

PUBLICATIONS OF THE UNIVERSITY OF BRITISH COLUMBIA



THE UNIVERSITY OF BRITISH COLUMBIA

CALENDAR

THIRTY-NINTH SESSION

1953 - 1954

VANCOUVER • BRITISH COLUMBIA • 1953

VOL. 39

GENERAL SERIES

NO. 1

PROGRAMME FOR NEW STUDENTS

Monday, September 14th: Auditorium, 10.00 a.m.—Address by the Dean of Administrative and Inter-Faculty Affairs, who will describe the courses of study in the various faculties.

Monday, September 14th: Auditorium, 1.30 p.m.—Counselling tests for new students, mainly those from out-of-town.

Tuesday, September 15th: Registration begins. (See page 5.)

Thursday, September 17th: Auditorium, 9.00 a.m.—Orientation programme for new students.

Friday, September 18th: Auditorium, 9.00 a.m.—Address by President N. A. M. MacKenzie; Students' Council programme.

Saturday, September 19th: Continuation of orientation programme.

TIME TABLES

Schedules showing hours and rooms for lectures and laboratories will be available during the registration period beginning September 15th.

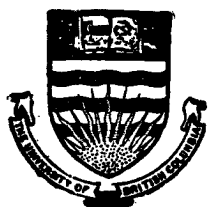
THE DOMINION-PROVINCIAL YOUTH TRAINING BURSARIES AND PROVINCIAL LOAN FUND

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, 1953.

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1953-54

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†ACADEMIC YEAR

August

15th Saturday	Last day for submission of applications for admission to First Year Nursing.
	Last day for submission of applications for bur-saries.
17th Monday } 18th Tuesday } 20th Thursday } 28th Friday }	Supplemental examinations—First Year Nursing.
	Supplemental examinations.

September

1st Tuesday	ACADEMIC YEAR begins.
5th Saturday	University closed.
7th Monday	Labour Day. University closed.
8th Tuesday	Registration begins, Faculty of Graduate Studies and M.S.W. Course.
	Registration, Faculty of Medicine.
	Lectures begin, Faculty of Medicine.
14th Monday	Address describing the courses in the various faculties by Dean of Administrative and Inter-Faculty Affairs at 10:00 a.m. in Auditorium.
	Counselling tests, 1:30 p.m., Auditorium.
15th Tuesday } 19th Saturday }	*Registration in person for Winter Session as follows:
	First Year Arts and Science, Home Economics, Physical Education, Tuesday, September 15th, 9 a.m. to Saturday, September 19th, 12 noon.
	First Year Nursing, Tuesday, September 15th only.
	All years, Arts and Science, Commerce, Home Economics, Physical Education, Education, Social Work, Wednesday, September 16th, 9 a.m., to Saturday, September 19th, 12 noon.
	Faculties of Agriculture, Forestry, Law and Pharmacy, Thursday, September 17th, 9 a.m., to Saturday, September 19th, 12 noon.
	Faculty of Applied Science, School of Architecture, School of Nursing (Fifth Year and Certificate Courses), Friday, September 18th, 9 a.m., to Saturday, September 19th, 12 noon.
	*Registration closes weekdays at 4.00 p.m. and Saturday at 12 noon.
	First Term fees are due and payable.
17th Thursday } 19th Saturday }	Programme in Auditorium for new students as follows:
	Orientation lectures, Thursday, September 17th, 9 a.m.
	Address to new students by President MacKenzie, followed by Students' Council Programme, Friday, September 18th, 9 a.m.
	Continuation of orientation programme, Saturday, September 19th, 9 a.m.
19th Saturday	Last day for registration of all students, both undergraduate and graduate, except those in Extra-Sessional Classes and Correspondence Courses.
21st Monday	Lectures begin at 8:30 a.m.

During 1953 the University is closed Saturdays from May 23rd to September 5th inclusive.

October

1st Thursday	Last day for handing in graduation essays and theses (Autumn Congregation). Application forms available for admission to Faculty of Medicine, Session 1954-55.
2nd Friday	Last day for change in students' courses. Meeting of the Faculty Council. (Subsequent meetings to be held at the call of the President.)
7th Wednesday	Meeting of the Faculty of Medicine.
8th Thursday	Alma Mater Society, semi-annual meeting. Thanksgiving Day. University closed Saturday to Monday, inclusive.
14th Wednesday	Meeting of the Faculty of Arts and Science.
15th Thursday	Last day for handing in applications for courses leading to Master's degrees.
16th Friday	Meeting of the Faculty of Agriculture.
21st Wednesday	Meeting of the Senate.
30th Friday	Congregation.

November

11th Wednesday	Remembrance Day. University closed. Service in Memorial Gymnasium, 10.45 a.m.
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December

2nd Wednesday	Meeting of the Faculty of Arts and Science.
4th Friday	Meeting of the Faculty of Agriculture.
16th Wednesday	Meeting of the Senate.
19th Saturday	First Term ends.
25th Friday	Christmas Day. University closed December 24th, 12 noon, 25th and 26th.

1954

January

1st Friday	New Year's Day. University closed January 1st and 2nd.
4th Monday	Second Term begins. Second Term fees due and payable. Students are advised to mail Second Term fees to Accountant by this date.
15th Friday	Last day for submission of applications for admission to Faculty of Medicine.
20th Wednesday	Meeting of the Faculty of Arts and Science.
22nd Friday	Meeting of the Faculty of Agriculture.
28th Thursday	Meeting of the Faculty of Medicine.

February

10th Wednesday	Meeting of the Senate.
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March

1st Monday	Last day for handing in theses, Fourth Year, Faculty of Medicine.
15th Monday	Last day for handing in applications for graduate scholarships.
18th Thursday	Alma Mater Society, annual meeting.

April

13th Tuesday	Last day of lectures. Last day for handing in graduation essays and theses.
15th Thursday	Sessional examinations begin.
16th Friday	Good Friday. University closed.
17th Saturday	Sessional examinations continue.
19th Monday	Easter Monday. University closed.

May

1st Saturday	Sessional examinations end. Last day for handing in applications for undergraduate scholarships.
3rd Monday	Field Work in Applied Science begins.
6th Thursday	Faculty of Medicine, last day of lectures for First, Second, and Third Years.
8th Saturday	Meeting of the Faculty of Agriculture.
10th Monday	Meeting of the Faculty of Arts and Science.
	Meeting of the Faculty of Law.
11th Tuesday	Meeting of the Faculty of Medicine.
12th Wednesday	Meeting of the Senate.
15th Saturday	Faculty of Medicine, last day of term.
16th Sunday	Baccalaureate Service, Brock Hall, 11 a.m.
17th Monday	Congregation.
18th Tuesday	Congregation.
22nd Saturday	University closed.
24th Monday	Victoria Day. University closed.
29th Saturday	University closed.

June

5th Saturday Counselling tests, see page 47.

July

1st Thursday	Dominion Day. University closed.
5th Monday	Summer Session begins. Last day of Registration for the Summer Session.
15th Thursday	Last day for submission of applications for supplemental examinations.

August

20th Friday	Summer Session ends.
27th Friday	Meeting of the Faculty of Arts and Science.
	Meeting of the Senate.
31st Tuesday	ACADEMIC YEAR ends.

JULY, 1953							AUGUST, 1953							SEPTEMBER, 1953							OCTOBER, 1953							
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	
			1	2	3	4							1				1	2	3	4	5				1	2	3	
5	6	7	8	9	10	11	2	3	4	5	6	7	8	6	7	8	9	10	11	12		4	5	6	7	8	9	10
12	13	14	15	16	17	18	9	10	11	12	13	14	15	13	14	15	16	17	18	19		11	12	13	14	15	16	17
19	20	21	22	23	24	25	16	17	18	19	20	21	22	20	21	22	23	24	25	26		18	19	20	21	22	23	24
26	27	28	29	30	31	....	23	24	25	26	27	28	29	27	28	29	30	....	....	....		25	26	27	28	29	30	31
....	....	....	....	....	....	....	30	31	....	....	....	....	....	....	....	....	....	....	....	....		....	....	....	....	....	....	....

NOVEMBER, 1953							DECEMBER, 1953							JANUARY, 1954							FEBRUARY, 1954								
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		
1	2	3	4	5	6	7				1	2	3	4	5					1	2				1	2	3	4	5	6
8	9	10	11	12	13	14	6	7	8	9	10	11	12		3	4	5	6	7	8	9	7	8	9	10	11	12	13	
15	16	17	18	19	20	21	13	14	15	16	17	18	19	10	11	12	13	14	15	16		14	15	16	17	18	19	20	
22	23	24	25	26	27	28	20	21	22	23	24	25	26	17	18	19	20	21	22	23		21	22	23	24	25	26	27	
29	30	....	....	....	....	....	27	28	29	30	31	....	....	24	25	26	27	28	29	30		28	....	....	....	....	....	....
....	....	....	....	....	....	....	....	....	....	....	....	....	....	31	....	....	....	....	....	....		....	....	....	....	....	....	....

MARCH, 1954							APRIL, 1954							MAY, 1954							JUNE, 1954							
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	
			1	2	3	4							1						1					1	2	3	4	5
7	8	9	10	11	12	13	4	5	6	7	8	9	10	2	3	4	5	6	7	8		6	7	8	9	10	11	12
14	15	16	17	18	19	20	11	12	13	14	15	16	17	9	10	11	12	13	14	15		13	14	15	16	17	18	19
21	22	23	24	25	26	27	18	19	20	21	22	23	24	16	17	18	19	20	21	22		20	21	22	23	24	25	26
28	29	30	31	25	26	27	28	29	30	23	24	25	26	27	28	29		27	28	29	30
....	30	31

1953-54

The University of British Columbia

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Term expires 1954.

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Dean of the Faculty of Medicine, MYRON McDONALD WEAVER, A.B., M.S., Ph.D., M.D.

Dean of the Faculty of Forestry, LOWELL BESLEY, B.S., M.F. (Resigned, effective June 30th, 1953.)

Dean of Administrative and Inter-Faculty Affairs, WALTER H. GAGE, M.A.

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Terms expire 1954.

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

H. N. MACCORKINDALE, B.A., Vancouver.

FRANCIS J. BURD, C.B.E., Vancouver.

H. C. HOLMES, M.A., Victoria.

Terms expire 1955.

(d) The Principal of the Provincial Normal School, Vancouver, F. C. BOYES, M.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 (Theological), Vancouver, REV. W. S. TAYLOR, M.A., B.D., Ph.D. Term expires 1954.

The Anglican Theological College of British Columbia, Vancouver, REV. W. A. FERGUSON, M.A., D.D. Term expires 1954.

(g) Elected by Convocation:

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

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C. A. H. WRIGHT, M.Sc., Ph.D., Trail.
Terms expire 1954.

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

MISS MOLLIE E. COTTINGHAM, M.A., Vancouver. Term expires 1955.

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FRANK J. E. TURNER, B.A., B.Com., Secretary.

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- WALTER H. GAGE, M.A. (Brit. Col.), Dean of Administrative and Inter-Faculty Affairs.
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- MISS MARGARET E. LALONDE, Assistant Accountant.
- MISS PHYLLIS GRAY, Tabulating Supervisor.

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K. C. McTAGGART, B.A., B.A.Sc. (Brit. Col.), M.Sc. (Queen's), Ph.D. (Yale), Assistant Professor.

Geography

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

J. ROSS MACKAY, B.A. (Clark), M.A. (Boston), Ph.D. (Montreal), Assistant Professor.

J. D. CHAPMAN, M.A. (Oxon.), Assistant Professor.

Department of German

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

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

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

MRS. M. LOURIE-JETTER, Dr. Juris (Vienna), A.M. (Stanford), Dip. in Soc. Wk. (Brit. Col.), Assistant Professor.

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

MRS. P. TAYLOR, M.A. (Brit. Col.), Lecturer (Session 1952-53).

JAKOB W. GOERZEN, M.A. (Alberta), Ph.D. (Toronto), Lecturer (Session 1952-53).

MISS RUTH ROSENAU, M.A. (California), Lecturer (Session 1952-53).

Department of History

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GEOFFREY O. B. DAVIES, M.A. (Cantab.), Assistant Professor.

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School of Home Economics

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MISS EILEEN BACON, B.H.E. (Brit. Col.), Dietitian in charge Acadia Camp.

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International Studies

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 E. LEIMANIS, Mag. Math. (Riga), Dr. Rer. Nat. (Hamburg), Associate Professor.
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Department of Mechanical Engineering

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 WM. E. J. STEEL, B.A.Sc. (Brit. Col.), Demonstrator.
 H. R. PAYNE, B.A.Sc. (Brit. Col.), Demonstrator.

Department of Mining and Metallurgy

- FRANK A. FORWARD, B.A.Sc. (Toronto), F.I.M., M.C.I.M., M.Inst.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.
 HENRY M. HOWARD, B.A.Sc. (Toronto), M.C.I.M., Professor of Mineral Dressing.
 WILLIAM M. ARMSTRONG, B.A.Sc. (Toronto), M.C.I.M., Associate Professor of Metallurgy.
 C. S. SAMIS, M.Sc. (Manitoba), Ph.D. (London), M.C.I.M., Associate Professor of Metallurgy.
 J. HALPERN, B.Sc., Ph.D. (McGill), Assistant Professor.
 J. P. WARNER, B.Sc. (Eng.), A.R.S.M. (London), Instructor.
 H. G. V. EVANS, B.Sc. (Alberta), Research Associate.
 H. P. MYERS, B.Sc., Ph.D. (Sheffield), Research Associate.
 J. G. SMITH, B.A., M.A. (Brit. Col.), Research Assistant.

Department of Music

HARRY ADASKIN, Professor of Music.

MRS. JEAN COULTHARD ADAMS, L.R.S.M., A.T.C.M., Instructor.

MISS BARBARA PENTLAND, Instructor.

School of Nursing

MISS H. EVELYN MALLORY, B.Sc., A.M. (Columbia), R.N., Professor and Director of the School.

MISS RUTH MORRISON, B.S. (Minnesota), A.M. (Columbia), R.N., Assistant Professor.

MISS PAULINE CAPELLE, B.A., B.A.Sc., (Brit. Col.), A.M. (Chicago), R.N., Assistant Professor.

MISS LORNA M. HORWOOD, B.A. (Queen's), R.N., Assistant Professor. (On leave of absence.)

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.

MISS MARGARET M. STREET, B.A. (Manitoba), R.N., Instructor (Session 1952-53).

Part-time Lecturers:

Miss Lyle M. Creelman, B.A.Sc. (Brit. Col.), A.M. (Columbia), R.N.; 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); Elda Lindenfeld, M.D.; J. M. Mather, M.D., D.P.H. (Toronto); John McGeachan, B.A. (Brit. Col.), 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.M. (Michigan), Ph.D. (California), Associate Professor.

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

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

EDRO SIGNORI, B.A. (Alta.), M.A., Ph.D. (Toronto), Associate Professor.

PETER REMNANT, M.A. (Brit. Col.), Assistant Professor.

AVRUM STROLL, M.A., Ph.D. (California), Assistant Professor.

REVA POTASHIN, M.A., Ph.D. (Toronto), Instructor.

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

DOUGLAS KENNY, M.A. (Brit. Col.), Ph.D. (Wash.), Lecturer.

MARGARET SAGE, B.A. (Brit. Col.), M.A. (Western Reserve), Lecturer.

DONALD G. SAMPSON, M.A. (Toronto), Lecturer.

H. CARR, C.S.B., M.A., LL.D. (Toronto), Special Lecturer.

School of Physical Education

ROBERT F. OSBORNE, B.A., B.Ed. (Brit. Col.), Associate Professor and Director of the School.

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), M.S. (Oregon), 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. LORNE BROWN, B.Sc. (Phys. Ed.) (McGill), Lecturer.

BARRY G. LOWES, B.P.H.E. (Toronto), A.M. (New York), Lecturer.

ALASTAIR M. GRANT, B.Ph.E. (Toronto), Lecturer (Session 1952-53).

HJALMER ANDERSEN, B.A. (Health and P.E.) (Washington), Instructor.

RICHARD PENN, B.P.E. (Brit. Col.), Instructor and Acting Director of Athletics.

MISS MARJORY BECK, B.F. (Russell Sage), Instructor.

RICHARD MITCHELL, B.P.E. (Brit. Col.), Instructor.

MISS DIANE BANCROFT, B.P.E. (Brit. Col.), A.M. (Smith), Instructor.

Department of Physics

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.

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KENNETH C. MANN, O.B.E., B.A. (Sask.), M.A., Ph.D. (Toronto), Professor.

GEORGE MICHAEL VOLKOFF, M.B.E., M.A. (Brit. Col.), Ph.D. (California), D.Sc. (Brit. Col.), F.R.S.C., Professor.

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

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

W. OPECHOWSKI, Magister Filozofji (Warsaw), Associate Professor.

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

B. M. CWILONG, Magister Filozofji (Warsaw), D.Phil. (Oxon.), Associate Professor.

OTTO BLUH, Dr. Rer. Nat., D.Phys. (Prague), F.Inst.P., Assistant Professor.

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

FRIEDRICH A. KAEMPFER, Dipl. Ing., Dr. Rer. Nat. (Göttingen), Assistant Professor.

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H. E. D. SCOVIL, M.A., D.Phil. (Oxon.), Assistant Professor.

D. B. JAMES, B.A. (Univ. Coll. Wales), Ph.D. (Cantab.), Research Fellow.

U. F. GIANOLA, B.Sc., Ph.D. (Birmingham), Research Fellow.

P. A. LEE, B.Sc. (London), Research Fellow.

R. G. EADES, B.Sc., Ph.D. (St. Andrews), Research Fellow.

C. B. JEFFERY, B.A.Sc. (Brit. Col.), Lecturer.

C. E. B. MCCONACHIE, B.A.Sc. (Brit. Col.), M.Sc. (M.I.T.), Lecturer.

J. A. PARK, B.Sc. (Glasgow), Lecturer.

R. J. CLARK, B.A. (McGill), Ph.D. (Cantab.), Part-time Lecturer.

G. S. HUTTON, B.A. (Sask.), Demonstrator.

MRS. ROSA THEIMER, Dipl. Phys. (Munich), Dr. Techn. (Graz), Demonstrator.

Department of Poultry Husbandry

JACOB BIELY, M.S.A. (Brit. Col.), M.S. (Kansas State College), Professor and Head of the Department.

AMP F. HICKS, JR., B.S. (Kentucky), M.S. (California), Lecturer.

E. A. LLOYD, B.S.A. (Sask.), M.S.A. (Wash. State), F.P.S.A., Special Lecturer.

MRS. BERYL E. MARCH, B.A. (Brit. Col.), Instructor.

Department of Slavonic Studies

JAMES O. ST. CLAIR-SOBELL, M.A. (Melbourne), Ph.D. (Graz), Professor and Head of the Department.

H. E. RONIMOIS, M.Sc. (Econ.) (Tartu), Ph.D. (London), Associate Professor.

A. H. KUIPERS, B.A. (Utrecht), M.A. (Amsterdam), Ph.D. (Columbia), Assistant Professor.

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

CYRIL BRYNER, A.B. (Stanford), Ph.D. (Prague), Assistant Professor.

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IRINA M. CARLSEN, B.A. (Brit. Col.), Lecturer.

PETER DAVIDOVICH ISAAK, Cand. Phil. (Leningrad), Special Lecturer.

TADEUSZ HALPERT-SCANDEBEG, Staatl. Dipl. (Leipzig), Special Lecturer.

VALENTIN IVANOVICH BARBASHOFF (Moscow Tech. Inst.), Part-time Lecturer.

School of Social Work

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WILLIAM G. DIXON, B.A. (Brit. Col.), A.M. (Chicago), Associate Professor.

MISS ELIZABETH V. THOMAS, A.B. (Wesleyan College), M.S. (Columbia), Associate Professor.

MISS MARGARET C. JOHNSON, B.A. (Brit. Col.), M.S.W. (Washington University), Assistant Professor.

MRS. HELEN MCCRAE, B.A., M.S.W. (Brit. Col.), Instructor.

MRS. HELEN EXNER, B.A. (Vassar), M.S.S. (Smith), Lecturer.

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ARTHUR C. ABRAHAMSON, B.A., M.S.W. (Minnesota), Instructor.

MISS ZELLA COLLINS, Dip.Soc.Ser.Dept. (Toronto), Field Work Instructor.

MISS MURIEL CUNLIFFE, B.A., B.S.W. (Brit. Col.), M.S.S. (Smith), Field Work Instructor.

Part-time Lecturers:

Raymond G. Herbert, B.A., LL.B.; Elda Lindenfeld, M.D.; R. G. E. Richmond, M.D., M.R.C.S., L.R.C.P.; R. L. Whitman, M.D.; Patrick J. Fogarty, B.A., M.S.W. (Brit. Col.); Mrs. Mary Rupp, B.A. (Brit. Col.), M.S.W. (Washington).

Part-time Field Work Instructors:

Mrs. Edna Alexander; John Sanders, B.A. (Brit. Col.), M.S.S.W. (William and Mary).

Department of Spanish

- J. G. ANDISON, B.A. (Man.), A.M., Ph.D. (Columbia), Head of the Department.
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 G. E. MCSPADEN, M.A. (Univ. of New Mexico), Ph.D. (Stanford), Associate Professor.
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 P. M. H. EDWARDS, B.A. (Brit. Col.), A.M. (Columbia), F.T.C.L., A.R.C.M., L.R.A.M. (London), Lecturer (Session 1952-53).
 MRS. EMILIA DAVISON, Part-time Lecturer.

Department of Zoology

- W. A. CLEMENS, M.A. (Toronto), Ph.D. (Cornell), F.R.S.C., Professor and Head of the Department.
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 KENNETH GRAHAM, B.A. (Brit. Col.), M.Sc. (McGill), Ph.D. (Toronto), Professor of Forest Entomology.
 JAMES R. ADAMS, B.Sc., M.Sc., Ph.D. (McGill), Associate Professor.
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 PETER FORD, B.Sc., Ph.D. (London), F.Z.S., F.L.S., Assistant Professor.
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 CHESTER NEILSON, B.S. (Utah), M.S. (Oregon), Honorary Lecturer.
 RALPH V. BANGHAM, B.S. (Haverford), Ph.D. (Ohio State), Honorary Research Associate.
 MIKLOS D. F. UDVARDY, Ph.D. (Debrecen, Hungary), Lecturer (Session 1952-53).

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 CHARLES B. BOURNE, B.A. (Toronto), LL.B. (Cantab.), Associate Professor.
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 RAYMOND G. HERBERT, D.F.C., B.A., LL.B. (Brit. Col.), Lecturer.
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 D. MCK. BROWN, B.Com. (Brit. Col.), Lecturer on Insurance.
 THE HONOURABLE MR. JUSTICE COADY, B.A. (St. F.X.), Lecturer on Evidence.
 V. L. DRYER, B.A. (Brit. Col.), Lecturer on Evidence.

- LEON J. LADNER, Q.C., B.A., LL.B. (Toronto), Lecturer on Taxation.
 N. A. M. MACKENZIE, C.M.G., M.M. and Bar, Q.C., B.A., LL.B. (Dalhousie), LL.M. (Harvard), LL.D. (Mount Allison, New Brunswick, Toronto, Ottawa, Bristol, Alberta, Glasgow), D.C.L. (Whitman), D.Sc.Soc. (Laval), F.R.S.C., Lecturer on Public International Law.
 M. M. McFARLANE, B.A. (Brit. Col.), Lecturer on Company Law.
 D. E. McTAGGART, Q.C., B.A. (McGill), Lecturer on Municipal Law.
 FREDERICK READ, LL.B. (Manitoba), Lecturer on Bills and Notes.
 S. J. REMNANT, Q.C., Lecturer on Criminal Law.
 F. A. SHEPPARD, B.A. (Toronto), LL.B. (Sask.), Lecturer on Equity.
 THE HONOURABLE MR. JUSTICE WILSON, Lecturer on Procedure II.
 A. WATTS, B.Com. (Brit. Col.), Honorary Liaison Secretary.

FACULTY OF PHARMACY

- A. W. MATTHEWS, B.Sc. (Pharm.), M.Sc. (Alberta), Ph.D. (Florida), Professor and Dean of the Faculty.
 FINLAY A. MORRISON, M.B.E., B.S.P. (Sask.), M.Sc. (Maryland), Assistant Professor of Pharmacy. (On leave of absence.)
 JOHN E. HALLIDAY, B.S.P. (Sask.), M.S. (Purdue), Assistant Professor of Materia Medica and Pharmacology.
 GORDON A. GROVES, B.Sc. (Pharm.), M.Sc. (Alta.), Assistant Professor of Pharmacy.
 V. CHIVERS-WILSON, Lecturer in Pharmaceutical Chemistry (Session 1952-53).

FACULTY OF MEDICINE

- MYRON M. WEAVER, A.B. (Wheaton), M.S., Ph.D., M.D. (Chicago), F.A.C.P., Professor and Dean of the Faculty of Medicine.
 MARVIN DARRACH, M.A. (Brit. Col.), Ph.D. (Toronto), Professor and Assistant to the Dean.

Department of Anatomy

- SYDNEY M. FRIEDMAN, B.A., M.D., C.M., M.Sc., Ph.D. (McGill), Professor and Head of the Department.
 JOHN E. HARVEY, M.A. (Alberta), M.D. (Toronto), Ph.D. (Chicago), Professor of Histology.
 PARIS CONSTANTINIDES, M.D. (Vienna), Ph.D. (Montreal), Associate Professor.
 MRS. CONSTANCE L. FRIEDMAN, B.Sc., M.Sc., Ph.D. (McGill), Research Associate Professor.
 GEORGE I. NORTON, M.D. (Alberta), Clinical Assistant Professor in Radiological Anatomy.
 F. R. C. JOHNSTONE, M.B., Ch.B. (Edinburgh), F.R.C.S. (Edin.), Lecturer.
 FABIEN D. CURRY, M.D. (Western Ontario), Teaching Fellow.
 MARIA MATE, M.D., C.M. (Queen's), Teaching Fellow.
 JOHN A. RUTHERDALE, M.D. (Toronto), Teaching Fellow.
 J. W. CLUFF, B.Sc. (Sask.), M.D. (Man.), F.R.C.S. (C), Demonstrator.
 WILLIAM FISTER, M.D. (Man.), M.R.C.P. (Edin.), F.R.C.P. (C), Demonstrator.
 LUDMILA ZELDOWICZ, M.D. (Warsaw), Demonstrator.

Department of Biochemistry

- MARVIN DARRACH, B.A., M.A. (Brit. Col.), Ph.D. (Toronto), Professor and Head of the Department.
- WILLIAM J. POLGLASE, B.A., M.A. (Brit. Col.), Ph.D. (Ohio State), Associate Professor.
- SIDNEY H. ZBARSKY, B.A. (Sask.), M.A., Ph.D. (Toronto), Associate Professor.
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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.; W. O. Richmond, B.A.Sc., M.S., Mem.A.S.M.E.; W. G. Heslop, B.A.Sc., M.E.I.C., Assoc.C.I.M.; L. D. Hayward, B.A., Ph.D.; Neil Harlow, Ed.B., M.A.; V. C. Brink, M.S.A., Ph.D.; J. F. McLean, D.S.O., B.A.

OTHER DEPARTMENTS

Department of University Extension

GORDON MERRITT SHRUM, O.B.E., M.M., E.D., M.A., Ph.D. (Toronto), F.R.S.C., Director.

JOHN HAAR, B.A. (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.), M.S.W. (Brit. Col.), Supervisor, Study Groups.

REGINALD J. S. MOIR, 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, Supervisor, Arts and Handicrafts.

ALLAN DES CHAMPS, B.S.A. (Manitoba), Instructor in Agriculture.

PHILIP W. KEATLEY, B.A. (Brit. Col.), Instructor.

University Health Service

A. KENNETH YOUNG, M.B., Ch.B. (Glasgow), Director of University Health Service.

FRANK J. HEBB, M.D. (Dalhousie), Physician.

C. H. GUNDRY, M.D. (Toronto), Consultant Psychiatrist.

H. M. SPIRO, M.D., B.Sc. (Dalhousie), Consultant Radiologist.

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.

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

MISS JOYCE READ, B.A.Sc., R.N., Public Health Nurse.

MISS BETTY BARRETT, R.T. (X-ray and Laboratory).

Counselling, Placement, Staff Personnel, Veterans' Services

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

A. F. SHIRHAN, M.A. (Brit. Col.), Counsellor.

MRS. G. E. MAYNARD, B.A. (Carleton Coll., Ottawa), M.P.S. (Colorado), Assistant Counsellor.

Library Staff

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Bio-Medical Library:

M. DOREEN E. FRASER, B.A. (Alta.), B.L.S. (Toronto), Bio-Medical Librarian.
MARGUERITE G. STEWART, B.A. (Sask.), B.L.S. (Toronto), Junior Librarian.

Serials Division:

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

Extension Library:

EDITH M. STEWART, B.A. (Man.), B.S. in L.S. (Wash.), First Assistant.

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, Chancellor Hamber was succeeded by Brigadier Sherwood Lett, one of the first graduates of this University, and became the University's first Chancellor Emeritus.

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. In 1951 the first three units of the Women's Residences were occupied, the War Memorial Gymnasium was officially opened, a building for Bacteriology and medical services was completed, and the new Law Building was brought into use.

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 300,000 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 funds, the B. C. Packers Fund, and grants from the Rockefeller and Carnegie foundations have enriched the collections in fine arts, fisheries, slavic studies, French-Canadiana, anthropology, and in other subject fields.

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: It also operates the Extension Library, which serves the book needs of the Department of Extension and supplements existing library facilities throughout the province. A Bio-Medical library provides service to the Faculty of Medicine through a reading and reference room in the main Library building and a branch at the Vancouver General Hospital.

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 12 noon on Saturdays. Access to the book stacks, assignment to study carrels, and other facilities for special study are made available to advanced students whenever possible. Microfilm and microcard reading machines are 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.

Museums

These consist of (1) the Anthropological Museum, housed on the first floor of the Library; (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 Anthropological Museum includes the Burnett and Raley collections as well as others; the Buttimer and other collections of Indian baskets; the Michell Pierce collection of Eskimo clothing and utensils. The Burnett Collection was made by the late Frank Burnett who donated it. It contains groups of artifacts representative of the ethnology and archaeology of various parts of the Pacific Basin. The largest unit, 1170 catalogued items, is from the Melanesian Islands of the South Pacific, but Indonesia and North and South America are also strongly represented.

The collection made by Dr. G. H. Raley and donated by Dr. H. R. MacMillan is especially full in artifacts from Kitimat. An unusually rich collection of ceremonial material from the Southern Kwakiutl has been donated by Dr. MacMillan.

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 schools. 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; a hooded dinosaur, *Lambeosaurus* sp. from Steepleville, Alberta, on permanent loan from the National Museum, Ottawa; suites of fossils, minerals, ores, birds and mammals.

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

Women's 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

The Memorial Gymnasium was officially dedicated on October 26, 1951. This building, which cost almost \$800,000, was 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. It was financed by public subscriptions, a Provincial Government grant, and in major degree by a special student levy. Future plans call for the completion of certain portions of the building and construction of a swimming pool.

Stadium and Playing Fields

The main playing field area, about 16 acres, is situated east of the East Mall and north of the University Boulevard. Development work was started early in January, 1931, and was made possible by funds provided chiefly by subscriptions from the Faculty, students, and friends of the University.

In addition to the main playing field of the stadium, there are two other full-sized fields and a number of smaller areas set aside for outdoor games. A new section of the playing field is being developed adjacent to the War Memorial Gymnasium.

The first section of the grandstand for the stadium, a covered reinforced concrete structure, erected in the summer of 1937 on the west side of the main playing field, seats 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, etc. Funds for the construction of the grandstand were provided through a \$40,000 bond issue sponsored by the Alma Mater Society.

The School of Physical Education also uses certain temporary accommodation used primarily for dance classes and recreational activities. An air-force hangar brought to the campus in the fall of 1946, and reconstructed

as an athletic Field House in January, 1948, 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 perform as many as possible of the functions of a Fine Arts Department. The Workshop is equipped for, and gives non-credit courses in ceramics, painting, sculpture, weaving and other applied arts. 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.

The British Columbia Research Council

The British Columbia Research Council was established in 1944. It has its headquarters and laboratories on the campus of the University. The Council works in the closest cooperation with the various science departments of the University of British Columbia. Its programme includes both fundamental and applied research. The latter is directed particularly toward those fields which are of greatest interest to British Columbia industry. The Council has a total staff of thirty-nine, of which twenty-five are professional scientists and engineers.

Connaught Medical Research Laboratories Western Division

In 1935, under a cooperative arrangement involving the University, the Provincial Department of Health of British Columbia, and the Connaught Medical Research Laboratories of the University of Toronto, the latter institution established a Western Division on the campus. At that time, the University's research programme was limited, and hence this gesture of faith from a sister university in the validity and necessity of research was timely and stimulating. For sixteen years, the Western Division of the Connaught Medical Research Laboratories shared a portion of the very crowded quarters occupied by the Department of Bacteriology and Preventive Medicine in the Science Building. In 1951, it transferred to part of the top floor of Wing A in the new Wesbrook Building. Research projects in microbiology as applied to public health and preventive medicine are pursued here in conjunction with students and staff of the Department of Bacteriology and Immunology, and in close collaboration with the Division of Laboratories of the Provincial Department of Health.

Forest Products Laboratory

The Vancouver Laboratory is a unit of the Forest Products Laboratories 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 seven buildings on the University Campus. Four 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 Health Service is located in Wing B of the Wesbrook Building and comprises an up-to-date and well staffed Out-Patient Department on the main floor together with a twenty-six bed hospital on the third floor. The Health Service is not a teaching department, being maintained solely for the benefit of students who may require medical care and advice, especially those whose homes are not in Vancouver or vicinity, or who have no regular family doctor.

In addition to providing medical and nursing care and investigation of any health problems arising in students, the Health Service also carries out the compulsory routine medical examinations required by the University.

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 Officers, of successful immunization against smallpox is required.

The Medical Officers are available by appointment 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. 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 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 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 booklet *This is Your Health Service*, 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

Reservations for accommodation in the new Women's Residences will be held until August 15th for first and second year students new to the campus. Any vacancies remaining after that date will be made available to other students on the basis of scholastic standing. Only those with special requirements can be assigned to single rooms. Most students will be accommodated in double rooms.

Accommodation at Acadia Camp will be available for Senior women students (undergraduates only). Women students wishing to live either in the Women's Residences or at Acadia Camp should request application forms from the Dean of Women's office.

Room reservations will not be made until after the receipt of the completed application forms and a \$25 deposit, which will serve as caution money. Students leaving during the term will forfeit \$15 of this deposit; those leaving at the end of the first term will forfeit \$10.

Students who manifestly neglect their studies or whose conduct is unsatisfactory will not be permitted to continue to occupy University accommodation.

In 1952-53 the charge for board and room in the Women's Residences was \$396 (single) and \$382 (double), payable in two instalments—September and January. At Acadia Camp, rates were \$52.50 (single) and \$54.50 (double), payable monthly. Rates for 1953-54 have not yet been fixed.

Information concerning accommodation for women students in private homes is also listed in the Dean of Women's office. A preliminary list, indicating vacancies 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 information is sent out in the order in which requests have been received during the summer.

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 \$50 to \$60 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 \$30 to \$35. Light housekeeping accommodation is also available at from \$25 to \$30 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 \$50 to \$65 a month, for room and breakfast from \$30 to \$35 a month, and for room alone from \$20 to \$25 a month. Meals may be obtained in the Cafeteria and in the Brock Memorial Building.

Accommodation in the Dormitories

The University has provided accommodation for 721 men students in single and double rooms in two temporary dormitories known as Acadia Camp and Fort Camp. These are located on, or adjacent to, the campus and offer most of the advantages usually found in more permanent dormitories. During 1952-53 the charge for room and board was \$52.50 for double room and \$54.50 for single room per month.

There is a caution money deposit of \$25 payable with the application, and subject to the following regulation: any student moving out of the dormitory during either term must give two weeks' notice. In addition he will forfeit \$15 of his deposit. If a student leaves the dormitory at the end of the first term, \$10 of this deposit will be forfeited.

Students wishing accommodation in either Acadia or Fort Camp dormitories should apply to the Housing Administrator at the University.

Since the amount of accommodation is limited, students are advised to make this application early.

Personnel Office

The University Personnel Office, situated in Hut M7 on the West Mall, has four main functions: (a) Counselling, (b) Placement, (c) Testing and (d) Veterans' Affairs.

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

(a) *Counselling*: Full time counsellors are available to confer with students regarding academic, vocational and personal problems at all times throughout the year. In assisting students the office maintains an up-to-date library of Calendars or Bulletins of all the major Canadian and American universities, together with a file on professional and vocational opportunities. Copies of the

booklet "Career Planning for Students at the University" are available on request.

(b) *Testing*: The office administers special test batteries to new undergraduates on the following dates (batteries take approximately four hours in time):

Saturday, June 6th: Auditorium, 1:30 p.m. This group of tests is made available particularly to students on the Lower Mainland. Interviews will take place during the summer months.

Monday, September 14th: Auditorium, 10:00 a.m. The Dean of Administrative and Inter-Faculty Affairs will describe courses in the various faculties. All new students are invited to attend.

Monday, September 14th: Auditorium, 1:30 p.m. This group of tests is made available particularly for out-of-town students.

Testing for students in senior years is by appointment at any time throughout the year.

Testing of special groups will be announced during the term.

(c) *Placement*: The Placement section endeavours, in cooperation with the various faculties concerned, to assist in securing part-time, vacation and permanent employment for undergraduates and graduates. Close liaison with the National Employment Office is maintained. Registration for part-time employment should be made early in September. Registration for employment after graduation is made in November and for summer employment in March.

Self-help Programme: Employment opportunities for a limited number of students are available for work on the campus. 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 normally be limited to ten hours per week. Applicants for bursaries may be offered employment either in place of a bursary or as a supplement to a bursary.

(d) *Veterans' Affairs*: All the facilities of the Personnel Office are available to ex-service students. Cheques for the payment of rehabilitation benefits are distributed by the Office and a close liaison is maintained with the Department of Veterans' Affairs. Attention of veterans on grants is called to "University Student Veteran Loan Fund," page 111.

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 Requirements*, see page 49, and for *Registration and Attendance*, see pages 51 and 52.

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, Physical Education, 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 Commerce,
Master of Forestry,
Master of Science,
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, in the Faculty of Applied Science to a Certificate in Nursing, in the Faculty of Agriculture to a Diploma in Agriculture (Occupational Course) and to a Diploma in Horticulture respectively, and in the Faculty of Graduate Studies to a Diploma in Criminology.

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.Arch.	same with white cord,

B.S.F.	brown with green cord,
B.S.A.	maize,
LL.B.	amethyst violet,
M.D.	dark green,
M.Sc.	light blue,
Ph.D.	blue and gold.

The Master's hood (except M.Sc.) is the same as the Bachelor's, lined with the distinctive colour.

ADMISSION REQUIREMENTS

All enquiries relating to admission to the University should be addressed to: The Registrar, The University of British Columbia, Vancouver 8, B. C., Canada.

