, Hettich and Maitland; Robertson and Robertson, *The Story of Greece and Rome*, chap. XXXIII-LIV. Text: *A Latin Reader*, Petrie. [3-0; 3-0]

202. (3) Prose and Poetry of the Golden Age.—Prose of Cicero; the developed epic as represented by Vergil; history of Greece. Text-book: Robertson and Robertson, *The Story of Greece and Rome*, chapters I-XXXII. Texts: Cicero, *Catilinarian Orations*, Upcott; Vergil, *Aeneid VI*, Page. [3-0 3-0]

Note: All students are advised to provide themselves with Allen and Greenough, *New Latin Grammar*.

Third and Fourth Years

Courses 303, 304, 310, 405, 406 are open to all students who have passed Latin 202 or its equivalent.

303. (3) **Roman Comedy.**—A study of typical plays of Plautus and Terence; brief history of Latin literature. Text-book: J. W. Mackail, *Latin Literature*, Texts: Plautus, *Menaechmi*, Moseley and Hammond; Terence, *Phormio* and *Heautontimorumenos*, in *The Comedies of Terence*, Ashmore. (Given in 1952-53). [3-0; 3-0]

304. (3) **Prose and Poetry of the Silver Age.**—Tacitus and Juvenal; history of Latin literature. Text-book: J. W. Mackail, *Latin Literature*. Texts: Tacitus, *The Annals, Books I-VI*, Allen; Juvenal, *Satires*, Duff. (Given in 1951-52). [3-0; 3-0]

310. (1½) **Composition.**—Obligatory for Honours students in the Third Year. Text-book: *Bradley's Arnold Latin Prose Composition*, Mountford. [2-0; 2-0]

331. (1½) **Roman History.**—Growth of Rome and development of its political institutions during the Republic; social and economic history of the Empire; transition from classical to mediaeval world. For a complementary course in Greek history in the First Term see Greek 331. For credit in the Department of History see page 142. Text-book: Trever, *History of Ancient Civilization*, Vol. II. [0-0; 3-0]

405. (3) **Latin Letter Writing.**—Three different styles of letters by three masters. Texts: *Cicero in His Letters*, Tyrrell; Horace, *Epistles*, Wilkins; Seneca, *Select Letters*, Summers. (Given in 1952-53). [3-0; 3-0]

406. (3) **General View of Latin Poetry.**—A survey of Latin poetry from the earliest native verse into late Imperial and early Christian literature. Text: *The Oxford Book of Latin Verse*, Garrod. (Given in 1951-52). [3-0; 3-0]

410. (1½) **Advanced Composition.**—Obligatory for Honours students in the Fourth Year. Prerequisite: Latin 310. [2-0; 2-0]

504. **Methods in High School Latin.**—This course is offered primarily for students in the Teacher Training Course and does not carry undergraduate credit.

Primarily for Graduate Students

521. (3) Cicero, *Select Letters*, 2 vols., How. [3-0; 3-0]
 523. (3) Roman Comedy. [3-0; 3-0]
 530. (3) Julius Caesar. [3-0; 3-0]
 549. (3) Master's Thesis.

Linguistics

(Given by the Department of Classics)

The following course is intended, primarily, for Third and Fourth Year students who have completed Second Year language requirements or the equivalent.

319. (3) **General Introduction to Modern Linguistic Science.**—Origin of language, development of writing (ideograms, syllabaries, etc.), families of languages, classes of languages, linguistic change, semantics, dialects, slang. Text-book: E. H. Sturtevant, *Introduction to Linguistic Science*. Prerequisite: At least Second Class standing in any of the following courses: Anthropology 300, English 200, French 202, German 200, Greek 202, Latin 202, Polish 210, Russian 200, 203, Spanish 201. (Given in 1952-53). [3-0; 3-0]

Mathematics

For Honours courses in Mathematics see pages 111, 115, 116.

101. (3) Algebra, Geometry, and Trigonometry.—Logarithms, theory of quadratic equations, permutations, combinations, binomial theorem, determinants, straight line, circle, parabola, ellipse, and hyperbola; elementary trigonometry. Text-book: Sisam, *College Mathematics*. Prerequisite: Mathematics 91. [4-0; 4-0]

Prerequisite: Mathematics V. (See note 6, page 104). [4-3; 4-3]

Primarily for Second Year Students

Mathematics 101 is prerequisite to the following courses:

200. (3) Algebra and Geometry.—Mathematical induction, complex numbers, theory of equations, determinants; conics, polar coordinates, and solid analytic geometry. Text-book: Sisam, *College Mathematics*. [3-0; 3-0]

201. (3) The Mathematical Theory of Investments.—Theory of interest, annuities, debentures, valuation of bonds, sinking funds, depreciation, probability and its application to life insurance. [3-0; 3-0]

This course may not be counted in the units required for a major in Mathematics. Primarily for students in Commerce.

202. (3) Calculus.—Introduction to differential and integral calculus, with applications. Text-book: to be announced. [3-0; 3-0]
[3-0; 3-0]

205. (3) Elementary Statistical Analysis.—Basic theorems of probability, standard tests, elements of statistical estimation. Enrolment in this course will be limited by available laboratory space. [3-2; 3-2]

Primarily for Third Year Students

300. (3) Calculus.—Differential and integral calculus with applications. Prerequisite: Mathematics 202. [3-0; 3-0]

302. (3) Differential Equations.—An introductory course with applications to geometry, mechanics, physics, and chemistry. Prerequisites: Mathematics 200 and 202 or Mathematics 300. (May not be given in 1951-52.) [3-0; 3-0]

With the consent of the Department, Mathematics 300 and 302 may be taken concurrently.

306. (3) Topics in Algebra and Geometry.—Number systems of elementary algebra, and axioms of elementary geometry. Prerequisite: Mathematics 200. (Given in 1951-52 and in alternate years thereafter). [3-0; 3-0]

307. (3) Elementary Number Theory.— Properties of integers and primes, diophantine equations, quadratic residues, quadratic forms, special problems. Text-book: Uspensky and Heaslet, *Elementary Number Theory*. Prerequisite: Mathematics 200. (May not be given in 1951-52). [3-0; 3-0]

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. (2) Differential Calculus.—Sequences, series; derivatives of functions of one and several variables, implicit functions; applications to the differential geometry of curves and surfaces. Problem sets will be assigned periodically throughout the year and marks obtained will be considered in determining final standing. [2-1; 2-1]

321. (3) 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 applications. [3-0; 3-0]

322. (3) Algebra and Geometry. — n -dimensional vector spaces; linear systems, matrices, and determinants; quadratic forms, with applications to conics and quadrics. [3-0; 3-0]

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. (2) Modern Algebra.—The number systems of algebra and analysis. Introduction to groups, fields, linear vector spaces. (May not be given in 1951-52.) [2-0; 2-0]

401. (3) Analysis.—Applications of power series; Fourier series; introduction to the theory of functions of a complex variable. [3-0; 3-0]

402. (3) Theory and Applications of Differential Equations.—Existence theorems, Laplace transforms, eigenvalue problems, numerical methods. [3-0; 3-0]

403. (2) Projective Geometry.—Systematic development of the geometry of the projective plane. (May not be given in 1951-52.) [2-0; 2-0]

405. (3) Mathematical Statistics.—Statistical analysis, with emphasis on sampling theory and the testing of statistical hypotheses. Applications to problems in the sciences. Prerequisites: Mathematics 300, or 320 and 321. [3-0; 3-0]

440. (1) Honours Seminar. — For Fourth Year Honours students in Mathematics or in Mathematics combined with a subject other than Physics. Standing will be determined by term work and a final comprehensive examination.

441. (1) Honours Seminar. — For Fourth Year Honours students in Physics and Mathematics. Standing will be determined by term work and a final comprehensive examination.

Courses for Graduate Students

Students should consult the Department for information regarding courses to be offered in 1951-52.

501. (3) Theory of Functions of a Real Variable.

502. (3) Theory of Functions of a Complex Variable.

503. (3) Differential Geometry.

504. (3) Projective Geometry.

505. (3) Fluid Dynamics.

506. (3) Advanced Differential Equations.

507. (3) Theory of Numbers and Algebraic Numbers.

508. (3) Theory of Rings.

509. (3) Modern Algebra.

511. (3) Topology.

512. (3) Theory of Groups.

513. (3) Continuous Groups.

514. (3) Non-linear Mechanics.

515. (3) Eigenvalue Problems.

516. (3) Fourier Series and Integrals.

517. (3) Advanced Theory of Functions.

518. (3) Advanced Statistics.

549. (3-6) Thesis for Master's Degree.

649. Thesis for Ph.D. Degree.

Music

105. (3) Theory of Music I.—A study of the beginning of harmony, with ear training and early musical history. Prerequisite: University Entrance Music or its equivalent. The student should have familiarity with all intervals, triads, dominant 7ths and common rhythms; ability to sing major and minor scales from any degree; and sufficient knowledge of piano to play harmonic progressions. Mrs. Jean Coulthard Adams. [3-0; 3-0]

205. (3) Theory of Music II.—A study of 18th and 19th century harmony and advanced aural training. The Second Term will include a short course in early melodic styles as an introduction to the study of counterpoint. Prerequisite: Music 105. Mrs. Jean Coulthard Adams. [3-0; 3-0]

300. (3) Music Appreciation.—How to listen to music; analysis of structure and form. Mr. Harry Adaskin. [3-0; 3-0]

305. (3) Theory of Music III.—The study of 16th century counterpoint in several voices; harmony in relation to 18th and 19th century forms, and creative work in contemporary idioms. Prerequisite: Music 205. Miss Barbara Pentland. [3-0; 3-0]

405. (3) Theory of Music IV. — Further contrapuntal study including fugal writing of all periods; the study of 20th century materials, orchestration, and creative work in large forms. Prerequisite: Music 305, and a short composition submitted at the time of registration. Miss Barbara Pentland. [3-0; 3-0]

Philosophy

Courses numbered 300-500 are not open to Second Year students. Philosophy 202, 205, 210 may be considered as Third or Fourth Year subjects.

For Honours courses in Philosophy, see pages 111 and 115.

100. (3) Introduction to Philosophy.—Problems of philosophy with emphasis upon proposed solutions of problems of today. [3-0; 3-0]

202. (3) Logic.—Fundamental problems of logic and scientific method emphasizing the application of the principles of correct thinking. [3-0; 3-0]

205. (3) General History of Philosophy.—Philosophy from the Greeks to the present. Primarily for General course students. Students who have taken Philosophy 100 may not enroll for this course without permission of the instructor. [3-0; 3-0]

210. (3) Ancient Philosophy.—Western philosophic thought from Thales to St. Augustine, with principal stress on Plato and Aristotle. Prerequisite: Philosophy 100 or 205 or equivalent. [3-0; 3-0]

302. (3) Ethics.—The development of ethical thought; a systematic discussion of some fundamental problems of ethics. [3-0; 3-0]

304. (3) Social Philosophy. — Historical survey, evaluation of present social institutions and processes in terms of the democratic ideal. [3-0; 3-0]

305. (3) Recent Philosophy.—Basic ideas of contemporary movements including idealism, realism, pragmatism, phenomenology, logical positivism, semantics and existentialism. Prerequisite: Philosophy 100 or 205 or equivalent. [3-0; 3-0]

310. (3) Mediaeval and Early Modern Philosophy.—Mediaeval thought from St. Augustine to the Renaissance; the rise of modern science, the resulting effect on general European thought, philosophical developments of the seventeenth and eighteenth centuries. Prerequisite: Philosophy 205 or 210 or equivalent. [3-0; 3-0]

402. (3) Symbolic Logic and Semantics.—Introduction to the elements of symbolic logic and to the general theory of signs. Prerequisite: Philosophy 202 or its equivalent. [3-0; 3-0]

410. (3) Modern Philosophy.—Intensive study of Kant's *Critique of Pure Reason*; a general critical survey of the philosophy of Kant and major philosophers of the nineteenth century. Prerequisite: Philosophy 310 or its equivalent. [3-0; 3-0]

412. (3) Philosophical Problems.—Problems of methodology, knowledge, values, and social philosophy. Primarily for Fourth Year and Graduate students in science who have had no philosophy course. [3-0; 3-0]

Primarily for Graduate Students

500. (3) Metaphysics-Epistemology Seminar.—(1951-52 and alternate years.) [3-0; 3-0]

510. (3) Value-Theory Seminar.—(Not given in 1951-52.) [3-0; 3-0]

549. Master's Thesis.

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 111, 116.

100. (3) Elementary Physics.—Principles of mechanics, properties of matter, heat, light, sound, electricity, and some of the more recent developments in physics. Primarily for Honours science and engineering students. Text-book: Stewart, *Physics, A Text-book for Colleges*. Prerequisite: University Entrance Physics 91. Mathematics 101 must precede or be taken concurrently with this course. [3-2; 3-2]

101. (3) Elementary Physics.—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*. Prerequisite: Mathematics 101 must precede or be taken concurrently with this course. [3-2-2; 3-2-2]

103. (3) A Survey of Physics.—Principles of physics in non-mathematical language, principles of mechanics, heat, light, sound, electricity and atomic structure. Students who have received credit for Physics 100 may not take this course. Text-book: White, *Classical and Modern Physics*. [3-2; 3-2]

110. (3) General Physics.—For students taking courses in the Department of Home Economics. Mechanics, molecular physics, heat, sound, light, electricity, and modern physics without stressing their mathematical aspect. 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 101 must precede or be taken concurrently with this course. Text-book: Avery, *Household Physics*, revised edition. [3-2; 3-2]

200. (3) Mechanics, Heat and Molecular Physics.—Coplanar forces, Newton's Laws of Motion, friction, calorimetry, gas laws, and kinetic theory, radiation and conduction, entropy and second law of thermodynamics. Text-books: Duncan and Starling, *Dynamics*; Tyler, *Intermediate Heat*.

Prerequisite: Physics 100 or 101. Mathematics 200 and 202 must be taken concurrently with or preceding this course, which is intended only for students majoring in science. [3-3; 3-3]

203. (3) General Physics.—For General course students. Prerequisite for Physics 303. Selected topics in classical and modern physics intended for a better understanding of the modern physical world. No credit for candidates for Honours in Physics. Prerequisite: Physics 100 or 101 or 103; Mathematics 91 or 101. [2-3; 2-3]

220. (3) General Physics.—Intermediate treatment of physics. Emphasis on biological and medical applications. Text-book: Semat, *Fundamentals of Physics*. Prerequisite: Physics 100 or 101. [3-2; 3-2]

Primarily for Third Year Students

300. (3) Electricity and Magnetism.—Fundamentals of magnetism and electricity, including basic A.C. circuit theory and electronics. Text-books: Suydam, *Fundamentals of Electricity and Magnetism*; Starling, *Electricity and Magnetism*. Prerequisite: Physics 100 or 101, Mathematics 202. [3-3; 3-3]

302. (2) Introduction to Mathematical Physics.—Application of differential equations and vector analysis to topics from free and forced vibrations, wave motion, potential theory, heat conduction. Text-books: Page, *Theoretical Physics*; Rutherford, *Vector Methods*. If credit has not been obtained in Mathematics 300 or 302, or 320 and 321, they should be taken concurrently with this course. [2-0; 2-0]

303. (3) Elementary Modern Physics.—Fundamental ideas underlying modern physics. For general science teachers and others interested in recent developments in physics. Electronic phenomena, radio and television, the nature of light and electromagnetic radiation, X-rays, the quantum theory, spectroscopy, radioactivity, cosmic rays, elementary particles. Text-book: Oldenberg, *Introduction to Atomic Physics*. Prerequisite: Physics 100 or 101 or 203. [2-3; 2-3]

304. (2) Thermodynamics.—More advanced discussion of the three fundamental laws of thermodynamics, with applications in physics and chemistry. Text-book: Zemansky, *Heat and Thermodynamics*. Prerequisites: Mathematics 202, Physics 200. [2-0; 2-0]

308. (3) Physical Optics.—Geometrical and physical optics; optical instruments, interference, diffraction, polarization, spectroscopy. Text-book: Monk, *Light, Principles and Experiments*. [2-3; 2-3]

310. (1) Light.—For students who have not taken Physics 308. Geometrical objects, optical instruments, photography, spectroscopy, photometry, thermal radiation, refractometers, interference, diffraction, polarized light. Text-book: Noakes, *Text-book of Light*. [1-0; 1-0]

Primarily for Fourth Year Students

401. (2) Electricity and Magnetism.—Potential theory and introductory electromagnetic theory. Text-book: Slater and Frank, *Electromagnetism*. Prerequisite: Physics 300. [2-0; 2-0]

402. (2) Atomic Physics.—Electrical discharge through gases, the electron, thermionic and photoelectric emission, Bohr Atom, special relativity, wave and particle concepts and wave mechanics, electron spin and electron distribution in atoms, atomic and molecular spectra, X-rays, molecular properties and chemical bonds. Text-books: Born, *Atomic Physics*; Stranathan, *Particles of Modern Physics*. Prerequisites: Physics 200 and 300, Mathematics 300, or 320 and 321. [2-0; 2-0]

403. (2) Statistical Theory of Matter.—Boltzmann statistics, fluctuations, Bose-Einstein and Fermi-Dirac statistics, applications. [2-0; 2-0]

405. (1) Theory of Elasticity and of Flow.—Mathematical theory of elasticity, propagation of waves, fundamentals of hydrodynamics and viscosity, conduction of heat. Text-book: Joos, *Introduction to Theoretical Physics*. Prerequisites: Mathematics 300, 302, 303 or 320, 321; Physics 200. [1-0; 1-0]

406. (2) Theoretical Mechanics.—Analytic and vector mechanics of particles and rigid bodies. Central forces, Lagrange's equations, Hamilton's principle and equations. Text-books: Page, *Introduction to Theoretical Physics*; Goldstein, *Classical Mechanics*. If credit has not been obtained in Mathematics 300 and 302, or 320 and 321, they should be taken concurrently with this course. [2-0; 2-0]

407. (1) Introduction to Nuclear Physics and Cosmic Rays.—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, fission; cosmic rays, mesons. Text-book: Halliday, *Introductory Nuclear Physics*. Prerequisites: Physics 200 and 300, Mathematics 300 or 320 and 321. [1-0; 1-0]

409. (2) Experimental Physics.—Advanced experiments in electricity, electronics, atomic and nuclear physics, practical work involving high vacuum technique, workshop practice, glass-blowing. Text-books: Hoag, *Electron and Nuclear Physics*; Strong, *Procedures in Experimental Physics*; Yarwood, *High Vacuum Technique*. [0-6; 0-6]

420. (3) Biophysics.—Basic problems of biophysics, biophysical instrumentation. Prerequisites: one of Physics 200, 220, 300, 303 or Chemistry 304. [2-3; 2-3]

461. (2) Geophysics.—Geophysical exploration; magnetic, electrical, gravimetric and seismic methods of exploration for oil and minerals. Text-book: Nettleton, *Geophysical Prospecting for Oil*. Prerequisite: Physics 300. [2-0; 2-0]

Graduate Courses

Courses 501, 502, 503, and 504, or their equivalent, are prerequisite for Ph.D. candidates.

500. (1) Introduction to Quantum Mechanics.—A short survey alternative to 504; suitable for students other than those specifically listed under 504. Text-book: Heitler, *Elementary Wave-Mechanics*. [1-0; 1-0]

501. (1) Electromagnetic Theory.—Electromagnetic waves, guided transmission, classical theory of electrons. Prerequisite: Physics 401. [1-0; 1-0]

502. (1) Theory of Measurements.—Frequency distributions, interpolation, least squares. Text-book: Hoel, *Introduction to Mathematical Statistics*. [2-0; 0-0]

503. (1) Electronics.—Theory of electronic circuits in their application to physics. Rectification, power supplies, regulation, amplification, detection, feed-back, oscillators, saw-tooth generators, pulse techniques; differentiating, integrating and scaling circuits. [1-0; 1-0]

504. (2) Elementary Quantum Mechanics.—Quantum mechanics with application to atomic problems. This course, rather than 500, is recommended for those intending to work towards a Ph.D. degree, and particularly for those interested in theoretical physics, spectroscopy, or solid state. Students who have received credit for Physics 500 will be given only one unit credit for this course. Text-book: Schiff, *Quantum Mechanics*. Prerequisite: Physics 402. [2-0; 2-0]

510. (2) Nuclear Physics.—Interactions of radiation with matter, radioactivity, nuclear reactions, nuclear properties. [2-0; 2-0]

511. (1) Dielectrics and Magnetism.—Theory of the dielectric and magnetic properties of gases, liquids, and solids. Text-books: Fröhlich *Theory of Dielectrics*; Stoner, *Magnetism*. [1-0; 1-0]

512. (1) Spectroscopy. — Atomic and molecular energy states. Text-books: Herzberg, *Atomic Spectra and Atomic Structure*; Herzberg, *Molecular Spectra and Molecular Structure*. Prerequisite: Physics 504. [0-0; 2-0]

513. (1) X-Rays and Crystal Structure. — White and characteristic X-rays, interaction with free electrons, atoms and molecules, crystal structure and structure analysis by X-rays, typical types of structure and chemical bonds, surface structure by electron diffraction. Text-books: Bragg, *The Crystalline State*; James, *The Optical Principles of the Diffraction of X-Rays*. [1-0; 1-0]

514. (1) Special Relativity Theory. — Relativistic kinematics, dynamics, connection with electromagnetic theory. Prerequisite: Physics 401. [1-0; 1-0]

515. (1) Electron Optics.—Electrostatic and magnetic electron optical systems, cathode ray and image tubes, electron multipliers, electron microscopes. [1-0; 1-0]

516. (1) Chemical Physics.—For physicists and chemists. Electrode processes, electronic and ionic processes in crystals (photoconductivity, colour-centres, luminescence, rectification), order-disorder phenomena. [1-0; 1-0]

517. (1) Low Temperature Physics.—Selected topics. [1-0; 1-0]

521. (1) Group Theory Methods in Quantum Mechanics.—Applications to atomic, molecular, crystal structure. Selection rules. Prerequisites: Physics 504 and 512. [1-0; 1-0]

522. (2) Advanced Spectroscopy. — Selected topics; determination of nuclear properties, microwave spectra. Text-books: Condon and Shortley, *The Theory of Atomic Spectra*; Herzberg, *Infra Red and Raman Spectra*. Prerequisite: Physics 512. [2-0; 2-0]

523. (1) Advanced Electronics.—Advanced treatment of specific problems, chosen from noise problems and sensitivity limits, micro-wave techniques, particle accelerators and pulse response of circuits. Prerequisites: Physics 503 or El. Eng. 465. [1-0; 1-0]

525. (1) Physics of the Solid State.—Quantum mechanical treatment of the electronic structure of solids. Prerequisite: Physics 504. [1-0; 1-0]

526. (1) Quantum Theory of Radiation.—Calculation of cross-sections for absorption, emission and scattering of photons, creation and annihilation of positrons. Theory of radiation damping. Text-book: Heitler, *The Quantum Theory of Radiation*. Prerequisites: Physics 501, 504 and 514. [1-0; 1-0]

527. (1) Theoretical Nuclear Physics. — Selected topics from current nuclear theory. Prerequisites: Physics 504 and 510. [1-0; 1-0]

528. (1) Cosmic Rays.—Hard and soft components, influence of earth's magnetic field, shower theory, mesons, nuclear interactions. Text-book: Montgomery, *Cosmic Ray Physics*. [1-0; 1-0]

529. (2) Advanced Quantum Mechanics.—Selected topics in relativistic quantum mechanics, second quantization, field theory. Primarily for students interested in theoretical physics. Prerequisites: Physics 504 and 514. [2-0; 2-0]

530. (1) General Relativity Theory.—Primarily for students interested in theoretical physics. Prerequisites: Physics 501 and 514. [1-0; 1-0]

531. (1) Biophysics.—Discussion of selected topics; partly in seminar form. [1-0; 1-0]

532. (1) Geophysics.—Reduction and interpretation of geophysical observations, reduction of gravity measurements, calculation of gravimetric and magnetic fields of type bodies, propagation and reflection of earth vibrations. [1-0; 1-0]

- 536. (1) Introduction to Dynamic Oceanography.** — Hydrostatics, geostrophic flow, continuity, eddy viscosity, and diffusion. [2-0; 0-0]
- 537. (1) Advanced Dynamic Oceanography.**—A more intensive study of the dynamics of ocean and coastal currents. Prerequisites: Oceanography 500 and Physics 536. [0-0; 2-0]
- 538. (1) Fluid Mechanics.**—Systematic exposition of principles governing flow of fluids, ideal and real, turbulent flow in the oceans. [1-0; 1-0]
- 539. (1) Waves and Tides.**—Surface and internal waves, tides of the oceans, tidal currents. Prerequisite: Physics 536. [1-0; 1-0]
- 549. Thesis for Master's Degree.**
- 649. Thesis for Ph.D. Degree.**

Polish

For single Honours in Slavonic Studies see page 112, for combined Honours page 116.

- 110. (3) Basic Polish.**—Text-book: Coleman and Patkaniowska, *Polish Grammar*. Mr. Halpert. [4-0; 4-0]
- 210. (3) Polish.** — Second course in the Polish language. Text-book: Coleman and Patkaniowska, *Polish Grammar*. Mr. Halpert. [3-0; 3-0]
- 320. (3) Polish Literature.**—Lectures delivered in Polish. Selected readings of Polish classical literature with main stress on 19th century writers. Text-book: Kridl, *Literatura Polska*; Chlebowski, *Littérature polonaise au XIXe siècle*. Mr. Halpert. [3-0; 3-0]

Political Science

For Honours courses in Political Science see pages 111, 116.

Economics 200 is prerequisite for courses in Political Science, but may be taken concurrently with Political Science 300.

- 300. (3) Constitutional Government.**—The nature, origin, and aims of the State; the organization of government in the United Kingdom and in the United States of America. Text-books: Ogg, *English Government and Politics*; Ogg and Ray, *Introduction to American Government*. Mr. Angus. [3-0; 3-0]
- 330. (3) History of Political Thought.** — Contributions of some of the great political thinkers to the theory of government, and conceptions of the state with emphasis on present-day political problems. Readings to be assigned. [3-0; 3-0]
- 400. (3) The Government of Canada.**—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*. Reference: *The Report of the Royal Commission on Dominion-Provincial Relations*. Mr. Angus. [3-0; 3-0]
- 435. (3) 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. References: Oppenheim, *International Law*; Brierly, *The Law of Nations*; MacKenzie and Laing, *Canada and the Law of Nations*. This course may not be taken for both Arts and Law Faculty credit. [3-0; 3-0]
- 440. (3) Honours Seminar.**—Reports and group discussions under staff direction of important aspects of advanced Political Science for Third Year Honours credit. Credit requisite: Honours or graduate standing. [2-0; 2-0]

441. (3) **Honours Seminar.**—Same as 440 but for Fourth Year Honours credit. Credit requisite: Honours or graduate standing. [2-0; 2-0]

449. (3) **Honours Essay.**—Essay on some theoretical or institutional aspect of political science to be selected in consultation with members of staff. Must be submitted in final form on or before the beginning of the examinations preceding the Congregation at which the student expects to receive the degree.

540. (3) **Master's Seminar.** — Readings, consultations and reports on such phases of contemporary political theory and practices as may be designed to meet the needs of candidates for the M.A. degree in Political Science. May be held concurrently with the Honours seminars. Credit requisite: graduate standing. [2-0; 2-0]

549. (3) **Master's Thesis.**—A comprehensive treatment of some institutional and theoretical problem in Political Science to be selected in consultation with the departmental staff. Must be submitted in final form on or before the beginning of the examinations preceding the Congregation at which the candidate expects to receive the degree.

Other Courses which Qualify for Honours and Graduate Credit in Political Science

History 309. (3).

History 419. (3).

International Studies 400. (3).

Slavonic Studies 308. (3).

Slavonic Studies 311. (3).

Slavonic Studies 330. (3).

Slavonic Studies 412. (3).

Psychology

Psychology 100 is a prerequisite for all courses in Psychology.

Courses numbered 300-500 are not open to Second Year students. Honours and graduate students in Psychology having the required prerequisites may count Education 530 as a course in Psychology. Psychology 200, 201, 202 may be considered as Third and Fourth Year subjects.

For Honours courses see pages 111, 116.

100. (3) **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. References: Dashiell, *Fundamentals of General Psychology*; Munn, *Psychology*. [3-0; 3-0]

200. (3) **Experimental Psychology.**—The application of scientific method; illustrations from performance of individual and group laboratory studies. Manual: Psychology 200 Laboratory Manual. Text-book: Smith, *Statistical Methods for Psychology and Education*. [2-3; 2-3]

201. (3) **Social Psychology.** — Personality development, motivation, beliefs and attitudes, language, institutional behaviour, leadership, propaganda, freedom and control, major social problems. Text-book: La Piere and Farnsworth, *Social Psychology*, third edition. Reference: Newcomb and Hartley, *Readings in Social Psychology*. [3-0; 3-0]

202. (3) **Mental Hygiene.**—Origins and modification of behaviour, varieties of adjustive behaviour, mental hygiene. Text-books: Shaffer, *The Psychology of Adjustment*. [3-0; 3-0]

300. (3) Business and Industrial 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. [3-0; 3-0]

301. (3) Developmental.—Psychological development, prenatal through adolescence; determiners of psychological growth, motor, emotional, social, intellectual and language development. Implications for the control of behaviour arising from the study of development. References: Gesell and Ilg, *Child Development*; Blatz, *Understanding the Young Child*; Spock, *Pocket Book of Baby and Child Care*. [3-0; 3-0]

303. (3) 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*. Reference: Watson, *Readings in the Clinical Method in Psychology*. [3-0; 3-0]

304. (3) Statistics.—Statistical methods as applied to psychological investigations. References: Garrett, *Statistics in Psychology and Education*, third edition; Guilford, *Fundamental Statistics in Psychology and Education*; Walker, *Elementary Statistical Methods*. Prerequisite: Mathematics 101. (Probably not offered in 1951-52). [3-0; 3-0]

305. (3) Personality Theory.—Theories of personality as represented by major psychological systems. Prerequisites: 6 units in Psychology, other than 100, including 201 or 202. [3-0; 3-0]

400. (3) Abnormal Psychology. — Understanding human nature by a study of abnormal behaviour and mental processes; field trips and case studies. Text-book: Thorpe and Katz, *The Psychology of Abnormal Behaviour*. Prerequisites: 6 units of Psychology other than 100; Fourth Year and Graduate students only. [3-0; 3-0]

403. (3) Mental Measurement and Psychological Tests.—The principles underlying the psychological measuring instruments: intelligence tests, personality inventories, and questionnaires, with practice in administration and scoring. Same as Education 536 and 537. Prerequisite: Mathematics 205, or equivalent. [3-0; 3-0]

404. (3) 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 Schneirla, *Principles of Animal Psychology*. References: Moss, Ed., *Comparative Psychology*; Scheer, *Comparative Psychology*; Warden, Jenkins and Warner, *Comparative Psychology*. Prerequisite: Biology 100. [3-0; 3-0]

405. (3) Learning. — A critical examination of the major theories of learning. [3-0; 3-0]

449. (3) Honours Essay.

Primarily for Graduate Students

500. (3) History of Psychology Seminar. [3-0; 3-0]

501. (3) Social Psychology Seminar.—Prerequisite: Psychology 201, 304. (Not offered in 1951-52). [3-0; 3-0]

503. (3) Advanced Personality Theory.—A continuation of the studies in Psychology 305. [3-0; 3-0]

510. (3) Research Methods Seminar.—Obligatory for M.A. candidates. [2-0; 2-0]

520. (2) Cerebral Localization.—Function of the human brain; preparation for clinical examination of patients following lobotomies, head in-

juries, etc. Prerequisite: Biology 304 (with permission may be taken concurrently). [2-3; 0-0]

521. (1) **Problems of Cerebral Localization.**—Supervised study continuing Psychology 520. Prerequisite: Psychology 520. [0-0; 1-0]

530. (3) **Projective Techniques.**—Survey and application of projective techniques, major emphasis on Rorschach. Prerequisite: Psychology 400, 403. [3-0; 3-0]

540. (3) **Clinical Techniques.**—Supervised clinical experience in diagnostic testing, interviewing, and other techniques. Prerequisite: Psychology 400, 403. [0-3; 0-3]

541. (3) **Diagnostic Techniques.**—Diagnostic testing; emphasis upon application of projective techniques. Prerequisites; Psychology 530, 540. [0-3; 0-3]

549. (3-6) **Master's Thesis.**

649. **Ph.D. Thesis.**

Russian

For Honours in Slavonic Studies see pages 112 and 116.

Attention of Fourth Year students is called to Linguistics 319, page 144.

100. (3) **Basic Russian.** — Text-book; Semeonoff, *New Russian Grammar*. [4-0; 4-0]

Note: Several sections of first year Russian are conducted on special lines for science students. Technical vocabulary and reading material are provided in mimeograph.

200. (3) **Russian.**—Second course in the Russian language. Text-book: Semeonoff, *New Russian Grammar*. [3-0; 3-0]

203. (3) **Russian Reading and Conversation.**—More advanced study of Russian morphology, syntax, composition. Scientific study of Russian phonetics. Text-book: Semeonoff, *New Russian Grammar*. Mimeographed notes will be provided. Mr. Sobell. [3-0; 3-0]

300. (3) **Nineteenth and Twentieth Century Russian Literature.**—Texts: Reading in Russian of selected works of Pushkin, Gogol, Tolstoy, Turgenyev, Gorky, Blok. Mr. Wainman. [3-0; 3-0]

318. (3) **Early Russian Literature.**—Kievan and Muscovite texts studied with a view to appreciating early social and historical patterns; the *Povest*; the *Byliny*; Daniil Zatochnik; the *Domostroj*, Ivan-Kurbskij correspondence. Text-books: Gudzij, *Khrestomatija po drevnej russkoj literature*; Gudzij, *History of Old Russian Literature*; Tschizewskij, *Altrussische Literaturgeschichte*. Mr. Ferrell. [3-0; 3-0]

319. (3) **Old Church Slavonic.**—Origin of Old Church Slavonic; historical study of its morphology and syntax; Old Church Slavonic and Indo-European; reading and critical interpretation of earliest South Slav and Russian texts. Text-books: Vondrak, *Kirchenslavische Chrestomatie*; Diels, *Altkirchenslavische Grammatik*. Mr. Ferrell. [3-0; 3-0]

400. (3) **History of Russian Literature.**—Lectures delivered in Russian. References: Pypin, *Istoriya Russkoi Literatury*; Sakulin, *Novaya Literatura*. Mr. Isaak and Mr. Ferrell. [3-0; 3-0]

401. (3) **The History of the Russian Language.** — Texts: Shakhmatov, *Kurs III* (U.B.C. Library mimeographed copy); Bulakhovskij, *Istoricheskij kommentarij k literaturnomu russkomu yazyku*; Durnovo, *Ocherk istorii russkogo yazyka*; Obnorsky, *Immenoe sklonenie*. Mr. Ferrell. [3-0; 3-0]

402. (3) Introduction to Comparative Slavonic Philology, Part I.—Comparative study of morphology and phonetics of Eastern, Western, and South Slavic. Mimeographed notes will be provided. References: Meillet, *Le slave commun*; Niederle, *Slovanske starozitnosti*; Broch, *Ocherk fiziologu slavyanskoi rechi*. Mr. Sobell and Mr. Dolar-Mantuani. [3-0; 3-0]

502. (3) Comparative Slavonic Philology, Part II.—A further examination of morphemes, accentology and advanced studies in etymology and semantics; a research theme will be assigned to each student. Mimeographed notes will be provided. Mr. Sobell. [3-0; 3-0]

Note: Courses 401, 402 and 502 are essential for students wishing to do research work in the field of comparative Slavonic linguistics, philology and scientific structural analysis.

449. (3) Essay for the Bachelor's Degree.

549. (3) Thesis for the Master's Degree.

Slavonic Studies

(Area Studies of Central and Eastern Europe and Soviet Asia)

For Honours see pages 112 and 116.

Note: Knowledge of Russian is not required in the following courses. International Studies 400 and History 415 count for credit in Slavonic Studies.

205. (3) Economic History and Geography of U.S.S.R. and Eastern Europe.—Study of land, people, natural resources, industry and agriculture, systems of transportation and routes of foreign trade of Russia—Soviet and Tzarist—and of other countries of Eastern Europe. Text-books: Seton-Watson, *Eastern Europe Between Wars*; selected parts from Balzak, Vasjutin and Feigin, *Economic Geography of the U.S.S.R.* Mr. Ronimois. [3-0; 3-0]

306. (3) Slavonic Literature in Translation.—Literary achievements of the Slavonic peoples, with stress on the important works of 19th and 20th century Russian writers. Text-books: Simmons, *Outline of Modern Russian Literature*; Hare, *Russian Literature*. Selected sections from Pushkin, Gogol, Turgenyev, Tolstoy, Dostoyevsky, Gorky, Kataev, Sholokhov, Pilnyak, Simonov. Mr. Wainman. [3-0; 3-0]

308. (3) History of Russia.—Growth of Russian Empire; transition period of the Revolution; consolidation of power of the Communist Party in present day Union of Soviet Socialistic Republics. Text-book: Pares, *History of Russia*. References: Vernadsky, *History of Russia*; Skrine, *Expansion of Russia*; Robinson, *Rural Russia under the Old Regime*. Mr. Bryner. [3-0; 3-0]

310. (3) Culture of the Slavonic Peoples.—Cultural history and ethnography. Text-books: Pares, *History of Russia*; Rose, *Poland*. Mr. Sobell. Note: Not given 1951-52. Students desiring to study this subject substitute Slavonic Studies 311. [3-0; 3-0]

311. (3) Central Europe.—Ethnography; geographical, natural and economic features; cultural history of Central European Slavonic nations; impact of the Western and Eastern civilizations and the extent of their political and sociological influences; historical changes in pattern of life of peoples of Poland and the Danubian lands; the German problem; policies and tasks of today; future outlook for this vital middle region between Soviet Russia and the Atlantic Democracies. References: Rose, *Poland*; Strakhovsky, *Handbook of Slavic Studies*; Kerner, *Czechoslovakia*; Cross, *Slavic Civilization through the Ages*. Mr. Rose. [3-0; 3-0]

312. (3) Structure and Organization of the Soviet Economy.—Study of Soviet agriculture, industry, commerce, systems of banking, state revenues, ownership and economic administration. Analysis of planning of agricultural deliveries, industrial production, prices, money and credit, taxation and distribution of labour. Text-book: Baykov, *The Development of the Soviet Economic System*. Mr. Ronimois. [3-0; 3-0]

314. (3) Theoretical Analysis of Soviet Planning.—Extension of economic analysis to economic life under various degrees of control; Soviet forms of investment, exchange, costs and profits, capital formation and personal income; structural deficiencies of the Soviet forms of control. Text-book: Ronimois, *Soviet Economic Life and the General Categories of Economic Analysis*. Prerequisite: Economics 200. Mr. Ronimois. [3-0; 3-0]

330. (3) The German-Slav Conflict During Ten Centuries.—Mediaeval picture; German advance east and south; Germans and Czechs 1400-1620; Prussians and Poles 1700-1914; Czech revival; problem of Austria-Hungary; the Mitteleuropa design; First World War; rise of Hitler to power; Nazi plans and practice; Second World War; the Nemesis of 1945. References: Dvornik, *The Making of Central Europe*; Kohn, *The Idea of Nationalism*; Wojciechowski, *Poland's Place in Europe*. Mr. Rose. [3-0; 3-0]

412. (3) The Theory of the Soviet State.—The Russian background; Soviet form of society; its philosophy, development and interpretation in the light of the logic of economic planning on the one hand and of the official dogma on the other. Reference: Kelsen, *The Political Theory of Bolshevism*. Mr. Bryner. [3-0; 3-0]

448. (3) Seminar on Nationalism in Central and Eastern Europe.—Meaning of the term; growth since the Middle Ages; political uses of nationalism; Napoleonic wars; Romanticism in literature and life; re-awakening of South Slavs, Czechs and Slovaks; the case of the Ukrainians; Polish struggle for liberation; Messianism; Russian nationalism and the trilogy of Uvarov; impact of cosmopolitanism; Marx, Comte and the Western thinkers; self-determination and its consequences. References: Macartney, *National States and National Minorities*; Seton-Watson, *The Slav Question*. Mr. Rose. [3-0; 3-0]

449. (3) Essay for the Bachelor's Degree.

549. (3) Thesis for the Master's Degree.

Sociology

The prerequisite for Third and Fourth Year courses in Sociology is either Economics 200 or Sociology 200. The prerequisite may be taken concurrently with the advanced courses.

For Honours courses in Sociology see pages 112, 116.

200. (3) Introduction to Sociology. — The significance of geographic, biological, psychological, and cultural factors in the rise, growth and functioning of groups; the interrelations of fundamental principles and of the institutions of the local community; social problems. Text-books: Eldridge, *Fundamentals of Sociology*; Cuber, *Sociology*. Third and Fourth Year students taking this course will be required to do an essay and additional reading. Mr. Topping. [3-0; 3-0]

300. (3) Criminology.—Analysis of contemporary findings on causation in juvenile delinquency and adult crime; reformist programmes and current treatment. Text-books: Barnes and Teeters, *New Horizons in Criminology*; Reckless, *The Crime Problem*. Mr. Topping. [3-0; 3-0]

335. (3) Ethnic and Status Groups.—Organization, acculturation, and differentiation of ethnic groups; segregation, discrimination; social stratification; status; selective immigration, assimilation, ethnic pluralism. Readings to be assigned. (Not given 1951-52). [3-0; 3-0]

400. (3) The Dynamic Family.—Genetic rise of family; function; social change; disintegration; rehabilitation and facilitation. Text-book: Nimkoff, *Marriage and the Family*. [3-0; 3-0]

425. (3) The Urban Community.—Ecology of the city; personalities; problems; control. Text-book: Gist and Halbert, *Urban Society*, third edition. (May not be given in 1951-52). [2-0; 2-0]

426. (3) The Rural Community.—Comparative study of rural communities with special emphasis on population elements, structure, ecological organization, process and function. Text-books: Lands, *Rural Life in Process*; Nelson, *Rural Sociology*. (May not be given 1951-52). [2-0; 2-0]

430. (3) The Sociology of Canada.—A descriptive analysis of contemporary Canada with emphasis on geographic, historical, institutional, psychological, and cultural factors. Text-book: Brown (ed.), *Canada*. (Not given 1951-1952).

435. (3) Sociological Theory.—The central trend of sociological theory with special emphasis on recent developments. Text-book: Gurvitch and Moore, *Twentieth Century Sociology*. (Not given 1951-52). [3-0; 3-0]

436. (3) Applied Criminology.—The application of principles particularly in the treatment of the habitual offender. This course is intended primarily for persons who wish to enter the penal and related services. Prerequisite: Sociology 300 and consent of the instructor. Readings and projects to be assigned. (May not be given 1951-1952). [2-0; 2-0]

439. (3) Seminar in Criminology.—Reports and discussions under staff direction. Prerequisites: Sociology 300 and Sociology 436 (which may be taken concurrently or permission of the instructor. (May not be given 1951-1952). [2-0; 2-0]

440. (3) Honours Seminar.—Reports and discussions under staff direction of advanced sociological theory and practice for third year Honours credit. Credit requisite: Honours or graduate standing. [2-0; 2-0]

441. (3) Honours Seminar.— Same as 440 for fourth year Honours credit. Credit requisite: Honours or graduate standing. [2-0; 2-0]

449. (3) Honours Essay.—Comprehensive essay on some theoretical or institutional problem to be selected in consultation with the departmental staff. Must be submitted in final form on or before the beginning of the examinations preceding the Congregation at which the candidate expects to receive his degree.

540. (3) Master's Seminar.—Readings, consultations and reports on such phases of contemporary theory and institutional practice as may be designed to meet the needs of candidates for the Master's degree in Sociology. May be held concurrently with Honours seminars. Credit prerequisite: graduate standing. [2-0; 2-0]

549. (3) Master's Thesis.—An original and comprehensive treatment of some theoretical or institutional sociological problem to be selected in consultation with the departmental staff. Must be submitted in final form on or before the beginning of the examinations preceding the Congregation at which the student expects to receive the degree.

Spanish

For the terms under which Spanish may satisfy the language requirements, see pages 103-105.

Attention of students is called to Linguistics 319.

For Honours courses in Spanish see pages 112 and 116.

90. (3) Beginners' Spanish.—Grammar, composition, translation, conversation. Texts: Kasten and Neale-Silva, *Lecturas Escogidas*; Brenes and Patterson, *Conversemos*; McSpadden, *Spanish Usage for Beginners*. [4-0; 4-0]

101. (3) First Year University Spanish.—Review of grammar; composition, translation, conversation. [3-0; 3-0]

201. (3) Second Year University Spanish.—Study of modern authors; assigned themes in Spanish; conversation. Texts: Mitchell, *Intermediate Spanish Composition*; Kasten and Neale-Silva, *Lecturas Amenas*; Adams, *España, Introducción a su civilización*. [3-0; 3-0]

301. (3) The Golden Age.—Spanish literature of the sixteenth and seventeenth centuries. [3-0; 3-0]

302. (3) Modern Authors.—Study of leading representatives of the eighteenth and nineteenth centuries. (Given in 1951-52 and in alternate years). [3-0; 3-0]

303. (3) Commercial Spanish.—Outline of the geography, economy, and political systems of Latin America; commercial forms; letter writing. Text: Luria, *Correspondencia Comercial al Día*. (Given in 1951-52 and in alternate years). [3-0; 3-0]

304. (3) Advanced Course in Conversation and Composition.—Practice in pronunciation, conversation, brief talks; study of passages from contemporary writers; composition on Hispanic topics. (Given in 1952-53 and in alternate years). [3-0; 3-0]

401. (3) History of the Spanish Language.—Text: Entwistle, *The Spanish Language*. (Given in 1952-53 and in alternate years). [3-0; 3-0]

402. (3) Cervantes, Don Quijote.—Reading, lectures, and reports. Text: Cervantes, *El Ingenioso Hidalgo Don Quijote de la Mancha*. (Given in 1951-52 and in alternate years). [3-0; 3-0]

404. (3) Spanish American Authors.—Study of representative writers, consideration of literary movements and of historical and geographical factors. Text: Hespelt and Others, *An Anthology of Spanish American Literature*. (Given in 1952-53 and in alternate years). [3-0; 3-0]

412. (1) Cervantes in English.—Study of *Don Quixote* for students who do not read Spanish. Students enrolled in Spanish 402 may not also enrol in this course. Text: Cervantes, *Don Quixote* (Putnam translation). (Given in 1951-52 and in alternate years). [1-0; 1-0]

420. (3) Contemporary Spanish Poetry.—Study of the poetry of Miguel de Unamuno, Juan Ramón Jiménez, Antonio Machado, Federico García Lorca, Rafael Alberti, Pedro Salinas, Jorge Guillén and Vicente Aleixandre. [3-0; 3-0]

449. (3-6) Graduating Essay. For Honours only.

Graduate Courses

501. (3) Problems in Spanish Linguistics. [3-0; 3-0]

502. (3) Humanism and the Quijote. [3-0; 3-0]

503. (3) Mediaeval Spanish Literature. [3-0; 3-0]

549. (3-6) Master's Thesis.

Zoology

Biology 100 is prerequisite to all courses in Zoology.

For Honours courses in Zoology see page 112.

Students majoring or taking Honours in Zoology may take Biology 330, 400, 431, Agronomy 421, Mathematics 205, 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 200 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, 412, 413, 501, 504, 508, Agronomy 421, Botany 411, Mathematics 405.
- b. **Commerce.**—Students in Commerce may elect a Science Option during their Fourth and Fifth Years (see page 180).
- 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 permitting a student to enter this field of applied zoology can be obtained 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 101, a language, English 100 and 101, and Mathematics 101. For details of the course of study in Forestry see under "Forestry".

Economic 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 317. 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 Agriculture 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 Forestry 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. (3) General Zoology.—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*. Mr. Adams. [2-3; 2-3]

300. (3) Comparative Anatomy of Vertebrates.—Phylogeny and comparative anatomy of vertebrates and protochordates; dissection of representative forms. Text-book: Adams and Eddy, *Comparative Anatomy*. Laboratory Manual: Breland, *Manual of Comparative Anatomy*. Mr. Cowan. [2-3; 2-3]

301. (3) Invertebrate Zoology. — Anatomy, taxonomy, life histories of invertebrates with special reference to marine forms. Text-book: Parker and Haswell, *A Textbook of Zoology*, Vol. 1, 6th edition. Mr. Clemens. [2-3; 2-3]

302. (3) Introduction to Entomology.—Morphology, classification, life histories and interrelations 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.

Text-book: Matheson, *Entomology for Introductory Courses*. Laboratory Manual: Matheson, *A Laboratory Guide to Entomology*. Mr. Spencer. [2-3; 2-3]

303. (3) Histology.—Tissues and microscopic anatomy of animals with especial reference to mammals; methods in histology, fixing, embedding, sectioning, staining. Text-book: Clark, *The Tissues of the Body*, 2nd edition. Mr. Ford. [2-3; 2-3]

304. (3) Comparative Vertebrate Embryology. — Text-book: McEwen, *A Textbook of Vertebrate Embryology*. Mr. Ford. [2-3; 2-3]

305. (2) Economic Entomology.—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. References: Wardle and Buckle, *The Principles of Insect Control*; Wardle, *The Problems of Applied Entomology*. Prerequisite: Zoology 302. Mr. Spencer. [0-0; 3-3]

306. (3) Biology of the Vertebrates.—The vertebrates, chiefly of British Columbia; identification of species; observational methods of study of behaviour and habitat relations; systematics, biology, distribution, and speciation; methods of preservation for museum study. Laboratory Manual: Pettingill, *A Laboratory and Field Manual of Ornithology*. Mr. Cowan. [1-4; 1-4]

307. (2) Biology of Fishes.—Classification, identification, life histories, ecology of fishes. Text-books: Norman, *A History of Fishes*; Clemens and Wilby, *Fishes of the Pacific Coast of Canada*; Carl and Clemens, *The Fresh-water Fishes of British Columbia*. Mr. Hoar. (Given in 1951-52, and alternate years). [2-3; 2-3]

308. (3) Principles of Forest Entomology.—Insects in relation to forestry; historical accounts of important species; descriptions; bionomics; natural control; damage caused; silvicultural and economic importance; causes of outbreaks; population sampling and forecasting; direct, biological and silvicultural control. Mr. Graham. [2-2; 2-2]

400. (2) History and General Principles of Biology.—Lectures and seminars dealing with the principles and most recent advances in biology. Mr. Clemens. [2-0; 2-0]

401. (2) Practical Entomology.—Habitat studies of local representatives of all insect orders; collecting, preserving, mounting, dissecting, 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; Kingsbury and Johannsen, *Histological Technique; The Meteorological Observer's Handbook*, 1939; *Culture Methods for Invertebrate Animals*; Shelford, *Laboratory and Field Ecology*. Prerequisite: Zoology 302. Mr. Spencer. [2-4; 0-0]

402. (3) Applied Forest Entomology.—Planning and conducting investigations and control projects on forest insects; population surveys; sampling; evaluation of population status and trend; methods in studying bionomics; population dynamics; organization and analysis of data; control operations. Mr. Graham. [2-2; 2-2]

403. (2) Fisheries Economics and Management.—Canadian fishing industry and its research problems; populations of important food fishes and factors affecting them; estimations of growth rates, mortality rates and fishing intensity. Prerequisite: Agronomy 421 or equivalent. Mr. Hoar. (Given in 1952-53 and alternate years). [1-2; 1-2]

404. (3) Experimental Zoology. — Relations of temperature, pressure, light, humidity, salinity, gases, etc., to animals and animal populations. Text-book: Heilbrunn, *Outline of General Physiology*. Mr. Hoar. [1-4; 1-4]

405. (1½) Fisheries Technology.—Handling, preparation, and preservation of fish. Practical work under the direction of the staff of the Pacific Fisheries Experimental Station in its laboratories. Course is open to students in the Commerce-Fisheries option and in Food Technology. Mr. Carter, Mr. Hoar. [1-4; 0-0]

406. (3) Parasitology.—Classification, morphology, life histories of animal parasites affecting domestic and wild animals and man. Text-book: Chandler, *Introduction to Parasitology*, 8th edition. Laboratory Manual: Cable, *An Illustrated Laboratory Manual of Parasitology*. Mr. Adams. [2-3; 2-3]

407. (3) Insect Morphology and Taxonomy. — External morphology, wing venation, systematics and taxonomy.

Students must present a collection of at least three hundred insects representing all orders.

Text-book: Snodgrass, *Principles of Insect Morphology*. References: MacGillivray, *External Insect Anatomy*; Comstock, *The Wings of Insects*; Ferris, *The Principles of Systematic Entomology*; Blatchley, *Coleoptera of Indiana*; Brues and Melander, *Classification of Insects*; Viereck, *Hymenoptera of Connecticut*. Prerequisite: Zoology 302. Mr. Spencer. [2-3; 2-3]

408. (1) **Biological Methods and Procedures.**—Scientific method of inquiry, organization of research material, use of literature, rules of nomenclature, preparation of manuscripts and illustrative material. Mr. Clemens, Mr. Spencer, Mr. Cowan, Mr. Hoar. Required of all Honours and Graduate students. [2-0; 0-0]

409. (1½) **Principles of Wildlife Biology and Conservation.**—Biological principles in conservation of economically important birds and mammals. Text-book: Leopold, *Game Management*. Prerequisite: Zoology 306. Mr. Cowan. [2-0; 0-0]

410. (1½) **Biology and Management of Upland and Farm Game.**—Identification, biology, ecology of the gallinaceous birds, factors affecting status, management techniques, field study. Text-book: Trippensee, *Wildlife Management*. Prerequisites: Zoology 306 and 409. Mr. Hatter. [0-0; 1-3]

411. (1½) **Technology of Marine Products.**—Advanced course in fisheries food technology. Practical work and special lectures at the Pacific Fisheries Experimental Station. Course open to students in Food Technology. Prerequisite: Zoology 405. Mr. Carter. [0-0; 2-2]

412. (3) **Comparative Physiology.**—Comparative animal physiology, with particular reference to invertebrates and cold blooded vertebrates. Prerequisite: Biochemistry 410, which may be taken concurrently. Mr. Hoar. [1-4; 1-4]

413. (2) **Limnology.**—Physical, chemical and biological factors of lakes and streams in relation to productivity. Text-books: Welch, *Limnology*; Ward and Whipple, *Freshwater Biology*. Prerequisites: Zoology 301, 307. Mr. Larkin. [0-0; 2-4]

449. (3) **Graduating Essay.**—Honours Students in their final year are required to undertake an investigation approved by the Head of the Department. An essay embodying the results of their work must be presented and will be critically reviewed at an oral examination.

Courses for Graduate Students

500. **Special Advanced Courses.** — Special advanced courses 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 in any one such course.

501. (2) **Marine Zoology.**—Life histories, ecology and systematics of marine animals. Mr. Clemens. [1-3; 1-3]

502. (3) **Insect Internal Anatomy and Physiology.**—Text-books: Snodgrass, *Principles of Insect Morphology*; Wigglesworth, *The Principles of Insect Physiology*. Prerequisites: Zoology 302, 407, Chemistry 300. Mr. Spencer. [2-3; 2-3]

503. (1½) **Biology and Management of Forest and Wilderness Game.**—Biology, ecology, management of the large ungulates, carnivores and fur bearers of Canada. Prerequisite: Zoology 409. Mr. Cowan. [0-0; 2-0]

504. (2) **Advanced Experimental Zoology.** — Lectures, seminars and directed research in the environmental physiology of fishes and game animals. Prerequisites: Zoology 404, 412. Mr. Hoar. [1-3; 1-3]

505. (3) Vertebrate Morphogenesis.—Development of animals, tracing of causal factors in embryogeny, regeneration. Text-book: Weiss, *Principles of Development*. Mr. Ford. [2-2; 2-2]

506. (3) Advanced Parasitology.—Seminars and laboratory work mainly on parasitic protozoa and helminths; taxonomy, identification, life cycle studies, physiological requirements of parasites, culture methods and other laboratory techniques. Mr. Adams. [1-4; 1-4]

507. (3) Forest Insect Ecology.—Forest insects in relation to environment and living associations; macro- and micro-climatic influences on development, fecundity, survival, dispersal, geographic distribution; forest influences on food supply; insect influences on forest; inter- and intra-specific competition; succession of species; predation and parasitism; population dynamics, outbreak cycles; adaptations; evolution of new strains. Prerequisite: Zoology 308. Mr. Graham. [2-2; 2-2]

508. (2) Population Dynamics.—Characteristics of growth and fluctuation of animal populations, the physico-chemical and biotic factors, interspecific relations and mathematical expressions, relation of population fluctuation to evolution. Some knowledge of statistics required. Mr. Larkin. [2-0; 2-0]

509. (1½) Biology and Management of Waterfowl.—North American waterfowl problems: life histories, distribution, food habits, environmental requirements of economically important species; management techniques, problems in conservation and related theoretical considerations. Prerequisites: Zoology 306 and 409. Mr. Hatter. [1-3; 0-0]

510. (1) Fishculture.—Principles of development and nutrition of fish in relation to natural and artificial propagation, e.g. egg collecting techniques, hatchery procedures, young fish diets, young fish distribution, stream improvements. Prerequisites: Zoology 307, 404. Mr. Larkin. [0-0; 2-0]

511. (1) Introduction to Biological Oceanography.—Biology of the sea related to physical and chemical conditions. Prerequisites: Oceanography 500, Physics 536. Mr. Cameron. [0-0; 2-0]

512. (2) Advanced Biological Oceanography.—Collection, identification, enumeration of marine plankton; correlation of distribution with environment. Prerequisites: Oceanography 500, 501; Chemistry 509; Physics 536; Zoology 511. Mr. Cameron. [1-3; 1-3]

549. (6) M. A. Thesis.

649. Ph.D. Thesis.

PHYSICAL EDUCATION

The Department of Physical Education is responsible for (1) the physical education required of all students in the first two years, (2) the intramural sports programme, (3) the course leading to the degree of Bachelor of Physical Education, and (4) the physical education programme for students in the School of Education.

Physical Education Requirements For First and Second Year Men and Women

Two activity courses in Physical Education are required of all students in the First and Second Years of the Faculties of Arts and Science and Agriculture, in the Second Year of the Faculty of Pharmacy, and in the First Year of the Faculty of Applied Science and the Faculty of Forestry. Ex-service personnel and members of military units operating on the

campus are exempt. 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 and 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 the Physical Education courses.

No student will receive a degree until he has completed the Physical Education courses required. If his 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, after consultation with the Physical Education Staff, be assigned to remedial or special classes.

All members of athletic teams must have a yearly medical examination preceding active participation.

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. General Activities. — General body conditioning, apparatus work, and games.

102. Tumbling and Apparatus.—Fundamental skills on all types of apparatus. Basic and advanced tumbling.

104. Introduction to Physical Education.—Required of students registering for the degree course in Physical Education.

Team Games

The following courses are open to students who are interested in increasing their knowledge of the rules and tactics of a particular sport and in obtaining some 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 Live-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 Round Dancing.**—Co-recreational.

148. **Ballroom Dancing.**—Co-recreational (beginners).

Combative Sports

150. **Boxing.**—Fundamentals of self-defence, leading to competition on intramural level.

152. **Boxing Club.**

154. **Fencing Club.**—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.

First Year students intending to major in Physical Education must register for Physical Education 105 and one other activity course, and may register for Physical Education 231.

Gymnastics

101. **Gymnastics.**—General conditioning exercises, and body mechanics.

103. **Individual Gymnastics.**—Exercises to correct postural faults. Open to those in Medical Category 3. To be arranged in consultation with the staff.

105. See 104 above.

Team Games

111. **Team Games.**—Basketball, field hockey, volleyball.

Individual Games

- 113 Archery, Beginners.
- 115. Archery, Intermediate.
- 117. Badminton, Beginners.
- 119. Badminton, Intermediate.
- 121. Golf, Beginners.
- 123. Golf, Intermediate.
- 125. Table Tennis.
- 127. Tennis, Beginners.
- 129. Tennis, Intermediate.

Swimming and Life-Saving

- 131. Swimming, Beginners.
- 133. Swimming, Intermediate.
- 135. Swimming, Senior and Life-Saving.

Dance

- 141. Folk Dance—Co-recreational.
- 143. Modern Dance, Beginners.—Fundamental rhythmic movements and introduction to composition.
- 145. Modern Dance, Intermediate.
- 147. Square Dancing.—Co-recreational.
- 149. Ballroom Dancing.—Co-recreational (beginners).

COURSE LEADING TO THE DEGREE OF B.P.E.

For regulations regarding Registration and Admission, Senior Matriculation Credits, Examinations and Advancement, see pages 101-102, 117-118.

General regulations for the B.P.E. degree are the same as for the B.A. degree, (see page 102), except that, with the approval of the Director, a student may be permitted to take 21 units, provided these units include at least 4 units of activity courses.

Students intending to enter the Teacher Training Course of the School of Education should choose their electives in order to satisfy the requirements for admission given on pages 189, 190.

Students intending to work in recreation must select a major in Sociology or another field approved by the Department of Physical Education.

First Year

	Units
English 100 and 101.....	3
Biology 100, or Chemistry 100 or 101.....	3
Electives (to be chosen in consultation with the Department of Physical Education)	9
Two hours required Physical Education activity.....	

Men must register for P.E. 104.

Women 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, 103, or 110 as an elective in the First or the Second Year.
2. Mathematics 91 of High School is required for entrance into the Physical Education Course or Mathematics 101 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 should take Mathematics 91 in University Entrance and must take Mathematics 101 in the First Year. For other courses and majors requiring Mathematics 91 or 101 see page 104, note 6. Students in Physical Education, however, will be permitted to take Chemistry 101 without Mathematics 101 provided they have taken Mathematics 91 in High School.
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 101, Biology 100.

Second Year

				Units
English 205 or English 200 (English 200 required for students majoring in English)				3
Chemistry 100 or 101 or Biology 100, or an elective if both have been taken				3
Psychology 100				3
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		
P.E. 200		201	Gymnastics	
			General Activities	2 hrs. 2 hrs.
			Team Games	2 hrs. 2 hrs.
			Individual and Dual Games.....	2 hrs. 1 hr.
			Aquatics	1 hr. 1 hr.
			Dance	1 hr. 2 hrs.

*Men must select 4 hours (2 units) from courses 208-226.

Third Year

		Units
Psychology: One course to be selected from Psychology 201, 202, 301, 303, or an elective		3
Elective		3
Physical Education 360		1½
Physical Education 361		1½
Anatomy 390		3
Biology 304		3
Eight hours of Physical Education activity a week		4

Men	Women		Men	Women
P.E. 300	301	Gymnastics		
*	311	General Activities	2 hrs.	2 hrs.
*	321	Team Games	2 hrs.	2 hrs.
330	331	Individual and Dual Games.....	2 hrs.	1 hr.
	341	Aquatics	1 hr.	1 hr.
350		Dance		2 hrs.
		Track and Field	1 hr.	

*Men must select 4 hours (2 units) of courses not already taken.

Fourth Year

		Units		
Electives (which must include, if it has not been taken in the Third Year, one of Psychology 201, 202, 301, 303).....		9		
Physical Education 460		2		
Physical Education 470		2		
Eight hours of Physical Education activity a week		4		
Men	*Women	Men	Women	
P.E. 400	401	Gymnastics	1 hr.	1 hr.
406	406	Workshop	1 hr.	1 hr.
*	411	Team Games	2 hrs.	2 hrs.
*	421	Individual and Dual Games.....	2 hrs.	1 hr.
	441	Dance		2 hrs.
450		Track and Field	1 hr.	

*Men must select 5 hours (2½ units) of courses not already taken, and women may select P.E. 340, P.E. 346 or P.E. 430.

Physical Education Activity Courses—Twelve units of Physical Education activity courses are required for graduation. A maximum of four units (normally 8 hours per week) should be taken in a single year.

Medical Examination—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.

ACTIVITY COURSES FOR MEN

Note: (1) The following courses are required of all men: (a) 200, 300, 400; (b) 230, 330; (c) 240; (d) 350, 450; (e) 406.

(2) Courses 208 to 218 inclusive and one course selected from 220 to 226 inclusive must be completed before the student enters his final year.

(3) Courses numbered below 300 are intended for First or Second year students.

- 200. (1) **Gymnastics.**—Free standing exercises, tumbling and apparatus. [0-2; 0-2]
- 208. (½) **Baseball.**—Fundamentals and rules of baseball and softball. [0-0; 0-2]
- 210. (½) **Basketball.**—Fundamentals, basic drills, rules. [0-2; 0-0]
- 212. (½) **Football.**—Fundamentals, basic drills and formations. [0-2; 0-0]
- 214. (½) **Rugby.**—Basic skills, rules, emphasis on playing. Text-book: Hollis and Sugden, *Rugby—Do It This Way.* [0-0; 0-2]
- 216. (½) **Soccer.**—Basic skills, rules; emphasis on playing. Text-book: *Football Association Handbook.* [0-2; 0-0]
- 218. (½) **Minor Games.**—Volleyball, Group Games, and Relays. Rules, skills, teaching technique, practice teaching. [0-0; 0-2]

220. (½) **Badminton**.—Skills, court craft, rules, coaching, organization. [0-0; 0-2]
222. (½) **Boxing and Wrestling**.—Basic techniques and skills; practice in fundamentals. [0-2; 0-0]
224. (½) **Golf**.—Theory of swing, practical application, etiquette, and rules. [0-2; 0-0]
226. (½) **Tennis**.—Fundamentals, court procedure, rules. [0-0; 0-2]
230. (½) **Aquatics**. — Elementary swimming skills, strokes, entries, water safety. [0-1; 0-1]
240. (½) **Dance**.—Basic rhythms, elementary square, ballroom, folk. [0-1; 0-1]
300. (1) **Gymnastics**.—Progression in gymnastic tables, classification of exercises, mutual instruction. Tumbling, apparatus, and demonstration drills. Prerequisite: P.E. 200. [0-2; 0-2]
310. (½) **Advanced Basketball**.—Team tactics and strategy; coaching and officiating techniques; rules, use and development of material. Prerequisite: P.E. 210. [0-0; 0-2]
312. (½) **Advanced Football**.—Offensive and defensive tactics; strategy and generalship; early season practice; use and development of materials; rules, coaching. Prerequisite: P.E. 212. [0-0; 0-2]
314. (½) **Advanced Rugby**.—Organization, coaching methods, tactics and team strategy, rules and refereeing. Prerequisite: P.E. 214. [0-2; 0-0]
316. (½) **Advanced Soccer**.—Organization, coaching methods, tactics and team strategy, rules and refereeing. Prerequisite: P.E. 216. [0-0; 0-2]
318. (½) **Grass Hockey and Cricket**.—Basic skills, rules, emphasis on playing. Not offered in 1951-52. [0-2; 0-0]
330. (½) **Aquatics**.—Principles of water safety, diving, water games and sports, safety and rescue methods including beach, pool, lake, ice techniques. Prerequisite: P.E. 230. [0-1; 0-1]
340. (½) **Dance**. — Square, folk, ballroom—with emphasis on square dance calling and teaching. [0-1; 0-1]
346. (1) **Skiing**.—Principles of teaching and coaching; officiating in ski tournaments. [2-0; 0-2]
350. (½) **Track and Field**.—Fundamentals of sprinting, middle distance and distance running, high jumping, pole vaulting, and putting the shot. [0-1; 0-1]
400. (½) **Gymnastics**.—Teaching, techniques, and formations. Methods of promoting, judging, conducting competitions; pyramids. Prerequisite: P.E. 300. [0-2; 0-0]
402. (½) **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. Prerequisite: P.E. 400. [0-0; 0-2]
406. (½) **Physical Education Workshop**.—Techniques of teaching, coaching, officiating. Supervised field work will be required. [0-1; 0-1]
430. (½) **Aquatics**.—Care of facilities, swimming pool, beach, camp water front; health and safety procedure in aquatics. Competitive swimming, coaching, training, and conditioning. Conduct of swimming galas and pageants. [0-0; 0-2]
450. (½) **Track and Field**.—Fundamentals of hurdling, broad jumping, throwing the javelin and discus, relay racing. Organization and conduct of a track and field meet. [0-1; 0-1]

ACTIVITY COURSES FOR WOMEN

Second Year

201. (1) **Gymnastics**.—Elementary fundamental exercises to provide a scientific method of conditioning the body; apparatus and tumbling; theory to include gymnastic terminology and starting positions. Text-book: Thulin, *Gymnastic Handbook*. [0-2; 0-2]

211. (1) **Team Games I**.—Fieldball, speedball, soccer, basketball, softball; fundamental skills and team tactics. Text-books: Bryans and Charlesworth, *Skill in Games; Guide Books*. (Not given in 1951-52). [0-2; 0-2]

221. (½) **Individual Games**.—Archery, table tennis, badminton. Text-book: Ainsworth, *Individual Sports for Women*. [0-1; 0-1]

231. (½) **Aquatics**.—Elementary swimming skills, strokes, entries, water safety. [0-1; 0-1]

241. (1) **Dance**.—Elementary modern dance, history of dance, musical form and its application to the dance; elementary folk dance, Scandinavian, American, English; ballroom dancing. Text-book: Harris, Pittman, Swenson, *Dance Awhile*. [0-2; 0-2]

Third Year

301. (1) **Gymnastics**.—Intermediate fundamental exercises; apparatus and tumbling; theory to include the value of exercises and the anatomical functioning of movement. Text-book: Thulin, *Gymnastic Handbook*. [0-2; 0-2]

311. (1) **Team Games II**.—Grass hockey, volleyball, fundamental skills and team tactics; track and field fundamentals. Text-books: Bryans and Charlesworth, *Skill in Games; Guide Books*. [0-2; 0-2]

(Students in Second Year take P.E. 311).

321. (½) **Individual Games**. — Golf, tennis. Text-book: Ainsworth, *Individual Sports for Women*. [0-1; 0-1]

331. (½) **Aquatics**.—Principles of water safety, diving, water games and sports, safety and rescue methods. [0-1; 0-1]

341. (1) **Dance**.—Intermediate modern dance, techniques, introduction to group composition; intermediate folk dance, American, Scottish, European; character dances. Text-book: *Dances From Near and Far, Vol. II*. [0-2; 0-2]

Fourth Year

401. (½) **Gymnastics**.—Advanced fundamental exercises; theory to include the gymnastic table, lesson and programme. Text-book: Thulin, *Gymnastic Handbook*. [0-1; 0-1]

406. (½) **Physical Education Workshop**.—Techniques of teaching; minor games. [0-1; 0-1]

411. (1) **Team Games**.—Basketball, field hockey, softball, track and field, coaching and officiating. Text-book: Bryans and Charlesworth, *Skill in Games*. [0-2; 0-2]

421. (½) **Individual Games**.—Badminton, tennis; strokes, strategy, tactics, umpiring. [0-1; 0-1]

441. (1) **Dance**.—Advanced modern dance, dance composition, production and stagecraft; advanced folk dance, Scandinavian, English, Scottish, European, Mexican; national dances; ballroom dancing. [0-2; 0-2]

COURSES FOR TEACHER TRAINING

504. **Health and Physical Education Methods**.—Open only to students with Bachelor of Physical Education or the equivalent. Four hours per week.

506. Introduction to School Health and Physical Education.—Theory and practical work in the health and physical education programme. No previous training required. Four hours per week.

COURSES IN THEORY FOR MEN AND WOMEN

Note: Biology 304 (Basic Physiology) and Anatomy 390 count as courses in Physical Education.

260. (2) 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. [2-0; 2-0]

360. (1½) 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 its place in education. [3-0; 0-0]

361. (1½) Correctives.—Posture, first aid, safety education, athletic injuries. [0-0; 3-1]

460. (2) Physical Education Seminar.—A study of the problems relating to the organization and administration of physical education programmes. [2-0; 2-0]

470. (2) Health.—Nutrition, sex education, community health and sanitation, development of health services, mental health. [2-0; 2-0]

SCHOOL OF COMMERCE

The School offers a four-year course of study (after First Year Arts and Science) leading to the degree of Bachelor of Commerce. It is important that the prospective student in the School appreciate the purposes and intentions of the Council in providing the programmes defined in the following pages.

On the one hand, it is expected that graduates from this School will be familiar with the principles and techniques of those who are dealing most successfully with varied problems of business: organization, development, control, and social responsibilities. This is the professional or technical aspect of the work of the School, and the School is definitely and frankly professional in its outlook.

On the other hand, the School maintains that its graduates must have an intellectual and cultural background to enable them to deal constructively, as business men and as citizens, with the social, political, and legal problems of their times and environments. They need, and society has a right to expect that as university graduates they will have, a sounder perspective, a truer appreciation of social and economic trends and their historical origins, a keener sense of community values, than can fairly be required of those who have not had the privilege of further study in a university atmosphere.

Business does not expect that graduates in Commerce will be skilled in the techniques of individual industries or services. It does not want them to expect to assume immediate managerial responsibilities. It does expect these men and women will be well-trained in general techniques, will be ready and able to adapt these principles and practices to specific problems, and will have well-disciplined minds and sound work habits.

In accordance with these principles, the School has adopted the following programme of studies:

(1) A series of "options", or undergraduate fields of concentration, has been arranged to allow students to select a field of major effort.

(2) There is a common core of courses in all Commerce options, viz., in Accounting, Marketing, Management, Finance, Economics. The additional courses in each option represent fields of specialization. This common group of courses facilitates transfer from option to option when desirable.

(3) Few electives are allowed within the option. No deviation will be allowed from the course of studies outlined in each option.

(4) No "single" courses are allowed in any option (i.e., courses in isolated subjects, carried for one year).

(5) The Pre-Commerce Year and the First Year of Commerce are composed of subjects which count for credit towards a degree in Arts and Science. This enables a student to broaden his cultural background, to decide definitely that he intends to proceed in the School of Commerce, and to choose his option with more information and guidance.

Optional Programmes

A student who completes the course of studies outlined for any of the following options will receive the degree of Bachelor of Commerce (B.Com.) on graduation:

1. Accounting and Finance
2. Marketing
3. Production
4. Commerce and Economics
5. Commerce and Political Science
6. Commerce and Science
7. Commerce and Home Economics
8. Commerce and Teaching
9. Commerce and Forestry
10. Commerce and Agricultural Economics
11. Commerce and Agricultural Science
12. Commerce and Hospital Administration
13. Commerce and Law (for double degree)

The attention of the student is drawn to the following considerations in his choice of any one option:

(1) Students who contemplate entering the School on completion of First Year Arts are urged to study the Pre-Commerce requirements for each option. Those who intend to go on to teaching, for example, should take Psychology in the Pre-Commerce Year; those who intend to go into one of the Agricultural or Forestry options should take science courses.

(2) The selection by the student of an option is a choice of a training programme for his period of college; it is not the choice of a career. Those who are fortunate enough to have a fixed vocational interest will be able to take a sequence of courses of direct significance to them; those who have to discover such an interest during their university career are advised to choose a more general option, such as No.'s 2, 3, 4, 5, or 6.

Admission to B.Com. Courses

(1) The general requirements for admission to the University are given on pages 38-42.

(2) Veterans of World War II and members of the Merchant Navy in World War II, who hold an honourable discharge, may be admitted to a course in conformity with 1945-46 Calendar regulations.

(3) For admission to the School of Commerce, a student must have completed First Year Arts and Science, or its equivalent. Attention is drawn to the following points:

(a) For admission to any of the options, a student must have completed English 100, 101, and Mathematics 101. For certain options a language other than English is prescribed; for others, a science is required; for a third group the student is allowed to choose between a language or science.

(b) Students with a deficiency of one subject may make application to the Director for special consideration. Students with two or more deficiencies for any cause whatsoever will not be considered.

(4) Admission to advanced standing: Students will be admitted with such advanced standing as is approved by the Director, subject to the general rule that all candidates for the Bachelor of Commerce degree shall be in residence and registered in Commerce for a minimum of two winter sessions.

(5) Students in First Year Arts and Science who are considering enrolment in the School are advised to consult the Director during their first year at the University.

Regulations Regarding Commerce Courses

(1) 15 units constitute a full course in each of the First and Second Years and 18 units constitute a full course in each of the Third and Fourth Years.

(2) Without the special permission of Faculty, no student may take less than 15 units in each Winter Session.

(3) No student may take more than 18 units in each Winter Session.

(4) Not later than the end of the First Year in Commerce, students will be expected to choose their field of concentration and thereafter follow the prescribed course of studies. Transfers from one option to another may be made, in exceptional circumstances, at the end of the Second Year, with the approval of the Director, but students are advised that it will be very difficult to change their options for the Third and Fourth Years.

(5) Students who have not taken Mathematics 201 in the First Year of Commerce and who wish to take options 1 or 9 must take this course in their Second Year. They will be allowed to count Mathematics 201 as one of their Third Year electives.

(6) Students may be required to undertake field work in the business community.

(7) A small charge may be made for mimeographed material supplied by the School for use in classes.

(8) A graduating essay is required, embodying the results of some independent investigation. The topic shall be selected with the approval of the Director before the end of the Third Year's work. Two typewritten copies of each essay on standard-sized paper (8½ x 11 inches) shall be submitted not later than March 15 of the graduating year. The corresponding date for the submission of the essay for the Autumn Congregation shall be August 31.

(9) Two copies of all major reports and essays must be filed with the School and a third copy should be kept by the student.

(10) Students are advised to plan summer work for at least part of their course in the field of their option.

(11) A language chosen as an elective in the First Year of Commerce must be continued in the Second Year.

Examinations

(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 years. December examinations in subjects of the Third and Fourth Years, excepting those subjects that are completed before Christmas, shall be optional with the Director.

(2) University Health Service: Attention of the student is drawn to pages 33-34. Where reference is made in this statement to "the Dean of the Faculty", students in Commerce will read "the Director of the School".

Standing and Credit

(1) 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.

(2) No student may enter the Second Year of Commerce with a deficiency.

(3) Students may enter the Third or Fourth Year of Commerce conditioned in one subject.

(4) In view of the regulation that no student may take more than 18 units in any one year, any student who enters Third Year with a deficiency will have to take a course in Summer Session.

(5) Standing at graduation will be determined by the average of the marks obtained in all courses of the Third and Fourth Years.

Supplementals

(1) If a student's general standing in the final examinations of any year is sufficiently high, the School may grant him supplemental examinations in the subject or subjects in which he has failed. Notice will be sent to all students to whom supplementals have been granted.

(2) Students who have failed in more than two courses of a required year's work will not be allowed to write supplemental examinations, are considered to have failed in the work of the year, and will not receive credit for any of the courses passed in that year.

(3) 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.

Re-readings

The rules of the Faculty of Arts and Science given on page 118 will apply in the School of Commerce.

Unsatisfactory Standing

(1) Students who twice fail, as defined in the section on "Supplementals", paragraph 2, may, upon the recommendation of the School, be required by the Senate to withdraw from the School of Commerce.

(2) 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 School, be required by the Senate to discontinue attendance at the University for the remainder of the session.

Option Requirements

Pre-Commerce

Option No.	Obligatory	Electives
1 to 13	Eng. 100, 101; Math. 101; Phys. Ed.....	.....
1, 3	Language other than Eng., or Science.....	6 units
2	Language other than Eng., or Science; Psych. 100.....	3 units
4, 5	Language other than Eng.; Econ. 100.....	3 units
6	6 units from Chem. 100 or 101, Biol. 100, Physics 100 or 101, Geog. 101.....	3 units
7	Biol. 100; 6 units from: Physics 100 or 101, Chem. 100 or 101, Psych. 100.....	.....
8	Language other than Eng., or Science; 3 units pre- requisite to major.....	3 units
9	Physics 100 or 101; Chem. 100 or 101.....	3 units
10	Biol. 100.....	6 units
11	Biol. 100; Chem. 100 or 101.....	3 units
12	Language other than Eng.; Biol. 100 or Chem. 100 or 101; Econ. 100 or Psych. 100.....	.....
13	Language other than Eng., or Science.....	6 units

First Year Commerce

Option No.	Obligatory	Electives
1 to 13	Eng. 205; Com. 151; Econ. 200; Phys. Ed. Geog. 201; Math. 201.....	.....
1	Geog. 201.....	3 units from: Math. 201; Psych. 100 or 201; Language.
2	Geog. 201.....	3 units from: Math. 201; Psych. 100; Science.
3	Geog. 201.....	3 units from: Math. 201; Language.
4, 5	Geog. 201.....	3 units from: Math. 200 or 201 or 202; Geog. 201.
6*	1st Year Science.....	3 units from: Geog. 201; Chem. 210.
7	Home Economics 210.....	3 units from: Geog. 201; Science.
8	Prerequisite to major (6 units).....	3 units from: Math. 201; Bact. 100.
9	Math. 201; For. 253.....	3 units from: Chem. 100 or 101; Biol. 100.
10	Math. 202.....	3 units from: Math. 201; Psych. 100; Hist. 101; Phil. 100;
11**	Geog. 201; Agric. 100.....	Language; Science.
12	Soc. 200.....	.....
13	Geog. 201.....	.....

*Math. 201 should be chosen by those who propose to take Biology, Botany, or Zoology as a major. Math. 202 should be elected by students who propose to take Chemistry or Physics as a major.

**Bacteriology 100 is prerequisite to Dairying 200.

Second Year Commerce

Option No.	Obligatory	Electives
1 to 13	Com. 252; 261; 281.....	
1, 10	Econ. 300; 335.....	
2	Econ. 300.....	3 units from: Econ. 335; Psych. 300; Lang.; Eng. (400 level)
3	Econ. 300.....	3 units from: Econ. 335; Psych. 300; Science.
4	Econ. 300.....	3 units from: Econ. 335; Language.
5	Econ. 300.....	3 units from: Econ. 335; Language; Hist. 309.
6*		6 units of Science.
7	Home Economics 213.....	3 units from: Home Econ. 211, 212.
8	Econ. 300; Prerequisite to major (3 units); Shorthand and Typewriting (see Note 4)	
9	Econ. 300; Forestry 300	
11	Econ. 300; Agron. 210 and 212	
12	Bact. 100.....	3 units from: Biol. 304, Psych. 201 or 300.
13	Econ. 300.....	3 units from: Psych. 201; Hist. 307; Pol. Sci. 300; Phil.; Econ. 325; Language; Science.

*An additional course in Math. may be taken in the 2nd, 3rd, or 4th years in lieu of one of the sciences.

Accounting and Finance

Option 1

This option should be selected by those students who plan to proceed to professional training, or to take employment as accountants or cost accountants on graduation. It has been designed also to provide for those who may contemplate Civil Service employment. The option also provides preliminary training in finance.

For courses in the Pre-Commerce Year, and First and Second Year Commerce, see pages 176-177.

Third Year	Fourth Year
Commerce 331	Commerce 473
Commerce 371	Commerce 490
Commerce 353	Commerce 492
Commerce 354	Commerce 455
6 units from following:	Commerce 421
Economics 320	3 units from following:
Commerce 372	Economics 320
Economics 435	Commerce 474
Political Science 300	Economics 435
	Political Science 400

Marketing Option 2

This option has been organized for those who wish to become familiar with policies, organization, and practices in the field of marketing. The range of industries served is so broad that some degree of specialization is necessary, and students on registration for their Third Year must choose sequences of electives which they will carry through the next two years.

For courses in the Pre-Commerce Year, and First and Second Year Commerce, see pages 176-177.

Third Year	Fourth Year
Commerce 331	Commerce 473
Commerce 362	Commerce 490
Commerce 371	Commerce 492
Commerce 421	
*3 units from following:	6 units from following:
(a) Commerce 341	Commerce 342
Commerce 363	Commerce 411
(b) Economics 310	Commerce 444
	Commerce 445
†3 units from following:	Commerce 464
Commerce 372	Commerce 465
(c) English	Commerce 466
(d) History 310 or 311	3 units from following:
(e) Slavonic Studies 205	Commerce 474
(f) Economics 435	Geography 409
(g) Geography 306 or 307	English
	History 426
	Slavonic Studies 312
	Economics 410
	Economics 435

* (a) Prerequisite to Comm. 444, 445; (b) Prerequisite to Com. 464.

† (c) Prerequisite to Eng., Econ., Geog.; (d) and (e) Prerequisite to Hist. 426, Econ., Geog.; (e) and (f) Prerequisite to Slav. 312; (g) Prerequisite to Geog. 409.

Production Option 3

This option is intended for those who plan to enter manufacturing, but who have not yet chosen a specific field such as Forestry or Agriculture (options 9 or 11). To the basic core of courses is added a sequence directed to familiarizing the student with the policies, practices, and techniques of purchasing and materials control, personnel management and labour relations, shop practice, production planning and control, transportation and cost accounting.

For courses in the Pre-Commerce Year, and First and Second Year Commerce, see pages 176-177.

Third Year	Fourth Year
Commerce 331	Commerce 473
Commerce 371	Commerce 490
Commerce 341	Commerce 492
Commerce 354	Commerce 421
Commerce 342	Commerce 483
Mechanical Engineering 152	Mechanical Engineering 356
3 units from following:	1½ units from following:
Economics 325	Commerce 444
Commerce 372	Commerce 445

Commerce and Economics

Option 4

Commerce students who wish to read Economics intensively are advised to select this option. No specific employment outlets can be suggested except Civil Service. Students who contemplate graduate work are advised to take the language elective for the first two years.

For courses in the Pre-Commerce Year, and First and Second Year Commerce, see pages 176-177.

Third Year	Fourth Year
Commerce 331	Commerce 492
Commerce 371	Commerce 473
Economics 310	Commerce 490
Economics 320	Commerce 464
Economics 325	Economics 410
3 units from following:	3 units from following:
Commerce 362	Economics 435
Commerce 341	Political Science 435
Economics 435	Slavonic Studies 312
Slavonic Studies 205	Commerce 421
Geography 306 or 307	Commerce 474
	Geography 409

Commerce and Political Science

Option 5

Students who contemplate trying for entrance to the Civil Service should find this option of value. Those who may proceed to graduate work are reminded that Second Year standing in a foreign language is an entrance requirement to our graduate school.

For courses in the Pre-Commerce Year, and First and Second Year Commerce, see pages 176-177.

Third Year	Fourth Year
Commerce 331	Commerce 492
Commerce 371	Commerce 473
Economics 320	Commerce 490
Economics 410	Political Science 435
Political Science 300	Political Science 400
3 units from following:	3 units from following:
History 419	International Studies 400
Economics 310	Commerce 464
Geography 306 or 307	Slavonic Studies 412
	Geography 409

Commerce and Science

Option 6

This option is provided for Commerce students who wish to combine a major in one or two of the following sciences with the basic business courses of the School of Commerce: Physics, Chemistry, Biology, Geology, Geography, Mathematics (Actuarial Science), Zoology (Fisheries or Wild Life Management). The choice of courses in science must be arranged with the department concerned, and the standards required for entrance to third and fourth year courses will be determined by these departments.

For courses in the Pre-Commerce Year, and First and Second Year Commerce, see pages 176-177.

Third Year	Fourth Year
Commerce 331	Commerce 492
Commerce 371	Commerce 473
Economics 300	Commerce 490
Economics 325 or 310	Commerce 421
*Two Science courses	*Two Science courses

*An additional course in Mathematics may be taken in the Second, Third, or Fourth Years in lieu of one of the sciences.

Commerce and Home Economics

Option 7

This option is designed for students who wish to combine with the basic Commerce courses some background training in foods, textiles, design, or interior decoration. It should be of value to men or women who plan to engage in production or marketing in one of these industrial fields. The student interested in the food industry should plan to take one elective in each of the last two years in one of the courses in Agriculture.

For courses in the Pre-Commerce Year, and First and Second Year Commerce, see pages 176-177.

Third Year	Fourth Year
Commerce 331	Commerce 492
Commerce 371	Commerce 473
Commerce 362	Commerce 363
Commerce 354	Commerce 490
6 units from following:	6 units from following:
*Home Economics 310	***Home Economics 416
Home Economics 311	*Home Economics 417
**Home Economics 312	Home Economics 421
Animal Husbandry 200	Home Economics 430
Horticulture 200	Home Economics 431
	***Home Economics 400
	***Home Economics 403
	Animal Husbandry 418
	Poultry Husbandry 300 and
	301
	Horticulture 314
	Horticulture 315
	Horticulture 317

*Prerequisite: Home Econ. 210 and Chem. 210 or 300.

**Prerequisite: Home Econ. 211 and Chem. 210 or 300.

***The School of Home Economics will consider admission of a restricted number of students with specific vocational needs and with preparation through specialized courses in this and other schools or departments. Personal application must be made to the Director of the School of Home Economics.

Commerce and Teaching
Option 8

(1) Students who have completed the course of studies prescribed in this Option will, on graduation, be recommended to the Faculty of Arts for the University Diploma in Education, and to the Provincial Department of Education for the Academic A Certificate.

(2) Students entering this option are required to choose a teaching major, additional to Commerce, and to obtain satisfactory standing in nine units in courses carrying credit in the Third and Fourth Years of the Faculty of Arts and Science.

The teaching majors are defined as follows: (a) Mathematics; (b) Mathematics and Science; (c) Social Studies; (d) English and History; (e) English and one other Modern Language; (f) Modern Languages.

(3) To satisfy the requirements in teaching majors the seven electives allowed in the Pre-Commerce and Commerce Years should be chosen as follows:

- (a) Mathematics 200, 201, 202; Physics 100 or 101; and nine units from Mathematics carrying Third and Fourth Year credit in Arts, or six units of Mathematics and three units of Science, or
- (b) Physics 100 or 101; Chemistry 100 or 101; Biology 100; plus a further twelve units from Mathematics 200, 202, Zoology 200, 300, 301, 302, Physics 303, Botany 200, Biology 304, 330, or
- (c) History 101, 202; three units in History or Geography of 200 level; one English course of 400 level; nine units in History, or six units in History and three units in Geography, of Third or Fourth Year level, or
- (d) Nine units of electives in English (400 level); six units of electives in History; six units in History or Geography, or
- (e) Six units prerequisite to chosen language; of Third and Fourth Year courses at least three units must be in this Language; other electives in English, or
- (f) A total of fifteen units in the Language chosen, including at least six units from Third and Fourth Year courses. Other six units in English or History. Consult relevant section of Calendar.

(4) Students must present evidence satisfactory to the Provincial Department of Education of proficiency in typing and shorthand before the Academic A Certificate will be given. Arrangements will be made to provide free instruction to students registered in and planning to complete this option. Instruction will be given in the School of Commerce, throughout the Winter Session, in typing, shorthand, and secretarial practice.

(5) Practice Teaching will be carried on throughout the last two years. Arrangements are in the hands of the School of Education of the University, and may be varied from year to year. Students must be prepared to spend approximately two weeks after the April Examinations in practice teaching outside Vancouver.

No supplementals are provided in Practice Teaching. Students who fail will be required to repeat a part or all of the Practice Teaching.

For courses in the Pre-Commerce Year, and First and Second Year Commerce, see pages 176-177.

Third Year	Fourth Year
Commerce 371	Commerce 331
Education 502	Education 500
Education 503	Education 501
Education 504 (part)	Education 504 (part)
Education 505 (part)	Education 505 (part)
6 units in major	3 units in major

Commerce and Forestry Option 9

This option is intended for students who wish to combine a basic training in business practices and techniques with an introduction to production, marketing and management problems in forestry. The goal is not to train technical forestry staff but to allow students in Commerce to obtain practice in applying the principles of their business courses to the operations of a major industry. Commerce students should consult with the Director of the School and the Dean of the Faculty of Forestry regarding the most suitable electives for them in their Third and Fourth Years.

For courses in the Pre-Commerce Year, and First and Second Year Commerce, see pages 176-177.

Third Year	Fourth Year
Commerce 371	Commerce 492
Commerce 331	Commerce 473
Commerce 458	*Commerce 490
Forestry 371	Forestry 473
Forestry 380	Forestry 475
Forestry 381	3 units from following:
3 units from following:	**Commerce 464
Commerce 421	Commerce 421
Commerce 341	Commerce 444
Economics 310	Commerce 445
	Commerce 466

*Students who elect the Commerce and Forestry Option will be expected to do their thesis in the field of Forestry.

**Economics 810 is prerequisite.

Commerce and Agricultural Economics Option 10

This option is intended for those who wish to supplement a basic course in Commerce with specialization in the field of Agricultural Economics.

For courses in the Pre-Commerce Year, and First and Second Year Commerce, see pages 176-177.

Third Year	Fourth Year
Commerce 371	Commerce 492
Commerce 331	Commerce 473
Economics 320	**Commerce 490
Economics 310	Commerce 464
*Agricultural Economics 300	Agricultural Economics 502
*Agricultural Economics 401	Agricultural Economics 501

*Students in this option whose standing in Economics 200 and 800 is below Second Class should consult the Department of Agricultural Economics before registering in the Third Year.

**Students who elect the Commerce and Agricultural Economics Option will be expected to do their graduating essay in Agricultural Economics.

Commerce and Agricultural Science Option 11

This option provides Commerce students with the basic courses in business and gives them a sequence of two courses in two fields of agricultural production and marketing. It is designed for students who may wish to train for administrative work in agriculture. Graduates will not be technical specialists but will gain experience in applying the principles of business to agricultural problems.

For courses in the Pre-Commerce Year, and First and Second Year Commerce, see pages 176-177.

Third Year	Fourth Year
Commerce 331	Commerce 354
Commerce 371	Commerce 492
Commerce 341	Commerce 473
Commerce 421	Commerce 490
6 units from following:	**Commerce 490
Agronomy 200	***6 units of Agriculture
Horticulture 200	
Poultry Husbandry 200	
Animal Husbandry 200	
*Dairying 200	
Agricultural Mechanics 200	

*If this course is taken in the Third Year, Animal Husbandry 200 should be taken in the Fourth Year.

**The essay will be in the field of Agriculture.

***Course to be in same electives as in Third Year.

Commerce and Hospital Administration Option 12

This option is designed for a limited number of Commerce students who wish to qualify as Assistants to Hospital Administrators. It is a joint program of the University and the Vancouver General Hospital. Those registered should find employment in the Hospital for at least one summer prior to entering the Third Year of the option. They will be screened jointly by the University and the Hospital authorities and advised whether the Hospital is prepared to accept them as trainees at the end of the Third Year. The hospital internship covers a minimum period of four months at the end of the Third Year and seventeen months at the end of the Fourth Year.

For courses in the Pre-Commerce Year, and First and Second Year Commerce, see pages 176-177.

Third Year	Fourth Year
Commerce 371	Commerce 492
Commerce 331	Commerce 473
Commerce 421	Social Work 499
Commerce 354	Public Health 400
Nursing 459	6 units from following:
Nursing 468 and 469	Social Work 582
Economics 335	Home Economics 416
	Home Economics 417
	Commerce 342

Fifth Year

Hospital Instruction and Practice.

Commerce 490—Graduating Essay—on a problem arising from the hospital work, and independent collection and organization of data. The essay will be under the joint supervision of the Administrator of the Hospital and the Director of the School of Commerce.

No attendance at university lectures is required.

The degree of B.Com. and a Diploma in Hospital Administration will be given at the end of the Fifth Year of Commerce if satisfactory standing is obtained in both the University and the Hospital courses.

Commerce and Law

Option 13

This option has been designed for students who plan to take a double degree in Commerce and Law. Admission to the Third Year programme will be limited to those who are definitely proceeding to Law, and who give evidence of competency to handle this professional course. Students who have completed the Second Year but who wish to change their course or are not allowed to proceed, may transfer to Marketing, Commerce and Economics, or Commerce and Political Science, with no penalty. The degree of B.Com. is not awarded until the student has completed the courses required for the First and Second years in the Faculty of Law.

For courses in the Pre-Commerce Year, and First and Second Year Commerce, see pages 176-177.

Third Year	Fourth Year Fifth Year
Commerce 371 Commerce 421 Commerce 492 Commerce 473 Economics 320 3 units from following: Political Science 400 Commerce 372 Language Science	Courses prescribed for First and Second years in the Faculty of Law of the University of British Columbia. (See Double Degrees and admission requirements for Faculty of Law.)

Transfers from Applied Science to Commerce

(a) Students who have spent one or two years in Engineering courses may be admitted to advanced standing with some credit if there is evidence from their records that they will profit by training in the School.

(b) They will require at least three years to complete any option in the School.

(c) Students who have obtained a full First-year standing in the B.A.Sc. course will be admitted to First Year Commerce with the following credit toward a B.Com.: (Options 3 and 6).

Mathematics	— 3 units
Science	— 5 units
Engineering	— 4 units

Such students may obtain a B.Com. in either option in three years by taking 18 units in each of the three years.

(d) Students who have obtained a full or partial Second Year in the B.A.Sc. may be given credit toward a B.Com. degree up to the following maximum:

English	— 3 units
Mathematics	— 6 units
Science	— 6 units
Engineering	— 4 units

Such students will be excused Mathematics 201 but will be required to take Commerce 151 and Economics 200. They may be eligible for a wider range of options than those who have completed only the First Year of the B.A.Sc. course.

(e) Students who wish to transfer should make application in writing to the Director before the date of registration, giving details of standing obtained in courses.

B.Com. Degree for Graduates of Other Faculties

Graduates of approved universities, who desired to obtain the B.Com. degree from this University will be required to attend the School of Commerce for a minimum of two winter sessions. They will be required to obtain standing in the following course of studies.

If specified courses or their equivalent have been taken to meet the requirements of an earlier degree, alternate courses will be designated.

A total of 36 units of approved courses will be required. Applicants should submit a transcript of record to the Registrar of the University before registration.

First Year	Second Year
Economics 200 — 3 units	Commerce 252 — 3 units
Commerce 151 — 3 units	Commerce 492 — 3 units
Commerce 261 — 3 units	Commerce 473 — 3 units
Commerce 281 — 3 units	Commerce 490 — 3 units
Commerce 371 — 3 units	Electives* — 6 units
Commerce 331 — 3 units	
TOTAL 18 units	TOTAL 18 units

*To be arranged with the Director.

COURSES IN COMMERCE**Business Techniques**

411. (1½) Market Analysis and Research.—Uses, methods, and techniques of market analysis. Field work required entailing schedule construction, sampling, field testing, editing and tabulation. Text-book: Brown, *Marketing and Distribution Research*. Prerequisite: Commerce 261.

[0-0; 3-0]

Personnel Management and Labour Relations

421. (3) Personnel Management and Labour Relations.—Current personnel policies and practices; problems in personnel administration; collective bargaining. Text-book: Watkins, Dodd, McNaughton and Prasow, *The Management of Personnel and Labour Relations*. Prerequisite: Commerce 281.