1. Qualification for Admission: The minimum academic qualification for admission to the University is High School Graduation (University Programme) of the Province of British Columbia or its equivalent. This programme is approved by the Senate of the University for the purpose. A brief outline of the content of the programme is given later under *Matriculation requirements*. Further information may be obtained from the Department of Education, Victoria, B. C. *No student will be admitted with incomplete or conditioned standing.*

2. Admission Requirements of the Various Faculties and Schools: For details students are referred to the appropriate sections in this Calendar.

3. Qualification for Admission by other than British Columbia Certificate: A candidate who wishes to enter by certificate other than that issued by the Department of Education, British Columbia, should submit the original documents to the Registrar. He should not come to the University without having first obtained from the Registrar a statement of the value of the certificates he holds.

Unless the applicant's diploma or certificate shows the gradings obtained in the several subjects of the work taken, he must arrange to have a statement of his grades sent to the Registrar by the educational body issuing the diploma or certificate.

Original certificates will be permanently retained by the University unless accompanied by copies or unless the candidate pays the prescribed fee for making copies.

4. Admission with Advanced Standing:

- (a) *Senior Matriculation:* A student, qualified for admission, who has passed Grade XIII (Senior Matriculation) Examinations of British Columbia or their equivalent, may be given credit in the subjects passed, but only in the First Year in the Faculty of Arts and Science or the Faculty of Agriculture, and only insofar as these subjects meet the requirements of the First Year. No credit will be given for Senior Matriculation subjects passed subsequent to completion of First Year, nor will subjects of the First Year completed prior to subjects of Senior Matriculation be transferred to a higher year.
- (b) *Other Universities:* A student of another university applying for admission or for exemption in any subject or subjects is required to submit to the Registrar an official transcript of his record at the other university showing the subjects taken with the standing obtained in each. He may also be required to submit a detailed outline of each subject in the programme of courses he has followed, together with a copy of the calendar or catalogue of the university concerned.

5. **Students from Other Countries:** A student from a country where English is not the common language must satisfy the Registrar that his knowledge of English is adequate to permit the successful pursuit of his studies.

Classes in *Preparatory English* are given for the benefit of those students whose knowledge of the English language is found to be inadequate. These classes carry no academic credit. If a student is required to take such a class he may not be permitted to take concurrently a credit course given by the Department of English. Admission to credit courses will be permitted only when reasonable competence in English is achieved.

Advanced standing granted to a student on the basis of work completed in other countries will be tentative only, and is subject to review after the student has completed one or more sessions at this University.

A student coming directly from another country must give satisfactory evidence of his ability to meet the costs of tuition, board and room, books, and incidentals.

6. **Limitation of Attendance:**

- (a) The University reserves the right to limit attendance, and to limit the registration in, or to cancel, any of the courses listed.
- (b) The University reserves the right of selection and admission of students entering the First and subsequent years of the course in Medicine, the Second Year of the course in Pharmacy, all years in Nursing, and the course in Social Work.
- (c) 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 at least twenty-one years of age.

7. **Matriculation Requirements:**

The High School Graduation (University Programme) and Grade XIII (Senior Matriculation) Examinations of the Province of British Columbia are arranged 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.

All enquiries relating to these examinations should be addressed to the Executive Secretary of the High School and University Matriculation Board, Division of Examinations, Department of Education, Victoria, B.C., Canada.

In order to graduate from High School in the University Programme a student must obtain credit in certain *constants* as follows: English (one course each year for four years), Social Studies (one course each year for three years), Mathematics (one course each year for three years), Science (one course each year for two years), Foreign language (one course each year for two years in the same language). A course normally consists of one instructional period each day throughout the school year. The student must also obtain training in library techniques over a four-year period, and receive instruction in *Effective Living* over a three-year period. In addition a minimum prescribed total of *electives* is required. These constants and/or electives must include three *major* subjects of the student's choice. The required majors must be chosen from among the following: English, Social Studies, Mathematics, Science, French, German, Latin, Spanish, Industrial Arts, Home Economics, Commerce, Vocational Commerce, Vocational Industrial, Vocational Agriculture, Agriculture, Technical Science, Technical-Vocational Correspondence, and Art. In certain instances a given major must be accompanied by a related major or majors. A major, in any subject indicated as a constant, includes at least one course, extending over a period of one school year, in addition to the requirements of the constant. A

major in a subject not a constant includes certain courses in that subject chosen from among the electives. Further details may be obtained from the booklet *Requirements for Grade XIII and High School Graduation (University Programme and General Programme)*, issued annually through the office of Division of Examinations, Department of Education, Victoria.

REGISTRATION

Every student is required to state the names of all educational institutions of secondary or higher level attended and to submit evidence of the standing obtained at each.

The Registrar is empowered to register all duly qualified students. The Faculty concerned will deal with the doubtful cases.

1. Registration for New Students: As a preliminary step, a student applying for registration for the first time in the University must obtain from the Registrar's office an *Application for Admission* form. The completed form, together with necessary certificates and a recent passport-type photograph of the applicant, should be submitted by September 1st in the case of a student proposing to attend the Winter Session and by June 1st for the Summer Session. (For application dates, Faculties of Medicine and Pharmacy and School of Social Work, students are referred to appropriate sections of the Calendar.)

Following receipt of this form the applicant will, in due course, be advised with respect to his admission and standing, and, if eligible, given instructions on procedure for completing registration (see 3, below).

2. Re-registration: A student in the regular Winter Session will be sent, along with a statement of his marks, a *Notice of Eligibility for Re-registration* if he has qualified for admission to the next higher year of his course, or an *Application for Re-registration*, as soon as possible after the sessional examinations.

Change of Programme: A student who wishes to transfer to another faculty or school within the University should notify the Registrar of his intentions well in advance of the opening of the next session.

Supplemental Examinations: If the results of supplemental examinations affect the eligibility of a student, he should obtain the results of the supplementals prior to application for re-registration.

3. Completion of Registration: *Registration must be completed in person* on the dates indicated in the *Academic Year*, page 5. Assessed fees are due and payable at the time of registration. No student will be permitted to complete registration until such fees have been paid. (See page 53.)

Each student is required as part of his first application to furnish the information necessary for the University record, 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."

In the first and each subsequent registration the student is required to enrol for the particular classes which he proposed to attend.

In the information furnished for the University records, the student is requested to indicate his religious denomination. This information is available upon request to the representatives of the denominations.

4. Change of Registration: A student desiring to make a change in the programme of courses for which he has registered must apply to the Regi-

strar's office. Except in special circumstances, no change will be permitted after October 2nd.

All other pertinent changes, including those in address and telephone number, must be reported promptly to the Registrar's office.

5. Student Responsibility: Each student is responsible for the completeness and accuracy of his registration. He must ensure that there is no discrepancy between the programme he is following and that entered on his *course card* in the Registrar's office.

A student may not take courses for which he has not registered, and may not drop courses without permission.

CLASSIFICATION OF UNDERGRADUATE STUDENTS

1. Full Undergraduate: a student proceeding to a degree in any faculty, who has passed all the examinations precedent to the year in which he is registered.

2. Conditioned Undergraduate: a student proceeding to a degree with defects in his standing which do not prevent his entering a higher year under the regulations governing *Examinations and Advancement* of the faculty in which he is registered.

3. Occasional Student: a student who, although he may not have fully satisfied the admission requirements of the University, has been granted permission to enrol in certain courses and attend classes on the understanding that he will not be entitled to credit towards a degree for any work taken.

This category includes the student who, because of maturity, has been permitted to enrol in spite of deficiencies in his formal academic record. In the event that he obtains sufficiently high standing and indicates his desire to proceed to a degree, he may later be given credit by the faculty concerned for all or part of the work taken.

4. Auditor: a student, in the Summer Session only, who has been permitted to enrol in certain courses but who may not write the final examinations or receive credit toward a degree for courses attended.

GRADUATION

Every candidate for a degree must make formal application for graduation at least one month prior to the Congregation at which he expects to be admitted to the degree. Special forms for this purpose are provided by the Registrar's office.

ATTENDANCE

1. Attendance at Lectures: A student is required to attend at least seven-eighths of the lectures in each course for which he is enrolled. Admission to a lecture or laboratory and credit for attendance may be refused by the instructor for lateness, misconduct, inattention, or neglect of duty.

2. Deficient Attendance: In case of deficient attendance a student may (with the sanction of the dean and the head of the department concerned) be excluded from the Christmas or the final examination 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 the supplemental examination. (See regulation in each faculty in reference to *Examinations and Advancement*.)

3. Absence Consequent on Illness or Domestic Affliction: Absences may be excused only by the dean of the faculty concerned, and medical certificates or other evidence must be presented. For procedure with respect to illness, or absence through illness, see page 45.

WITHDRAWAL

Any student who after registration decides to withdraw from the University must report to the Registrar's office. He will be required to obtain clearance from the University, to the satisfaction of the Registrar, before being granted *Honourable Dismissal* or recommended, where applicable, for refund of fees. (See below.)

SUPPLEMENTAL EXAMINATION CENTRES

Local centres for supplemental examinations in August may be arranged in British Columbia at the following centres: Cranbrook, Dawson Creek, Kamloops, Kelowna or Penticton, Ocean Falls, Powell River, 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.

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 July 15th.

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, undergraduate students taking not less than 12 units, and graduate students taking not less than 15 units excluding pre-requisites, are subject to the same fees as full-time students.

4. The schedules below for full-time and partial students give fees payable by students in each Winter Session, including the "Alma Mater" fee but not the "Graduating Class" fee.

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. The Graduating Class fee, authorized by the Board of Governors, is exacted from all students in the Winter Session who are registered in the final year of a course leading to a Bachelor's or the M.D. degree (excepting B.S.W. and B.Ed.). This fee of \$3.00 is for the support of the graduating class activities. Inquiries with respect to this fee should be directed to the Alma Mater Society (Brock Memorial Building).

7. In the Winter Session, no refund will be made for First Term fees after October 31st, and for Second Term fees after January 30th. In the computation of refunds prior to these dates an amount of \$10.00 will be charged for each week, or part of a week, prior to the date on which the student notifies the Registrar officially of his cancellation of registration, or his withdrawal from the University. Application for a refund must be made to the Accountant within a two-week period after the student has discontinued his work.

8. The First Term fees must be fully paid before registration is accepted. Students are not entitled to admission to classes until they have registered. The Second Term fees become due and payable in full on the first day of lectures of the Second Term.

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

10. The holder of a scholarship or bursary issued by, or through the University, must pay the balance of the First Term fees on registration, if the first instalment of the scholarship or bursary is less than the First Term fees; if the second instalment is less than the Second Term fees, he must pay the difference on or before the first day of lectures in the Second Term.

11. A student whose Second Term fees are not fully paid by January 16th will be excluded from classes and his registration cancelled.

12. If a student, whose registration has been cancelled because of non-payment of fees, applies for reinstatement and his reinstatement has been approved by the dean of the faculty, he will be required to pay a reinstatement fee of \$10.00 together with all other outstanding fees before he is permitted to resume classes.

13. 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 Term fees.

Full-time Students

First Term Fees—Payable in full at the time of registration.

Second Term Fees—Payable in full on or before the first day of lectures in the Second Term.

Note: The First Term fees stated in the following schedule include the Alma Mater fee (paragraph 5, above), but not the Graduating Class fee (paragraph 6, above). Students registered in the graduating classes will be charged \$3.00 in addition to the amounts shown for First Term fees.

Faculty and Course:	1st Term	2nd Term	Total
1. Arts and Science—			
Arts and Science (B.A.)	\$128.00	\$110.00	\$238.00
Commerce (B.Com.)	128.00	110.00	238.00
Education (B.Ed.)	128.00	110.00	238.00
Home Economics (B.H.E.)	128.00	110.00	238.00
Physical Education (B.P.E.)	128.00	110.00	238.00
Social Work (B.S.W.)	153.00	135.00	288.00
*Social Work (M.S.W.)	128.00	110.00	238.00
Teacher Training	128.00	110.00	238.00
2. Applied Science—			
Architecture (B.Arch.)	\$153.00	\$135.00	\$288.00
Engineering (B.A.Sc.)	153.00	135.00	288.00
Nursing (B.S.N. or Certificate)	128.00	110.00	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 some additional costs, such as those entailed in field work, and are advised to consider \$100.00 as a minimum for this purpose.			
3. Agriculture—	1st Term	2nd Term	Total
Agriculture (B.S.A.)	\$128.00	\$110.00	\$238.00
Occupational	83.00	65.00	148.00

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

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

	1st Term	2nd Term	Total
4. Law (LL.B.)	\$153.00	\$135.00	\$288.00
5. Medicine (M.D.)	230.00	213.00	443.00
6. Pharmacy (B.S.P.)	153.00	135.00	288.00
7. Forestry (B.S.F.)	153.00	135.00	288.00
8. Graduate Studies	128.00	110.00	238.00

Candidates for a Master's Degree:

(a) Graduate students proceeding to a Master's degree, who are required to make up prerequisites, are subject to sessional fees of \$15.00 per unit for such prerequisite courses. A candidate who is given permission to write supplemental examinations in order to improve his standing, will be subject only to the supplemental examination fee in the course or courses concerned.

(b) Candidates for a Master's degree who are registered in the Winter Session for fifteen or more units, not including prerequisites, are subject in that session to sessional fees of \$222.00, plus the Alma Mater fee of \$16.00.

(c) A candidate who does not complete the requirements for the Master's degree, including thesis, within a calendar year, is required to register again in either the Winter or Summer Session for the work, including thesis, which remains to be completed, and is subject to fees for this work at the rate of \$15.00 per unit, plus either the Alma Mater fee (in accordance with Calendar regulation, page 53, paragraph 5), or the Summer Session Students' Association fee as the case may be.

(d) A candidate for a Master's degree who takes less than fifteen units in any session is subject to fees at the rate of \$15.00 per unit for the courses taken plus Alma Mater fee (in accordance with Calendar regulation, page 53, paragraph 5), or Summer Session Students' Association fee.

Candidates for the Ph.D. Degree:

(a) 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.

(b) A student required to make up prerequisites to the Ph.D. course is subject to sessional fees at the rate of \$15.00 per unit for the courses concerned in addition to the graduate fee for a full year, as above.

(c) In subsequent sessions during candidacy he is subject to an annual fee of \$10.00 only, payable on registration.

Partial Students

1. (a) Undergraduate students—
For a course of 12 units or more:
The same as for full-time students.
- (b) Graduate students—
For a course of 15 units or more excluding prerequisites:
The same as for full-time students.
2. For a course of from 7 to 11 units:
First Term—Fully payable at the time of registration:
Alma Mater fee\$16.00
Sessional fee per unit 8.00
Second Term—Fully payable on the first day of lectures of the
Second Term:
Sessional fee per unit 7.00

3. For a course of not more than 6 units:

First Term—Fully payable at the time of registration:

Alma Mater fee\$ 9.00

Sessional fee per unit 8.00

Second Term—Fully payable on the first day of lectures of the

Second Term:

Sessional fee per unit 7.00

Extra-Sessional Courses

First Term—Fully payable at the time of registration:

Sessional fee per unit\$ 8.00

Second Term—Fully payable on the first day of lectures of the Second

Term:

Sessional fee per unit\$ 7.00

Summer Session

Fees payable on registration:

Minimum Class Fee\$22.50

Per Unit 15.00

Summer Session Association 2.00

Correspondence Courses

Correspondence fee at \$15.00 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 reinstatement after cancellation of registration 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

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, or for such other purposes as may be determined by the Board of Governors.

Fees for transcripts of academic record: first three free of charge; additional transcripts, \$1.00 each, except that when two or more additional copies are ordered at one time, the fee shall be \$1.00 for the first and 25 cents for each remaining copy.

*Supplemental examination fees in respect to Winter Session supplementals must be paid by July 15th, when application for examination is made. Special examination fees and fees for re-reading are payable with application.

THE UNIVERSITY BOOK STORE

The book store, which regularly occupies Hut A3, is prepared to supply all text-books, note-books, instruments and general stationery required by students. Hours are 9 a.m. to 5 p.m., Monday through Friday, and, except in the summer months, 9 a.m. to 12 noon on Saturday.

During the week of Registration in September, supplies and books will be available as follows:

1. new and used books for all years of all faculties will be sold in the Armoury;
2. general supplies and stationery for all years of all faculties will be sold in Hut A3.

At the end of each regular session, the book store will re-purchase from students used books in good condition up to the estimated requirements for the next regular session. These books will be accepted from students until June 15th.

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, or except as approved by Senate, 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 Association of Professional Engineers Gold Medal—A gold medal, given by the Association of Professional Engineers of the Province of British Columbia, will be awarded to the student in the graduating 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, B. C., 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, known as the "Horner Gold Medal" and 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. Lower Mainland 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 Canadian Institute of Forestry (British Columbia Sections) Medal—A gold medal, the gift of the Vancouver and Vancouver Island sections of the Canadian Institute of Forestry, will be awarded to the student in the graduating class in Forestry (B.S.F. or B.A.Sc. course) who, in the opinion of the Faculty of Forestry, has made the best all-round record in professional forestry in all years at University, and who has demonstrated a high quality of character, leadership, sportsmanship, and scholarship.

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.

The Dr. Maxwell A Cameron Memorial Medal and Prize—A silver medal and prize of \$50 will be awarded annually to the leading student in the Teacher Training class. This award is given by the British Columbia Teachers' Federation to commemorate the distinguished life and work of Dr. Maxwell A Cameron (1907-1951), first Director of the School of Education at this University and author of the Cameron Report on Education.

FELLOWSHIPS, SCHOLARSHIPS, AND PRIZES FOR GRADUATES

Fellowships and scholarships for graduate study are normally awarded only on application. Application forms, available at the office of the Dean of Administrative and Inter-Faculty Affairs, must be completed and returned not later than March 15th, or by the date given in the description. Unless otherwise specified in the description, awards are tenable only at this University and in the Winter Session.

For other awards available for graduate study, students are referred to pages 113 and 114.

For Graduate Study and Research

The Alan Boag Scholarship—As on page 67.

The Anne Wesbrook Scholarship—This scholarship of \$200, 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 Brissenden Scholarship—As on page 73.

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 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 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 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.

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. 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 Scholarship in Community and Regional Planning—A scholarship of \$600, the gift of the British Columbia Telephone Company, will be awarded to a student beginning or continuing studies in Community and Regional Planning at the University of British Columbia. In making the award, consideration will be given not only to scholastic standing, but also to interest, ability, and aptitude for research and investigation in problems of planning. Recipients will be recommended to Senate by the Joint Faculty Committee on Prizes, Scholarships, and Bursaries, after consultation with the staff in charge of the course.

The British Columbia Telephone Company Scholarships in Engineering and Physics—Three scholarships to the total of \$1900, the gift of the British Columbia Telephone Company, are available for graduates in Electrical Engineering, Mechanical Engineering and Engineering Physics in the Faculty of Applied Science and Honours graduates in Physics (including Mathematics and Physics) in the Faculty of Arts and 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 will be recommended to Senate by the Joint Faculty Committee on Prizes, Scholarships, and Bursaries, after consultation with the heads of the departments concerned.

The Burroughs Wellcome Fellowship in Anaesthesiology and Applied Pharmacology—This fellowship of \$1000, the gift of Burroughs Wellcome and Company, Montreal, is available for postgraduate study and research in Anaesthesiology. The award will be made on the recommendation of the Faculty of Medicine.

The California Standard Company Graduate Fellowship—This fellowship of \$750, the gift of The California Standard Company, will be awarded annually to an outstanding student of the University of British Columbia who is beginning or continuing graduate work at this University. The award will be available for study in fields related to the oil industry such as Geology, Geophysics or related branches of Physics, Mathematics and Physics, Engineering Physics, and Engineering (Petroleum, Mining, Mechanical, Geological, Civil, Chemical). Recipients must be qualified to undertake graduate work in respect of scholarship, research ability, character, and health, and have special interest in the problems of the oil industry.

The Canadian Industries Limited Fellowship—A fellowship of \$900 plus a maintenance grant of \$300 to defray some of the expenses of the research, 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 Canadian Pulp and Paper Association, Western Division, Fellowships—The Canadian Pulp and Paper Association, Western Division, 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, Forest Entomology, or Forest Pathology, or of other approved forest schools, and are resident in British Columbia. 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 Division.

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 1953-54. 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 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 Community Planning Association of Canada (B. C. Division) Fellowship—This fellowship of \$1200, the gift of the B. C. Division of the Community Planning Association of Canada, will be awarded to a student who has been accepted into the two-year course in Community and Regional Planning at the University of British Columbia, who has shown special ability in these studies and intends to follow planning as a career. During each year of the course, the holder will receive \$600, the payment in the second year being subject to satisfactory standing in the first. Students wishing to be considered should apply by letter to Professor H. Peter Oberlander, School of Architecture, University of British Columbia, Vancouver 8, Canada, before March 30th.

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., M.A., or M.Sc., 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 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 Frances Willard Prizes—As on page 74.

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 the University of British Columbia, 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 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 Graduate Scholarships in Slavonic Studies—Through the generosity of Walter C. Koerner, Esq., a number of awards have been established in the field of Slavonic Studies in honour of Dr. William J. Rose, distinguished Canadian scholar and teacher, and Emeritus Professor of Polish Language and Literature, University of London. Included are an annual teaching fellowship of \$1000 and two annual scholarships of \$300 each for students beginning or continuing graduate studies in Slavonic Studies at this University. These awards will be made to students who have high academic standing and have shown special aptitude for research.

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

The Leon Koerner Graduate Scholarship—A scholarship of \$500, given by Mr. Leon J. Koerner, will be offered yearly in the Department of Biology and Botany. This award, which may be used in part for the provision of field or laboratory equipment or for publication of research, will be given to an outstanding graduate student of plant ecology who proposes to pursue research especially on problems of forest ecology of British Columbia. In special cases the award may be divided between two students.

The Llewellyn Jones Prize in Zoology—As on page 74.

The Macmillan Company of Canada Prizes in Creative Writing—As on page 69.

The Morris Belkin Prize—As on page 75.

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 Pacific Pine Co. Ltd. Scholarship in Forestry—A scholarship of \$300, gift of Pacific Pine Co. Ltd., New Westminster, is available for a student engaging in graduate study and research in Forestry at the University of British Columbia. It will be awarded on the recommendation of the Faculty of Forestry to a student who has a good scholastic record, and has shown special interest in and aptitude for the field of forest products. In making the award, consideration will be given to promise of ability in investigational and research work.

The Poulenc Fellowship in Applied Physiology—This fellowship of \$500, established by Poulenc Limited, Montreal, is available for individuals interested in anaesthesiology and related fields in Medicine who will engage in postgraduate training in physiology. The award will be made on the recommendation of the Faculty of Medicine. Further information may be obtained from the office of the Dean of Medicine.

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 Savage Shoe Company Fellowship—A fellowship of \$1500, the gift of the Savage Shoe Company, is available annually in the Faculty of Medicine for postgraduate study. The award will be made for special studies and investigation on problems of children's foot health. Selection of the winner will be made on the recommendation of the Department of Paediatrics in consultation with the Dean of the Faculty.

The Shell Oil Fellowship for Research—The Shell Oil Company of Canada 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 \$900 for living expenses, and his University fees for the year will be paid by Shell. Full details of the award should be obtained from the office of the Dean of Administrative and Inter-Faculty Affairs.

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 T. E. and M. E. Ladner Memorial Scholarship—As on page 69.

The United Nations Prize—As on page 70.

University Fellowship-Loans—Three fellowships of the annual value of \$1500 each will be awarded each year to enable any suitably qualified graduates or junior staff members of the University of British Columbia to continue their studies in the United States or abroad. These awards may, at the discretion of the University, be renewed annually for a period of three years. The holders of these fellowship-loans will give an undertaking to repay the amounts of the fellowships without interest and at a time when they find it convenient and possible to do so. The fellowship-loans, when repaid, will then be used to establish scholarship, bursary or loan funds bearing the names of the students repaying them.

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 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 1953-54. 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 Vancouver Women's Canadian Club Scholarship in Canadian History—As on page 77.

For Home Economics

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 at Vancouver 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.

For Social Work

The British Columbia Electric Railway Company Limited Graduate Scholarships—As on page 60.

The Canadian Association of Social Workers (British Columbia Mainland Branch) Prize—A book prize of the value of \$25, the gift of the Canadian Association of Social Workers (British Columbia Mainland Branch), will be awarded annually to a student taking a Master's degree in Social Work. The award will be made on the basis not only of academic standing, but also on all-round professional activity and promise. Selection of the winner will be made on the recommendation of the School.

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 of \$200 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 Nancy Ryckman Scholarship—As on page 69.

The Social Work Alumni Prize—A prize of \$25, the gift of the Social Work Alumni, is offered annually to the student presenting the best thesis in fulfilment of the requirements for a Master of Social Work degree.

The T. E. and M. E. Ladner Memorial Scholarship—As on page 69.

The United Nations Prize—As on page 70.

For Teacher Training

The Frances Willard Prizes—As on page 74.

The Macmillan Company of Canada Prizes in Creative Writing—As on page 69.

The Players' Club Alumni Scholarship—As on page 69.

The United Nations Prize—As on page 70.

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 AND PRIZES FOR UNDERGRADUATES

1. Undergraduate scholarships and prizes are listed in the following order: General, Agriculture, Architecture, Arts and Science, Commerce, Engineering, Forestry, Home Economics, Law, Medicine, Nursing, Pharmacy, Physical Education, High School Graduation and Grade XIII, and Summer Session.

2. Awards listed under Arts and Science include not only those open to students taking courses leading to a B.A. degree, but also those open to students taking preparatory courses for entrance to Architecture, Commerce, Engineering, Forestry, Law, Medicine, Nursing, and Pharmacy.

3. Attention of all students is drawn to the general awards described on page 67, and to the Rhodes Scholarship, and other awards listed on pages 118-120. Attention of students in the graduating years is called to the awards listed on pages 60-66 and 113-118.

4. Unless directed to do so in the Calendar description, students are not expected to make application for the awards given below.

5. Scholarships are normally tenable only at this University and in the regular Winter Session. Winners are required to continue in a full year's programme.

General

The Alan Boag Scholarship—A scholarship of \$250, the gift of the trustees of a fund established by the late Alan Boag, is available for a student who is taking his major work in Commerce, History, Economics, International

Studies, Law, Political Science, or Sociology and is proceeding to a further year of study at the University of British Columbia. This scholarship, which is open to graduates, or to undergraduates who have completed at least two years at the University, will be awarded for the best essay or report on some aspect of socialism. In making the award special consideration will be given for originality in analysis and treatment. The award will be made on the recommendation of the Heads of the Departments of Economics and History and the Director of International Studies. If no essay reaches the required standard, the award will be withheld. Students intending to compete for this scholarship must obtain the approval of their essay subject from the department concerned. Essays must be submitted not later than March 31st.

The British Columbia 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.

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 achievement 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 High School Graduation (University Programme), Senior Matriculation, Victoria College, and the University.

The Canadian Women's Press Club (Vancouver Branch) Scholarship—This scholarship of \$500, the gift of the Vancouver Branch of the Canadian Women's Press Club, is available for award in May to a woman student who intends to continue or resume her studies as an undergraduate at this University in the fall. It will be awarded to a student who plans to follow a career in any of the fields of journalism (i.e., newspaper, magazine, radio, etc.). Applicants will be considered on the basis of their general academic standing, interest and ability in the field, competence and originality in writing, and personal qualities essential to a successful career in journalism. If no suitable candidate makes application, the award may be withheld. Application forms and further details may be obtained from the office of the Dean of Administrative and Inter-Faculty Affairs. Applications must be submitted by March 15th.

Department of Mathematics Book Prizes—These prizes are awarded for special achievement or proficiency in Mathematics.

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.

The Jean Craig Smith Scholarship—The Jean Craig Smith Scholarship of \$400, provided by the income on a bequest from the late Jean McIntosh

Smith, is available annually for a student in attendance at the University of British Columbia in any year and faculty. Selection of the winner will be made by the Joint Faculty Committee on Prizes, Scholarships, and Bursaries on the basis of academic ability, character and personal qualities, participation in community and student affairs, and evidence of leadership.

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 recommendation 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 Mary Stewart MacInnes Memorial Scholarship—A scholarship of \$100, established by W. H. MacInnes, Esq., of Vancouver, in memory of his mother, Mary Stewart MacInnes (1841-1936), is available annually for a student in the Faculty of Arts and Science, Applied Science, Agriculture, or Forestry, who is completing the third of the first three years of University work. In choosing the winner, consideration will be given, not only to scholastic standing but also to achievement in the field of student government and in athletics, and either to participation in military or other training or service units on the campus or to special interest in German studies.

The Nancy Ryckman Scholarship—Out of the proceeds of a fund bequeathed to the University by the late Nancy E. Ryckman, a scholarship of \$190 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 office of the Dean of Administrative and Inter-Faculty Affairs, must be received not later than August 15th.

The New Westminster University Women's Club Scholarship—As on page 90.

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 TEL'HM Sorority Scholarship—This scholarship of \$100, gift of the TEL'HM Sorority of Vancouver, was made available in the session 1952-53 to provide encouragement for a progressive and promising Japanese woman student proceeding to a degree at this University.

The T. E. and M. E. Ladner Memorial Scholarship—An annual scholarship of \$300, derived from a capital sum as a permanent memorial endow-

ment, and given by Mr. Leon J. Ladner, Q.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 office of the Dean of Administrative and Inter-Faculty Affairs, must be received not later than August 15th.

U.B.C. Branch No. 72 of the Canadian Legion, B.E.S.L., Scholarship Fund—This fund was established in September, 1951, by the University of British Columbia Branch No. 72 of the Canadian Legion of the British Empire Service League, in recognition and appreciation of the University's contribution to the education and rehabilitation of veterans of World War II. It is maintained by the net profits resulting from the operation of concession rights in the War Memorial Gymnasium, a project undertaken by those veterans who studied at the University in the years following 1945. The fund, which is administered by the Joint Faculty Committee on Prizes, Scholarships, and Bursaries, is used to provide scholarships, prizes, bursaries, and loans for former members of the armed forces, the children of those who served, and students generally.

The United Empire Loyalists' Association Medal—The Vancouver Branch of the United Empire Loyalists' Association of Canada offers a silver medal, and a cash prize of \$35, for the best essay received during the session 1953-54 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 United Nations Prize—A prize of \$50, made possible by a gift of \$1000 from the late Annie Bruce Jamieson, B.A., LL.D., is offered annually to the student on the campus who, during the session, makes the most significant contribution toward furthering an understanding of the aims and objects of the United Nations. The award will be made on the recommendation of interested members of the Faculty. If, in any year, no student qualifies, the award may be withheld.

The William Eugene MacInnes Memorial Scholarship—A scholarship of \$100, established by Mr. and Mrs. W. H. MacInnes of Vancouver, in memory of their son, William Eugene MacInnes (1912-1934), a graduate of this University, in the combined course of Arts and Science and Mining Engineering, is available annually for a student in Arts and Science or Applied Science who is completing the third of the first three years of University work. In choosing the winner, consideration will be given, not only to scholastic standing, but also to achievement in student government and in athletics, and to participation in military or other training or service units on the campus.

In Agriculture

The Alan Walter Shore Memorial Scholarship—In memory of Alan Walter Shore, B.S.A., M.S.A., (1921-1951), his friends and fellow-students have established a scholarship, of the value of \$100, open to students working in the field of Nutrition and proceeding to the final undergraduate year. In making possible this scholarship, his friends seek to perpetuate the remembrance of his fine scholarship, his devotion to research, and his

spirit of cheerfulness and courage in adversity. The award will be made by the Scholarship Committee in consultation with members of the departments concerned.

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 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 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 Entomological Society of British Columbia Book Prize—As on page 74.

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.

Imperial Order Daughters of the Empire Scott Memorial Scholarship—As on page 74.

The MacMillan and Bloedel Prizes in Agriculture—Prizes to the total of \$150, the gift of MacMillan and Bloedel Limited, are available annually for students registered in the Third and Fourth Years of Agricultural Engineering and 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.

The Nabob Scholarship in Food Technology—A scholarship of \$300, given annually by Nabob Foods Division of Kelly, Douglas & Co. Limited, 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 office of the Dean of Administrative and Inter-Faculty Affairs, must be received not later than March 15th.

University Great War Scholarships—As on page 76.

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.

In 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 high academic standing. If, in any year, no student obtains a sufficiently high standing, the awards may be withheld.

B. C. Coast Woods 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.

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 the student in the Third Year. To be eligible for an award the 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 Hobbs Glass Scholarship—A scholarship to the value of \$250 will be awarded annually by Hobbs Glass Division of Canadian Pittsburgh Industries Ltd., 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 \$250, 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 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, in the opinion of the School, has attained a high proficiency in the courses and shows those qualities of character and ability which promise outstanding achievement in the profession. In the determination of standing for this award, the work taken in the final three years will be considered. The award will not necessarily be made every year.

The Schlage Lock Company Scholarship—A scholarship to the value of \$250, 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.

In Arts and Science

The Ahepa Prize—A prize of \$100, given by the Gladstone Chapter No. 6, C.J., Vancouver, B. C., Order of Ahepa (sixth chapter established under Canadian Jurisdiction of the Anglo Hellenic Educational Progressive Association), 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 Alan Walter Shore Memorial Scholarship—As on page 70.

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 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 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 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 Brissenden Scholarship—A scholarship of \$200, given by Mr. P. R. Brissenden as a contribution to the Alumni-U.B.C. Fund, is available for a student of the University of British Columbia, graduate or undergraduate, who has shown promise as a creative writer and who is returning to the University for the 1954-55 session.

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 California Standard Company Undergraduate Scholarships—Three scholarships of \$375 each, the gift of The California Standard Company, are available annually for outstanding students at the University of British Columbia proceeding to their final undergraduate year. The awards will be made, one in each of the following fields: (1) Geophysics, Physics, Mathematics and Physics, Engineering Physics, Electrical Engineering; (2) Geology and Geological Engineering; (3) Civil Engineering, Chemical Engineering, Mechanical Engineering, Mining Engineering, Petroleum Engineering. In making the awards, consideration will be given not only to scholarship, potential ability for research, character and personality, but also to interest in problems of the oil industry. Recipients will be chosen on the recommendation of the heads of the departments concerned.

The Canadian Forestry Association (B. C. Branch) Scholarship—As on page 90.

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 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, Alumni and friends (through the Alumni-U.B.C. Fund), together with members of the Department of Mathematics, have established a scholarship fund. From this fund a scholarship of \$100 is offered annually 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 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 department in the graduating year.

The Dr. L. L. Horvath Scholarship in English Language and Literature—This scholarship of \$250, the gift of Leopold L. Horvath, Esq., LL.D., will be awarded annually to a student or students obtaining highest standing in the Third Year of an Honours Course in English Language and Literature.

The Dr. L. L. Horvath Scholarships for the Humanities—Two scholarships of \$100 each, the gift of Leopold L. Horvath, Esq., LL.D., will be awarded to students in the Third Year of the Faculty of Arts and Science who are proceeding to the Final Year. The awards will be made to students with outstanding records of achievement in the fields of the humanities, including English, Languages, and Philosophy.

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.

Frances Willard Prizes—A first prize of \$50 and a second of \$25, 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 essays in the field of Economics, Education, History, Psychology, or Sociology, on subjects to be approved by the department concerned in consultation with a committee of the Woman's Christian Temperance Union. The awards will be made for the session 1953-54 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, 1954. If in any year no students reach the required standard the awards will be withheld.

The Hudson's Bay Company Service Awards—As on page 78.

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.

The John and Annie Southcott Memorial Scholarship—As on page 64.

The Lefevre Gold Medal—As on page 64.

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 grad-

uating 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 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 Morris Belkin Prize—A cash prize of \$100, the gift of Morris Belkin, Esq., is available for students specializing in Psychology and registered in graduate studies or the senior undergraduate year. It will be awarded for the best essay submitted in courses given by the Department on an approved subject in the field of Freudian Psychology. Further details may be obtained from members of the Department, on whose recommendation the award will be made. If no essay reaches a sufficiently high standard, the award may be withheld.

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 (Geography of Europe), and Geography 409 (Geography of United States and Canada).

The Polish Friendship "Zgoda" Society Prize—This prize of \$100, gift of the Polish Friendship "Zgoda" Society, will be awarded to a student who has an outstanding record of achievement in the course Polish 110.

The Prize of the Minister of Switzerland—This book prize was awarded in the Session 1952-53 to an outstanding student of French Language and Literature.

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 an 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.

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.

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.

The Slavonic Studies Graduation Prize—This prize of \$100, the gift of Walter C. Koerner, Esq., in honour of Dr. William J. Rose, will be awarded annually to the student in the graduating class obtaining highest standing in Slavonic Studies.

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 Undergraduate Scholarships in Slavonic Studies—Through the generosity of Walter C. Koerner, Esq., several scholarships have been established in honour of Dr. William J. Rose, distinguished Canadian scholar and teacher, and Emeritus Professor of Polish Language and Literature, University of London. Included in the awards offered are:

(1) an annual scholarship of \$300 for a student with high over-all standing who has shown special distinction in the course Slavonics 311 (Central Europe) and is continuing his studies in this and related fields;

(2) an annual scholarship of \$250 for the student obtaining the highest standing in the Third Year of an Honours Course in Polish, Russian or Slavonic Studies and proceeding to the Fourth Year of the course;

(3) two annual scholarships of \$250 each for students in the Second Year who have high over-all academic standing, have shown special linguistic aptitude in one or more of the courses Polish 210 or Russian 200 or 203, and are continuing in the Third Year in Slavonic language studies.

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.

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 office of the Dean of Administrative and Inter-Faculty Affairs, must be received not later than March 15th.

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 in consultation with the Department of French.

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 awards 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 130.) 2. To the student standing highest with majors in group (2). (See page 130.) 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.

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 Ukrainian Canadian Committee Prize—This prize, of value \$100, will be awarded annually to the student in the graduating class who, in the opinion of the Department, has the most outstanding record of work in Slavonic Studies in the session.

The Vancouver Province Scholarship (donated through the Vancouver Men's Canadian Club)—A scholarship of \$250, given by The Vancouver 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 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 102, 203, 404, 420, 426).

In Commerce

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 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, 1953, to the three students obtaining the highest standing in Geography 201 during the session 1952-53. 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.

The Better Business Bureau Prizes—Two prizes of \$50 each are offered annually in the School of Commerce for the best essays submitted by Third Year students on assigned topics related to ethics in business. If, in any year, no essay reaches the desired standard, the awards may be withheld. The list of essay topics may be obtained from the office of the Director of the School. The winning essays will be made available to the Bureau.

The British Pacific Scholarship in Accident and Health Insurance—A scholarship of \$100, the gift of the British Pacific Insurance Company of Vancouver, will be awarded to a student who has completed Commerce 375 and is proceeding to the Fourth Year. The award will be made on the basis of high standing in this course, character and ability, and interest in the field. The holder of the scholarship will be encouraged to investigate some phases of accident and health insurance as a graduating essay (Commerce 490).