[3-0; 3-0]

Commercial Law

331. (3) Commercial Law.—Principles of company law and law of contract, agency, partnership, commercial papers, bankruptcy, taxation, and labor relations. Readings to be assigned.

[3-0; 3-0]

Traffic Management

341. (3) Transportation Practices and Policies (Traffic Management).—A study of the principles of transportation and the functions of the Traffic Manager. Detailed examination of various regulations, documents, and rate structures of the different modes of transport. Major report required. Assigned readings. Text-book: Jackman, *Economic Principles of Transportation*, 1935.

[3-0; 3-0]

342. (1½) Procurement and Materials Control.—Principles and practices employed in the purchase, handling, and storage of raw materials in industry. Assigned readings. Text-book: Lewis, *Procurement—Principles and Cases*, 1948.

[3-0; 0-0]

444. (1½) Airline Traffic Problems.—A study of the major airlines in Canada. This is a non-technical course with special emphasis on traffic

and management problems. Major report required. Assigned readings. Text-book: Wolfe, *Air Transportation and Traffic Management*, 1950. Prerequisite: Commerce 341. [3-0; 0-0]

445. (1½) Motor Highway Transport Problems.—Principles of motor transport, legislation, classification, and tariffs. Assigned readings. Text-book: Taff, *Commercial Motor Transportation*, 1950. Prerequisite: Commerce 341. [0-0; 3-0]

Accounting

151. (3) Fundamentals of Accounting.—An introductory course on fundamental bookkeeping procedure, preparation of financial statements and uses which may be made of accounting data in operating business enterprise. Text-book: Finney, *Principles of Accounting—Introductory*. [3-0; 3-0]

252. (3) Intermediate Accounting. — Advanced theory on inventory valuation, depreciation. Principles of profit determination and analysis of profits variation. Survey of accounting for consolidations. Text-book: Johnson, *Intermediate Accounting*. Prerequisite: Commerce 151. [3-0; 3-0]

353. (3) Advanced Accounting.—Partnership organization and dissolution; accounting methods for consolidations; estates and trusts; installment sales; bankruptcy. Text-book: Karrenbrock and Simons, *Advanced Accounting*. Prerequisite: Commerce 252 with Second Class standing. [3-0; 3-0]

354. (3) Cost Accounting.—Principles and methods of accounting for managerial control of costs including the use of standards. Text-book: Neuner, *Cost Accounting*. Prerequisite: Commerce 252. [3-0; 3-0]

359. (1) Elementary Accounting. — Fundamental accounting methods and procedures with special attention to bookkeeping for the small retail business. Text-book: Carlson, Forkner and Prickett, *Twentieth-Century Bookkeeping and Accounting*. For Pharmacy and Home Economics students. [2-0; 0-0]

455. (3) Auditing.—Principles and standards; application of these in verification of financial statements. The study of internal auditing will be augmented by a series of lectures by practitioners in the field. Text-books: Holmes, *Auditing Principles and Procedures*; Smalls, *Auditing*. Prerequisite: Commerce 252 with Second Class standing. [3-0; 3-0]

457. (2) Accounting and Finance.—This course will give a foundation in basic accounting principles. It is intended to prepare students in technical fields to use accounting data in business administration. Elements of business finance will be discussed, including standard types employed in the forest industry. Text-book: Boyd and Dickey, *Basic Accounting*. For students in Agriculture, Architecture, and Forestry. [2-0; 2-0]

458. (3) Forestry Cost Accounting.—Principles of cost accounting and their use in the forest industry. Text-book: Blocker, *Essentials of Cost Accounting* and supplementary case data. [3-0; 3-0]

Marketing

261. (3) Marketing.—Analytical study of institutions, functions, problems, and policies in the marketing of producers' and consumers' goods. Oral and written reports on cases. Text-books: McNair and Hansen, *Problems in Marketing*; Phillips and Duncan, *Marketing—Principles and Methods*. [3-0; 3-0]

362. (3) Fundamentals of Advertising.—Social and economic aspects of advertising; uses and limitations; research and testing; media selection;

organizations; techniques. Discussion of business cases from the viewpoint of the user of advertising. Text-books: Borden, *Advertising—Text and Cases*; H. W. Hepner, *Effective Advertising*. Prerequisite: Commerce 261.

[3-0; 3-0]

363. (3) Retail Store Management.—The operating practices of retail institutions. Retail problems and policies, stock control, purchasing, personnel, credit, retail arithmetic, budgeting, profit planning and control. Wherever possible, students will be employed on a part-time basis by local retail stores. Text-books: Duncan and Phillips, *Retailing Principles and Methods*; McNair, Gragg and Teele, *Problems in Retailing*. Prerequisite: Commerce 261.

[3-0; 3-0]

369. (1) Drug Store Merchandising and Management. — 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*. For Pharmacy students only. Prerequisite: Commerce 359.

[0-0; 2-0]

464. (3) Foreign Trade Problems.—Export and import procedure and practices. Organization for importing, channels of distribution, foreign trade promotion, financing shipments, insurance and shipping. Practical problems of the exporter, as well as those arising from governmental regulation. Current problems in Canada's foreign trade. Text-book: Macdonald, *Practical Exporting*. Prerequisite: Economics 310.

[3-0; 3-0]

465. (1½) Advanced Advertising.—Professional and technical aspects of advertising presented in lectures by visiting experts; major report on a current advertising problem from local business. Text-book: Bridge, *Practical Advertising*. Prerequisite: Commerce 362.

[3-0; 0-0]

466. (1½) Commodity Marketing.—Problems involved in the distribution of basic commodities such as steel, lumber, coal, petroleum, wheat and other grains, agricultural products. Written reports. Assigned readings. Prerequisite: Commerce 261.

[0-0; 3-0]

Finance

371. (3) Business Finance.—Problems of financing business concerns, including promotion, types of organizations, provision of long-term and short-term capital, dividend policy, expansion and combination, involvements, public policy toward corporations. Case book: Hunt and Williams, *Case Problems in Finance*. Text-book: Guthmann and Dougall, *Corporate Financial Policy*, Second Edition. Assigned readings. Prerequisites: Commerce 151 and Economics 200.

[3-0; 3-0]

372. (3) Insurance.—Analysis of risk; fundamentals of insurance contracts; problems in life, casualty, fire, and other insurance. Text-book: Riegel and Miller, *Insurance Principles and Practices*, Third Edition.

[3-0; 3-0]

473. (3) Financial Management.—The fundamentals of establishing and operating a budget. Budgetary control and the relationship to break-even analysis. Examination of management's financial policies as influenced by taxation. Text-book: Heckert, *Business Budgeting and Control*.

[3-0; 3-0]

474. (3) Investments.—Investment principles and practices. Analysis of corporate securities; security price movements. Text-book: Graham and Dodd, *Security Analysis*. Prerequisite: Commerce 371.

[3-0; 3-0]

Production and Industrial Management

281. (3) Industrial Organization and Production.—A survey of the basic structure, principles, and practices of industry. Library research techniques. Written and oral reports. Plant visits. Text-books: Kimball and

Kimball, *Principles of Industrial Organization*; Folts, *Introduction to Industrial Management*, 1949. [3-0; 3-0]

483. (3) Advanced Production Problems.—Equipment policies and methods; planning and production control; process charts; quality control; job analysis; motion and time study principles and techniques; wage payment systems; product development; charts and records. Lectures and case studies. Extensive use of reference literature. Text-book: Folts, *Introduction to Industrial Management*. Prerequisite: Commerce 281. [2-2; 2-2]

Policy, History and Ethics

490. (3) Essay.—Students will be required to submit an essay on some business topic chosen in consultation with the Director of the School and members of the staff. The essay topic should be agreed before the end of the Third Year. It is to be submitted by March 15th.

492. (3) Policy and Administration.—Case diagnosis and remedial measures. In this course the student is expected to apply the principles and techniques acquired in the basic courses to comprehensive problems. Extensive references. Verbal and written reports. Text-books: Mitchell, *Cases in Business Policies*; Glover and Hower, *The Administrator*. [3-0; 3-0]

498. (2) Industrial Management and Marketing.—A description and analysis of our business system and of its various divisions. A survey of Marketing and Industrial Management principles, problems, practices, and procedures, designed especially for students from technical faculties. Text-books: Kimball and Kimball, *Principles of Industrial Organization*; Phillips and Duncan, *Marketing*. For students in Forestry and Agriculture. [2-0; 2-0]

499. (3) Advanced Drug Store Management.—Policies, organization, facilities and techniques of management. Text-book: Newman, *Business Policies and Management*, 3rd edition. Prerequisite: Commerce 369. For students in Pharmacy only. [3-0; 3-0]

THE SCHOOL OF EDUCATION

The School of Education, a part of the Faculty of Arts and Science, has responsibility for the Teacher Training Course (see below), for the work leading to the degree of B.Ed. (see below), and for the courses in Education (see pages 190-192).

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 on page 190, listed under "Courses in Education".

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: (See also notes below).

- (a) They must have obtained at least 9 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 6 units of one, or 3 units in each of two, of Economics, Political Science, Slavonic Studies, Sociology, and Geography, for 3 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 credit in Mathematics 101, Physics 100 or 101, Chemistry 100 or 101, and Biology 100, plus a 9-unit major in one of those, and a further 9 units selected at will in the other three of these subjects.
- (d) They must have obtained a B.S.A. degree which includes Mathematics 101, Physics 100 or 101, Chemistry 100 or 101, and Biology 100, and a further 9 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 9 units in one of the subjects designated in (a).
- (g) They must have obtained a B.Com. with at least 9 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.
- (h) They must have obtained a 9-unit major in Music, a 9-unit major in one of the subjects designated in (a), and the A.T.C.M. or its equivalent.

Notes

Attention of students is drawn to the Commerce and Teaching option, page 181.

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. The courses in History should not be confined to any one period in history.

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 101 and 200 respectively; in the Third Year, Mathematics 202 and 306; and in the Fourth Year, Mathematics 300 or 307.

It should be noted that not many schools teach much Geography (as distinct from Social Studies), German, Russian, or Spanish. Students in one of these should therefore acquire courses in two others.

See also Note 1, page 190.

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 15 units as follows:
 - (a) 6 units for the completion of the Teacher Training Course or its equivalent.
 - (b) 9 units—not already chosen—selected from Education 510 to 582 inclusive.
3. With the approval of the Dean and the Director of the School, 3 units regularly carrying Third Year or higher credit in a subject other than Education may be included in the 15 units required.
4. Candidates must have their courses approved by the Director of the School and by the Dean.
5. Standings will be First Class, Second Class, or Pass, according to the average mark obtained in the 9 units required under 2 (b) above.
6. Not more than 3 units of courses under 2 (b) above may be taken by correspondence.

COURSES IN 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. In the Winter Session these students may replace 509 by the corresponding sections of 504, 521 by 500, and 529 by 501 and 503.
3. The Teacher Training Course consists of Education 500 to 505 inclusive.
4. Only a limited number of courses from Education 510 to 582 will be offered in any one year.
5. Psychology 301 and 403 may be counted as courses in Education, to replace Education 531/532 and 536/537 respectively.
6. Students taking the Teacher Training Course must be prepared to spend approximately two weeks after the April examinations in practice teaching outside of the Greater Vancouver area.

500. (3) Principles of Education.

501. (3) Educational Psychology.

502. (3) School Administration and Law.

503. (1) Tests and Measurements.

504. (5) Methods.

1. High School Subjects.—Two of English, Social Studies, Latin, French, German, Mathematics, General Science, Agriculture, Geography, Home Economics.

2. Additional Subjects—One of Art, Music, Health and Physical Education, Dramatics.

The Physical Education courses open are P.E. 504 and 506.

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.

509. (3) High School Methods.—Methods of teaching two high school subjects. Not open to students who have taken the Teacher Training Course. One half credit for each subject.

510. (1½) Administration of School Systems.—Dominion participation in education; Provincial Department of Education; centralization and decentralization; school finance; local unit of administration.

511. (1½) Administration of the Elementary School.—Organization of elementary school; work of principal; participation of staff.

512. (1½) Administration of the Secondary School.—Programme of studies; administrative staff; guidance programme; co-curricular activities; construction of time table. Text-book: Koos and others, *Administering the Secondary School*.

513. (1½) Supervision.—Techniques for the improvement of instruction. Responsibilities of inspectors, supervisors, and principals.

520. (3) History of Education.—Development of educational theory from the time of ancient Greece to the present day.

521. (3) Philosophy of Education.—Current trends in educational philosophy; social implications of contemporary educational theories. Not open to students who have taken the Teacher Training Course.

522. (1½) The Secondary School.—Principles of secondary education. Modern developments of these in Canada and other countries.

523. (1½) Comparative Education.—Types and systems of schools, mostly in England, France, Germany, Russia, the United States, and Canada.

529. (3) Educational Psychology.—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. Not open to students who have taken the Teacher Training Course.

530. (3) Psychology of Learning.—Advanced course for students in Education and Psychology. Theories of learning; differential psychology. Prerequisite: Education 501 or 529, or equivalent.

531. (1½) Psychology of Childhood.—Mental, social, emotional, and physical characteristics of pre-school and elementary school pupils; their interests and problems; implications for organization and administration of school systems.

532. (1½) Psychology of Adolescence.—Junior and senior high school pupil as an individual and member of social groups; physical, mental, social, emotional, and religious development typical of adolescence.

533. (1½) Psychology of Exceptional Children.—Physical, mental, social, and emotional characteristics of exceptional children (gifted, backward, crippled, hard-of-hearing, etc.); suitable educational provisions.

534. (1½) Psychology of the School Subjects.—Educational psychology concerned with classroom subject-matter activities.

535. (3) Evaluation.—Basic principles; tests and other instruments for measuring instruction.

536. (1½) Individual Tests.—Administration, scoring, interpreting, and values of Revised Stanford Binet, Wechsler-Bellevue, etc.; nature of intelligence; constancy of the IQ, etc.

537. (1½) Standardized Group Tests.—Group tests of achievement, intelligence, personality, interests, aptitudes, and attitudes.

550. (1½) Introduction to Guidance.—Objectives; gathering and using information concerning students; counselling; articulation of different forms; contributions of teachers, principal, and specialists; analysis of typical guidance programmes.

551. (1½) Counselling Techniques.—For counsellors and teachers who are preparing for counselling.

560. (1½) Teaching in the Secondary School.—Modern techniques; socialized procedures; provision for individual differences through unit methods.

561. (1½) Diagnostic and Remedial Instruction.—Diagnostic point of view in education; causes of subject-matter disabilities; possible remedies, particularly in spelling, reading, and arithmetic.

565. (1½) Teaching of French.—Refresher course for both those who have and those who are working towards an Academic A certificate; includes practice in oral French.

570. (3) Educational Sociology.—Individual and social aims, the community and education, education and internationalism, social problems of administration and control.

580. (3) Problems in Education.—Investigation and report of a problem.

581. (1½) Methods of Educational Research.—Scientific method in education; discovering problems; types of research; standards in thesis writing; critical study of published research.

582. (1½) Educational Statistics.—Frequency distribution; measures of central tendency; measures of variability; normal probability curve and its applications; sampling; reliability; correlation, its meaning and application; partial and multiple correlation.

SCHOOL OF HOME ECONOMICS

For regulations regarding admission, registration, Senior Matriculation credits, examinations and advancement, etc., see pages 101-102, 117-118.

COURSES LEADING TO THE DEGREE OF B.H.E.

Students entering in the fall of 1951 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 101, and 210 (see notes 2 and 3)..... | 6 | " |
| Biology 100 and 304..... | 6 | " |
| Bacteriology 100..... | 3 | " |
| Physics 100, or 101, or 110 (see note 3)..... | 3 | " |
| Economics 140 or 200 (see note 3)..... | 3 | " |
| Psychology 100..... | 3 | " |
| Home Economics 101, 102, 103, 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 359..... | 1 | Unit |
- (3) Students who elect to proceed to Teacher Training should complete in addition the following courses:
- | | | |
|--|---|---|
| Home Economics 304, 400, 401, 403, 410, and one additional course from among H.E. 305-417..... | 9 | " |
|--|---|---|
- (4) Students who elect a general Home Economics course without planning to proceed 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 (3 units), Mathematics 101, Philosophy 100, Sociology 200, Animal Husbandry 422, Horticulture 213, 314, 316, 317, Slavonic Studies 311, 330, Social Work 499, Architecture 150, 160, 270, 352, 466.

Notes

1. A student who has not presented Home Economics CC III, A III, or B III as part of her University Entrance standing, will be required to take Home Economics 90 and 91 before proceeding to any other Home Economics course. These prerequisite courses, totalling 3 units, shall be in addition to the 60 units required for the degree of B.H.E.

Should a student present Home Economics A III, she will take Home Economics 91 and a total of 61½ units. Should a student present Home Economics B III, she will take Home Economics 90 and a total of 61½ units.

A student who presents Home Economics 100 (CC IV) for Senior Matriculation credit will be granted credit for 3 units of Home Economics work usually carried in the First Year.

2. A student who plans to carry on advanced work in Nutrition or Textiles should include Mathematics 101 and Bacteriology 100 and substitute certain other courses in Chemistry for Chemistry 210, such substitutions to be arranged after consultation with the departments concerned.

3. Mathematics 91 of the High School Programme is prerequisite to Chemistry 101 and Physics 110. Students entering without credit in Mathematics 91 must register for Mathematics 101. Students electing Chemistry 100, Economics 200 or Physics 100 or 101 must take Mathematics 101 concurrently if it has not already been taken.

4. The only course which may be taken for credit by students proceeding to the B.A. degree is H.E. 210. Courses 210, 211, 212, 213, 310, 311, 312, 421, 430, 431 are provided as electives for students proceeding to degrees

other than the B.A. Students who desire to elect these courses must consult the regulations governing the degree toward which they are working. Consultation regarding sequences to meet specific needs may be arranged with the Director of the School of Home Economics.

In 1951-52, H.E. 210 and one other from among H.E. 211-213 may be offered.

Consideration may be given to the registration of a restricted number of students in professional courses H.E. 400, 403, 416, 417, should such students submit evidence of specific vocational need and preparation through specialized courses in this or other schools or departments.

COURSES IN 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. (1½). **Introduction to Foods and Nutrition.**—Principles of food preparation and of nutrition. Text-books: Bogert, *Nutrition and Physical Fitness*, 5th edition; Kansas State College, *Practical Cookery*, 21st edition, 1947.

[2-3; 0-0]

91. (1½) **Introduction to Textiles and Clothing.**—Principles of textile selection and techniques of construction using commercial patterns. Text-book: Picken, *Modern Dressmaking Made Easy*, latest edition.

[2-3; 0-0]

101. (1½) **Principles of Design.**—Study and application of fundamental art principles to problems in design. Text-book: Goldstein, *Art in Everyday Life*, 3rd edition.

[3-3]

102. (1½) **Textiles and Clothing.**—Basic textile fibres and fabrics; techniques of clothing construction applicable to silk, or synthetic fabrics. Text-book: Hess, *Textile Fibres and Their Use*, revised edition. Prerequisite: Home Economics 91 or equivalent.

[1-3-1]

103. (1½) **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; R. Balderston, *Housekeeping Workbook*. Prerequisite: Home Economics 90 or equivalent.

[2-3]

200. (1½) **Dress Design and Construction.**—Development of foundation patterns and flat pattern design; consumer problem in clothing. Text-book: Hillhouse & Mansfield, *Dress Design Draping and Flat Pattern Making*, 1948. Prerequisites: Home Economics 101, 102.

[1-4-1]

201. (1½) **Food Management.**—Food buying, meal planning, table service; food preparation, food legislation; brands, grades. Text-book: Kansas State College, *Practical Cookery*, 21st edition, 1947. Prerequisite: Home Economics 103.

[2-6]

202. (1½) **Human Nutrition.**—Requirements of the normal adult; laboratory study of food values. Text-books: Taylor, *Food Values in Shares and Weights*, 1942; Chaney and Ahlborn, *Nutrition*, 4th edition, 1949. Prerequisite: Home Economics 103. Chemistry 210 must precede or be taken concurrently.

[0-0; 2-3]

210. (3) **Foods.**—Economics of selection; scientific aspects of preparation. Prerequisite: Chemistry 100 or 101.

[2-3; 2-3]

211. (3) **Clothing.**—Psychology and economics of fashion; selection of apparel; construction techniques.

[2-3; 2-3]

212. (3) **Principles of Design in Contemporary Living.**—Developed through lectures, demonstrations and use of community resources.

[3-2; 3-2]

213. (3) **Problems in Consumer Buying.**—In relation to food, clothing, housing, equipment; family finance planning. [3-0; 3-0]
300. (1½) **Household Equipment and Furnishings.**—House plans, furnishings, and equipment; problems of selection and care of equipment and furnishings. Text-book: Nickell and Dorsey, *Management in Family Living*. Prerequisites: Home Economics 103, Physics 100 or 101 or Physics 110. [3-2; 0-0]
301. (1½) **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*, 2nd edition 1950. Prerequisites: Home Economics 103, Economics 140 or 200. [0-0; 2-2]
302. (1½) **Foods.**—Preparation of various types of food presented from an experimental point of view. Text-book: Lowe, *Experimental Cookery*, 3rd edition. Prerequisites: Home Economics 201, Chemistry 210. [2-3; 0-0]
303. (1½) **Family Nutrition.**—Food requirements of the healthy family group. Text-book: Monsch and Harper, *Feeding Babies and Their Families*. Prerequisites: Home Economics 202; Chemistry 210; Biology 304 parallel or preceding. [2-3; 0-0]
304. (1½) **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. Prerequisite: Home Economics 302. [0-0; 0-6]
305. (1½) **Advanced Nutrition.**—Applied to all groups in a community. Reference: Sherman, *Chemistry of Foods and Nutrition*, 7th edition, 1949. Prerequisite: Home Economics 303. [0-0; 2-1]
310. (3) **Nutrition for the Family.**—Prerequisite: Home Economics 210, 213, Chemistry 210, 300 or equivalent. [3-0; 3-0]
311. (3) **Food Study.**—Primarily for those interested in food manufacturing, merchandizing or restaurant management. Experimental and demonstration methods included. Prerequisites: Home Economics 210, Chemistry 210 or 300. [2-3; 2-3]
312. (3) **Textiles.**—Source, production, use and care of fabrics and other materials used in wearing apparel and the home. Prerequisites: Home Economics 211, Chemistry 210 or 300 or equivalent. [3-0; 3-0]
400. (1½) **Textiles.**—Construction, finish and design of textiles: fibre identification. Physical and chemical testing of fabrics; consumer problems. Text-book: Hess, *Textile Fibres and Their Uses*, revised edition, 1946. Prerequisite: Chemistry 210. [2-3; 0-0]
401. (1½) **Advanced Clothing.**—Development of dress design by means of draping and tailoring; social significance of fashion, and garment industry. Prerequisite: Home Economics 200. [0-0; 2-4]
403. (1½) **Interior Decoration.**—Design principles applied to home furnishings; elements of interior decoration and history of interiors and furnishings. Text-book: Whiton, *Elements of Interior Decoration*. Prerequisite: Home Economics 101. [0-0; 2-4]
410. (1½) **Advanced Foods.**—Demonstration techniques and other means of presenting information to the public; discussion and demonstrations, radio talks. Prerequisites: Home Economics 304 parallel or preceding. Practice time: to be arranged. [1-3-2]
413. (1½) **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*, 5th edition, 1949. Prerequisites: Home Economics 303, Biology 304. [0-0; 2-3]

414. (1½) Quantity Cookery.—Preparation of food in large quantities. Reference: West and Wood, *Food Service in Institutions*, 2nd edition; Fowler and West, *Food for Fifty*, 3rd edition. Prerequisite: Home Economics 302. [1-5; 0-0]

416. (1½) 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. Prerequisite: Home Economics 302. Field trips to be arranged. [3-0; 0-0]

417. (1½) 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; Fowler and West, *Food for Fifty*, 3rd edition. Prerequisites: Home Economics 416. [0-0-0; 2-2-2]

420. (1½) Home Management.—Residence in home management house. Open only to Third and Fourth Year students.

421. (3) Child Development and Family Relations.—Physical, mental, social, and emotional development of infant and child; study of family relations. Open only to Third and Fourth Year students. [3-0; 3-0]

430. (1½) Nutrition.—Diet in disease. Prerequisite: Home Economics 310. [3-0; 3-0]

431. (1½) Nutrition.—Recent developments in nutrition, community nutrition, national food habits. Prerequisite: Home Economics 310. [0-0; 3-0]

THE SCHOOL OF SOCIAL WORK

The School of Social Work, a part of the Faculty of Arts and Science, offers work leading to the Degrees of B.S.W. and M.S.W.

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 School 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 School and should be filed not later than July 1st for the following September.

Undergraduate students who are looking forward to entering the School of Social Work should consult the School 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 School 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, Mathematics 101, and History 101 or Economics 100; also Russian 100 or Polish 110 for students going on to Slavonic studies. Recommended courses for Second Year include Economics 200 (required), Anthropology 200, Economics 100, History 101, 202, 203, Philosophy 100, Psychology 100, Slavonic Studies 205, Sociology 200, 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, Psychology, Sociology, or Slavonic Studies. Courses recently established at the University and suitable as electives for some students include those in international studies, community planning and housing, theatre, and music.

Students in Physical Education who expect to enter social work are advised to consult the School as early as possible in their undergraduate course to ensure that they will meet the minimum requirements in the social sciences.

Student Advisors

On entrance to the School 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.

Organization of Course

The School 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. All students must have some work in eight different subject areas: (1) medical and (2) psychiatric information, (3) case work, (4) group work, (5) public welfare, (6) research, (7) community organization, (8) social agency administration. Only four or five of these areas can be covered in the first year.

The body of knowledge in professional social work can be divided in another way. First there are general information courses, including knowledge of the history and organization of the social services as provided in S.W. 499, 503, 512, 513, 583, 584, and knowledge and understanding of human behaviour as taught in S.W. 504, 508, 518, 540 and 572. Secondly, there are methods or technical courses arranged in the following way: *working with people as individuals*, S.W. 501, 502, 505, 506, 570, 581; *working with people in groups*, S.W. 507, 517, 563, 580; *working with the community*, S.W. 511, 565; *administration of social services*, S.W. 545, 546, 559, 560, 568, 569, 573, 575, 582; *research in social welfare fields*, S.W. 520, 585.

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 12 units of lectures and 3 units of field work. Candidates must successfully write a comprehensive examination on the year's work.

The following is the usual plan of courses for the First Year:

<i>First Term</i>	<i>Second Term</i>
S.W. 518, Development of Personality	S.W. 520, Social Research
S.W. 501 or 507, Case Work or Group Work	S.W. 502 or 517, Case Work or Group Work
S.W. 504, Medical and Psychiatric Information	S.W. 508, Medical and Psychiatric Information
S.W. 503, Public Welfare	S.W. 513, Public Welfare
S.W. 509, Field Work	S.W. 509, Field Work

First term courses continue from September to the third week in January; second term courses from the latter date to the first week in May.

Two plans of work are available for case work students in the First Year. Field work under supervision may be taken *concurrently* with the lecture programme and the students spend 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 case work placement in the summer and will take a case work class in the May to July session.

Group work students in the First Year have instruction and practice in programme skills beginning as a workshop in the two weeks preceding field work and continuing during the session in connection with field work. Music, art, crafts, social and recreational activities are presented through the craft shops and other facilities of the University and of group work agencies. Emphasis is placed on the practical application of these skills.

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.

Generally the public and private family and child welfare agencies are used for field work for case work practice, in the first year, 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 School 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.

Field Work Agencies

Students will find opportunity for following their special interests in case work or group work practice, administration, and research in their second year. Those students who wish to specialize in case work 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.

The following social agencies are used for concurrent field work:

Vancouver Children's Aid Society
 Children's Aid Society of the Catholic Archdiocese of Vancouver
 Family Welfare Bureau of Greater Vancouver
 Vancouver City Social Service Department
 British Columbia Provincial Welfare Branch (offices at Vancouver and New Westminster)
 Burnaby Municipal Social Welfare
 New Westminster Municipal Social Welfare
 B. C. Old Age Pension Board
 B. C. Child Welfare Division
 Vancouver Community Chest and Council
 Canadian National Institute for the Blind
 Vancouver General Hospital
 St. Paul's Hospital
 B. C. Division of Tuberculosis Control
 Provincial Child Guidance Clinic
 Provincial Mental Hospital
 Alexandra Neighbourhood House
 Gordon House
 Marpole Community Centre
 Sunset Memorial Community Centre
 Young Women's Christian Association
 International Branch Y. W. C. A.
 North Vancouver Community Memorial Centre
 Jewish Community Centre
 Provincial Probation Department
 Vancouver Family Court and Juvenile Court

Agencies used for block field work placements include the following:

British Columbia Provincial Welfare offices at Kamloops, Penticton, Abbotsford, Courtenay, Victoria.
 Saskatchewan Provincial Welfare Department
 Whatcom County Welfare Department, Bellingham, Washington.
 Ryther Child Center, Seattle, Washington.
 Family Service Society, Spokane, Washington.
 Family and Child Service, Tacoma, Washington.
 Oregon State Public Welfare Commission at Salem and Albany
 Victoria Family Welfare and Children's Aid Society
 Boys' and Girls' Aid Society, Portland, Oregon.

In addition to field work placements designed to give the student experience in case work, group work or community organization practice, a few arrangements are made each year for suitable Second-Year students to have placements primarily in administration and research.

The Degree of Master of Social 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 9 units of lectures, 3 units of field work, and a thesis or research

project to count for 3 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 School 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 thesis 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 School 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.

COURSES IN 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 of Social Work. **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 451 (Community Planning and Housing), Economics 320 (Public Finance), Geography 307 (Human and Cultural Geography), Psychology 403 (Mental Measurement and Psychological Tests).

499. (3) **Introduction to Social Work.**—Survey of the field of social work, and the functions of professional social workers. Historical background and current practice. Presentation through lectures, visits to agencies, films, discussion, forums. Prerequisite: Fourth Year standing or permission of the School of Social Work. Mr. Whiten. [3-0; 3-0]

501. (1½) Social Case Work 1.—Philosophy and methods of social case work; helping the individual with problems of social adjustment through the skills of interviewing, socio-personal diagnosis and treatment, the use of personal and community resources. A wide range of cases from actual practice is used for study. Mrs. Exner and others. [3-0; 0-0]

502. (1½) Social Case Work 2.—A continuation of 501. Application of increasing insight and skills in case work with children, families, and adults of all ages. Includes meeting need for financial assistance; foster placement; adoption; services in connection with employment and illness; socio-personal adjustment; help with marital, parent-child and other intra-family problems. Mrs. Exner and others. [0-0; 3-0]

503. (1½) Public Welfare 1.—The development of the field of public welfare demonstrated particularly in child welfare programmes. Miss Smith. [3-0; 0-0]

504. (1½) Medical and Psychiatric Information 1.—The diseases and disorders of the mind and various systems of the body; their relationship with social problems. The social worker's application of this knowledge; effective work with mentally ill, physically ill, or handicapped persons. Miss Johnson and lecturers. [3-0; 0-0]

* **505. (1½) 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. Miss Wolfe. [3-0; 0-0]

* **506. (1½) Social Case Work 4.**—Continuation of 505. Miss Wolfe. [0-0; 3-0]

507. (1½) Social Group Work 1.—Historical development of group work, relation to other methods in social work, present agency settings, trends. Analysis of groups, group process, individual and group behaviour; group-work process, focusing on the role of the group worker in relation to the individual member, the group, the community. Miss Thomas. [3-0; 0-0]

508. (1½) Medical and Psychiatric Information 2.—A continuation of Social Work 504. Miss Johnson and lecturers. [0-0; 3-0]

509. (3) Beginning Field Work.—Practice work under supervision in various social agencies. [see above]

* **510. (3) Advanced Field Work.**—Supervised practice work during the Second Year required for the Master's degree. [see above]

511. (1½) Community Organization.—The problems of identifying social needs in the community and of developing programmes to meet them. The function of coordinating agencies in the community; the place of the professional social worker in social planning. [3-0; 0-0]

512. (1½) 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. [3-0; 0-0]

513. (1½) Public Welfare 2.—Principles and policies of public welfare exemplified in public welfare and assistance legislation; social security principles; treatment of the adult offender; mental hygiene programmes; housing policies; vocational rehabilitation services; administration and financing. Mr. Dixon. [0-0; 3-0]

517. (1½) Social Group Work 2.—Examination of principles and practices of the social group worker developing relationships and use of pro-

gramme as a tool. Beginning differentiations in approach to individuals and groups. Miss Thomas. [0-0; 3-0]

518. (1½) Development of Personality.—An understanding of the "person as a whole" in his various phases of development. The psychosomatic and analytic approach to the individual pattern of life with its manifest as well as its unconscious motivation. Dr. Lindenfeld. [3-0; 0-0]

520. (1) Social Research 1.—The development and special character of research in the social sciences. Research methods relevant to social work; case study, historical method, the social survey, etc. Basic statistical techniques, including practical work. Mr. Marsh. [0-0; 3-0]

*** 540. (1) Medical and Psychiatric Information 3.**—A series of clinics (in which doctors, nurses, administrators and social workers participate) based on a group of mental and physical disorders selected for their social implications. Inter-agency and inter-professional relationships as they affect the medical, social and administrative aspects of these illnesses. Miss Johnson. [2-0; 0-0]

*** 545. (1) Social Work and the Law.**—Principles of law with which the social worker should become familiar; structure of the court system; problems of judicial administration and law which particularly affect persons with low incomes. [2-0; 0-0]

*** 546. (1½) Administration of Social Agencies.**—Basic principles of administration and organization. Finance, personnel practices, public relations, office procedures. Miss Smith. [0-0; 3-0]

*** 559. (1) 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. Modern principles of penology. Mr. Stevens. [2-0; 0-0]

*** 560. (1) Legal Protection of the Child.**—The administration of statutes designed to protect the child, from the standpoint of health, education, employment, dependency, and general welfare. [0-0; 2-0]

*** 563. (1½) Social Group Work 3.**—Advanced social group work practice. Intensified understanding of individual and group behaviour. The group worker as a skilled leader in leisure-time agencies, "sheltered" groups, near-delinquent groups, institutional and hospital settings. Integration of understanding of psychological needs with use of programme media at intensive levels. Specialized problems of certain age and ethnic groups. Miss Thomas. [3-0; 0-0]

*** 565. (1) Methods in Community Organization.**—An advanced course in methods and techniques of community organization.

*** 568. (1½) Public Welfare 3 (Social Insurance).**—Nature and development of social insurance; principles of existing systems; place of social insurance in a comprehensive social security programme; function of the social worker in the administration of social insurance. Existing and proposed schemes of workmen's compensation, disability insurance, unemployment insurance, health insurance, old age and survivors' insurance, and family allowances. Mr. Dixon. [3-0; 0-0]

*** 569. (1) Seminar in Public Assistance Practice.**—Discussion of case studies from public assistance programmes. Administrative, case work, community aspects.

- * 570. (1) **Seminar in Foster Care Programmes.**—Institutional and foster home care for children. Mrs. Exner. [0-0; 2-0]
- * 572. (1) **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. Dr. Lindenfeld. [0-0; 2-0]
- * 573. (1) **Seminar in the Problems of Old Age.**—Discussion of case studies involving problems of assistance, housing, medical care, social relations. [0-0; 2-0]
- * 575. (1½) **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. Miss Wolfe. [0-0; 3-0]
- * 580. (1) **Social Group Work 4.**—Continuation of 563. Cooperative, intensive work between social group worker and caseworker. Understanding of work with groups under psychiatric direction. Miss Thomas. [0-0; 2-0]
- * 581. (1½) **Seminar in Advanced Case Work.**—Discussion of advanced problems in case work. Administrative and community aspects. [0-0; 2-0]
- * 582. (1½) **Public Welfare 4.**—Public administration in modern society; its development in Canada. Principles of organization; the function of the executive; public welfare departments at national, provincial and local levels; personnel; functions of research; fiscal administration; supervision; public relations. Mr. Dixon. [0-0; 3-0]
- * 583. (1½) **International Welfare.** — Comparative programmes; international cooperation in social welfare. [0-0; 2-0]
- * 584. (1½) **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. Miss Smith.
- * 585. (3) **Social Research 2.**—Formulating and planning of social welfare studies; collection of data; the analysis of material; the writing of reports. Seminars supplemented by individual consultations. Mr. Marsh. [3-0; 3-0]

1951-52

**THE
FACULTY
OF
APPLIED SCIENCE**

(ARCHITECTURE; ENGINEERING; NURSING)

1951-1952

1951-52

FACULTY OF APPLIED SCIENCE

The degrees offered in this Faculty are:

Bachelor of Applied Science (B.A.Sc.). (See page 209.)

Bachelor of Architecture (B.Arch.). (See page 235.)

Bachelor of Science in Nursing (B.S.N.). (See page 241.)

For regulations concerning the degree of Master of Applied Science (M.A.Sc.), see "Faculty of Graduate Studies".

GENERAL REGULATIONS

The following general regulations apply to all students in the Faculty. See, for additional regulations, page 209 (Engineering), page 236 (Architecture), page 242 (School of Nursing).

Registration and Admission

The general requirements for admission to the University are given on pages 38 to 40.

For admission to Applied Science, a student must have completed the First Year in Arts and Science at the University of British Columbia, or its equivalent at an approved university or by Senior Matriculation.

Candidates who expect to complete the requisite entrance standing through University or Senior Matriculation supplemental examinations, held in August or September, may apply for admission and their applications will be considered subject to the results of these examinations.

No student with deficient standing will be admitted to the First Year in any course in the Faculty.

Students considering Applied Science are advised to take First Year Arts and Science at the University because the Faculty feels strongly that students should adjust themselves to the University before undertaking the difficult work in First Year Applied Science.

Students intending to enter Applied Science are advised to present Chemistry 91, Mathematics 91, and Physics 91 for University Entrance.

Students desiring to enrol in the double course for the degrees of B.A. and B.A.Sc., or B.A. and B.Arch., should consult the section of this Calendar entitled "Double Degrees".

In order to allow time for practical work in the summer, the session is kept as short as is consistent with satisfactory mastery of the work. The student, therefore, should attend at the opening of session to assure a proper approach to the course.

If the summer employment either affords experience in the work of the course, or lightens the work of the session (as for example Geological Survey field work for geology students), and by its nature prevents the student attending the opening of sessions, he may be allowed by the Dean to enter late, provided he furnishes a statement from his employer showing that it was impossible for him to release the student earlier. The student must, however, make application in writing to the Dean prior to the first day of registration. A fee for late registration will be charged.

Examinations and Advancement

1. Examinations are held in December and in April. December examinations are obligatory in all subjects of the First and Second Years for all students in these years. December examinations in subjects of the Third and Fourth Years, excepting those subjects 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. If 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. If the illness occurs at the University, the student should report to the University Health Service and be there issued the necessary certificate.

2. Candidates, in order to pass, must obtain at least 50 per cent in each subject; in courses including 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.

3. No student will be allowed to take any subject unless he has previously passed in, or secured exemption from, all prerequisite subjects.

4. Any student repeating his year will not be admitted with any supplements outstanding.

5. 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.

6. 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.

7. Term essays and examination papers may be refused a passing mark if they are noticeably defective in English.

8. Honours graduate standing will be granted to those who obtain First Class Standing 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. However, Honours standing will not be granted to a student who has been required to repeat the work of any year.

Supplemental Examinations

1. If a student's general standing in the final examinations of any year is sufficiently high, the Faculty may grant him supplemental examination in the subject or subjects in which he has failed. Notice will be sent to all students to whom such examinations have been granted.

2. No student may enter the Third or higher year with supplemental examinations still outstanding for more than 4 units of the preceding year, or with any supplemental examination outstanding in the work of an earlier year unless special permission* to do so is granted by Faculty.

3. Supplemental examinations will be held in September and must be written at this time. 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.

4. Applications for supplemental examinations, accompanied by the necessary fees (see "Special Fees", page 45), must be in the hands of the Registrar by August 1st.

*Special permission of the Faculty is granted only under exceptional circumstances, such as illness, or those referred to in the last paragraph under Registration and Admission, page 207.

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.

COURSES LEADING TO THE DEGREE OF B.A.Sc.

The degree of Bachelor of Applied Science is granted on 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

Double courses are offered in Arts and Science and Applied Science leading to the degrees of B.A. and B.A.Sc. For the regulations governing these, see the section "Double Degrees".

Admission

The general requirements for admission to the Faculty are given on page 207.

For admission to courses in Engineering, a student must have completed the First Year in Arts and Science at the University of British Columbia, or its equivalent at an approved university or by Senior Matriculation.

Required subjects are:

- English 100 and 101
- Mathematics 101
- Chemistry 100 or 101
- Physics 100 or 101
- Language: one of the following—Latin 101, French 101, German 90, 100, 101, Russian 100.

The passing grade for entrance to courses in Engineering is 60 per cent. in Mathematics, Chemistry, and Physics, and 50 per cent. in other subjects.

Examinations and Advancement

The regulations set out on pages 207 to 209 apply to all courses in Engineering, with the following addition:

A student who is required to repeat his year will not be allowed to take any work in a higher year. However, a student who has taken the field

*The curriculum described in the following pages may be changed from time to time, as deemed advisable by the Senate.

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 work of certain courses if he has obtained a standing in this work acceptable to the head of the department in which the course is given.

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 212) should be based, as far as possible, upon the summer work.

Practical work such as shopwork, 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 with the approval of the Dean. Students seeking this exemption must make written application to the Dean, accompanied by certificates indicating the character of the work done and the time devoted to it.

Professional Associations

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 practise forestry in the Province of British Columbia it is necessary to be registered as a member of the Association of British Columbia Foresters. A graduate in Forest Engineering 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.

Curricula

First and Second Years

The work of both years is the same in all curricula, except that in Forest Engineering.

No student with deficient standing will be admitted to First or Second Year Applied Science.

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 164 in the Faculty of Arts and Science.

Students entering Second Year are required to submit an essay of not less than 1000 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 for 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 essay shall be handed in to the Dean not later than January 15th.

First Year

Subject	First Term		Second Term	
	Lect.	Lab.	Lect.	Lab.
Math. 155 Calculus.....	4	.....	4	.....
Math. 156 Geometry, Algebra, Trigonometry....	2	.....	2	.....
Phys. 155 Mechanics.....	2	3*	2	3*
Phys. 156 Heat, Light and Sound.....	2	3*	2	3*
‡Chem. 155 Analytical Chemistry.....	2	3	2	3
C.E. 150 History of Engineering.....	1	.....	1	.....
C.E. 151 Surveying.....	1	.....	1	.....
C.E. 160 Engineering Problems.....	.....	4	.....	4
M.E. 152 Mechanical Drawing.....	.....	3	.....	3
Eng. 150 Composition.....	2	.....	2	.....
†For. 151 Profession of Forestry.....	1	.....	1	.....
†For. 252 Forest Botany.....	2	2	2	2

*Alternate weeks.

‡Not required for Forest Engineering students.

†For Forest Engineering students only.

NOTE.—Commencing in 1952, all First Year students will take C.E. 252, Surveying Field work, immediately after the close of the spring examination for a period of three weeks. The sum of \$3.00 as caution money must be deposited before the opening of this course.

Second Year

Subject	First Term		Second Term	
	Lect.	Lab.	Lect.	Lab.
Eng. 298 Essay.....	3	.....	3	.....
Math. 250 Calculus.....	2	.....	2	.....
Math. 251 Plane and Solid Geometry.....	1	3	1	3
*Chem. 250 Quantitative Analysis.....	2	3	2	3
Phys. 250 Electricity.....	.....	4	.....	4
C.E. 250 Field Work and Mapping.....	2	.....	2	.....
C.E. 251 Surveying 1.....	.....	3	.....	3
C.E. 260 Mechanics and Eng. Problems.....	2	3	2	3
Geol. 200 General Geology.....	2	2	2	2
Eng. 250 Technical Writing.....	1	.....	1	.....
†For. 250 Silvics.....	.....	.....	1	2
†For. 251 Fire Protection.....	1	2	1	2
†For. 253 Forest Soils.....	1	2	.....	.....

*Not required for Forest Engineering students.

†For Forest Engineering students only.

NOTE.—The sum of \$3.00 caution money must be deposited before the opening of the courses in Surveying Field work.

Third and Fourth Year Essays

Essays are required of all students entering the Third and Fourth Years, except for students entering Fourth Year Agricultural Engineering, Fourth Year Chemical Engineering, Fourth Year Geological Engineering, or Third or Fourth Year Engineering Physics. 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.**

All essays, when handed in, become the property of the department concerned, and are filed for reference.

A maximum of 100 marks is allowed, the value being based on presentation, English, and matter.

1. Agricultural Engineering

For courses in First and Second Years see page 211.

Third Year

Subject	First Term		Second Term	
	Lect.	Lab.	Lect.	Lab.
A.E. 398 Essay.....	.....	.....	.....	.....
M.E. 352 Mechanical Drawing.....	At end of 2nd Term, 2nd Year			
C.E. 355 Strength of Materials.....	2	3*	2	3*
C.E. 357 Materials Testing.....	.....	3*	.....	3*
C.E. 360 Fluid Mechanics.....	2	2	2	2
M.E. 356 Machine Shop Practice.....	.....	2	.....	2
M.E. 361 Kinematics of Machines.....	2	2	.....	.....
M.E. 363 Machine Design.....	.....	.....	2	2
M.E. 371 Applied Thermodynamics.....	2	.....	2	.....
M.E. 372 Thermodynamics Lab.....	.....	3	.....	3
A.E. 350 Agricultural Power.....	2	3	2	3
A.E. 351 Machinery.....	2	3	2	3
Agric. Econ. 300 Farm Management.....	2	2	2	2
Agron. 210 Soils.....	3	2	.....	.....
Agron. 212 Soil Fertility.....	.....	.....	2	2

*Alternate weeks.

Fourth Year

Subject	First Term		Second Term	
	Lect.	Lab.	Lect.	Lab.
C.E. 475 Engineering Economics.....	1	1	1	1
E.E. 451 Electrical Circuits.....	2	2	2	2
M.E. 365 Dynamics of Machines.....	2	.....	2	.....
M.E. 477 Heating and Ventilating.....	2	.....	2	3
Met. 351 Physical Metallurgy.....	2	.....	2	.....
Met. 352 Metallography.....	.....	3*	.....	3*
A.E. 450 Agricultural Buildings.....	1	4	1	4
A.E. 451 Adv. Agric. Engineering.....	2	2	2	2
A.E. 456 Shopwork.....	.....	3*	.....	3*
A.E. 460 Irrigation and Drainage.....	2	3	2	3
A.E. 470 Rural Electrification.....	.....	.....	2	3
A.E. 499 Thesis.....	.....	3	.....	3

2. Chemical Engineering

For courses in First and Second Years see page 211.

Third Year

Subject	First Term		Second Term	
	Lect.	Lab.	Lect.	Lab.
Chem. 398 Essay.....	.....	.....	.....	.....
M.E. 352 Mechanical Drawing.....	At end of 2nd Term, 2nd Year			
C.E. 355 Strength of Materials.....	2	3*	2	3*
C.E. 357 Materials Testing.....	.....	3*	.....	3*
Math. 350 Differential Equations.....	3	.....	3	.....
Met. 351 Physical Metallurgy.....	2	.....	2	.....
Met. 352 Metallography.....	.....	3*	.....	3*
Physics 360 Light.....	1	.....	1	.....
Chem. 300 Organic.....	3	3	3	3
Chem. 304 Physical Chemistry.....	3	3	3	3
Chem. 350 Introduction to Chemical Engineering.....	3	.....	3	.....
Chem. 351 Industrial Stoichiometry.....	2	.....	2	.....
Chem. 352 Advanced Quantitative Analysis.....	1	2	1	2
Chem. 360 Chemical Engineering Laboratory.....	.....	3	.....	3

Fourth Year

Subject	First Term		Second Term	
	Lect.	Lab.	Lect.	Lab.
Chem. 498 Summer Reading.....	.....	.....	.....	.....
E.E. 451 Electrical Circuits.....	2	2	2	2
Chem. 407 Physical Chemistry.....	3	3	3	3
Chem. 450 Chem. Eng. Theory.....	3	.....	3	.....
Chem. 451 Chem. Eng. Thermodynamics.....	1	.....	1	.....
Chem. 452 Instrumentation.....	1	.....	1	.....
Chem. 453 Plant Design.....	1	2	1	2
Chem. 458 Electro-chemistry.....	2	1½	2	3
Chem. 459 Qual. Organic Anal.....	1	4½	.....	.....
Chem. 460 Chem. Eng. Laboratory.....	.....	6	.....	3
Chem. 499 Thesis.....	.....	3	.....	9

*Alternate weeks.

NOTE.—For courses for graduate students, see page 224.

3. Civil Engineering

For courses in First and Second Years, see page 211.

Third Year

Subject	First Term		Second Term	
	Lect.	Lab.	Lect.	Lab.
C.E. 398 Essay.....	.....	.....	.....	.....
C.E. 350 Surveying Field Work.....	At end of 2nd Term, 2nd Year			
C.E. 351 Surveying 2.....	2	.....	2	.....
C.E. 352 Mapping 2.....	.....	3*	.....	3*
C.E. 353 Drawing.....	.....	3*	.....	3*
C.E. 355 Strength of Materials.....	2	3*	2	3*
C.E. 356 Materials Testing.....	1	3*	.....	3*
C.E. 360 Fluid Mechanics.....	2	2	2	2
C.E. 365 Foundations.....	2	3	.....	.....
C.E. 366 Earth Pressure.....	.....	.....	2	.....
C.E. 370 Structural Design 1.....	2	3	2	3
C.E. 375 Railways.....	2	.....	2	.....
C.E. 380 Seminar.....	1	.....	1	.....
M.E. 371 Applied Thermodynamics.....	2	.....	2	.....
M.E. 372 Thermodynamics Lab.....	.....	3	.....	3

Fourth Year

Subject	First Term		Second Term	
	Lect.	Lab.	Lect.	Lab.
C.E. 498 Essay.....	.....	.....	.....	.....
C.E. 380 Seminar.....	1	.....	1	.....
C.E. 450 Surveying Field Work.....	At end of 2nd Term, 3rd Year			
C.E. 455 Theory of Structures.....	1	3	1	3
C.E. 460 Structural Design 2.....	2	3	2	6
C.E. 461 Reinforced Concrete Design.....	2	3	.....	4
C.E. 465 Municipal Engineering.....	2	2	2	2
C.E. 466 Water Power Development.....	2	2	.....	.....
C.E. 470 Highway Engineering.....	2	.....	2	2
C.E. 475 Engineering Economics.....	1	1	1	1
C.E. 476 Engineering Law.....	1	.....	1	.....
E.E. 451 Electrical Circuits.....	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 227.

4. Electrical Engineering

For courses in First and Second Years, see page 211.

Third Year

Subject	First Term		Second Term	
	Lect.	Lab.	Lect.	Lab.
E.E. 398 Essay.....	.....	.....	.....	.....
M.E. 352 Mechanical Drawing.....	At end of 2nd Term, 2nd Year			
C.E. 355 Strength of Materials.....	2	3*	2	3*
C.E. 357 Materials Testing.....	.....	3*	.....	3*
C.E. 360 Fluid Mechanics.....	2	2	2	2
Math. 350 Differential Equations.....	3	.....	3	.....
M.E. 358 Machine Shop Practice.....	.....	3*	.....	3*
M.E. 365 Dynamics of Machines.....	2	.....	2	.....
M.E. 372 Thermodynamics Laboratory.....	.....	3	.....	3
M.E. 375 Applied Thermodynamics.....	3	.....	3	.....
E.E. 353 D.C. Machines.....	2	.....	1	.....
E.E. 355 A.C. Circuits.....	1	.....	2	.....
E.E. 356 Electrical Engineering Laboratory.....	.....	3	.....	3
E.E. 357 Electronics and Electron Tubes.....	2	2	2	2

Fourth Year

Subject	First Term		Second Term	
	Lect.	Lab.	Lect.	Lab.
E.E. 498 Essay.....	.....	.....	.....	.....
C.E. 475 Engineering Economics.....	1	1	1	1
E.E. 457 Principles of A.C. Machines.....	3	5	3	5
E.E. 459 Electrical Machine Design.....	1	3	1	3
E.E. 461 Illuminating Engineering.....	2	.....	.....	2
E.E. 463 Electric Power Transmission.....	2	2	2	2
E.E. 465 Electrical Communication.....	2	3	2	3
E.E. 467 Instruments and Measurements.....	2	.....	2	.....
E.E. 469 Circuit Analysis.....	2	1	2	1

*Alternate weeks.

NOTE.—For courses for graduate students, see page 229.

5. Forest Engineering

For courses in First and Second Years, see page 211.

Third Year

Subject	First Term		Second Term	
	Lect.	Lab.	Lect.	Lab.
For. 398 Essay.....	.....	.....	.....	.....
Bot. 303 Dendrology.....	1	3	1	3
C.E. 350 Surveying Field Work.....	At end of 2nd Term, 2nd Year			
C.E. 351 Surveying.....	2	.....	2	.....
C.E. 352 Mapping.....	.....	3*	.....	3*
C.E. 355 Strength of Materials.....	2	3*	2	3*
C.E. 356 Materials Testing.....	1	3*	.....	3*
C.E. 360 Fluid Mechanics.....	2	2	2	2
For. 270 Wood Technology.....	1	2	1	2
For. 350 Silviculture.....	2	3*	2	3*
For. 355 Seeding and Planting.....	1	.....	1	.....
For. 360 Mensuration.....	2	3	2	3
For. 371 General Logging.....	2	.....	2	.....
For. 381 Forest Economics.....	2	.....	2	.....

Fourth Year

Subject	First Term		Second Term	
	Lect.	Lab.	Lect.	Lab.
For. 498 Essay.....	.....	.....	.....	.....
Bot. 467 Forest Pathology.....	2	2	.....	.....
For. 353 Seminar.....	1	.....	1	.....
For. 370 Wood Technology.....	1	3	1	3
For. 380 Forestry Policy.....	2	.....	2	.....
†For. 390 Summer Camp.....	.....	.....	.....	.....
For. 462 Forest Finance.....	1	2	1	2
For. 463 Management.....	2	3	2	3
For. 472 Logging Engineering.....	2	3	2	3
For. 473 Milling and Marketing.....	2	4*	2	4*
For. 474 Lumber Grading.....	.....	.....	1	2
For. 475 Forest Products.....	2	4*	2	4*
Zool. 459 Forest Entomology.....	.....	.....	2	2

*Alternate weeks.

†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 (1951) is \$75.00, payable to the Accountant at the time of registration for the camp.

6. Geological Engineering

For courses in First and Second Years, see page 211.

Third Year

Subject	First Term		Second Term	
	Lect.	Lab.	Lect.	Lab.
Geol. 398 Essay.....	.....	.....	.....	.....
C.E. 350 Surveying.....	At end of 2nd Term, 2nd Year			
Biol. 100 Introductory Biology.....	2	2	2	2
C.E. 352 Mapping.....	.....	3*	.....	3*
C.E. 360 Fluid Mechanics.....	2	2	2	2
Met. 350 Chemical Metallurgy.....	2	3	2	3
Met. 351 Physical Metallurgy.....	2	.....	2	.....
Min. 350 Principles of Mining 1.....	2	.....	2	.....
Min. 370 Mineral Dressing 1.....	2	3*	2	3*
Geol. 301 Crystallography.....	2	2	.....	.....
Geol. 302 Mineralogy.....	2	2	2	2
Geol. 303 Optical Mineralogy.....	.....	.....	2	2
Geol. 304 Structural Geology.....	3	.....	3	.....
Geol. 305 Historical Geology.....	2	.....	2	.....
Geol. 307 Petroleum and Natural Gas.....	1	.....	1	.....
Geol. 308 Coal.....	1	.....	.....	.....
†Geol. 410 Field Geology.....	.....	.....	.....	2

Fourth Year

Subject	First Term		Second Term	
	Lect.	Lab.	Lect.	Lab.
C.E. 475 Engineering Economics.....	1	1	1	1
Min. 450 Principles of Mining 2.....	2	.....	2	.....
Phys. 461 Geophysics.....	2	.....	2	.....
‡Zool. 200 General Zoology.....	2	2	2	2
Geol. 406 Palaeontology.....	2	2	2	2
Geol. 407 Petrography.....	2	3	2	3
Geol. 408 Mineral Deposits.....	3	.....	3	.....
Geol. 409 Mineralogy.....	1	3	.....	4
Geol. 411 Stratigraphy.....	3	.....	3	.....
Geol. 412 Geomorphology.....	2	2	2	2
Geol. 499 Thesis.....	.....	4	.....	5

*Alternate weeks.

†Includes 8 weeks' field work after lectures close in the Second Term.

‡Optional to Geology 409.

NOTE.—For courses for graduate students, see page 229.

7. Mechanical Engineering

For courses in First and Second Years, see page 211.

Third Year

Subject	First Term		Second Term	
	Lect.	Lab.	Lect.	Lab.
M.E. 398 Essay.....	.....	.....	.....	.....
M.E. 352 Mechanical Drawing.....	At end of 2nd Term, 2nd Year			
C.E. 355 Strength of Materials.....	2	3*	2	3*
C.E. 357 Materials Testing.....	.....	3*	.....	3*
E.E. 351 Electrical Engineering.....	2	3	2	3
Math. 350 Differential Equations.....	3	.....	3	.....
M.E. 356 Machine Shop Practice.....	.....	2	.....	2
M.E. 361 Kinematics of Machines.....	2	2	.....	.....
M.E. 363 Machine Design 1.....	.....	.....	2	2
M.E. 365 Dynamics of Machines.....	2	.....	2	.....
M.E. 372 Thermodynamics Lab.....	.....	3	.....	3
M.E. 373 Applied Thermodynamics.....	3	.....	3	.....
M.E. 381 Fluid Mechanics.....	2	2	2	2

Fourth Year

Subject	First Term		Second Term	
	Lect.	Lab.	Lect.	Lab.
M.E. 498 Essay.....	.....	.....	.....	.....
C.E. 475 Engineering Economics.....	1	1	1	1
E.E. 453 A.C. Machines.....	2	3	2	3
Met. 351 Physical Metallurgy.....	2	.....	2	.....
Met. 352 Metallography.....	.....	3*	.....	3*
M.E. 456 Manufacturing Processes.....	1	.....	1	.....
M.E. 463 Machine Design 2.....	2	3	2	3
M.E. 465 Applied Mechanics.....	.....	2	2	2
M.E. 471 Prime Movers.....	3	.....	3	.....
M.E. 472 Mechanical Engineering Lab.....	.....	3	.....	3
† } M.E. 475 Power Plant Design.....	2	3	.....	.....
} M.E. 477 Heating and Ventilating.....	2	.....	2	3
† M.E. 481 Aeronautics.....	3	3	3	3

*Alternate weeks.

† 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 232.

8. Metallurgical Engineering

For courses in First and Second Years, see page 211.

Third Year

Subject	First Term		Second Term	
	Lect.	Lab.	Lect.	Lab.
Met. 398 Essay.....	.....	.....	.....	.....
M.E. 352 Mechanical Drawing.....	At end of 2nd Term, 2nd Year			
C.E. 355 Strength of Materials.....	2	3*	2	3*
C.E. 357 Materials Testing.....	.....	3*	.....	3*
Geol. 301 Crystallography.....	.....	2	.....	.....
Math. 350 Differential Equations.....	3	.....	3	.....
M.E. 363 Machine Design.....	.....	.....	2	2
M.E. 371 Applied Thermodynamics.....	2	.....	2	.....
M.E. 381 Fluid Mechanics.....	2	2	2	2
Min. 350 Principles of Mining I.....	2	.....	2	.....
Min. 370 Mineral Dressing I.....	2	3*	2	3*
Phys. 360 Light.....	1	.....	1	.....
Met. 350 Chemical Metallurgy.....	2	3	2	3
Met. 351 Physical Metallurgy.....	2	.....	2	.....
Met. 352 Metallography.....	.....	3*	.....	3*
Met. 360 Seminar.....	.....	.....	.....	1

Fourth Year

Subject	First Term		Second Term	
	Lect.	Lab.	Lect.	Lab.
Met. 498 Essay.....	.....	.....	.....	.....
C.E. 475 Engineering Economics.....	1	1	1	1
E.E. 451 Electrical Circuits.....	2	2	2	2
Met. 450 Theoretical Metallurgy.....	2	3	2	3
Met. 451 Applied Chemical Metallurgy.....	2	.....	2	.....
Met. 452 Physical Metallurgy.....	2	.....	2	.....
Met. 453 Metallurgical Calculations.....	.....	2	.....	2
Met. 454 Laboratory and Research Methods.....	.....	3	.....	6
Met. 457 Plant Management.....	1	1	1	1
and one of the following options :				
METALLURGY				
Chem. 350 Chemical Engineering.....	3	.....	3	.....
M.E. 456 Manufacturing Processes.....	1	.....	1	.....
Phys. 460 Metallurgical Physics.....	2	.....	2	.....
Met. 456 Metallography.....	.....	3	.....	3
Met. 459 Mechanical Metallurgy.....	1	.....	1	.....
†MINERAL DRESSING				
Geo. 302 Mineralogy.....	2	2	2	2
Geol. 409 Mineralography.....	1	3	.....	4
Min. 470 Mineral Dressing 2.....	2	3*	2	3*

*Alternate weeks.

†1951-52 only. After 1952, a Mineral Dressing option will be offered in Mining Engineering only.

NOTE.—For courses for graduate students, see page 223.

9. Mining Engineering

For courses in First and Second Years see page 211.

Third Year

Subject	First Term		Second Term	
	Lect.	Lab.	Lect.	Lab.
Min. 398 Essay.....	.....	.....	.....	.....
C.E. 350 Surveying.....	At end of 2nd Term, 2nd Year			
C.E. 352 Mapping.....	.....	3*	.....	3*
C.E. 355 Strength of Materials.....	2	3*	2	3*
C.E. 357 Materials Testing.....	.....	3*	.....	3*
C.E. 360 Fluid Mechanics.....	2	2	2	2
C.E. 370 Structural Design 1.....	2	3	2	3
Geol. 302 Mineralogy.....	2	2	2	2
Geol. 304 Structural Geology.....	3	.....	3	.....
Geol. 308 Coal.....	1	.....	.....	.....
Met. 350 Chemical Metallurgy.....	2	3	2	3
Met. 351 Physical Metallurgy.....	2	.....	2	.....
Met. 360 Seminar.....	.....	.....	.....	1
Min. 350 Principles of Mining 1.....	2	.....	2	.....
Min. 370 Mineral Dressing 1.....	2	3*	2	3*

Fourth Year

Subject	First Term		Second Term	
	Lect.	Lab.	Lect.	Lab.
Min. 498 Essay.....	.....	.....	.....	.....
C.E. 475 Engineering Economics.....	1	1	1	1
E.E. 451 Electrical Circuits.....	2	2	2	2
Geol. 408 Mineral Deposits.....	3	.....	3	.....
M.E. 371 Applied Thermodynamics.....	2	.....	2	.....
M.E. 372 Thermodynamics Laboratory.....	.....	3	.....	3
Met. 457 Plant Management.....	1	1	1	1
Min. 450 Principles of Mining 2.....	2	.....	2	.....
Min. 451 Mine Management.....	2	.....	2	.....
Min. 470 Mineral Dressing 2.....	2	3*	2	3*
and one of the following options :				
MINING				
Geol. 453 Petrology.....	2	.....	2	.....
Phys. 461 Geophysics.....	2	.....	2	.....
Min. 454 Problems and Reports.....	.....	4	.....	4
MINERAL DRESSING				
Geo. 409 Mineralography.....	1	3	.....	4
Min. 474 Mineral Dressing 3.....	.....	4	.....	6

*Alternate weeks.

NOTE.—For courses for graduate students, see page 234.

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 211.

Third Year

Subject	First Term		Second Term	
	Lect.	Lab.	Lect.	Lab.
M.E. 352 Mechanical Drawing.....	At end of 2nd Term, 2nd Year			
† Chem. 304 Physical Chemistry.....	2	3	2	3
C.E. 355 Strength of Materials.....	2	3*	2	3*
C.E. 357 Materials Testing.....	.....	3*	.....	3*
Math. 320 Differential Calculus.....	2	.....	2	.....
Math. 321 Integral Calculus.....	3	.....	3	.....
Math. 322 Algebra and Geometry.....	3	.....	3	.....
Phys. 302 Mathematical Physics.....	2	.....	2	.....
Phys. 304 Thermodynamics.....	2	.....	2	.....
Phys. 308 Physical Optics.....	2	3	2	3
and one of the following:				
Chem. 300 Organic Chemistry.....	2	3	2	3
Chem. 350 Chemical Engineering.....	3	.....	3	.....
E.E. 355 A.C. Circuits.....	1	.....	2	.....
Geol. 304 Structural Geology.....	3	.....	3	.....
{ M.E. 371 Applied Thermodynamics.....	2	.....	2	.....
{ M.E. 372 Thermodynamics Lab.....	.....	3	.....	3
{ Met. 351 Physical Metallurgy.....	2	.....	2	.....
{ Met. 352 Metallography.....	.....	3*	.....	3*

Fourth Year

Subject	First Term		Second Term	
	Lect.	Lab.	Lect.	Lab.
E.E. 465 Electrical Communications.....	2	3	2	3
Math. 402 Differential Equations.....	3	.....	3	.....
Phys. 401 Electricity and Magnetism.....	2	.....	2	.....
Phys. 402 Atomic Structure.....	2	.....	2	.....
Phys. 403 Statistical Theory of Matter.....	2	.....	2	.....
Phys. 405 Theory of Elasticity.....	1	.....	1	.....
Phys. 407 Nuclear Physics.....	1	.....	1	.....
Phys. 409 Experimental Physics.....	.....	6	.....	6
and one of the following:				
Chem. 450 Chem. Engineering Theory.....	3	.....	3	.....
E.E. 453 A.C. Machines.....	2	3	2	3
{ Phys. 461 Geophysics.....	2	.....	2	.....
{ Geol. 453 Petrology.....	2	.....	2	.....
M.E. 477 Heating, Ventilating.....	2	.....	2	3
M.E. 481 Aeronautics.....	3	3	3	3
{ Met. 452 Physical Metallurgy.....	2	.....	2	.....
{ Met. 456 Adv. Metallography.....	.....	3	.....	3

*Alternate weeks.

†Optional to Mathematics 322.

COURSES IN ENGINEERING

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]

Where no definite times are assigned for laboratory and lectures, the number of units for which credit will be granted is shown in parentheses after the course number.

Agricultural Engineering

350. Agricultural Power. — Applications of engineering principles and practices in the development of agricultural power units; fuels, lubricants, materials and developmental trend. Text-book: Heldt, *High-Speed Internal Combustion Engines*. Mr. Coulthard. [2-3; 2-3]

351. Agricultural Machinery.—Farm production machinery; the application of engineering principles to agricultural machinery design, performance, and field testing. Text-book: Smith, *Farm Machinery*. Mr. Coulthard.
[2-3; 2-3]

450. Agricultural Buildings. — Design of buildings for the farmstead; planning and layout. Text-book: Scoates, *Farm Buildings*, 1 and 2. Mr. Leroux. [1-4; 1-4]

451. Advanced Agricultural Engineering.—Lectures, papers, and discussions on recent developments. [2-2; 2-2]

456. Shopwork.—Oxy-acetylene and arc welding; heat treatment of agricultural tools. [0-3*; 0-3*]

460. Drainage and Irrigation.—Drainage principles, soil and water relation, land reclamation; hydraulics; design of irrigation systems. Text-books: Etcheverry, *Land Drainage and Flood Protection*; Israelsen, *Irrigation Principles and Practices*. Mr. Coulthard. [2-3; 2-3]

470. Rural Electrification.—Electrification principles and application. Text-book: Schaenzer, *Rural Electrification*. Mr. Young. [0-0; 2-3]

499. Thesis.—For B.A.Sc. degree. [0-3; 0-3]

Agricultural Economics

300. Farm Organization and Management.—As in Agriculture. See page 271.

Agronomy

For descriptions of courses in Agronomy, see Agriculture, page 272.

Anthropology

For descriptions of courses in Anthropology, see Arts, page 119.

Biology

For descriptions of courses in Biology, see Arts, page 121.

Botany

467. Introductory Forest Pathology.—Life histories, control and economics of diseases in relation to forest management in Western Northern America. Open to Forest Engineering students only. Mr. Buckland.

[2-2; 0-0]

For descriptions of other courses in Botany, see Arts, pages 123-125.

Chemistry

155. Analytical Chemistry.—Chemical laws, chemical equilibrium, equilibrium applied to ionization, precipitation, complex ions, and hydrolysis. Solubility products, common-ion effect. Theory of qualitative and quantitative analysis. Oxidation-reduction potentials, theory of indicators.

[2-3; 2-3]

250. Quantitative Analysis.—This course embraces the more important methods of gravimetric and volumetric analysis. Text-book: Talbot, *Quantitative Chemistry Analysis*, revised by Hamilton and Simpson.

[1-3; 1-3]

350. Introduction to Chemical Engineering.— Technical fundamentals, unit operations such as fluid flow, heat transfer, filtration and evaporation. Text-books: Kirkbride, *Chemical Engineering Fundamentals*; Walker, Lewis, McAdams, and Gilliland, *Principles of Chemical Engineering*.

[3-0; 3-0]

351. Industrial Stoichiometry.—Calculations from typical process industries; fuels and combustion, gas producers, water treatment; interrelation of variables in chemical processes. Text-books: Kirkbride, *Chemical Engineering Fundamentals*; Shreve, *Chemical Process Industries*.

[2-0; 2-0]

352. Advanced Quantitative Analysis.— Text-book: Vogel, *Quantitative Analysis*.

[1-2; 1-2]

360. Chemical Engineering Laboratory.— Properties of petroleum products; unit operations and processes; local plant visits.

[0-3; 0-3]

450. Chemical Engineering Theory.—Theories of diffusional operations, humidification, drying, extraction, absorption, ion exchange, advanced theories of fluid flow and heat transfer; practical applications made by means of problem assignments and laboratory experiments. Text-books: Walker, Lewis, McAdams, and Gilliland, *Principles of Chemical Engineering*; Perry, *Chemical Engineers' Handbook*.

[3-0; 3-0]

451. Chemical Engineering Thermodynamics.— Application of fundamental laws to fluid flow, heat transfer and chemical processes; power cycles, refrigeration, expansion and compression of fluids. Text-book: J. M. Smith, *Introduction to Chemical Engineering Thermodynamics*.

[1-0; 1-0]

452. Instrumentation.—Theory and application of automatic control in chemical processes; regulation of process variables; types of instruments. Text-book: Rhodes, *Industrial Instruments for Measurement and Control*.

[1-0; 1-0]

453. Plant Design.—Design of chemical engineering equipment; operation and planning of chemical process plants; economics of chemical engineering processes. Text-books: Vilbrandt, *Chemical Engineering Plant Design*; Tyler, *Chemical Engineering Economics*.

[1-2; 1-2]

458. Electrochemistry.— Theoretical principles, industrial applications, electrokinetics, electrorefining, electrolytic extraction, electroplating; electric furnace design, corrosion and protective coatings. Text-book: Mantell, *Industrial Electrochemistry*.

[2-1½; 2-3]

459. Qualitative Organic Analysis.—Similar to Chem. 409, (Arts, page 126) but with reduced amount of laboratory work. For Chemical Engineering students only.

[1-4½; 0-0]

460. Chemical Engineering Laboratory.—Study of unit operations and unit processes; local plant visits. [0-6; 0-3]

498. Industrial Chemistry.—A summer reading course covering the more important chemical processes. Text-book: Shreve, *Chemical Process Industries*.

499. Thesis.—Experimental research or design under the direction of a staff member. [0-3; 0-9]

Courses for Graduate Students

548. Research Conference.—Attendance and presentation of a paper is required in each year of registration for the M.A.Sc. in chemical engineering. No unit value.

550. (1) Industrial Kinetics and Catalysis.—Chemical reaction kinetics and catalytic processes; heat and mass transfer in industrial reactors; design of catalytic converters. Text-book: Hougen and Watson, *Chemical Process Principles*, Vol. III.

551. (1) Chemical Engineering Thermodynamics.—Pressure-volume-temperature relations; chemical equilibria by Gibb's method; vapor-liquid equilibria; thermodynamic equations by third law and quantum-statistical methods. Text-book: Dodge, *Chemical Engineering Thermodynamics*. Prerequisite: Chem. 513.

552. (1) Distillation Theory and Design.—Systems of complete and of limited miscibility; multicomponent systems; graphical methods; vacuum and pressure distillation.

553. (1) Process Engineering Calculations.—Material and energy balances; applications of differential equations; numerical and graphical methods. Text-books: Sherwood and Reed, *Applied Mathematics in Chemical Engineering*; Wenner, *Thermochemical Calculations*.

599. Thesis.—For M.A.Sc. degree.

For descriptions of other courses in Chemistry, see Arts, pages 125-128.

Civil Engineering

150. History of Engineering.—An orientation course including a brief history of physical science as the basis of engineering; the historical background and the general fields of interest of the various branches of engineering; The Engineering Profession. Mr. Muir, Mr. MacLeod and heads of departments. [1-0; 1-0]

151. Surveying.—Construction, use and adjustment of surveying instruments. Application to engineering problems. Text-book: to be announced. Mr. de Jong, Mr. Heslop. [1-0; 1-0]

160. Engineering Problems.—Training in methods of attacking, analyzing and solving engineering problems; drill in systematic arrangement and workmanship in calculations. Analytical and graphical solutions of problems in mechanics 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, bench marks, and contours. Draughting from notes obtained in survey field work; maps from compass, stadia, and transit surveys; topographical maps and conventions. Mapping and field work given in alternate weeks. For students taking C.E. 251 in the second year. Mr. de Jong. [0-4; 0-4]

251. Surveying.—Chain and angular surveying; levelling; construction, use, and adjustment of surveying instruments; applications to engineering problems. Text-book: Breed and Hosmer, *Elementary Surveying*. Mr. de Jong, Mr. Heslop. [2-0; 2-0]

252. **Field Work 1.**—The equivalent of C.E. 250 as above. Work commences at the close of spring examinations and consists of field and office work, eight hours a day for three weeks. For students taking C.E. 151 in the first year. (First given in 1952). Mr. de Jong, Mr. Heslop.

255. **Descriptive Geometry.**—Orthographic projection involving points, lines and planes; use of auxiliary planes; interpenetrations and developments; practical applications. Text-book: Warner, *Applied Descriptive Geometry*. Mr. Pretious. [0-3; 0-3]

260. (a) **Mechanics.**—An extension of the subject matter of Physics 150, applying the methods of the differential and integral calculus.

(b) **Engineering Problems 2.**—(Continuation of C.E. 160). 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: Higdon and Stileo, *Engineering Mechanics*. Mr. Finlay. [2-3; 2-3]

350. **Field Work 2.**—Route surveys, reconnaissance, preliminary and location surveys; methods of taking topography, cross-sectioning; estimating quantities; running in curves. Solar observations for latitude and azimuth; adjustments of instruments; use of the plane table. 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. **Surveying 2.**—(Continuation of C.E. 251). Underground, hydrographic, and phototopographic surveying; Dominion and Provincial land surveys; field astronomy. Text-book: Breed and Hosmer, *Surveying*, Volumes I and II. Mr. de Jong. [2-0; 2-0]

352. **Mapping 2.**—Mapping from notes obtained in C.E. 350; mining, forestry, or geological maps. Mr. Scarisbrick. [0-3*; 0-3*]

353. **Drawing.**—Map projections, phototopographic mapping. Mr. Bell. [0-3*; 0-3*]

355. **Strength of Materials.**—Fundamental relations between external forces and accompanying stresses, strains, and deflections in structural members and machine elements, including simple and continuous homogeneous beams, reinforced concrete beams, shafts, columns, springs, and riveted and welded joints. Text-book: Timoshenko and McCullough, *Elements of Strength and Materials*, 3rd edition. Reference: Timoshenko, *Strength of Materials*, Vols. I and II. Mr. Finlay. [2-3*; 2-3*]

356. **Materials Testing.**—Properties and testing of engineering materials; proportioning and testing of concrete. Mr. Hrennikoff. [1-3*; 0-3*]

357. **Materials Testing.**—Physical testing of metals. Mr. Bell. [0-3*; 0-3*]

360. **Fluid Mechanics.**—Problems and laboratory work on fluid statics, kinematics of fluid flow, energy equation for steady flow of any fluid, viscosity, dimensional analysis, flow of compressible and incompressible fluids, fluid-measuring instruments, momentum and propulsion, resistance of immersed bodies, flow in open channels, hydraulic machinery. Text-book: to be announced. Reference: Freeman, *Hydraulics Laboratory Practice*. Mr. Pretious, Mr. Heslop. [2-2; 2-2]

365. **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*. 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. Mr. Hrennikoff. [0-0; 2-0]

370. Structural Design 1.—Design and details of engineering structures; estimates of quantities and costs. Text-books: Scofield-O'Brien, *Modern Timber Engineering*; A.I.S.C. *Steel Construction Manual*; Grinter, *Elementary Structural Analysis and Design*. Mr. Muir. [2-3; 2-3]

375. 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; Raymond, *Elements of Railroad Engineering*, 6th edition. Mr. Peebles. [2-0; 2-0]

380. Seminar.—Training in public speaking by the oral presentation of engineering or other topics by the student before the class. Reference: Rickard, *Technical Writing*. [1-0; 1-0]

450. Field Work 3.—Adjustment, care, and use of precise surveying instruments; method of carrying out triangulation surveys, base line measurement, determination of latitude, azimuth, and time to a high degree of accuracy; precise levelling; spiral curves. Mr. de Jong.

455. 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. Text-book: Timoshenko and Young, *Theory of Structures*, 1st edition. Reference: Johnson, Bryan and Turneure, *Modern Framed Structures*, Vols. I to II. Mr. Finlay. [1-3; 1-3]

460. 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: American Institute of Steel Construction, *Steel Construction*; American Railway Engineering Association, *Specifications for Steel Railway Bridges*; Canadian Engineering Standards Association, *Standard Specifications for Steel Highway Bridges*. Mr. Hrennikoff. [2-3; 2-6]

461. Reinforced Concrete Design. — 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. Mr. Lipson. [2-3; 0-4]

465. Municipal Engineering.—Physical and economic factors of sewerage and sewage treatment; water supply; town planning and city management. Text-book: Steel, *Water Supply and Sewerage*. Reference: Lewis, *City Planning*. Mr. Muir. [2-2; 2-2]

466. Water Power Development.—Principles of hydrology; selection of hydraulic turbines and centrifugal pumps; hydro-electric installations. Text-book: Barrows, *Water Power Engineering*. Mr. Muir. [2-2; 0-0]

470. 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; Hogentogler, *Engineering Properties of Soil*; Bateman, *Highway Engineering*, 5th edition. Mr. Peebles. [2-0; 2-2]

475. Engineering Economics.—Elementary mathematics of investment; interest; annuities; financial comparison of engineering installations; organization of business enterprise; principles of financing; 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*. Mr. Kania. [1-1; 1-1]

476. Engineering Law.—The law insofar as it affects engineers; engineering contracts and specifications; preparation of specifications and contract documents. Text-book: Kirby, *Elements of Specification Writing*. References: Laidlaw and Young, *Engineering Law*; H. D. and W. H. Anger, *Digest of Canadian Mercantile Law*. Mr. Pretious. [1-0; 1-0]

Courses for Graduate Students

550. (3) Advanced Structural Analysis.—The analysis of statically indeterminate structures, such as arches, rigid frames, continuous trusses, and suspension bridges. Mr. Finlay.

551. (3) 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.

552. (3) Soil Mechanics.—Basic soil properties; classification; subsurface exploration; permeability, capillarity, seepage, flow nets; compression and consolidation; stresses in soil, settlement analysis; strength theory; direct and triaxial shear machines; stability of slopes; lateral pressure and retaining walls; application of soil mechanics to dams; bearing capacity of soil. Mr. Hrennikoff, Mr. Peebles.

553. (3) Advanced Hydraulics.—Flow in open channels; fluid mechanics; hydraulic models; hydraulic machines. Experimental projects in hydraulic laboratory. Mr. Pretious.

599. Thesis.—For M.A.Sc. degree.

Commerce

For descriptions of courses in Commerce, see Arts, pages 185-188.

Economics

200. Principles of Economics.—As in Arts. (See page 128.)

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-book: *Junior Laboratory Manual*. Mr. Kersey. [2-3; 2-3]

353. 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. Reference: Langsdorf, *Principles of Direct Current Machines*. Mr. Pullinger. [2-0; 1-0]

355. 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*. Mr. Morgan. [1-0; 2-0]

- 356. Electrical Engineering 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; electrons in metals; thermionic emission; electrical discharges in gases; electron tubes and elementary circuits. Mr. Kersey. [2-2; 2-2]
- 359. Electrical Services and Illumination.**—Principles of electrical services and illumination of buildings. For students in Architecture. Text-books: *Westinghouse Lighting Handbook*; *Province of British Columbia Rules and Regulations for the Installation and Maintenance of Electrical Equipment*. Mr. Morgan. [1-2; 1-2]
- 451. Electrical Circuits and Apparatus.** — D.C. and A.C. circuits and machinery; theory and application of electron tubes. Text-book: Fitzgerald, *Basic Electrical Engineering*. Mr. Noakes, Mr. Pullinger. [2-2; 2-2]
- 453. 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*; *Senior Laboratory Manual*. Mr. Morgan. [2-3; 2-3]
- 457. 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*; *Senior Laboratory Manual*. Mr. Coulthard. [3-5; 3-5]
- 459. 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*. Mr. MacLeod. [1-3; 1-3]
- 461. Electrical Illumination.** — Radiation; luminous flux; light sources; photometric units and measurements; vision; lighting design. Text-book: Kraehenbuehl, *Electric Illumination*. Mr. Morgan. [2-0; 0-2]
- 463. Electric Power Transmission and Distribution.**—Transmission line resistance, inductance, and capacitance; circle diagrams; corona and insulators; transmission line design; the electrical layout of power plants, substations, and distribution systems; short circuit calculations; relays. Text-book: Westinghouse, *Electrical Transmission and Distribution Reference Book*. 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; *Laboratory Manual*. Mr. MacLeod. [2-3; 2-3]
- 467. Transients, Instruments, and Measurements.**—A review of electrical units and dimensions; electrical instruments and measurements; bridges; electrical transient phenomena. Text-books: Golding, *Electrical Measurements and Measuring Instruments*; Coulthard, *Transients in Electric Circuits*. Mr. Coulthard. [2-0; 2-0]
- 469. Circuit Analysis.**—Network theorems, resonant and coupled circuits, filters, general transformation line theory, high frequency lines, and an introduction to electromagnetic fields and radiation. Text-book: Ryder, *Networks, Lines and Fields*. Mr. Noakes. [2-1; 2-1]

Courses for Graduate Students

551. Electromagnetic Theory and Electronics.—A study of electromagnetic fields and waves with reference to radio and electronics engineering. References: Jordan, *Electromagnetic Waves and Radiating Systems*; 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; stability and surge phenomena. References: *The Westinghouse Transmission and Reference Book*; Wagner and Evans, *Symmetrical Components*; 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; topics selected from electric circuit theory, dynamical theory; electric wave and diffusion problems. References: Coulthard, *Transients in Electric Circuits*; McLachlan, *Complex Variable and Operational Calculus*. Mr. Coulthard. [2-0; 2-0]

557. Advanced Circuit Analysis.—Theory and applications of linear and non-linear electric circuit elements and circuits. Reference: Minoriski, *Non-linear Mechanics*; current journals. Mr. Coulthard. [2-3; 2-3]

599. Thesis.—For M.A.Sc. degree.

English

150. Composition.—Designed for students in Applied Science. The work consists of (1) essays, class exercises, and selected reading; (2) written examinations. Students will be required to make a passing mark in each. Text-books: Perrin, *Writer's Guide and Index to English*; Brown, *Present Tense*, revised edition. [2-0; 2-0]

250. Technical Writing.—Instruction in preparing and writing technical papers and reports, emphasizing appropriate organization and forms. [1-0; 1-0]

For descriptions of other courses in English, see Arts, pages 130-133.

Forestry

For descriptions of courses in Forestry, see Faculty of Forestry.

Geology and Geography

453. Petrology.—The common rocks and the processes which formed them; determinations of hand specimens; results to be obtained by microscopic studies of rock sections are outlined and demonstrated, but no attempt is made to instruct the student in Petrography; primarily for students in Mining Engineering. Text-book: Grout, *Kemp's Handbook of Rocks*. Mr. McTaggart. [2-0; 2-0]

449. Thesis.—For B.A.Sc. degree.

Courses for Graduate Students

599. Thesis.—For M.A.Sc. degree.

For descriptions of other courses in Geology and Geography, see Arts, pages 134-137.

Mathematics

153. Calculus and Applied Mathematics.—For students in Architecture and Forestry. [1-2; 1-2]

155. **Calculus.**—Differentiation and integration of the elementary functions of one variable with applications. [4-0; 4-0]

156. **Analytic Geometry, Algebra, and Trigonometry.**—Solution of oblique triangles; conic sections; polar coordinates; parametric equations; complex numbers; theory of equations. [2-0; 2-0]

250. **Calculus.**—Partial derivatives; multiple integrals; infinite series. [3-0; 3-0]

251. **Plane and Solid Geometry.**—Curve fitting; solid analytic geometry; introduction to spherical trigonometry. [2-0; 2-0]

350. **Applied Calculus and Differential Equations.**—Advanced calculus, Fourier series; probability; ordinary and partial differential equations. Prerequisite: Mathematics 250. [3-0; 3-0]

For descriptions of other courses in Mathematics, see Arts, pages 145-146.

Mechanical Engineering

152. **Mechanical Drawing.**—Free hand lettering, orthographic projection; dimensioning; thread conventions; technical sketching; detail and assembly drawings of machine parts; tracing and blueprinting. Text-book: Svenson, *Essentials of Drafting*. Mr. Wolfe. [0-3; 0-3]

352. **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. Text-book: Svenson, *Essentials of Drafting*. Reference: Schuman, *Technical Drafting*. 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*. Mr. McIlroy. [0-2; 0-2]

358. **Machine Shop Practice.**—Similar to M.E. 356 but intended for students in Electrical Engineering. Mr. McIlroy. [0-3*; 0-3*]

361. **Kinematics of Machines.**—Velocity and acceleration diagrams of mechanisms; instantaneous axes; linkages; quick-return mechanisms; motion by direct contact; cams; rolling contact. Text-book: Schwamb, Merrill, and James, *Elements of Mechanism*. Mr. Richmond. [2-2; 0-0]

363. **Machine Design 1.**—Properties of materials; fatigue and stress concentration; theories of strength; screwed fastenings; design of gears and gear trains. Text-books: Faires, *Design of Machine Elements*; Marks, *Mechanical Engineers' Handbook*. Mr. Richmond. [0-0; 2-2]

365. **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: Bevan, *Theory of Machines*. Mr. Vernon. [2-0; 2-0]

371. **Applied Thermodynamics.**—Fuels and combustion; steam boilers; steam engines and turbines; combustion engines; air compression; refrigeration. For students not specializing in Mechanical and Electrical Engineering. Text-book: Severns and Degler, *Steam, Air and Gas Power*. Mr. Wolfe. [2-0; 2-0]

372. **Thermodynamics Laboratory.**—Calibration and use of measuring instruments, testing of engines and power apparatus. Mr. McIlroy, Mr. Wolfe. [0-3; 0-3]

373. Applied Thermodynamics.—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*. References: A.S.M.E., *Power Test Codes*; Shoop and Tuve, *Mechanical Engineering Practice*. Mr. McIlroy. [3-0; 3-0]

375. Applied Thermodynamics.—Similar to M.E. 373, but modified to meet the needs of students in Electrical Engineering. Mr. McIlroy. [3-0; 3-0]

377. Mechanical Services.—Heating, ventilation, and plumbing design of buildings; calculation of building heat losses and gains; design of the steam, hot water, and warm air heating systems; measurement of air flow and design of duct systems; layouts 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*. Mr. Wolfe. [1-2; 1-2]

381. Fluid Mechanics.—Physical properties of fluids, fluid statics, dynamics of ideal fluids, energy and momentum relations, dimensional analysis and similitude, flow of incompressible fluids, resistance of immersed bodies, flow of compressible fluids, fluid film lubrication, pumps, turbines, fluid couplings, torque converters, fans and propellers. Text-book: To be announced. [2-2; 2-2]

456. Manufacturing Processes.—The application of shop practice to modern manufacturing processes. Mr. McIlroy. [1-0; 1-0]

463. Machine Design 2.—Shafts; belt and chain drives; columns; power screws and worm gears; design for welding; torsion of non-circular sections; pressure vessels; thick cylinders; press fits; curved bars; application of Castigliano's theorem; springs; design of machines and preparation of working drawings. Text-book: Faires, *Design of Machine Elements*. Mr. Richmond. [2-3; 2-3]

465. Applied Mechanics.—Strain measurement and photoelasticity; the gyroscope; mechanical vibrations; vibration isolation; torsional vibrations. Text-book: Freberg and Kemler, *Elements of Mechanical Vibration*. Mr. Richmond. [0-2; 2-2]

471. Prime Movers.—A more advanced course in the theory of all types of prime movers; the principles of design and operation of water turbines, steam turbines, and internal combustion engines. Text-book: Lichty, *Internal Combustion Engines*. Mr. Vernon. [3-0; 3-0]

472. Mechanical Engineering Laboratory.—Operation and testing of laboratory machines, illustrating the theory covered in the corresponding lecture courses. Mr. Vernon. [0-3; 0-3]

475. Design of Steam Power Plants.—A study of the function, construction, and performance of the 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; local plant visits. Text-book: Skratzki and Vopot, *Applied Energy Conversion*. Mr. McIlroy. [2-3; 0-0]

477. Heating, Ventilating, Air Conditioning, and Refrigeration.—Factors affecting human comfort; calculation of building heat losses and gains; design of steam, hot-water, and warm-air heating systems; measurement of air flow and design of duct systems; design and performance of refrigerating equipment; refrigerants; heat transfer and flow of fluids. Text-book: Severns, *Heating, Ventilating, and Air Conditioning Fundamentals*. Mr. Wolfe. [2-0; 2-3]

481. (3) **Aeronautics.**—General theory of flight; aerofoils, lift, drag, distribution of pressure, aspect ratio; stream lines, airscrews, performance curves; general principles of design and methods of construction; theory of stability. Text-book: Jones, *Elements of Practical Aerodynamics*. Mr. Vernon.

Courses for Graduate Students

561. (3) **Advanced Applied Mechanics.**—Bending of beams on elastic foundation; thin plates and shells; torsion; stress concentration; deformation beyond the elastic limit; photoelasticity. Text-book: Timoshenko, *Strength of Materials*, Parts I and II. Mr. Richmond.

565. (3) **Mechanical Vibrations.**—(Extension of M.E. 465). Vibration of elastic bodies; engine dynamics and torsional vibrations; self-excited vibrations; vibration of non-linear systems; problems and computations; methods of vibration measurement. Text-book: Den Hartog, *Mechanical Vibrations*. Mr. Richmond.

566. (1) **Dynamics of Automatic Controls.**—Study of the control behaviour of an installation with respect to stability, accuracy and speed of control; action law of the controller; dynamic properties of the proportional controller, the proportional plus reset controller, the proportional reset plus pre-act controller. Text-book: Oldenbourg and Sartorius, *The Dynamics of Automatic Controls*. Mr. Wolfe.

571. (2) **Heat Transfer.**—Theory of heat transfer as applied to problems in the field of mechanical engineering; principles and applications of the mechanism of heat transfer by conduction, convection, and radiation. Mr. Wolfe.

573. (2) **Power Plant Design.**—Practical design of steam generating plants and auxiliaries. Preparation and discussion of engineering reports on topics associated with the design of plants. Mr. Wolfe.

599. **Thesis.**—For the M.A.Sc. degree.

Metallurgy

350. **Chemical Metallurgy.**—Introduction to metallurgy; fuels; refractories; pyrometry; elementary physico-chemical principles of metallurgical operations; application to metallurgical reactions, including some aspects of assaying. Text-book: Newton, *Introduction to Metallurgy*. Mr. Forward, Mr. Samis. [2-3; 2-3]

351. **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: Brick and Phillips, *Structure and Properties of Alloys*, 2nd edition. Reference: Samans, *Engineering Metals and Their Alloys*. Mr. Forward and Mr. Armstrong. [2-0; 2-0]

352. **Metallography.**—Preparation of specimens and observation of microstructures; heat treatment of carbon steels and non-ferrous alloys; simple physical tests. Reference: Kehl, *The Principles of Metallographic Laboratory Practice*, 3rd edition. Mr. Armstrong. [0-3*; 0-3*]

360. **Seminar.**—Discussion of current topics; 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.**—Development of the free energy concepts of the phase rule, heats of reaction and equilibria related to metallurgical processes and alloys and their application in oxidation and reduction, electro-metallurgy, melts, gas reactions, and certain phases of alloying operations. Mr. Samis. [2-3; 2-3]

451. Applied Chemical Metallurgy.—Application of chemical principles in roasting, leaching, smelting, and refining, illustrated by operations in the metallurgy of iron and steel, the common base metals, light metals, precious metals, and ferro-alloys. References: A.I.M.E., *Basic Open Hearth Steel-making*; Liddell, *Handbook of Non-Ferrous Metallurgy*, 2nd edition; Bray, *Non-ferrous Production Metallurgy*. Mr. Forward, Mr. Armstrong, Mr. Samis. [2-0; 2-0]

452. Physical Metallurgy. — 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-book: Beynon, *The Physical Structure of Alloys*. References: Hume-Rothery, *The Structure of Metals and Alloys*; Barrett, *Structure of Metals*; Seitz, *Physics of Metals*. Mr. Armstrong. [2-0; 2-0]

453. Metallurgical Calculations.—Problems on the thermodynamic and other physico-chemical principles involved in combustion, roasting, smelting, leaching, and refining. Text-book: Butts, *Metallurgical Problems*. Mr. Samis. [0-2; 0-2]

454. Laboratory and Research Methods.—Laboratory analysis of metallurgical products; study of selected problems in (a) Mineral Dressing, or (b) Chemical Metallurgy, or (c) Physical Metallurgy. Mr. Armstrong, Mr. Howard, Mr. Samis. [0-3; 0-6]

456. Applications of Metallography.—(Continuation of 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*, 3rd edition. Mr. Armstrong. [0-3; 0-3]

457. Plant Management.—Metal production statistics and markets; ore-buying contracts; personnel and labour relations; metallurgical accounting, cost-finding, and inspection; professional ethics. Weekly seminar for formal discussion of current technical and social topics; written report on production methods and economic aspects of one of the metals. [1-1; 1-1]

459. Mechanical Metallurgy.—Relation between metallurgical factors and mechanical properties of metals; principles of fabricating methods; material selection; metallurgical design problems. References: Hollomon and Jaffe, *Ferrous Metallurgical Design*; Sachs and Van Horne, *Practical Metallurgy*. Mr. Armstrong. [1-0; 1-0]

Courses for Graduate Students

554. (1) Diffusion in Metals.—Development of diffusion theory from Fick's Law to present activity hypotheses; explanation of diffusion mechanism in terms of thermodynamic and kinetic factors.

555. (1) Phase Transformations in Metals.—Structures and properties of crystal boundaries and phase interfaces; solidification of metals; nucleation and growth reactions; precipitation hardening, eutectoid decomposition; diffusionless transformation.

556. (1) Theory of Alloys.—Electron theory of metals applied to structure and properties of solid solutions and intermetallic compounds in binary and ternary equilibrium systems.

560. (1) Metallurgical Thermodynamics.—Application to metallurgy of advanced thermodynamic principles: partial molar quantities, Gibbs-Duhem integration, configurational entropy, quasi-chemical equilibria in the analysis of equilibrium diagrams, properties of binary and ternary mixtures.

561. (1) Metallurgical Kinetics.—Application of the principles of absolute reaction rates to metallurgical processes including oxide film formation, diffusion, and heterogeneous reactions.

562. (1) Theoretical Chemical Metallurgy.—Chemical properties of the metals in the light of modern theory of atomic structure. Inorganic and physical chemistry of metallurgical reactions. References: Hume-Rothery, *Atomic Theory for Students of Metallurgy*; Rice, *Electronic Structure and Chemical Binding*.

599. Thesis.—For M.A.Sc. degree. Research studies in mineral dressing, or chemical metallurgy, or physical metallurgy.

Mining

350. Principles of Mining 1.—Mine economics; prospecting, exploration, mine development; breaking ground, ground support, transportation. Text-book: Lewis, *Elements of Mining*. References: Young, *Elements of Mining*; Peele, *Mining Engineers' Handbook* (references for all courses in mining). Mr. Crouch. [2-0; 2-0]

370. Mineral Dressing 1.—Principles; testing procedure; sampling; crushing; screening; grinding; classification; gravity concentration; flotation; cyanidation; magnetic separation; milling calculations. Text-book: Richards and Locke, *Text-book of Ore Dressing*. Mr. Howard. [2-3*; 2-3*]

450. Principles of Mining 2.—(Continuation of Mining 350). Mineral economics; mine sampling and valuation; mining methods. References: Hoover, *Economics of Mining*; Parks, *Examination and Valuation of Mineral Property*; Harrison, *Boring, Sampling and Valuation of Alluvial Deposits*. 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. Problems and Reports.—Problems in mine plant design; reports on selected topics; discussion of current technical literature. Reference: Staley, *Mine Plant Design*. Mr. Crouch. [0-4; 0-4]

470. Mineral Dressing 2.—(Continuation of Mining 370). Flowsheets; mill location and design, smelter contracts; metallurgical calculations; non-metallics; coal preparation; plant control. Text-book: Taggart, *Elements of Ore Dressing*. References: Richards and Locke, *Text-book of Ore Dressing*; Taggart, *Handbook of Mineral Dressing*; Gaudin, *Principles of Mineral Dressing*; current periodicals. Mr. Howard. [2-3*; 2-3*]

474. Mineral Dressing 3.—A study of selected problems in mineral dressing. Mr. Howard. [0-4; 0-6]

Courses for Graduate Students

550. (1) Mining Methods.—A more advanced study of some aspects of mining methods; theories of stress distribution around mine openings and of rock failure. Mr. Crouch.