The Canadian Industrial Traffic League Prizes—Three prizes of \$25 each were awarded in May, 1952, to the top-ranking student in each class of the three-year course in Traffic Management conducted by the Department of University Extension and the School of Commerce, on behalf of the B. C. Division of the Canadian Industrial Traffic League. The prizes were provided by G. H. Cottrell Ltd., The Mainland Transfer Ltd., and Shanahan's Ltd.

The CKNW Scholarship in Television—This scholarship, the gift of CKNW, International Broadcasting Company Ltd., New Westminster, is available for a student who has taken work in advertising and is graduating in Commerce. It is tenable at Northwestern University, Evanston, Illinois,

in the special summer course in television. Under the terms of award, the winner will receive transportation, living expenses, and tuition fees for the course. To be eligible, an applicant must indicate an aptitude for work related to radio and television and a desire to follow a career in these fields. In making the award, consideration will also be given to scholastic standing, character and personality. Applications must be submitted to the Director of the School of Commerce before January 31st. The winner will be chosen by the University in consultation with the donors.

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 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 in consultation with the School of Commerce.

The Hudson's Bay Company Service Awards—Two service awards, offered annually by the Hudson's Bay Company (Vancouver), are open to students intending a career in the department-store field. They are open, in competition, to students completing Second Year Commerce or, in appropriate options, Second Year Arts and Science, and proceeding to a higher year. To be eligible for these awards, applicants must qualify in respect of academic standing, ability, aptitude and personality, and undertake to accept employment with the Company on graduation. By the terms of award, winners will be given their tuition fees for each of the Third and Fourth Years and guaranteed employment with the Company in the summer periods, the Christmas vacations, and at other times, such as Saturdays. Subject to satisfactory performance, they will, on graduation, be given an opportunity for an executive career with the Company. Further information may be obtained from the offices of the Dean of Administrative and Inter-Faculty Affairs, the Director of Student and Personnel Services, and the Director of the School of Commerce. Inquiry should be made not later than February 15th.

The J. Ewart Collins Memorial Scholarship—This scholarship of \$100 has been established as a memorial to the late J. Ewart Collins, C.A., by the firm of Collins & Collins, Chartered Accountants, of which he was senior partner. The award, which is available annually to a student in Third Year Commerce, will be made to the student who obtains the highest standing in Commerce 353 (Advanced Accounting) and registers in the Fourth Year for Commerce 455 (Auditing).

The Kiwanis Club Scholarship—A scholarship of \$150, the gift of the Kiwanis Club of Vancouver, B. C., 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 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 \$2000 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 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 Osler, Hammond & Nanton Scholarship—This scholarship of \$150, the gift of Osler, Hammond & Nanton Limited, will be available annually for a student in the School of Commerce who is taking the finance option and is entering the final year of the course leading to the degree of B.Com. The award will be made on the recommendation of the School of Commerce. In selecting the winner, consideration will be given not only to over-all academic standing and to special ability in the field of investment theory, but also to industry, character and personal qualities.

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 Economic Geography—As on Page 75.

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 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).

The Price Waterhouse & Co. Scholarship—A scholarship of \$250, the gift of Price Waterhouse & Co., will be awarded to a student in the accounting option in Commerce who is at the end of his Third Year, who is proceeding to his Final Year, and who plans to enter articles with a practising firm of chartered accountants. The award will be made to a student with high standing in the Third Year examinations whose academic record, ability, and other qualifications are considered to be outstanding.

The Trans-Canada Investment Corporation Scholarship—A scholarship of \$150, the gift of the Trans-Canada Investment Corporation Limited, will be awarded to a Third Year student in Commerce who has a high academic standing in the course in Business Finance. The winner of this scholarship must proceed to a further year's study in Commerce at this University. In selecting the winner, consideration will be given to ability and character.

The Transportation and Customs Bureau of the Vancouver Board of Trade Awards—Cash awards to the total of \$450, the gift of the Transportation and Customs Bureau of the Vancouver Board of Trade, will be donated in May, 1953, for the best major reports submitted by students enrolled in the School of Commerce in the course on Traffic Management (Commerce 341). Six awards of \$75 each, covering Airways, Highways, Railways, Waterways, Perfect Shipping, and Pipelines will be made.

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 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 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.

In 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 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 B. C. Coast Woods Prizes in Engineering—Prizes of the value of \$100, \$50, and \$25, given by the B. C. Coast Woods Trade Extension Bureau, 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'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 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 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 California Standard Company Undergraduate Scholarships—As on page 73.

The Canadian Construction Association Prize—This prize of \$50 was awarded by the Canadian Construction Association, Ottawa, Ontario, in the session 1951-52 to the senior engineering student at the University of British Columbia presenting the best thesis on a construction subject.

The Canadian Forest Industries Entomological Scholarships—As on page 84.

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 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 Canadian Institute of Mining and Metallurgy, B. C. Section, Prizes—Three book prizes to the value of approximately \$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.

The Chemical Institute of Canada Book Prizes—As on page 73.

The Dunsmuir Scholarship — A scholarship of \$190, 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.

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.

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 so greatly influenced the development of the Province of British Columbia.

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 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 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 Ingledow Prizes—Four prizes of \$50 each, the gift of Mr. T. Ingledow, P.Eng., are available to undergraduates in the Engineering B.A.Sc. course who are enrolled as engineering pupils with the Association of Professional Engineers of British Columbia. There is one prize for each year of the four-year course to be awarded annually for general proficiency.

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.

Kennecott Copper Corporation Scholarship in Mining—This scholarship of \$1000, gift of Kennecott Copper Corporation, New York, will be awarded to a student entering the Third or Fourth Year of the course leading to the degree of B.A.Sc. in Mining Engineering. In exceptional cases, the award may be made to a student proceeding to a Master's degree in Mining Engineering. Selection will be based on (1) proficiency in engineering studies; (2) leadership, willingness, co-operativeness, initiative, and ambition; (3) ability to direct and stimulate others; (4) good health and physique. Intending applicants should consult the Dean of Administrative and Inter-Faculty Affairs before the close of the spring term.

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.

Lefevre Gold Medal—As on page 64.

Northern Commercial Company Limited Scholarship—This scholarship of \$500, the gift of Northern Commercial Company Limited, Seattle, is available for students in Engineering. The award will be made to a student with high scholastic standing. In the selection of the winner, consideration will also be given to personal qualities and character, and to demonstrated aptitude in both practical and theoretical aspects of engineering.

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 Plimsoll Club Scholarship in Chemistry (donated by International Paints (Western) Limited)—This scholarship of \$125 is available for a student proceeding to the final year. It will be awarded on the basis of proficiency in the chemistry courses in the Third and lower years to a student in Chemical Engineering.

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 the 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 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 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 special forms must be received by the Dean of Administrative and Inter-Faculty Affairs not later than September 30th.

Royal Institution Scholarship in Applied Science—A scholarship of \$200 will be awarded for general proficiency in the work of the First Year to a student who is proceeding to the Second Year.

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

The 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.

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 Engineering and who is proceeding to the Third Year.

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, was awarded in 1952-53 to the student in the Third Year of the Faculty of Applied Science who obtained the highest standing in Machine Shop Practice. Skill in the use of hand tools received special consideration.

In Forestry

Note: Scholarships and prizes for students in Forest Engineering are listed under "Engineering".

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—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 office of the Dean of Administrative and Inter-Faculty Affairs, must be received 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 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.

In 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.

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.

In Law

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 Third 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 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.

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 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 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 Ladner Prizes in Law—Prizes to the total of \$100, the gift of Leon J. Ladner, Esq., Q.C., will be awarded annually to students in the Faculty of Law. The awards will be made on the recommendation of the Faculty to students who have obtained high standing either in special fields or in the whole year's work.

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 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.

Special Book Prize—A book prize of the value of \$25, the gift of an anonymous donor, will be awarded in May to a student in the Second Year who obtains high scholastic standing and is not the recipient of another scholarship or prize.

The Toronto General Trusts Corporation Prize—Through the generosity of The Toronto General Trusts Corporation a prize of \$30 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 subject of Trusts.

In Medicine

The Dr. A. B. Schinbein Memorial Scholarship—This scholarship of \$250 was established by Mrs. A. B. Schinbein and Dr. John E. Schinbein in memory of Austin Birrell Schinbein, O.B.E., M.B., F.A.C.S., F.R.C.S. (Canada), who was for many years Chief Surgeon at Shaughnessy Hospital and Consulting Surgeon at Vancouver General Hospital. Dr. Schinbein was outstanding in his profession and, as a member of Senate and the Board of Governors of this University, took an active part in the establishment of the Faculty of Medicine. This scholarship is awarded annually to the medical student of the Third Year obtaining the highest standing in the subject of surgery.

The Dr. Frank Porter Patterson Memorial Scholarship—This scholarship of \$150 has been established by the Primrose Club of Vancouver in memory of the late Dr. Frank Porter Patterson, Chief of Orthopaedic Surgery at the Vancouver General Hospital and one-time member of the Board of Governors of the University of British Columbia. It will be awarded to a student graduating from the Faculty of Medicine who, in the Fourth Year, has meritoriously pursued the course in surgery and displayed a special interest in orthopaedic surgery, and is proceeding to his internship.

The Dr. H. L. W. Turnbull Memorial Scholarship—In memory of Dr. H. L. W. Turnbull (1880-1950) and in testimony of his marked devotion to the study and practice of medicine as a measure of help to men and women, this scholarship has been founded by his family. The scholarship has a value of \$300 and will be awarded annually to the student in the Faculty of Medicine who completes the Second Year with the highest aggregate standing in the pre-clinical subjects and is proceeding to a higher year.

The Dr. L. L. Horvath Medical Scholarships — The following scholarships, the gift of Leopold L. Horvath, Esq., LL.D., will be awarded to students completing the First Year in the Faculty of Medicine:

- (1) \$200 to the student obtaining highest standing in Anatomy;
- (2) \$200 to the student obtaining highest standing in Biochemistry;
- (3) \$200 to the student obtaining highest standing in Physiology.

The Horner Prize and Gold Medal—A gold medal and a cash prize of \$100, given by Frank W. Horner Limited of Montreal, will be awarded to the Fourth Year student who has obtained the highest aggregate standing in the four-year course in the subject of Medicine.

The Janet Hatfield Medical Scholarship—A scholarship of the annual value of \$200, the gift of Miss Janet Hatfield of Vancouver, is available for a student in the Faculty of Medicine. It will be awarded on the recommendation of the Joint Faculty Committee on Prizes, Scholarships, and Bursaries to a student who has a good academic record, has shown promise and ability in the medical field, and is worthy of financial assistance.

The Osler Society Scholarship—This scholarship of \$100, the gift of the Osler Society of Vancouver, will be awarded annually 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.

The Samuel Nemetz Memorial Scholarship—This scholarship of \$100, the gift of Mrs. Rebecca Nemetz in memory of her husband, Samuel Nemetz, will be awarded annually in the Faculty of Medicine to a student, graduate or undergraduate, who has high scholastic standing and who has given indication of special aptitude for research. Special preference will be given to students interested in problems of cancer or heart disease.

The Sandoz Pharmaceuticals Limited Prize — This prize, the gift of Sandoz Pharmaceuticals Limited, Montreal, and consisting of an otoscope-ophthalmoscope combination or a manometer, will be awarded annually in the Faculty of Medicine to the student obtaining the highest standing in Pharmacology.

In Nursing

The Dr. L. L. Horvath Prize in Nursing—This prize of \$50, the gift of Leopold L. Horvath, Esq., LL.D., will be awarded to the student who obtains the highest standing in the first four years of the basic degree course in Nursing. To be eligible for the award, the student must be a member of the Registered Nurses' Association of British Columbia.

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.

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 proceeding to the Second Year of the course in Nursing who has successfully completed all First Year requirements and has demonstrated the potentialities of a good nurse. Applications, on forms available at the office of the Dean of Administrative and Inter-Faculty Affairs, must be received not later than September 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 within 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 all previous work and is entering the Final Year of her course in the School of Nursing.

In Pharmacy

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 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 awards will be made in May to two students, one completing the Second and the other the Third Year. Although awards will be made primarily on merit, financial need will be considered.

The Charles E. Frosst & Co. Scholarship—A general proficiency scholarship of \$125, the gift of Charles E. Frosst & Co. of Montreal, will be awarded annually to the student completing the Third Year of Pharmacy with the highest standing in the examinations of the Second and Third Years of the course and proceeding to the Fourth Year.

The Cunningham Prize in Pharmacy—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 Cunningham Scholarship in Pharmacy—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 Dean E. L. Woods Memorial Prize (donated by the Pharmaceutical Association of the Province of British Columbia)—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 Dr. L. L. Horvath Scholarship in Pharmacy—A scholarship of \$150, the gift of Leopold L. Horvath, Esq., LL.D., will be awarded annually to the student in Pharmacy who is entering the Final Year of his course and who has made the best over-all record in all years of the course.

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

The Merck Awards—Through the generosity of Merck & Company, Limited, Montreal, two awards, each consisting of the Merck Index and the Merck Manual, are available annually for students in Pharmacy. The awards will be made to the two students obtaining the highest standing in Pharmaceutical Chemistry.

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 Pharmacy Alumni Book Prizes—Three book prizes, the gift of the Pharmacy Alumni Association of the University, will be awarded annually, one in each of the upper three years, to the students selected by the Faculty of Pharmacy as the best all-round potential pharmacists. The awards will be made after the conclusion of the final examinations for the session.

In Physical Education

The Canadian Association for Health, Physical Education, and Recreation Scholarship—A scholarship of \$50, the gift of the B. C. Lower Mainland Branch of the Canadian Association for Health, Physical Education, and Recreation, will be awarded annually to a student completing the Physical Education course in the Second Year of Arts and Science, and

proceeding to the Third Year of that course. The award will be made to the student whose achievement in the course is the most outstanding.

The Lieutenant James Douglas Hamilton Book Prize—A book prize, in memory of Lieutenant James Douglas Hamilton, a graduate in Physical Education and a former member of the C.O.T.C. of this University, who, on April 13, 1952, was killed in action in Korea, is offered by the Physical Education Alumni and Undergraduate Societies. The award is open to Third Year students in Physical Education showing academic and physical proficiency in the course.

High School Graduation and Grade XIII Scholarships

The Annie B. Jamieson Scholarship—Established as a memorial to Annie B. Jamieson, B.A., LL.D., a scholarship of \$150 will be awarded annually to a student entering the University from Grade XII or XIII of a Vancouver high school. Applicants should have high scholastic standing and should show evidence of those qualities of character which make for leadership in community affairs and an interest in world events. By this award it is hoped to perpetuate the spirit of public interest and public service which Miss Jamieson embodied during a pioneer period of the city's development, and especially to give recognition to her distinguished contributions as a teacher in the Vancouver Schools, and as a member of the Vancouver School Board, the Public Library Board, and the Senate and Board of Governors of the University of British Columbia. The fund supporting this scholarship was contributed to by friends and associates of Miss Jamieson; it was augmented by contributions made in memory of the late Victor Osterhout, at his own request.

The B. C. Inter-High Boys' Basketball Association Scholarship — This scholarship of \$200 is available for a student from Grade XII or XIII entering the University in the session 1953-54. Applicants must be members of teams affiliated with the Association. Selection of the winner will be made by the University on the basis of academic standing, character, qualities of leadership, and demonstrated active interest in athletics. Applications, which should be submitted to the University by June 15th, must be supported by letters of recommendation from the school principal and others. Full information concerning the method of application may be obtained by writing to Dean Walter H. Gage, The University of British Columbia, Vancouver 8, B. C. The award will be made only to a student continuing in a full course at the University.

The British Columbia Electric Railway Company Limited Special Scholarships—As on page 68.

British Columbia Forest Products Limited Scholarships—British Columbia Forest Products Limited offers annually fourteen one-year scholarships of \$300 each to legal dependents of employees who, at the time of the Departmental Examinations in June, have served with the Company for at least one year. These scholarships are available to dependents of employees in the following groups: (1) Youbou Sawmill (2 scholarships); (2) Victoria Sawmill and Plywood Mill (2 scholarships); (3) Hammond Sawmill (2 scholarships); (4) Vancouver Sawmill and Head Office (2 scholarships); (5) All logging divisions combined (6 scholarships). They are open to students proceeding from Grade XII (High School Graduation, University Programme) to First Year at the University of British Columbia. Residents of Vancouver Island may attend Victoria College. The scholarships will be awarded to the applicants with the highest standing in the

written examinations for High School Graduation (University Programme) conducted by the Department of Education, British Columbia, in June. Applicants must write a full set of examinations. Students intending to compete for these scholarships must notify the Dean of Administrative and Inter-Faculty Affairs, University of British Columbia, Vancouver 8, Canada, before June 15th.

Attention of students is directed to the bursaries offered by the Company (see page 97).

The Canadian Forestry Association (B. C. Branch) Scholarship—This scholarship will be awarded to a student who has been active in Junior Forest Warden work, has completed First Year Arts or Grade XIII (Senior Matriculation), and is proceeding to First Year Forestry or Forest Engineering at the University of British Columbia. Students wishing to be considered for this scholarship must apply by letter, before June 15th, to the Dean of Administrative and Inter-Faculty Affairs.

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 on page 92. 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 from Grades XII or XIII 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 scholastic 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 them 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 8, must be received not later than May 1st.

The Graduating Classes of 1952 Scholarship — A scholarship of \$250, a gift of the Graduating Classes of 1952 to the University, was made available for a student entering the University in the fall of 1952, from Grades XII or XIII in British Columbia. Selection of the winner was made on the basis of scholastic standing, interest and participation in extra-curricular and community activities, character and promise of achievement. The award was made by Senate, on the recommendation of the Joint Faculty Committee on Prizes, Scholarships, and Bursaries.

The Nancy Ryckman Scholarship—As on page 69.

The New Westminster University Women's Club Scholarship—A scholarship of \$150, the gift of the New Westminster University Women's Club, will be awarded annually to a woman student proceeding from Senior

Matriculation or First Year University to the next year of her course. To be eligible for consideration, an applicant must have been in attendance at a school in New Westminster for at least the last five months of the school year immediately preceding her admission to the University. In making the award, consideration will be given to scholastic standing and financial circumstances of applicants. Further information and application forms may be obtained from the office of the Dean of Administrative and Inter-Faculty Affairs. Application forms must be received not later than June 15th.

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 Badwater Towing Company, who are resident in British Columbia. The scholarship will be awarded to the applicant who ranks highest on the basis of the marks obtained in any year on the written examinations in the scholarship subjects for High School Graduation (University Programme). 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 Director of Pacific Mills Limited, or from the office of the Dean of Administrative and Inter-Faculty Affairs. Applications should be forwarded to the Personnel Director not later than June 1st.

The Phrateres Scholarship Fund—From this fund, established and maintained by Theta Chapter of Phrateres, an international organization of college women, a scholarship will be awarded annually to an out-of-town woman student with High School Graduation (University Programme) or Grade XIII (Senior Matriculation) standing who is attending University for the first time. The award will be made to a student of high standing. In making the award, consideration may be given to financial need.

Royal Institution Scholarships for Grade XIII—Six general proficiency scholarships will be awarded on the results of the Grade XIII (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 these scholarships will be granted only on medical grounds.

Winners of these 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.

Special Entrance Scholarship—This scholarship of approximately \$400, provided by an anonymous donor, was awarded in the session 1951-52 to a student entering the First Year at the University of British Columbia, and was renewed in 1952-53. In making the award, preference was given to a student from a more remote or isolated region of the Province.

The T. E. and M. E. Ladner Memorial Scholarship—As on page 69.

U. B. C. Alumni Association Regional Scholarships—Contributions to the Alumni-U.B.C. Fund have made possible the establishment of ten regional U.B.C. Alumni Association Scholarships of \$250 each. These scholarships are available for students proceeding from Grade XII (High School Graduation, University Programme) or Grade XIII (Senior Matriculation) to the University of British Columbia or Victoria College. One scholarship will be awarded in each of the following regions: (1) East Kootenay; (2) West Kootenay; (3) South Okanagan and Boundary; (4) North Okanagan and Thompson; (5) Skeena; (6) North Central B. C.; (7) Greater Vancouver and Howe Sound; (8) New Westminster and Fraser Valley; (9) Greater Victoria and Lower Vancouver Island; (10) Upper Vancouver Island and Powell River. Winners will be selected by a special committee representing the University and the Alumni Association. Application forms may be obtained from Frank J. E. Turner, Executive Director, U.B.C. Alumni Association, Room 201, Brock Hall, University of British Columbia. Completed application forms must be received at the office of the Dean of Administrative and Inter-Faculty Affairs, University of British Columbia, not later than May 1st. All applicants must write a full set of High School Graduation (University Programme) or Grade XIII (Senior Matriculation) examinations conducted by the Department of Education, British Columbia, in June.

University Scholarships for University Entrance—Fifteen general proficiency scholarships will be awarded on the results of the High School Graduation (University Programme) 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, Kitsilano High Schools, and any private schools in the area;
 8. School District No. 39, Lord Bvng, Magee, Prince of Wales High Schools, University Hill High School, and any 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 Vancouver Sun Scholarships for Carriers—The Vancouver Sun offers annually two scholarships of \$400 each to students from Grade XII entering the First Year of Faculty 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 High School Graduation (University Programme), conducted by the Department of Education in June. The selection of the winners will be made by the University, and applications, accompanied by the service certificate of The Vancouver Sun, must be forwarded 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 Victoria Naval Officers' Association Scholarship—The Naval Officers' Association of Victoria, B. C., offers a scholarship of \$300 to a student entering the first year of university at the University of British Columbia or at Victoria College. The scholarship is open to the sons of Ex-Royal Canadian Naval Personnel, or Ex-Royal Naval Personnel, whose ordinary private domiciles, homes or residence are in the Province of British Columbia. The recipient of the award will be selected by the Joint Faculty Committee on Prizes, Scholarships and Bursaries of the University of British Columbia and the selection will be based on scholarship, character, leadership and financial need. Applications on forms obtainable from the office of the Dean of Administrative and Inter-Faculty Affairs, University of British Columbia, Vancouver 8, must be filed at that office by June 15th.

In Summer Session

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-session 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-session classes, or correspondence courses, and must continue in his Fourth Year at the University of British Columbia. In order that all candidates may be considered, students in the category covered by this award are asked to submit their names to the Dean of Administrative and Inter-Faculty Affairs before the last day of Summer School.

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. In order that all candidates may be considered, students in the category covered by this award are asked to submit their names to the Dean of Administrative and Inter-Faculty Affairs before the last day of Summer School.

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. In order that all candidates may be considered, students in the category covered by this award are asked to submit their names to the Dean of Administrative and Inter-Faculty Affairs before the last day of Summer School.

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 47), Bursaries (in the next section), Loans (page 109), 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 111). Women students are advised to consult the Dean of Women.

BURSARIES

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 or at the office of the Dean of Administrative and Inter-Faculty Affairs.

Unless indicated otherwise in the Calendar description, bursaries are available only for undergraduates who are beginning or continuing a full course of study at the University of British Columbia, and in special cases, for students in Teacher Training and Social Work at this University. To be eligible for a bursary, a student must normally show evidence of financial need and have at least Second Class standing in the full year's work most recently taken.

A student applying for a Special Bursary (described below) will automatically 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 1953-54 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 or at the office of the Dean of Administrative and Inter-Faculty Affairs, must be received 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 Albert O. Koch Bursary—This bursary of annual value \$100, the gift of Mr. Albert O. Koch, will be awarded to a student who has good scholastic standing and who, without financial assistance, would be unable to continue studies at the University.

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 Alliance Française Bursary—A bursary of \$100, the gift of the Alliance Française, will be awarded to a student proceeding to the Third Year and specializing in French. The bursary will be awarded on the basis of merit and need.

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 or for the son or daughter of a veteran. The award will be made on the basis of scholastic standing and financial need.

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 A. Max Charkow Bursary—A bursary of \$100, the gift of Mr. and Mrs. A. Max Charkow, will be awarded annually to a student in the Faculty of Agriculture who has good scholastic standing and who is deserving of financial assistance. It will be awarded to an undergraduate specializing in the field of poultry science or poultry nutrition.

The American Woman's Club Bursary—A bursary of \$250, given by the American Woman's Club of Vancouver, will be available in the session 1953-54 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 American Woman's Club Bursary for Social Work—A bursary of \$250, 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 A. Nathan Fox Bursary—This bursary of \$25, the gift of Mr. and Mrs. A. Nathan Fox of Vancouver, will be awarded in the session 1953-54 to an undergraduate in any year and faculty who has good scholastic standing and is in need of financial assistance.

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 Architectural Institute of British Columbia Bursary—A bursary of \$250, the gift of the Architectural Institute of British Columbia, will be awarded to a student entering First Year Architecture. This award will be made to a student who has shown promise of ability in the field of Architecture, and needs financial assistance to enable him to proceed with his studies. In making the selection, the Joint Faculty Committee on Prizes, Scholarships, and Bursaries will give first consideration to those candidates recommended by the Institute.

The A. Rothstein Bursary—This bursary of the annual value of \$100, the gift of Mr. and Mrs. A. Rothstein of Vancouver, will be awarded to an undergraduate in any year or faculty who has good scholastic standing and is in need of financial assistance.

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 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 B. C. Electric Veterans' Association Bursaries—Two bursaries of \$100 each, one for a boy and one for a girl, are offered by the B. C. Electric Veterans' Association to students completing Grade XII (High School Graduation, University Programme) in June and proceeding in the fall to First Year studies at this University. To be eligible for consideration, an applicant must be the son or daughter of a bona-fide active service veteran. The father or mother of an applicant must be currently employed by (or have been employed by at the time of death, if now deceased), or be a pensioned employee of, the B. C. Electric Railway Company, Limited, or its associated and subsidiary companies on the Mainland. In the selection of winners, financial need, weighed against scholarship and all-round achievement, will be a major consideration. Further details may be obtained from the Dean of Administrative and Inter-Faculty Affairs, to whom application must be made before August 15th.

The B. C. Society of Internal Medicine Bursary—A bursary of \$300, the gift of the B. C. Society of Internal Medicine, will be awarded annually to a student in the Faculty of Medicine who has good scholastic standing and need of financial assistance. The award is open to dependents of deceased physicians and to students proceeding to a career in fundamental medical science, or showing aptitude for and interest in a career in internal medicine. Preference will be given to a student in the Final Year.

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.

The Bostock Bursary—This bursary of \$250, the gift of Bostock Ranch Limited, Monte Creek, British Columbia, has been established to assist in the control of range weeds and the improvement of range forage in the Kamloops Forest District. It will be used to assist a student engaged in investigational work in these fields. The award will be made on the recommendation of the Faculty of Agriculture.

The Brissenden Bursary—A bursary of \$200, the gift of Mr. P. R. Brissenden through the Alumni-U. B. C. Development Fund, is offered in alternate years, beginning with the session 1953-54. It will be awarded to a student in any year and faculty whose standing is satisfactory and who could not continue his studies at the University without financial assistance.

The British Columbia Beef Cattle Growers' Association Bursary—This bursary of \$250, gift of The British Columbia Beef Cattle Growers' Association, was available in the session 1952-53 for a promising student in the Faculty of Agriculture who was engaged in a project relating to beef cattle husbandry. The award was made, on the recommendation of the Department of Animal Husbandry, to a promising and deserving student.

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.

British Columbia Forest Products Limited Bursaries—British Columbia Forest Products Limited has made available the sum of \$2500 annually to provide bursaries for legal dependents of employees of the Company. These bursaries are open to undergraduates beginning or continuing a course of study at the University. Residents of Vancouver Island may attend Victoria College. To be eligible, an applicant must have good scholastic standing and financial need. Fuller information and application forms may be obtained from the Dean of Administrative and Inter-Faculty Affairs, University of British Columbia, Vancouver 8, Canada. The written request for an application form must state the name and address of the applicant's parent or legal guardian and details of service with the Company. The completed application form must be received by the University not later than August 15th.

The British Columbia Institute of Agrologists Bursary—A bursary of \$250 is offered by the Institute of Agrologists to a student entering the degree course in Agriculture for the first time. This bursary will be awarded to an applicant who has a record of good scholastic standing and has need of financial assistance. In choosing the recipient, consideration will be given to farm background and participation in community activities. Winners of this bursary will be selected by the Joint Faculty Committee on Prizes, Scholarships, and Bursaries, after consultation with the Bursary Committee of the Institute of Agrologists and the Dean of the Faculty of Agriculture. Candidates must have their applications approved by a resident Agrologist in the district where the application is made. Applications, on forms available from the Dean of Administrative and Inter-Faculty Affairs, University of British Columbia, Vancouver 8, Canada, must be received by the University not later than August 15th. The letter requesting the application form should contain the name and address of the applicant, an outline of the applicant's record in 4-H Club work or community activities, and an indication of his background in farming.

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 British Columbia Tuberculosis Society Christmas Seal Bursary Fund—Through a grant from the Tuberculosis Society of British Columbia, a fund has been established to assist selected nurses to enter a programme of study in the School of Nursing at the University of British Columbia. Students selected to receive assistance will be required to undertake a programme emphasizing tuberculosis problems, and on completion of their training, to work with the Department of Tuberculosis Control. Grants, which may be in the form of bursaries or loans, will be made on the recommendation of the Joint Faculty Committee on Prizes, Scholarships and Bursaries in consultation with the School of Nursing. Application should be made to the Director of the School of Nursing.

Bursary (Anonymous)—A bursary of \$100, provided by an anonymous donor, is available in the session 1953-54 for a promising and deserving student.

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 Carr Bursary—This bursary 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 and is proceeding to the Fourth Year, the Year in which the bursary shall be enjoyed. To be eligible, candidates must be majoring in Agricultural Economics or in Dairying. The bursary will be awarded to a student who submits evidence of special interest in the economics of the market milk industry and who is willing to undertake at least 1½ units of directed study in this field in his final year. In making the award, consideration will be given to the financial need of the applicant.

The Cristall Bursary—This bursary of \$25, the gift of Mr. and Mrs. Alex Cristall of Vancouver, will be awarded to an undergraduate in any year or faculty who, without financial assistance, would be unable to continue his or her studies at the University.

The Dave Franks Bursary—This bursary of \$40, the gift of Mr. and Mrs. Dave Franks of Vancouver, will be awarded to an undergraduate in any year or faculty who has good scholastic standing and is in need of financial assistance.

The David Nemetz Bursary—This bursary of \$40, the gift of Mr. and Mrs. David Nemetz of Vancouver, will be awarded to an undergraduate in any year or faculty who, without financial assistance, would be unable to continue his or her studies at the University.

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 Grade XII or Grade XIII 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 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 Dr. A. B. Greenberg Bursary—This bursary of \$75, the gift of Dr. and Mrs. A. B. Greenberg of Vancouver, is available for a student who is beginning or continuing his studies in the Faculty of Medicine toward the M.D. degree. The award will be made to a student who has obtained high scholastic standing and who, without financial assistance, would be unable to continue his studies.

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 1953-54 to provide bursaries for student veterans, or dependents of 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 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 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 Engineers' Wives' Association Bursary—This bursary of \$100, provided through the Engineering Institute of Canada (Vancouver Branch)

by a donation from the Engineers' Wives' Association will be awarded to an undergraduate student in Engineering who has good scholastic standing and who, without financial assistance, would be unable to continue his course.

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 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 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 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 need of financial assistance.

The Flying Officer Reverend George Robert Pringle Memorial Bursary—A bursary of the annual value of \$250, 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 Fort Camp Bursary Fund—To provide assistance for needy students, the residents of Fort Camp, University of British Columbia, at a general meeting held in November, 1951, initiated a fund at the University by contributing 25 per cent of their current year's net canteen profits. The annual donation will be used to provide bursaries for students in attendance during the Winter Session.

The Forty-Second Vancouver Guide Company Bursary—This bursary of \$50, the gift of the Forty-Second Vancouver Girl Guide Company, is available for a woman undergraduate in Physical Education. The award will be made to a student who has good standing and is worthy of financial assistance.

The Frances Milburn P.E.O. Bursary—A bursary of \$225, given by the Vancouver Chapters of the P. E. O. Sisterhood in memory of the late Frances Milburn, will be available for the session 1953-54 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 Freeman, Freeman & Silvers Bursary in Law—This bursary of \$100, the gift of Messrs. Freeman, Freeman & Silvers, is available annually for a student registered in the Faculty of Law. It will be awarded to a student who has good scholastic standing and is worthy and deserving of financial assistance.

The Gamma Phi Beta Bursary—A bursary of \$100, 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 H.M.C.S. Skeena Chapter, I.O.D.E., Bursary—A bursary of \$50, the gift of the H.M.C.S. Skeena Chapter, I.O.D.E., will be awarded in the session 1953-54 to a woman student beginning her studies in the First Year at the University. The award will be made to a student who, having good scholastic standing, will be unable without financial assistance to attend.

The International Student Service Bursary Fund—This fund, created in February, 1950, by the International Student Service of Canada (University of British Columbia Branch), has been established to help needy students from foreign countries. The fund of \$500 annually is administered by the Joint Faculty Committee on Prizes, Scholarships, and Bursaries.

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 Jack Cohen Bursary—A bursary of \$150, the gift of Mr. Jack 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 Jim Wallace Credit Union Bursary (donated annually by the B.C. Credit Union League)—This bursary of \$250 is available for an undergraduate in any year and faculty. 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 Joe Satanov Bursary—This bursary of \$25, the gift of Mr. and Mrs. Joe Satanov of Vancouver, will be awarded to an undergraduate in any year or faculty who has good scholastic standing and is in 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 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.

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 Katznelson Bursary—This bursary of \$25, the gift of Mr. and Mrs. K. Katznelson of Vancouver, will be awarded to an undergraduate who is financially deserving and has good scholastic standing.

The Ketchum Manufacturing Company, Limited, Bursary—A bursary of \$50, gift of the Ketchum Manufacturing Company, Limited, Ottawa, will be available in the session 1953-54 for a student in the Department of Animal Husbandry. The award will be made to a worthy student who has satisfactory academic standing.

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 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 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 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 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 Low-Beer Bursaries—Bursaries to the total of \$100, the gift of Mr. M. A. Low-Beer of Vancouver, were made available in the session 1952-53 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 Lower Mainland Fur Breeders' Association Bursaries—Bursaries to the total of \$300, the gift of the Lower Mainland Fur Breeders' Association, were available in the session 1952-53 in the Faculty of Agriculture for students carrying out investigational work on mink. The awards were made by the Joint Faculty Committee on the recommendation of the Faculty of Agriculture.

The Mary C. Lipsett Bursary—A bursary of \$300, offered annually by the late 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 Max Freeman Bursary—This bursary of \$25, the gift of Mr. Max Freeman of Vancouver, will be awarded to an undergraduate who is financially deserving and has good scholastic standing.

The M. B. Cohen Bursary—This bursary of the annual value of \$25, the gift of Mrs. M. B. Cohen of Vancouver, will be awarded to an undergraduate in any year or faculty who has good scholastic standing and is in need of financial assistance.

The Medical Ball Bursary Fund—From this fund, established and maintained by students in the Faculty of Medicine from proceeds of the Annual Medical Ball, a number of bursaries will be made available every year. These bursaries are awarded to medical students at this University who are in need of financial assistance.

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 a degree in Social Work.

The M. M. Waterman Bursary—This bursary of the annual value of \$25, the gift of Mr. and Mrs. M. M. Waterman of Vancouver, will be awarded to an undergraduate in any year or faculty who has good scholastic standing and is in need of financial assistance.

The Moe Cohen Bursary—This bursary of the annual value of \$25, the gift of Mr. and Mrs. Moe Cohen of Vancouver, will be awarded to an undergraduate in any year or faculty who has good scholastic standing and is in need of financial assistance.

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 1953-54. 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 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 National Paper Box Limited Bursaries—Two bursaries of \$200 each, the gift of National Paper Box Limited, are available for the session 1953-54. 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 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.

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 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 Panhellenic Association and the Inter-Fraternity Council Bursary Fund—The annual income of \$30 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 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 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.

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 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 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.

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 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 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.

The R. C. A. F. Chapter, I. O. D. E., Bursary in Medicine—A bursary of \$100, gift of the R.C.A.F. Chapter, I.O.D.E., will be awarded in the session 1953-54 to a student in the First Year of the Faculty of Medicine. The award will be made to a student who, without financial assistance, would have been unable to continue in the course.

The R. C. A. F. Chapter, I. O. D. E., Bursary in Nursing—This bursary of \$75, the gift of the R.C.A.F. Chapter, I.O.D.E., will be awarded in the session 1953-54 to a student taking her final year in the course leading to the degree of B.S.N. in the School of Nursing. The award will be made to a student who has good academic standing and is in need of financial assistance.

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 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 Richard Ronald Burns Memorial Bursaries—These two bursaries of \$50 each, given in memory of the late Richard Ronald Burns, will be awarded to students in the Faculty of Medicine. The awards will be made, in accordance with the wishes of the donor, to students requiring financial assistance.

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 Rotary Memorial Bursaries—To commemorate the sacrifices and services of Rotarians and their families in the conflicts of this century, the Rotary Club of Vancouver offers annually to students at the University five bursaries of the value of \$250 each. These bursaries are open to students in any year and in any faculty. Wherever practicable, however, the bursaries will be awarded to those who have served in the Armed Forces 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 Sam Rothstein Bursary—This bursary of the value of \$100, the gift of Mr. and Mrs. Sam Rothstein of Vancouver, will be awarded to an undergraduate in any year or faculty who has good scholastic standing and is in 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 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 Slavonic Studies Bursary—A bursary of \$250, the gift of Walter C. Koerner, in honour of Dr. William J. Rose, will be offered annually to a student specializing in any field of Polish, Russian or Slavonic Studies. The award will be made to a student who has need of financial assistance and who has attained high standing.

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 Teachers' Christian Fellowship Bursary — A bursary of \$125, given by the Teachers' Christian Fellowship of the B. C. Mainland, will be available for the session 1953-54 to assist a student in any faculty and year. This bursary is open to students who are entering University for the first time and have been members of the Inter-School Christian Fellowship, or to students continuing their courses who are members of the Varsity Christian Fellowship. The award will be made in consultation with the Teachers' Christian Fellowship on the basis of Christian faith and character, scholarship and need.

The Triple Entente Chapter, I. O. D. E., Bursaries—Three bursaries of \$100 each, 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 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.

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 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 Vancouver Bar Association Bursaries—Three bursaries of \$200 each, the gift of the Vancouver Bar Association, will be awarded in the session 1953-54 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 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 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 course. To be eligible for this award a student must have good ability and financial need.

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.

War Memorial Bursary—This bursary of approximately \$50, provided by the income on a fund established by graduates and friends of the University through donations from G. E. Baynes, Esq., P. R. Brissenden, Esq., Hotel Grosvenor, Alfred W. McLeod Limited, and Seeley & Company Limited, will be awarded annually to a worthy and financially deserving undergraduate in any year and faculty. In making this award, preference will be given first to veterans or members of the Merchant Navy, who served in World War II, then to sons and daughters of those who served, and finally to students generally.