570. (2) 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: Dalia Valle, *Micromeritics*, 2nd Edition. Mr. Howard.

599. Thesis.—For M.A.Sc. degree. Research studies in mining or mineral dressing.

Physics

155. Mechanics and Properties of Matter.—The principles of statics and dynamics; work and energy; impulse and momentum; the conservation laws; elementary vibrational systems; the elastic constants and properties of matter. Text-book: to be announced. [2-3*; 2-3*]

156. Heat, Light and Sound.—The thermal properties of matter; the first and second laws of thermodynamics. Reflection, refraction of light; elementary atomic theory and the origin of spectra. Wave motion and the propagation of sound; sound intensity and absorption; measurements. Text-book: to be announced. [2-3*; 2-3*]

160. Mechanics and Heat.—For Architecture students, emphasizing statics. Text-books: Singer, *Engineering Mechanics*; Tyler, *Intermediate Heat*. [2-3; 2-3]

250. Electricity and Magnetism.—Quantitative study of basic principles; introduction to alternating currents and to electronic circuits. Text-book: Nelkon, *Electricity and Magnetism*. [2-3; 2-3]

260. Electricity, Light and Acoustics. — For students in Architecture. Basic theory of electricity and A.C. circuits; principles of propagation of light and sound. Text-books: Shortley and Williams, *Physics, Vol. II*; Building Research Board, D.S.I.R., *Sound Insulation and Acoustics*. [2-3; 2-3]

360. Light.—Radiation theory, refractometers, interference instruments, photography, applied spectroscopy, polarized light. For engineering students. Text-book: Noakes, *Text-book of Light*. [1-0; 1-0]

460. Metallurgical Physics.—Atomic structure, x-ray and electron diffraction methods, theory of metals and alloys. [2-0; 2-0]

461. Geophysics.—Geophysical exploration; magnetic, electrical, gravimetric and seismic methods of exploration for oil and minerals. Text-book: Nettleton, *Geophysical Prospecting for Oil*. Prerequisite: Physics 250. [2-0; 2-0]

Courses for Graduate Students

552. Introduction to Theoretical Physics.—Problems in mechanics, elasticity; fluid flow, electricity, and magnetism treated by vector methods. Text-book: Page, *Introduction to Theoretical Physics*. [3-0; 3-0]

599. Thesis.—For M.A. Sc. degree.

For descriptions of other courses in Physics, see Arts, pages 148-152.

Zoology

459. Introductory Forest Entomology.—Forest insects in relation to forestry: examples of important problems, their recognition, damage, economic significance, how they are investigated, natural and applied control. Open to Forest Engineers only. Mr. Graham. [0-0; 2-2]

For descriptions of other courses in Zoology, see Arts, pages 160-164.

SCHOOL OF ARCHITECTURE

The course in the School of Architecture covers a period of five years during which the student is prepared for service in the offices of practising architects or in government offices, for subsequent registration in the profession of Architecture, and for an early start in private practice and public service.

The course of studies also provides a sound basis for students who are planning to undertake further studies in related design and planning, such as Town and Community Planning, Industrial Design and Landscape Architecture. The degree granted is that of Bachelor of Architecture (B.Arch.).*

Admission

The general requirements for admission to the Faculty are given on page 207.

For admission to the School of Architecture, a student must have completed the First Year in Arts and Science, at the University of British Columbia, or its equivalent at an approved university or by Senior Matriculation, and must have obtained an average grade of at least 60 per cent.

Required subjects are:

English 100 and 101.

Mathematics 101.

Chemistry 100 or 101.

Physics 100 or 101.

Language: one of the following — French 101, German 90 or 100 or 101, Latin 101, or Russian 100.

A reading knowledge of French or German is highly desirable.

Before deciding to register in Architecture, a student should take whatever aptitude tests are available.

A laboratory coupon booklet costing \$3.00 must be purchased by each student in Architecture, and must be deposited at the School's office immediately after registration.

Examinations and Advancement

The regulations as listed for Applied Science, pages 207 to 209, apply to the School of Architecture with the following additions:

Competence in Design is required for progress in Architecture and a candidate, in order to be admitted into the Fourth and Fifth Years of Architecture, must obtain a pass mark in Architectural Design in the previous year. Supplemental examinations are allowed in this subject only in the Second Year (Arch. 250). In the final year, a student will not obtain a pass mark in Arch. 550 if he has not passed both in the Thesis Project and in the final Design examination.

A student who fails in Architectural Design (Arch. 350, 450, 550) only will be required to repeat his year, though he may be exempted from certain courses and may register as a "partial student" upon the recommendation of the School. A student who does not pass his repeated year may, upon the recommendation of the Council, be required by Senate to withdraw from the School.

*The curriculum described on the following pages may be changed from time to time as deemed advisable by the Senate.

Prizes, Bursaries, Scholarships

A number of prizes, bursaries and scholarships are open to students in the School of Architecture (see pages 45 to 97). Prizes may also be offered during the course of the term for specific projects in connection with studies in Design.

Summer Work

Before the degree of Bachelor of Architecture is granted, the student is required to submit satisfactory evidence of having had twelve months (240 days) of practical experience after entering the University.

Of these twelve months, at least four must be spent in an architect's office, and another four on building sites where construction is taking place. If a student submits satisfactory evidence that this summer employment is not available, he may present a set of measured drawings for the approval of the staff in lieu of each two months lacking of the required twelve. No student may graduate with less than eight months (160 days) of practical experience.

Curriculum

Two activity courses in Physical Education are required of all students in First Year Architecture, except ex-service personnel and members of military units operating on the campus. For details of requirements see page 164.

First Year

Subject	First Term		Second Term	
	Lect.	Lab.	Lect.	Lab.
C.E. 151 Surveying.....	1	.....	1	.....
C.E. 160 Engineering Problems.....	.....	4	.....	4
Eng. 205 Eng. Composition and Literature.....	3	.....	3	.....
Math. 153 Calculus and Applied Mathematics.....	1	2	1	2
Math. 156 Geometry, Algebra, Trigonometry.....	2	.....	2	.....
Phys. 160 Mechanics and Heat.....	2	3	2	3
Arch. 150 Visual Design.....	1	3	1	3
Arch. 151 Building Materials.....	2	.....	2	.....
Arch. 152 Architectural Drawing and Descriptive Geometry.....	1	6	1	6
Arch. 160 History of Art.....	2	.....	2	.....

Second Year

Subject	First Term		Second Term	
	Lect.	Lab.	Lect.	Lab.
Arch. 298 Essay.....	.....	.....	.....	.....
C.E. 250 Surveying Field Work.....	Taken at end of 1st Year			
Hort. 416 Landscape Design.....	1	2	1	2
Phys. 260 Electricity, Light and Sound.....	2	3	2	3
Arch. 250 Architectural Design I.....	.....	8	.....	8
Arch. 251 Theory of Planning.....	3	.....	3	.....
Arch. 252 Building Construction.....	3	6	3	6
Arch. 255 Strength of Materials and Structures.....	2	2	2	2
Arch. 260 History of Architecture.....	2	.....	2	.....
Arch. 262 Architectural Report.....	.....	.....	.....	.....
Arch. 270 Freehand Drawing.....	.....	3	.....	3

Third Year

Subject	First Term		Second Term	
	Lect.	Lab.	Lect.	Lab.
Arch. 398 Essay.....	.....	.....	.....	.....
Ec. 200 Principles of Economics.....	3	.....	3	.....
E.E. 359 Electrical Services and Illumination.....	1	2	1	2
M.E. 377 Mechanical Services.....	1	2	1	2
Arch. 350 Architectural Design II.....	1	15	1	15
Arch. 352 Colour, Furniture and Interior Finishes.....	1	4	1	4
Arch. 355 Structural Engineering I.....	2	3	2	3
Arch. 360 Contemporary Architecture.....	2	.....	2	.....
Arch. 362 Architectural Report.....	.....	.....	.....	.....
Arch. 370 Summer Sketching.....	.....	.....	.....	.....
Taken at start of 3rd Year				

Fourth Year

Subject	First Term		Second Term	
	Lect.	Lab.	Lect.	Lab.
Arch. 498 Summer Reading.....	.....	.....	.....	.....
Anth. 300 Social Anthropology.....	3	.....	3	.....
Comm. 459 Industrial Accounting.....	2	.....	2	.....
Arch. 450 Architectural Design III.....	.....	18	.....	18
Arch. 451 Community Planning and Housing.....	3	.....	3	.....
Arch. 452 Industrial Design.....	1	3	1	3
Arch. 455 Structural Engineering II.....	2	3	2	3
Arch. 462 Architectural Report.....	.....	.....	.....	.....
Arch. 470 Summer Sketching.....	Taken at start of 4th Year			
Arch. 471 Sculpture.....	.....	3	.....	3

Fifth Year

Subject	First Term		Second Term	
	Lect.	Lab.	Lect.	Lab.
Arch. 598 Summer Reading.....	.....	.....	.....	.....
Plan. 501 Planning Methods and Techniques.....	2	.....	2	.....
Arch. 550 Architectural Design IV.....	.....	24	.....	28
Arch. 552 Specifications.....	1	.....	1	.....
Arch. 560 Theory of Architecture.....	2	4	2	.....
Arch. 562 Thesis Report.....	.....	.....	.....	.....
Arch. 565 Commercial Law.....	3	.....	.....	.....
Arch. 566 Professional Practice.....	.....	.....	3	.....
Arch. 570 Summer Sketching.....	Taken at start of 5th Year			

COURSES IN ARCHITECTURE

150. (2) **Visual Design.**—Basic visual elements of line, shape, colour, volume and texture; two-and-three-dimensional studies of space with different shapes, materials and lighting effects. Mr. Thomas. [1-3; 1-3]

151. (2) **Building Materials.**—Mechanical and physical properties, origin, processing, manufacture, and application in construction of principal materials and their derivatives. Text-books: Gay and Parker, *Materials and Methods of Architectural Construction*; Portland Cement Association, *Design and Control of Concrete Mixtures*. Mr. Davison. [2-0; 2-0]

152. (3) **Architectural Drawing and Descriptive Geometry.**—Drafting and lettering; descriptive geometry; shades and shadows; orthographic, iso-

metric, and oblique projections; angular and parallel perspective. Mr. Porter and Mr. Thomas. [1-6; 1-6]

160. (2) **History of Art.**—Chronological survey and critical appreciation of changes in painting, sculpture, architecture and other visual arts from prehistoric times to the present day. Critical reports. Text-books: Read, *The Meaning of Art*; Upjohn, Wingert and Maher, *History of World Art*. Mr. Binning. [2-0; 2-0]

250. (3) **Architectural Design 1.**—Relation of exterior to interior space; design of simple architectural elements, elementary planning, construction integration; fundamental concepts of space, form and function as expressed by structural, colour, texture and light relationships. Text-book: Ralph Tubbs, *An Englishman Builds*. Mr. Binning. [0-8; 0-8]

Note: Students are made increasingly familiar during this and following years with the thought and feelings basic in good design by analysis of site and of human and social factors; introduction of clients, contractors and authorities concerned; preparation of programmes (clients' requirements); sketches, presentation and execution drawings, models.

251. (3) **Theory of Planning.**—Basic plan and design elements of buildings. Technique of planning; characteristics of good plans; their three-dimensional expression and execution. Analysis reports are required throughout the session. Text-book: Dodge Corporation, *Time Saver Standards*. Mr. Lasserre. [3-0; 3-0]

252. (5) **Building Construction.** — Basic construction techniques; integration of structure and design; field trips to building sites; procedure in construction; building codes; finishing. Elementary working drawings and detailing. Text-book: Ramsey and Sleeper, *Architectural Graphic Standards*; Department of Finance and National Research Council of Canada, *National Building Code*; Central Mortgage and Housing Corporation, Ottawa, *Building Standards*; National Lumber Manufacturers' Association, *House Framing Details*. Mr. Davison. [3-6; 3-6]

255. (3) **Strength of Materials and Structures.**—Relations between loads, internal stresses, and deformation in materials; application to basic structural members. Analysis of load effects on simple structures. Laboratory tests. Text-book: Timoshenko and McCullough, *Elements of Strength of Materials*. Mr. Wisnicki. [2-2; 2-2]

260. (2) **History of Architecture.**—History of Ancient, Classical, Mediaeval, Renaissance, Baroque periods and the nineteenth century. Early manifestations of the modern movement. Text-books: Hamlin, *Architecture Through the Ages*; Giedion, *Space, Time and Architecture*. Mr. Porter. [2-0; 2-0]

262. (1) **Architectural Report.**—Illustrated essay of 1,500 words or visual dissertation with adequate explanatory notes on some subject related to the history or theory of architecture and design, to be handed in to Director of School by February 15th.

270. (1) **Freehand Drawing.**—Drawing and painting in various media to develop skill in interpretive visual presentation. Mr. Thomas. [0-3; 0-3]

298. (2) **Essay.**—Summer essay to be submitted to Director of School of Architecture before October 1st. Essay to be not less than 1,000 words on some part of the student's summer experience or on some technical subject related to Architecture or Planning. Emphasis will be placed upon the precise and accurate use of English, but credit will also be given for 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.

350. (5) **Architectural Design 2.**—(Continuation of Arch. 250). Simple building problems; residential planning, design and construction. Mr. Porter. [1-15; 1-15]

352. (3) **Colour, Furniture and Interior Finishes.**—Fabrics and finishing materials; texture and colour relations. Theories and use of colour, colour mixture and harmony. Basic principles in design of free and built-in furniture; historical survey. Mr. Thomas. [1-4; 1-4]

355. (3) **Structural Engineering 1.**—Principles of structural design for buildings; steel and timber structures; soil bearing, earth pressure and foundations; design and calculation problems. Text-books: *A.I.S.C. Steel Construction Manual*; N.L.M.A., *Wood Structural Design Data*. Mr. Wisnicki. [2-3; 2-3]

360. (2) **Contemporary Architecture.**—Relation to social, economic, and technical changes, and to developments in the arts; study of work and theories of contemporary architects; national characteristics of architecture. Text-book: Giedion, *Space, Time and Architecture*. Mr. Oberlander. [2-0; 2-0]

362. (1) **Architectural Report.**—(As for Arch. 262).

370. (1) **Summer Sketching.**—Before beginning of classes in September, students spend ten days at the University gaining experience in the techniques of pen and ink, pencil and colour for representation and description. Mr. Binning and Mr. Thomas.

398. (2) **Essay.**—Essay to be submitted to Director of School of Architecture before October 1st, on some part of the student's summer experience or on some technical subject related to Architecture or Planning. For further regulations, see "Third and Fourth Year Essays", page 212, paragraphs 1, 2 and 4.

450. (5) **Architectural Design 3.**—(Continuation of Arch. 350). Complex building problems; advanced planning; integration with structure and landscape. Mr. Lasserre, staff, and practising architects. [0-18; 0-18]

451. (3) **Community Planning and Housing.**—Problems of modern urban growth; socio-economic influences on family and community life; social approach to city and regional planning; principles and means of co-ordination; social significance of housing; demand and supply factors; urban redevelopment; public housing administration. Prerequisites: Ec. 200 or Soc. 200. Text-books: Churchill, *The City is the People*; Sert, *Can Our Cities Survive*; Advisory Committee on Reconstruction, *Housing and Community Planning*; Straus, *The Seven Myths of Housing*; Sanders and Rabuck, *New City Patterns*. Mr. Marsh. [3-0; 3-0]

455. (3) **Structural Engineering 2.**—Methods of design and construction of reinforced concrete structure for buildings; statically indeterminate structures; factors of selection for materials and structural systems. Design and calculation problems, some related to Arch. 450. Text-books: Parker: *Simplified Design of Concrete Structures*. Crane, *Architectural Construction*. Mr. Wisnicki. [2-3; 2-3]

462. (1) **Architectural Report.**—(As for Arch. 262).

470. (1) **Summer Sketching.**—(Continuation of Arch. 370). Mr. Binning and Mr. Thomas.

471. (1) **Sculpture.**—Modelling and carving; a study of form, texture, material and space. Mr. Thomas. [0-3; 0-3]

498. (2) **Summer Reading.**—Before entering Fourth Year the student must have read "Colony to Nation—a History of Canada" by A. R. Lower; Longmans Green. An examination based upon this book will be held at the beginning of the term.

550. (6) Architectural Design 4.—(Continuation of Arch. 450.) Housing and civic or community planning projects. Thesis problem occupies most of Second Term; programme for it to be submitted by student to Director of School not later than last day of First Term for approval by staff. Mr. Oberlander, staff and practising architects. [0-24; 0-28]

552. (1) Specifications.—Technique of specification writing; material covered under various trades; review of good practice in construction; supervision. Mr. Davison. [1-0; 1-0]

560. (3) Theory of Architecture.—Seminar course. Review of architectural theory in terms of man's structure, environment, social needs and cultural achievements. Explorations in design. Text-book: Fitch, *American Building*. Mr. Lasserre. [2-4; 2-0]

562. (1) Thesis Report.—Essay of at least 2,000 words relating to Thesis Problem in Arch 550. To be handed into Director of School by February 15.

565. (2) Commercial Law.—Building contracts; analysis of agreement between client and architect, construction tender agreement between contractor and owner; law of partnership; Architect's Act; legal rights and obligations of architects, owners and contractors. Text-books: Hudson, *Building Contracts*; Laidlaw and Young, *Engineering Law*. Mr. Herbert. [3-0; 0-0]

566. (2) Professional Practice.—Procedure in conduct of a commission; relations with public, clients, contractors, engineers and other allied professions; professional ethics and conduct; zoning and building codes; financing and estimating. Mr. Davison, and guest lecturers. [0-0; 3-0]

570. (1) Summer Sketching.—(Continuation of Arch. 470). Mr. Binning and Mr. Thomas.

598. (2) Summer Reading.—Before entering Fifth Year, the student must have read "The Living Body", chapter XI only, by E. H. Best and N. B. Taylor; Henry Holt & Co. "Applied Experimental Psychology" by Chapanis, Garner and Morgan; John Wiley & Sons Ltd. An examination based upon the material read will be held at the beginning of the term.

Note: Planning 501 (Planning Methods and Techniques) is counted as a course in Architecture. See Graduate Studies.

Horticulture 416 (Landscape Design) is also counted as a course in Architecture: See Agriculture, page 277.

For descriptions of courses given by other departments, see "Courses in Engineering", pages 222 to 235.

SCHOOL OF NURSING

The School of Nursing, established by the University as an integral part of the Faculty of Applied Science, is administered by a Council nominated by the Dean of the Faculty and acts under the chairmanship of the Director of the School.

The purpose of the School is twofold: first, to provide a broad basic preparation for the student who wishes to combine university education with preparation for the practice of professional nursing; second, to provide qualified graduate nurses with the opportunity to enrich their background of general education and to broaden their concept of professional nursing while preparing themselves to give a more effective service to society in a selected field of nursing. Accordingly the School of Nursing offers the curricula* described below:

*The curricula described in the following pages may be changed from time to time as deemed advisable by the Senate.

I. Basic Professional Curriculum.

Nursing A. (for high school graduates).

A basic professional nursing course leading to the degree of Bachelor of Science in Nursing, given in cooperation with the Vancouver General Hospital School of Nursing which provides the clinical portion of the course. For the final year of the course the student elects either "Public Health Nursing" (see page 245) or "Clinical Supervision". (See page 245.)

II. Curricula for Graduate Nurses.

Nursing B. A course, approximately ten months in length, designed to prepare graduate nurses for staff positions in public health nursing organizations, and leading to a certificate. (See page 249.)

Nursing C. A course, approximately ten months in length, designed to prepare graduate nurses for supervisory positions in hospitals and leading to a certificate. This includes preparation for clinical teaching. (See page 249.)

Nursing D. A course for experienced graduate nurses who wish to qualify for the degree of B.S.N., and at the same time receive preparation in one of the following fields:

- (1) Clinical Supervision
- (2) Nursing Education
- (3) Public Health Nursing. (See page 246.)

Registration, Examinations, and Advancement

1. In addition to the information given below, students should read carefully the general regulations as set forth on pages 207, 208, and 209, as these also are applicable to students in the School of Nursing.
2. Because it is very important that applicants have the personal qualifications deemed essential for their chosen field, the faculty reserves the right of selection of all students. A personal interview is required whenever possible.
3. Students must complete satisfactorily the work of one year before proceeding to the next.
4. Before returning for the final year at University the student is required to present a report of a complete health examination including an X-ray of the chest.
5. The requirements for field work may vary to some extent according to the individual's background of preparation and experience. Field work is usually given in the final year in two blocks, one in January, the other in May and June.
6. Applicants for admission to the field of Public Health Nursing are advised to learn to drive a car and to secure their driver's licence. Ability to drive well is often a deciding factor in securing a position.
7. In order to qualify for the degree of B.S.N., candidates must obtain at least 50 per cent. in each subject and at least 65 per cent. on the aggregate in the final year examinations.
8. For application forms and any further information desired please write to the Director, School of Nursing, University of British Columbia, stating the specific field in which you are interested. Because the

facilities for field work limit the number of students who can be enrolled for any particular program, it is advisable that applications be submitted early.

Note: More detailed information regarding specific requirements will be found with the course outlines.

I. BASIC PROFESSIONAL CURRICULUM

Nursing A

The requirements for the first two years beyond University Entrance consist of 31 units as indicated below, at least 15 of which are taken in First Year Arts and Science or Senior Matriculation. Where a student has the opportunity to take the First Year of Arts at University she would be well advised to do so. Special orientation lectures given at this time, planned activities with other students, and contact with college organizations will help the student make the sometimes difficult adjustment from high school to university methods.

Subject	Units
English 100 and 101, and 200 or 205.....	6
Mathematics 101	3
Chemistry 100 or 101	3
Biology 100 and 304	6
Bacteriology 100	3
Psychology 100	3
Anatomy 390 (Elementary Human Anatomy)	2
Nursing 156 (Introduction to Nursing)	2
One additional course selected from the following:	
Economics 100, 140, 200	3
Anthropology 200, or 300	
History 101, 202, or 203	
Sociology 200	
A language other than English	

Activity courses in Physical Education are required in First Year Arts and First Year Nursing. For details see page 164.

Formal Admission to the School of Nursing

Following satisfactory completion of the first year of the above programme the student is formally admitted to the University School of Nursing. Application for such admission should be submitted not later than August 15th. To be eligible students must obtain at least 60 per cent. in either Biology or Chemistry, or, in lieu of this, an overall average of at least 60 per cent. In other subjects at least 50 per cent. must be obtained.

Since the Vancouver General Hospital School of Nursing provides the major portion of the clinical programme, its admission requirements, as well as those of the University, must be met by the student before final acceptance to the degree course is approved. Students are advised to write to the Director, Vancouver General Hospital School of Nursing, for a calendar.

Clinical Portion of the Curriculum

A member of the University staff acts as coordinator between the University and the Vancouver General Hospital School of Nursing during this portion of the programme. The instruction and experience provided by the Vancouver General Hospital School of Nursing include the following:

1. Instruction, by qualified nurse teachers, members of the medical staff and other members of the hospital staff:

- Anatomy and Physiology
- Community Health and Social Needs
- Health Education
- Normal Nutrition and Diet Therapy
- Nursing Ethics
- Pathology
- Pharmacology and Therapeutics
- Principles and Practice of Nursing
- Psychology
- Urinalysis
- Introduction to the nursing aspects of:
 - Anaesthesia
 - Physiotherapy
 - X-ray

2. Instruction and supervised nursing experience in the following services:

- Communicable Disease (including Tuberculosis and Venereal Disease)
- Dietary
- Eye, Ear, Nose and Throat
- Gynecological
- Medical
- Obstetric
- Orthopedic
- Out-patient (Adult and Child)
- Pediatric
- Psychiatric
- Surgical (including Operating Room)
- Visiting Nursing.

Following completion of the clinical portion of her course the student must write the Provincial Registered Nurse examinations before she becomes eligible to practice as a Registered Nurse in British Columbia.

Final Year

For the final year of her course the student elects "Public Health Nursing" or "Clinical Supervision" and upon its satisfactory completion she is awarded the degree of Bachelor of Science in Nursing.

Before proceeding to the final year however, the student would be well advised to obtain at least a year's general nursing experience. This would enable her to bring to the final year of the course a broader background of experience and help her to make a wiser selection of her field of specialization.

Major in Public Health Nursing

Subject	Units
N. 200 Growth and Development	3
N. 202 Principles and Methods of Teaching	2
N. 454 Preventive Medicine	3
N. 461 Health and Welfare Organizations and Resources	1
N. 463 Principles and Practice of Public Health Nursing	4
N. 467 Current Nursing Problems	1
N. 471 Social Case Work	1
N. 477 Sociology of the Family	1
N. 484 Seminar	1
N. 485 Seminar	1
N. 486 Field Work in Public Health Nursing	2

Major in Clinical Supervision

Subject	Units
N. 200 Growth and Development	3
N. 201 Foundations of Nursing Education	1
N. 202 Principles and Methods of Teaching	2
N. 454 Preventive Medicine	3
N. 461 Health and Welfare Organizations and Resources	1
N. 468 Teaching in the Clinical Field	2
N. 469 Ward Management and Supervision	2
N. 477 Sociology of the Family	1
N. 484 Seminar	1
and one of the following options :	
{ N. 490 Medical-Surgical Nursing	2
{ N. 491 Field Work in Medical-Surgical Nursing	2
{ N. 492 Obstetric Nursing	2
{ N. 493 Field Work in Obstetric Nursing	2
{ N. 494 Pediatric Nursing	2
{ N. 495 Field Work in Pediatric Nursing	2

Those students who, in the opinion of the faculty, have had appropriate graduate nurse experience and are otherwise suitable may be permitted to elect Nursing Education as their field of specialization. (See page 248.)

II. CURRICULA FOR GRADUATE NURSES

Nursing D

This is a course for experienced graduate nurses, eligible for admission to the University, who desire to qualify for the degree of Bachelor of Science in Nursing.

Admission requirements:

1. Academic: University Entrance standing. (See page 39.)
2. Personal: Good physical and emotional health, and the personal qualifications considered essential for success in the chosen field.
3. Nursing:
 - (a) Satisfactory completion of the basic course in a recognized school of nursing and registration in the province or country from which the applicant comes. The basic course should have included instruction and experience in:
 - (i). pediatric nursing.
 - (ii). communicable disease nursing, including tuberculosis.
 - (iii). psychiatric nursing (satisfactory experience in a child guidance clinic or a mental hygiene clinic may be accepted in lieu of experience in a mental hospital).
 - (iv). public health nursing.Where deficiencies are found to exist for which suitable supplementary instruction and experience can be obtained, the School of Nursing will assist the student in making arrangements for such experience.
 - (b) Satisfactory graduate nurse experience appropriate to the field of study to which the applicant seeks admission.
4. Credit for Previous Courses:
 - (a) Candidates otherwise qualified who already hold a Certificate in Nursing from the University of British Columbia may be granted full credit toward a degree for equivalent courses in the Certificate programme (completed previously) provided an average mark of at least 65 per cent. was attained in the final examinations, and provided all requirements for the degree are met within a period of five years following completion of the Certificate programme.

Students who do not qualify for a degree within the five-year period allowed will have their programmes reviewed, following which requirements may be revised.
 - (b) Those who have completed a Certificate course in Nursing at another approved university will be required to complete a minimum of 15 units of senior courses in order to qualify for a degree in Nursing from the University of British Columbia. In such cases, however, effort will be made to avoid duplication of courses in which a satisfactory degree of proficiency has been demonstrated.

Course requirements: Represent three years of work beyond University Entrance, i.e., 33 units from first and second year courses, and a senior year, the unit value of which varies slightly for the different majors.

Students in all majors must complete 33 units as follows:

Subject	Units
English 100 and 101, and English 205.....	6
Mathematics 101	3
Chemistry 100 or 101.....	3
Psychology 100	3
Bacteriology 100	3
N. 200 Growth and Development.....	3
N. 201 Foundations of Nursing Education.....	1
N. 202 Principles and Methods of Teaching.....	2
Two courses selected from the following (only <i>one</i> to be chosen from each group):	
Anthropology 200 or 300	} 6
Economics 100, 140 or 200	
History 101, 202, or 203	
Sociology 200	
One of the following:	
Biology 100	} 3
Chemistry 210	
Physics 100, 103, or 110	
Psychology 201	
A language other than English	

Major in Clinical Supervision

Prerequisite: A minimum of three months' graduate nurse experience in the clinical field selected (i.e., N. 490-1, N. 492-3, or N. 494-5) or an acceptable alternative.

Subject	Units
N. 454 Preventive Medicine	3
N. 461 Health and Welfare Organizations and Resources.....	1
N. 467 Current Nursing Problems.....	1
N. 468 Teaching in the Clinical Field.....	2
N. 469 Ward Management and Supervision.....	2
N. 477 Sociology of the Family.....	1
N. 484 Seminar	1
N. 485 Seminar	1
and <i>one</i> of the following options:	
{ N. 490 Medical-Surgical Nursing	2
{ N. 491 Field Work in Medical-Surgical Nursing	2
{ N. 492 Obstetric Nursing	2
{ N. 493 Field Work in Obstetric Nursing.....	2
{ N. 494 Pediatric Nursing	2
{ N. 495 Field Work in Pediatric Nursing.....	2

Major in Nursing Education

Subject	Units
N. 454 Preventive Medicine	3
N. 461 Health and Welfare Organizations and Resources.....	1
N. 467 Current Nursing Problems.....	1
N. 468 Teaching in the Clinical Field.....	2
N. 484 Seminar	1
N. 485 Seminar	1
N. 488 Nursing Education	2
N. 489 Field Work in Nursing Education.....	2
Six additional units to be selected in consultation with the School of Nursing and with reference to subjects which the student proposes to teach.....	6

Major in Public Health Nursing

Subject	Units
N. 454 Preventive Medicine	3
N. 461 Health and Welfare Organizations and Resources.....	1
N. 463 Principles and Practice of Public Health Nursing.....	4
N. 467 Current Nursing Problems.....	1
N. 471 Social Case Work.....	1
N. 477 Sociology of the Family.....	1
N. 484 Seminar	1
N. 485 Seminar	1
N. 486 Field Work in Public Health Nursing.....	2

Certificate Courses for Graduate Nurses

Nursing B and Nursing C are certificate courses designed to enable qualified graduate nurses who do not intend to complete degree requirements to prepare themselves for service in a specialized field of nursing.

Admission requirements:

1. Academic: University Entrance standing.
2. Personal: Good physical and emotional health, and the personal qualifications considered essential for success in the chosen field.
3. Nursing:
 - (a) Satisfactory completion of the basic course in a recognized school of nursing, and registration in the province or country from which the applicant comes.
 - (b) Satisfactory graduate-nurse experience appropriate to the field of study to which the applicant seeks admission.

Nursing B — Public Health Nursing

Subject	Units
N. 200 Growth and Development.....	3
N. 202 Principles and Methods of Teaching.....	2
N. 454 Preventive Medicine	3
N. 461 Health and Welfare Organizations and Resources.....	1
N. 463 Principles and Practice of Public Health Nursing.....	4
N. 467 Current Nursing Problems.....	1
N. 471 Social Case Work.....	1
N. 477 Sociology of the Family.....	1
N. 484 Seminar	1
N. 486 Field Work in Public Health Nursing.....	2

Nursing C — Clinical Supervision

Prerequisite: A minimum of three months graduate nurse experience in the clinical field, selected, (i.e., N. 490-1, N. 492-3, or N. 494-5) or an acceptable alternative.

Subject	Units
N. 200 Growth and Development.....	3
N. 201 Foundations of Nursing Education.....	1
N. 202 Principles and Methods of Teaching.....	2
N. 454 Preventive Medicine	3
N. 461 Health and Welfare Organizations and Resources.....	1
N. 468 Teaching in the Clinical Field.....	2
N. 469 Ward Management and Supervision.....	2
N. 477 Sociology of the Family.....	1
N. 484 Seminar	1
and <i>one</i> of the following options:	
{ N. 490 Medical-Surgical Nursing.....	2
{ N. 491 Field Work in Medical-Surgical Nursing.....	2
{ N. 492 Obstetric Nursing.....	2
{ N. 493 Field Work in Obstetric Nursing.....	2
{ N. 494 Pediatric Nursing.....	2
{ N. 495 Field Work in Pediatric Nursing.....	2

COURSES IN NURSING

156. (2) **Introduction to Nursing.**—Basic principles of elementary nursing and their application to the care of patients with mild and chronic illnesses.

200. (3) **Growth and Development.**—Physical, mental and emotional aspects of the various phases of growth from the prenatal period to adulthood. The course will serve as a basis for understanding common human needs and how they may be met.

201. (1) **Foundations of Nursing Education.**—A consideration of the evolution of nursing education; those forces which have influenced it; present patterns; and some of the problems of today.

202. (2) **Principles and Methods of Teaching.**—An introductory course designed to give the student an understanding and appreciation of principles and commonly used methods of teaching, with special reference to nursing.

454. (3) **Preventive Medicine.**—The public health aspects of preventable disease. This course includes sanitation previously listed as N. 459.

461. (1) **Health and Welfare Organizations and Resources.**—Lectures and field trips planned to give the student knowledge and understanding of health and welfare resources.

463. (4) **Principles and Practice of Public Health Nursing.**—A study of the fundamental principles involved and their application to various branches of public health nursing.

467. (1) **Current Nursing Problems.**—Discussion of nursing as a profession; trends, current problems, and professional organizations, their activities and relationships.

468. (2) **Teaching in the Clinical Field.**—The principles and methods of teaching applied to the clinical field.

469. (2) **Ward Management and Supervision.**—Principles of supervision and their application to the functions of the head nurse and the nursing supervisor.

471. (1) **Social Case Work.**—Principles underlying social case work; interrelation of community health and welfare agencies.

477. (1) **Sociology of the Family.**—The family as a primary unit of society.

484. (1) **Seminar.**—A general study of the methods of selecting, defining and dealing with problems typical of those encountered in the professional field.

485. (1) **Seminar.**—Oral and written presentation of work done on a specific problem selected in consultation with the instructor.

486. (2) **Field Work in Public Health Nursing.**—Planned observation of and guided participation in public health nursing.

488. (2) **Nursing Education.**—Organization and administration of the educational programme in a School of Nursing.

489. (2) **Field Work in Nursing Education.**

490. (2) **Medical-Surgical Nursing.**—Recent trends in the nursing care of medical and surgical patients.

491. (2) **Field Work in Medical-Surgical Nursing.**—Supervised practice in the nursing care of medical and surgical patients; and in supervision and clinical teaching in this field.

492. (2) **Obstetric Nursing.**—Current trends in nursing care pertaining to the maternal cycle and the newborn.

493. (2) **Field Work in Obstetric Nursing.**—Supervised practice in the nursing care of the obstetric patient and the newborn; and in supervision and clinical teaching in obstetric nursing.

494. (2) **Pediatric Nursing.**—Current trends in the nursing care and health supervision of children.

495. (2) **Field Work in Pediatric Nursing.**—Supervised practice in the nursing care and health supervision of children; and in supervision and clinical teaching in Pediatric Nursing.

**THE
FACULTY
OF
AGRICULTURE**

1951-1952

1951-52

FACULTY OF AGRICULTURE

General

The degree of Bachelor of Science in Agriculture (B.S.A.) is granted as a General Course degree or with Honours.

The General Course leading to the degree of B.S.A. covers a period of 4 years. This course prepares students for teaching, extension work, research, farming, and various phases of industry concerned with the production and processing of agricultural products. The degree will be granted on completion of courses amounting to 67 units chosen in conformity with Calendar regulations.

The first two years of work are devoted largely to acquiring a knowledge of the basic sciences, and to laying a foundation for more advanced studies in the science and practice of agriculture. During the last two years the student is permitted to select either a generalized course in agriculture or to specialize in some one phase of agriculture such as Agricultural Economics, Agricultural Mechanics, Agronomy, Animal Husbandry, Dairying, Horticulture, or Poultry Husbandry.

The course leading to the degree of B.S.A. with Honours covers a period of 5 years and may be taken in various specialized fields of study. Detailed descriptions of the requirements for the various Honours courses offered will be found on pages 255-269. The Honours degree will be granted upon the completion of 88 units of work extending over a period of 5 academic years or their equivalent, and chosen in conformity with the Calendar regulations pertaining to the curricula for the various courses. For admission to Honours standing the student must have at least Second Class standing in the work of the first two years.

For regulations concerning the degree of M.S.A. see "Faculty of Graduate Studies".

In addition to degree courses, courses leading to Diplomas in Agriculture and in Horticulture are provided. Short courses at the University and at various points in the Province are also offered, under the auspices of the Department of University Extension.

Admission, Registration, Etc.

For statement as to general requirements for admission to the University, registration, etc., see pages 38-45.

Physical Education

Two activity courses in Physical Education are required of all students in the 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 164-167 in the Faculty of Arts and Science.

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, Horticulture, and Poultry Husbandry on the part of those who wish to extend their practical knowledge. 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 1951-52. 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.

Special announcements giving details of the various courses are issued each year, and may be obtained from the Director of University Extension on application.

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 Curriculum

Students are required to select their courses in consultation with the head of the department in which the undergraduate essay is to be written. All students are required to take Agriculture 100 and not less than 9 units of courses from electives A. In addition to Agriculture 100, all students are required to take, as a minimum, 12 units of agricultural subjects outside their major department, to be chosen in the departments of: Agricultural Economics, Agricultural Mechanics, Agronomy, Animal Husbandry, Dairying, Horticulture, and Poultry Husbandry.

First and Second Years

The requirements for the first two years consist of 31 units, 16 of which must be taken in the First Year and 15 in the Second 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 101
- (d) English 100 and 101, and either English 200 or English 205
- (e) Mathematics 101
- (f) Six units from electives A (three in each year).
- (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 Economics 200	Bacteriology 100	German 90
Agricultural Mechanics 200	Biology 330	Russian 100 <i>or</i> 200
Agronomy 200	Botany 200	Spanish 90
Agronomy 210	Chemistry 200	Language continued from University Entrance
Animal Husbandry 200	Geology 200	3 <i>or</i> 6 units
Dairying 200	Mathematics 200, 201 <i>or</i> 202	Commerce 151
Horticulture 200	Physics 100 <i>or</i> 101	Economics 200
Poultry Husbandry 200	Zoology 200	History 101
		Home Economics
		Political Science
		Psychology 100

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 101 or Biology 100 until Second Year.

Students planning to do their major work in Agricultural Economics may substitute Economics 200 for one of the B electives in their Second Year, but prior to graduation they must elect a second subject from Group B.

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 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.

Five-Year Honours Curricula

Candidates for Honours must complete a minimum of 88 units of work extending over 5 academic years or their equivalent.

Students whose proposed scheme of work for the Third, Fourth, and Fifth Years involves Honours must obtain the consent of the depart-

ments 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 work of the first two years, and who have chosen their courses and fulfilled the prerequisites in accordance with the outline below:

First Year

Course and Number	Description	Units
Agriculture 100.....	History of Scientific Agric.....	1
Biology 100.....	Intro. Biology	3
Chemistry 100 or 101.....	General Chemistry	3
English 100.....	Literature	3
English 101.....	Composition	
Mathematics 101.....	Algebra, Geom. and Trig.....	3
Electives A.....	(See Head of Department).	3

Second Year

Course and Number	Description	Units
English 200.....	Literature	3
or English 205.....	Composition and Literature..	
Mathematics 202.....	Calculus	3
Physics 100 or 101.....	Elementary Physics	3
Electives A	(See Head of	3
Electives B and/or C.....	Department)	6

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, 12 units of courses to be chosen in the departments of: Agricultural Economics, Agricultural Mechanics, Agronomy, Animal Husbandry, Dairying, Horticulture, and Poultry Husbandry. Of these 12 units taken outside the major department, $7\frac{1}{2}$ units must be chosen from electives A.

Honours are of two grades: First and Second Class. 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.

A graduating essay embodying the results of some independent investigation shall be presented by each student. The topic 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 ($8\frac{1}{2}\times 11$ 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 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, Fourth, and Fifth Years.

Agricultural Economics

Third Year

Course and Number	Description	Units
Agric. Econ. 301.....	Agriculture in the Economic System	1½
Commerce 261.....	Marketing	3
Economics 335.....	Statistics 1	3
Language.....		3
Electives.....		7½

Fourth Year

Course and Number	Description	Units
Agric. Econ. 300.....	Farm Management	3
Agric. Econ. 401.....	Marketing	3
Economics 310.....	International Trade	3
Electives.....		9

Fifth Year

Course and Number	Description	Units
Agric. Econ. 405.....	Seminar	1½
Agric. Econ. 425.....	Undergraduate Essay	3
Economics 300.....	Money and Banking	3
Economics 301.....	Economic Theory	3
Economics 435.....	Statistics 2	3
Electives.....		4½

Agricultural Mechanics

Third Year

Course and Number	Description	Units
Agric. Econ. 300.....	Farm Management	3
Agric. Mech. 302.....	Farm Power	3½
Agronomy 313.....	Phys. Prop. of Soils.....	1½
Agronomy 314.....	Soil Conservation	1½
Elective and Agronomy 212 }	Soil Fertility	1½
or Chemistry 200.....	Quan. and Qual. Analysis.....	3
Language.....		3
Physics 200.....	Mechanics, Molecular Physics, and Heat.....	3

Fourth Year

Course and Number	Description	Units
Agric. Mech. 305.....	Drainage and Irrigation.....	3
Agric. Mech. 404.....	Farm Buildings.....	3
Agric. Mech. 406.....	Advanced Machinery.....	3
Agric. Mech. 408.....	Seminar.....	3
Electives.....	(From Agriculture).....	6

Fifth Year

Course and Number	Description	Units
Agric. Mech. 410.....	Shopwork.....	1½
Agric. Mech. 412.....	Rural Electrification.....	1½
Agric. Mech. 425.....	Undergraduate Essay.....	3
Electives.....	(From Agriculture).....	6
Electives.....	(From Applied Science).....	6

Agricultural Microbiology**Third Year**

Course and Number	Description	Units
Agronomy 312.....	Soil Bacteriology.....	3
Chemistry 300.....	Organic Chemistry.....	3
Dairying 304.....	Dairy Bacteriology.....	1½
Dairying 305.....	Dairy Bacteriology.....	1½
Electives.....	.....	6
Language.....	.....	3

Fourth Year

Course and Number	Description	Units
Agronomy 421.....	Biometry.....	1½
Agronomy 430.....	.....	3
or Dairying 432.....	Directed Studies.....	3
Bacteriology 300.....	Immunology.....	3
Biochemistry 410.....	Biochemistry.....	3
Dairying 413.....	Dairy Mycology.....	1½
Electives.....	.....	6

Fifth Year

Course and Number	Description	Units
Dairying 407.....	Adv. Dairy Bacteriology.....	3
Agronomy 423.....	.....	3
or Dairying 425.....	Undergraduate Essay.....	3
.....	Seminar.....	3
Electives.....	.....	9

Agricultural Science

Second Year

Course and Number	Description	Units
English 200.....	Literature	
or English 205.....	Composition and Literature.....	3
Mathematics 202.....	Calculus	3
Physics 100 or 101.....	Elementary Physics	3
Electives A		3
Electives B		
Botany 200.....	Botany (Intro.)	3
Chemistry 200.....	Quan. and Qual. Analysis.....	3

Third Year

Course and Number	Description	Units
Agronomy 212.....	Soil Fertility	1½
Bacteriology 100.....	Intro. Bacteriology	3
Chemistry 300.....	Organic Chemistry	3
Electives	(From Agriculture)	7½
Language		3

Fourth Year

Course and Number	Description	Units
Agricultural Econ. 300.....	Farm Organization and Mgt.	3
Electives	(From Agriculture)	9
Electives		3
Zoology 200.....	General Zoology	3

Fifth Year

Course and Number	Description	Units
Electives.....		15
Undergraduate Essay.....		3

Agronomy

Third Year

Course and Number	Description	Units
Agronomy 212.....	Soil Fertility	1½
Botany 200.....	Botany (Introductory)	3
Chemistry 300.....	Organic Chemistry	3
Electives.....		7½
Language.....		3

Fourth Year

Course and Number	Description	Units
Agricultural Economics.....		3
Agronomy 304.....	Range Management.....	1½
Agronomy 305.....	Pasture Management.....	1½
Agronomy 313.....	Phys. Prop. of Soils.....	1½
Agronomy 314.....	Soil Conservation.....	1½
Biology 330.....	Prin. of Genetics.....	3
Electives.....		3
Geology or Geography.....		3

Fifth Year

Course and Number	Description	Units
Agronomy 406.....	Field Crop Technology.....	1½
Agronomy 407.....	Plant Breeding and Seed Production.....	3
Agronomy 416.....	Soil Genesis, Morphology, and Classification.....	1½
Agronomy 425.....	Undergraduate Essay.....	3
Animal Husbandry.....		3
Electives.....		6

Plant Breeding**Third Year**

Course and Number	Description	Units
Agronomy 212.....	Soil Fertility.....	1½
Biology 330.....	Principles of Genetics.....	3
Botany 316.....	Plant Path. (Elementary).....	2
Botany 330.....	Plant Physiology.....	2
Chemistry 300.....	Organic Chemistry.....	3
Horticulture 441.....	Plant Nutrition (a).....	2
Language.....		3
Elective.....		1½

Fourth Year

Course and Number	Description	Units
Agronomy 406.....	Field Crop Technology.....	1½
Agronomy 407.....	Plant Breeding and Seed Production.....	3
Agronomy 421.....	Biometry.....	1½
Botany 304.....	Systematics.....	
or Zoology 302.....	Intro. to Entomology.....	3
Botany 340.....	Histology.....	3
Electives.....		6

Fifth Year

Course and Number	Description	Units
Agronomy 405.....	Field Crops (Advanced).....	1½
Agronomy 416.....	Soil Genesis, Morphology, and Classification	1½
Agronomy 425.....	Undergraduate Essay	3
Botany 304.....	Systematics	3
or Zoology 302.....	Intro. to Entomology.....	3
Botany 516.....	Plant Path. (Advanced).....	3
Electives.....		6

Soils**Third Year**

Course and Number	Description	Units
Agronomy 312.....	Soil Bacteriology	3
Agronomy 313.....	Physical Properties of Soil.....	1½
Agronomy 314.....	Soil Conservation	1½
Chemistry 300.....	Organic Chemistry	3
Chemistry 304.....	Physical Chemistry	3
Language.....		3
Elective		3

Fourth Year

Course and Number	Description	Units
Agronomy 415.....	Chemical Properties of Soils.....	3
Agronomy 416.....	Soil Genesis & Classification.....	1½
Agronomy 421.....	Biometry	1½
Botany 200.....	Introductory Botany	3
Chemistry 310, or.....	Adv. Quan. and Qual. Analysis	3
Chemistry 409 and.....	Qual. Org. Analysis.....	1½
Dairying 413.....	Dairy Mycology	1½
Geology 200, or.....	General Geology	3
Biology 400, or.....	General Physiology	3
Bacteriology 300.....	Immunology	3
Elective.....		3

Fifth Year

Course and Number	Description	Units
Agronomy 423.....	Seminar	1
Agronomy 425.....	Essay	3
Botany 330.....	Plant Physiology	2
Biochemistry 410.....	Biochemistry	3
or alternate.....		3
Electives.....		9

Animal Nutrition

Third Year

Course and Number	Description	Units
Agronomy 212	Soil Fertility	1½
Animal Husbandry 322	Fund. of Animal Growth and Energetics	1½
Chemistry 300	Organic Chemistry	3
Chemistry 304	Physical Chemistry	3
Dairying 304	Dairy Bacteriology	1½
Dairying 305	Dairy Bacteriology	1½
Poultry Husbandry 322	Fund. of Nutrition	1½
Elective A	(From Agriculture)	1½

Fourth Year

Course and Number	Description	Units
Agronomy 421	Biometry	1½
Animal Husbandry 422	Animal Feeding	1½
Animal Husbandry 424	Experimental Feeding	1½
Biochemistry 410	Biochemistry	3
Chemistry 310	Advanced Analysis	3
Chemistry 409	Qual. Org. Analysis	1½
Poultry Husbandry 410	Poultry Nutrition	1½
Electives		4½

Fifth Year

Course and Number	Description	Units
Animal Husbandry 425	Undergraduate Essay	3
Animal Husbandry 522	Adv. Animal Nutrition	3
Biology 400	General Physiology	3
Electives		9

Animal Science

Third Year

Course and Number	Description	Units
Agronomy 212	Soil Fertility	1½
Bacteriology 100	Intro. Bacteriology	3
Botany 200	Intro. Botany	3
Chemistry 300	Organic Chemistry	3
Electives	(From Agriculture)	4½
Language		3

Fourth Year

Course and Number	Description	Units
Agronomy 421	Biometry	1½
Animal Husbandry 322	Fund. of Animal Growth and Energetics	1½
Biology 330	Principles of Genetics	3
Biology 400	General Physiology	3
Electives		7½
Poultry Husbandry 322	Fund. of Nutrition	1½

Fifth Year

Course and Number	Description	Units
Animal Husbandry 419	Seminar	3
Animal Husbandry 425	Undergraduate Essay	3
Electives		12

Commerce**Third Year**

Course and Number	Description	Units
Agricultural Economics 301	Agric. in the Econ. System	1½
Commerce 261	Marketing	3
Electives		10½
Language		3

Fourth Year

Course and Number	Description	Units
Agricultural Economics 401	Marketing	3
Commerce 252	Intermediate Accounting	3
Economics 300	Money and Banking	3
Economics 335	Statistics	3
Electives		6

Fifth Year

Course and Number	Description	Units
Agric. Econ. 405	Seminar	1½
Agric. Econ. 425	Undergraduate Essay	3
Commerce 281	Indust. Organ. and Produc.	3
Commerce 331	Commercial Law	3
Commerce 371	Business Finance	3
Electives		4½

Dairy Technology

To be taken in accordance with the curriculum provided under Food Technology. The electives of the Fourth and Fifth Year are to be selected after consultation with the Head of the Department.

Entomology**Second Year**

Course and Number	Description	Units
English 200	Literature	
or English 205	Composition and Literature	3
Mathematics 202	Calculus	3
Physics 100 or 101	Elementary Physics	3
Electives A		3
Electives B		
Chemistry 200	Quan. and Qual. Analysis	3
Zoology 200	General Zoology	3

Third Year

Course and Number	Description	Units
Biology 330.....	Prin. of Genetics.....	3
Botany 200.....	Botany (Intro.).....	3
Chemistry 300.....	Organic Chemistry.....	3
Zoology 302.....	Intro. to Entomology.....	3
Zoology 303.....	Histology.....	3
or Zoology 306.....	Vertebrate Biology.....	3
Elective.....		3

Fourth Year

Course and Number	Description	Units
Botany 316.....	Plant Path. (Elem.).....	2
Zoology 301.....	Invertebrate Zoology.....	3
Zoology 305.....	Economic Entomology.....	2
Zoology 400.....	History and Gen. Prin. of Biology.....	2
Zoology 404.....	Experimental Zoology.....	3
Electives from Agriculture.....		6

Fifth Year

Course and Number	Description	Units
Animal Husbandry 421.....	Physiol. of Domestic Animals.....	3
Horticulture 317.....	Vegetable Crops.....	3
Horticulture 441.....	Plant Nutrition (a).....	2
Undergraduate Essay.....		3
Zoology 401.....	Practical Entomology.....	2
Zoology 407.....	Parasitology.....	3
Zoology 408.....	Biol. Methods and Procedure.....	1
Elective.....		1½

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
Agricultural Mechanics 301.....	Food Mechanics.....	3
Agronomy 212.....	Soil Fertility.....	1½
Agronomy 406.....	Field Crop Technology.....	1½
Chemistry 300.....	Organic Chemistry.....	3
Chemistry 304.....	Physical Chemistry.....	3
Dairying 304.....	Dairy Bacteriology.....	1½
Dairying 305.....	Dairy Bacteriology.....	1½
Poultry Husbandry 306.....	Technol. of Poultry Prod.....	1½
Elective.....		1½

Fourth Year

Course and Number	Description	Units
Agricultural Mechanics 401	Advanced Food Mechanics	3
Agronomy 312	Soil Bacteriology	3
Agronomy 421	Biometry	1½
Animal Husbandry 322	Fund. of Animal Growth and Energetics	1½
Animal Husbandry 406	Identification and Standards	1½
Biochemistry 410	Biochemistry	3
Dairying 406	Analytical Methods	1½
Horticulture 315	Horticultural Products and By-Products	1½
Poultry Husbandry 322	Fundamentals of Nutrition	1½

Fifth Year

Course and Number	Description	Units
Commerce 457	Accounting and Finance	2
Commerce 498	Industrial Management and Marketing	2
Dairying 413	Dairy Mycology	1½
Dairying 431	Seminar	3
Electives, including essay		9½

Horticultural Science**Third Year**

Course and Number	Description	Units
Agronomy 212	Soil Fertility	1½
Horticulture 300	Fruit Growing	3
Horticulture 314	Handling and Distribution	1½
Horticulture 315	Hort. Prod. and By-prod.	1½
Horticulture 316	Landscape Gard. and Floriculture	1½
Horticulture 317	Vegetable Crops	3
Horticulture 340	Food Values of Horticultural Crops	
or Biology 330	Principles of Genetics	3
Zoology 201	Agricultural Entomology	3

Fourth Year

Course and Number	Description	Units
Botany 316	Plant Path. (Elementary)	2
Elective	(From Biology or Agric.)	4
Horticulture 418	Systematic Pomology	1½
Horticulture 419	Spec. Hort. Crops	1½
Horticulture 420	Methods of Research	3
Horticulture 441	Plant Nutrition (a)	2
Horticulture 442	Plant Nutrition (b)	2
Horticulture 443	Seminar in Pl. Nutrition	2

Fifth Year

Course and Number	Description	Units
Electives.....	(From Biology or Agric.).....	5
Horticulture 425.....	Undergraduate Essay.....	3
Horticulture 530.....	Directed Studies.....	3
Horticulture 547.....	Advanced Plant Nutrition.....	
or Horticulture 517.....	Advanced Vegetable Crops.....	4
Botany 304.....	Systematics.....	3

Plant Nutrition**Third Year**

Course and Number	Description	Units
Agronomy 212.....	Soil Fertility.....	1½
Bacteriology 100.....	Intro. Bacteriology.....	3
Chemistry 300.....	Organic Chemistry.....	3
or Horticulture 441.....	Plant Nutrition (a).....	3
Elective.....	(From Biology or Agric.).....	1½
Horticulture 300.....	Fruit Growing.....	3
Horticulture 317.....	Vegetable Crops.....	3
Horticulture 340.....	Food Values of Hort. Crops.....	3

Fourth Year

Course and Number	Description	Units
Electives.....	(From Agric. or Botany).....	6½
Horticulture 418.....	Systematic Pomology.....	1½
Horticulture 420.....	Methods of Research.....	3
Horticulture 441.....	Plant Nutrition (a).....	2
Horticulture 442.....	Plant Nutrition (b).....	2
Horticulture 443.....	Seminar in Pl. Nutrition.....	2

Fifth Year

Course and Number	Description	Units
Electives.....	(From Agric., Biol., or Chemistry).....	8
Horticulture 425.....	Undergraduate Essay.....	3
Horticulture 530.....	Directed Studies.....	3
Horticulture 547.....	Advanced Plant Nutrition.....	
or Horticulture 517.....	Advanced Vegetable Crops.....	4

Plant Pathology**Second Year**

Course and Number	Description	Units
English 200.....	Literature.....	
or English 205.....	Composition and Literature.....	3
Mathematics 202.....	Calculus.....	3
Physics 100 or 101.....	Elementary Physics.....	3
Electives A		
Agronomy 210.....	Introduction to Soils.....	1½
Agronomy 212.....	Soil Fertility.....	1½
Electives B		
Botany 200.....	Botany (Intro.).....	3
Chemistry 200.....	Quan. and Qual. Analysis.....	3

Third Year

Course and Number	Description	Units
Bacteriology 100.....	Intro. Bacteriology	3
Botany 315.....	Mycology	3
Botany 316.....	Plant Path. (Elementary).....	2
Botany 330.....	Plant Physiology	2
Botany 340.....	Histology	3
German 90.....	Beginners' Course	3
Zoology 200.....	General Zoology	3

Fourth Year

Course and Number	Description	Units
Biology 330.....	Prin. of Genetics.....	3
Botany 304.....	Intro. to Systematics.....	3
Chemistry 300.....	Organic Chemistry	3
Zoology 201.....	Agricultural Entomology.....	3
Electives from Agriculture.....		6

Fifth Year

Course and Number	Description	Units
Agronomy 421.....	Biometry	1½
Botany 500.....	Seminar	1
Botany 516.....	Plant Path. (Advanced).....	3
Horticulture 317.....	Vegetable Crops	3
Horticulture 441.....	Plant Nutrition (a).....	2
Undergraduate Essay.....		3
Electives.....		4½

Poultry Nutrition

Third Year

Course and Number	Description	Units
Bacteriology 100.....	Introd. Bacteriology	3
Chemistry 300.....	Organic Chemistry.....	3
Elective.....		4½
Language.....		3
Poultry Husbandry 400.....	Poultry Farm Management.....	
or Poultry Husbandry 401.....	Incubation and Hatchery Management	1½
Zoology 300.....	Comp. Anat. of Vertebrates.....	
or Zoology 303.....	Histology	
or Zoology 304.....	Comp. Vertebrate Embryology	3

Fourth Year

Course and Number	Description	Units
Agronomy 421.....	Biometry.....	1½
Animal Husbandry 322.....	Fund. of Animal Growth and Energetics.....	1½
Biochemistry 410.....	Outlines of Biochemistry.....	3
Dairying 304.....	Dairy Bacteriology.....	1½
Dairying 305.....	Dairy Bacteriology.....	1½
Electives.....		4½
Poultry Husbandry 322.....	Fundamentals of Nutrition.....	1½
Poultry Husbandry 405.....	Seminar.....	1½
Poultry Husbandry 420.....	Physiology of Sex, Reproduction and Endocrinology.....	
or Poultry Husbandry 315	Breeds and Judging.....	1½

Fifth Year

Course and Number	Description	Units
Animal Husbandry 424.....	Experimental Feeding.....	1½
Biology 400.....	General Physiology.....	3
Electives.....		6
Poultry Husbandry 410.....	Poultry Nutrition.....	1½
Poultry Husbandry 411.....	Poultry Feeds and Feeding.....	1½
Poultry Husbandry 415.....	Diseases and Hygiene.....	1½
Poultry Husbandry 425.....	Undergraduate Essay.....	3

Poultry Science**Third Year**

Course and Number	Description	Units
Animal Husbandry 322.....	Fund. of Animal Growth and Energetics.....	1½
Bacteriology 100.....	Introd. Bacteriology.....	3
Biology 431.....	Research in Genetics.....	3
Chemistry 300.....	Organic Chemistry.....	3
Language.....		3
Poultry Husbandry 322.....	Fundamentals of Nutrition.....	1½
Poultry Husbandry 400.....	Poultry Farm Management.....	1½
Poultry Husbandry 401.....	Incubation and Hatchery Management.....	1½

Fourth Year

Course and Number	Description	Units
Agronomy 421.....	Biometry.....	1½
Animal Husbandry 313.....	Animal Breeding.....	1½
Biology 430.....	Seminar in Genetics.....	3
Electives.....		4½
Poultry Husbandry 300.....	Markets and Marketing.....	1½
Poultry Husbandry 313.....	Poultry Breeding.....	1½
Poultry Husbandry 415.....	Diseases and Hygiene.....	1½
Zoology 300.....	Comp. Anat. of Vertebrates.....	3

Fifth Year

Course and Number	Description	Units
Biology 400	General Physiology	3
Elective		3
Poultry Husbandry 315	Breeds and Judging	1½
Poultry Husbandry 405	Seminar	1½
Poultry Husbandry 410	Poultry Nutrition	1½
Poultry Husbandry 411	Poultry Feeds and Feeding	1½
Poultry Husbandry 425	Undergraduate Essay	3
Zoology 304	Comp. Vertebrate Embryology	3

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 9 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 101, Mathematics 101, 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. In any course which involves both laboratory work and written examinations, students will be required to make satisfactory standing in both parts. Results in laboratory work will be announced prior to the final examination, and students who have not obtained a mark of at least 50% will neither be permitted to write the examination nor to receive any credit for the course. If the course is repeated no exemption will be granted from the work in either part.

3. Successful candidates will be graded as follows: First Class, an average of 80% or over; Second Class, 65 to 80%; Passed, 50 to 65%.

4. (a) A student taking 9 or more units in the Winter Session will receive credit for a course only if, as a result of the final examinations of that Session, he passes in courses totalling at least 9 units, including the course in question. The passing grade for a course is 50%.

(b) A student taking less than 9 units in the Winter Session will receive credit for a course only if, as a result of the final examinations of that Session, he passes in all his courses. The passing grade for a course is 50%.

(c) A student in the Summer Session will receive credit for each course in which he obtains a grade of at least 50%.

5. Courses for which credit has not been obtained must be repeated, or permissible substitutes taken, in the next regular session attended. In the Winter Session the total of all courses taken may not exceed 18 units except with approval of the Faculty.

6. (a) In the Winter Session, a candidate will be granted a supplemental in a subject which he has taken during the year provided (i) he has written the final examination and has obtained a final mark of not less than 35%; and (ii) he has obtained at least 9 units of credit in the Session. In any one session, no candidate will be granted supplementals in more than 6 units.

(b) In the Summer Session, a candidate will be granted a supplemental in a subject which he has taken during that session provided (i) he has written the final examination and has obtained a final mark of not less than 35%, and (ii) he has obtained 3 units of credit in that session.

7. 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.

8. If a supplemental granted in a course is passed with a grade of at least 50%, credit will be given for the course.

9. In all but the final year a candidate who has been granted a supplemental may write it only once. If he fails, he must repeat the course or take a permissible substitute. In the Final Year he may write it twice (subject to the limitation in paragraph 5).

10. 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.

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 in addition to the regular fee of \$5.00 a paper for a supplemental examination.

11. 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.

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.

13. For regulations regarding re-reading of papers, see Faculty of Arts and Science, "Re-Readings" (page 118).

14. A student with standing defective in respect of more than 3 units, although he will not be permitted to register in a higher year, may be

allowed to continue by registering in the lower year and by taking courses in accordance with Paragraph 5 above.

15. A student who twice in succession, fails to obtain credits in the Winter Session may, upon the recommendation of Faculty, be required by the Senate to withdraw from the Faculty.

16. 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.

COURSES IN AGRICULTURE

Note: for unit values of courses and the number of lecture and laboratory hours per week in each course, see page 119.

Agriculture

100. (1) **History of Scientific Agriculture.**—An orientation course embracing a study of the history and development of modern scientific Agriculture; the contributions of the sciences to this development, and the nature, problems, and relationship of the various branches of agriculture. [1-0; 1-0]

Agricultural Economics

200. (1½) **Introduction to Agricultural Economics.**—A survey of the subject matter of agricultural economics. Principles which determine production, price and income applied to agricultural production, marketing, and public policy. Mr. Anderson. [3-2; 0-0]

300. (3) **Farm Organization and Management.**—Farm accounts and records. Economic principles in rotations, rates of fertilizer application, rates of feeding and combinations of enterprises. Management problems connected with capital equipment, labour, financing, valuation of a farm, getting started in farming, and obtaining information. Farm management research methods. Text-book: Black, Clawson, Sayre and Wilcox, *Farm Management*. Mr. Medland. [2-2; 2-2]

301. (1½) **Agriculture in the Economic System.**—Problem of the best use of resources; effect of imperfect competition, changes in the price level, population growth and technological progress. Prerequisite: Agricultural Economics 200. Mr. Anderson. [0-0; 3-0]

401. (3) **Marketing.**—The evolution and structure of the marketing system; the price making process on various markets; causes and effects of price fluctuations; marketing legislation; co-operative marketing; efficiency in marketing. Text: Shepherd, G. S., *Marketing Farm Products*. Mr. Medland. [3-0; 3-0]

405. (1½) **Seminar.**—Application of economic analysis to contemporary problems in agricultural economics. [0-0; 3-0]

425. (3) **Undergraduate Essay.**

430. (1½-3) **Directed Studies**—on an approved problem.

Courses Primarily for Graduate Students

500. (1-3) **Graduate Seminar.**

501 (3) **Advanced Marketing.**—Price making forces at retail, wholesale and farm market level. Critical analysis of various marketing schemes. Prerequisite: adequate background in Economics. [3-0; 3-0]

502. (3) **Agricultural Problems and Policy.**—Influential doctrines in agricultural policy; problem of low labour returns. Critical review of present and proposed price and income policies. Prerequisite: adequate background in Economics. Mr. Anderson. [3-0; 3-0]

549. (6) **Master's Thesis.**

Agricultural Mechanics

200. (1½) **General Agricultural Mechanics.**—A consideration of the scope, work and materials of the department, including an introduction to farm power problems. Text-book: *General Shopwork*, by Ashcroft & Easton. Mr. Young. [3-3; 0-0]

301. (3) **Food Mechanics.**—Fundamental mechanics, unit processes and operations in the food industry. Drafting. Prerequisites: Physics 100 or 101, Mathematics 202. Mr. Leroux. [2-2; 2-2]

302. (3) **Farm Power.**—Combustion engines, fuels and lubricants, performance analyses, integration of power units. Prerequisites: Agricultural Mechanics 200, Physics 200, Mathematics 202. Mr. Coulthard. [2-3; 2-3]

305. (3) **Drainage and Irrigation.**—Soil and water relationships, installations and materials for irrigation drainage systems, methods, and efficient use of water. Text-books: Ayres and Scoates, *Land Drainage and Reclamation*; Israelsen, *Irrigation Principles and Practices*. Prerequisites: Agronomy 313, 314. Mr. Coulthard. [2-3; 2-3]

401. (3) **Food Mechanics.**—Plant layout and operation, production planning, material handling. Prerequisite: Agricultural Mechanics 301. Mr. Leroux. (Alternate years, given 1951-52). [2-3; 2-3]

404. (3) **Farm Buildings.**—Farm building requirements, materials, methods of construction. Farmstead planning. Drafting. Text-book: Scoates, *Farm Buildings*, I and II. Mr. Leroux. (Alternate years, not given 1951-52). [2-2; 2-2]

406. (3) **Advanced Machinery.** — Special purpose machinery used for root crops, bulbs, truck gardening. Emphasis on operation, maintenance, and repair. Prerequisite: Agricultural Mechanics 200. Mr. Young. (Alternate years, given 1951-52). [2-3; 2-3]

408. (3) **Seminar.**—Lectures, discussions, and papers. Prerequisites: Agricultural Mechanics 200, 302, 406. Mr. Young. [2-3; 2-3]

410. (1½) **Shopwork.** — Oxy-acetylene welding and arc welding, heat treating. Mr. Gleave. [0-3; 0-3]

412. (1½) **Rural Electrification.**—Developments and problems in Canada with particular reference to British Columbia. Mr. Young. [2-3; 0-0]

425. (3) **Undergraduate Essay.**—A report on a practical problem encountered in summer work.

430. (3) **Directed Studies.**

501. (3) **Food Mechanics.**—Care, operation, design of individual machines of food processing industry. Mr. Leroux. (Alternate years, not given 1951-52). [2-3; 2-3]

Agronomy

Field Crops

200. (1½) **Introduction to Field Crops.**—Study of important grain, forage, and root crops. Noxious weed seeds, commercial and seed grades of Canada, identification of principal types and varieties of field crops. Special problems of production, weed control and harvesting. [0-0; 3-2]

303. (1½) **Weeds.**—Common noxious weeds of the Province. Influence of weeds on crop growth; identification; mode of reproduction; cultural and chemical methods of control. [2-2; 0-0]
304. (1½) **Range Management.** — Ecology, maintenance, and management of rangeland. Text: Stoddart and Smith, *Range Management*. [2-2; 0-0]
305. (1½) **Pasture Management.**—Grasses and legumes for pasture and forage, their management and conservation. Text: Ahlgren, *Forage Crops*. [0-0; 2-2]
405. (1½) **Field Crops (Advanced).**—Studies of the climatic, ecological, biological factors in distribution and world production of field crops. Prerequisite: Agronomy 200. [2-2; 0-0]
406. (1½) **Field Crop Technology.**—Chemical constituents of field crops as influenced by climate, soil, and variety, applied to processing of farm crops. Prerequisite: Chemistry 200. [0-0; 2-2]
407. (3) **Plant Breeding and Seed Production.**—Principles of plant breeding, methods of crop improvement. Production of improved seed of cereals, forage crops, roots. Prerequisite: Biology 330. [2-2; 2-2]
422. (3) **Crop Production Problems.**—Preparation of reports and submission of recommendations based on detailed study of crops, cropping systems, soils, and soil management practices on individual farms. Lectures, seminar periods, and research.

Soils

Note: Agronomy 312 is open to students in Bacteriology for credit in Arts and Science.

210. (1½) **An Introduction to the Study of Soils.**—Weathering; mechanical constitution of soil—organic matter, minerals, water and air, soil biology. Soil development and classification. [3-2; 0-0]
212. (1½) **Soil Fertility.**—The principles underlying soil management and tillage, soil moisture relationships, soil reaction and liming, organic manures and commercial fertilizers. [0-0; 2-2]
312. (3) **Soil Bacteriology.**—Soil as a natural habitat for micro-organisms; factors determining distribution and activity of bacterial species. Prerequisite: Bacteriology 100. Text: Waksman, *Principles of Soil Microbiology*, latest edition. This course open for credit in Arts. [1-4; 1-4]
313. (1½) **Physical Properties of Soils.**—Nature and properties of clay minerals, plasticity, soil structure, soil moisture-energy relationships, soil aeration and temperature. Text: Bayer, *Soil Physics*. Prerequisites: Agronomy 210 and Physics 100 or 101. [2-2; 0-0]
314. (1½) **Soil Conservation.**—Utilization of soil and water resources. Physical and chemical properties of soils, land use, tillage and cropping practices in conservation of soil and water resources. Prerequisite: Agronomy 313 or approval of instructor. [0-0; 2-2]
415. (3) **Chemical Properties of Soil.**—Chemical constituents of soil, cation exchange and plant feeding, acid, alkaline and saline soils, factors and reactions controlling the amounts, availability and fixation of the major and minor plant food elements in soil. Text: Russell, *Soil Conditions and Plant Growth*; Thorne and Peterson, *Irrigated Soils*. Prerequisites: Agronomy 210 and Chemistry 200; recommended, Chemistry 310. [2-3; 2-3]
416. (1½) **Soil Genesis, Morphology, and Classification.**—Factors of soil formation, description and classification of soils, soil survey, soil maps and reports. Texts: Jenny, *Factors of Soil Formation*; Robinson, *Soils—Their Origin and Classification*. Prerequisites: Agronomy 210, Geology 200, and at least 6 units of Chemistry.

417. (1½) **Soil Surveying.**—Two to three months of field work under direction of an accredited soil surveyor, supported by an essay relative to some phase of the field operations. Prerequisite: Second Class standing in Agronomy 416.

Field Crops and Soils

421. (1½) **Biometry.**—Biological variation; graphs; machine calculation of central tendency and dispersion; elementary analysis of variance; simple linear correlation and regression; "chi" square tests. Text: Treloar, *Elements of Statistical Reasoning.* [2-4; 0-0]

423. (1) **Undergraduate Seminar.**

425. (3) **Undergraduate Essay.**

430. (3) **Directed Studies.**—Systematic work on approved problem.

Courses Primarily for Graduate Students

500. (2) **Graduate Seminar.**

505. (3) **Field Crops.**—Special phases of field crop production; management, improvement, emphasis on application of recent research findings. Prerequisite: Agronomy 405, 406, and 407. [1-4; 1-4]

507. (3) **Applied Plant Genetics.**—The genetics of crop plants. Prerequisite: Biology 330 and Agronomy 407. [1-4; 1-4]

512. (3) **Advanced Soil Bacteriology.**—Lectures and laboratories relating to specific groups of soil organisms. Prerequisite: Agronomy 312 and Chemistry 300. [1-4; 1-4]

515. (3) **Advanced Physical and Chemical Properties of Soils.**—Lectures and laboratories relating to specific phases of soil physics and soil chemistry. Prerequisite: Agronomy 313 and 415, and at least 9 units of Chemistry. [1-4; 1-4]

530. (3) **Directed Studies.**

549. (5-6) **Master's Thesis.**

Animal Husbandry

200. (1½) **General Animal Husbandry.**—Judging of livestock; origin, development, characteristics, adaptations of breeds of livestock; principles of breeding, selection, feeding, management, marketing; disease problems. Text-book: Ewen and McEwen, *Canadian Animal Husbandry.* [3-2; 0-0]

313. (1½) **Animal Breeding.**—Variation and inheritance; selection and mating systems; herd and pedigree studies; hereditary defects. Text-book: Winters, *Introduction to Animal Breeding.* Prerequisite: Poultry Husbandry 313. [0-0; 2-2]

320. (3) **Comparative Anatomy of Domestic Animals.**—Comparative anatomy of domestic animals, gross and microscopic anatomy, including embryological, foetal, and post-natal development. [2-3; 2-3]

322. (1½) **Fundamentals of Animal Growth and Energetics.**—Energetics of animal growth and its nutritional implications. Text-book: Maynard, *Animal Nutrition* (1947). Prerequisites: Chemistry 200 or 205; Poultry Husbandry 322. Recommended concurrently: Chemistry 300. [0-0; 2-3]

324. (1½) **Judging Dairy Cattle.**—Open only to Third Year students in Animal Husbandry. [0-0; 0-4]

406. (1½) **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 approval of the Head of the Department. Text-book: *Publications of the American Meat Institute.* [0-0; 2-3]

418. (3) **Livestock Marketing and Management.**—Requirements of livestock markets, marketing livestock products; breeding stock; management of range, ranch, and farm for production of livestock. [2-3; 2-3]

419. (3) **Seminar.**—Research and experimental problems; preparation of reports and bulletins; current problems of animal industry. [2-2; 2-2]

421. (3) **Physiology of Domestic Animals.**—Functions of the body, organs and systems, together with endocrinology, growth, reproduction, reactions of body to invasions by parasites and pathogens. Text-book: Dukes, *Physiology of Domestic Animals*. [2-3; 2-3]

422. (1½) **Animal Feeding.**—The economic and nutritional problems involved in feeding all types of livestock. Text-book: Morrison, *Feeds and Feeding*, 21st edition. Prerequisites: Animal Husbandry 322, Poultry Husbandry 322. [3-0; 0-0]

424. (1½) **Experimental Feeding.**—Laboratory experiments with domestic animals. Assigned current literature. Prerequisites: Animal Husbandry 322, Poultry Husbandry 322. [0-0; 0-5]

425. (3) **Undergraduate Essay.**

430. (3) **Directed Studies.**

Courses Primarily for Graduate Students

500. (1-3) **Graduate Seminar.**

513. (1½) **Advanced Animal Breeding.**—Special phases and recent research findings. Lectures, seminars and research. Text-book: Lush, *Animal Breeding Plans*. Prerequisites: Animal Husbandry 313, Agronomy 421, Biology 330. (Poultry Husbandry 513 must be taken in the Second Term). (Given in 1951-52 and alternate years). [2-2; 0-0]

522. (3) **Advanced Animal Nutrition.**—Special phases of animal nutrition. Nutritional deficiency state, bioenergetics, and growth. Text-book: Brody, *Bioenergetics and Growth*, 1945. Prerequisites: Animal Husbandry 322, Poultry Husbandry 322. [2-4; 2-4]

530. (3) **Directed Studies.**—Production, management, marketing, breeding, nutrition, and physiological disturbances.

549. (5-6) **Master's Thesis.**

Bacteriology

For descriptions of courses in Bacteriology, see Arts.

Biochemistry

For description of course, see Medicine.

Biology

For descriptions of courses in Biology, see Arts.

Botany

For descriptions of courses in Botany, see Arts.

Chemistry

For descriptions of courses in Chemistry, see Arts.

Commerce

For descriptions of courses in Commerce, see Arts.

Dairying

Note: Dairying 304, 305, 407 are accepted for credit in Bacteriology in the Faculty of Arts and Science.

200. (1½) Introduction to Dairying.—Principles underlying hygienic aspects of milk production; processing, testing, grading of market milk and related products. [0-0; 3-2]

301. (3) Dairy Technology.—Principles and practices in manufacture of butter, cheese, ice cream, concentrated milk products. Prerequisites: Dairying 203; also Dairying 304 and 305, which may be taken concurrently. [1-6; 1-6]

304. (1½) Dairy Bacteriology.—Bacterial content of milk; normal and abnormal fermentations of milk and a study of certain organisms responsible therefor. Prerequisite: Bacteriology 100. This course is open for credit in Arts. [2-2; 0-0]

305. (1½) Dairy Bacteriology.—Physical and chemical properties of milk and their influence on growth of bacteria in milk and milk products; handling and management of milk for city consumption; grading of milk and milk products on bacterial standards. Prerequisite: Bacteriology 100. This course is open for credit in Arts. [0-0; 2-2]

406. (1½) Analytical Methods.—Standard methods for the bacteriological, chemical and physical analysis of products and materials important in the dairy industry. Prerequisites: Chemistry 300; Dairying 304 and 305. [1-4; 0-0]

For Senior or Graduate Students only

407. (3) Advanced Dairy Bacteriology.—Ripening of hard-pressed cheese and a systematic study of the lactic acid bacteria. Prerequisites: Bacteriology 100; Dairying 304 and 305. This course is open for credit in Arts. [1-6; 1-6]

413. (1½) Dairy Mycology.—Molds and yeasts in dairy products. Prerequisites: Dairying 304 and 305. [0-0; 1-5]

425. (3) Undergraduate Essay. — On a prescribed laboratory study. Fourth Year.

430. (3) Undergraduate Seminar.—Presentation, discussion, criticism of scientific and technical papers pertaining to dairy industry.

431. (3) Undergraduate Seminar.—Presentation, discussion, criticism of scientific and technical papers. Open only to students taking the Food Technology option.

432. (3) Directed Studies.—On an approved problem.

Primarily for Graduate Students

500. (3) Graduate Seminar.

501. (3) Lactic Acid Bacteria.—Metabolic processes. Prerequisites: Dairying 304 and 305; Biochemistry 410, which may be taken concurrently. (Given in 1951-52 and alternate years). [3-0; 3-0]

502. (3) Laboratory Methods and Procedures. — Quantitative analytical laboratory methods in fermentative and oxidative metabolism of microorganisms associated with dairy products. Prerequisites: Biochemistry 410, which may be taken concurrently. (Given in 1952-53 and alternate years). [0-6; 0-6]

530. (3) Directed Studies.—On approved problems.

549. (5-6) Master's Thesis.

Economics

For descriptions of courses in Economics, see Arts.

English

205. (3) **Composition and Literature.**—Designed for students in Agriculture. Training in advanced composition, in research, and in the preparation of term papers and reports. Selected readings from various types of modern writing. Reports and essays are required. Texts: to be announced.

[3-0; 3-0]

For descriptions of other courses in English, see Arts.

French

101. (3) As in Arts.

German

90. (3) **Beginners' Course.**—As in Arts.

100. (3) **Intermediate Reading and Composition.**—As in Arts.

101. (3) **Scientific German.**—As in Arts.

History

101. (3) **Main Currents in Twentieth-Century History.**—As in Arts.

Horticulture

200. (1½) **General Horticulture.** — Introduction to horticultural enterprises, both commercial and home. General principles of growing, handling and utilization applied to tree-fruits, small-fruits, ornamentals, flowers and vegetables.

[0-0; 3-2]

300. (3) **Fruit-Growing.**—Problems of fruit-growing; growth and fruiting habits; variety selection; principles and practices; identification and control of diseases and pests; orchard, garden, laboratory, nursery and greenhouse practice; costs of production.

[2-2; 2-2]

314. (1½) **Handling and Distribution.**—Fruit and vegetable harvesting, grading, packing, inspecting, shipping, storing, marketing; packing and storage houses.

[2-2; 0-0]

315. (1½) **Horticultural Products and By-products.**—Processing of fruits and vegetables, canning, dehydrating, freezing; making of jams, jellies, juices, pickles, vinegar, etc.

[0-0; 2-2]

316. (1½) **Landscape Gardening and Floriculture.**—Elementary principles of landscape design. Landscape plans. Culture and identification of plant materials. Commercial floriculture. Greenhouse and nursery practice.

[2-2; 0-0]

317. (3) **Vegetable Crops.**—Vegetable growing; sites, soils; planting, fertilizing, irrigating, cultivating; vegetable varieties; vegetable forcing.

[2-2; 2-2]

407. (1½) **Breeding Horticultural Plants.**—Preparation of plant breeding programmes for improved fruit, vegetables and ornamental plants. Prerequisite: Biology 330, which may be taken concurrently.

[0-0; 2-2]

416. (2) **Landscape Design.**—Historical and critical study of landscape architecture. Principles of design. Plant material. Garden construction. Visits to landscaped sites. Problems in conjunction with Architecture 350. Prerequisite: Horticulture 316. (This course is open for credit in Architecture).

[2-3; 0-0]

418. (1½) **Systematic Pomology.**—The description, identification, classification, displaying, and judging of horticultural crops—tree fruits, small fruits, and vegetables.

[1-4; 0-0]

419. (1½) **Special Horticultural Crops.**—Origin of horticultural plants; plant exploration and introduction; special horticultural crops, such as citrus fruits, bananas, pineapples, dates, avocados, various nut crops; other horticultural crops of world economic importance not commonly grown in Canada. [0-0; 3-0]

420. (3) **Methods of Research.**—A study of experimental methods with special reference to problems in Horticulture; a review of horticultural and related investigational work in other institutions; practice in planning investigations and in preparing reports. [3-0; 3-0]

425. (3) **Undergraduate Essay.**—A satisfactory report on some approved subject upon which the student has done investigational work.

Plant Nutrition

340. (3) **Food Values of Horticultural Crops.**—Effect on food values of such factors as variety, locality, climate, photoperiod, soil, fertilizer, cultural practice, storage and processing; methods of food assay—chemical and biological—for organic and mineral constituents, vitamins, enzymes. Text-book: Peterson, *Elements of Food Biochemistry*. (Offered in 1951-52 and alternate years). [2-2; 2-2]

441. (2) **Plant Nutrition (a).**—Organic constituents of plants and physiological changes occurring during plant growth. Text-book: Steele, *Introduction to Plant Biochemistry*. Reference: Haas and Hill, *The Chemistry of Plant Products*. (This course may be counted for credit in Botany.) [2-4; 0-0]

Note: Four hours laboratory work a week (1 unit) to be arranged for the second term with the consent of the instructor only. [0-0; 0-4]

442. (2) **Plant Nutrition (b).** — Diagnosing plant deficiency diseases; growth of plants in artificial media; micronutrient chemical elements and plant growth; soil-plant-atmosphere relationships; absorption and accumulation of inorganic solutes; biochemical problems associated with salt absorption; photoperiodism; photosynthesis; respiration; plant hormones; enzyme action and growth rates. Text-book: Hoagland, *Inorganic Plant Nutrition*. Reference: Miller, *Plant Physiology*. [0-0; 2-4]

443. (2) **Seminar in Plant Nutrition.**—Papers on modern views of plant nutrition and applied plant physiology. [2-0; 2-0]

Courses Primarily for Graduate Students

510. (1½) **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). [0-6; 0-0]

517. (4) **Advanced Vegetable Crops.**—The improvement and production of vegetable crops, with emphasis on research methods and current problems. (Offered in 1951-52 and alternate years). [2-4; 2-4]

530. (3) **Directed Studies.**—Pomology, vegetable crops, floriculture, plant nutrition and applied plant physiology.

547. (4) **Advanced Plant Nutrition.**—Physiology and chemical constituents of plants and plant products; food values of horticultural crops and factors which affect these; chemical and biological food assays. Open to graduates or to others with permission of the instructor. (Offered in 1952-53 and alternate years). [2-4; 2-4]

549. (5-6) **Master's Thesis.**

Psychology

100. (3) **Introductory Psychology.**—As in Arts.

Physics

100. (3) **Elementary Physics.**—As in Arts.
 101. (3) **Elementary Physics.**—As in Arts.
 200. (3) **Mechanics, Molecular Physics, and Heat.**—As in Arts.

Political Science

300. (3) **Constitutional Government.**—As in Arts.
 400. (3) **The Government of Canada.**—As in Arts.

Poultry Husbandry

200. (1½) **General Poultry Husbandry.**—Principles and practices employed in poultry production. Text-book: Lippincott and Card, *Poultry Production*, 7th edition. [0-0; 3-2]
300. (1½) **Markets and Marketing.** — Poultry products in B.C., the market, inter-provincial trade, export trade, egg grading, Dominion and Provincial regulations, care and preparation of eggs and poultry for market, killing, dressing, grading, packing. [2-2; 0-0]
301. (1½) **Advanced Marketing.** — Organization in marketing; history and development of cooperative marketing of eggs and poultry; prices; domestic and export trade. [0-0; 2-2]
302. (1½) **Turkey Production.**—Principles and practice of breeding and management, modern methods of marketing. (Given in 1952-53 and alternate years). [2-2; 0-0]
306. (1½) **Technology of Poultry Products.**—Lectures, laboratory experiments, and demonstrations. Processing and preservation (freezing, dehydrating, canning) of poultry products. Quality control—standards and grades for poultry products, laws and regulations applying to processing. Merchandizing practices. [0-0; 2-2]
313. (1½) **Poultry Breeding.**—Heredity and environment; selection for egg and meat production; pedigree breeding and progeny tests. Text-book: Jull, *Poultry Breeding*; Hutt, *Genetics of the Fowl*. (Animal Husbandry 313 must be taken in the second term). [2-2; 0-0]
- 315 (1½) **Breeds and Judging.**—Breeds of poultry, their history, origin, economic qualities; judging and selection for egg and meat production. (Given in 1952-53 and alternate years). [0-0; 2-2]
322. (1½) **Fundamentals of Nutrition.**—An introductory study of the essential nutrients and their functions in animal nutrition. Text-book: Maynard, *Animal Nutrition* (1947). Prerequisite: Chemistry 200 or 205. Recommended concurrently: Chemistry 300. (Animal Husbandry 322 must be taken in the Second Term). [2-3; 0-0]
400. (1½) **Poultry Farm Management.** — Types of poultry farms; farm lay-outs; investment of capital in land, buildings, stock, equipment; efficiency in labour, housing, production, personnel; farm income, labour income. (Given in 1951-52 and alternate years). [2-2; 0-0]
401. (1½) **Incubation and Hatchery Management.**—Principles and practices of incubation. Different types of incubators and brooders. Inspection of hatcheries and survey of hatchery business methods and costs. (Given in 1951-52 and alternate years). [0-0; 2-2]
405. (1½) **Seminar.**—Poultry literature; research and experimental problems; preparation of reports and bulletins; marketing problems; advertising poultry products; poultry services and organizations. [1-2; 0-0]

410. (1½) **Poultry Nutrition.**—Principles of poultry nutrition. Recent advances in the knowledge of the nutritive requirements of the domestic fowl. Interrelationships among proteins, vitamins, enzymes and hormones. References: Ewing, *Poultry Nutrition*, latest edition. Prerequisites: Poultry Husbandry 322, Animal Husbandry 322, Chemistry 300. [2-3; 0-0]

411. (1½) **Poultry Feeds and Feeding.**—Physiology of avian digestion. Review of nutritional requirements. Composition and classification of feed-stuffs. Formulation of rations for different classes of poultry. Feeding practices and management. Text-book: Heuser, *Feeding Poultry*. Prerequisites: Poultry Husbandry 322, Animal Husbandry 322. [0-0; 2-2]

415. (1½) **Diseases and Hygiene.**—Anatomy and physiology of the fowl; poultry sanitation and hygiene; common ailments of poultry and their treatment. Study of micro-organisms pathogenic for poultry. Practice in serological tests. Microbial content of eggs. Autopsies. Inspection of farms. [0-0; 2-2]

420. (1½) **Physiology of Sex, Reproduction, and Endocrinology** — Fundamentals of egg production and reproduction in the domestic fowl. Recent advances in endocrinology affecting poultry. [0-0; 2-2]

425. (3) **Undergraduate Essay.**

430. (1½-3) **Research.**—Directed.

Courses Primarily for Graduate Students

500. (1½) **Seminar in Poultry Nutrition.**—Current research and literature. Studies of experimental methods and design. To be taken only with consent of instructor.

513. (1½) **Advanced Poultry Breeding.**—Special phases and recent research findings. Lectures, seminars, and research. Text-books: Hutt, *Genetics of the Fowl*; Lerner, *Population Genetics and Animal Improvement*. Prerequisites: Biology 330, Poultry Husbandry 313, Agronomy 421, Animal Husbandry 513. (Given in 1951-52 and alternate years). [0-0; 2-2]

522. (3) **Nutritional Bio-assay Techniques.** — References: *A.O.A.C. Methods of Analysis*; Emmens, *Principles of Biological Assay*. To be taken only with consent of instructor. (Lecture and laboratory hours to be arranged).

530. (3) **Directed Studies.**—(Breeding, nutrition, physiology, marketing).

549. (5-6) **Master's Thesis.**—On an approved problem.

Russian

100. (3) **Basic Russian.**—As in Arts.

200. (3) **Russian.**—As in Arts.

Zoology

For descriptions of other courses in Zoology, see Arts.

201. (3) **Agricultural Entomology.**—Structure, recognition and life histories of insects and their control. Text-book: Metcalf and Flint, *Destructive and Useful Insects*. [2-3; 2-3]

**THE
FACULTY
OF
LAW**

1951-1952

1951-52

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 38-42 of this Calendar.

Candidates must present evidence of having:

- (a) graduated from an approved university; or
- (b) successfully completed the requirements of the School of Commerce in the combined B.Com., LL.B. course in the University of British Columbia; or
- (c) successfully completed the Arts and Science requirements in the combined B.A., LL.B. course and obtained in the Third Year of Arts and Science an average of not less than 60%; or
- (d) successfully completed the First and Second Years in the course leading to the degree of Bachelor of Arts in the University of British Columbia and obtained in the Second Year thereof an average standing of Second Class (65%) or higher; or
- (e) successfully completed the equivalent of (b), (c), or (d) at an approved university.

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 33-45 of this 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 22nd.

It is recommended that those planning to enter the Faculty interview the Dean as early as possible in their University course.

Combined Courses

Students who have completed their matriculation requirements may take a combined course leading either to the degrees of B.A., LL.B., or to the degrees of B.Com., LL.B. See "Double Degrees", sections II and III.

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 subjects 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 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 "Re-Readings", page 118.

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 45-97 of this Calendar.

Moot Court

Students in the Faculty are required to argue at least one case before the Moot Court in their First Year and one in their Second Year. Students who do not meet the requirements with respect to the Moot Court 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.

COURSES OF INSTRUCTION**FIRST YEAR****Contracts**

101. References: Wright, *Cases on the Law of Contracts, with U.B.C. Supplement*; Cheshire and Fifoot, *Law of Contracts*; Anson, *Law of Contract*; Williston, *Contracts*; Pollock, *Principles of Contracts*; Salmond and Williams, *Contracts*. Mr. Curtis.

Criminal Law

104. References: *U.B.C. Cases on Criminal Law*; Criminal Code; Tremecar; Crankshaw; Kenny, *Outlines of Criminal Law*. 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*. Mr. Bourne.

Procedure I

110. References: Supreme Court Act; County Court Act. Mr. Ballem.

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*; Powell, *Real Property*. Mr. Kennedy.

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*. Mr. MacIntyre.

SECOND YEAR**Agency and Partnership**

201. References: *U.B.C. Cases on Agency*; Bowstead, *Agency*; Pollock, *Law of Partnership*. Mr. Herbert.

Bills and Notes

204. References: *U.B.C. Cases on the Law of Bills and Notes*; Russell, *Bills of Exchange*; Falconbridge, *Banking and Bills of Exchange*; Maclaren, *Bills, Notes, and Cheques*; Britton, *Bills and Notes*. Mr. Read.

Company Law

207. References: *U.B.C. Cases on Company Law*; Palmer, *Company Law*; Stiebel, *Company Law and Precedents*; MacRae, *Material on Company Law*; Companies Act of British Columbia. Mr. Ballem.

Equity

210. References: Smith and Read, *Cases on Equity*; Ashburner, *Equity*; Hanbury, *Modern Equity*; Maitland, *Equity*. Mr. Sheppard.

Insurance

213. References: *U.B.C. Cases on Insurance Law*; Insurance Act of British Columbia. Mr. Curtis, Mr. Brown.

Labour Law

216. References: *U.B.C. Cases on Labour Law*; other references to be announced. Mr. Westlake.

Property II

219. References: *U.B.C. Cases on Property*; Williams, *Canadian Law of Landlord and Tenant*; Hill and Redman, *Law of Landlord and Tenant*. Mr. MacIntyre.

Procedure II

222. References: Odgers, *Pleading and Practice*; Supreme Court Rules. Mr. Justice Wilson.

Public International Law

225. References: Oppenheim, *International Law*; Brierly, *The Law of Nations*; Starke, *Law of Nations*; MacKenzie and Laing, *Canada and the Law of Nations*; Nussbaum, *Concise History of the Law of Nations*; Sohn, *Cases on World Law*. Mr. MacKenzie, Mr. Bourne.

THIRD YEAR

Administrative Law

301. References: To be announced. Mr. Bourne.

Conflict of Laws

304. References: *U.B.C. Cases on Conflicts*; Cheshire, Falconbridge, Cook, Dicey, Goodrich, Graveson. Mr. Kennedy.

Constitutional Law

307. References: MacRae, *Materials on Constitutional Law*; O'Connor, *Report on B.N.A. Act*. Mr. Ballem.

Domestic Relations

310. References: *U.B.C. Cases on Domestic Relations*; Eversley, *Domestic Relations*. Mr. Herbert.

Evidence

313. References: Phipson, *Law of Evidence*; Cockle, *Leading Cases on Evidence*; Wigmore, *Evidence*. Mr. Justice Coady, Mr. Dryer.

Mortgages and Suretyship

316. References: *U.B.C. Cases on Mortgages*; Falconbridge, *Mortgages*; Hanbury and Waldock, *Law of Mortgages*; Turner, *Equity of Redemption*. Mr. MacIntyre.

Municipal Law*

317. References: The Municipal Act, The Vancouver Incorporation Act, The Town Planning Act, The Village Municipalities Act; Manning, *Assessment and Rating*; Proctor, *Municipal Corporations*. Mr. McTaggart.

*A student may at his option take either Municipal Law or Shipping.

Procedure III

319. References: Court of Appeal Act and Rules; Supreme Court Act (Dom.) and Rules; Crown Office Rules. Mr. Beckett.

Shipping*

322. References: Mayers, *Admiralty Law and Practice*; Roscoe, *Admiralty Practice*; Canada Shipping Act; Admiralty Act; Water Carriage of Goods Act. Mr. Bird.

Taxation

325. References: *U.B.C. Cases on Income Taxation*; Willis, *Lectures on Taxation*; Magill, *Taxable Income*; Stikeman, *Lectures on Taxation*; Ratcliffe and McGrath, *Income Tax Laws*; Hannan, *Principles of Income Taxation*; LaBrie and Westlake, *Deductions Under the Income War Tax Act*; Plaxton, *Canadian Income Tax Laws*. Mr. Curtis, Mr. Ladner.

Trusts

328. References: Keeton, *Trusts*; Hanbury, *Modern Equity*; Scott, *Trusts*; Trustee Act. Mr. Kennedy.

Wills

331. References: *U.B.C. Cases on Wills and Trusts*; Bailey, *Wills*; Widdifield, *Executors' Accounts*; Administration Act; Wills Act. Mr. Kennedy.

1951-52

**THE
FACULTY
OF
PHARMACY**

1951-52

1951-52

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 38-42.

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 equivalent work taken in an approved university.

The required subjects are Chemistry 100 or 101; English 100 and 101; Mathematics 101; Physics 100 or 101 or Biology 100; and one optional subject to be chosen from Economics 100 or 140, French 101, Geography 101, German 90 or 100 or 101, History 101 or 202, Latin 90 or 101, Music 105, Philosophy 100, Polish 110, Psychology 100, Russian 100, Spanish 90 or 101.

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 West, Vancouver, before September 15th.

Physical Education

Two activity courses in Physical Education are required of all students in Second Year of the Faculty of Pharmacy except ex-service personnel and members of military units operating on the campus. For details of requirements see pages 164-167.

Examinations and Advancement

1. Examinations in all subjects, obligatory for all students, are held in April. Examinations in December are obligatory in all 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, and successful candidates taking a complete year's work of eighteen units 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.

3. In any course which involves laboratory work, a student must complete the laboratory assignments with a satisfactory record before being admitted to the written examination of the course. A student may be required by the Faculty to discontinue such a course during any term if he fails to maintain a satisfactory standing in laboratory work, or if he is absent from an appreciable number of laboratory periods owing to illness or other causes.
4. A student who has failed at the regular final examinations in not more than 6 units, 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.
For regulations regarding re-reading of examination papers see Faculty of Arts and Science (page 118).
5. Supplemental examinations will be held in August. Applications for supplemental examinations must be in the hands of the Registrar on or before August 1st, and must be accompanied by the required fee.
6. A student must pass in all subjects of each year before being admitted to the succeeding year. Any student who has taken scheduled courses in another faculty or university, or any student who is required to repeat his year, may be exempted from attending lectures and laboratories and from passing examinations in subjects in which he has made at least 65%. If the general standing of such a student is sufficiently high he may be permitted to take certain courses of the succeeding year in addition to the courses necessary to complete the year in which he is registered, but in no case shall the total exceed 18 units.
7. Any student whose academic record, as determined by the tests and examinations of the first term of the 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.
8. Term essays and examination papers may be refused a passing mark if they are noticeably deficient in English.
9. A student's standing at graduation will be determined by averaging the grades obtained in the required work of the Third and Fourth years.

Prizes, Bursaries, Scholarships

A number of prizes, bursaries and scholarships are open to students in the Faculty of Pharmacy. See pages 45-97.

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 205 or Chemistry 200, English 205 or English 200, Pharmacy 211, 222, 231, 261.

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 100, Biology 400, Chemistry 300, Commerce 359, Commerce 369, Pharmacy 312, 352, 361.

Fourth Year

Biochemistry 410, Pharmacy 413, 442, 452; 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 200, 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 200, German 90 or 101, History 202, Mathematics 200 or 201 or 202, Pharmacy 414, 415, 416, 423, 443, 455, 456, 472, 473, 482, Physics 220, Psychology 100, Psychology 300, Russian 100, Sociology 200, Spanish 90 or 101, Zoology 200.