The W. D. Shaffer Bursary Fund—This fund was bequeathed by the late Marion Alice Shaffer, B.A., B.Com., a graduate of this University, who served with distinction as a teacher in the schools of British Columbia and won the affection of all for her generosity and courage. It was the expressed wish of the donor that the income from the fund be used, as a memorial to her brother, to provide assistance for worthy and deserving students, preferably those proceeding to a career of teaching in the public schools of British Columbia.

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 under-

graduate 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 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 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 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.

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.

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 1953.

University Summer Session Bursaries—Twenty bursaries of \$50 each are available in the Summer Session, 1953, 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.

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

LOAN FUNDS

Inquiries relating to the following loan funds and applications for all loans should be addressed to the Dean of Administrative and Inter-Faculty Affairs, Room 10, Arts Building, unless the description indicates otherwise. Women students should first consult the Dean of Women.

Application for a loan should be made at least one month, and in the case of the Paul E. Murphy Student Aid Fund at least two months, before it is required. Students are advised that adult guarantors satisfactory to the Accountant's office are required.

Winter Session Loan Funds

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 Carl J. Culter Student Aid Fund—This is a memorial fund established by the family of Carl J. Culter (1884-1948) to help deserving students. To this fund students with satisfactory academic standing and showing promise of service to their communities may apply for loans to help them in beginning or continuing their studies at the University of British Columbia.

The Charles J. Thompson Student Aid Fund in Architecture—A fund of \$5000, to assist students in Architecture, has been established by Charles J. Thompson, A.R.I.B.A., M.R.A.I.C., a member of the firm of Sharp and Thompson which won the open competition for the building project of the University in 1912. Since that time, Mr. Thompson has contributed much of professional skill and personal interest to construction and development on the campus. The purpose of the fund is to assist promising and needy students proceeding to a degree in Architecture. Loans from the fund, which do not become repayable or bear interest until after the student's graduation, are available for undergraduates registered in the Second or higher years.

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.

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.

The Graduating Classes of 1952 Student Aid Fund — This fund was established from a gift made to the University by the Graduating Classes of 1952 for the purpose of assisting deserving undergraduates. Loans for limited amounts are available, without interest, for periods of one year.

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.

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.

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.

The Lower Mainland Dietetic Association Loan Fund — This fund has been established by the Lower Mainland Dietetic Association to provide assistance, in limited amounts, for undergraduates in the Third or Fourth Year taking a dietetic major in the School of Home Economics. To be eligible for a loan, an applicant must have satisfactory standing and be recommended by the School. Loans become due and payable at the end of one year, until which time they do not bear interest. In special cases, upon application, they may be renewed for a further period.

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.”

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 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 in (a); (c) the student body at large.

Student Emergency Aid Fund—This fund, the gift of Robert Matchett, B.S.A., has been established to provide loans for students requiring limited assistance in emergency situations.

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.

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.

The University Student Liberal Club Loan Fund—From this fund, sponsored by the University Student Liberal Club and maintained by donations from members of the Liberal Party, loans are available for students interested in public affairs. Loans are repayable, without interest, within one year, but in the case of students in attendance for further work, may be renewed under the same terms.

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 Vancouver Home Economics Association Loan Fund—This fund has been established by the Vancouver Home Economics Association to provide assistance, in limited amounts, for undergraduates in the School of Home Economics. To be eligible for a loan, an applicant must have satisfactory scholastic standing and be recommended by the School. Loans from this fund become due and payable at the end of one year, until which time they do not bear interest. In special cases, upon application, loans may be renewed for a further period.

The Walter D. Frith Student Aid Fund—This fund, established by gifts from Walter D. Frith, Esq., of Vancouver, is used to provide loans for students who, without financial assistance, are unable to begin or continue their studies at the University of British Columbia. To be eligible for loans, applicants must have satisfactory scholastic standing.

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.

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. Contributions have been received from the following:

The Marion McElhanney Memorial—Maintained by the Alumnae of the University of Toronto who donated \$75 during the session 1952-53.

The Kappa Kappa Gamma Sorority—Who donated \$50 during the 1952-53 session.

The Kappa Kappa Gamma Mothers' Club—Who donated \$100 during the 1952-53 session.

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

The Alpha Phi Chapter of Delta Gamma Sorority—Who donated \$50 during the 1952-53 session.

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.

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.

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

The Rhodes Scholarships

The Rhodes Scholarships—The Rhodes Trustees offer annually for award in the Province of British Columbia one Rhodes Scholarship of the value of £500 a year. At most Colleges, and for most men, this 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 1954 must have passed his 18th birthday but not have reached his 24th birthday by October 1st, 1953.

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

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

Some definite quality of distinction, whether in intellect 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, 1953, and, if elected, to go to Oxford in October, 1954. Further information and application forms may be had from the Dean of Administrative and Inter-Faculty Affairs or the Registrar, University of British Columbia, Vancouver 8, B. C.

For Graduate Study

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. Inquiry should be made early in December.

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 considered 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. Application forms and further information may be obtained from Miss Eleanor Mercer, 5729 Hudson St., Vancouver 13.

British Council Scholarships—The British Council offers scholarships to overseas students, tenable at Universities and other educational institutions in the United Kingdom. The awards are mainly for men and women who have already completed university degree courses or who have equivalent professional qualifications. Preference is given to candidates between 25 and 35 years of age. The scholarships are normally for one academic year of 10 months or for two academic years, according to the duration of the approved course of study. A full scholarship is intended to cover all expenses of maintenance and study, and includes fares, fees, personal maintenance, a grant for books and apparatus and approved travelling expenses in the United Kingdom. Further information may be obtained from the Dean of Administrative and Inter-Faculty Affairs. Inquiry should be made before the end of October.

Canadian Federation of University Women Fellowships—The Travelling Fellowship 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.

Beginning in 1953 the Canadian Federation of University Women will offer the Margaret McWilliams Fellowship of \$1200. In 1953 and alternate years it will be awarded to a woman holding a degree from a Canadian university, who is not more than 35 years of age at the time of the award. Preference will be given to candidates who have started their graduate work and who have a definite course of study or research in view. It is proposed to award this fellowship in 1954 and alternate years to a non-Canadian to carry out postgraduate work in Canada.

The Junior Fellowship 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 Fellowship of the Canadian Federation of University Women, of the value of \$1200, 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 Miss Virginia Cameron, Assistant Registrar, McGill University, Montreal, P.Q. Applications and recommendations must be received not later than February 1st.

Central Mortgage and Housing Corporation National Fellowships in Community Planning—It is expected that nine fellowships of \$1200 each will be made available by the Central Mortgage and Housing Corporation, Ottawa, for the study of community planning during the academic session of 1953-54. These will be awarded for study at any of the Canadian universities offering post-graduate training in Community and Regional Planning. The University of British Columbia is one of the universities offering instruction in this field. The purpose of these fellowships is to aid students in receiving advanced education which will enable them to enter the field of community planning and allied occupations either in a professional capacity or in public service. Candidates must be graduates of recognized universities in the social sciences, architecture or civil engineering. Their academic qualifications must meet the requirements for graduate study at the university to which application is made and all candidates for a fellowship must have been accepted as graduate students at that institution. They will be required to undertake a prescribed course of studies. The period of the fellowship is twelve months and applications must be received not later than June 15, 1953. Inquiries and applications should be directed to the Secretary of the graduate course in Community Planning at the University of British Columbia.

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 £450 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. Inquiry should be made before the end of December.

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.

French Government Scholarships—Scholarships of the present value of approximately \$900 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. These scholarships are open to students of all faculties. Candidates must, however, produce satisfactory evidence that they are able to profit by instruction given in French. The awards are made by the French Embassy on the recommendation of the Head of the Department of French in the University, from whom further information may be obtained.

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. Application must be submitted by March 1st.

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, Physics, 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.

Imperial Order Daughters of the Empire War Memorial I Scholarship (Overseas)—This fund was established by the I. O. D. E. in order to perpetuate the memory of the men and women who gave their lives in the defence of the Empire in the First Great War. 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, or from the Educational Secretary of the Provincial Chapter, I. O. D. E., at 517 Ford Building, Hastings at Main, Vancouver 4. *Applications must be submitted by October 15th of each year.*

Imperial Order Daughters of the Empire War Memorial II Scholarship (Overseas)—This fund was established by the I.O.D.E. in order to perpetuate the memory of the men and women who gave their lives in defence of the Empire in World War II. Three post-graduate scholarships to the value of \$2000 each are to be offered annually in Canada. In view of the fact that for many years the emphasis for advanced study has been placed on Science rather than on the Humanities, these scholarships provided under War Memorial II will be offered annually to carry on post-graduate work in History, Philosophy, English or French Literature. The conditions under which they are awarded may be obtained from the Dean of Administrative and Inter-Faculty Affairs, or from the Educational Secretary of the Provincial Chapter, I.O.D.E., at 517 Ford Building, Hastings at Main, Vancouver 4, B. C. *Applications must be submitted by October 15th of each year.*

The International Nickel Graduate Fellowships—The International Nickel Company of Canada offers annually three graduate research fellowships, each with a possible tenure period of three years. Award of these fellowships is made by the National Conference of Canadian Universities, which will consider applications from any Canadian University qualified to confer a Master's or Doctor's degree in Geology (including Geophysics), Mining, Ore Dressing, Metallurgy (both process and physical), Chemistry (ertain-

ing to metals), and Physics (pertaining to metals). Not more than three applications from any one university will be considered in any one year. Each fellowship is in the amount of \$2000 per annum, of which \$1500 is payable to the fellow through the University to whom the award is made and \$500 is at the disposal of the directing professor for materials and equipment necessary to the research. Applications from universities must be received by the Conference not later than February 28th.

The Mackenzie King Travelling Scholarships—These scholarships of not less than \$1500 each are available for graduates of any Canadian university who propose to engage, either in the United States or the United Kingdom, in postgraduate studies in the fields of international or industrial relations. Information may be obtained from Dean Walter H. Gage, University of B. C., Vancouver 8, Canada. Applications for those proposing to proceed to study in the fall of 1953 must be submitted by May 15th, 1953. It is expected that applications for study in the fall of 1954 will be required in December.

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 their undergraduate studies. The values of the awards are as follows: Bursary, \$600; Studentship, \$900; and Fellowship, \$1200. Also available are a limited number of Special Scholarships for graduates and Post-Doctorate Fellowships for those who have completed their work for the Ph.D. degree. 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.

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, 165 Bloor Street E., Toronto, Ontario.

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 to the Rotary Club in their district. Further information may be obtained from the office of the Dean of Administrative and Inter-Faculty Affairs, or the secretary of any Rotary Club.

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 \$2000, 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 or from the Dean of the Faculty of Law. Applications must be in the hands of the Secretary-Treasurer of the Association by December 31st.

For Undergraduates

Canadian Legion (British Columbia Command) Scholarships—The Canadian Legion (British Columbia Command), British Empire Service League, offers annually a number of scholarships for students proceeding from high school to University. These scholarships are awarded on the basis of academic standing, financial need, and participation and achievement in student and community affairs. Preference is given to sons and daughters of veterans killed in action or of deceased and disabled veterans. Applications from other worthy students are also considered. Further information may be obtained from The Canadian Legion Scholarship Committee, Provincial Office of the Canadian Legion, 1372 Seymour St., Vancouver 2, B. C.

The Cominco Undergraduate Scholarship—This scholarship of \$500 a year for four years is offered by The Consolidated Mining and Smelting Company of Canada Limited to sons, daughters or wards of any employee whose total service with the Company is at least two years and whose monthly earnings are not in excess of \$350; to sons, daughters or wards of a widow whose husband died while in the employ of the Company; and to sons, daughters or wards of a Company pensioner. It is available for students completing Senior Matriculation. Further details may be obtained from the Secretary, Scholarship Committee, The Consolidated Mining and Smelting Company of Canada Limited, Trail, B. C.

The Crofton House Alumnae Scholarship—A scholarship of tuition fees, 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 Eastern Star Scholarship—This scholarship, originally 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.

The Canadian Geographical Society Scholarships—Six scholarships of \$250 each were made available by the Society for study during either summer or winter sessions beginning in July or September, 1953, in institutions

in which there is a school of geography. The list of institutions includes the University of British Columbia. Applications on the forms available from the Executive Secretary of the Canadian Geographical Society, 36 Elgin Street, Ottawa 4, were required to be submitted by January 15th. Conditions of award were: (1) the applicant must be a Canadian or a student studying for a degree or diploma in Canada; (2) the applicant must be registered for a course leading to a degree in geography, or for a diploma in education in which geography is a required subject; (3) the applicant must be able to demonstrate outstanding academic ability or experience in teaching geography. Field experience will also be taken into account in assessing the candidate; (4) the scholarships may be held in the last year of undergraduate work or during postgraduate work. For information regarding these scholarships next year, students are referred to Dr. J. L. Robinson, Department of Geology and Geography, University of British Columbia, Vancouver 8, Canada.

The Independent Order of 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, I. O. O. F. Applications should be submitted to the Odd Fellows or Rebekah Lodge by May 31st so that they may be received by the Committee not later than June 30th. All applications must be sponsored by an Odd Fellows Lodge, Rebekah Lodge, or Encampment.

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, will be awarded to the applicant obtaining highest standing in the written examinations in the scholarship subjects for High School Graduation (University Programme). Application Forms and further information may be obtained by writing to the Secretary, Local 312, Ocean Falls, B. C.

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 requirements 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 the Provincial Educational Secretary, I.O.D.E., 517 Ford Building, 193 East Hastings St., Vancouver 4, B. C.

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 Royal Canadian Engineer Memorial Scholarship—Scholarships of \$125 each were offered in the Session 1952-53 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 candidate who is 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 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.

Loan Funds

The British Columbia Library Association Loan Fund—This loan fund is available to students who wish to attend library school. The recipient will be selected primarily on the basis of financial need and aptitude for library work. Application forms and further information may be obtained from Miss Eleanor Mercer, 5729 Hudson Street, Vancouver 13.

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 \$500 and for two or more years \$1000, which latter sum must be the full indebtedness of the student. The note covering the loan is drawn with maturity not to exceed five years from the time it is issued. Interest at the rate of 3% is to be paid annually, and the student is expected to begin payment of the principal as soon as she is out of university and employed. Further information may be obtained from the Dean of Women.

The University Women's Club of Victoria Loan Fund—The University Women's Club of Victoria maintains an interest-free loan fund for women students of the University of British Columbia. Applications should be made to Mrs. R. S. Twining, 2125 Ferndale Road, R. R. No. 5, Victoria, B.C.

NFCUS INTERREGIONAL SCHOLARSHIP PLAN

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 Garnett Sedgewick Memorial Fund—The interest from this fund, established by friends of the late Garnett G. Sedgewick, Professor and Head in the Department of English from 1918 to 1948, will be used to provide special lectures in the University by speakers of scholarly distinction and broad sympathies; alternatively, to supply scholarship aid to exceptional students or to add books, pictures or music to the permanent cultural assets of the University.

The H. R. MacMillan Lectureship in Forestry—Through the generosity of Dr. H. R. MacMillan, C.B.E., a fund has been established to provide for the presentation and publication of two annual lectures, for forestry students, by outstanding figures in forestry or the forest industries.

Lectureship in the History of Christianity—Through the generous gifts of several Vancouver citizens of various religious denominations, a lectureship has been provided in the general field of the history of Christianity.

For the year 1953-54 the lectures will be given by the Rev. John W. Grant, D.Phil., Professor of Church History at Union College of British Columbia. Ten lectures will be given during each of the fall and spring terms. In the first term the subject of the lectures will be "The influence of Christianity upon European Civilization"; in the second term, "The Influence of Christianity upon the Civilizations of Asia." These lectures are sponsored by the President's Committee on Spiritual Values.

The W. Elgin Turnbull Memorial Lectureship—By the gift of his family, a lectureship in pharmacy has been established in memory of W. Elgin Turnbull (1912-1941), who was a member of the pharmaceutical profession in British Columbia. The endowment provides lectures, periodically, on topics in which he was deeply interested, especially those touching pharmaceutical economics and, in particular, merchandising. The purpose of the lectures is to stimulate interest in study in these fields.

**THE
FACULTY
OF
ARTS and SCIENCE**

1953-1954

1953-54

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.), Master of Science (M.Sc.), and Master of Commerce (M.Com.) 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 130-140.

Course credits are described in terms of units. The unit values are given in the various course descriptions (page 142).

Registration and Admission

1. Registration must be completed during the period September 15-19, as described on page 5 and pages 51-52 inclusive.
2. After October 2nd, except under very special circumstances and with the permission of Faculty, no student may alter the courses for which he has registered.
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 High School Graduation (University Programme) 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

See page 49.

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. No student may take more than 18 units and, without the special permission of the Faculty, less than 15 units, in each Winter Session.

5. Students may not receive University credit for courses passed for High School Graduation whether taken among the required credits or as extra subjects.

6. Students may not continue with work in a higher year, unless they take concurrently all courses required to clear conditions or deficiencies in the lower years. The total of all work taken must not exceed 18 units. They may not continue in subjects for which they have not successfully completed the pre-requisites.

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

8. Attention is drawn to regulations concerning Examinations and Advancement, pages 140-142.

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 First Year and requirements G - M of the Second Year, as set forth in the following tables and notes.

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 100 or 101.....	3	2, 6
	or Music 105.....		2, 6
	or additional Language.....		1, 2, 6
D	Elective.....	3	1, 2, 4, 6
E	Elective.....	3	1, 2, 4, 6
F	Compulsory Physical Education.....	.....	8

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, 7
M	Compulsory Physical Education.....	.....	8

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 142-191.

Bacteriology 100	German 90, 110 or 120	Philosophy 100
Biology 100	or 130	Physics 100 or 101 or 103
Chemistry 101	Greek 90, 101	Polish 110
Economics 100, 140	History 101, 102	Psychology 100
English 100 and 101	Latin 90, 110 or 120	Russian 100
Fine Arts 100	Mathematics 100 or 101	Spanish 90, 110 or 120
French 110 or 120	Music 105	
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 142-191.

Anthropology 200	French 202, 203	Philosophy 202, 210
Bacteriology 200	Geography 201	Physics 200 or 203 or 220
Biology 330	Geology 200	Polish 210
Botany 200	German 200	Psychology 200, 201, 202
Chemistry 200, 205, 210	Greek 202	Russian 200, 203
*Classical Studies 315, 316, 331, 332	†History 203, 304, 309	Slavonic Studies 205
†Commerce 151	Home Economics 210	Sociology 200
†Economics 200	Latin 202	Spanish 201
English 200	Mathematics 200, 201, 202, 205	Zoology 200
Fine Arts 200, 210	Music 205	

†Commerce 151 and Economics 200 are open only to those students who are permitted to register in the Second Year. History 309 is open only by special permission.

*For Classical Studies courses a knowledge of Greek and Latin is not required.

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, 101, 110, 120, or 130 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 101, 110, 120, or 130 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 110 or 120, 202, German 90, 110 or 120 or 130, 200, Greek 90, 101, 202, Latin 90, 110 or 120, 202, Russian 100, 200 or 203, Spanish 90, 110 or 120, 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.

6. To meet requirement C students must select one course—not already chosen—from French 110 or 120, German 90, 110 or 120 or 130, Greek 90, 101, Latin 90, 110 or 120, Mathematics 100 or 101, Music 105, Polish 110, Russian 100, Spanish 90, 110 or 120. Before the selection is made, however, the following notes should be read carefully:

(i) Mathematics 100 is open only to students who have completed Mathematics 30, but not Mathematics 91, of the high school programme; Mathematics 101 is open only to those who have completed Mathematics 91 of the high school programme or Mathematics 100. Credit will not be given for both Mathematics 100 and 101 and the courses cannot be taken concurrently.

(ii) Mathematics 101 is required for admission to Applied Science (Architecture and Engineering), Forestry, Medicine and Pharmacy.

(iii) In courses leading to the B.A. degree, Mathematics 101 is required for Bacteriology (all courses except 100), Biology (all courses except 100), Botany (all courses except 200), Chemistry (all courses except 101, 210), Geology, Mathematics (all courses except 100, 201, 205), Physics (all courses except 103, 110, 203), and Zoology (all courses except 200). It is also a prerequisite for majors or Honours in the above subjects and also for Honours in Economics, Geography, Philosophy, and Psychology. Mathematics 101 must precede all these courses except Bacteriology 200, Chemistry 200, 205, and Physics 100, 101, with which it may be taken concurrently.

(iv) In courses leading to the degree of B.A., *either* Mathematics 100 *or* 101 must be taken by students registering for Bacteriology 100, Chemistry 101, Economics (all courses except 100, 140), Geography (all courses except 101,

201), and Honours in Political Science. Unless Mathematics 91 has been completed for High School Graduation, Mathematics 100 must precede, or be taken concurrently with, Geography 101, Physics 103, 110, 203.

(v) The requirements in Mathematics for students proceeding to Commerce, Nursing, or Social Work, or entering Home Economics or Physical Education, are given in the sections of this Calendar dealing with the curricula of these schools.

7. 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 131-140.

8. The compulsory courses in Physical Education are described on pages 218-220 inclusive. No units of credit are given for these courses.

Special Requirements

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

Students proposing to enter Social Work or Teacher Training after obtaining the B.A. degree should refer to pages 225 and 210 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, Nursing, 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 or to schools of dentistry 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.

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.

Except in an approved Honours Course, 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). Similarly credit for courses in other Faculties will not be granted unless the courses are listed among those 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 in 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 regulation, 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); Geology 200; German 200; Greek 202; Latin 202; one only of Mathematics 200, 202, 205 (if another of these has been taken in the Second Year); Philosophy 202, 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 128.

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 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, either Plan may 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 210.

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 first week of the First Term.)

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 1953-54. 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, 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 Immunology

Prerequisites: Bacteriology 100, Biology 100, Chemistry 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 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 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 Department; 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 120.

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 Classical Studies 331 and 332.

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, 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 301, 335, and two of 300, 310, 320, 325, 330, 409 and 411. In addition a thesis, Economics 449, must be written and either 440 or 441 must be taken. An Honours student is allowed, if he desires, to take both 440 and 441 for credit. If students enter the Third Year without completing Economics 100 they will be required to take Economics 409 or 411 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., High School Graduation 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
—439: English Literature and Language, 700 to 1100.....	3
—440: English Literature, 1100 to 1500.....	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
	<hr/> 51

Candidates will present evidence, by the end of the Fourth Year, of a reading knowledge of French, German or Russian.

French

Prerequisite: French 120.

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 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, 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 110, 120, 130, or 200.

Course: In the Second Year, German 200 (or 300); in the Third and Fourth Years 18 units of German chosen from courses numbered 300 and above; three units selected from History 314, 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 Years, 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 102 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 102 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 102 (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 311, 312, 320, 415, Slavonic Studies 308, 311, Geography 306, Economics 310, 325, Political Science 310, 330.

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 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 120.

Course: Latin 202 in the Second Year; in the Third and Fourth Years Latin 303, 304, 405, 406, Classical Studies 331, 332, and private reading to count for 3 units. The candidate must also take Latin 310 or 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 101 (Applied Mathematics). A reading knowledge of French, German or Russian is highly desirable. Students who have taken French in high school should take German or Russian.

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; History 102, 312; Physics 200; Spanish 90, 110 or 120.
- (c) Applied Mathematics: Mathematics 306, 307, 400, 403, 405, 441; Physics 300, 302, 304, 308, 406.

Philosophy

Prerequisites: Mathematics 101, Psychology 100, Philosophy 100, and 3 units of a science.

Course: Philosophy 202 and 12 additional units in Philosophy to be selected in consultation with the Department.

Physics

Prerequisites: Chemistry 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 100 or 101, a reading knowledge of French, German or Russian, and a First Class or high Second Class standing in Economics 200 and History 309.

Course: In the Third and Fourth Years, Political Science 300, 330, 400, 441, 449 and one other course in Political Science which may be 440.

Psychology

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

Course: Biology 304, Psychology 200, 15 additional units in Psychology selected in consultation with the Department.

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 may 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 120.

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 110 or 120, Mathematics 101, Biology 100, Chemistry 101.

Course: In the Second Year, English 200, German 90 or 130 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 128, 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 205. Mathematics 202 is recommended for Honours students in most fields of Zoology.

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 200; Animal Husbandry 200; Horticulture 200.

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

Subject to the approval of the combination by both departments concerned, combined Honours Courses are offered as follows:

(a) Any two of:

Bacteriology and Immunology, Biology and Botany, Chemistry, Geography, Geology, Mathematics, Physics.

(b) Any two of:

Anthropology, Economics, English, French, Geography, German, History, International Studies, 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, Biology 100.

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

Bacteriology and Immunology

Prerequisites: Bacteriology 100, Mathematics 101, Chemistry 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 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 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 120.

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, 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 409, 410, or 411, 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, 9 units in Economics courses chosen from Economics 300, 301, 310, 320, 325, 330, 409, and 411; Economics 335. If the graduating essay, Economics 449, is written in Economics, it may replace any of these courses except Economics 335, but Economics 440 or 441 must be taken.

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.

French

Prerequisite: French 120.

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 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 101, Geography 101, Mathematics 101, and a modern language.

Course: In the Second Year, 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 110, 120, 130, or 200.

Course: German 200, 300, 302; two additional courses in German numbered 300 and above, and a graduating essay in one or the other field. 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), 102 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.

International Studies

Prerequisites: As on page 134.

Course: As on page 134.

Latin

Prerequisite: Latin 120.

Course: Latin 202 in the Second Year; in the Third and Fourth Years Latin 310 and 410 and any four of Latin 303, 304, 405, 406, Classical Studies 333 (3 units), Classical Studies 331 and 332 (1½ units each). 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, Psychology 100, and 3 units of science.

Course: Philosophy 202, and 12 additional units in Philosophy to be selected in consultation with the Department.

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 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 100 or 101, a reading knowledge of French, German or Russian, and a First Class or high Second Class standing in Economics 200 and History 309.

Course: In the Third and Fourth Years, Political Science 300, 330, 400 and one other course in Political Science. This course may be replaced by the graduating essay if it is written in Political Science. In this case, Political Science 440 and 441 must be taken.

Psychology

Prerequisites: Mathematics 101, Psychology 100, Philosophy 100.

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, demonstrated competence in a foreign language, 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 120.

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. See page 45.

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. See page 53.

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 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 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 131 and 137.

Anthropology 200 is given for the general student as well as for those intending to major in Anthropology. Courses numbered 300 and over are not open to Second Year students, except with the consent of the instructor. Courses numbered 420 and over require Anthropology 200 as prerequisite or taken concurrently.

Students intending to do advanced work in Anthropology are advised to take Linguistics 319 and Zoology 300.

200. (3) Introduction to Anthropology.—A comparative study of cultural institutions in the primitive world; of family and other social structures; of economics, government, language, art, religion; of the origins of man and culture, the races of mankind and the nature of race. References: Herskovits, *Man and His Works*; Hoesel, *Man in the Primitive World*; Kroeber, *Anthropology*. Mr. Hawthorn. [3-0; 3-0]

300. (3) Cultural Anthropology.—A more detailed study of social organization and cultural institutions; primitive economics, art, language, religion, kinship, law, government, and the relationships between culture and the individual. (Not given in 1953-54.) [3-0; 3-0]

320. (3) Prehistory of the Old World.—A review of early man and cultural beginnings; the Mesolithic; the subsistence revolution of the Neolithic; copper and bronze; the rise of urban societies; late prehistoric civilizations of the Mediterranean and the Near East. Mr. Borden. [3-0; 3-0]

330. (3) Primitive Religion.—Concepts of the supernatural and its relation to man; the rituals of worship, magic and healing; the relationship of primitive religion to society, ethics, art and science. Mr. Hawthorn. [3-0; 3-0]

331. (3) Primitive Arts and Crafts.—A comparative study of the arts of Africa, Asia, Oceania and the Americas. [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; government and international programmes. Prerequisite: Anthropology 200. [3-0; 3-0]

401. (3) Indians of British Columbia.—Native cultures of British Columbia and anthropological problems presented by this area; a survey of the native peoples of the New World; racial, linguistic and cultural relationships; intensive study of a few representative tribes. Mr. Suttles. [3-0; 3-0]

402. (3) Native Cultures of the Pacific.—Native peoples of Australia, Indonesia, Melanesia and Polynesia. [3-0; 3-0]

403. (3) Native Cultures of the Arctic.—The material, social and intellectual culture of the various branches of the Eskimo-Aleut stock inhabiting Arctic North America, with discussion of special features of Arctic environmental conditions. A comparative examination of Arctic Asian peoples. Mr. Marsh. [3-0; 3-0]

410. (3) Cultures of China and Japan.—Racial, linguistic and cultural relationships of the peoples of Eastern Asia. The rural economies, patterns of family life, government and social organization. Folk religions of China, Korea and Japan. References: Latourette, *The Chinese, their History and Culture*; Hsu, *Under the Ancestors' Shadow*; Osgood, *The Koreans and their Culture*; Sansom, *Japan, a Short Cultural History*; Embree, *Suye Mura*. Mr. Suttles. [3-0; 3-0]

411. (3) Cultures of India.—Racial, linguistic and cultural relationships of the peoples of India. Social patterns and intellectual achievements of the Hindus, Moslems, Sikhs and of a few representative tribal groups. [3-0; 3-0]

420. (3) Archaeology of British Columbia.—Facts and problems related to the prehistory of the Pacific Northwest, combined with archaeological field work in this area. Students will participate in excavations at prehistoric sites near Vancouver and will receive instruction in research techniques and in the interpretation of archaeological data. (May not be given in 1953-54.) [2-3; 2-3]

430. (3) Theory of Culture.—Principles underlying social science; history of anthropological thought; the development of method; analysis of con-

cepts such as culture, value and pattern; social evolution and social change; theories of cultural analysis, with detailed study of selected cultures. Kroeber, *The Nature of Culture*. Mr. Campbell. [3-0; 3-0]

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.**

Bacteriology and Immunology

For Honours requirements in Bacteriology and Immunology see pages 131 and 137.

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. Prerequisite: Chemistry 101, which may be taken concurrently. Bacteriology 100 is prerequisite to all other courses in the Department. [2-3; 2-3]

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; microbiological assays. 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. [1-4; 1-4]

300. (3) **Immunology.**—Protective reactions of the animal body against pathogenic micro-organisms and their products; cellular and humoral immunity; anaphylaxis and allergies. Prerequisite: Bacteriology 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 and 300, with at least Second Class standing in each. Bacteriology 300 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. Prerequisite: Bacteriology 100. [0-0; 2-2]

400 (3) **Microbiological Physiology.** — Physiology of bacteria, yeasts and molds, including growth, nutrition, respiration and other aspects of metabolism; relation of microbiological physiology to medicine, sanitation and industry. Prerequisites: Bacteriology 100 and Chemistry 300, with Second Class standing in each. [2-2; 2-2]

402. (1½) **Immunochemistry.**—Chemical nature of antigens and haptens; antigenic composition of micro-organisms and certain of their products; source and nature of antibodies; quantitative considerations of the antigen-antibody reactions. Prerequisites: Bacteriology 200 and 300, and Chemistry 300, with Second Class standing in each. [2-2; 0-0]

403. (3) Pathogenic Microbiology.—Sources, modes of transmission and public health laboratory methods of detecting and isolating the commoner human and animal pathogens. The host-parasite relationship; inflammation; gross and microscopic manifestations of certain infections in man and animals. Prerequisites: Bacteriology 200 and 300, with at least Second Class standing in both courses. (Includes main content of former courses 403, 408 and 410.) [2-2; 2-2]

404. (1-3) Seminar in Bacteriological Literature.—Reviews and critical discussions of selected topics. Compulsory for Honours students.

409. (1½) Introduction to Viruses.—Properties of the simpler viruses. Techniques used for their growth, identification and assay. Prerequisites: Bacteriology 100 and 300 with at least Second Class standing in both courses; and Bacteriology 400, which may be taken concurrently. [0-0; 2-2]

411. (1) Pathogenic Fungi.—Morphology and physiology of fungi with special emphasis on pathogenic forms. Prerequisites: Bacteriology 100 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 100 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 409, with at least Second Class standing in all. (This course may not be given in 1953-54.)

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

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

Biochemistry

For descriptions of courses, see Faculty of Medicine.

Biology

For Honours and major requirements in Biology and Botany see pages 131 and 137.

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 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, Miss Cole. [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. [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, Miss Cole.

431. (3) **Research in Genetics.**—An introduction to genetical methods and investigations. Students interested in plant breeding may elect Agronomy 507 as an equivalent of this course. For students majoring in Genetics. Prerequisite: Biology 330. Mr. Hutchinson, Mr. Brink, Miss Cole. [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]

513. (2) **Marine Organisms and their Environment.**—Oceanographic factors as related to the distribution of marine benthic organisms. Prerequisite: Zoology 511. Desirable antecedents: Botany 411, Zoology 301 and 501. Mr. Scagel. [1-3; 1-3]

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 131 and 137.

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. Krajina. [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 1953-54 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*; Johansen, *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. Hutchinson, Mr. Pillsbury. [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. Prerequisite: Botany 200. 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 1953-54 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 1954-55 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 1954-55 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 1953-54 and alternate years.) [1-4; 1-4]

510. (3) Advanced Phycology.—Collection, identification and life histories of algae; emphasis on marine benthic forms. Prerequisite: Botany 411. Mr. Scagel. [2-3; 2-3]

512. (2) Marine Phytoplankton.—Collection, identification and quantitative analysis of marine phytoplankton in relation to oceanographic factors. Prerequisites: Botany 411 and Zoology 511. Mr. Scagel. [1-3; 1-3]

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]

521. (2-3) Problems in Forest Ecology.—Recent advances. Original investigation of a problem is expected. Prerequisites: Botany 304, 330, 421, Agronomy 210 or Forestry 253. Mr. Krajina. [1-3; 1-3]

535. (2-3) Problems in Plant Physiology.—Recent advances in biophysical 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 1953-54 and alternate years.) [0-0; 2-4]

549. Master's Thesis.

649. Ph.D. Thesis.

Chemistry

For Honours Courses in Chemistry, see pages 132 and 137.

Biochemistry 410 (see Faculty of Medicine) counts for credit in Chemistry.

101. (3) General Chemistry.—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*. Students will be placed in lecture and laboratory sections according to their chemistry background and general scientific aptitude. Mathematics 100 or 101 must precede or be taken concurrently. [3-3; 3-3]

200. (3) Quantitative and Qualitative Analysis.—Principles of chemistry with special emphasis on analytical procedures. Prerequisites: Chemistry 101 and Mathematics 101. The latter may be taken concurrently. Honours students will be required to attend an extra one-hour lecture each week. [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*. Prerequisites: Chemistry 101 and Mathematics 101. The latter may be taken concurrently. Credit will not be given for both Chemistry 200 and 205. [2-4; 2-4]

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*. Prerequisites: Chemistry 101 and Mathematics 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-book: Daniels et al, *Experimental Physical Chemistry*. Prerequisites: Chemistry 101 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) **Chemical Engineering Unit Operations I.**—As in Applied Science. [3-0; 3-0]
407. (3) **Advanced Physical Chemistry.**—A continuation of Chemistry 304. Chemical thermodynamics; elementary statistics; electrochemistry; atomic structure; radiochemistry; kinetics of reactions; catalysis and surface chemistry. Text-book: Daniels et al, *Experimental Physical Chemistry*. References: Glasstone, *Text-book of Physical Chemistry*; Prutton and Maron, *Fundamental Principles of Physical Chemistry*; Daniels, *Outlines of 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. [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]
412. (2) **Physical Inorganic Chemistry.**—Chemical properties of elements and their compounds from the point of view of simple atomic and molecular structure. References: L. Pauling, *Nature of the Chemical Bond*; Wells, *Structural Inorganic Chemistry*; T. Moeller, *Inorganic Chemistry*. [2-0; 2-0]
449. (3) **Thesis.**—Experimental, under the direction of a staff member.

For Graduate Students

501. (2) **Topics in Physical Chemistry.**
504. (1) **Seminar in Physical Chemistry.**
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. References: Eyring, Walter and Kimball, *Quantum Chemistry*; Syrkin and Dyakina, *The Structure of Molecules*. Prerequisite: Physics 500 or 504.
- 506 (1) **Theory of the Chemical Bond.**—More advanced applications.
509. (1) **Introduction to Chemical Oceanography.**—The composition of sea water, factors affecting its variation, methods for its determination. [2-0; 0-0]
510. (1) **Advanced Chemical Oceanography.**—Specific problems. [0-0; 2-0]
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.**
514. (1) **Chemical Thermodynamics: Applications.**—Chemical equilibria, properties of solutions of non-electrolytes, ideal and real systems. Text-book: Glasstone, *Thermodynamics for Chemists*.
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]

517. (2) **Topics in Inorganic Chemistry.**

518. (1) **Advanced Analytical Chemistry.**—Properties of the elements considered in relation to the Periodic Table. Includes a study of the less common elements. Prerequisites: Chemistry 200 and 310.

519. (1) **Radiochemistry.**—Natural and artificial radioactive nuclides, nuclear reactions, trans-uranic elements, tracer techniques and applications.

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.

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. (2) **Topics in Organic Chemistry.**

531-538. **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) **Cellulose, Lignin and Related Compounds.**—The structure and distribution of molecular weights of cellulose; behaviour of cellulose in chemical reactions; chemistry of non-cellulose components of wood.

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

539. (1) **Seminar in Organic Chemistry.**

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.Sc. in chemistry. No unit value.

549. (6) **Thesis for M.Sc. degree.**

649. **Thesis for Ph.D. degree.**

Classical Studies

(Given by the Department of Classics)

A knowledge of the Greek and Latin languages is not required for any of the following courses which are designed to present studies in the life, literature and thought of the Greek and Roman world. Courses 315, 316, 331 and 332 may be taken by Second Year students. Courses 331 and 332, if both are taken, together count for 3 units of credit in History.

315. (3) 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. [3-0; 3-0]

316. (3) Roman National Character and Literature.—Contact with the Greeks. Roman culture and literature before and after this contact. Roman national character. Features of Roman literature: formal, oratorical, dramatic. Old and new genres. Public and private life. Aesthetic appreciation of Roman authors by the Romans themselves (ideas about originality, imitation), and by modern readers. Text-book: T. J. Haarhoff, *The Stranger at the Gate*. [3-0; 3-0]

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 Course 332. Courses 331 and 332, 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]

332. (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. Given in the Second Term; for a complementary course in Greek history in the First Term see Course 331. For credit in the Department of History see page 167. Text-book: Trever, *History of Ancient Civilization*, Vol. II. [0-0; 3-0]

333. (3) The Roman Empire.—This course is a detailed study of Roman imperial history from 30 B. C. to the end of the 4th Century. It includes a conspectus of the political theory and practice of the classical Greek world and of the Roman Republic. Attention will be directed to the development of Christianity and to the problem of Church and State. Text-book: To be announced. [3-0; 3-0]

Economics

For Honours Courses in the Department see pages 132, 137.

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: to be announced. Mr. Corbett. [3-0; 3-0]

200. (3) Principles of Economics.—The institutions, processes and agencies in and through which natural resources, capital, labour and enterprise are combined to provide for our individual and collective well-being; basic determinants of real and money incomes, employment and living standards. Prerequisites: First Year standing; Mathematics 100 or 101 (may be taken concurrently). Text-books: Logan and Inman, *A Social Approach to Economics*; Samuelson, *Economics*; and directed readings. Mr. Crumb and Mr. Jamieson. [3-0; 3-0]

300. (3) Money and Banking.—Origin and value of money media, the functions of banks; determinants of exchange rates; measures of purchasing power and problems of monetary management. Text-books: Thomas, *Our Modern Banking and Monetary Systems*; Crumb, *Lessons in Money and Banking*. Mr. Crumb. [3-0; 3-0]

301. (3) 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: Ellsworth, *The International Economy*. Mr. Harvey. [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) Industrial Relations 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.—Description of the development of economic concepts from mercantilism to modern marginalism with special emphasis on the works of the classical economists. Text-book, Roll, *History of Economic Thought*. [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. [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. Mr. Harvey. (Not given in 1953-54.) [3-0; 3-0]

409. (3) **Economic History of the United States.**—Major economic developments and trends in the United States of America from colonial times to the present. Text-book: Faulkner, *American Economic History*, or Shannon, *America's Economic Growth*. Mr. Jamieson. [3-0; 3-0]

411. (3) **Canadian Economic History.**—The economic history of Canada from the beginnings of settlement to the present day. Text-book: Currie, *Canadian Economic Development*. Mr. Jamieson. (Not given in 1953-54.) [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, *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. 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 303. (3).

- Agricultural Economics 401. (3).
 Agricultural Economics 501. (3).
 Agricultural Economics 502. (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 132 and 138.

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.

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.

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**—A study of literature in the nineteenth and twentieth centuries, and of the principles of composition. Themes and exercises are required. The course is not divisible, for purposes of credit, into two parts. Texts: to be announced. [4-0; 4-0]

Second Year

200 (3) **Literature and Composition**—A study of literature from Chaucer to the nineteenth century, and of the principles of composition. Themes and exercises are required. Texts: *College Survey* (Shorter Edition; revised) and others to be announced. [3-0; 3-0]

Third and Fourth Years

For courses in drama see page 157.

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. de Bruyn before September 1st. [3-0; 3-0]

402. (3) **Classics of European Literature**.—(Not given in 1953-54.)

403. (3) **Wordsworth**.—A study of the life and works of Wordsworth, with special emphasis on *The Prelude*. (Not given in 1953-54.) [3-0; 3-0]

404. (3) **Literature of the Bible**.—Origins and backgrounds of biblical literature; the principal translations of the Bible into English; an examination of the chief literary forms of the Bible—poetry, drama, biography, short story, etc.; influence of the Bible on English language and literature. Text: to be announced. [3-0; 3-0]

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. (Not given in 1953.) [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]

424. (3) Seventeenth-Century Literature. — Studies in the prose and poetry of this period. (Not given in 1953-54.) [3-0; 3-0]

425. (3) Milton. — The work of Milton, with special emphasis on *Paradise Lost*. [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.) Part I; A. J. M. Smith, *The Book of Canadian Poetry* (rev. ed.). (Given in 1954-55 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: Norman Foerster, *American Poetry and Prose* (3rd ed.), Part II; A. J. N. Smith, *The Book of Canadian Poetry* (rev. ed.). (Given in 1953-54 and alternate years.) [3-0; 3-0]

430. (3) The Romantic Period.—Chiefly Wordsworth, Coleridge, Byron, Shelley, and Keats. Text to be announced. [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.—Carlyle, Mill, Newman, Ruskin, Arnold, Huxley, etc. Text: Harrold and Templeman, *English Prose of the Victorian Era*. [3-0; 3-0]

433. (3) Early Modern Period.—The course is based primarily on the following: Hardy, Hopkins, Butler, Wilde, Wells, Shaw and Conrad. The background of ideas and social forces, especially as revealed through the literature of the period 1870-1914, will receive close attention. [3-0; 3-0]

434. (3) Contemporary Literature.—Outstanding writers of the present generation; literary developments in the essay, poetry, and fiction. Texts: an essay anthology, a poetry anthology, and three novels (inexpensive editions) to be announced. [3-0; 3-0]

436. (3) Humanist Studies: Mediaeval and Renaissance.—An examination of mediaeval thinkers will be followed by a study of the humanist revolt. [3-0; 3-0]

437. (3) Humanist Studies: The Modern Age.—An attempt to clarify the position of the individual against the background of the scientific, political and

social forces which have been operating since the Renaissance. (Not given in 1953-54.) [3-0; 3-0]

439. (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. [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]

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) **Criticism.**—The problem of aesthetic value; the function of criticism. (Not given in 1953-54.) [3-0; 3-0]

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

Drama

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]

413. (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. (Not given in 1953-54.) [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 1953-54.) [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, art of playwriting and dramatic theory. [3-0; 3-0]

Graduate Courses

500. (3) **History of Criticism.**—From Plato and Aristotle to the present. Emphasis upon English critics. (Not given in 1953-54.) [3-0; 3-0]

504. (3) **Poetic Drama.**—Dramatic form and blank verse technique from Marlowe to T. S. Eliot. Applicants must write to Mr. Akrigg before September 1st. [3-0; 3-0]

549. **Master's Thesis.**

Fine Arts

(Given by the School of Architecture)

100. (3) **Introduction to Art.**—An introduction to the theory and philosophy of Art. Aesthetic principles will be illustrated by the major works of the great periods of art. This course is intended to provide an understanding and appreciation of painting, sculpture and architecture, and to prepare the student for qualified judgment of traditional and contemporary art forms. Text-book. Herbert Read, *The Meaning of Art*. Mr. Binning. [3-0; 3-0]

200. (3) History of Art.—A chronological study of Gothic, Renaissance and Modern painting, sculpture and architecture, prefaced by a survey of other and earlier great periods of Art. Special emphasis is placed on critical analysis of the character and development of the various art forms. Text-book: Upjohn, Wingert & Mahler, *History of World Art*. Mr. Binning. [3-0; 3-0]

210. (3) Visual Design and Theory.—An intensive and advanced study of creative art forms through experiments closely related to illustrated lectures and demonstrations; the basic visual elements of line, shape, volume, space, colour and texture, using various materials. Prerequisite F.A. 100 or F.A. 200. Text-book: Moholy-Nagy, *Vision in Motion*. Mr. Thomas. [1-4; 1-4]

French

For Honours Courses in French, see pages 133 and 138.

Note that French 300 and 302 are obligatory for all students taking Honours or majors in French.

110. (3) First Year University French. (Prerequisite: French 20.)—Study of French texts; grammar; pronunciation. Texts: Irvin and King, *Vingt et un Contes*; Whitmarsh, *A Simpler French Course*. [4-0; 4-0]

120. (3) First Year University French. (Prerequisite: French 92.)—Study of French texts, grammar, pronunciation. Texts: *Contes modernes* (revised edition); 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); Romain, *Knock*; St. Exupéry, *Vol de nuit*. Composition in French based on the above and on Mesnard, *A Review of French Grammar*. [3-0; 3-0]

203. (3) Training in Speech and Writing.—Outlines of French history and literature. (Preparatory course for Honours students.) [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*; *Seventeenth Century French Prose and Poetry* (Peyre and Grant). (This course is obligatory for all students taking Honours or majors in French.) [3-0; 3-0]

301. (3) French and French-Canadian Prose Literature of the Twentieth Century.—A study of representative works of the following authors: France, Gide, Mauriac, Malraux, Camus, Sartre, Gabrielle Roy. [3-0; 3-0]

302. (3) French Practice.—Composition, syntax, phonetics. Texts: O. Bloch et R. Georquin, *Grammaire française* (Hachette); (further texts to be announced). (This course is obligatory for all students taking Honours or majors 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*; Flaubert, *Madame Bovary*; 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.—Mouvement encyclopédique; theatre and novel; pre-romanticism. Texts: Voltaire, *Lettres philosophiques*, *Candide*, *Zaïre*; d'Alembert, *Discours préliminaire de l'Encyclopédie*; Diderot, *Pensées philosophiques*; Le Sage, *Gil Blas*; Prévost, *Manon Lescaut*; Rousseau, *la Nouvelle Héloïse*; Saint-Pierre, *Paul et Virginie*; Marivaux, *le Jeu de l'amour et du hasard*; Sedaine, *le Philosophe sans le savoir*; Beaumarchais, *le Barbier de Séville*. [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 of French.**—Advanced composition and syntax; phonetics and diction; oral practice. (This course is given in the Summer Session only.)

420. (3) **French Language and Literature.** Discussion of selected topics.

[3-0; 3-0]

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.

[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*.

[3-0; 3-0]

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

Geography

For Honours Courses in Geography, see pages 133 and 138.

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 128, 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.** — An introductory course dealing with the earth as a globe; map projections; topographic maps; origin and distribution of landforms with particular reference to North America; weather and climate; practical laboratory exercises; field trips. Text: Strahler, *Physical Geography*, 1951. Mr. Mackay.

[2-2; 2-2]

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. Mr. Robinson.

[3-0; 3-0]

301. (3) **Cartography.**—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. Mr. Mackay.

[2-2; 2-2]

302. (3) **Weather and Climate.**—Introductory study of the elements and controls of weather and climate; the principles of meteorological instruments and practical weather observations; analysis of daily weather maps; principles of climatic classification; regional climatology with particular emphasis upon the climate of British Columbia. Text: Trewartha, *An Introduction to Weather and Climate*, 2nd ed. Mr. Chapman.

[2-2; 2-2]

303. (3) **World Regional Geography.**—A survey of the physical and human geography of the continents. The physical structure, climate, vegetation and natural resources will be considered in addition to the nature and distribution of the population and the major economic activities. Recommended for students taking only one course in geography. An atlas is required. 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; world population problems; boundary problems; development of geopolitics; principles of urban geography; geographic background in selected world trouble areas. Geography 201 should precede this course. Mr. Robinson. (May not be given in 1953-54.) [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 East Asia. Text: Cressey, *Asia's Lands and Peoples*, 1951. Mr. Mackay. [3-0; 3-0]

408. (3) Geography of Europe. — Physical and human geography; physical structure, climatic characteristics; natural resources; population distribution; natural regions. Text: to be announced. Mr. Chapman. [3-0; 3-0]

409. (3) Geography of Canada and the United States.—Regional geography with emphasis on Canada; physiography, climate, natural resources, population; primary industries. Text: D. F. Putnam, *Canadian Regions*, 1952. Mr. Robinson. [3-0; 3-0]

445. (3) Honours Seminar.—History, philosophy, scope and contents of geography; different fields of geography; professional opportunity. Required for Fourth Year Honours students, and recommended for Third Year Honours. May be attended by senior majors without credit. [3-0; 3-0]

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

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 302. 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]

545. (3) Geography Seminar.—Advanced study of philosophy of geography and geographers. Special research problems. [3-0; 3-0]

549. Master's Thesis.

Geology

Geology 200 is a prerequisite to all other courses in Geology.

For Honours Courses in Geology see pages 133, 138. In the Honours Course Geology 301, 302, 303, and 304 must precede or accompany all courses numbered 305 and higher.

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. Prerequisites: Chemistry 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. 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. 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*, 1952. Prerequisite: Geology 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: Moore, *Introduction to Historical Geology*, 1949. Mr. Gunning, Mr. Okulitch. [2-0; 2-0]

307. (2) Petroleum, Natural Gas and Ground Water.—Origin and occurrence of ground water, petroleum, natural gas and structural materials. Text: Russell, *Principles of Petroleum Geology*. Mr. Mathews. [2-0; 2-0]

405. (½) Coal.—Origin and occurrence of coal. 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*. Prerequisite: Biology 100. Zoology 200 is 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 descriptive 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. Prerequisite: Geology 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. Prerequisite: Geology 408 must precede or accompany this course. 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 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, principles, and laws of land formation, types of land forms, and their distribution. Text: Wooldridge and Morgan, *The Physical Basis of Geography*, 1937. 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**.—Principles of Sedimentation. Prerequisite: Geology 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*. 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. [1-4; 0-6]

525. (3) **Petrology**.—Seminar. Prerequisite: Geology 407. Mr. McTaggart. [2-4; 2-4]

526. (3) **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 1953-54, 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 133 and 138.

Attention of Third and Fourth Year students is called to Linguistics 319, page 169.

90. (3) **Beginners' Course**.—Texts: Greenfield, *An Outline of German Grammar*; Meyer, *Graded Readers 1-3*. Extensive Reading: Hagboldt, *Eulenspiegel und Münchhausen*. [4-0; 4-0]

110. (3) **First Year University German**.—Texts: Kästner, *Die verschwundene Miniatur*; Storm, *In St. Jürgen*; Fiedler, *A Book of German Verse*; Röseler, *German in Review*. Dictionary: Cassell's *Compact German Dictionary*. Extensive reading: Lichtenberger, *Simplizius Simplizissimus*. Prerequisite: German 20 or Pass standing in German 90. [4-0; 4-0]

120 (3) **First Year University German**.—Texts: Schweitzer, *Leben und Denken*; Kurtz, *Drei Novellen*; Fiedler, *A Book of German Verse*; Russon, *Complete German Course*. Dictionary: Cassell's *Compact German Dictionary*.

Prerequisite: German 91 or Second or First Class standing in German 90.

[3-0; 3-0]

130 (3) First Year University German.—Scientific German for students majoring in the natural sciences. Texts: Wild, *An Introduction to Scientific German*; Wild, *An Anthology of Scientific German*; Röseler, *German in Review*. Prerequisite: German 91 or Second or First Class standing in German 90.

[3-0; 3-0]

200. (3) Second Year University German.—Texts: Werfel, *Jacobowsky und der Oberst*; Keller, *Kleider machen Leute*; Mann, *Tonio Kröger*; Fiedler, *A Book of German Poetry*. Dictionary: Cassell's *Compact German Dictionary*. Extensive reading: Storm, *Pole Poppenspäler*; Meyer, *Der Schuss von der Kanzel*. Prerequisite: German 110, 120, or 130, or the equivalent.

[3-0; 3-0]

300. (3) The Classical Period.—Literature of the 18th century, with emphasis on Lessing, Goethe and Schiller. Texts: 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 1954-55 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]

This course should be taken by all prospective teachers of German.

303. (3) Survey of German Literature to 1700.—Text: Thomas, *Anthology of German Literature*. (Given in 1953-54 and alternate years.)

[3-0; 3-0]

400. (3) Nineteenth Century German Drama.—Text: Campbell, *German Plays of the Nineteenth Century*. (Given in 1953-54 and alternate years.)

[3-0; 3-0]

401. (3) German Poetry (First term); Literature of the 20th Century (Second term).—A study of the main trends in German poetry from Luther to the poets of Impressionism. Discussion of some representative works in the drama, poetry and short story of the 20th century. Texts: *Oxford Book of German Verse*; Eastman, *Goethe's Poems*; Steinhauer, *Das deutsche Drama: 1880-1933*; Hill, *Drei Nobelpreisträger*; Bithell, *Anthology of German Poetry 1880-1940*. (Given in 1954-55 and alternate years.)

[3-0; 3-0]

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

403. (3) German Masterpieces in Translation.—Lectures on the main developments in German literary history from the Age of Goethe to 1900. Reading in translation of German masterpieces. Texts: Lessing, *Laocoon*; Nathan *der Weise*; *Minna von Barnhelm*. Marlowe, *Doctor Faustus*; Goethe, *Faust I*; *Sorrowful of Young Werther*. Heine, *Prose and Poetry*; Hoffmann, *Eight Tales*; Hauptmann, *Three Plays*; Friedrich, *Outline History of German Literature*. This course does not carry credit toward requirements for Honours or a major in German.

[3-0; 3-0]

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 1953-54.)

[3-0; 3-0]

549. (3) Master's Thesis.

Greek

(Given by the Department of Classics)

For non-Greek language courses in Greek Literature and History, see *Classical Studies*, page 152.

For Greek in Honours Courses see pages 132 and 137.

Greek 101 is open to students who have presented Greek for High School Graduation or have passed in Greek 90; Greek 202 is open to those who have passed in Greek 101.

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*; H. D. F. Kitto, *The Greeks*. 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: C. M. Bowra, *Ancient Greek Literature*. Texts: Plato, *Apology*, Dyer and Seymour; Aeschylus, *Prometheus Vinctus*, Sikes and Willson. [3-0; 3-0]

Third and Fourth Years

The following courses are open to students who have completed Greek 202.

303. (3) Greek Drama.—Development of Greek tragedy and comedy: scenic antiquities; representative plays. Texts: Sophocles, *Antigone*, Jebb and Shuckburgh; Euripides, *Bacchae*, Dodds; Aristophanes, *Aves*, Hall and Geldart; Aeschylus, *Agamemnon*, Sidgwick. (Given in 1953-54.) [3-0; 3-0]

305. (3) Epic Poetry.—Selections from Homer's *Odyssey*. Texts: Homer, *Odyssey*. W. B. Stanford. 2 vols. (Given in 1954-55.)

306. (3) Greek Historians.—Greek historical writing; selections from Herodotus and Thucydides. Texts: *Herodoti Historiae*, Hude, 2 vols.; *Thucydides*, Jones, 2 vols. (Given in 1954-55.) [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]

407. (3) Introduction to Greek Philosophy.—Beginnings of Greek philosophic inquiry; selections from two of the major works of Plato and Aristotle. Texts: Plato, *Respublica*, Burnet; Aristotle, *Ethica Nicomachea*, Bywater. (Given in 1953-54.) [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 130, 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, 102, 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 133 and 138.

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 and for International Studies 400. If the World History course has been taken in Senior Matriculation, History 102 will be required for Honours. Text-books: Chambers, Harris and Bayley, *The Age of Conflict*; Schmitt, *Triple Alliance and Triple Entente*; Holborn, *The Political Collapse of Europe* (for upper year credit). (Extra work will be required from Third and Fourth Year students taking this course.) Mr. Soward. [3-1; 3-1]

102. (3) The History of Canada.—Introductory general course required for Second Year Honours credit. If credit has already been given for History 102, History 203 must be taken for Honours credit. History 102 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.) [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. By special permission, Second Year pre-Law students, or Second Year students who are planning to take the Honours course in Political Science, may be admitted to History 309.

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. Mr. Cooke. (Not given in 1953-54.) [3-0; 3-0]

309. (3) British History to 1485.—Text-books: Trevelyan, *A History of England*; K. Feiling, *A History of England*; Goldwin Smith, *A History of England*; Stephenson and Marcham, *Sources of English Constitutional History*; Adams, *Constitutional History of England*. Essays will be assigned throughout the session. [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-books: Carrington, *The British Overseas*; Williamson, *A Short History of British Expansion*. Essays and reports will be assigned. Mr. Cooke. (Not given in 1953-54.) [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. [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 Craven 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. [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 1953-54.) [3-0; 3-0]

318. (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*; Goldwin Smith, *A History of England*; Feiling, K., *A History of England*. Mr. Davies. (Not given in 1953-54.) [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: Hayes, *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. Text-book: Heaton, *An Economic History of Europe*. Mr. Ping-Ti Ho. [3-0; 3-0]

419. (3) **Great Britain Since 1688.**—An evaluation of the political, economic, social, and constitutional events in the period. Text-books: Trevelyan, *British History of the Nineteenth Century*, or Woodward, *The Age of Reform*, and Goldwin Smith, *A History of England* or K. Feiling, *A History of England*. 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 1953-54.)

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 1953-54.) [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 1953-54.) [3-0; 3-0]

429. (3) **Eastern Europe from the Early Middle Ages.**—(Not given in 1953-54.)

433. (3) **Fourth Year Honours Seminar.**—Development of Canadian external policy since Confederation. Prerequisite: History 102. Text-book: Glazebrook, *A History of Canadian External Relations*. Mr. Soward. [2-0; 2-0]

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

The following courses will be accepted for credit in History:

Classical Studies 331 and 332 (3): Both courses must be taken for credit. Open to Second Year students.

Classical Studies 333. (3).—For Third or Fourth Year students.

International Studies 300 (3).

International Studies 310 (3).

International Studies 400 (3).

Slavonic Studies 310 (3).

Slavonic Studies 311 (3).

Slavonic Studies 330 (3).

Slavonic Studies 448 (3).

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*. Members of the staff. [3-0; 3-0]

533. (3) **Master's Seminar.**—The history of British Columbia. (Not given in 1953-54.)

534. (3) **Master's Seminar.**—Problems in Canadian History. Mr. Tucker.

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

International Studies

For Honours Courses in International Studies see pages 134 and 139.

A major in International Studies must include International Studies 401 and one of 300, 301, 310.

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 1953-54.) [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. Text-book: 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: Paul H. Clyde, *The Far East*. 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. Prerequisite: History 101 or History 415. 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. Prerequisite: History 102. Text-book: Glazebrook, *A History of Canadian External Relations*. Mr. Soward. [2-0; 2-0]

449. (3) Graduating Essay.

The following courses are accepted for credit in International Studies: History 311, 312, 320, 415, 417, 419, 427; Economics 310, 325, 330; Geography 306, 307; Political Science 310, 330, 400, 410, 435, 440; Slavonic Studies 308, 311, 312, 330, 412, 448.

Latin

(Given by the Department of Classics)

For non-Latin language courses in Roman Literature and History see *Classical Studies*, page 152.

For Latin in Honours Courses see pages 132, 134, 137, 139.

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 High School Graduation. Text-book: *Latin Fundamentals, Third Edition*, Hettich and Maitland, chap. I-L. [4-0; 4-0]

110. (3) First Year University Latin.—Prerequisite: Latin 20 or a Pass in Latin 90. Text-books: *Latin Fundamentals, Third Edition*, Hettich and Maitland, chap. I-LXIV; Mills, *The Book of the Ancient Romans*. [4-0; 4-0]

120. (3) Introduction to Latin Literature.—Prerequisite: Latin 92 or a First or Second Class in Latin 90. The course includes a survey of Latin grammar; study of Latin words, idioms and translation; practice in composition; reading of selections from Latin authors; history of Rome. Text-books: *Latin Fundamentals, Third Edition*, Hettich and Maitland, chap. LI to end; Mills, *The Book of the Ancient Romans*. Text: *A Latin Reader*, Petrie. [3-0; 3-0]

Note: All students are advised to provide themselves with Allen and Greenough, *New Latin Grammar* and C. T. Lewis, *Elementary Latin Dictionary*.

202. (3) **Prose and Poetry of the Golden Age.**—Prose of Cicero; the developed epic as represented by Vergil; history of Greece. Text-book: H. D. F. Kitto, *The Greeks*. Texts: Cicero, *Catilinarian Orations*, Upcott; Vergil, *Aeneid VI*, Page. [3-0; 3-0]

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) **Vergil.**—A study of Vergil's works with selected readings from the Eclogues, Georgics, Aeneid and the minor poems; history of Latin literature. Text-book: J. W. Mackail, *Latin Literature*. Texts: *Aeneid*, Page, 2 vols.; *Bucolics and Georgics*, Page. (Given in 1954-55.) [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 1953-54.) [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]

405. (3) **Latin Letter Writing.**—Two different styles of letters by two masters. Texts: *Cicero in His Letters*, Tyrrell; Seneca, *Select Letters*, Summers. (Given in 1954-55.) [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 1953-54.) [3-0; 3-0]

410. (1½) **Advanced Composition.**—Obligatory for Honours students in the Fourth Year. Prerequisite: Latin 310. [2-0; 2-0]

Primarily for Graduate Students

521. (3) **Cicero, *Select Letters***, 2 vols., How. [3-0; 3-0]

522. (3) **Roman Elegiac Poetry.**—The genesis of the Roman Elegy from its Greek models; a study of the works of Catullus, Tibullus, Propertius and Ovid. [3-0; 3-0]

523. (3) **Roman Comedy.** [3-0; 3-0]

530. (3) **The Works of Julius Caesar.**—A study of the texts of Caesar's Commentaries on the Gallic War and the Civil War: narrative of Caesar's campaigns in Egypt, Africa and Spain. [3-0; 3-0]

531. (3) **Vergil, *Life and Works*.** [3-0; 3-0]

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

Linguistics

The following courses are 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 1953-54.) [3-0; 3-0]

320. (3) Romance Linguistics.—Introduction: origin of the Romance languages; evolution of classical Latin, vulgar Latin, and the Romance languages; phonology, morphology, syntax, vocabulary; reading of vernacular Latin texts (inscriptions, prose, poetry) and some Romance texts, with emphasis on those elements which are important in the development of the Romance languages and from the point of view of general linguistics. Text-books: H. F. Muller and P. Taylor, *A Chrestomathy of Vulgar Latin*; Grandgent, *Introduction to Vulgar Latin*. [3-0; 3-0]

Mathematics

For Honours Courses in Mathematics see pages 134, 139.

100. (3) Algebra.—Review of elementary algebra, logarithms, ratio and proportion, progressions, interest and annuities, permutations and combinations, probability, elementary statistics. Text-book: to be announced. Prerequisite: Mathematics 30. [4-0; 4-0]

Students who have credit for Mathematics 91 or its equivalent may not take Mathematics 100. (See note 6, page 128.)

101. (3) Algebra, Geometry, and Trigonometry.—Logarithms, permutations, combinations, binomial theorem, probability; straight line, circle, parabola, ellipse, and hyperbola; elementary trigonometry. Text-book: Sisam, *College Mathematics*. Prerequisite: Mathematics 91 or 100. Mathematics 100 may not be taken concurrently with Mathematics 101, and credit will not be given for both courses. (See note 6, page 128.) [4-0; 4-0]

Primarily for Second Year Students

Mathematics 101 is prerequisite to Mathematics 200 and 202. Either Mathematics 100 or 101 is prerequisite to Mathematics 201 and 205.

200. (3) Algebra and Geometry.—Mathematical induction, complex numbers, theory of equations, determinants; conics, polar coordinates, and solid analytic geometry. [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.

202. (3) Calculus.—Introduction to differential and integral calculus, with applications. [3-0; 3-0]

205. (3) Elementary Statistical Analysis.—Basic theorems of probability, standard tests, elements of statistical estimation. [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. (Not given in 1953-54.) [3-0; 3-0]

306. (3) Topics in Algebra and Geometry.—Number systems of elementary algebra, and axioms of elementary geometry. Prerequisite: Mathematics 200. (Given in 1953-54 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. Prerequisite: Mathematics 200. (Given in 1954-55 and in alternate years thereafter.) [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 350, 401, 402, and 405 only with the consent of the Department.

350. (3) Applied Calculus and Differential Equations.—As in Applied Science. Prerequisite: Mathematics 300. [3-0; 3-0]

400. (2) Modern Algebra.—The number systems of algebra and analysis. Introduction to groups, fields, linear vector spaces. (Given in 1954-55 and in alternate years thereafter.) [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) Modern Geometry.—Application of analysis and algebra to topics in modern geometry. (Given in 1953-54 and in alternate years thereafter.) [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 1953-54.

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) **Materials of Music I.**—A study of the beginning of harmony, with ear training and early musical history. Prerequisite: High School Graduation 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) **Materials 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. [4-0; 4-0]

305. (3) **Materials of Music III.**—The study of 16th century counterpoint with emphasis on two-part vocal writing, harmony in relation to 18th century forms, and creative work in contemporary materials. For analysis: Bach, well-tempered Clavier, and Beethoven Piano Sonatas; other works assigned. Prerequisite: Music 205 or equivalent. Miss Barbara Pentland. [3-0; 3-0]

405. (3) **Materials of Music IV.**—Further contrapuntal study in several voices, including fugal writing; development of harmony through 19th century; orchestration, and further creative work in larger forms with emphasis on 20th century materials. Scores assigned for study. Prerequisite: Music 305. Miss Barbara Pentland. [3-0; 3-0]

Philosophy

Courses numbered 300-500 are not open to Second Year students.

Philosophy 202, 210 may be considered as Third or Fourth Year subjects.

For Honours Courses in Philosophy, see pages 135 and 139.

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]

210. (3) **Ancient Philosophy.**—Western philosophic thought from Thales to St. Augustine, with principal stress on Plato and Aristotle. Prerequisite: Philosophy 100 or equivalent. [3-0; 3-0]

300. (3) Thomas Aquinas.—A systematic study of Thomistic philosophy. A study of the historical backgrounds, with special attention to Plato, Aristotle, Plotinus, and St. Augustine. An evaluation of Thomism in terms of the prevailing philosophical systems of the 12th and 13th centuries. Prerequisite: Philosophy 100. It is advisable to have taken Philosophy 210. [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 political and social institutions in terms of the democratic ideal. [3-0; 3-0]

312. (3) Semantics.—The logical analysis of language and its application to the traditional problems of philosophy, scientific method, and the sciences. Prerequisite: Philosophy 100 or 202, or instructor's permission. [3-0; 3-0]

315. (3) Rationalism.—The systematic study of Descartes, Spinoza, and Leibniz. Prerequisites: Philosophy 100 and one additional historical course in philosophy or the equivalent. [3-0; 3-0]

320. (3) Empiricism.—The systematic study of Hobbes, Locke, Berkeley, and Hume. Prerequisites: Philosophy 100, and one additional historical course in philosophy or the equivalent. [3-0; 3-0]

400. (3) Aesthetics.—An analysis of the aesthetic experience and its relationship to beauty, the fine arts, literature, science and morality. [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]

415. (3) Contemporary Philosophy.—Basic ideas of contemporary movements including idealism, realism, pragmatism, phenomenology, logical positivism, semantics and existentialism. Prerequisite: Philosophy 100 or equivalent. [3-0; 3-0]

440. (3) Honours Seminar. [3-0; 3-0]

Primarily for Graduate Students

500. (3) Metaphysics-Epistemology Seminar.—(1953-54 and alternate years). [3-0; 3-0]

510. (3) Value-Theory Seminar.—(Not given in 1953-54). [3-0; 3-0]

515. (3) Seminar in Plato.—(1953-54 and alternate years). [3-0; 3-0]

516. (3) Seminar in Aristotle.—(Not given in 1953-54.) [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 135, 139.

100. (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]

101. (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: Physics 91. Mathematics 101 must precede or be taken concurrently with this course. [3-2; 3-2]

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 or 101 may not take this course. Prerequisite: High School Physics. Text-book: White, *Classical and Modern Physics*. [3-2; 3-2]

110. (3) General Physics.—For students taking courses in the School 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 or 101. Prerequisite: if Mathematics 91 has not been taken for entrance to the University, Mathematics 100 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 precede 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. [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*. Prerequisites: 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 350, 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, relativity, 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: Abraham and Becker, *The Classical Theory of Electricity and Magnetism*. 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]

404 (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]

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, 350 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 350, 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. Prerequisite: 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.—A deductive presentation of the classical theory of electrons and its relation to the macroscopic electromagnetic theory. Emphasis is laid on those results of the theory which are valid in spite of the advent of quantum theory. 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. (2) Nuclear Physics.—Interactions of radiation with matter, radioactivity, nuclear reactions, nuclear properties. [2-0; 2-0]

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]

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]

518. (1) Physics of Nuclear Reactions.—A course for those interested in reactions produced by high energy neutron and ion beams. Topics such as

energy levels in light nuclei, angular correlation, and the Shell model will be discussed. [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 135, for combined Honours page 140.

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]

410. (3) **The Humanism of the Polish Renaissance.**—The formative influence of Italy and France on the Golden Age of Polish letters, as seen in the works of Rej, Kochanowski, Bielski, Orzechowski, Gornicki, Strykowski and Skarga. Mr. Rose and Mr. Halpert. [3-0; 3-0]

Political Science

For Honour Courses in Political Science see pages 135, 140.

Economics 200 is prerequisite for courses in Political Science except Political Science 310, 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]

310. (3) **Public Administration.**—The structure and organization of the administrative branch of government, in theory and practice. Illustrations are drawn from Canada, Great Britain and the United States. Administrative powers and administrative responsibility in the modern state. The personnel policies of modern governments, and the agencies of control. Mr. Corbett. [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. Mr. Corbett. [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]

420. (1½) **Municipal Government.**—A comparative study of local politics, administration and finance, in theory and practice. First term, 1953, 1½ units. Students are required to enrol in Law 317, *Municipal Law*, for 1½ units in the Second Term. Mr. Corbett and others.

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 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 other 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 135, 140.

100. (3) Introductory Psychology.—A scientific and practical study of the basic forms of human thinking, emotion, and activity. Text-book: to be announced. [3-0; 3-0]

200. (3) Experimental Psychology.—Introductory statistical techniques; research methods illustrated by individual and group laboratory studies. Texts: Lindquist, *A First Course in Statistics*, and *Study Manual*, and a text in experimental psychology to be announced. Prerequisite: Mathematics 101 or equivalent. [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. [3-0; 3-0]

300. (3) Business and Industrial Psychology.—Principles involved in the application of Psychology to Industrial and personnel problems Text-book: to be announced. [3-0; 3-0]

301. (3) Developmental.—Psychological development, prenatal through adolescence; determiners of psychological growth, motor, emotional, social, intellectual, language and personality development. Implications for the control of behaviour arising from the study of development. Text-book: Hurlock, *Child Development*. References: Gesell and Ilg, *Child Development*; 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 research. [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: Psychology 200, 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. [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. [2-0; 2-0]

520. (2) Cerebral Localization.—Function of the human brain; preparation for clinical examination of patients following lobotomies, head injuries, 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. Prerequisites: Psychology 400, 403. [3-0; 3-0]

540. (3) Clinical Techniques.—Supervised clinical experience in diagnostic testing, interviewing, and other techniques. Prerequisites: 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 the terms under which Russian satisfies the language requirements see page 128.

For Honours in Slavonic Studies see pages 135 and 140.

Attention of Fourth Year students is called to Linguistics 319, page 169.

100. (3) Basic Russian.—Text-book: Gronicka, *Essentials of Russian*. [4-0; 4-0]

Note: Several sections of basic 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. [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 ruskoj literature*; Gudzij, *History of Old Russian Literature*; Tschizewskij, *Altrussische Literaturgeschichte*. Mr. Kuipers. [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. Kuipers. [3-0; 3-0]

400. (3) History of Russian Literature.—Lectures delivered in Russian. References: Pypin, *Istoriya Russkoj Literatury*; Sakulin, *Novaya Literatura*. Mr. Isaak. [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. Kuipers. [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 fiziologii slavyanskoi rechi*. Mr. Sobell. [3-0; 3-0]

420. (3) Indo-European Comparative Philology.—Relationship and evolution of the Indo-European languages. Parallelism and regularity of sound change, forms and phrases; historical phonology, morphology, syntax. History of words, etymology, semantics, loan-words. Emphasis on elements in English

and other modern languages, particularly from the point of view of general linguistics. Fundamental principles of structure and history of language. Dialect geography of Europe and America. Music, song, verse. Examples will be selected to meet special needs of the students. Mr. deGroot. [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 135 and 140.

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 1953-54. 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. Bryner. [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]

340. (3) **The Peoples of the Soviet Union.**—The Slav, Baltic, Iranian, Armenian, Uralic, Turkic, Mongol, Paleoasiatic and Caucasian peoples of the USSR; past and present geographical distribution; historical background; physical and cultural anthropology with especial emphasis on the non-Slav peoples; their influence on Russian race and culture; Imperial and Soviet policy towards national minorities; integration of national minorities into the Soviet state. Administrative and linguistic divisions; development of literary languages. Pre- and post-revolutionary oral and written literatures of the non-Slavic peoples; achievements of Soviet anthropology. Mr. Kuipers. [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.

A major in sociology must include two of Sociology 300, 400, 425 and 430.

For Honours Courses in Sociology see pages 136, 140.

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*; Martindale and Monachesi, *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*: Second Edition; Taft, *Criminology*. Mr. Nelson. [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 in 1953-54.) [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*. Mr. Topping. [3-0; 3-0]

425. (3) The Urban Community.—Changing social structure and problems of the modern urban community. Effects of urbanization upon major social institutions and attitudes. Text-book and references: to be assigned. Mr. Jamieson. [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: Lindstrom, *American Rural Life*; Nelson, *Rural Sociology*. (May not be given in 1953-54.) [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; The Massey Report*. Mr. Topping. [3-0; 3-0]

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 in 1953-54.) [3-0 3-0]

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.

536. (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. Mr. Nelson. [2-0; 2-0]

539. (3) Seminar in Criminology.—Reports and discussions under staff direction. Prerequisites: Sociology 300 and Sociology 536 (which may be taken concurrently on permission of the instructor. Mr. Christie. [2-0; 2-0]

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.

Other Courses which Qualify for Sociology Credit

Anthropology 300 (3).

Social Work 499 (3).

Spanish

For the terms under which Spanish may satisfy the language requirements, see page 128.

For Honours Courses in Spanish, see pages 136 and 140.

90. (3) Beginners' Spanish.—Grammar, composition, translation, conversation. Texts: Kasten and Neale-Silva, *Lecturas escogidas*; Brenes and Paterson, *Conversemos*; McSpadden, *An Introduction to Spanish Usage*. [4-0; 4-0]

110. (3) First Year University Spanish. (Prerequisite: Spanish 20 or Pass standing in Spanish 90.)—Review of grammar; composition, translation, conversation. Texts: Hesse, *Spanish Review Grammar*; Gómez and Flores, *Historias de Don Quijote*; Casona, *Nuestra Natacha*; Leal, *Amado Nervo, sus mejores cuentos*. [4-0; 4-0]

120. (3) First Year University Spanish. (Prerequisite: Spanish 92, or second class or better in Spanish 90.)—Review of grammar; composition, translation, conversation. Texts: Walsh, Donald D., *Repaso*; Camba, *La rana viajera*; Walsh, Gertrude M., *Cuentos criollos*; Salas, *Pequeña antología, poesías españolas*. [3-0; 3-0]

201. (3) Second Year University Spanish.—Study of modern authors; assigned themes in Spanish; conversation. Texts: E. Allison Peers, *Extracts for Spanish Prose Translation*; Kasten and Neale-Silva, *Lecturas amenas*. [3-0; 3-0]

301. (3) The Golden Age.—Spanish literature of the sixteenth and seventeenth centuries. (Given in 1953-54 and in alternate years.) [3-0; 3-0]

302. (3) Modern Authors.—Study of leading representatives of the eighteenth and nineteenth centuries. (Not given in 1953-54.) [3-0; 3-0]

304. (3) Conversation and Composition.—Intonation, conversation, brief talks; study of passages from contemporary writers; composition on Hispanic topics; syntax. Given in 1954-55 and in alternate years.) [3-0; 3-0]

401. (3) History of the Spanish Language.—Text: Entwistle, *The Spanish Language*. (Given in 1954-55 and in alternate years.) [3-0; 3-0]

402. (3) Cervantes, Don Quijote.—Reading, lectures, reports. Text: Cervantes, *El Ingenioso Hidalgo Don Quijote de la Mancha*. (Given in 1953-54 and in alternate years.) [3-0; 3-0]

404. (3) Spanish American Authors.—Study of representative writers and literary movements; consideration of historical and geographical factors. Text: Hespelt and Others, *An Anthology of Spanish American Literature*. (Given in 1954-55 and in alternate years.) [3-0; 3-0]

405. (3) Spanish Prose Composition.—Translation from English; letter-writing; oral use of language. (Not given in 1953-54.) [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 1953-54 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. (Given in 1954-55 and in alternate years.) [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. (Given in 1953-54 and in alternate years.) [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 136.