COURSES OF INSTRUCTION

211. (3) **General Principles and Processes of Pharmacy.**—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*. [2-4; 2-4]

222. (1) **Metrology and Pharmaceutical Calculations.** — Weights and measures; calculations involved in pharmaceutical procedures. [1-0; 1-0]

231. (3) **Elementary Pharmacognosy and Materia Medica.** — Important official and non-official drugs of plant and animal origin; introduction to chemical drugs. [2-2; 2-2]

261. (2) **Pharmaceutical History, Literature and Latin.**—The development of pharmacy and pharmaceutical knowledge from ancient times to the present day; various types of pharmaceutical literature; form and language of prescriptions. Text-book: Kremers and Urdang, *Pharmaceutical History*. [2-0; 2-0]

312. (3) **Pharmaceutical Preparations.** — Various types of official, non-official and commercial pharmaceutical preparations with detailed study of the more important representatives of each type. Text-book: *Canadian Formulary*, 1949. [2-3; 2-3]

352. (3) **Inorganic Pharmaceutical Chemistry.**—The principles of inorganic chemistry as applied to pharmaceutical procedures; medicinally important inorganic chemicals, including radioactive materials; manufacture, assay and testing of chemical drugs and preparations. [2-3; 2-3]

361. (1) **Pharmaceutical Law and Ethics.**—Provincial and Dominion legislation affecting the practice of pharmacy and the sale of drugs and poisons; ethical principles and responsibilities involved. [1-0; 1-0]

413. (3) **Dispensing and Prescriptions.**—Types of extemporaneous preparations; reading, compounding and dispensing of prescriptions. Text-book: Husa, *Pharmaceutical Dispensing*. [2-4; 2-4]
414. (3) **Advanced Pharmaceutics.**—More difficult types of pharmaceutical procedures and preparations; practical assignments involving review of current literature; independent investigation of official and commercial drug products. [1-4; 1-4]
415. (1) **Advanced Dispensing Practice.** — Unusual and more difficult types of standard and extemporaneous pharmaceutical preparations; individual assignments involving library and laboratory work. [0-0; 1-3]
416. (3) **Manufacturing Pharmacy.**—The apparatus, methods and problems of large scale production of pharmaceutical products. Registration limited. [1-4; 1-4]
423. (3) **Cosmetic Preparations.** — Physical, chemical and physiological properties of various types of cosmetics; packaging and merchandising; preparation of typical cosmetic formulas. [2-3; 2-3]
442. (3) **Pharmacology and Biopharmacy.**—Modes of action of drugs on the living body with special reference to therapeutic uses and toxicity; biological medicinal products and bioassay methods. Text-book: Davison, *Handbook of Materia Medica, Toxicology and Pharmacology*, 4th edition. [3-0; 3-0]
443. (2) **New Remedies.**—Drugs in common diseases; newer therapeutic agents; biological investigations and evaluation of drugs. [2-0; 2-0]
452. (3) **Organic Pharmaceutical Chemistry.**—The chemistry of natural and synthetic organic medicinal compounds and their physico-chemical relationships; synthesis of representative organic drugs; testing and assay of alkaloids, fixed and volatile oils, etc. [3-3; 3-3]
455. (3) **Drug Testing and Assaying.**—Analytical techniques applied to pharmaceutical preparations including photometric, fluorimetric, chromatographic and electrotitrimetric; assay of official and non-official preparations involving special techniques. Registration limited. [1-6; 1-6]
456. (3) **Advanced Pharmaceutical Chemistry.**—Recent advances in the chemistry of organic medicinal products; individual problems related to synthesis and the isolation of active principles from crude drugs. Registration limited. [1-4; 1-4]
472. (1) **Pesticides.**—Physiological action and chemical properties of insecticides, rodenticides, weedicides, etc. [2-0; 0-0]
473. (1) **Veterinary Pharmacology.**—Drugs used in common animal diseases, veterinary biologicals, etc. [0-0; 2-0]
482. (1) **Photographic Materials.**—Photographic principles and practices; characteristics of photographic equipment. [1-1; 1-1]

Other Departments

For descriptions of courses offered by other departments see under Arts and Science.

**THE
FACULTY
OF
MEDICINE**

1951-1952

1951-52

FACULTY OF MEDICINE

The instruction of students is carried on by a Faculty composed of full-time and part-time teachers. Instruction is offered in the following subjects and their various branches: Anatomy, Biochemistry, Medicine, Microbiology, Obstetrics and Gynecology, Parasitology, Pathology, Pediatrics, Pharmacology, Physiology, Public Health and Preventive Medicine, and Surgery.

The medical course extends through four academic sessions and leads to the degree of Doctor of Medicine (M.D.). The purpose is to provide graduates with the basic knowledge and technical skill required for the modern general practice of medicine.

The First Year of the course and most of the Second Year—which include instruction in the fundamental or pre-clinical medical sciences—are given on the campus of the University of British Columbia. At the beginning of the second term of the Second Year, instruction of students is transferred in part to the Vancouver General Hospital. At the beginning of the Third Year of the course, the facilities of Shaughnessy Hospital and other private and public hospitals of the Vancouver area are utilized in addition to those of the Vancouver General Hospital.

The physical plant of the medical school consists of well-lighted, well-equipped student laboratories, lecture halls and research laboratories. Library facilities, including a medical reference section and study area, are located in the University Library.

Classes in the Faculty of Medicine commence on Thursday, September 6, 1951.

Admission

Admission to the Faculty of Medicine is based primarily upon ability and pre-medical achievement as demonstrated by scholastic records and aptitude tests, and upon personal qualities evidenced by interviews and letters of recommendation from persons who know the applicant well.

It is required that candidates shall have completed at least three years, beyond University Entrance requirements, at an approved Faculty of Arts and Science. This must represent not less than forty-eight (48) units or ninety-six (96) semester hours of work, including required pre-medical subjects. The minimum acceptable scholastic average is Second Class standing (65 to 80 per cent.), but in view of the demand for medical education, candidates are unlikely to gain admission with scholastic records below high Second Class.

Classes entering the First Year of Medicine are limited to sixty (60) students.

Candidates are encouraged to take the Medical College Admission Test in the spring of their second year of pre-medical training. Arrangements to take the test should be made with the pre-medical advisor of the institution at which the student is taking his pre-medical work. Information about this test may be obtained from the Educational Testing Service, P. O. Box 592, Princeton, New Jersey. At the time the test is taken, the student should request that the scores be sent to the Screening Committee, Faculty of Medicine, University of British Columbia, Vancouver, B. C. Any delay in taking the test beyond the time indicated above will result in relatively late consideration of the applicant's credentials by the Screening Committee.

Applicants who have attended the University of British Columbia must take the Medical College Admission Test before they can be considered for admission. In the case of non-residents of the Province, the Faculty of Medicine will not insist that the Medical College Admission Test have been taken. If it is not, however, a full explanation of the circumstances

will be required if the applicant is to receive proper consideration. To this extent, failure to take the test may prejudice the applicant's chances for admission.

Information concerning other aptitude tests which are part of the requirement for admission if the applicant has attended the University of British Columbia may be obtained from the Counselling Bureau of the University.

No applicant will be accepted if he has been required to withdraw from another medical school.

Only under exceptional circumstances will the application of a candidate over thirty years of age be considered.

Application blanks will be available in the Medical School Office on October 1st. Completed applications should be received in that office as early as possible, and in any case not later than January 15th. It is the responsibility of the applicant to see that all official transcripts of university or college credits, including senior matriculation marks, are received in the Medical School Office not later than the date mentioned. If these are not received by January 15th, consideration of the applicant's credentials will be delayed.

A fee of \$5.00 is charged for evaluation of pre-medical records of non-residents of Canada.

Applicants having physical handicaps which require periodic medical attention, or which interfere with normal activities, must submit a medical certificate with their application. In this certificate, the examining physician should describe the extent of the deformity or lesion and estimate its effect upon the applicant's future ability to practice medicine.

A personal interview with the Screening Committee may be required of any applicant, and any applicant may request an interview with a member of the Screening Committee. In the latter case, arrangements for the interview can be made through the Medical School Office. Ordinarily, residents of other provinces and other countries, if deemed admissible by the Screening Committee, are not required to appear for an interview.

Accepted applicants must pay a preliminary fee of \$50.00 to be applied to the tuition of the First Year of the medical course. This must be paid within two weeks of notification of acceptance and will not be refunded if the student subsequently enters another medical school, or if, without adequate reason, he fails to register in the Faculty of Medicine at the University of British Columbia.

Successful applicants who are taking a pre-medical course at the University of British Columbia are required to pass a physical examination at the University Health Service in the month of April preceding admission. Successful applicants from other institutions must pass this examination at the earliest date practicable in their first term of residence. Registration is not considered to be completed until the examination has been taken. Immunization against certain diseases is required.

Admission of Students by Transfer

Students who are registered and in good standing in accredited medical schools in Canada may apply to transfer to this Faculty of Medicine as Third Year students. Such applicants must present credentials covering pre-medical courses and the medical courses completed at the institution of their first registration. No student will be accepted by transfer after the beginning of the Third Year.

Only in exceptional circumstances can transfer be arranged at the beginning of the Second Year of the medical course at the University of British Columbia.

The acceptance of any transfer students will depend upon the existence of vacancies.

Pre-Medical Requirements

The requirements listed below apply to students taking their pre-medical work in the Faculty of Arts and Science at the University of British Columbia. Applicants from other universities must submit evidence of having successfully completed equivalent prerequisite courses.

In general, the Faculty of Medicine, in admitting students, will not deviate substantially from the minimum requirements listed. However, it may accept candidates who have minor deficiencies in required subjects. Such action is largely to be reserved for students of outstanding ability.

English: English 100 and 101 (Literature and Composition), English 200 (Literature).

Mathematics: Mathematics 101 (Algebra, Geometry and Trigonometry), Mathematics 202 (Calculus) should be taken if advanced work in Physics, Physical Chemistry, or Biophysics is planned.

Chemistry: Chemistry 100 or 101 (General Chemistry), Chemistry 200 (Quantitative and Qualitative Analysis), Chemistry 300 (Organic Chemistry).

Physics: Physics 100 or 101 (Elementary Physics), Physics 220 (General Physics).

Biology and Zoology: Biology 100 (Introductory Biology), Zoology 200 (General Zoology), and Zoology 304 (Vertebrate Embryology). Biology 330 (Principles of Genetics) is recommended but not required.

It is recommended that elective pre-medical courses be selected to conform with the language and other requirements for the degree of B.A. (or B.Sc.) at the institution where the courses are taken. Wherever possible, students should have completed six units of Psychology before entering upon the study of medicine. Where a fourth pre-medical year is taken, students are advised not to anticipate medical school courses in Physiology, Histology, Bacteriology, or Biochemistry at the expense of fundamental training in the humanities and subjects contributing to a well-rounded education. A student of a high level of ability, however, should not be dissuaded from pursuing an Honours Course in a science.

Registration

Registration of medical students will take place in the Medical School Office: First Year students will register on September 4, 1951; Second Year students on September 5, 1951.

No applicant accepted for admission in the First Year of the medical course will be allowed to register after the first day of instruction in the term, nor will he be admitted to any class after its first meeting, except at the discretion of the Faculty of Medicine.

Students entering the Second and later years will receive, by mail, an application form for registration in the appropriate year. This form must be completed and returned to the Medical School Office before August 1st. On the opening day of the new session, each student must personally obtain registration cards at the Medical School Office.

Promptly upon beginning the First Year of the medical course, each student must register with the Registrar of the College of Physicians and Surgeons of British Columbia, Vancouver, B. C. This entails the payment of a fee of \$5.00. If a student plans to practise medicine outside of the Province of British Columbia, the regulations of the appropriate licensing body, including the requirements of other Colleges of Physicians and Surgeons, should be consulted.

Fees

See pages 42-43 for regulations governing payment of fees at the office of the Accountant on the day of registration.

Instruments, Books and Students' Supplies

The following instruments and supplies will be required during the course; it is recommended that purchases be not made until details are furnished by the department concerned at the beginning of the courses:

First Year:	Approximate Price
Microscope—an approved student model.....	(\$200.00-\$250.00)
Instruments for anatomy and physiology.....	(\$10.00)
Stethoscope	(\$5.00-\$8.00)
Laboratory coats (4).....	(\$18.00)
Second Year:	
Haemoglobinometer	(\$12.50-\$15.00)
Haemocytometer	(\$15.00)
Reflex Hammer	(\$2.00)

The purchase of the following instruments for use in the clinical years is recommended:

Ophthalmoscope with otolaryngological attachments.....	(\$40.00-\$60.00)
Sphygmomanometer	(\$35.00-\$40.00)

The microscope should be of substantial construction and provided with the following accessories: Objectives—16 mm., 4 mm. and 1.8 mm. oil immersion; oculars 5 X and 10 X; triple nose piece; and substage condenser with an iris diaphragm.

Information regarding the purchase of text-books will be given at the first meeting of each course. Not less than \$100.00 per year should be available for purchasing text-books and expendable supplies.

Advancement

The Faculty will determine the student's fitness for promotion at the end of each session. If the student's academic achievement in any session is unsatisfactory, he will be recommended to Senate for dismissal. Students with unacceptable records may not repeat the work of a session unless permission is granted by the Senate on the recommendation of the Faculty.

In any given session, if progress of a student has been unsatisfactory in not more than one subject, the department concerned may direct such further work as will be necessary to prepare for a supplemental examination. If this work is completed during the following summer, and a reasonable knowledge of the subject is demonstrated upon the supplemental examination, the student may be promoted. If a supplemental examination is failed, dismissal will be recommended.

No student with defective standing will be promoted.

Thesis

Each candidate for the degree of Doctor of Medicine shall present, before March 1st of his final year, a thesis acceptable to the Faculty. The subject shall be decided upon at some time between the end of the Second Year and the end of the Third Year of the medical course.

The thesis must embody the results of original investigation or of a planned course of study in any field of learning, related or unrelated to the medical sciences. It shall be the responsibility of the student to obtain the guidance and assistance of a counsellor in the Faculty of Medicine, or in another Faculty of the University, in selecting the subject of the thesis and proceeding with its preparation in a creditable manner.

Financial Aid

For descriptions of bursaries, fellowships, scholarships and loans, see pages 45-97.

Veterans' Benefits

Applicants who are entitled to educational benefits under D.V.A. may address inquiries to the Veterans' Bureau at the University.

Time Tables

Time Tables will be announced at the time of registration.

COURSES OF INSTRUCTION

The following courses of instruction will be offered in the 1951-52 session:

First Year

Anatomy 400 (Human Anatomy)—A correlated course of study of the structure of the human body including gross, microscopic and radiological anatomy, embryology and neuroanatomy. Both terms. Text-books: (1) Buchanan's *Manual of Anatomy*, Gray's *Anatomy*, Cunningham's *Text-book of Anatomy*, or Grant, *Method of Anatomy*; (2) Grant, *Atlas of Anatomy*, or Jamieson, *Illustrations of Regional Anatomy*; (3) Friedman, *Visual Anatomy*; (4) Le Gros Clark, *Practical Anatomy*; (5) Ham, *Text-book of Histology*; and (6) Buchanan, *Functional Neuroanatomy* or Strong and Elwyn, *Textbook of Neuroanatomy*.

Biochemistry 400 (General Biochemistry)—A laboratory and lecture course dealing with the chemical and physical chemical phenomena underlying the functioning of the normal human body; the digestion, absorption and metabolism of carbohydrates, lipids, proteins and minerals; their metabolic interrelations and energy exchanges as influenced by enzymes, vitamins and hormones. Both terms.

Text-books: (1) Mitchell, *A Textbook of Biochemistry*; (2) Hawk, Oser, Summerson, *Practical Physiological Chemistry*.

Physiology 400 (Human Physiology)—A lecture and laboratory course on body function with particular reference to human physiology. The functions of muscle, nerve, central nervous system, special senses, metabolism, circulation, respiration, excretion, digestion, and the endocrines are treated. Both terms.

Text-Books: Best & Taylor, *The Physiological Basis of Medical Practice*; Wiggers, *Physiology in Health and Disease*; Houssay, *Human Physiology*; Lovatt Evans, *Principles of Human Physiology*; Fulton, *Text-book of Physiology*; or Bard, *MacLeod's Physiology in Modern Medicine*.

Psychiatry 400 (Human Behaviour)—A study of personality development with particular reference to influence of age and of family relationships, and the psychological defences of the personality. Second term.

Text-book: Cameron, *The Psychology of Behaviour Disorders*.

Public Health 400 (Introduction to Public Health)—Historical and contemporary background and organization of the public health system; survey of the proper future development of preventive medicine. First term.

Survey 400 (Social and Cultural Values)—An examination of human institutions and social structures, past and present, which cuts across

departmental lines in the University. Broad aspects of ethnology, human geography, sociology, political science, philosophy and ethics, and law are considered. First term.

Text-book: Readings assigned by individual instructors.

Second Year

Medicine 425 (Clinical Diagnosis)—The methods and application of techniques of clinical history taking and physical examination will be covered by lecture demonstrations and bedside clinics. Correlation of disordered function and anatomical changes will be emphasized as well as analysis of symptoms and signs. Close integration with the Department of Surgery will exist in the presentation of this subject. Both terms.

Text-books: Chamberlain, *Symptoms and Signs in Clinical Medicine*; and Hutchison and Hunter, *Clinical Methods*.

Medicine 426 (Applied Biochemistry)—A course of lectures and laboratory periods devoted to metabolic and biochemical aspects of disease. Discussions and demonstrations emphasize appropriate diagnostic laboratory procedures. Both terms.

Text-book: Cantarow and Trumper, *Clinical Biochemistry*.

Medicine 427 (Clinical Microscopy)—A course of lectures and laboratory periods in which a study is made of methods used in haematological diagnosis, stressing particularly their clinical application and significance. Methods of microscopic examination of the body fluids and excreta will also be studied. Second term.

Microbiology 425 (Medical Microbiology)—Principles of sterilization and microscopy; basic techniques of bacteriology and immunology; a systematic study of the commoner pathogenic bacteria; and an introduction to pathogenic fungi, rickettsiae, and viruses. Both terms.

Obstetrics 425 (Introduction to Obstetrics)—A course of lectures on pelvic anatomy as applied to Obstetrics, the physiology of the generative tract, physiology of pregnancy, and the early development of the embryo. Second term.

Parasitology 425 (Parasites of Man)—A lecture and laboratory course which deals with the life histories of the parasites of man, and of insect vectors of human infections. First term.

Pathology 425 (General and Special Pathology)—A lecture and laboratory course in human pathology. The gross and microscopic anatomy of human disease is considered in correlation with the clinical symptomatology of the disease processes. Both terms.

Pediatrics 425 (Introduction to Pediatrics)—An introductory course of lectures and a small number of bedside clinics in which the methods of history taking, physical examination and diagnosis as applicable to children will be covered. Second term.

Psychiatry 425 (Introduction to Psychiatry)—Fundamental psychiatric concepts will be discussed with particular emphasis upon psycho-pathological reactions and patterns. The elements techniques of psychiatric examination will be covered. Both terms.

Pharmacology 425 (Medical Pharmacology)—A lecture and laboratory course covering the fundamental pharmacological action of drugs. First term.

Pharmacology 426 (Toxicology)—A short course in Toxicology—lecture only. Second term.

Public Health 425 (Public Health Practices)—Lectures, group discussions and field trips presenting public health practices, and techniques of statistical and epidemiological studies. Second term.

Text-book: Smillie, *Preventive Medicine and Public Health*.

Surgery 425 (Introduction to Surgery)—A series of lectures, using case material for demonstration purposes wherever possible, designed to illustrate the basic surgical principles. A series of bedside and out-patient clinics will be given in conjunction with medicine and specialties, illustrating the principles of physical diagnosis. The students will be given the opportunity to examine patients.

Text-book: Hamilton Bailey, *Physical Signs in Clinical Surgery*.

Survey 425 (History of Medical Progress)—The beginnings of medicine are considered, as well as its evolution as a biological science in relation to non-medical science. Great names and great events are emphasized to highlight medical progress up to the present. First term.

The following courses are offered for the benefit of non-medical students and are restricted. Registration in any course numbered 500 or above is at the discretion of the department concerned.

For Non-Medical Students

Anatomy 390 (3) (Elementary Human Anatomy)—An elementary course dealing with the basic structure of the human body. Two hours a week, both terms.

Anatomy 500 (Microscopic Anatomy)—The microscopic anatomy of tissues and organs in man. Both terms.

Anatomy 510 (Neuroanatomy)—The gross and microscopic study of the nervous system in man. Both terms.

Biochemistry 410 (3) (Outlines of Biochemistry)—A lecture and laboratory course dealing with the chemicals and physical chemical reactions associated with life processes; the digestion and absorption of carbohydrates, lipids, proteins and minerals; the metabolic interrelations and energy exchanges of these substances in living cells and the influence on such reactions of enzymes, vitamins and hormones. Prerequisite: Chemistry 300.

Text-books: Mitchell, *A Textbook of Biochemistry*; and Hawk, Oser, Summerson, *Practical Physiological Chemistry*.

Biochemistry 500 (Intermediary Metabolism)—A course of lectures dealing with advanced topics of intermediary metabolism selected from the current biochemical literature.

Physiology 410 (Advanced Mammalian Physiology)—A lecture course on body function with particular reference to mammalian and human physiology. The functions of muscle, nerve, central nervous system, special senses, metabolism, circulation, respiration, excretion, digestion, and the endocrines are treated.

Physiology 411 (Advanced Mammalian Physiology)—A laboratory course designed to illustrate physiological principles and to impart some training in physiological technique. Must be taken in conjunction with Physiology 410.

1951-52

**THE
FACULTY
OF
FORESTRY**

1951-52

1951-52

FACULTY OF FORESTRY

General

The degree of Bachelor of Science in Forestry is granted on the completion of four years work in the Faculty of Forestry.

Double courses are offered in Arts and Science and Forestry leading to the degrees of B.A. and B.S.F. For regulations governing these, see the section "Double Degrees" on page 343. For the requirements for the degree of B.A.Sc. in Forest Engineering, see pages 207-235.

The courses in Forestry provide a strong, well-rounded professional forestry training and at the same time give the student, through his choice of electives, an opportunity to supplement his knowledge of allied sciences as a background towards further specialized training. This objective is attained by requiring the student to take during each academic year a basic core of essential subjects and a certain number of other courses which are elective. The choice of the student's electives is governed by the particular phase of forestry in which he is interested. The electives have been arranged so that a student wishing to proceed with graduate studies in a particular 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, Utilization), *Forest Business Administration*, *Forest Pathology*, *Forest Entomology* and *Wild Life Management*.

During the period between the spring and fall 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. Before a degree will be granted, a candidate is required to satisfy the Faculty that he has completed a suitable amount of practical work related to his profession.

Between the Third and Fourth Years, the student is required to complete four weeks' work at the University Research Forest near Haney; this work must be completed to the satisfaction of the Faculty before the student can proceed into the Fourth Year. The fee for the four weeks' summer camp may vary from year to year depending upon living costs and for the year 1951 has been set at \$75. In addition to the summer camp, field trips are required from time to time throughout the Third and Fourth Years.

In order to practise 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 from the Faculty of Forestry, University of British Columbia, may become registered after he has completed two years of forestry work following graduation and has submitted a satisfactory thesis.

Admission

The general requirements for admission to the University are given on pages 38-45.

For admission to the Faculty of Forestry 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 in an approved university.

Required subjects are:

English 100 and 101.

Mathematics 101.

Biology 100.

Chemistry 100 or 101.

Language: one of the following—Latin 101, French 101,
German 90, 100, 101, Russian 100.

The passing grade for entrance to Forestry is 60 per cent. in each of Mathematics, Chemistry and Biology; for all other subjects a grade of 50 per cent. will be accepted.

No student with defective standing will be admitted to the First Year in Forestry.

Candidates who expect to complete the requisite entrance standing through University or Senior Matriculation supplemental examinations, held in August or September, may apply for admission and their applications will be considered subject to the results of these examinations.

Students desiring to enrol in the double course for the degrees of B.A. and B.S.F., should consult the section "Double Degrees" on page 343.

Students intending to enter Forestry are advised to present Chemistry 91, Mathematics 91, and Physics 91 for University Entrance.

Courses

Two activity courses in Physical Education are required of all students in First Year Forestry, except ex-service personnel and members of military units operating on the campus. For details of requirements see page 164.

Students entering Second Year are required to submit an essay of not less than 1000 words. This should take the form of a scientific report preferably on 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 for 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. The essays shall be handed in to the Dean not later than January 15th.

Students entering Third and Fourth Years are required to submit an essay. In preparing the essay the following regulations should be observed:

1. The essay shall consist of not less than 2000 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 work on which the student was engaged during the summer, or of any scientific or professional work with which he is familiar. In the preparation of the essay, advantage may be taken of any source of information, but due acknowledgment must be made of all authorities consulted. It should be suitably illustrated by drawings, sketches, maps, photographs or specimens.
4. The essays shall be typewritten "double-spaced" on paper of substantial quality, standard letter size ($8\frac{1}{2} \times 11$ inches), on one side of the paper only, with a clear margin on top and left-hand side. Every student shall submit a duplicate copy of his essay for the correction of English. Students are recommended to examine sample essays to be found in the Faculty library.
5. All essays shall be handed in to the Dean not later than October 15th.

All essays when handed in, become the property of the Faculty and are filed for reference.

A maximum of 100 marks is allowed, the value being based on presentation, English and subject matter.

Forestry (B.S.F. Course)

First Year

Subject	First Term		Second Term	
	Lect.	Lab.	Lect.	Lab.
Bot. 200 General Botany.....	2	2	2	2
Econ. 200 Principles of Economics.....	3	.....	3	.....
English 150 Composition.....	2	.....	2	.....
Math. 153 and 156 Forestry Mathematics.....	2	2	2	2
Phys. 100 Elementary Physics.....	3	2	3	2
For. 151 Profession of Forestry.....	1	.....	1	.....
For. 160 Forest Surveying.....	1	6	1	6
†ELECTIVES				
Geog. 202 Weather and Climate.....	2	2	2	2
Zool. 200 General Zoology.....	2	3	2	3

Second Year

Subject	First Term		Second Term	
	Lect.	Lab.	Lect.	Lab.
For. 298 Essay.....	.....	.....	2	4
Biol. 331 Genetics.....	.....	.....	1	2
Bot. 303 Dendrology.....	1	2	.....	.....
Bot. 330 Plant Physiology.....	2	4	.....	.....
English 250 Technical Writing.....	1	.....	1	.....
For. 250 Silvics.....	.....	.....	1	2
For. 251 Fire Protection.....	1	2	1	2
For. 253 Forest Soils.....	1	2	.....	.....
For. 260 Surveying and Mapping.....	1	3	1	3
For. 270 Wood Technology.....	1	2	1	2
For. 360 Mensuration.....	2	3	2	3
†ELECTIVES				
Bot. 315 Mycology.....	1	4	1	4
Geol. 200 General Geology.....	2	2	2	2
Zool. 200 General Zoology.....	2	3	2	3
Zool. 300 Comparative Anatomy of Vertebrates.....	1	4	1	4

Third Year

Subject	First Term		Second Term	
	Lect.	Lab.	Lect.	Lab.
For. 398 Essay.....	.....	.....	.....	.....
Bot. 318 Forest Pathology.....	2	2	2	2
Zool. 308 Forest Entomology.....	2	2	2	2
For. 350 Silviculture.....	2	3*	2	3*
For. 353 Seminar.....	1	.....	1	.....
For. 355 Seeding and Planting.....	1	.....	1	.....
For. 370 Wood Technology.....	1	3	1	3
For. 371 General Logging.....	2	.....	2	.....
For. 380 Forest Policy and Administration.....	2	.....	2	.....
For. 381 Forest Economics.....	2	.....	2	.....
†ELECTIVES				
Bot. 304 Systematics of Vascular Plants.....	1	4	1	4
Com. 457 Accounting and Finance.....	2	.....	2	.....
Com. 498 Industrial Management and Marketing.....	2	.....	2	.....
Zool. 306 Biology of the Vertebrates.....	1	4	1	4

*Alternate weeks only.

†Students must consult the list of electives (page 310) under the different options for the number and subject of electives to be taken in each year.

Fourth Year

Subject	First Term		Second Term	
	Lect.	Lab.	Lect.	Lab.
For. 498 Essay.....	•	.....	.....	.....
**For. 390 Summer Camp.....	.....	.....	.....	.....
For. 462 Forest Finance.....	1	2	1	2
For. 463 Management.....	2	3	2	3
For. 473 Milling and Marketing.....	2	4*	2	4*
For. 474 Lumber Grading.....	.....	.....	1	2
For. 475 Forest Products.....	2	4*	2	4*
†ELECTIVES				
Agron. 304 Range Management.....	2	2	.....	.....
Agron. 313 Physical Properties of Soils.....	2	2	.....	.....
Agron. 314 Soil Conservation.....	.....	.....	2	2
Bot. 304 Systematics of Vascular Plants.....	1	4	1	4
Bot. 418 Applied Forest Pathology.....	1	4	1	4
Bot. 420 Forest Ecology and Geography.....	2	3	2	3
Bot. 421 Forest Associations.....	2	3	2	3
Com. 281 Industrial Organization and Production.....	3	.....	3	.....
Com. 341 Traffic Management.....	3	.....	3	.....
Com. 371 Business Finance.....	3	.....	3	.....
Com. 421 Personal Management and Labour Relations.....	3	.....	3	.....
Com. 457 Accounting and Finance.....	2	.....	2	.....
Com. 458 Forestry Cost Accounting.....	3	.....	3	.....
Com. 498 Industrial Management and Marketing.....	2	.....	2	.....
For. 450 Advanced Silvics and Silviculture.....	2	.....	2	.....
For. 455 Problems in Silvics and Silviculture.....	.....	4	.....	4
For. 460 Advanced Mensuration.....	1	3	1	3
For. 464 Aerial Surveys.....	1	2	1	2
For. 477 Wood Seasoning and Preservation.....	1	3	1	3
Zool. 200 General Zoology.....	2	3	2	3
Zool. 301 Invertebrate Zoology.....	2	3	2	3
Zool. 302 Introduction to Entomology.....	1	4	1	4
Zool. 402 Advanced Forest Entomology.....	2	2	2	2
Zool. 409 Principles of Wild Life Biology and Conservation.....	2	.....	.....	.....
Zool. 410 Biology and Management of Upland and Farm Game.....	.....	.....	1	2
Three units selected in consultation with Department.....	.....	.....	.....	.....

†Electives

General Forestry (Management, Administration, Protection, Silviculture, Utilization.) In the First Year Geography 202; in the Second Year Geology 200; in the Third Year Commerce 457 and 498; in the Fourth Year nine units or their equivalent, six of which must be chosen from the following courses: Agron. 304, 313, 314; Botany 304, 420, 421; Commerce 457, 458, 498; Forestry 450, 455, 460, 464, 477, and three units chosen in consultation with the Faculty.

*Alternate weeks only.

**See paragraph 5, page 307.

†Students must consult the list of electives (see page 810) 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 200; in the Third Year Commerce 457 and 498; and in the Fourth Year Commerce 458 and 6 units chosen from Commerce 341, 371, 421.

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, and 420 or 421, 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 or 421, 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.

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, in the University Health Service, 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. 13 and 14.)

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 "Re-Readings" (page 118).

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.

* Special permission of the Faculty is granted only under exceptional circumstances, such as illness, or as outlined on page 208.

5. Applications for supplemental examinations, accompanied by the necessary fees (see "Special Fees", page 45), 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 with defective standing will be admitted to the Second Year.

7. 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.

8. No student will be allowed to take any subject unless he has previously passed, or secured exemption, in all prerequisite subjects.

9. A student who is required to repeat his year will not be allowed to take any work in a higher year. A student repeating his year need not repeat the laboratory portion of certain courses provided he has obtained a standing in the laboratory work which is acceptable to the head of the department in which the course is given.

10. Any student repeating his year will not be admitted with any supplementals outstanding.

11. 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.

12. 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.

13. Term essays and examination papers may be refused a passing mark if they are noticeably deficient in English.

14. 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.

The University Research Forest

An area comprising a solid block of land about 7 miles long and $2\frac{1}{2}$ miles wide, situated north of the town of Haney was crown granted to the University by the Provincial Government on March 25th, 1949. This area is well suited for field instruction in cruising, mensuration, silviculture, logging engineering and management and for research in forestry and related sciences.

A gift of \$120,000 by the B.C. Loggers Association has provided a well equipped and exceptionally effective camp centrally located in the area. This camp provides accommodation for 60 students and staff engaged in field practice and research.

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 Faculty of Forestry, and Departments of 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 DIVISION Forestry Branch

DEPARTMENT OF RESOURCES AND DEVELOPMENT, CANADA

Professional Staff:

Administrative Section

- 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.

Timber Mechanics Section

- J. B. ALEXANDER, M.Sc. (New Brunswick).
W. J. SMITH, B.A.Sc. (Brit. Col.).
P. L. NORTHCOTT, B.A.Sc. (Brit. Col.).

Wood Preservation and Pathology Section

- W. M. CONNERS, B.A.Sc. (Toronto).
H. W. EADES, B.Sc.F. (Washington).
J. W. ROFF, B.S.F. (Brit. Col.).
G. BRAMHALL, B.A.Sc. (Brit. Col.).

Wood Chemistry Section

- J. A. F. GARDNER, M.A. (Brit. Col.), Ph.D. (McGill).
H. MACLEAN, M.B.E., M.A. (Brit. Col.).
G. M. BARTON, M.A. (Brit. Col.).

Wood Utilization Section

- 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).
W. C. FOUNTAIN, B.Sc.F. (Toronto).

The Vancouver Laboratory is one of two research laboratories established under the Forest Products Division, Forestry Branch, Department of Resources and Development, Canada, to carry out research on forest products. The second laboratory is located in Ottawa, serving the forest products industries of Eastern Canada. The Pulp and Paper Research Institute of Canada maintains a laboratory at McGill University, in Montreal, for the investigation of all problems relating to pulp and paper research.

The Vancouver Laboratory has been maintained in close association with the University of British Columbia since its establishment in 1918. Setting up the Forestry Branch within the Department of Resources and Development, Canada, has made it possible to expand the program of forest products research in Canada with co-ordination of research at the different laboratories being effected through the Forest Products Division.

Four major sections at the Vancouver Laboratory provide facilities and equipment necessary to cover a wide range of investigations in Timber Mechanics, Wood Preservation and Pathology, Wood Chemistry, and Wood Utilization. Close co-operation with industry permits the ready application of research findings to commercial practice.

Contact is maintained with other forest products research organizations throughout the world, thus permitting a free exchange of technical information on a wide range of forest products subjects which is made available to the timber industry and to all interested in the use of wood. This technical service has been a most important function of the laboratory. The association between the staff of the laboratory and the University, and the ready availability of specialized equipment necessary to carry out many intricate studies, have greatly enhanced the value of the laboratory to the general public and also to the University.

COURSES OF INSTRUCTION

Biology

331. (2) **Principles of Forest Genetics.**—As in Arts.

For descriptions of other courses in Biology, see Arts.

Botany

For descriptions of courses, see Arts.

Commerce

For descriptions of courses, see Commerce.

Economics

For descriptions of courses, see Arts.

English

150. **Composition.**—As in Applied Science.

250. **Technical Writing.**—As in Applied Science.

For descriptions of other courses in English, see Arts.

Forestry

Courses in Forestry, with the exception of Forestry 300, are ordinarily open only to students proceeding towards the B.A.Sc. in Forest Engineering, and the B.S.F. Students taking the Forestry option in the School of Commerce or the Wildlife Management option in Arts and Science may register in the forestry courses listed in these options provided that the full option is taken as presented. Other students may take certain of the courses offered in Forestry provided they offer the necessary prerequisites, but in all such cases permission of the instructor must be obtained.

151. **The Profession of Forestry.**—Survey of the profession of forestry; opportunities available to trained men. Text-book: Illick, *An Outline of General Forestry*. Mr. Haines. [1-0; 1-0]
160. **Forest Surveying.**—Field survey and mapping practice. Text-book: Breed and Hosmer, *Elementary Surveying*. Mr. Johnson. [1-6; 1-6]
250. **Silvics.**—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. Mr. Griffith. [0-0; 1-2]
251. **Forest Fire Protection.**—Fire prevention; danger rating; fire behaviour, detection, communication, transportation and suppression; control planning. Text-books: Folweiler and Brown, *Fire in the Forests of the United States*; *Western Fire Fighters Manual*. Mr. Haines. [1-2; 1-2]
252. **Forest Botany.**—An introduction to botany, with special reference to forest conditions. Text-book: Holman and Robbins, *A Text-book of General Botany*. Mr. Griffith. [2-2; 2-2]
253. **Forest Soils.**—Fundamentals of forest soil science. Text-book: Lutz and Chandler, *Forest Soils*. Mr. Griffith. [1-2; 0-0]
260. **Forest Surveying.**—Stadia; route surveying, simple curves and earthwork; solar and stellar observations; air survey, photo interpretation and type mapping. Text-books: Trorey, *The Handbook of Aerial Mapping and Photogrammetry*; Breed and Hosmer, *Elementary Surveying*. Mr. Johnson. [1-3; 1-3]
270. **Wood Technology.**—The macroscopic characteristics and properties of wood structure. Text-book: Brown, Panshin and Forsaith, *Wood Technology*, Volume I. Mr. Wellwood, Mr. Haines. [1-2; 1-2]
300. (3) **Introduction to Forestry.**—This course is not open to Forestry students. Identification and distribution of the principal commercial timber trees of the world with particular reference to those of British Columbia; identification, properties and uses of the woods of these species; units of tree and forest product measurements. Course not available to forestry or forest engineering students; intended primarily for students in Commerce (Forestry option) but open to others having necessary prerequisites: Bot. 200 or Forestry 252. Mr. Griffith and Staff. [2-3; 2-3]
350. **Silviculture.**—Silvicultural systems; intermediate cuttings; natural regeneration; applied silviculture in the various regions of North America. Text-book: Hawley, *Practice of Silviculture*, 5th edition. Mr. Allen. [2-3*; 2-3*]
353. **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. Mr. Allen. [1-0; 1-0]
360. **Forest Mensuration.**—Log scaling; timber cruising; application and preparation of volume, stand and yield tables; statistical analysis. Text-book: Chapman and Meyer, *Forest Mensuration*. 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. Mr. Wellwood. [1-3; 1-3]
371. **General Logging.**—General and distinctive logging methods in the forest regions of North America. Text-book: Wackerman, *Harvesting Timber Crops*. Mr. Knapp. [2-0; 2-0]

- 380. Forestry Policy and Administration.**—The development and status of forestry, forest legislation and administration in Canada, United States and other countries. 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*. Mr. Besley. [2-0; 2-0]
- 390. (3) 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 307). 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; prediction of growth and yield; statistical methods. Text-book: Bruce and Schumacher, *Forest Mensuration*. 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: Matthews, *Management of American Forests*. Mr. Besley. [1-2; 1-2]
- 463. Forest Management.**—Principles of forest organization and regulation of the cut; sustained yield management; working plans. Text-book: Matthews, *Management of American Forests*. Mr. Griffith. [2-3; 2-3]
- 464. Aerial Surveys.**—Aerial surveys; photo-interpretation and plotting methods. Text-book: Trorey, *The Handbook of Aerial Mapping and Photogrammetry*. Mr. Johnson. [1-2; 1-2]
- 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; operating methods. Text-book: Matthews, *Cost Control in the Logging Industry*. 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*. Mr. Knapp. [2-4*; 2-4*]
- 474. Lumber Grading.**—An intensive study of the grading, tallying, and shipping of Pacific Coast lumber products. Text-books: B.C. Lumber Manufacturers' Association, *Lumber Grading*; B.C. Forest Lumber Manufacturers' Association, *Standard Grading and Dressing Rules*. 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. Text-book; Panshin, Harrar, Baker and Proctor, *Forest Products*. Mr. Wellwood. [2-4*; 2-4*]
- 477. Wood Seasoning and Preservation.** — Principles and methods of seasoning forest products; preservative treatments. Mr. Wellwood. [1-3; 1-3]

Courses for Graduate Students

- 549. Thesis.**—For M.F. degree.
- 551. (1-3) 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.

553. (1) General Forestry Seminar.—Required of all graduate students in forestry. The staff.

555. (1-3) 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 Faculty. Hours to be arranged. Mr. Allen.

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]

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]

560. (1-3) Problems in Forest Mensuration.—Students with adequate training in mensuration may undertake research in forest mensuration under direction. Hours to be arranged. Mr. Ker.

561. (1-3) Problems in Forest Management.—Advanced work and special studies may be taken in forest management under direction. Hours to be arranged. Mr. Griffith.

565. Forest Research Methods.—Curve fitting, multiple correlation, tests of significance and covariance and design of experiments. Mr. Ker. [1-2; 1-2]

566. Problems in Forest Surveys.—Mr. Johnson. [1-2; 1-2]

570. Research in Wood Anatomy.—Basic studies of the anatomy of wood; methods of preparing woody materials for microscopic examination. Mr. Wellwood. [1-2; 1-2]

575. (1-3) Problems in Forest Products.—Special investigations in wood and other forest products; research, development, and marketing involved in the production of forest products. Hours to be arranged. Mr. Wellwood.

578. (1-3) Research in Mechanical Properties of Wood.—Special problems in the determination of stress-strain relationships in wooden structures. Hours to be arranged. Mr. Wellwood.

581. (1-3) Problems in Forest Economics and Finance.—Advanced work may be taken under special assignment. Hours to be arranged. Mr. Besley

649. Thesis.—For Ph.D. degree.

Geology and Geography

Geog. 202. (3) Weather and Climate.—As in Arts.

Geol. 200. (3) General Geology.—As in Arts.

For descriptions of other courses in Geology and Geography, see Arts, pages 135-137.

Mathematics

For descriptions of courses, see Applied Science.

Physics

100. (3) Elementary Physics.—As in Arts, see page 148.

For descriptions of other courses in Physics, see Arts.

Zoology

For descriptions of courses, see Arts.

1951-52

**THE
FACULTY
OF
GRADUATE STUDIES**

1951-1952

1951-52

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.). A diploma in Community and Regional Planning is also offered.

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 6 units towards the Bachelor's degree may register in courses open to graduate students (provided that they keep within an over-all maximum of 18 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 Faculty of Graduate Studies 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 with First Class standing in at least two of the Third and Fourth Year courses in that field, or

(b) First Class standing in at least two of the courses and Second Class standing in each of 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 Faculty of Graduate Studies 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 18 units of undergraduate and graduate work (or the equivalent in the departments of the Faculties of Applied Science and Forestry) in any Winter Session. Courses required to make up deficiencies must be taken as early as practicable.

7. In determining whether standing received by a student in an undergraduate course meets the requirements for admission to candidacy the Faculty will consider the mark obtained by the student in his first final

examination on that course, unless the student has obtained permission from the Executive Committee, after consultation with the department concerned, to write a supplemental examination or to repeat the course in order to improve his standing.

8. Candidates for the Master's degree are required

- (a) to spend at least one 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 6 units of credit may be counted for reading courses.

9. Graduate students who are assistants, receiving sessional remuneration exceeding \$700, 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 \$700, may be permitted to qualify for the Master's degree after one 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.

10. The Master's course will require a thesis counting from 3 to 6 units and courses numbered 300 or above so that the total number of units, including the thesis, is at least 18 (or the equivalent in departments of the Faculties of Applied Science and Forestry). The course will normally include at least 6 units of courses numbered 500 or above. If the degree is to be taken in a single department, at least 3 and not more than 6 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 five Faculties of Arts and Science, Applied Science, Agriculture, Forestry, and Medicine.

11. Candidates for the Master's degree, if they have not obtained credits for French 202, German 200, or Russian 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. This rule shall not restrict the right of any department to require a reading knowledge of an additional language or languages, or to require a higher standard of competence in one or more of the languages offered by a candidate.

12. The Master's course must be chosen in consultation with the department or departments concerned, and be approved by the Executive Committee of the Faculty of Graduate Studies.

13. A student whose work is considered to be unsatisfactory may, upon recommendation of the faculty, be required by Senate to withdraw from the Faculty.

14. 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 Theses*).

15. 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.

16. Each graduate student who wishes to become a candidate for a Master's degree must, on or before October 15th, file in the Registrar's office an official application, signed by the head of the department concerned, showing the prerequisites, if any, that remain to be completed and the courses required for the degree. The form for this purpose should be obtained from the Registrar's office at the time of registration. Subsequent changes in the student's programme must be entered on this form and initialled by the head of the department. Candidacy for the degree will not be approved by the Executive Committee until all prerequisites have been completed.

17. 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.

Standing and Credit

The following regulations apply to courses taken in the Faculty of Graduate Studies to fulfil prerequisites or for credit towards a degree:

(a) A student taking 9 or more units of course work in a Winter Session may receive credit for a course only if, as a result of the final examinations of that Session, he obtains 65 per cent in 9 units including the course in question.

(b) A student taking less than 9 units in a Winter Session will receive credit for a course only if as a result of the final examinations of that Session, he obtains 65 per cent in all his courses.

(c) A student in the Summer Session will receive credit for each course in which he obtains 65 per cent.

(d) For regulations regarding re-readings, see page 118.

Supplementals

1. In courses leading to the Master's degree supplementals will be granted,

(a) If, in the Winter Session, a candidate has obtained a final mark of not less than 50 per cent, and has obtained at least 9 units of credit in that Session; but no such candidate will be granted supplementals in more than 2 courses and then only in subjects whose total value does not exceed 6 units.

(b) If, in the Summer Session, a candidate has obtained a final mark of not less than 50 per cent, and has obtained at least 3 units of credit in that Session.

2. No candidate will be granted more than one supplemental in respect of the same course; but, with the permission of the Executive Committee the course may be repeated, or a permissible course may be taken in its place.

3. A supplemental must be written at the regular supplemental examination period following the examination in which the candidate failed to obtain adequate standing.

THE DEGREE OF MASTER OF ARTS

The following special requirements are prescribed by the departments.

Anatomy (Human)

Prerequisites: An M.D. degree or equivalent.

M.A. Course: Thesis, counting 6 units, and courses in related fields selected in consultation with the Department to complete the requirements of section 10 above.

Anthropology

Prerequisites: Honours; or 15 units in Anthropology chosen from courses offered in the Third and Fourth Years.

M.A. Course: Thesis, counting at least 3 units, Anthropology 540, and other courses to complete the requirements of section 10 above.

Bacteriology and Preventive Medicine

Prerequisites: At least 9 units in the Department, including Bacteriology 200, 300, 400.

M.A. Course: Thesis, counting at least 5 units, and courses to complete the requirements of section 10 above.

The number of M.A. students who can be accepted in any one year is limited.

Biochemistry

Prerequisites: An M.D. degree; or a Bachelor's degree with honours in Biochemistry or related fields in Agriculture, or in Bacteriology, Biology, Botany, Chemistry, Physiology or Zoology; or the courses accepted as prerequisites for the Master's degree in one of these subjects.

M.A. Course: Biochemistry 400 or 410 and Physiology 410, 411, if not already taken; thesis, counting 6 units, and courses in related fields selected in consultation with the Department, to complete the requirements of section 10 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 8 approved additional units, including Zoology 200.

M.A. Course: Thesis, counting at least 5 units, and courses to complete the requirements of section 10 above.

Chemistry

Prerequisites: Honours in Chemistry.

M.A. Course: Thesis, counting normally 6 units, Chemistry 548 and courses to complete the requirements of section 10 above.

Classics

Prerequisites: Honours; or 15 units in the Department chosen from courses offered in the Third and Fourth Years.

M.A. Course: Thesis, counting at least 3 units, and courses to complete the requirements of section 10 above.

Candidates are expected to have a reading knowledge of French and German.

Economics

Prerequisites: Honours; or Economics 200, 300, 301 or 330, and 335, and 6 units in advanced courses in Economics, Political Science, or Sociology.

M.A. Course: Economics 500, 540, and 549, and sufficient additional advanced courses to complete the requirements of section 10 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 two of these; or a Bachelor's degree with at least 6 units in Education, of which at least 3 units must be with First Class standing, and First Class standing in at least 3 other units.

M.A. Course: Thesis, counting at least 3 units, and courses to complete the requirements of section 10 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 15 units in the Department chosen from courses offered in the Third and Fourth Years.

M.A. Course: Thesis, counting 3 units, English 442 or its equivalent, and other courses to complete the requirements of section 10 above. Candidates must take an examination in the history of English literature and demonstrate an adequate reading knowledge of the foreign language offered.

French

Prerequisites: Honours; or French 101, 202, and 12 additional units in the Department chosen from courses in the Third and Fourth Years.

M.A. Course: Thesis, counting at least 3 units, and courses to complete the requirements of section 10 above.

Geography

Prerequisites: Honours; or 12 units in advanced courses in Geography.

M.A. Course: Thesis, counting 3 units, and courses to complete the requirements of section 10 above. All graduates must attend the Geography Honours seminar.

Geology

Prerequisites: Honours; or Geology 200, 302, and 18 additional units in Geology.

M.A. Course: Thesis, counting at least 3 units, and courses to complete the requirements of section 10 above.

German

Prerequisites: Honours; or German 100, 200, and 12 additional units in the Department chosen from courses in the Third and Fourth Years.