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 courses in Zoology offer the opportunity to a student to obtain a general survey of the science (general course) or to obtain a fundamental training (honours). In the latter case a student, after graduation, may proceed in advanced and specialized divisions, such as comparative vertebrate anatomy, gross and microscopic; embryology; experimental zoology; invertebrate or vertebrate zoology (including parasitology, limnology, marine zoology, etc.); or he may proceed in certain fields of applied zoology, such as fisheries, wildlife management, and entomology.

Students desiring information in regard to any of the above or other divisions should consult with the Head of the Department of Zoology. The following information as to certain applied fields may be helpful.

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. Courses in Oceanography form an important part of the graduate work in Fisheries Biology. 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 301, 307, 403, 404, 406, 412, 413, 501, 504, 508, Agronomy 421, Botany 411, Mathematics 205, and courses in Oceanography.
- b. **Commerce.**—Students in Commerce may elect a Science Option during their Fourth and Fifth Years (see page 189).
- 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 101, a language, English 100 and 101, and Mathematics 101. For details of the course of study in Forestry see under "Faculty of 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 200, Agronomy 200, Horticulture 200 and 300 or 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 presented during this course; it is best made during the preceding

summer, but can be assembled between autumn and spring. Leaflets describing the making of such collections should be obtained from the office of the Department of Zoology. Text-book: Imms, *Outlines of Entomology*. 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: Wardle and Buckle, *The Principles of Insect Control*. References: Martin, *The Scientific Principles of Plant Protection*; Metcalf and Flint, *Destructive and Useful Insects*, 2nd Edition; Brown, *Insect Control by Chemicals*; 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. (3) 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 1953-54, and alternate years). [2-3; 2-3]

308. (3) Principles of Forest Entomology.—Interrelationships between forest entomology and other phases of forestry—basic and applied; functions and scope of forest entomology; the forest entomologist, forester, and engineer in relation to insect problems; comprehensive accounts of representative insect problems; importance, description and bionomics, effects on tree, silvical effects, epidemiology and ecology, principles of direct, biological and silvicultural control; population appraisal; organization of control programmes. 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) Forest Entomology Research Methods.—Recognition of crucial research problems; defining the scope of a research problem; planning the sequence of studies; organization of population surveys; techniques and statistical concepts in population sampling; organization and analysis of data. 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 1954-55 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*, 2nd edition. 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-books: Snodgrass, *Principles of Insect Morphology*; Ferris, *The Principles of Systematic Entomology*. References: Comstock, *The Wings of Insects*; Brues and Melander, *Classification of Insects*; Standard Keys, to genera. 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; Zoology 409 concurrently. 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 Invertebrate Zoology.—Life histories, ecology and systematics of marine invertebrates. 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 environmental physiology. Prerequisite: Zoology 404. Mr. Hoar. [2-3; 2-3]

505. (3) Vertebrate Morphogenesis.—Development of animals, tracing of casual factors in embryology, 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.—Insect faunas, and origins; geographical divergence; speciation; life zones; climatic regions; mechanics of dispersal; quantitative relations of dispersal; limitations to distribution area; zones of abundance; factors of increase and of decrease: reproductive output, rate of development, and survival; cycles; influence of forest on insect abundance; influence of insects on forests. Mr. Graham. [3-0; 3-0]

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. [0-0; 1-3]

510. (1) Fishculture.—Basic biological factors involved in the natural and artificial propagation of fish; the application of research findings in physiology, limnology and fishery biology to the problems of fisheries management. Seminars. Prerequisites: Zoology 307, 403, 404, 413. 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) **Marine Zooplankton.**—Collection, identification, and analysis of marine zooplankton; 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.**

SCHOOL OF COMMERCE

Courses Leading to the Degree of B.Com.

The School of Commerce offers courses leading to:

1. Bachelor of Commerce (B.Com.), Faculty of Arts and Science.
2. Master of Commerce (M.Com.), Faculty of Graduate Studies.
3. Combined Degree (B.Com., LL.B.), Faculty of Law, Faculty of Arts and Science.

For information as to the M.Com. students are referred to the section under Faculty of Graduate Studies.

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 that 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. They enable 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
2. Marketing
3. Production
4. Finance
5. Retailing
6. Commerce and Economics
7. Commerce and Public Administration
8. Commerce and Science
9. Transportation and Utilities
10. Commerce and Teaching
11. Commerce and Forestry
12. Commerce and Agricultural Science
13. Commerce and Hospital Administration
14. Commerce and Law (for double degree)
15. Commerce and Agricultural Economics

Attention of the student is drawn to the following considerations in his choice of an 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 teach, for example, should take Psychology in the Pre-Commerce Year; those who intend to take the Agricultural or the Forestry option should take science courses.

(2) The selection by the student of an option is a choice of a training programme for his period in 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. 2.

Admission to B.Com. Courses

(1) The general requirements for admission to the University are given on pages 49-51.

(2) 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 100 or 101. Students proposing to take Physics 100 or 101 or options 8, 11, or 12, or a Mathematics or science major in option 10, must complete Mathematics 101. For certain options a language additional to 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 will not be considered.
- (3) 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.
- (4) 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 at the end of the Second Year, with the approval of the Director.

(5) Students who have not taken Mathematics 201 in the First Year of Commerce and who wish to take options 1 or 4 must select 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 or science 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 43-45. Where reference is made in this statement to "the Dean of the Faculty", students in Commerce will substitute "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 Commerce student may enter the Second Year with a deficiency except with the permission of the Director.

(3) Students may enter the Third or higher 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 142 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 15	Eng. 100, 101*; Math. 100 or 101*; Phys. Ed.	
1, 4	Language other than Eng., or Science	6 units
2, 3, 5, 9	Language other than Eng., or Science; Psych. 100	3 units
6, 7	Language other than Eng.; Econ. 100	3 units
8	6 units from Chem. 101, Biol. 100, Physics 100 or 101, Geog. 101	
10	Language other than Eng., or Science; 3 units prerequisite to major; Psych. 100	
11	Physics 100 or 101; Chem. 101	3 units
12	Biol. 100; Chem. 101	3 units
13	Language other than Eng.; Biol. 100 or Chem. 101 or Psych. 100	
14	Language other than Eng., or Science	6 units
15	Biology 100	6 units

*Students proposing to take Physics 100 or 101, or options 8, 11, or 12, or a Mathematics or Science major in option 10, must take Mathematics 101 (Prerequisite: Math. 91 or 100).

First Year Commerce

Option No.	Obligatory	Electives
1 to 15	Eng. 200; Com. 151; Econ. 200; Phys. Ed.	
1, 4	Math. 201	3 units from: Geog. 201; Psych. 100 or 202.
2, 5	Math. 205	3 units from: Geog. 201; Psych. 100 or 202; Language.
3, 9	Geog. 201	3 units from: Math. 205; Psych. 100 or 202; Science.
6, 7	Geog. 201	3 units from: Math. 205; Language.
8*	1st Year Science	3 units from: Math. 200, 202 or 205; Geog. 201.
10	Prerequisite to major (3 units)	3 units from: Geog. 201; Math. 205; Psych. 100 or 202.
11	Math. 205; For. 252	
12**	Geog. 201; Agric. 100	3 units from: Math. 205; Bact. 100.
13	Psych. 202	3 units from: Chem. 101; Biol. 100.
14	Geog. 201	3 units from: Math. 205; Psych. 100; Hist. 101; Phil. 100; Language; Science.
15	Math. 205	3 units from: Geog. 201; Language, Science.

*Math. 205 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 15	Com. 252; 261; 281	
1, 4, 15	Econ. 300; 335	
2, 5	Econ. 300	3 units from: Econ. 325; Psych. 300; Lang.; Eng. (400 level)
3, 9	Econ. 300	3 units from: Econ. 335; Psych. 300; Science; Econ. 325.
6, 7	Econ. 300	3 units from: Econ. 335; Language.
8*	.....	6 units of Science.
10	Econ. 300; major (3 units)	
11	Econ. 300; Forestry 300	
12	Econ. 300; Agron. 210 and 212	
13	Bact. 100; Econ. 335	
14	Econ. 300	3 units from: Psych. 202; 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

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.

For courses in the Pre-Commerce Year, and First and Second Year Commerce, see pages 195-196.

Third Year	Fourth Year
Commerce 331	Commerce 455
Commerce 371	Commerce 490
Commerce 353	Commerce 492
Commerce 354	Commerce 493
6 units from following:	Commerce 532
Commerce 321	Commerce 556
Commerce 372	3 units from following:
Commerce 383	Commerce 375
Economics 320	Commerce 574
Political Science 300	Political Science 400
Political Science 310	Political Science 420
	Law 317

Marketing

Option 2

This option has been organized for those who wish to become familiar with policies, organization, and practices in Marketing. It is not a general programme but is designed for those who are interested in (a) Advertising, (b) Wholesale and Commodity Marketing, (c) the selling of Services such as Insurance, (d) Foreign Trade, or (e) Agricultural Marketing. The student must choose a major field and take the sequence of courses prescribed for that major.

For courses in the Pre-Commerce Year, and First and Second Year Commerce, see pages 195-196.

Third Year	Fourth Year
Commerce 311	Commerce 490
Commerce 331	Commerce 492
Commerce 371	Commerce 493
<i>Advertising Major:</i>	<i>Advertising Major:</i>
Commerce 362	Commerce 465
Commerce 363	Commerce 568
<i>Wholesale and Commodity Major:</i>	<i>Wholesale and Commodity Major:</i>
Commerce 341	Commerce 464
Commerce 342	Commerce 568
Commerce 366	<i>Services Major:</i>
<i>Services Major:</i>	Commerce 375
Commerce 321	Commerce 464
Commerce 372	<i>Foreign Trade Major:</i>
<i>Foreign Trade Major:</i>	Commerce 464
Commerce 341	Geography 400 course
Geography 306 or 307	<i>Agricultural Major:</i>
<i>Agricultural Major:</i>	Agric. Econ. 430
Agric. Econ. 300	Agric. Econ. 501
Agric. Econ. 401	3 units from following:
3 units from following:	Commerce 444
Commerce 321	Commerce 445
Commerce 341	Commerce 464
Commerce 362	Commerce 465
Commerce 363	Commerce 568
Commerce 372	Geography 400 course
Commerce 375	Slavonic Studies 312
Geography 306 or 307	Sociology 430
Economics 335	English 400 course
English 400 course	
Slavonic Studies 205	

Production

Option 3

This option is intended for those who plan to enter manufacturing work in any of the fields of Planning, Control, Supervision. It is also designed to give proper training for those contemplating the Industrial Sales field. To the basic core of courses is added a sequence directed to familiarizing the student with the policies, practices, and techniques of Plant Layout, Materials Handling, Shop Practice, Motion and Time Study, Production Planning and Control, Purchasing and Inventory Control, Personnel Management and Labour Relations, Transportation, Cost Accounting, and Industrial Selling.

For courses in the Pre-Commerce Year, and First and Second Year Commerce, see pages 195-196.

Third Year	Fourth Year
Commerce 331	Commerce 490
Commerce 371	Commerce 492
Commerce 341	Commerce 493
Commerce 354	Commerce 584
Commerce 383	Mechanical Engineering 456
Mechanical Engineering 152	6 units from following:
Mechanical Engineering 356	Commerce 321, 342, 366, 375
	Commerce 444, 445, 568
	Economics 335
	Psychology 403

Finance

Option 4

This option is designed for students who are contemplating work in the fields of investments, insurance, and finance.

For courses in the Pre-Commerce Year, and First and Second Year Commerce, see pages 195-196.

Third Year	Fourth Year
Commerce 331	Commerce 490
Commerce 371	Commerce 492
Commerce 372	Commerce 493
Commerce 375	Commerce 574
Economics 320	6 units from following:
3 units from following:	Commerce 464
Geography 306	Commerce 532, 556
Inter. Studies 301	Economics 401
Pol. Science 310	Economics 435
	Geography 409
	Pol. Science 400
	Pol. Science 420
	Law 317

Retailing

Option 5

This option has been provided for students interested in marketing who wish to obtain an intensive training in the principles and practices of retail distribution. Although the selection of this option does not necessarily imply that the student has chosen retailing as a career, the prescribed courses will involve field-work in a variety of retail institutions.

For courses in the Pre-Commerce Year, and First and Second Year Commerce, see pages 195-196.

Third Year	Fourth Year
Commerce 311	Commerce 467
Commerce 331	Commerce 490
Commerce 363	Commerce 492
Commerce 371	Commerce 493
6 units from following:	Commerce 568
Commerce 321	3 units from following:
Commerce 362	Commerce 465
Home Economics 211	Commerce 464
	Sociology 430
	Geography 409
	English 400 course

Commerce and Economics

Option 6

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 195-196.

Third Year	Fourth Year
Commerce 331	Commerce 464
Commerce 371	Commerce 490
Economics 310	Commerce 492
Economics 320	Commerce 493
Economics 325	6 units from following:
3 units from following:	Economics 435
Commerce 321	Political Science 435
Commerce 341	Slavonic Studies 312
Economics 435	Commerce 574
Slavonic Studies 205	Geography 409
Geography 306	

Commerce and Public Administration

Option 7

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 195-196.

Third Year	Fourth Year
Commerce 331	Commerce 490
Commerce 371	Commerce 492
Economics 320	Commerce 493
Political Science 300	Political Science 400
Political Science 310	Political Science 420
3 units from following:	Law 317
Commerce 321	3 units from following:
Commerce 372	Commerce 444, 445
Economics 310	Commerce 464
Slavonic Studies 205	Economics 401
	Geography 400 course
	Slavonic Studies 312

Commerce and Science

Option 8

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, Zoology. 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 that department.

For courses in the Pre-Commerce Year, and First and Second Year Commerce, see pages 195-196.

Third Year	Fourth Year
Commerce 331	Commerce 490
Commerce 371	Commerce 492
*Two Science courses	Commerce 493
6 units from following:	*Two Science courses
Commerce 321	3 units from following:
Commerce 354	Commerce 574
Commerce 383	Science
Economics 300	
Economics 335	

*An additional course in Mathematics may be taken in the Second, Third, or Fourth Years in lieu of one of the sciences.

Transportation and Utilities

Option 9

This option is designed for students interested in the development of rail, highway, air, water, pipeline, and other transportation agencies; traffic management; rate-making; marketing; public control of utilities.

For courses in the Pre-Commerce Year, and First and Second Year Commerce, see pages 195-196.

Third Year	Fourth Year
Commerce 311	Commerce 490
Commerce 331	Commerce 492
Commerce 371	Commerce 493
Commerce 341	Commerce 444
6 units from following:	Commerce 445
Commerce 342	Commerce 464
Commerce 366	3 units from following:
Commerce 375	Commerce 568
Geography 306 or 307	Geography 400 course
English 400 course	English 400 course

Commerce and Teaching

Option 10

(1) Students who have completed the course of studies prescribed in this option will, on graduation, 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 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; (e) Language other than English.

(3) To satisfy the requirements in teaching majors, the electives allowed in the Pre-Commerce and Commerce Years should be chosen as follows:

(a) *Mathematics*

First Year: One of Mathematics 200, 201, 202, or 205.

Second, Third, and Fourth Years: Nine units of Mathematics of Third and Fourth Year Arts, or three units from Mathematics 200 or 202 plus six units of Mathematics from Third and Fourth Year Arts courses.

(b) *Mathematics and Science*

Pre-Commerce and First Year: Two of: Physics 100 or 101; Chemistry 101; Biology 100.

Second, Third, and Fourth Years: Nine units from any two of Mathematics, Zoology, Physics, or Chemistry of Third or Fourth Year level in Arts and Science.

(c) *Social Studies*

Pre-Commerce and First Year: History 101 or 102.

Second, Third, and Fourth Years: Nine units in History, or six units of History and three units of Sociology or Political Science or Geography, of Third or Fourth Year Arts level.

(d) *English*

First Year: English 200.

Second to Fourth Years: Nine units of English of Third and Fourth Year Arts level.

(e) *Language other than English*

Fifteen units in a language other than English, of which nine units of Third and Fourth Year Arts courses are to be taken in Second to Fourth Years of Commerce.

(4) Students must present evidence satisfactory to the Provincial Department of Education of proficiency in typing and shorthand before the Academic 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 Sessions 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 195-196.

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)
3 units in major	3 units in major
Typing and Shorthand	Secretarial Practice

Commerce and Forestry Option 11

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 the Director of the School and the Dean of the Faculty of Forestry regarding the most suitable electives in their Third and Fourth Years.

For courses in the Pre-Commerce Year, and First and Second Year Commerce, see pages 195-196.

Third Year	Fourth Year
Commerce 371	*Commerce 490
Commerce 331	Commerce 492
Commerce 458	Commerce 493
Forestry 370	Forestry 473
Forestry 371	Forestry 474
Forestry 380	Forestry 475
3 units from following:	Forestry 476, 477.
Commerce 321	
Commerce 341	
Commerce 375	
Commerce 383	

*Students who elect the Commerce and Forestry Option will be expected to do their thesis in the field of Forestry.

Commerce and Agricultural Science

Option 12

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 195-196.

Third Year	Fourth Year
Commerce 331	*Commerce 490
Commerce 371	Commerce 492
Commerce 341	Commerce 493
Commerce 354	**6 units of Agriculture
6 units of Agriculture	3 units of electives

*The essay will be in the field of Agriculture.

**Course to be in the same electives as in Third Year.

Commerce and Hospital Administration

Option 13

This option is designed for a limited number of Commerce students who wish to qualify as Assistants to Hospital Administrators. It is a joint programme of the University and the Vancouver General Hospital. Students will be screened jointly by the University and the Hospital authorities and advised whether the Hospital is prepared to accept them as trainees before admission to the Fourth Year. The hospital internship covers a period of seventeen months at the end of the Fourth Year. Students not accepted as trainees will be transferred to another option.

For courses in the Pre-Commerce Year, and First and Second Year Commerce, see pages 195-196.

Third Year	Fourth Year
Commerce 371	Commerce 442
Commerce 331	Commerce 492
Commerce 321	Commerce 493
Nursing 461	Commerce 594
Public Health 400	Nursing 454 (part)
Public Health 425	Social Work 568
Economics 335	Social Work 582

Fifth Year

Hospital Instruction and Practice, for seventeen (17) months period.

Commerce 490—Graduating Essay—on a problem arising from the hospital work, and independent collection and organization of data.

No attendance at university lectures is required.

The degree of B.Com. and a Diploma in Hospital Administration will be given at the completion of the total period of training if satisfactory standing is obtained in both the University and the Hospital courses.

Commerce and Law**Option 14**

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 Public Administration, 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 195-196.

Third Year	Fourth Year
Commerce 371	Fifth Year
Commerce 321	Courses prescribed for First and Second years in the Faculty of Law of the University of British Columbia.
Commerce 492	(See page 206 and admission requirements for Faculty of Law.)
Commerce 493	
Political Science 310	
3 units from following:	
Political Science 400	
Commerce 372 or 375	
Language	
Science	

Commerce and Agricultural Economics**Option 15**

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 195-196.

Third Year	Fourth Year
Commerce 331	Commerce 490
Commerce 371	Commerce 492
Economics 310	Commerce 493
Economics 320	Commerce 464
Agric. Econ. 300	Agric. Econ. 501
Agric. Econ. 401	Agric. Econ. 430

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 8).

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 or 205 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

I. Options 1 to 5 inclusive and 9:

(a) Graduates of other Faculties of this University, or approved universities, who wish to obtain training in business procedures, but who do not wish to proceed to a Master's degree or cannot qualify for admission to the Faculty of Graduate Studies will be allowed to register as Third Year students in a programme leading to the degree of B.Com. A total of 36 units of approved courses, and full-time attendance for a minimum of two winter sessions will be required.

(b) The programme consists of 27 units of prescribed courses and 9 units of electives. For students with no previous training in Commerce or Economics the sequence of courses will be as set out below. If specified courses, or their equivalents, have been taken to meet the requirements of an earlier degree additional electives will be chosen in consultation with the Director, and the sequence of courses arranged accordingly.

The student will select electives from the specialized courses prescribed in the Third and Fourth Years of any one of options 1 to 5, and 9, i.e., in the fields of Accounting, Marketing, Production, Finance, Retailing, or Transportation.

Third Year		Fourth Year	
Economics 200	— 3 units	Commerce 252	— 3 units
Commerce 151	— 3 units	Commerce 371	— 3 units
Commerce 261	— 3 units	Commerce 492	— 3 units
Commerce 281	— 3 units	Electives	— 9 units
Commerce 321	— 3 units		
Commerce 331	— 3 units		

Total 18 units

Total 18 units

(c) The standing obtained by graduate students in the prescribed courses may be used in partial fulfilment of the requirements for admission to the M.Com. degree programme (Faculty of Graduate Studies).

II. Option 13 (Hospital Administration):

A limited number of graduates of approved Universities will be allowed to register for a special programme leading to the degree of B.Com. and Diploma in Hospital Administration. (See option 13, page 203.) On admission they will register for 18 units of approved courses. The following summer will be spent as trainees in supervised employment at the Vancouver General Hospital. A joint screening committee of the School and Hospital will select from graduates and undergraduates

registered in this option those who will be allowed to proceed to the final academic year in the option. Those who are not selected will be transferred to another option.

Those who are chosen will register for the prescribed programme of a second academic year; on completion of this they will enter the Hospital for an internship period of seventeen months. During this period they will submit an acceptable graduating essay (Commerce 490).

The degree of B.Com. and a Diploma in Hospital Administration will be given to students who have obtained satisfactory standing in both the University and Hospital courses.

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 315. 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.

COURSES IN COMMERCE

Business Techniques

311. (3) **Market Analysis and Research.**—Techniques, methods and applications of market analysis. Sources of market data; quantitative market analysis; consumer surveys. Field work required entailing schedule construction, sampling, interviewing, analysis of results. Text-book: Luck and Wales, *Marketing Research* (1952). [3-0; 3-0]

Industrial Relations

321. (3) **Personnel Management and Labour Relations.**—Current personnel policies and practices; problems in personnel administration; collective bargaining. Text-book: Yoder, *Personnel Management and Industrial Relations* (3rd. ed.). [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]

532. (1½) **Statute Law.**—Examination of selected statutes. The course is designed to complement Commerce 331, to meet the needs of students in the Accounting or Finance fields. [3-0; 0-0]

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. [3-0; 3-0]

442. (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. [0-0; 3-0]

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: to be announced. Prerequisite: Commerce 341 [3-0; 3-0]

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 a 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, elements of cost accounting and consolidations. Text-book: Karrenbrock and Simons, *Intermediate Accounting*. [3-0; 3-0]

353. (3) Accounting and Auditing.—Partnership organization and dissolution; installment and consignment sales; branch accounts; accounting methods for consolidations; estates and trusts; bankruptcy; governmental accounting. Introduction to auditing; the auditor's legal responsibility; internal control. Textbooks: Karrenbrock and Simons, *Advanced Accounting*; Smalls, *Auditing*. [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: Blocker, *Cost Accounting*. [3-0; 3-0]

455. (3) Auditing.—Principles and standards; application of these in verification of financial statements; internal auditing. Students will be required to complete a Practice Set. The course will contain a number of lectures given by practitioners in the field. Textbooks: Holmes, *Auditing Principles and Procedures*; Smalls, *Auditing*. [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 industry. Text-books: Noble, *Accounting Principles* (5th Edition); Ashley, *Corporation Finance*. 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]

459. (2) Basic Accounting and Business Controls.—This course is intended to give a foundation in the elements of accounting and their use in the operation of a business. Special reference is made to practical accounting problems in small and middle sized businesses. Text-book: to be announced. For students in Pharmacy and Home Economics. [2-0; 2-0]

556. (1½) Accounting Systems.—The installation and operation of accounting systems in business organizations. Text-book: Neuner and Neuner, *Accounting Systems*. [0-0; 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: Terry, *Marketing, Selected Case Problems*; Phillips and Duncan, *Marketing—Principles and Methods*. [3-0; 3-0]

362. (3) Fundamentals of Advertising.—Economic aspects of advertising; uses and limitations; media selection; organizations. Text-book: to be announced. [3-0; 3-0]

363. (3) Retail Marketing.—The role of retailing in the field of marketing. Types of retail institutions; effect of consumer trends on retailing; legislation affecting retailing; the B. C. retail market; store policy, store location, building, store organization, store layout. Basic retailing mathematics. Supervised field-work in retail selling. Text-book: Duncan and Phillips, *Retailing Principles and Methods* (1951 Edition). [3-0; 3-0]

369. (3) Drug Store Retailing.—Principles and practices involved in the organization and operation of the chain and independent drug store. Retail mathematics, credit, advertising, display, selling, records-keeping, public relations, personnel training. Text-book: to be announced. [3-0; 3-0]

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: to be announced. [3-0; 3-0]

465. (3) Advanced Advertising.—Professional and technical aspects of advertising. Psychology of advertising; campaign planning; research and copy testing; discussion of business cases; laboratory work. Text-book: Borden, *Advertising—Text and Cases*; Lucas and Britt, *Advertising Psychology and Research*. [3-0; 3-0]

466. (1½) Commodity Marketing.—Problems involved in the distribution of basic commodities such as steel, coal, petroleum, wheat and other grains, agricultural products. Written reports. Assigned readings. [3-0; 0-0]

467. (3) Retail Store Management.—A study of store operations and their relationship to profitable retailing. Current practices in store layout, store maintenance, services, display and advertising; expense budgeting and control, receiving, marking, delivering, employment procedures, training, methods of wage payment, and welfare activities. Credit practices and procedures. Retail selling. Students will be employed on a part-time basis by a local retail store. Text-book: Wingate and Schaller, *Techniques of Retail Merchandising* (1950). [3-0; 3-0]

568. (3) Sales Management.—The development, maintenance, and administration of a sound sales organization. Sales policy determination: pricing, packaging, brands and trade-marks. Operating a sales force: the training, compensation, supervision of a sales force. Planning and controlling sales: market research, sales quotas, forecasting, cost information. Text-book: Phelps, *Sales Management Policies and Procedures* (1951). [3-0; 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) Life Insurance.—General principles underlying life insurance; types of insurance contracts, their fundamental and legal concepts. Insurable interest, beneficiary, mortality tables and selection of risk. Application of insurance to individual and business needs. Regulation, taxation and investments of life insurance companies. Assigned readings and written assignments. Text-book: MacLean, *Life Insurance*. [3-0; 3-0]

375. (3) General Insurance.—The nature of risk and its significance, types of contracts (fire, marine, burglary, automobile and other property insurance, disability and liability insurance, fidelity and surety bonds), types of insurance carriers, the insurance market, social insurance. Text-book: Magee, *General Insurance* (Third Edition). [3-0; 3-0]

574. (3) Investments.—Investment principles and practices. Analytical techniques in selection of securities; security price movements, managed and fixed investment trusts. Written and oral reports. Extensive references. Text-book: Graham and Dodd, *Security Analysis*. [3-0; 3-0]

Production

281. (3) Industrial Organization.—A survey of the basic structure, principles, and practices of industry. Written and oral reports on case studies and plant visits. Text-book: to be announced. [3-0; 3-0]

383. (3) Production Techniques.—A detailed study of process design, equipment selection, plant location, plant layout, motion and time study, flow chart analysis and the basic techniques of production control. Case studies and laboratory problems. Assigned reading from several reference texts. [2-2; 2-2]

584. (2) Production Management.—A study of the four basic types of production control in industry. Case studies and problems. Written and oral reports. Plant visits. Text-book: Moore, *Production Control*. [1-2; 1-2]

Management and Policy

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 arranged before the end of the Third Year. The essay 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: Smith, *Policy Formulation and Administration*; Glover and Hower, *The Administrator*. [3-0; 3-0]

493. (3) Financial Management.—Financial policies and procedures and a study of taxation affecting fiscal policies. This course is intended to synthesize financial study and techniques of prior courses. An extended budget case, taxation statutes and references will be employed. Text-book: to be announced.

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. For students in Forestry and Agriculture. [2-0; 2-0]

590. (3) Master's Seminar.—Readings, reports and field work in such aspects of commercial theory and practice as may be designed to meet the needs of candidates for the degree of Master of Commerce. Prerequisite: graduate standing. [3-0; 3-0]

594. (3) Introduction to Hospital Administration.—History, development and functions of a hospital; elements of hospital organization and administration; scientific management; hospital's role in community health programme; insurance plans and services; technical requirements of departmental personnel. Open only to students in the Hospital Administration Option. [2-2; 2-2]

599. (3-6) Master's Thesis.—A comprehensive treatment of some theoretical or institutional problem.

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 212-214).

TEACHER TRAINING COURSE

Candidates qualifying for the Interim 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 212, 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 will be accepted who offer 6 units in Geography or in History, *plus* 6 units chosen from approved courses in Economics, Political Science, Slavonic Studies, Sociology, History or Geography.
- (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 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 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 Agricultural and Teacher Training option, page 289, and to the Commerce and Teaching option, page 201.

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. Candidates offering Geography as a major are strongly advised to offer additional courses in History or related subjects.

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 or 205 and Mathematics 306 or 307; and in the Fourth Year, Mathematics 300, 306, 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 212.

COURSE LEADING TO THE DEGREE OF B.ED.

1. Prerequisites:
 - (a) A bachelor's degree 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 prior 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 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. Each student must be prepared to live outside Vancouver for the period and to assume travel and living expenses of approximately \$60.

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, Commerce, Physical Education.

2. **Additional Subjects**—One of Art, Music, Health and Physical Education, Dramatics.

505. Observation and Practice.

NOTE. Students who are granted supplemental standing in Practice Teaching may, with the approval of the School of Education, clear the deficiency by repeating intra-murally one-half of the practice-teaching assignment of a subsequent year. The required supplemental fee must be paid.

509. (3) **High School Methods.**—Methods of teaching two high school subjects. Not open to students who have taken the Teacher Training Course. One and one-half units of 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) Philosophies 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.

575. (3) Educational Classics and their Authors.—Studies in the Educational writings of such great educational theorists as: Plato, Aristotle, Quintilian, Castiglione, Luther, Erasmus, Ignatius of Loyola, Elyot, Bacon, Comenius, Milton, Locke, Rousseau, Pestalozzi, Herbart, Froebel, Spencer, Dewey. Prerequisite: Education 500, or 520, or 521, or equivalent.

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 49-56, 140-142.

COURSES LEADING TO THE DEGREE OF B.H.E.

Students entering in the fall of 1953 with High School Graduation (University Programme) standing, including Home Economics 91, will receive the degree of Bachelor of Home Economics on completion of courses amounting to a total of at least 60 units chosen in conformity with the following requirements. Adjustments for transfer students and those with irregular courses may be made in consultation with the Director of the School.

First Year		Second Year	
Course:	Units	Course:	Units
Biology 100	3	Chemistry 210	3
Chemistry 101	3	Economics 140 or 200	3
English 100-101	3	Physics 110 or 100 or 101	3
Mathematics 100	3	Psychology 100	3
Home Economics 101	1½	Home Economics 200	1½
103	1½	201	3
104	1½		
	16½		16½
*Students who do not present			
H.E. 91 will substitute			
H.E. 100 for 103	3		
H.E. 102 for 104	3	*Home Economics 101	1½
	18		18

*(See Note 1.)

Notes

1. A student who has not presented 15 credits in Home Economics including HE 91 as part of High School Graduation standing will be required to substitute courses Home Economics 100 and 102 for Home Economics 103 and 104 respectively. Such students will be required to complete 63 units to receive the degree.

2. A student who has completed Mathematics 91 for High School Graduation must substitute another subject for Mathematics 100 in the First Year. Those who plan to carry on advanced work in Nutrition or Textiles should include Mathematics 101 and substitute certain other courses in Chemistry for Chemistry 210, such substitutions to be arranged after consultation with the departments concerned.

3. A student entering with 15 units of credit from Senior Matriculation may enrol in Second Year Home Economics, but may be required to carry courses from First Year Home Economics. Additional units may be required for graduation. No Senior Matriculation subject may count beyond First Year. A student who has taken Physics 100 for Senior Matriculation credit will substitute another course or courses in Second Year.

4. By the end of the Second Year the student should have decided upon a field of specialization and may elect to proceed to professional Dietetic Training, Teacher Training, or to take Textiles or General Home Economics without a view to a professional certificate.

Third and Fourth Years

Required Courses:		Units
Biology 304		3
Home Economics 300		3
410		1½
420		1½
421		3
		<hr/>
		12

and in addition for

Dietetic Major:		Teaching Major:		Textile Major:	
	Units		Units		Units
Bact. 100	3	Bact. 100	3	Bact. 100	3
Com. 459	2	H.E. 203	1½	Chm. 205	3
H.E. 302	3	302	3	H.E. 203	1½
303	3	303	3	302/303	3
413	1½	400	1½	400	1½
414	1½	401	3	401	3
416	3	403	1½	Elective	3-5
Elective	1-3	Elective	1-3		

A General Major leading toward the following may be developed in consultation with the Director of the School of Home Economics and of the cooperating School:

Retailing—Minimum of 6 units from H.E. 203, 302, 303, 400, 401, 403 *plus* Commerce 151, 261, 363.

Social Work—Minimum of 6 units from H.E. 203, 302, 303, 400, 401 *plus* Bact. 100, Eng. 200, S.W. 499 and 3 units of social science.

Design—Minimum of 7½ units from H.E. 203, 302/303, 400, 401, 403 *plus* Fine Arts 200, 210 and Architecture 353.

5. Preferred elective courses—Agriculture 100; Anthropology 200; Architecture 353, 451, 471; Bacteriology 303; Botany 200; English 200; Fine Arts 200, 210; Geography 101 or 201; History 101 or 102 or 203; Language (3 units); Philosophy 100; Sociology 200; Animal Husbandry 422; Horticulture 200, 314, 315, 316, 317; Psychology 201 or 303; Slavonic Studies 311, 330; Social Work 499.

6. The only course which may be taken for credit by students proceeding to the B.A. degree is H.E. 210. Courses 210, 211, 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 1953-54, H.E. 211 will be offered and 210 may be offered.

Consideration may be given to the registration of a restricted number of students in professional courses H. E. 400, 403, 416, 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, with exceptions noted above, are open only to students of the degree course in Home Economics:

100. (3) Introduction to Foods, Nutrition and Home Management.—Principles of food preparation and of nutrition. Activities of the home. Development of standards and techniques with emphasis on work simplification. Selection, use and care of equipment. Text-books: Kansas State College, *Practical Cookery*, 21st edition, 1947; Gross and Crandall, *Home Management in Theory and Practice*, 1947; R. Balderston, *Housekeeping Workbook*. [2-3; 2-3]

101. (1½) Principles of Design.—Study and application of fundamental principles to problems in design. Text-book: Goldstein, *Art in Everyday Life*, 3rd edition. [3-3]

102. (3) Introduction to Textiles and Clothing.—Fundamentals of dress appreciation, wardrobe planning, grooming. Basic techniques of clothing construction applicable to cotton, wool and silk or synthetic fabrics. Textile fibres and fabrics, their characteristics and uses. Text-books: Erwin, *Clothing for Moderns*; Hess, *Textile Fibres and Their Use*, 1946. [2-3; 2-3]

103. (1½) Home Management I.—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 91. [2-3]

104. (1½) Textiles and Clothing.—Textile fibres and fabrics, their characteristics and uses; techniques of clothing construction applicable to silk and synthetic fabrics. Text-book: Hess, *Textile Fibres and Their Use*. Prerequisite: Home Economics 91. [0-0; 2-3]

200. (1½) Intermediate Clothing—Consumer problems in clothing, clothing needs of the family. Tailoring techniques. Text-book: B. V. Goodman, *Tailoring for the Family*. Prerequisite: H. E. 102 or 104. [2-3; 0-0]

201. (3) Nutrition and Food Management.—Nutritional requirements of the normal adult; laboratory study of food values; food buying and legislation; food preparation; meal planning and table service. Text-books: Kansas State College, *Practical Cookery*, 21st edition, 1947; Chaney and Ahlborn, *Nutrition*, 4th edition, 1949; Department of National Health and Welfare, *Table of Food Values Recommended for Use in Canada*, 1951. Prerequisites: H.E. 100 or 103; Chemistry 210 must precede or be taken concurrently. [2-1-3; 2-1-3]

203. (1½) Advanced Design.—Application of principles of design; various media and techniques. Prerequisite: H. E. 101. [2-3; 0-0]

210. (3) Foods.—Economics of selection; scientific aspects of preparation. Prerequisite: Chemistry 101. [2-3; 2-3]

211. (3) Textiles, Colour and Design in Retailing.—Effective forces of design and colour in creation, selection, arrangement and uses in buying and selling merchandise: design standards of consumer taste, colour psychology and harmony. A study of the basic textile fibres, their source, characteristics and uses. The apparel industry. [3-0; 3-0]

213. (3) **Problems in Consumer Buying.**—In relation to food, clothing, housing, equipment; family finance planning. [3-0; 3-0]

300. (3) **Home Management II.**—House plans, selection and care of furnishings and equipment. Family expenditures and standards of living; budgeting of time and family funds. Text-book: Nickel and Dorsey, *Management in Family Living*, 1950. Prerequisites: H. E. 100 or 103, Physics 100, 101 or 110, Economics 140 or 200. [3-2; 2-2]

302. (3) **Experimental Foods.**—Preparation of various types of food presented from an experimental point of view. Each student conducts an experimental food problem and prepares a scientific report on findings. Text-book: Lowe, *Experimental Cookery*, 3rd edition. Prerequisites: Home Economics 201, Chemistry 210. [2-3; 0-6]

303. (3) **Family and Community Nutrition.**—Food requirements of the healthy family group. Study of scientific nutrition literature. Text-book: Monsch and Harper, *Feeding Babies and Their Families*. Reference: Sherman, *Chemistry of Food and Nutrition*, 8th edition, 1952. Prerequisites: Home Economics 201; Chemistry 210; Biology 304 parallel or preceding. [2-3; 2-1]

310. (3) **Nutrition for the Family.**—Prerequisites: Home Economics 210, 213; Chemistry 210, 300 or equivalent. [3-0; 3-0]

311. (3) **Food Study.**—Primarily for those interested in food manufacturing, merchandising 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) **Advanced Textiles.**—Construction, finish and design of textiles; fibre identification. Physical and chemical testing of fabrics. Consumer problems. Text-book: Hartsuch, B., *Introduction to Textile Chemistry*, 1951. Prerequisite: Chemistry 210; Home Economics 102 or 104. [3-2; 0-0]

401. (3) **Advanced Clothing.**—Development of dress design by draping and flat pattern methods. Fundamentals of fashion. A brief survey of the history of costume. The economic, psychological and sociological aspects of clothing. The garment industry. Text-book: Hillhouse and Mansfield, *Dress Design, Draping and Flat Pattern Making*. Prerequisites: H.E. 101, 200. [2-3; 2-3]

403. (1½) **Interior Design.**—Study of the elements: line, texture, colour. Principles of design applied to interiors and furnishings. Text-book: Whiton, *Elements of Interior Decoration*. Prerequisite: Home Economics 203. [0-0; 2-3]

410. (1½) **Demonstration Techniques.**—Demonstration techniques and other means of presenting information to the public; discussions, demonstrations and radio talks. Prerequisites: Fourth Year standing in Home Economics. Practice time to be arranged. [2-3]

413. (1½) **Diet Therapy.**—A discussion of the relations 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. (3) Institution Administration and Buying.—Discussion of problems in administration for food services; selection, operation and care of equipment; quantity buying of food. Text-books: West and Wood, *Food Service in Institutions*, 2nd edition; Fowler and West, *Food for Fifty*, 3rd edition. Prerequisites: Home Economics 302; Commerce 459 or equivalent. [2-2; 2-2-2]

420. (1½) Home Management III.—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]

SCHOOL OF PHYSICAL EDUCATION

The School of Physical Education is responsible for (1) the physical education required of all students in the first two years, (2) the intramural and extramural sports programmes, (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 should consult the staff before registering.

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.

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. Badminton.—Fundamentals and skills at beginners' level.

122. Archery.—Open only to students in Medical Category 3.

124. Games.—Fundamentals and skills at beginners' level in various activities including tennis and golf.

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.—Intermediate.

136. Life-Saving.—Advanced.

138. Swimming Club.—Recreational and competitive swimming.

Dance

140. International Folk Dance.—Men and women.

142. American Folk Dance (Square, Round, Couple), Beginners.—Men and women.

144. American Folk Dance (Square, Round, Couple), Intermediate.—Men and Women.

146. Ballroom Dance.—Men and women.

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 219 and one other activity course, and may register for Physical Education 231.

Gymnastics

101. **Body Mechanics and Conditioning.**

103. **Recreational Leadership.**

105. **Tumbling and Apparatus.**

Team Games

111. **Team Games.**—Basketball, field hockey, volleyball.

Individual Games

113. **Archery, Beginners.**

117. **Badminton, Beginners.**

119. **Badminton, Intermediate.**

121. **Golf, Beginners.**

123. **Golf, Intermediate.**

127. **Tennis, Beginners.**

129. **Tennis, Intermediate.**

Swimming and Life-Saving

131. **Swimming, Beginners.**

133. **Swimming, Intermediate.**

135. **Swimming, Senior and Life-Saving.**

Dance

141. **International Folk Dance.**—Men and women.

143. **American Folk Dance (Square, Round, Couple), Beginners.**—Men and women.

145. **American Folk Dance (Square, Round, Couple), Intermediate.**—Men and women.

147. **Ballroom Dance.**—Men and women.

149. **Modern Dance.**—Fundamental rhythmic movements and introduction to composition.

COURSE LEADING TO THE DEGREE OF B.P.E.

For regulations regarding Registration and Admission, Senior Matriculation Credits, Examinations and Advancement, see pages 49-56, 140-142.

General regulations for the B.P.E. degree are the same as for the B.A. degree (see page 126), 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.

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. One typewritten copy of each essay on standard-sized paper shall be submitted not later than February 15th of the graduating year.

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 210-211.

Students intending to work in recreation must select a major in Sociology or another field approved by the School of Physical Education.

Students must have a yearly medical examination completed within the first two weeks of the session.

First Year

	Units
English 100 and 101	3
Biology 100 or Chemistry 101	3
Electives (to be chosen in consultation with the School of Physical Education)	9
Two hours required Physical Education activity	
Women must register for P.E. 219.	

Notes.

1. Students entering without credit in Mathematics 91 must take Mathematics 100 in the First Year.
2. Students planning to accompany the major in Physical Education with a major in Mathematics or any science should take Mathematics 91 for High School Graduation and Mathematics 101 in the First Year. For other courses and majors requiring Mathematics 91, 100, or 101 see page 128, note 6. Students in Physical Education, however, will be permitted to take Chemistry 101 without Mathematics 100 or 101 provided they have taken Mathematics 91 in High School.
3. Chemistry 91 is recommended for entrance.

Second Year

	Units
English 200	3
Chemistry 101 or Biology 100, or an elective if both have been taken	3
Psychology 100	3
Elective (to be chosen in consultation with the School of Physical Education)	3
Physical Education 260	1½
Physical Education Activity II (women)	4½
Physical Education Activity II (men), required 2, optional 2½	4½

Third Year

	Units
Physical Education 360	1½
Physical Education 361	1½
Anatomy 390	3
Biology 304	3
Electives	6
Physical Education Activity III (women)	4
Physical Education Activity III (men), required 2 units, optional 2 units	4

Fourth Year

	Units
Physical Education 460	1½
Physical Education 461	½
Physical Education 462	1½
Electives	9
Physical Education Activity IV (women)	4½
Physical Education Activity IV (men), required 2½ units, optional 2 units	4½

ACTIVITY COURSES FOR MEN

	Units
Physical Education Activity II: 200, 230, 240, optional	4½
Physical Education Activity III: 300, 330, 350, optional	4
Physical Education Activity IV: 400, 450, 480, optional	4½

Note: Courses 208 to 218 inclusive must be completed before the student enters his final year.

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. [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. ($\frac{1}{2}$) **Grass Hockey and Cricket.**—Basic skills, rules, emphasis on playing. [0-2; 0-0]
330. ($\frac{1}{2}$) **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. ($\frac{1}{2}$) **Dance.** — Square, folk, ballroom—with emphasis on square dance calling and teaching. [0-1; 0-1]
346. ($\frac{1}{2}$) **Skiing.**—Principles of teaching and coaching; officiating in ski tournaments. [0-0; 1-1]
350. ($\frac{1}{2}$) **Track and Field.**—Fundamentals of sprinting, middle distance and distance running, high jumping, pole vaulting, and putting the shot. [0-1; 0-1]
400. ($\frac{1}{4}$) **Gymnastics.**—Teaching, techniques, and formations. Methods of promoting, judging, conducting competitions; pyramids. Prerequisite: P.E. 300. [0-2; 0-0]
402. ($\frac{1}{2}$) **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]
430. ($\frac{1}{2}$) **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. ($\frac{1}{2}$) **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]
480. ($1\frac{1}{2}$) See courses in Theory.

ACTIVITY COURSES FOR WOMEN

Physical Education Activity II

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. [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 1953-54.) [0-2; 0-2]
219. ($\frac{1}{2}$) **Minor Games.**—Relays, group and recreational games. [0-1; 0-1]
221. ($\frac{1}{2}$) **Individual Games.**—Archery, table tennis, badminton. Text-book: Ainsworth, *Individual Sports for Women*. [0-1; 0-1]
231. ($\frac{1}{2}$) **Aquatics.**—Elementary swimming skills, strokes, entries, water safety. [0-1; 0-1]
240. ($\frac{1}{2}$) **Dance.**—Basic rhythms, square, folk, ballroom. Text-book: Harris, Pittman, Swenson, *Dance Awhile*. [0-2; 0-0]
241. ($\frac{1}{2}$) **Dance.**—Elementary Modern Dance, history of dance and dance personalities, introduction to movement resources. Text-book: Lockhart, *Modern Dance*. [0-0; 0-2]

Physical Education Activity III

301. (1) **Gymnastics.**—Intermediate fundamental exercises; apparatus and tumbling; theory to include the value of exercises and the anatomical functioning of movement. [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. (Students in Second Year take P.E. 311.) [0-2; 0-2]

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, introduction to individual composition, and theory of composition; intermediate folk dance, European, Scandinavian, Palestinian; ballroom dance. Text-book: *Dances from Near and Far*, Vol II. [0-2; 0-2]

Physical Education Activity IV

401. (½) **Gymnastics**.—Advanced fundamental exercises; theory to include the gymnastic table, lesson and programme. Text-book: Thulin, *Gymnastic Handbook*. [0-1; 0-1]

403. (½) **Advanced Apparatus and Tumbling**.—Activities with emphasis on small hand apparatus and demonstration material. [0-1; 0-1]

411. (1) **Team Games**.—Basketball, grass 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, introduction to group composition, stage production and methods of teaching; intermediate folk dance, English, Scottish, Irish, Mexican; ballroom dance. [0-2; 0-2]

Note. Courses P.E. 340, P.E. 346, P.E. 430 are open to women.

480. (1½) See Courses in Theory.

COURSES IN THEORY FOR MEN AND WOMEN

260. (1½) **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. [3-0; 0-0]

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; 3-0]

406. (1½) **Workshop in Physical Education**.—Curriculum construction with emphasis on unit and lesson planning and teaching methods. (Given in summer session.)

460. (1½) **Organization and Administration of Physical Education**.—A study of the problems relating to the organization and administration of physical education programmes. [0-0; 3-0]

461. (½) **Graduating Essay**. [1-0; 1-0]

462. (1½) **Health**.—Nutrition, sex education, community health and sanitation, development of health services, mental health. [3-0; 0-0]

480. (1½) **Supervised Field Work**.—In Third Year, three weeks in May or its equivalent; in Fourth Year, work assigned in the School of Physical Education.

Note. Biology 304 and Anatomy 390 are considered theory courses for the B.P.E. degree.

COURSES FOR TEACHER TRAINING

Education 504

Health and Physical Education Methods.—Open only to students with Bachelor of Physical Education or the equivalent. Four hours per week.

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.

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 May 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 100 or 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, 102, 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 early established a generic social work training and continues to emphasize this approach to professional education in line with the most recent developments in the social work field. This general training is planned to cover two years leading to the Master's degree and should prepare students with (1) a broad knowledge of the organization of the social services (public and private); (2) an understanding of human behaviour as related to helping people with their problems and (3) a high degree of skill in one of the methods of social work with some knowledge and understanding of other methods. The primary methods as formulated by the School are: case-work, group work, administration and research.

The body of knowledge in professional social work can be divided in this 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, 513, 583, 584, and knowledge and understanding of human behavior as taught in S.W. 504, 508, 518, 540, 571, 572. Secondly, there are methods or technical courses arranged in the following way: *working with people as individuals*, S.W. 501, 502, 505, 506; *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, 575, 582; *research in social welfare fields*, S.W. 520, 585, 586.

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. 503, Public Welfare	S.W. 504, Medical and Psychiatric Information
S.W. 511, Community Organization	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 fourth week in January to the first week in May.

Field work under supervision is 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.

Group work students in the First Year have instruction and practice in programme skills in a workshop and continuing during the session in connection with field work. Music, arts, 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 in social work.

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. The student who cannot type must also budget for some expense for the typing of term papers, etc.

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 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 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
 Vancouver Community Chest and Council
 Canadian National Institute for the Blind
 Vancouver General Hospital
 Shaughnessy Hospital
 St. Paul's Hospital
 B. C. Division of Tuberculosis Control
 Provincial Child Guidance Clinic
 Provincial Mental Hospital and Crease Clinic
 Alexandra Neighbourhood House
 Gordon House
 Community Arts Council
 Young Women's Christian Association
 International Branch Y.W.C.A.
 Provincial Probation Department
 Provincial Jail and Young Offenders' Unit
 Vancouver Family Court and Juvenile Court

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 hold the B.A. degree and the Diploma for Social Work, 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.

3. 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 may 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 600 hours of field work.

4. Candidates for the M.S.W. degree should file an application on a special form obtainable from the Registrar not later than November 1st.

5. 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 theses by June 30th in their Second Year are required to apply for readmission to the degree in the First Term of the session immediately following. Permission to proceed with the thesis for completion during this session is not automatic, but will depend on a review by the School of the circumstances of the individual candidate. Any further extension of time will be granted only if the student is duly re-registered in S.W. 585.

6. A candidate will be granted the M.S.W. degree after a demonstration of knowledge, skill of performance, and research in social work. The final comprehensive examination may not be taken unless the candidate has furnished satisfactory evidence that the thesis will be completed in the prescribed period. At the discretion of the School, an oral examination on the thesis subject may be required.

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 School 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: 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. Study of current practice and community services to meet the needs of the people. Presentation through lectures, visits to agencies, films, discussions, forums. Prerequisite: Fourth Year standing or permission of the School of Social Work. Mrs. Robinson [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, Mrs. McCrae. [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, Mrs. McCrae. [0-0; 3-0]

503. (1½) The Development of the Social Services.—The fundamental attitudes of the Professional Social Worker toward society, people and peoples' rights. Social movements and leaders of the past and their influence on modern social work programmes, the professionalization of the field, ethics and moral problems. The development of methods. Issues in the current situation. 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. [3-0; 0-0]

*** 506. (1½) Social Case Work 4.**—Continuation of 505. [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. Mrs. Robinson. [3-0; 3-0]

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]

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 programme as a tool. Beginning differentiations in approach to individuals and groups. Mrs. Robinson. [0-0; 2-0]

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; 2-1]

*** 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. Mr. Abrahamson. [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. Mr. Herbert. [0-0; 2-0]

*** 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. [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. Mr. Dixon. [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]

*571. (1) **Delinquent Behaviour.**—Study of delinquent behaviour, and treatment of delinquency problems. [0-0; 2-0]

*572. (1) **Advanced Psychodynamics.**—Case studies and discussion of deviations from normal behaviour. Maladjusted adults and children, the unmarried mother, marital problems, alcoholism, the emotional problems of middle age, and of old age. Dr. Lindenfeld. [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 conference. Miss Johnson. [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]

*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. [0-0; 3-0]

*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]

*586. (1) **Social Research 3.**—A seminar in methods for Second Year students specializing in research. Administrative applications, public and private agencies. Operational studies. Experimental projects. Surveys. Mr. Marsh. [2-0; 0-0]

1953-54

**THE
FACULTY
OF
APPLIED SCIENCE**

(ARCHITECTURE; ENGINEERING; NURSING)

1953-1954

1953-54

FACULTY OF APPLIED SCIENCE

The degrees offered in this Faculty are:

Bachelor of Applied Science (B.A.Sc.). (See page 237.)

Bachelor of Architecture (B.Arch.). (See page 264.)

Bachelor of Science in Nursing (B.S.N.). (See page 270.)

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 237 (Engineering), page 264 (Architecture), page 270 (School of Nursing).

Registration and Admission

The general requirements for admission to the University are given on pages 49 to 51.

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 High School Graduation.

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. For information regarding medical certificates see page 45.

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 79 per cent.; Passed, 50 to 64 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. 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.

5. 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.

6. Term essays and examination papers may be refused a passing mark if they are noticeably defective in English.

7. Honours graduate standing will be granted to those who obtain First Class Standing in the final year and who have obtained an average of at least 75 per cent., with no supplementals, in each of the preceding three years.

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 examinations in the subject or subjects in which he has failed. Except under unusual circumstances, supplementals will not be granted in more than three subjects. Notice will be sent to all students to whom such examinations have been granted.

2. A candidate who has been granted a supplemental examination may write it only twice, except under unusual circumstances. If the examination is failed on the second attempt, the course, or its equivalent, must be repeated.

3. 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.

4. Supplemental examinations will be held in August and at the time of the regular April examinations. Special examinations will not be granted, except by special permission* of the Faculty and on payment of a fee of \$7.50 per paper.

5. Applications for supplemental examinations, accompanied by the necessary fees (see "Special Fees", page 56), must be in the hands of the Registrar by July 15th. For supplemental centres, etc., see page 53.

Re-readings

See Arts and Science, page 142.

*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 235.

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

Admission

The general requirements for admission to the Faculty are given on page 235.

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 101

Physics 100 or 101

Language: one of the following—Latin 110 or 120, French 110 or 120, German 90 or 110 or 120 or 130, 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. However, a student obtaining a Second Class average in the three subjects, Mathematics, Chemistry, and Physics, will receive consideration.

Examinations and Advancement

The regulations set out on pages 235 to 236 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. 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 240) should be based, as far as possible, upon the summer work.

*The curriculum described in the following pages may be changed from time to time, as deemed advisable by the Senate.

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

In order to practise as a Professional Engineer in the Province of British Columbia, it is necessary to be registered as a member of the Association of Professional Engineers of the Province of British Columbia.

Graduates in Engineering from the Faculty of Applied Science of the University of British Columbia may become registered after they have completed four years satisfactory engineering experience subsequent to graduation and have submitted a satisfactory engineering report or other written evidence in support of their application for registration.

During the four years between graduation and Registration, the graduate should be enrolled with the Association of Professional Engineers in B.C. as an Engineer-in-Training.

Students in engineering should enroll with the Association of Professional Engineers of British Columbia in their Second Year and should associate themselves with the appropriate technical societies. Facilities for enrolment in the Association are available each fall at the University during the period of registration.

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 218 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 I.....	1	2*	1	2*
C.E. 160 Engineering Problems I.....	.....	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.—All First Year students will take C.E. 250, Surveying Field Work, immediately after the close of the spring examination for a period of two weeks,

Second Year

Subject	First Term		Second Term	
	Lect.	Lab.	Lect.	Lab.
C.E. 250 Field work in Surveying.....	End of 2nd Term, 1st Year			
Eng. 298 Essay.....	.....	.....	.....	.....
Math. 250 Calculus.....	3	.....	3	.....
Math. 251 Plane and Solid Geometry.....	2	.....	2	.....
Phys. 250 Electricity and Magnetism.....	2	3	2	3
*Chem. 255 Physical Chemistry.....	2	3	2	3
C.E. 255 Descriptive Geometry.....	.....	3	.....	3
C.E. 260 Mechanics and Eng. Prob. II.....	2	3	2	3
Geol. 200 General Geology.....	2	2	2	2
Eng. 250 Reading and Composition.....	2	.....	2	.....
*C.E. 290 Engineering Profession.....	1	.....	1	.....
†For. 251 Fire Protection.....	1	2	1	2
†For. 360 Mensuration.....	2	3	2	3
†Bot. 303 Dendrology.....	1	3	1	3

*Not required for Forest Engineering students.

†For Forest Engineering students only.

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. These 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 subject matter.
6. All other essays and reports, required for graduation, shall be handed in before the last day of lectures in the Second Term, and the corresponding date for the Autumn Congregation shall be October 1st.

1. Agricultural Engineering

For courses in First and Second Years, see page 239.

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 Agricultural 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. 370 Physical Metallurgy.....	2	.....	2	.....
Met. 371 Metallography.....	.....	3*	.....	3*
A.E. 450 Farm Structures.....	2	3	2	3
A.E. 451 Seminar.....	2	2	2	2
A.E. 456 Shopwork.....	.....	3*	.....	3*
A.E. 460 Drainage and Irrigation.....	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 239.

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			
M.E. 367 Mechanical Design.....	2	3*	2	3*
Math. 350 Differential Equations.....	3	.....	3	.....
Met. 370 Physical Metallurgy.....	2	.....	2	.....
Chem. 300 Organic.....	3	3	3	3
Chem. 350 Chem. Eng. Unit Operations I.....	3	.....	3	.....
Chem. 351 Industrial Stoichiometry.....	2	.....	2	.....
Chem. 352 Advanced Quantitative Analysis.....	1	3	1	3
Chem. 360 Chemical Engineering Laboratory.....	.....	3	.....	3
Chem. 407 Physical Chemistry.....	3	3	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. Unit Operations II.....	3	.....	3	.....
Chem. 451 Chem. Eng. Thermodynamics.....	1	.....	1	.....
Chem. 452 Instrumentation.....	1	.....	1	.....
Chem. 453 Plant Design.....	1	2	1	2
Chem. 455 Chem. Eng. Unit Processes.....	2	1½	2	4
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 252.

3. Civil Engineering

For courses in First and Second Years, see page 239.

Third Year

Subject	First Term		Second Term	
	Lect.	Lab.	Lect.	Lab.
C.E. 398 Essay.....	.....	.....	.....	.....
C.E. 350 Surveying Field Work II.....	At end of 2nd Term, 2nd Year			
†Math. 350 Differential Equations.....	3	.....	3	.....
M.E. 371 Applied Thermodynamics.....	2	.....	2	.....
M.E. 372 Thermodynamics Lab.....	.....	3	.....	3
C.E. 351 Astronomy and Photogrammetry.....	2	.....	2	.....
†C.E. 352 Survey and Photogrammetry Lab.....	.....	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 I.....	2	3	2	3
C.E. 380 Seminar.....	1	.....	1	.....

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 III.....	At end of 2nd Term, 3rd Year			
C.E. 455 Theory of Structures.....	1	3	1	3
C.E. 460 Structural Design II.....	2	3	2	3
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 Transportation Engineering.....	2	2	2	.....
C.E. 471 Soil Mechanics.....	.....	.....	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.

†Students in 3rd year must select as an option either C.E. 352 or Math. 350.

For courses for graduate students see page 255.

4. Electrical Engineering

For courses in First and Second Years, see page 239.

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.....	2	.....	2	.....
E.E. 353 D.C. Machines.....	2	.....	2	.....
E.E. 355 A.C. Circuits.....	2	.....	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 Applied Electronics.....	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 257.

5. Forest Engineering

For courses in First and Second Years, see page 239.

Third Year

Subject	First Term		Second Term	
	Lect.	Lab.	Lect.	Lab.
C.E. 350 Surveying Field Work.....	Attend of 2nd Term, 2nd Year			
C.E. 354 Surveying.....	2	.....	1	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. 370 Structural Design I.....	2	3	2	3
For. 250 Silvics.....	1	2	.....	.....
For. 350 Silviculture.....	.....	.....	3	2
For. 353 Seminar.....	1	.....	1	.....
For. 370 Wood Technology.....	2	3	2	3
For. 380 Policy and Administration.....	1	.....	1	.....
For. 398 Essay.....	.....	.....	.....	.....

Fourth Year

Subject	First Term		Second Term	
	Lect.	Lab.	Lect.	Lab.
Bot. 467 Forest Pathology.....	2	2	.....	.....
Zool. 459 Forest Entomology.....	.....	.....	2	2
C.E. 470 Transportation Engineering.....	2	2	2	.....
For. 353 Seminar.....	1	.....	1	.....
†For. 390 Summer Camp.....	.....	.....	.....	.....
For. 463 Forest Management.....	2	2	2	2
For. 472 Logging Engineering.....	2	2	2	2
For. 473 Milling and Marketing.....	2	3*	1	3*
For. 474 Lumber Grading.....	.....	.....	1	2
For. 475 Forest Products.....	2	3*	2	3*
For. 481 Forest Economics and Finance.....	2	2	2	2
For. 498 Essay.....	.....	.....	.....	.....

*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 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 239.

Third Year

Subject	First Term		Second Term	
	Lect.	Lab.	Lect.	Lab.
Geol. 398 Essay.....	At end of 2nd Term, 2nd Year			
C.E. 350 Surveying.....	2	2	2	2
Biol. 100 Introductory Biology.....	2	3*	2	3*
C.E. 353 Photogrammetric Mapping.....	2	2	2	2
C.E. 360 Fluid Mechanics.....	2	.....	2	.....
Met. 350 Chemical Metallurgy.....	2	3	.....	3
Met. 351 Laboratory Methods.....	2	.....	2	.....
Min. 350 Principles of Mining I.....	2	3*	2	3*
Min. 370 Mineral Dressing I.....	2	2	.....	.....
Geol. 301 Crystallography.....	2	2	2	2
Geol. 302 Mineralogy.....	2	2	2	2
Geol. 303 Optical Mineralogy.....	3	.....	3	.....
Geol. 304 Structural Geology.....	2	.....	2	.....
Geol. 305 Historical Geology.....	2	.....	2	.....
Geol. 307 Petroleum and Natural Gas.....	2	.....	2	.....
†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 II.....	2	.....	2	.....
Phys. 461 Geophysics.....	2	.....	2	.....
‡Zool. 200 General Zoology.....	2	2	2	2
Geol. 405 Coal.....	1	.....	.....	.....
Geol. 406 Palaeontology.....	2	2	2	2
Geol. 407 Petrology.....	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 a weeks' field work after lectures close in the Second Term.

‡Optional to Geology 409.

NOTE.—For courses for graduate students, see page 258.

7. Mechanical Engineering

For courses in First and Second Years, see page 239.

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 I.....	2	.....	2	.....
M.E. 365 Dynamics of Machines.....	.....	3	.....	3
M.E. 372 Thermodynamics Lab.....	2	2	.....	.....
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 and Electronics.....	2	3	2	3
Met. 370 Physical Metallurgy.....	2	.....	2	.....
Met. 371 Metallography.....	.....	3*	.....	3*
M.E. 456 Manufacturing Processes.....	1	.....	1	.....
M.E. 463 Machine Design II.....	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 260.

8. Metallurgical Engineering

For courses in First and Second Years, see page 239.

Third Year

Subject	First Term		Second Term	
	Lect.	Lab.	Lect.	Lab.
Met. 398 Essay.....	.....	.....	.....	.....
M.E. 352 Mechanical Drawing.....	Attend of 2nd Term, 2nd Year			
C.E. 357 Materials Testing.....	.....	3*	.....	3*
Chem. 350 Chem. Eng. Unit Operations I.....	3	.....	3	.....
Geol. 301 Crystallography.....	2	2	.....	.....
Math. 350 Differential Equations.....	3	.....	3	.....
M.E. 367 Mechanical Design.....	2	3*	2	3*
M.E. 371 Applied Thermodynamics.....	2	.....	2	.....
Min. 351 Principles of Mining.....	2	.....	.....	.....
Min. 370 Mineral Dressing I.....	2	3*	2	3*
Phys. 360 Light.....	1	.....	1	.....
Met. 350 Chemical Metallurgy.....	2	.....	2	.....
Met. 351 Laboratory Methods.....	.....	3	.....	3
Met. 352 Metallurgical Thermodynamics.....	.....	.....	2	.....
Met. 370 Physical Metallurgy.....	2	.....	2	.....
Met. 371 Metallography I.....	.....	3*	.....	3*
Met. 390 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 Chemical Metallurgy.....	2	.....	2	.....
Met. 451 Chemical Metallurgy Laboratory.....	.....	3	.....	3
Met. 452 Process Chemical Metallurgy.....	2	.....	2	.....
Met. 453 Metallurgical Calculations.....	.....	2	.....	2
Met. 455 Laboratory and Research Methods.....	.....	3	.....	6
Met. 470 Structure of Metals.....	1	.....	1	.....
Met. 471 Metallography II.....	.....	3	.....	3
Met. 472 Metal Physics.....	1	.....	1	.....
Met. 474 Process Physical Metallurgy.....	2	.....	2	.....
Met. 476 Rate Processes in Metals.....	1	.....	1	.....
Met. 478 X-ray Metallography.....	1	.....	1	.....
Met. 490 Plant Management.....	1	1	1	1

*Alternate weeks.

NOTE.—For courses for graduate students, see page 262.

9. Mining Engineering

For courses in First and Second Years, see page 239.

Third Year

Subject	First Term		Second Term	
	Lect.	Lab.	Lect.	Lab.
Min. 398 Essay.....	.....	.....	.....	.....
C.E. 350 Surveying.....	Attend of 2nd Term, 2nd Year			
C.E. 353 Photogrammetric 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 I.....	2	3	2	3
Geol. 302 Mineralogy.....	2	2	2	2
Geol. 304 Structural Geology.....	3	.....	3	.....
Met. 350 Chemical Metallurgy.....	2	.....	2	.....
Met. 351 Laboratory Methods.....	.....	3	.....	3
Met. 370 Physical Metallurgy.....	2	.....	2	.....
Met. 390 Seminar.....	.....	.....	.....	1
Min. 350 Principles of Mining I.....	2	.....	2	.....
Min. 370 Mineral Dressing I.....	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. 490 Plant Management.....	1	1	1	1
Min. 450 Principles of Mining II.....	2	.....	2	.....
Min. 451 Mine Management.....	2	.....	2	.....
Min. 470 Mineral Dressing II.....	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				
Geol. 409 Mineralography.....	1	3	.....	4
Min. 474 Mineral Dressing III.....	.....	4	.....	6

*Alternate weeks.

NOTE.—For courses for graduate students, see page 263.

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.

For courses in First and Second Years, see page 239.

Third Year

Subject	First Term		Second Term	
	Lect.	Lab.	Lect.	Lab.
M.E. 352 Mechanical Drawing.....	3	3	3	3
† Chem. 304 Physical Chemistry.....	2	3*	2	3*
C.E. 355 Strength of Materials.....	2	3*	2	3*
C.E. 357 Materials Testing.....	2	.....	2	.....
Math. 320 Differential Calculus.....	3	.....	3	.....
Math. 321 Integral Calculus.....	3	.....	3	.....
Math. 322 Algebra and Geometry.....	2	.....	2	.....
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.....	3	3	3	3
Chem. 350 Chemical Engineering.....	2	.....	2	.....
E.E. 355 A.C. Circuits.....	3	.....	3	.....
Geol. 304 Structural Geology.....	2	.....	2	.....
{ M.E. 371 Applied Thermodynamics.....	2	.....	2	.....
{ M.E. 372 Thermodynamics Lab.....	.....	3	.....	3
{ Met. 370 Physical Metallurgy.....	2	.....	2	.....
{ Met. 371 Metallography I.....	.....	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. 470 Structure of Metals.....	1	.....	1	.....
{ Met. 471 Metallography II.....	.....	3	.....	3
{ Met. 472 Metal Physics.....	1	.....	1	.....

*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 trends. Text-book: Barger et al, *Farm Tractors and Power Units*. 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. Mr. Coulthard. [2-3; 2-3]

450. Farm Structures.—Design of buildings for the farmstead; planning and layout. Text-book: Scoates, *Farm Buildings*, 1 and 2; Barre and Sammet, *Farm Structures*. [2-3; 2-3]

451. Seminar.—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: Earp, *Rural Electrification Engineering*. [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 303.

Agronomy

For descriptions of course in Agronomy, see Agriculture, page 304.

Anthropology

For descriptions of courses in Anthropology, see Arts, page 142.

Biology

For descriptions of courses in Biology, see Arts, page 145.

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 146-149.

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]

255. Physical Chemistry.—Gaseous, liquid and solid states. Thermochemistry. First and second laws of thermodynamics. Chemical equilibrium. Theory of solutions.

[2-3; 2-3]

350. Chemical Engineering Unit Operations I.—Theory of solids processing, fluid flow, dimensional analysis, filtration, fluid-solid dynamics, heat transfer, and evaporation, illustrated by problems. Text-book: Brown, *Unit Operations*.

[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: Hougen and Watson, *Chemical Process Principles*, Vol. I; Shreve, *Chemical Process Industries*.

[2-0; 2-0]

352. Advanced Quantitative Analysis.—Text-book: Vogel, *Quantitative Analysis*.

[1-3; 1-3]

360. Chemical Engineering Laboratory.—Properties of petroleum products; unit operations and processes; local plant visits.

[0-3; 0-3]

450. Chemical Engineering Unit Operations II.—Theory of diffusional operations including extraction, distillation, absorption, humidification and drying, illustrated by problems. Text-books: Brown, *Unit Operations*; 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: Eckman, *Principles of Industrial Process 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]

455. Chemical Engineering Unit Processes.—Electro-chemical principles and processes; corrosion; unit processes such as pyrolysis, polymerization, oxidation, reduction, halogenation, sulphonation, fermentation; catalysis; unit processes in petroleum refining, and pulp and paper technology. Text-books: Mantell, *Industrial Electrochemistry*; Groggins, *Unit Processes in Organic Synthesis*; Kobe, *Inorganic Process Industries*.

[2-1½; 2-4]

459. Qualitative Organic Analysis.—Similar to Chem. 409, (Arts, page 150) 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. (2) 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*.

553. (1) Process Engineering Calculations.—Dimensional analysis; scaling up, correlation of chemical engineering data, numerical and graphical methods. Text-book: Sherwood and Reed, *Applied Mathematics in Chemical Engineering*.

554. (2) Advanced Heat and Mass Transfer.—Heat transfer in steady-state and transient state; calculation and design of industrial heat exchangers; recent unifying concepts in momentum, heat, and mass transfer; diffusional and boundary-layer studies; heat and mass transfer in porous media and fluidized media. Text-books: McAdams, *Heat Transmission*; Kern, *Process Heat Transfer*.

Note: Courses 555, 556, 557, and 558 may not all be given in 1953-54. Courses to be offered in this group will be announced prior to the beginning of the Fall Term.

555. (1) Solvent Extraction.—Theory of liquid-liquid equilibria, rates of diffusion, illustrated by problems; analytical and graphical methods of design of extraction systems; use of mixed and double solvents. Text-book: Treybal, *Liquid Extraction*.

556. (1) Distillation.—Systems of complete and of limited miscibility; multicomponent systems; graphical and analytical design methods; azeotropic and extractive distillation.

557. (1) Fluid Flow.—Mechanism of streamline and turbulent flow, fluid friction, compressibility phenomena, fluid metering, two-phase flow, non-Newtonian fluids, pipe-line design, fluid-solid dynamics, economics in flow problems. Text-book: Lapple, *Fluid and Particle Mechanics*.

558. (1) Heat Transfer.—Steady state and transient state studies; calculation and design of industrial heat exchangers. Text-book: Kern, *Process Heat Transfer*.

599. Thesis.—For M.A.Sc. degree.

For descriptions of other courses in Chemistry, see Arts, pages 149-151.

Civil Engineering

150. History of Engineering.—A history of technology, engineering, and physical sciences; their interrelationships and their part in modern civilization. References: Forbes, *Man the Maker*; Wightman, *The Growth of Scientific Ideas*. Mr. MacLeod. [1-0; 1-0]

151. Surveying I.—Construction, use and adjustment of surveying instruments. Application to engineering problems. Text-book: Kissam, *Surveying*. Mr. de Jong, Mr. Heslop. [1-2*; 1-2*]

160. Engineering Problems I.—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. Field Work I.—Elementary surveying; field problems involving the use of compass, transit, tape and level. Compilation of maps and plans from field notes and other data. Work commences at the close of the spring examinations and continues for twelve days, eight hours a day, or equivalent. Mr. de Jong.

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.—A study of dynamics in which the fullest use is made of the students' mechanical training in the calculus.

(b) Engineering Problems II.—A continuation of C.E. 160 involving problems drawn from various engineering sources and from the field of dynamics. Text-book: Higdon and Stiles, *Engineering Mechanics*. Mr. Finlay and Mr. Lipson. [2-3; 2-3]

290. The Engineering Profession.—An orientation course including the background and general fields of interest of the engineering profession. [1-0; 1-0]

350. Field Work II.—Route survey including running in the final location from notes; solar observation for latitude and azimuth; adjusting instruments; use of plane table; survey of a mineral claim involving "fractions"; bridge-pier triangulation. Work commences at close of spring examinations and lasts for 12 days. Mr. Finlay, Mr. Pretious.

351. Astronomy and Photogrammetry.—Determination of azimuth, latitude, time and longitude by solar and stellar observations; theory and propagation of errors; terrestrial and aerial photogrammetric surveys, geometry of the photograph and applications. Text-books: Sharp, *Practical Photogrammetry*; Hosmer and Robbins, *Practical Astronomy*. Mr. de Jong, Mr. Bell. [2-0; 2-0]

352. Survey and Photogrammetry Laboratory.—First term: Route surveys, location and earthwork problems. Second term: Photogrammetry problems, map compilation from air photographs using radial triangulation, parallax measurement and heighting problems, field trips. Text-books: Skelton, *Route Surveys*; Sharp, *Practical Photogrammetry*. Mr. de Jong, Mr. Bell. [0-3; 0-3]

353. Photogrammetric Mapping.—Photogrammetry problems, map compilation from air photographs using radial triangulation, parallax measurement and heighting problems, field trips. Text-book: Sharp, *Practical Photogrammetry*. Mr. de Jong. [0-3*; 0-3*]

354. Surveying.—The same course as C.E. 351 except for theory and propagation of errors. For Forest Engineering students only. Mr. de Jong, Mr. Bell. [2-0; 1-3]

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, Mr. Lipson. [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: Binder, *Fluid Mechanics*. Reference: Freeman, *Hydraulics Laboratory Practice*; Russell, *Hydraulics*. 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. 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 I.—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]

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 III.—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 Turneaure, *Modern Framed Structures*, Vols. I and II. Mr. Finlay. [1-3; 1-3]

460. Structural Design II.—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; 2-3]

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: Sutherland and Reese, *Reinforced Concrete Design*. 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. Transportation Engineering.—Co-ordination of transportation systems, economics of operations of railway and highway transportation, location, drainage, materials and methods of construction. Highway planning and design, traffic behaviour and control. Laboratory analysis of soils and soil stabilization. References: Raymond, *Elements of Railroad Engineering*; Ritter and Paquette, *Highway Engineering*. Mr. Peebles. [2-2; 2-0]

471. Introductory Soil Mechanics.—Basic soil properties and introduction to phenomena of seepage, consolidation and shear failure. Elementary soil testing. Mr. Hrennikoff, Mr. Peebles. [0-0; 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; interpretation of financial statements; elements of statistical method. Text-book: Grant, *Principles of 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.—Plane and spatial "complex" trusses and their 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.

553. (3) Advanced Hydraulics.—Flow in open channels; fluid mechanics; hydraulic models; hydraulic machines. Experimental projects in hydraulic laboratory. Mr. Pretious.

554. (3) Advanced Reinforced Concrete Design.—Deflections of beams, torsional stresses in beams, haunched beams, analysis of building frames for lateral forces, ultimate strength theories, precast members, prestressed concrete. Mr. Lipson.

555. (3) Theory of Plates and Shells.—Stress distribution in flat plates by Fourier analysis, energy methods and relaxation procedure; large deflections of plates; stability of compressed plates. Stresses and deflections of cylindrical shells, domes of revolution, and some discontinuous shells. Mr. Hooley.

599. Thesis.—For M.A.Sc. degree.

Commerce

For descriptions of courses in Commerce, see Arts, pages 206-209.

Economics

200. Principles of Economics.—As in Arts. (See page 153.)

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: Loew, *Direct and Alternating Currents*. 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: Kloeffer, Kerchner, Brennehan, *D.C. Machinery*. Reference: Langsdorf, *Principles of Direct Current Machines*. Mr. Morgan. [2-0; 2-0]

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. [2-0; 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: Reed and Corcoran, *Electrical Engineering Experiments*. 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. Text-book: to be announced. 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. Noakes. [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. [2-2; 2-2]

453. Alternating Current Machines and Electronics.—The theory and characteristics of alternating current machines. A study of the application of electronic tubes and circuits. For Fourth Year students in Mechanical Engineering. Text-books: Loew, *Direct and Alternating Currents*; Benedict, *Introduction to Industrial Electronics*. Mr. Kersey. [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. Applied Electronics.—The theory and application of vacuum tubes as amplifiers, oscillators, modulators and detectors; special applications of vacuum tubes. Text-book: to be announced. Mr. Moore. [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 transmission 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. (3) Applied Electromagnetic Theory.—Maxwell's equations, guided waves and wave guides, radiation and antennas. References: Jordan, *Electromagnetic Waves and Radiating Systems*; current journals.

553. (3) 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.

555. (2) 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*; MacLachlan, *Complex Variable and Operational Calculus*.

557. (2) Non-linear Systems.—Theory and applications of linear and non-linear systems. Text-book: Stoker, *Non-linear Vibrations*. Reference: Minorski, *Non-linear Mechanics*.