M.A. Course: Thesis, counting 3 units, 6 units selected from German 500, 501, and 502, and other courses to complete the requirements of section 10 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, or an equivalent course in Senior Matriculation; 15 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 3 units, and courses to complete the requirements of section 10 above.

All candidates must attend an M.A. seminar, counting 3 units.

Latin

Prerequisites: Honours; or Latin 310, 410 and 12 additional units in the Department chosen from courses offered in the Third and Fourth Years.

M.A. Course: Thesis, counting at least 3 units, and courses to complete the requirements of section 10 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 8 additional units in the Department chosen from courses in the Third and Fourth Years.

M.A. Course: Thesis, counting at least 3 units, and courses to complete the requirements of section 10 above.

Philosophy

Prerequisites: Honours; or Philosophy 202, 210, 305, 310, 302 or 304.

M.A. Course: Thesis, counting at least 3 units, Philosophy 410 if not previously taken, and courses to complete the requirements of section 10 above. English 448 and Greek 407 may count as Philosophy courses.

Physics

Prerequisites: Honours; or Physics 200, 300, 304, 308, 401, 402.

M.A. Course: Thesis, counting at least 3 units, Physics 500, 501, 502, 503, and courses to complete the requirements of section 10 above.

Physiology

Prerequisites: An M.D. degree; or a Bachelor's degree with honours in Physiology or related fields in Agriculture, or in Bacteriology, Biology, Botany, Biochemistry, Chemistry or Zoology; or the courses accepted as prerequisites for the Master's degree in one of these subjects.

M.A. Course: Physiology 410, 411 and Biochemistry 400 or 410, if not already taken; thesis, counting 6 units, and courses in related fields selected in consultation with the Department, to complete the requirements of section 10 above.

The number of M.A. students who can be accepted in any one year is limited.

Political Science

Prerequisites: Honours in Political Science; or in Economics; or in Economics in combination with some other subject; or 9 units in Political Science and 6 additional units in Economics or Political Science.

Three units in Political Science or 3 units in Economics or 3 units in each may be replaced by an equivalent number of units chosen from History 309, 310, 311, 312, 419, 420, International Studies 400, and Slavonic Studies 308, 330, and 412.

M.A. Course: Political Science 540 and 549, and other courses to complete the requirements of section 10 above.

The courses listed in the preceding paragraph may, with the approval of the Department, be counted as courses in Political Science.

Psychology

Prerequisites: Honours; or Psychology 200, two of 201, 202, 301; 404 or 405; and 6 additional units in Psychology; Mathematics 205; Biology 304; Philosophy 100 or 205 and Philosophy 202; or the equivalent.

M.A. Course: Thesis counting at least 3 units, Psychology 510, and courses to complete the requirements of section 10 above.

M.A. in Clinical Psychology: **Note.** Because of the professional character of Clinical Psychology, the requirements for the M.A. in this field involve two years of study.

Prerequisites: Psychology 200, 202, 301, 303, 400, 403, 404 or 405; Mathematics 205; Biology 304; Philosophy 100 or 205, 202; or the equivalent.

Course: Psychology 500, 503, 510, 520, 521, 530, 540, 541, thesis; and two courses outside the department.

Slavonic Studies

Prerequisites: Honours; or Russian 100, 200, Russian 203 or Polish 110, and 12 additional units chosen from courses in the Department.

M.A. Course: Thesis, counting at least 3 units, and courses to complete the requirements of section 10 above.

Sociology

Prerequisites: Honours; or any three of Sociology 300, 325, 330, 400, 425, 430, 435, and 3 additional units in Economics, Political Science, or Sociology chosen from courses in the Third and Fourth Years.

M.A. Course: Sociology 540 and 549, and sufficient other advanced courses to complete the requirements of section 10 above.

Spanish

Prerequisites: Honours; or Spanish 101, 201, and 12 additional units chosen from courses in the Third and Fourth Years.

M.A. Course: Thesis, counting at least 3 units, and courses to complete the requirements of section 10 above.

Zoology

Prerequisites: Honours; or Biology 100, Zoology 200, Botany 200, Chemistry 100 or 101, Physics 100 or 101, and 15 additional units in Zoology.

M.A. course: Thesis, counting 6 units, and courses to complete the requirements of section 10 above.

The number of M.A. students who can be accepted in any one year is limited.

THE DEGREE OF MASTER 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 6 units, Chemistry 548, 550, and other courses to complete the requirements of section 10 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 6 units, at least one course (or 3 units) chosen from graduate courses in the Department, and other courses to complete the requirements of section 10 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 6 units, at least one course (or 3 units) chosen from graduate courses in the Department, and other courses to complete the requirements of section 10 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 at least 3 units, at least 6 units chosen from graduate courses in the Department and other courses to complete the requirements of section 10 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 3 units, the required courses in the chosen option, and other courses to complete the requirements of section 10 above.

Options:

Economic Geology: Geology 526 and 3 units chosen from Geology 520, 523, 524 or 525.

Mineralography: Geology 524 and 3 units chosen from Geology 523, 525, 526.

Mineralogy: Geology 523 and 3 units chosen from Geology 520, 524, 525, 526.

Palaeontology: Geology 521 or 531 and 3 units chosen from Geology 520, Biology 400, Zoology 200, 300 or 301.

Petrology: Geology 525 and 3 units chosen from Geology 523, 524, 526.

Stratigraphy: Geology 520 and 3 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 6 units, at least one course (or 3 units) chosen from graduate courses in the Department, and other courses to complete the requirements of section 10 above.

Metallurgical Engineering

Prerequisites: Graduation in Metallurgical, Chemical, Mechanical Engineering, or Engineering Physics, and the completion of the requirements of section 5 (b) above.

M.A.Sc. Course: Thesis, counting normally 6 units, at least one course (or 3 units) chosen from graduate courses in the Department, and other courses to complete the requirements of section 10 above.

Mining Engineering

Prerequisites: Graduation in Mining or Geological Engineering and the completion of requirements of section 5 (b) above.

M.A.Sc. Course: Thesis, counting normally 6 units, at least 3 units chosen from graduate courses in the Department, and other courses to complete the requirements of section 10 above.

THE DEGREE OF MASTER OF FORESTRY

Forestry

Prerequisites: Bachelor's degree equivalent to the B.S.F., or B.A.Sc. in Forest Engineering, of the University of British Columbia, and the completion of the requirements of section 5 (b) above.

The prerequisites in the case of each applicant to be determined by the Faculty in relation to the field of the proposed thesis.

M.F. Course: Thesis, counting at least 3 units, at least 3 units chosen from graduate courses in the Faculty, including Forestry 553, and other courses to complete the requirements of section 10 above.

THE DEGREE OF MASTER OF SCIENCE IN AGRICULTURE

Agricultural Economics

Prerequisites: Honours; or at least 12 units in the Department and Economics 200, 335 and 301.

M.S.A. Course: Thesis, counting at least 5 units, and courses to complete the requirements of section 10 above.

Agricultural Mechanics

Prerequisites: Honours; or Second Class standing in at least 12 units in the Department chosen from courses offered in the Third and Fourth Years.

M.S.A. Course: Thesis, counting 6 units, and courses to complete the requirements of section 10 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 5 units, research and other courses to complete the requirements of section 10 above.

Certain courses in related departments with the approval of the Head of the Department count for credit in Agronomy.

Animal Husbandry

Prerequisites: Honours; or at least 12 units in the Department chosen from courses offered in the Third and Fourth Years.

M.S.A. Course: Thesis, counting at least 5 units, and courses to complete the requirements of section 10 above.

Dairying

Prerequisites: Honours; or at least 12 units in the Department chosen from courses offered in the Third and Fourth Years.

M.S.A. Course: Thesis, counting at least 5 units, and courses to complete the requirements of section 10 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 5 units, research and other courses to complete the requirements of section 10 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 5 units, research and other courses to complete the requirements of section 10 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 applications 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 Faculty of Graduate Studies 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 Faculty of Graduate Studies 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 Faculty of Graduate

Studies may require any candidate to withdraw if his work has not been satisfactory. If a candidate for the degree of Ph.D fails to obtain 65 per cent in any course, the Executive Committee of the Faculty will deal with the matter after consultation with the department concerned.

5. Candidates for the Ph.D. degree normally will be required to spend three 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 Faculty of Graduate Studies.

6. Unless, in the opinion of the Executive Committee of the Faculty of Graduate Studies the delay has been justified by circumstances that are altogether exceptional, candidates who have not received their degree at the end of six Winter Sessions will be required to withdraw.

7. Candidates must satisfy the Executive Committee of the Faculty of Graduate Studies by the spring after registration at the latest of their ability to read technical material in two, at least, of the French, German and Russian languages; provided that the department concerned may accept some other language in substitution for one of the required languages if the character of the candidate's proposed work justifies this substitution. This rule shall not restrict the right of any department to require a reading knowledge of additional languages, or to require a higher standard of one or more of the languages offered by a candidate.

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 Faculty of Graduate Studies. 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 Faculty of Graduate Studies 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. Theses*, 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 Faculty of Graduate Studies. 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 \$700 without the permission of the Executive Committee of the Faculty of Graduate Studies.

At present Ph.D. courses are offered by the following departments only. Particulars of the fields in which this work is offered follow:

Biology and Botany

1. Courses are offered in four major fields:
 - (a) **Plant Morphology.** Thesis direction is offered in Cytology and Histology and in the Taxonomy of plants.
 - (b) **Physiology.** Specialization is possible in certain fields of General Physiology: hormones, vitamins, respiration and biotic membranes; in Plant Physiology.
 - (c) **Plant Pathology.**
 - (d) **Plant Ecology.** Primarily in Synecology.
2. Related Subjects:

Courses in cognate subjects will be selected in consultation with the Departments.
3. The following courses will be accepted for the Ph.D. credit:
 - (a) Graduate courses (numbered 500 or 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.

Forestry in cooperation with 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 or above) offered in the department concerned 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.

Forestry in cooperation with 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.

Mathematics

1. Courses are at present offered in two major fields only.
 - (a) **Algebra.** Particularly Theory of Groups, Rings, Ideals.
 - (b) **Applied Mathematics.** Particularly Exterior Ballistics, Hydro and Aerodynamics, Non-linear Mechanics, Eigen-value problems.

Note: Thesis direction cannot be offered in all branches of the above fields. The Department reserves the right to refuse admission to a student, no matter how well qualified, if no staff member is available to supervise the student's research.
2. Related subjects:

These may include Physics, Electrical Engineering, Philosophy.
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.

Physics

1. The Department offers opportunities for Ph.D. work in the following major fields: Nuclear Physics, Spectroscopy, Low Temperatures, Theoretical Physics 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, scalars, and Geiger counters.
 - (b) In **Spectroscopy**, the Department has the following: vacuum grating, 21' grating, quartz spectographs, Perkin-Elmer infra-red spectrometer, moll-microphotometer, measuring micrometers, and also wave guides, sources, and detectors for micro-wave work.
 - (c) **Low Temperatures**, a Collins-type helium cryostat.
 - (d) Some equipment such as Tiselius Electrophoresis apparatus, Beckmann Spectrophotometer, Polarograph is available for work in **Biophysics** and it is expected that, with the establishment of a Medical School, further facilities will be provided.

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.

Psychology

1. Courses are offered leading to a Ph.D. in the field of Clinical Psychology only.

After a candidate has been accepted he must spend at least one year of study in a clinical situation under professional supervision acceptable to the Department.

2. Related subjects:

Anthropology, Biology, Sociology, Social Work, or other cognate courses, selected in consultation with the Department.

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.

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 of 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.

INSTITUTE OF OCEANOGRAPHY

OF THE UNIVERSITY OF BRITISH COLUMBIA

The Institute of Oceanography was established at the University of British Columbia in the fall of 1949. It is supported in part by the Defence Research Board and by the Joint Committee on Oceanography, the latter body representing the interests of the Royal Canadian Navy, the National Research Council, the Fisheries Research Board and the Hydrographic Service.

The increasing interest in the problems of the sea has created a demand in Canada for trained scientists to undertake oceanographic investigations. The Institute represents the cooperative effort of the three departments of Chemistry, Physics, and Zoology to train graduate students in one or more of these branches in the principles and techniques of oceanographic research.

The Institute is further charged with the responsibility for fundamental research in Oceanography. Its location is particularly suited to this purpose. The fjords of British Columbia present special features which facilitate the study of water properties under restricted conditions. The large volume of fresh water discharged into the Gulf of Georgia from the Fraser river represents an estuarine condition which is amenable to detailed study. The strong tidal currents typical of many channels along the coast provide opportunities for the investigation of turbulent mixing. Easy access to the open ocean is obtained through the Strait of Juan de Fuca.

The wide ranges of salinity and concentration of plant nutrients present special problems in the chemistry of seawater and establish a variety of environmental conditions reflected in the diversified fauna and flora of the region.

The interrelations between populations of marine organisms, especially fish, and their environmental conditions offer problems of particular significance on the Pacific Coast of Canada.

The importance of the sea in the economy of the Pacific Coast forecasts an increasing industrial application of oceanography.

Opportunity for investigation, observation and collection at sea is available to the staff and students of the Institute through the facilities and research ships of the Pacific Oceanographic Group and the Pacific Naval Laboratory.

The Institute is directed by a Committee on Oceanography representing the cooperating departments and supporting organizations. The Committee reviews the qualifications of candidates entering the field of oceanography and passes on the professional competence of graduating oceanographers.

A student desiring to specialize in Oceanography should discuss his programme with the head of the department in which he is majoring, who will then submit the programme to the Committee for review. Each such student will be required to take Oceanography 500, 503, Chemistry 509, Physics 536, and Zoology 511. Additional courses may be recommended by the Committee.

Committee on Oceanography

Chairman

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

Members

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., President of the University of British Columbia.

HENRY F. ANGUS, B.A. (McGill), B.C.L., M.A. (Oxon), LL.D. (McGill), F.R.S.C., Dean of the Faculty of Graduate Studies.

J. GILBERT HOOLEY, M.A. (Brit. Col.), Ph.D. (Mass. Inst. of Technology), Professor and Chairman of the Department of Chemistry.

F. H. SANDERS, M.B.E., B.A. (Brit. Col.), Ph.D. (California), Superintendent, Pacific Naval Laboratory.

GORDON MERRITT SHRUM, O.B.E., M.M., E.D., M.A., Ph.D. (Toronto), F.R.S.C., Professor and Head of the Department of Physics.

Staff

W. M. CAMERON, M.A. (Brit. Col.), Associate Professor.

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

J. P. TULLY, M.B.E., B.Sc. (Man.), Ph.D. (Wash.), A.I.C., F.C.I.C., Honorary Lecturer.

Courses are offered in the following fields:

General Oceanography

500. (1) **Introduction to Synoptic Oceanography.**—Survey of oceanic circulation, distribution of temperature and salinity, energy budget. Text-book: Sverdrup, Johnson and Fleming, *The Oceans*. Mr. Cameron. [2-0; 0-0]

501. (1) **Advanced Synoptic Oceanography.**—Detailed study of the water masses of the oceans, enclosed basins, estuaries. Distribution of dissolved substances. Prerequisites: Oceanography 500, Physics 536. Mr. Cameron. [0-0; 1-2]

502. (1) **Special Topics.**—Instrumentation, submarine geology, marine meteorology, navigation. Staff. [1-0; 1-0]

503. (2) **Oceanographic Methods.**—Observation and collection at sea; processing and analysis of data. Cruises to be arranged. Staff. [0-3; 0-3]

Chemistry

509. (1) **Seawater Analysis.**—Standard methods for the chemical analysis of seawater; salinity, oxygen, carbon dioxide, nutrient salts. Mr. Tully. [1-3; 0-0]

510. (2) **Chemistry of Seawater.**—Properties, reactions, and constitution of seawater. Mr. Tully. [0-0; 2-6]

Physics

536. (1) **Introduction to Dynamic Oceanography.**—Hydrostatics, geostrophic flow, continuity, eddy viscosity and diffusion, Mr. Pickard. [2-0; 0-0]

537. (1) **Advanced Dynamic Oceanography.**—A more intensive study of the dynamics of ocean and coastal currents. Prerequisites: Oceanography 500, Physics 536. Mr. Pickard. [0-0; 2-0]

538. (1) **Fluid Mechanics.**—Systematic exposition of principles governing flow of fluids, ideal and real, turbulent flow in the oceans. Mr. Pickard. [1-0; 1-0]

539. (1) **Waves and Tides.**—Surface and internal waves, tides of the oceans, tidal currents. Prerequisite: Physics 536. Mr. Pickard. [1-0; 1-0]

Zoology

511. (1) **Introduction to Biological Oceanography.**—Biology of the sea related to physical and chemical conditions. Prerequisites: Oceanography 500, Physics 536. Mr. Cameron. [0-0; 2-0]

512. (2) **Advanced Biological Oceanography.**—Collection, identification, enumeration of marine plankton; correlation of distribution with environment. Prerequisites: Oceanography 500, 501, Chemistry 509, Physics 536, Zoology 511. Mr. Cameron. [1-3; 1-3]

DIPLOMA COURSE IN COMMUNITY AND REGIONAL PLANNING

A diploma course in Community and Regional Planning was established at The University of British Columbia in the fall 1950 with the support of the Central Mortgage and Housing Corporation of Ottawa; it is offered within the Faculty of Graduate Studies, leading towards a post-graduate diploma after two years of study. This allows the training of widely needed planning personnel, and provide facilities and background for research into the planning problems of Western Canada.

The need for qualified planners with professional status has become eminently clear in recent years. Population growth, expansion of cities and towns, and intensified rural development, have been general throughout Canada, though nowhere more spectacular than in British Columbia. Community Planning as a continuing and recognized process of municipal government must be closely integrated with regional planning—a development recently signalized in the Greater Vancouver area by the establishment of a co-operative Regional Planning Authority for the Lower Mainland districts.

Continuing research into the problems of urban and regional planning is essential to the advancement of planning and its teaching; participation in such research will be an important adjunct to instruction. The diploma course is particularly designed to develop research in community and regional planning and its location within Greater Vancouver and the Lower Fraser Valley is well suited to this purpose. Close collaboration and information exchange is being established with other Canadian and U.S. universities engaged in similar research and teaching programs.

Admission is based on a recognized Bachelor's degree including suitable prerequisites for the courses to be taken in line with a student's specific interests.

The course is directed by a Committee on Community and Regional Planning and is under the supervision of its secretary.

Committee on Community and Regional Planning

Chairman

HENRY F. ANGUS, B.A. (McGill), B.C.L., M.A. (Oxon), LL.D. (McGill), F.R.S.C., Dean of the Faculty of Graduate Studies.

Members

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., President of The University of British Columbia, ex-officio.

WALTER H. GAGE, M.A. (Brit. Col.), Dean of Administrative and Inter-Faculty Affairs, ex-officio.

LEONARD C. MARSH, B.Sc. (Econ.) (London), M.A., Ph.D. (McGill), Associate Professor, School of Social Work, and Special Lecturer, School of Architecture.

FRED LASSERRE, B.Arch. (Toronto), M.R.A.I.C., Professor and Director of School of Architecture.

J. FRED MUIR, B.Sc. (Manitoba), Professor and Head of Civil Engineering.

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

Secretary

H. PETER OBERLANDER, B.Arch. (McGill), M.C.P. (Harvard), A.R.I.B.A., A.M.T.P.I., M.R.A.I.C., Assistant Professor of Planning and Design.

CURRICULUM

The curriculum and methods of instruction within the course attempt to train students, with a specific qualification, in the general social and physical relationships of land use in its urban and regional application. Examples are taken from British Columbia, and, in a wider sense, from the Pacific Northwest. The course of study will fit a student for a variety of employment opportunities in the widening field of urban and regional planning.

1. Public employment: in agencies of the municipal, provincial or federal government.
2. Private and quasi-public employment: in natural resources industries and public utilities.
3. Private practice: with independent planning consultants.

The full curriculum leading towards a diploma will be so devised as to suit the requirements of the individual student in accordance with his academic background and future professional interests.

Orientation Course

Arch. 451. (3) Community Planning and Housing.—Problems of modern urban growth. Socio-economic influences on family and community life. The social approach to city and regional planning: principles, and means of co-ordination. The social significance of housing; demand and supply factors; urban redevelopment; public housing administration. Prerequisites: Economics 200 or Sociology 200. Mr. Marsh. [3-0; 3-0]

First Year

500. (6) Community Planning.—This course forms the core of the planning training and is organized as a Planning Workshop. Simple planning problems dealing with land use, housing, industry, recreation, transportation, and others will be examined as case studies of the planning process. These projects will demonstrate the application of social and physical planning techniques to the problems of town and country; students will often be working together in teams and have the advice of various instructors in the related fields. Mr. Oberlander and others.

501. (3) Planning Methods and Techniques.—Lectures and seminars relating the methods and techniques of physical planning to the survey-analysis-design sequence in local, regional and national planning. Mr. Oberlander.

In addition certain courses will be taken by the student to complete the required 15 units per academic year; these will be selected in consultation with the Committee, from such fields of study as: economics, sociology, public administration, geography, civil engineering and design.

Second Year

520. (6) Regional Planning.—(Continuation of Community Planning 500). More advanced planning projects. Mr. Oberlander and others.

521. (3) Planning Methods and Techniques.—(Continuation of Planning 501). More advanced methods and techniques; the visual implication of physical planning, urban and rural, will be fully examined. Mr. Oberlander.

Further courses will be taken by the student to complete the required 15 units per academic year from those fields as have not been covered during the first year.

In addition to the courses available at The University of British Columbia (1951-52) which may constitute suitable electives in the several fields of study tributary to planning, the following courses are offered specifically for planning students:

502. (3) Planning Engineering.—A broad survey of civil engineering aspects of community planning, their methods and techniques in dealing with public services and utilities, traffic routes and transportation, field surveying and mapping. Given by the Department of Civil Engineering.

503. (3) Introduction to Public Administration.—The role of administration in modern society, including problems of organization, inter-level relationships and responsibility, fiscal organization and control. The position and structure of planning administration within an over-all administrative framework will be examined. Given by the School of Social Work.

1951-52

MISCELLANEOUS

1951-1952

1951-52

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. Attention of students from other universities is called to note (d).

I. The Degree of B.A. combined with the degree of B.A.Sc., B.Arch., 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., B.Arch., 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 101-105. 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. (See notes, below.)

II. 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 101-105, and in addition must include at least 15 units of courses numbered 300 or higher. Students must comply with the admission requirements for the Faculty of Law, page 283. Courses in Arts and Science may not be taken concurrently with work in Law. (See notes, below.)

III. The Degree of B.Com. combined with the Degree of LL.B.

Completion of the pre-Commerce year, of the first three years in the Commerce and Law option in the School of Commerce, and three complete years in the Faculty of Law are required for the combined degrees of B.Com., LL.B. Students must comply with the admission requirements for the Faculty of Law, page 283. Courses in Commerce may not be taken concurrently with work in Law. The B.Com. degree will be awarded on completion of the Second Year in Law. (See notes, below.)

Notes

(a) Courses for the degree of B.A. combined with the degree of 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 or director of the school 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 B and H, page 103, by including a course numbered 90, must complete the third course in the language, unless they qualify under note 5 (iii), page 104.

(d) Credit toward the combined degrees for courses taken at other universities is limited to courses in the First Year of Arts and Science.

UNIVERSITY SUMMER SESSION

Seven Weeks—July 2nd - August 19th

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 are as follows:

1. The degree of B.A. in the General Course will be granted on completion of courses amounting to a minimum of 60 units chosen in conformity with Calendar regulations. (See pages 101-106).

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 6 units.

4. Attention of students is drawn to regulations in the following sections of this Calendar:

Summer Session and other Credits, page 101;

Senior Matriculation Credits, page 102;

General Regulations (1, 3, 6, 8, 9), page 102;

First and Second Years, page 102;

Third and Fourth Years, page 105;

General Course Curriculum, page 105;

Faculty of Graduate Studies, pages 321-330.

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 40 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 44.

Examinations and Advancement

1. Summer Session examinations are held at the close of the Summer Session.
2. An undergraduate in the Summer Session will receive credit for each course in which he obtains a mark of at least 50 per cent.
3. In any course which involves both laboratory work and written examinations, undergraduates will be required to make satisfactory standing in both parts. Results in laboratory work will be announced prior to the final examinations, and students who have not obtained a mark of at least 50% will neither be permitted to write the examination nor to receive credit for the course. If the course is repeated no exemption will be granted from the work in either part.
4. An undergraduate in the Summer Session will be granted a supplemental in a subject which he has taken during that session, provided (i) he has written the final examination and has obtained a final mark of not less than 35%, and (ii) he has obtained three units of credit in that session. Supplemental examinations in Summer Session courses are held in the first week of the Summer Session.
5. For regulations regarding graduate credit and supplementals see page 323.

CORRESPONDENCE COURSES FOR ACADEMIC CREDIT

The University of British Columbia is developing a programme of correspondence studies which is available to persons who wish to earn credit towards a Bachelor of Arts degree, but cannot attend the regular sessions of the University. These courses will, for the most part, be offered at the Second and Third Year level.

The correspondence courses currently offered by the University are listed in the Correspondence Course Syllabus available from the Department of University Extension.

General regulations governing enrolment in correspondence courses are given below; detailed information regarding University regulations will be found in this Calendar (pages 101-164).

Admission

Correspondence courses are open to applicants with full First Year or full Senior Matriculation standing, who have fulfilled the prerequisites for the course concerned. All requirements for admission to the University, as set forth in the Calendar, pages 38-40, apply to correspondence students.

Applicants must have reached their 18th birthday at the time they register for correspondence work.

Students registered in the Winter Session of the University are not allowed to enroll in correspondence courses.

Registration

Students will be permitted to register at any time of the year, but it is recommended that if possible they register at the time of the opening of the Winter Session, in September.

Course Credit

Upon completion of all assignments and examinations, full credit toward graduation will be granted.

Correspondence students will note that, of the last 45 units for the Bachelor of Arts degree, at least 30 units must be taken in attendance during the Winter or Summer Session.

Course credit will be granted only when the student has completed his correspondence work within two years of registration for the course.

The University will not grant credit for work taken concurrently at another university.

Fees

Fees charged for a correspondence course are the same as those charged for similar courses in the Summer Session. The course fees may be paid in three equal instalments, the first at the time of registration, the second in advance of receiving the ninth paper, and the third in advance of receiving the eighteenth paper. For details of fees see page 44.

Examinations

Upon satisfactory completion of all course papers and assignments, correspondence students are requested to notify the Extension Department of the date and centre selected for their final examinations.

Students so qualified are permitted to write their final examination at any of the following times: the Christmas examination period, the sessional examination period (April), or the supplemental examination period (the last week in August).

The Registrar of the University will endeavour to arrange the supervision of the examination, usually by a local educational official, at the centre selected by the student or at an alternative centre conveniently located.

Students who fail in two final examinations in any one course will not be permitted to register again for that correspondence course.

Standards in the final examinations will be the same as those for resident students.

EXTRA-SESSIONAL CLASSES

1. Extra-sessional classes in the evenings or late afternoons 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, are qualified for registration as Second Year students (full undergraduate or conditioned) or hold Normal School diplomas, and who have the prerequisite standing.

2. Students attending the extra-sessional classes will be tested by the ordinary Winter Session examinations. Credit will be given for the course if a grade of at least 50% is obtained.

3. Regulations in respect to credit, standing, extra-mural work, examinations, and supplementals are given on pages 101, 102, 117, 118.

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 de-

partment 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 Department is responsible for the administration of the rural section of the Dominion-Provincial Youth Training Programme, sponsored jointly by the Dominion Department of Labour and the Provincial Department of 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 film circuits for the National Film Board, and acts as a coordinating agency for the B. C. Circulating Film Exchange.

The present activities of the Department include the following:

(a) **Extension Lectures.**

Arrangements are made for members of the University teaching staff to give lectures at various centres throughout the Province.

(b) **Evening Classes.**

Evening classes on various subjects are held in the City of Vancouver and adjacent centres. Certain courses carry University credit.

(c) **Correspondence Courses for Academic Credit.**

The following courses are now available: Philosophy 100 (An Introduction to Philosophy), English 200 (A Survey of English Literature), Psychology 301 (Psychology of Childhood and Adolescence), History 304 (Mediaeval History 500 to 1300 A.D.), Economics 325 (Labour Economics and Labour Problems), Geography 409 (The Geography of North America) and Education 520 (History of Education).

(d) **Discussion Group Courses.**

Discussion group courses offered each year include specially prepared study bulletins, books and pamphlets in the following fields: parent education; drama; music, art, and literature; public speaking; current affairs; cooperative education.

(e) **Visual Education.**

The Department has one thousand 16 mm. motion picture films and eleven hundred sets of film strips and slides which are available on a rental basis. Projection equipment may also be obtained. Films are distributed for the Canadian Film Institute and the National Film Board.

(f) **Dramatics.**

The Department offers the following services to groups and individuals interested in the theatre: Play Lending Library, Sum-

mer School of the Theatre, correspondence courses, short courses, and general advisory service.

(g) **Agriculture.**

Short courses are arranged in cooperation with the University Faculty of Agriculture, the Provincial Department of Agriculture, and agricultural organizations. A pamphlet and advisory service is also maintained.

(h) **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.

(i) **Handicrafts.**

The 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.

(j) **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 family relationships.

(k) **Extension Library.**

The Extension Library provides books in fields of current interest for groups and individuals.

(l) **Art and Music.**

Through discussion group courses, a phonograph record loan service, books, films, and slides, the Department endeavours to be of assistance to groups and individuals interested in art and music.

(m) **Radio.**

The Department serves as Provincial Office for the C.B.C. programmes, Citizens' Forum and National Farm Radio Forum. It also arranges for talks and panel discussions over local and national broadcastings outlets.

(n) **Public Relations.**

A regular news and information service on University activities is provided for newspapers, radio stations, and other agencies. A monthly news sheet is mailed on request.

Full particulars regarding any of the above services will be furnished upon application to the Director, Department of University Extension.

UNIVERSITY SERVICE TRAINING CORPS

Selected students who can meet the physical requirements may take training in 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. Applications are made at the respective unit offices located in the University Armoury.

(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.

From 1928 to 1945 all ranks of the C.O.T.C. waived their local headquarters' training pay. The total amount so waived exceeded \$125,000. Approximately \$100,000 of this was used to construct and furnish the University Armoury. Commencing in September, 1945, the practice of waiving pay was discontinued.

With the return of peace, military training is now 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 with the rank and status of a 2/Lt. at a pay rate of \$165 per month plus allowances. He is required to devote a minimum of three hours per week at the Armoury to theoretical training during the Winter Session and from 3½ to 4 months each summer in Training at the various Active Force Corps Schools across Canada. On the successful completion of his military training and in the case of engineers, upon graduating from the University, the Officer Cadet emerges qualified for the rank of Captain in the Reserve Force and for the rank of Lieutenant in the Active Force. A number of these officers are accepted into the Active Force each year. Many applicants for the Active Force are accepted during their final year at University, during which year they are placed on full pay and allowances as officers.

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 Armoury.

(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. Lieutenant H. M. McIlroy was appointed by the Naval Service as Commanding Officer of the U.N.T.D. with the rank of Lieutenant-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, not only as an ultimate career, but to benefit themselves by improving and developing such qualities as leadership, responsibility, loyalty, sound physique and self-confidence. Some of these may already be possessed by instinct or acquired by chance, but for the most they would be deliberately inculcated during the years of Required Training in the U.N.T.D. The present Commanding Officer, Lieutenant-Commander (g) F. J. E. Turner, R.C.N. (R) took over command of the unit in September, 1947, when Lieutenant-Commander McIlroy, R.C.N. (R) retired as a 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, are promoted to Cadets R.C.N. (R). 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. At the present time the Naval Service is looking towards the U.N.T.D. as an important source of future officers in the permanent establishment of the R.C.N. A recently established program makes it possible for a student Cadet in his final academic year to receive pay and allowances as an Acting Sub-Lieutenant, should he choose to join the permanent force.

Full information pertaining to the Unit and an interview with the Resident Staff Officer may be obtained by applying at the U.N.T.D. Office in the University Armoury.

(c) RCAF (Reserve) University Flight.

In 1948 a Reserve University Flight of the Royal Canadian Air Force was established on the Campus.

The University Flight offers students an opportunity to qualify for Commissions in the RCAF Regular, Reserve, or Supplementary Reserve. Candidates must be Canadian citizens or British subjects, between the ages of 17½ years and 35 years. They are required to meet RCAF medical standards and to have good academic records. To qualify for a commission in one of the components of the RCAF a Flight Cadet must complete three years of training at the University and at Air Force Units.

While they undergo training, members of the Flight have the status of officers and hold the rank of Flight Cadet. Not only do members qualify for commissions, but they also receive payment for attendance at lectures and summer training. Pay of a Flight Cadet is equivalent to that of a Pilot Officer.

Each year a limited number of Cadets from the University Flight are selected to learn aircrew trades in the University Air Training Plan. Successful trainees gain their wings in three successive summers. In addition to summer flying training, Flight Cadets who train as pilots may, at the discretion of the Officer Commanding, fly with the City of Vancouver 442 (F) Reserve Squadron at least once weekly during the University term.

RCAF Headquarters, Ottawa, announced a new plan in October, 1950, under which a student in his final year may apply for the RCAF (Regular) in the fall, and if accepted, be subsidized with full pay and allowances while completing the final year.

Full information may be obtained at the RCAF (Reserve) UBC Flight Orderly Room in the University Armoury.

STUDENT ORGANIZATION

Alma Mater Society

President: Noreen Donaldson

Secretary: Joanne Strutt

Treasurer: John MacKinnon

The Alma Mater Society with its governing executive, the Students' Council, controls all student activities and is responsible for student discipline. Every student automatically becomes a member of the Alma Mater Society when he enrolls in the University. Members of Students' Council are elected every spring to hold office through the next year.

The Society levies a compulsory fee of \$10.00 upon each student, which may be augmented for special purposes by action of its membership. At present, an additional levy of \$5.00 for the War Memorial Gymnasium, and another of \$1.00 for Foreign Students' Scholarships bring the Alma Mater fee to a total of \$16.00.

The offices of the Alma Mater Society are in the Brock Memorial Building.

Publications Board

The Publications Board publishes "The Ubysey", student newspaper; the "Totem", yearbook of the Alma Mater Society; the "Student Directory", a list of addresses and telephone numbers of all members of the Society; and the "Tillicum", the student handbook of information issued to all freshmen.

The Literary and Scientific Executive

President: Ed. Pedersen

Secretary: Joyce McPherson

The Literary and Scientific Executive comprises the members of student clubs. Through its Major Executive, it directs the activities of these organizations and represents them on the Students' Council.

A list of these clubs and a description of their various fields of interest will be found in the Student Directory.

Women's Undergraduate Society

The Women's Undergraduate Society is the representative and executive organization of all the women of the University. Its object is to consider and advance the interests of women students by promoting extra-curricular activities.

Women's Athletics

The Women's Athletic Association includes all the women's athletic clubs of the University. It is affiliated with the Women's Amateur Athletic Federation of Canada. It functions under the immediate jurisdiction of the Women's Athletic Directorate which, with a membership drawn from faculty and students, cooperates in administering the athletic program of the University.

Detailed information appears in the Student Handbook.

Men's Athletics

All male 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 of the Evergreen Conference. It is supervised by the Men's Athletic Directorate, a body formed of both faculty and student representatives.

Detailed information appears in the Student Handbook.

Fraternities

Fraternities are recognized by the Senate of the University as student organizations. They are governed by the Inter-fraternity Council composed of representatives of each of the fraternities and a member of faculty. Membership in fraternities is by invitation.

Sororities

Sororities are recognized by the Senate of the University as student organizations. They are governed by the Women's Panhellenic Association. Membership in sororities is by invitation.

SUMMER SESSION STUDENTS' ASSOCIATION

1950-51 EXECUTIVE

President: Mary MacDonald

Secretary: D. A. Smith

Treasurer: Carol Menzies

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 Executive's 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.

ALUMNI ASSOCIATION

OFFICERS OF THE ALUMNI ASSOCIATION

President: James A. Macdonald, B.A.

1st Vice-President: Col. Gordon M. Letson, B.A., B.A.Sc.

Secretary-Manager (Permanent): Frank J. E. Turner, B.A., B.Com.

Treasurer: G. Dudley Darling, 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 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 is 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. John M. Buchanan, B.A. is the present Chairman of the Directors, and the Alumni Secretary-Manager is 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 to other Association members.

Further information concerning the Association may be obtained through the Alumni Office, Room 201, Brock Memorial Building, 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.

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 French.

- G. REID ELLIOTT, B.A. (Sask.), M.A. (Toronto), 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.), Associate Professor 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.), A.M. (Stanford), Assistant Professor of Biology.
- MISS PHYLLIS BAXENDALE, M.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.), Assistant Professor of Mathematics.
- CHARLES H. HOWATSON, M.A. (Brit. Col.), Assistant Professor of Geology and Geography.
- G. GRANT McORMOND, M.A. (Sask.), Assistant Professor of English.
- JOHN L. CLIMENHAGA, M.A. (Sask.), Assistant Professor of Physics.
- MISS WINONA J. BETHUNE, B.A. (Brit. Col.), Laboratory Instructor in Biology.
- HANS GRUBER, B.A. (Toronto), Instructor in Music.
- CLAUDE TREIL, Certificats D'Etudes Supérieures (Sorbonne), Instructor in French.
- MISS DOROTHY M. CRUICKSHANK, B.A. (Brit. Col.), Registrar.
- MRS. E. JOYCE MCKAY, B.A. (Man.), Assistant Registrar.
- MISS KATHLEEN R. MATTHEWS, 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 the First Year of Commerce). The courses offered are as follows:

Biology 100	Greek 90, 101, 202
Botany 200	History 101, 202, 304
Chemistry 100, 101, 200, 210	Latin 90, 101, 202
Commerce 151	Mathematics 101, 200, 201, 202
Economics 100, 200	Philosophy 100, 205
English 100-101, 200, 205	Physics 100, 101, 103, 200
French 101, 202, 203	Psychology 100, 202
Geography 101, 201, 202	Sociology 200
Geology 200	Zoology 200
German 90, 100, 101	

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.

Dean of Residence

REV. PROFESSOR J. W. GRANT, M.A., D.Phil.

Union College offers courses of instruction in Theology leading to a diploma in Theology, and to the degrees of B.D., B.Th., and S.T.M., 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 102.)

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.

Professor and Librarian

REV. D. P. WATNEY, M.A., B.D., D.D.

Professor and Registrar

REV. T. BAILEY, B.A., L.Th.

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 102.)

For further information in reference to Faculty, courses of study, etc., see Calendar of the College.

REGISTRATION FOR 1950-51

FACULTY OF ARTS AND SCIENCE

	<i>Men</i>	<i>Women</i>	<i>Total</i>
Arts and Science:			
First Year	671	298	969
Second Year	552	240	792
Third Year	432	187	619
Fourth Year	388	183	571
Total	2043	908	2951
Commerce:			
First Year	95	6	101
Second Year	89	6	95
Third Year	90	6	96
Fourth Year	31	6	37
Total	305	24	329
Home Economics:			
First Year		57	57
Second Year		41	41
Third Year		30	30
Fourth Year		57	57
Total		185	185
Physical Education:			
First Year	22	20	42
Second Year	27	10	37
Third Year	16	7	23
Fourth Year	26	11	37
Total	91	48	139
Education:			
Teacher Training Course	173	37	210
B.Ed. Course	1	2	3
Social Work:			
B.S.W. Course	52	44	96
M.S.W. Course	22	24	46
Total in Faculty	2687	1272	3959

FACULTY OF APPLIED SCIENCE

	<i>Men</i>	<i>Women</i>	<i>Total</i>
Engineering:			
First Year	176	1	177
Second Year	178	1	179
Third Year	217	.....	217
Fourth Year	358	.....	358
Total	929	2	931

Architecture:			
First Year	25	2	27
Second Year	15	.....	15
Third Year	15	.....	15
Fourth Year	22	2	24
Fifth Year	16	.....	16
Total	93	4	97
Nursing:			
First Year .....	.....	15	15
Second Year .....	.....	13	13
Third Year .....	.....	8	8
Fourth Year .....	.....	17	17
Fifth Year .....	.....	10	10
Certificate Course .....	.....	29	29
Total .....	.....	92	92
Total in Faculty	1022	98	1120
FACULTY OF AGRICULTURE			
	<i>Men</i>	<i>Women</i>	<i>Total</i>
First Year	28	9	37
Second Year	72	10	82
Third Year	68	7	75
Fourth Year	62	3	65
Fifth Year	10	1	11
Occupational Course	14	2	16
Total	254	32	286
FACULTY OF LAW			
	<i>Men</i>	<i>Women</i>	<i>Total</i>
First Year	67	3	70
Second Year	126	7	133
Third Year	115	7	122
Total	308	17	325
FACULTY OF PHARMACY			
	<i>Men</i>	<i>Women</i>	<i>Total</i>
Second Year	43	10	53
Third Year	40	8	48
Fourth Year	53	12	65
Total	136	30	166
FACULTY OF MEDICINE			
	<i>Men</i>	<i>Women</i>	<i>Total</i>
First Year	57	3	60
FACULTY OF FORESTRY			
	<i>Men</i>	<i>Women</i>	<i>Total</i>
First Year	22	.....	22
Second Year	23	.....	23
Third Year	28	1	29
Fourth Year	68	.....	68
Total	141	1	142

FACULTY OF GRADUATE STUDIES

	<i>Men</i>	<i>Women</i>	<i>Total</i>
Course leading to: Ph.D.	30	.....	30
M.A.	148	30	178
M.A.Sc.	34	.....	34
M.S.A.	42	3	45
M.F.	2	.....	2
Not candidates for degree	69	16	85
Total	325	49	374
Grand Total	4930	1502	6432
Veterans —Men	964		
Women	41		
Non-Veterans—Men	3966		
Women	1461		
	6432		
	<i>Men</i>	<i>Women</i>	<i>Total</i>
Extra-Sessional Classes, 1950-51.....	30	29	59
Correspondence Courses	245	126	371
Summer Session, 1950	726	372	1098

DEGREES CONFERRED

1950

May Congregations:

May 11th and 12th—LL.D. (Honoris Causa)—2; D.Sc. (Honoris Causa) —7; Ph.D.—2; M.A.—38; M.A.Sc.—7; M.S.A.—7; M.S.W.—11; B.S.W.—58; B.Ed.—14; B.A. (Honours Course)—61; B.A. (General Course)—523; B.Com.—129; B.H.E.—43; B.P.E.—21; B.A.Sc. (Engineering)—480; B.A.Sc. (Nursing)—16; B.Arch.—3; B.S.F.—76; B.S.A. (Honours Course)—13; B.S.A. (General Course)—111; LL.B.—125; B.S.P.—64.

Special Congregations:

August 10th—LL.D. (Honoris Causa)—1.

September 27th—D.Sc. (Honoris Causa)—2.

October Congregation:

October 25th—D.Sc. (Honoris Causa)—2; Ph.D.—2; M.A.—29; M.A.Sc.—5; M.S.A.—7; M.S.W.—8; B.S.W.—29; B.Ed.—29; B.A. (Honours Course)—14; B.A. (General Course)—185; B.Com.—20; B.H.E.—7; B.P.E.—7; B.A.Sc. (Engineering)—17; B.Arch.—2; B.S.F.—2; B.S.A. (General Course)—9; LL.B.—21; B.S.P.—3.

UNIVERSITY PUBLICATIONS

The University of British Columbia issues the following official publications, any of which may be obtained on request from the Registrar:

1. Requirements for University Entrance and for Senior Matriculation.
2. The Calendar.
3. Summer Session Announcement of Courses.

THE UNIVERSITY BOOK STORE

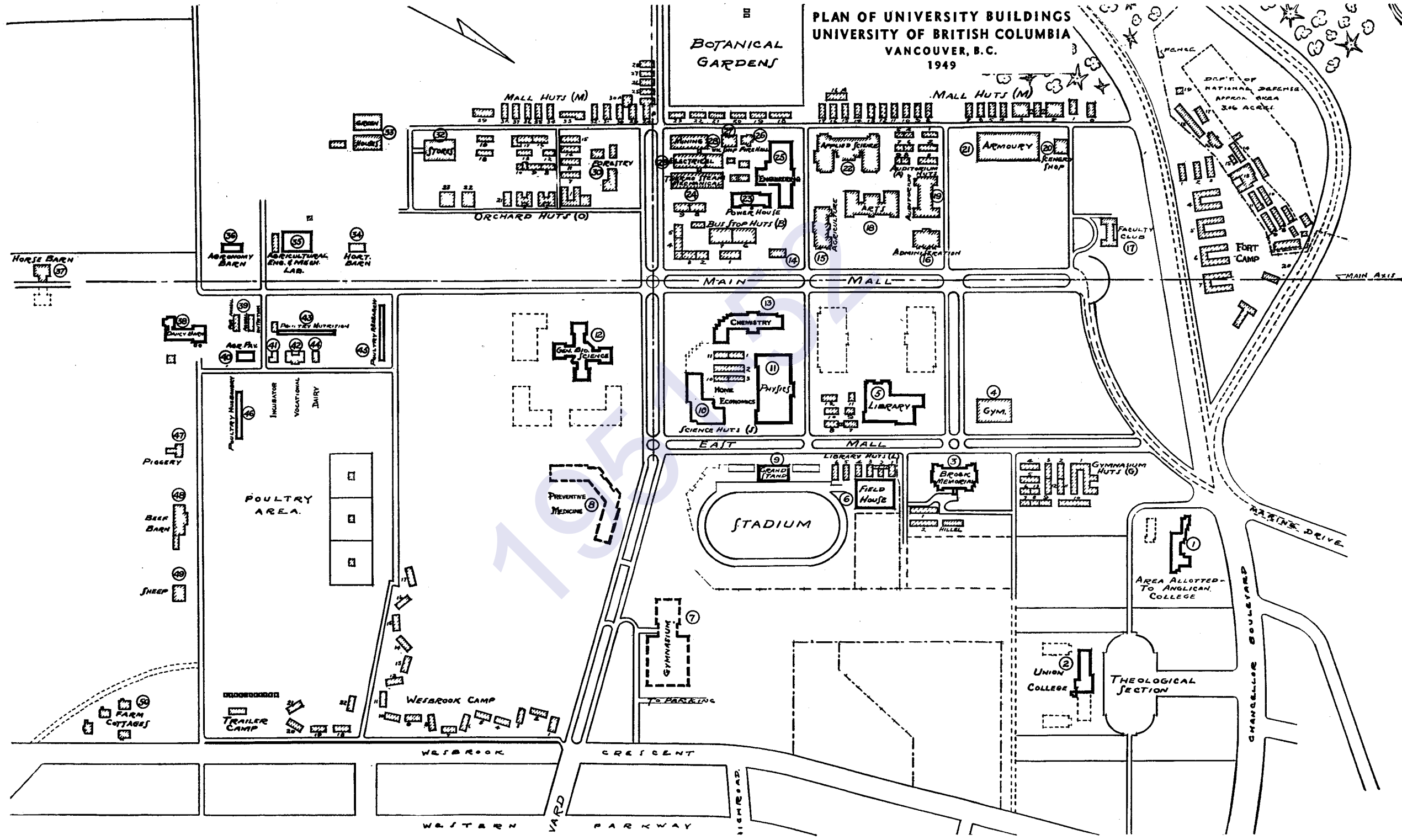
The book store, which occupies Hut A3, was established for the convenience of the students, and has effected a considerable saving to the students in time and money. It is prepared to supply all the text-books required for the various courses offered in the University, also such articles as note books, loose-leaf books, fountain pens, drawing paper, and instruments.

During the Winter Session the book store is open Monday to Friday, from nine to five o'clock, and Saturday, from nine to twelve.

ALUMNI-U.B.C. DEVELOPMENT FUND

Contributions from Alumni and friends of the University to this fund, which will be used for the general purpose of the University and the encouragement and advancement of education in the Province, may be forwarded to Frank J. E. Turner, B.A., B.Com., Secretary Manager, Alumni Association, Alumni Office, Room 201, Brock Memorial Building, University of British Columbia.

PLAN OF UNIVERSITY BUILDINGS
UNIVERSITY OF BRITISH COLUMBIA
VANCOUVER, B.C.
1949



REFERENCE NUMBERS

1. Anglican College	27. Workshops
2. Union College	28. Mining Laboratories
3. Brock Memorial	29. Electrical Laboratories
4. Gymnasium	30. Federal Forest Products Laboratories
5. Library	31. Forest Nursery
6. Field House	32. Stores
7. Memorial Gymnasium	33. Greenhouses
8. Preventive Medicine	34. Horticultural Barn
9. Stadium	35. Agricultural Engineering Laboratories
10. Home Economics	36. Agronomy Barn
11. Physics	37. Horse Barn
12. General Bio-Science	38. Dairy Barn
13. Chemistry	39. Fur Animal Laboratories
14. Bus Stop	40. Agricultural Pavilion
15. Agriculture	41. Incubator
16. Administration	42. Vocational
17. Faculty Club	43. Poultry Nutrition
18. Arts	44. Dairy Laboratory
19. Auditorium	45. Poultry Research
20. Scenery Shop	46. Poultry Husbandry
21. Armoury	47. Piggery
22. Applied Science	48. Beef Barn
23. Power House	49. Sheep Barn
24. Mechanical Laboratories	50. Farm Cottages
25. Engineering	
26. Fire Hall	

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