559. (2) Electronic Instrumentation.—Theory and design of electronic circuits for performing mathematical operations; measurement by electronic methods. Reference: Current journals.

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-book: Bowyer, Bond, et al, *Better College English*, 1950. [2-0; 2-0]

250. Reading and Composition.—Students will be asked to read a half-dozen notable books and to write essays on the ideas they encounter. [2-0; 2-0]

For descriptions of other courses in English, see Arts, pages 155-157.

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. Mr. McTaggart. [2-0; 2-0]

499. 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 159-162.

Mathematics

154. Calculus and Applied Mathematics.—For students in Architecture.

[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; differential geometry. [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 170-172.

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: Doke, Worsencroft and Orth, *Engineering Drawing*. 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. 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 I.—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]

367. Mechanical Design.—Basic strength of materials applicable to mechanical design; tension and compression; bending moment and shear force; elastic and plastic stress distribution in beams; torsion; combined stresses and theories of strength; pressure vessels and joints; fatigue and stress concentration; mechanical design problems. Text-book: to be announced. [2-3*; 2-3*]

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: Faïres, *Theory and Practice of Heat Engines*. Mr. Parkinson. [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: Ebaugh, *Engineering 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. [2-0; 2-0]

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. Green. [1-2; 1-2]

381. Fluid Mechanics I.—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. Mr. Parkinson. [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 II.—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: Faïres, *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. Reference: *Combustion Engineering*. Mr. McIlroy. [2-3; 0-0]

477. Heating, Ventilating and Air Conditioning.—Psychometrics, calculation of building heat losses and gains; design of warm air, steam, and hot water heating systems; measurement of air flow, selection of fans and methods of design of duct systems; air conditioning equipment and selection of components. Text-book: Severns and Fellows, *Heating Ventilating and Air Conditioning Fundamentals*. Reference: *A.S.H.V.E. Guide*. 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. [3-3; 3-3]

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. (2) 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.

581. (2) Fluid Mechanics, II.—Selected topics from the hydrodynamics of real and perfect fluids with consideration of compressible flow, viscous flow and turbulent flow. Use is made of the theory of the complex variable. Prerequisites: M.E. 381 and Math. 350 or equivalent. Mr. Parkinson.

599. Thesis.—For the M.A.Sc. degree.

Metallurgy

350. Chemical Metallurgy.—Introduction to metallurgy; chemical principles of metal production; inter-phase reactions; composition and properties of metal salts, solvents, slags, refractories; survey of unit processes. Text-book: Newton, *Introduction to Metallurgy*. Mr. Forward. [2-0; 2-0]

351. Laboratory Methods.—Selected procedures illustrating the application of pyrometallurgical and chemical principles, including some aspects of assaying; in alternate weeks, problems and calculations in stoichiometry, heat and material balances related to metallurgical processes. Mr. Samis. [0-3; 0-3]

352. Metallurgical Thermodynamics.—Theory and application of chemical thermodynamics to metallurgical processes: thermodynamic equilibria, phase rule, heat of reaction, free-energy, activity, equilibrium constant. Mr. Samis. [0-0; 2-0]

370. Physical Metallurgy.—Structure and physical properties of metals; alloy equilibrium diagrams; principles of heat treatment of steel and non-ferrous alloys, specifications. Text-book: to be announced. Mr. Armstrong. [2-0; 2-0]

371. Metallography I.—Observation and analysis of microstructures of ferrous and non-ferrous alloys. Assignments illustrate theory of physical metallurgy presented in Metallurgy 370. Reference: Kehl, *The Principles of Metallographic Laboratory Practice*, 3rd edition. Mr. Armstrong. [0-3*; 0-3*]

390. Seminar.—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]

398. Essay.—See page 240.

450. Theoretical Chemical Metallurgy.—Thermodynamic equilibria in metal chemistry: phase rule applications; gas-solid, slag-metal, electrolytic, and electrode reactions. Introduction to metallurgical kinetics: reaction order, rate and diffusion control. Mr. Samis. [2-0; 2-0]

451. Chemical Metallurgy Laboratory.—Experiments and problems illustrating the principles and practice of chemical metallurgy. Mr. Samis. [0-3; 0-3]

452. Process Chemical Metallurgy.—Application of chemical principles in unit processes employed in the metallurgy of iron and steel, the common base metals, light metals, precious metals and ferro-alloys. Economic and engineering aspects of process selection and plant operation. References: A.I.M.E., *Basic Open Hearth Steelmaking*, 2nd edition; Liddell, *Handbook of Non-Ferrous Metallurgy*, 2nd edition; Bray, *Non-Ferrous Production Metallurgy*. Mr. Armstrong, Mr. Forward, Mr. Samis. [2-0; 2-0]

453. Metallurgical Calculations.—Problems on material and heat balances in metallurgical unit processes; plant design and quality control. Text-book: Butts, *Metallurgical Problems*. Mr. Samis. [0-2; 0-2]

455. Laboratory and Research Methods.—Laboratory analysis of metallurgical products; study of selected problems in (a) Chemical Metallurgy or (b) Physical Metallurgy. Mr. Warner, Mr. Samis, Mr. Armstrong. [0-3; 0-6]

456. Metal Chemistry.—Periodic classification and valence of the metals; chemical properties of metallic oxides, sulphides, silicates, salts, complex ions, and metal-organic compounds; oxidation-reduction and ion-exchange reactions. References: Sidgwick, *Chemical Elements and their Compounds*; Evans, *Metals and Metallic Compounds*. Mr. Halpern. [1-0; 1-0]

470. Structure of Metals.—Interatomic forces; melting and solidification; lattice arrangements; alloy structures; binary and ternary phase diagrams. References: Beynon, *The Physical Structure of Metals*; Hume-Rothery, *Atomic Structure for Students of Metallurgy*; Barrett, *Structure of Metals*. Mr. Armstrong. [1-0; 1-0]

471. Metallography II.—(Continuation of Metallurgy 371). Preparation, heat-treatment, and microstructure of ferrous and non-ferrous alloys; hardenability; photographic, dilatometric, and X-ray diffraction techniques. Mr. Armstrong. [0-3; 0-3]

472. Metal Physics.—Atomic structure and bonding; electron theory; cohesion; conductivity, specific heat, magnetic properties. References: Cottrell, *Theoretical Structural Metallurgy*; Raynor, *An Introduction to the Electron Theory of Metals*. Mr. Armstrong. [1-0; 1-0]

474. Process Physical Metallurgy.—Relations between metallurgical factors and mechanical properties of metals: principles of casting, fabrication,

and heat treatment; residual stresses. Metallurgical design problems. References: Hollomon and Jaffe, *Ferrous Metallurgical Design*; Sachs and Van Horne, *Practical Metallurgy*; Samans, *Engineering Metals and Their Alloys*. Mr. Armstrong. [2-0; 2-0]

476. Rate Processes in Metals.—Diffusion in solids; nucleation and growth reactions; diffusionless transformation; plastic deformation; crystallographic aspects. References: Seitz, *Physics of Metals*; Cottrell, *Theoretical Structural Metallurgy*. Mr. Armstrong. [1-0; 1-0]

478. X-Ray Metallography.—Theory of X-ray generation, absorption, scattering; structure factors, Laue equation and Bragg Law; experimental methods and interpretation. References: Barrett, *Structure of Metals*; Taylor, *An Introduction to X-Ray Metallography*. Mr. Armstrong. [1-0; 1-0]

490. 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]

398. Essay.—See page 240.

Courses for Graduate Students

550. (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. Mr. Samis.

552. (1) Metallurgical Kinetics.—Application of the principles of absolute reaction rates to metallurgical processes including oxide film formation, diffusion, and heterogeneous reactions. Mr. Samis.

554. (1) Theory of Metal Reactions.—Application of principles of quantum and statistical mechanics to elementary reactions of metals; atomic and ionic radii; chemical bonding, ionization potentials, electron affinities, phase changes. References: Slater, *Quantum Theory of Matter*; Hume-Rothery, *Atomic Theory for Students of Metallurgy*; Rice, *Electronic Structure and Chemical Binding*. Mr. Halpern.

556. (1) Structure of Metal Compounds.—Structural features and chemical properties of metals, minerals and metal compounds, based on modern concepts of atomic theory, valence, and the solid state. Mr. Halpern.

558. (1) Theory of Metal Surface Reactions.—Chemical properties of metal surfaces; theory of surface reactions and corrosion processes. Mr. Evans.

570. (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. Mr. Armstrong.

572. (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. Mr. Armstrong.

574. (1) Theory of Alloys.—Electron theory of metals and alloys; electrical resistance; cohesion. Application of alloy theory to the formation of intermediate phases in binary and ternary alloy systems; superlattice formation; lattice spacings and electronic energies. Mr. Myers.

598. Research Conference.—A required course for all graduate students in Metallurgy or Metallurgical Engineering, in which current research projects will be discussed. The course carries no academic credit.

599. (6) Thesis.—For M.A.Sc. and M.Sc. Degrees. Research studies in chemical metallurgy or physical metallurgy.

699. Thesis.—For Ph.D. Degree.

Mining

350. Principles of Mining I.—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]

351. Principles of Mining.—The mineral industry; mine economics; broad aspects of exploration, evaluation, and development of mineral deposits. Identical with Mining 350 in the Fall Term. For students in Metallurgical Engineering. Mr. Crouch. [2-0; 0-0]

370. Mineral Dressing I.—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 II.—(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 II.—(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 III.—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: Dalla 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, Optics and Acoustics.—For students in Architecture. Basic theory of electricity and A.C. circuits; principles of propagation of light and sound. Text-book: to be announced. [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]

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 173-177.

Zoology

459. (1½) 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 186-191.

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 fields, 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 235.

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

*The curriculum described on the following pages may be changed from time to time as deemed advisable by the Senate.

Matriculation, and must have obtained an average grade of at least 60 per cent.

Required subjects are:

English 100 and 101.

Mathematics 101.

Chemistry 101.

Physics 100 or 101.

Language: one of the following—French 110 or 120, German 90, 110, 120, or 130, Latin 110 or 120, 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.

Examinations and Advancement

The regulations as listed for Applied Science, pages 235 to 236, apply to the School of Architecture with the following additions and changes:

A student may be permitted to enter Second Year Architecture carrying one supplemental of not more than three units upon the recommendation of the School. This supplemental must be cleared, however, prior to admission to the Third Year.

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) 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 School Council, be required by Senate to withdraw from the School.

Prizes, Bursaries, Scholarships

A number of prizes, bursaries and scholarships are open to students in the School of Architecture (see pages 57 to 121). 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 (50 weeks) 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 (32 weeks) of practical experience.

A planned study-tour abroad approved by the School may be substituted in lieu of two months (8 weeks) of practical experience upon the submission of adequate testimonials of study.

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 218.

First Year

Subject	First Term		Second Term	
	Lect.	Lab.	Lect.	Lab.
C.E. 151 Surveying.....	1	2*	1	2*
C.E. 160 Engineering Problems.....	.....	4	.....	4
Eng. 200 Eng. Composition and Literature.....	3	.....	3	.....
F.A. 200 History of Art.....	3	.....	3	.....
Math. 154 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.....	.....	4	.....	4
Arch. 152 Building Materials.....	2	.....	2	.....
Arch. 170 Architectural Drawing and Descriptive Geometry.....	1	6	1	6

*Alternate weeks.

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, Optics and Acoustics.....	2	3	2	3
Arch. 250 Architectural Design I.....	.....	8	.....	8
Arch. 251 Architectural Planning.....	3	.....	3	.....
Arch. 252 Building Construction I.....	2	6	2	6
Arch. 255 Strength of Materials and Structures.....	2	2	2	2
Arch. 260 History of Architecture.....	3	.....	3	.....
Arch. 262 Architectural Report.....	.....	.....	.....	.....
Arch. 270 Drawing and Painting.....	.....	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.....	.....	15	.....	15
Arch. 352 Building Construction II.....	1	.....	1	.....
Arch. 353 Applied Visual Design.....	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.....	.....	.....	.....	.....
Com. 457 Accounting and Finance.....	2	.....	2	.....
Arch. 450 Architectural Design III.....	.....	18	.....	18
Arch. 451 Community Planning and Housing.....	3	.....	3	.....
Arch. 452 Building Construction III.....	1	.....	1	.....
Arch. 453 Industrial Design.....	1	3	1	3
Arch. 455 Structural Engineering II.....	2	2	2	2
Arch. 462 Architectural Report.....	.....	.....	.....	.....
Arch. 470 Summer Sketching.....	Taken at start of 4th Year			
Arch. 471 Sculpture.....	.....	3	.....	3
and one of the following options:				
Anth. 430 Theory of Culture.....	3	0	3	0
Phil. 412 Philosophical Problems.....	3	0	3	0

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. 555 Structural Engineering III.....	.....	2	.....	.....
Arch. 560 Theory of Architecture.....	2	4	2	.....
Arch. 562 Thesis Report.....	.....	.....	.....	.....
Arch. 565 Commercial Law.....	.....	.....	2	.....
Arch. 566 Professional Practice.....	2	.....	2	.....
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, colours, materials and lighting effects. Laboratory demonstrations and illustrated lectures. Text-book: Moholy-Nagy, *Vision in Motion*. Mr. Thomas. [0-4; 0-4]

152. (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*; Handisyde, *Building Materials*; Portland Cement Association, *Design and Control of Concrete Mixtures*. Mr. Gallagher. [2-0; 2-0]

170. (3) Architectural Drawing and Descriptive Geometry.—Drafting and lettering; descriptive geometry; shades and shadows; orthographic, isometric, and oblique projections; angular and parallel perspective. Mr. Gallagher and Mr. Thomas. [1-6; 1-6]

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 thoughts 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) Architectural Planning.—Technique of planning. Basic plan and design elements of buildings. Planning and design principles of good architecture. Analysis reports and exercises are required throughout the session. Text-book: Dodge Corporation, *Time Saver Standards*. Mr. Lasserre. [3-0; 3-0]

252. (4) Building Construction I.—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. Porter. [2-6; 2-6]

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. (3) History of Architecture.—History of Ancient, Classical, Mediaeval, Renaissance, Baroque periods and the early nineteenth century. Text-books: Hamlin, *Architecture Through the Ages*; Giedion, *Space, Time and Architecture*. Mr. Peeps. [3-0; 3-0]

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 prior to 1850, to be handed in to Director of School by February 15th.

270. (1) Drawing and Painting.—Drawing and painting in various media with emphasis on structural form and pictorial organization. Mr. Thomas. [0-3; 0-3]

298. (2) Essay.—Summer essay to be submitted to Director of School of Architecture on the first day of term. Essay to be not less than 1,000 words on some part of 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. Text-book: Blakey and Cooke, *Preparation of Term Essays*.

350. (5) Architectural Design II.—(Continuation of Arch. 250). Simple building problems; residential planning, design and construction. Mr. Porter and Mr. Gallagher. [0-15; 0-15]

352. (1) Building Construction II.—Integration of structure and services; advanced detailing and cabinet work; foundations; mill construction; steel frame buildings. Text-books: Ramsey and Sleeper, *Architectural Graphic Standards*, 4th ed.; Central Mortgage and Housing Corporation, *Building Standards*; Crane, *Architectural Construction*. Mr. Porter. [1-0; 1-0]

353. (3) Applied Visual Design.—Application of Visual Design (Arch. 150) to fabrics, finishes, texture, colour, as they relate to interior design, furniture and various functional art forms; historical survey. Prerequisite: Arch. 150. Text-books: Jacobson, *Basic Color*; Aronson, *The Encyclopedia of Furniture*. Mr. Thomas. [1-4; 1-4]

355. (3) Structural Engineering I.—Principles and methods of structural design for buildings; timber and steel structures; design of foundations and retaining walls; related design and calculation problems. Text-books: N.L.M.A.

Wood Structural Design Data, A.I.S.C. Steel Construction Manual. Mr. Wisnicki. [2-3; 2-3]

360. (2) **Contemporary Architecture.**—Its origins, relation to social, economic, and technical changes, and to developments in the arts; 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 but subsequent to 1850).

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 on the first day of term, on some part of the student's summer experience on some technical subject related to Architecture or Planning. For further regulations, see "Third and Fourth Year Essays", page 240, paragraphs 1, 2 and 4.

450. (5) **Architectural Design III.**—(Continuation of Arch. 350). Complex building problems; advanced planning; integration with structure and landscape. Mr. Peeps and Mr. Porter. [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]

452. (1) **Building Construction III.**—Concrete frame structures; prefabricated assemblies; surfacing materials; modular co-ordination; hardware, plumbing and lighting fixtures. Text-book: Crane, *Architectural Construction*. Mr. Porter. [1-0; 1-0]

453. (2) **Industrial Design.**—Principles and methods of design for industrial production; detailed study of materials and manufacturing processes; house prefabrication; drafting-room problems; shop work including use of hand and power tools; visits to factories. Mr. Wisnicki. [1-3; 1-3]

455. (3) **Structural Engineering II.**—Design and construction of reinforced concrete buildings; wide span and statically indeterminate structures; factors of selection for structural materials and systems. Design and calculation problems, some related to Arch. 450. Text-books: Parker, *Simplified Design of Concrete Structures*; Crane, *Architectural Construction*. Mr. Wisnicki. [2-2; 2-2]

462. (1) **Architectural Report.**—(As for Arch. 262 but to be confined to a North American topic).

470. (1) **Summer Sketching.**—(Continuation of Arch. 370). Mr. Binning and Mr. Thomas.

471. (1) **Sculpture.**—Modelling, carving and construction, using various materials; a study of form, texture, material and space. Prerequisite: Arch. 150. 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 IV.—(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 first day of First Term for approval by staff. Mr. Oberlander, Mr. Lasserre, 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]

555. (1) Structural Engineering III.—Design problems involving comparison of different structural systems and materials. Mr. Wisnicki. [0-2; 0-0]

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-books: Fitch, *American Building*; Creighton, *Building for Modern Man*. 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 submitted to Director of School by February 15.

565. (1) 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. [0-0; 2-0]

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. [2-0; 2-0]

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., and "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 309.

For description of courses given by other departments, see "Courses in Engineering", pages 250 to 264, and "Courses in Arts and Science", pages 142 to 191.

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 acting under the chairmanship of the Director of the School.

The purpose of the School is to assist students to become competent professional nurses capable of participating with other individuals and groups in a comprehensive health programme designed to assure to all citizens a high quality of nursing service in sickness and in the promotion of health; to help them develop the concepts that nursing is concerned with the promotion of mental and physical health as well as the care of the sick, and that it is a service to the family as well as to the individual, and is given in homes, hospitals and other community agencies.

Within this broad framework, the School of Nursing offers the following curricula:*

I. Basic Professional Curriculum.

This curriculum is designed to provide qualified high school graduates with opportunity for furthering their general education, cultivating their analytical and creative powers, and developing a better understanding of the biological, social, psychological and economic forces that influence health and disease; and with opportunity to integrate with their general education the special preparation needed for the development of professional competency in nursing.

In addition to acquiring skill in bedside nursing, students gain an understanding of the principles underlying good nursing care, of the principles of teaching and their application, of the use of community resources for the care and prevention of illness and the promotion of health, and of the significance and responsibilities of professional relationships.

Two major options provide for a choice of concentration on hospital nursing (Clinical Supervision) or public health nursing (Public Health Nursing).

Upon satisfactory completion of the Course, students receive the degree of Bachelor of Science in Nursing (B.S.N.).

The curriculum is described under the caption "Nursing A" on pages 272-275.

II. Curricula for Graduate Nurses.

1. Curriculum leading to the Degree of Bachelor of Science in Nursing (B.S.N.).

This curriculum, consisting of courses selected from the fields of general education and nursing, is designed to provide qualified graduate nurses with the opportunity to

- (a) increase their understanding of those factors which influence health and disease,
- (b) increase their understanding of the principles on which good nursing is based,
- (c) broaden their concept of professional nursing,
- (d) increase their professional competency in a selected field of nursing.

Three major options provide for a choice of concentration on hospital nursing (Clinical Supervision), nursing education (Nursing Education), or public health nursing (Public Health Nursing). This curriculum is described under the caption "Nursing D" on pages 276-278.

2. Curriculum leading to a Certificate in Clinical Supervision.

A ten-months curriculum for qualified graduate nurses who do not intend to complete requirements for the Bachelor's degree but who wish to prepare themselves to function more effectively in hospital nursing service positions that entail administrative, supervisory and teaching activities. For details see "Nursing C" on pages 278-279.

3. Curriculum leading to a Certificate in Public Health Nursing.

A ten-months' curriculum for qualified graduate nurses who do not intend to complete requirements for the Bachelor's degree but

*The curricula described in the following pages may be changed from time to time as deemed advisable by the Senate.

who wish to prepare themselves to function as staff nurses in official or voluntary public health agencies. For details see "Nursing B" on pages 278-279.

4. Part-time Courses.

Because of the growing need for nurses in positions for which the basic nursing course does not qualify them (e.g., the positions of head nurse, supervisor, public health nurse, etc.), and because many nurses unable to arrange for full-time attendance at the University are interested in further study that would broaden their education and prepare them for such positions, the School of Nursing is prepared to encourage nurses to register as part-time students for one or more of the courses regularly offered. Credit for courses completed satisfactorily may be granted only under the conditions indicated on page 279.

Registration, Examinations, and Advancement

1. In addition to the information given below, students should read carefully the general regulations as set forth on pages 235 and 236, 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. No student may proceed to the work of a higher year without having completed satisfactorily all previous requirements, except by special permission of the Faculty.
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 of field work may vary to some extent according to the individual's background of preparation and experience. In the final year, field work is usually given in two blocks, one in January, the other in May and June.
6. Applicants for admission to 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 students should write to the Director, School of Nursing, University of British Columbia, stating the specific field in which they are interested. Because the facilities for field work limit the number of students who can be enrolled for any particular Course, it is advisable that applications be submitted early.

I. BASIC PROFESSIONAL CURRICULUM

Nursing A

The requirements for the first two years beyond High School Graduation (University Programme) 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 at University

she would be well advised to do so. Special orientation lectures, planned activities with other students, and contact with university organizations will help the student make the sometimes difficult adjustment from high school to university methods. While not registered in the School of Nursing at this time, students who have not already done so are advised to establish contact with the School as soon as possible so that guidance can be given in planning their programme.

Subject	Units
English 100 and 101, and 200.....	6
Chemistry 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
*Mathematics 100 or 101.....	3
One additional course selected from the following:	
Economics 100, 140, 200	3
Anthropology 200	
History 101, 102, 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 218.

Requirements for Formal Admission to the School of Nursing

Formal application for admission to First Year Nursing (the second year of the programme) in the University should be submitted not later than August 15th. The requirements are:

1. Satisfactory completion of the first year of the above portion of the curriculum. Students must have obtained 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 is required.
2. Establishment of eligibility for admission to the Vancouver General Hospital School of Nursing. Instructions as to procedure should be obtained from the Director of Nursing of the Vancouver General Hospital.
3. A personal interview with the Director of the University School of Nursing. (See No. 2 on page 272.)

Clinical Portion of the Curriculum

The clinical portion of the curriculum provides students with the opportunity to develop their knowledge of and skill in the practice of nursing. The programme is planned in cooperation with the Vancouver General Hospital and other hospitals and health agencies with a member of the Faculty of the University of British Columbia School of Nursing acting as liaison.

This clinical portion of the curriculum, approximately 28 months, includes three vacations (a total of 3 months), and consists of the following:

*Students who have completed Mathematics 91 and obtained a mark of at least 65 per cent may substitute for Mathematics 101 a second course chosen from the group of additional courses listed.

	Approximate Number of Hours of Formal Instruction	Approximate Number of Weeks of Supervised Practice
1. An Orientation to Nursing		3
In the spring immediately upon completion of First Year Nursing students enter the Vancouver General Hospital for a period of orientation. This is part of the course Nursing 156 and provides students with an opportunity to practice elementary nursing. It is planned and directed by members of the Faculty of the University School of Nursing in co-operation with the Vancouver General Hospital School of Nursing.		
2. Instruction in the following subjects which are basic to all nursing:		
Physiological Basis of Nursing	37	
*Introduction to Human Growth and Development	34	
Pathology	10	
Nursing Arts	65	
Materia Medica and Pharmacology	66	
Nutrition	27	
*History of Nursing	20	
Relation of Nursing to Social Problems	6	
Trends and Opportunities in Nursing	10	
Physiotherapy and Radiology	2	
A second period of supervised practice in nursing		4
*Introduction to Public Health Aspects of Nursing	24	
3. Instruction and supervised experience in the nursing care of patients suffering from specific disease conditions is provided, as indicated below, by the following agencies which work in close cooperation with the staff of the University School of Nursing:		
(a) The Vancouver General Hospital:—medical, surgical, paediatric and obstetric nursing.		
(b) The Provincial Department of Health:—tuberculosis nursing, and venereal disease nursing.		
(c) The Provincial Mental Health Services:—psychiatric nursing.		
(d) The Victorian Order of Nurses:—district nursing (the nursing care of patients in their own homes).		
Teaching in medical, surgical, paediatric and obstetric nursing is provided by both the Vancouver General Hospital and the University.		

*Given by members of the staff of the University School of Nursing.

	Approximate Number of Hours of Formal Instruction	Approximate Number of Weeks of Supervised Practice
Communicable Disease Nursing, including	44	9
Tuberculosis		
Venereal Disease		
Medical Nursing, including	46	15
Dermatology		
Neurology		
Obstetric Nursing	69	12
Paediatric Nursing	61	11
Psychiatric Nursing	55	8
Public Health Aspects of Nursing	24	7
Surgical Nursing, including	115	24
Ear, Nose and Throat Diseases		
Eye Diseases		
Genito-Urinary Diseases		
Gynaecology		
Neurosurgery		
Orthopaedics		
Operating Room Techniques		

Following completion of this clinical portion of the Course students are eligible to write the Provincial Registered Nurse examinations, and thus qualify to practise as a Registered Nurse in British Columbia.

Final Year

For the final year of the Course the student elects Public Health Nursing or Clinical Supervision and upon its satisfactory completion is awarded the degree of Bachelor of Science in Nursing.

Subject	Units
N. 200 Human 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. 477 Sociology of the Family	1
N. 484 Seminar	1
N. 485 Seminar	1
and <i>either</i> of the following groups	
For major in Clinical Supervision:	
N. 201 Foundations of Nursing Education	1
N. 468 Teaching in the Clinical Field	2
N. 469 Ward Management and Supervision	2
N. 487 Field Work	2
and <i>one</i> of the following:	
N. 490 Medical-Surgical Nursing	2
N. 492 Obstetric Nursing	
N. 494 Paediatric Nursing	
For major in Public Health Nursing:	
N. 463 Principles and Practice of Public Health Nursing	4
N. 467 Current Nursing Problems	1
N. 471 Social Case Work	1
N. 486 Field Work	2

Mature students who, in the opinion of the faculty, have had appropriate graduate nurse experience and are otherwise qualified may be permitted to elect the major in Nursing Education. (See page 278.)

II. CURRICULA FOR GRADUATE NURSES

Nursing D (Curriculum Leading to the Degree of B.S.N.)

Admission requirements:

1. Academic: High School Graduation (University Programme). (See page 49.)
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). paediatric 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 programme in Nursing at another approved university will be required to complete a minimum of 15 units of senior courses in order to qualify for the degree of Bachelor of Science 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 High School Graduation, 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.

The first of these three years of work is taken in the Faculty of Arts and Science (or in Senior Matriculation), and both the second and senior year are taken in the School of Nursing.

Courses in First Two Years

Students in all majors must complete 33 units as follows:

Subject	Units
English 100 and 101, and English 200.....	6
Chemistry 101	3
Psychology 100	3
Bacteriology 100	3
N. 200 Human Growth and Development.....	3
N. 201 Foundations of Nursing Education.....	1
N. 202 Principles and Methods of Teaching.....	2
*Math. 100 or 101.....	3
Two courses selected from the following (only <i>one</i> to be chosen from each group):	
Anthropology 200	}
Economics 100, 140 or 200	
History 101, 102, or 203	
Sociology 200	
One of the following:	
Biology 100	}
Chemistry 210	
Physics 100, 103, or 110	
Psychology 201	
A language other than English	3

* Students who have completed Math. 91 and obtained a mark of at least 65 per cent may substitute for Math. 101 a fourth elective course from either of the two groups shown.

Senior Year

Subject		Units
N. 454	Preventive Medicine	3
N. 461	Health and Welfare Organizations and Resources	1
N. 467	Current Nursing Problems	1
N. 484	Seminar	1
N. 485	Seminar	1
and <i>one</i> of the following options :		
For major in Clinical Supervision:		
N. 468	Teaching in the Clinical Field	2
N. 469	Ward Management and Supervision	2
N. 477	Sociology of the Family	1
N. 487	Field Work	2
and one of the following:		
N. 490	Medical-Surgical Nursing	2
N. 492	Obstetric Nursing	
N. 494	Paediatric Nursing	
For major in Nursing Education:		
N. 468	Teaching in the Clinical Field	2
N. 488	Nursing Education	2
N. 489	Field Work	2
Six additional units to be selected in consultation with the School of Nursing and in reference to the subjects which the student proposes to teach		6
For major in Public Health Nursing:		
N. 463	Principles and Practice of Public Health Nursing	4
N. 471	Social Case Work	1
N. 477	Sociology of the Family	1
N. 486	Field Work	2

Certificate Courses for Graduate Nurses

Admission requirements:

1. Academic: High School Graduation (University Programme).
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 Human 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	2

Nursing C — Clinical Supervision

Subject	Units
N. 200 Human 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
N. 487 Field Work	2
and one of the following options:	
N. 490 Medical-Surgical Nursing	2
N. 492 Obstetric Nursing	
N. 494 Paediatric Nursing	

Part-Time Study for Graduate Nurses

Credit for courses completed satisfactorily may be granted only under the following conditions:

1. Toward a certificate (in Clinical Supervision or in Public Health Nursing) provided,
 - a. the student is qualified for admission to the certificate programme before she registers for the course, and
 - b. all requirements for the certificate are met within a period of three calendar years.
2. Toward the degree of Bachelor of Science in Nursing provided,
 - a. the student is qualified for admission to the degree programme and has completed satisfactory the prerequisite courses stipulated by the School of Nursing, before she registers for the course,
 - b. all requirements for the degree are met within a period of six calendar years for those who have to take the entire programme, or a period of four calendar years for those who can be granted credit for approximately one-third of the total requirements (e.g., for Senior Matriculation), and
 - c. one academic year is spent in full-time study at the University with at least one-half of the programme for that year composed of courses given in the School of Nursing.

Nurses interested in part-time study should arrange for a personal interview with the Director of the School of Nursing.

COURSES IN NURSING

156. (2) **Introduction to Nursing.**—Basic principles of elementary nursing and their application to the care of patients. This course includes a period of field work (supervised nursing experience in a hospital) of approximately three weeks at the close of the academic session.

200. (3) **Human Growth and Development.**—Physical, mental and emotional aspects of the various phases of growth from the prenatal period through 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.**—This course includes sanitation.

461. (1) **Health and Welfare Organizations and Resources.**—Lectures, discussions 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 the various functions of public health nursing in its several branches.

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 social work and nursing.

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, including preparation for oral and written presentation.

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 and guided participation in public health nursing.

487. (2) **Field Work in Clinical Supervision.**—Planned observation and guided participation in ward management, supervision and clinical teaching.

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.**—Basic principles and current trends in the nursing care of medical and surgical patients.

492. (2) **Obstetric Nursing.**—Basic principles and current trends in nursing care pertaining to the maternal cycle and the newborn.

494. (2) **Paediatric Nursing.**—Basic principles and current trends in the nursing care and health supervision of children.

**THE
FACULTY
OF
AGRICULTURE**

1953-1954

1953-54

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 four 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 68 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 286-301. The Honours degree will be granted upon the completion of 89 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 49-56.

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 218-220.

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. High School Graduation 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 1953-54. 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.

Professional Association

In order to practice as a Professional Agrologist in the Province of British Columbia it is necessary to be registered as a member in the British Columbia Institute of Agrologists. There are three classes of membership governed by the provisions of the Agrologists Act of the Province of British Columbia and the By-Laws of the B. C. Institute of Agrologists. A student who plans to become an Agrologist may enrol with the Institute as an undergraduate. A graduate may be accepted and enrolled as an Agrologist-in-Training. After the Agrologist-in-Training has completed three years of satisfactory Agrology work he may become a fully registered Agrologist. Applications should be forwarded to the Registrar, B. C. Institute of Agrologists, 504 Federal Building, Vancouver 2, B. C.

COURSES LEADING TO THE DEGREE OF B.S.A.

High School Graduation (University Programme) 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 300, Chemistry 200 or 205, 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 101
- (d) English 100 and 101, and English 200
- (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 or 200
Agromony 200	Botany 200	Spanish 90
Agromony 210	Chemistry 200 or 205	Language continued from University Entrance, 3 or 6 units
Animal Husbandry 200	Geology 200	Commerce 151
Dairying 200	Mathematics 200, 201 or 202	Economics 200
Horticulture 200	Physics 100 or 101	History 101
Poultry Husbandry 200	Zoology 200	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 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.

Students are required, however, to elect up to a total of 37 units, essay included, but not more than 19 units of study may be undertaken in either year without approval of the Faculty.

Each student is required to complete one week of work on a field trip taken in September prior to the beginning of lectures. Usually the field trip is to be taken between the Second and Third Years. This work must be completed to the satisfaction of the Faculty before graduation. The cost to each student may approximate \$20.00.

A student's standing at graduation will be determined by averaging the grades obtained in the best 37 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 89 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 departments concerned and of the Dean before entering on these courses; and this consent will normally be granted only to those students who have a clear academic record at the end of their Second Year with at least Second Class standing in the 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 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 and Composition.....	3
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. Nineteen units in the Third year and eighteen units in the Fourth and Fifth years constitute a full course. In addition to Agriculture 100 and Agriculture 300, all students are required to take Chemistry 200 or 205, and 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, 7½ 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 (8½x11 ins.) shall be submitted not later than the last day of lectures in the Second Term of the graduating year. The corresponding date for the Autumn Congregation shall be October 1st.

Candidates for Honours are required to take at the end of their Fifth Year a general examination, oral or written, or both, as the department or departments concerned shall decide. This 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. 303.....	Agriculture in the Economic System	3
Commerce 261.....	Marketing	3
Economics 335.....	Statistics 1	3
Language.....		3
Electives.....		6

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	3
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.....	Farm Machinery	3
Agric. Mech. 408.....	Seminar	1½
Electives.....	(From Agriculture)	7½

Fifth Year

Course and Number	Description	Units
Agric. Mech. 412.....	Rural Electrification	1½
Agric. Mech. 425.....	Undergraduate Essay	3
Electives.....	(From Agriculture)	7½
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 425.....	.....	3
or Dairying 425.....	Undergraduate Essay	3
.....	Seminar	3
Electives .....	.....	9

Agricultural Science**Second Year**

Course and Number	Description	Units
English 200.....	Literature and Composition.....	3
Mathematics 202.....	Calculus	3
Physics 100 or 101.....	Elementary Physics	3
Electives A		3
Electives B		
Botany 200.....	General Botany	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

Agriculture and Teaching**First Year**

Course and Number	Description	Units
English 100 and 101.....	Literature and Composition.....	3
Biology 100.....	Intro. Biology	3
Chemistry 101.....	General Chemistry	3
Mathematics 101.....	Alg., Geom., Trig.	3
Animal Husbandry 200.....	Gen. Animal Husbandry.....	1½
Horticulture 200.....	Gen. Horticulture	1½
Agriculture 100.....	Hist. Sci. Agric.	1

Second Year

Course and Number	Description	Units
English 200.....	Literature and Composition.....	3
Mathematics 202.....	Calculus	3
Physics 100 or 101.....	Elem. Physics	3
Agronomy 210 }	Intro. to Study of Soils..... }	3
Agronomy 212 }	Soil Fertility	
Botany 200.....	Gen. Botany	3
Chemistry 200.....	Quan. and Qual. Analysis.....	3

Third Year

Course and Number	Description	Units
Agronomy 200.....	Intro. to Field Crops	1½
Agric. Mechanics 200.....	Intro. to Agric. Mechanics.....	1½
Dairying 200.....	Intro. to Dairying	1½
Poultry Husbandry 200.....	General Poultry Husbandry.....	1½
Biology 330.....	Principles of Genetics	3
Chemistry 300.....	Organic Chemistry	3
Psychology 100.....	Intro. Psychology	3
Language .....	.....	3

Fourth Year

Course and Number	Description	Units
Agric. Economics 200 or Agric. Economics 303.....	Intro. to Agric. Economics..... Agric. in the Economic System	1½ 3
Bacteriology 100.....	Intro. Bacteriology	3
Zoology 200.....	General Zoology	3
Education 502.....	School Admin. and Law.....	3
Education 503.....	Tests and Measurements.....	1
Education 504 (part).....	Methods .....	.....
Education 505 (part).....	Observation and Practice .....	.....

Fifth Year

Course and Number	Description	Units
Essay (425) .....	.....	3
Poultry Husb. 322 }	Fund. of Nutrition	3
Animal Husb. 322 }	Fund. of Animal Growth.....	
Education 500.....	Prin. of Education	3
Education 501.....	Educ. Psychology	3
Education 504 (part).....	Methods .....	.....
Education 505 (part).....	Observation and Practice.....	.....
Electives .....	.....	3

Agriculture and Wildlife Management**First Year**

Course and Number	Description	Units
Agriculture 100.....	Hist. Sci. Agric.	1
Biology 100.....	Intro. Biology	3
Chemistry 101.....	General Chemistry	3
English 100 and 101.....	Literature and Composition.....	3
Mathematics 101.....	Alg., Geom., Trig.	3
Electives A (see Department Head)		
Animal Husb. 200 or Poultry Husb. 200.....	General Animal or Poultry Husbandry	1½
Agronomy 210, etc.....	Intro. to Study of Soils	1½

Second Year

Course and Number	Description	Units
English 200.....	Literature and Composition.....	3
Mathematics 202.....	Calculus.....	3
Physics 100 or 101.....	Elem. Physics.....	3
Electives A (see Department Head)		
(Agron. 200, Agric. Econ. Intro. to Field Crops, to 200, Agric. Mech. 200, Agric. Econ., to Agric. Hort. 200).....	Mech., General Horti- culture.....	3
Electives B and/or C		
{ Chemistry 200.....	Quan. and Qual. Analysis.....	3
{ Zoology 200.....	General Zoology.....	3

Third Year

Course and Number	Description	Units
Bacteriology 100.....	Intro. Bacteriology.....	3
Botany 200.....	General Botany.....	3
Chem. 300 or 304 or 310 or 409-410.....	Organic, Physical, or Quant. Chem.....	3
Zoology 300.....	Comp. Anat. Vert.....	3
Agronomy 212.....	Soil Fertility.....	1½
Elective A.....		1½
P.H. 322 and A.H. 322 or Agronomy 313-314.....	Fund. of Nutr. and of Animal Growth or Soil Phys. and Cons.....	3

Fourth Year

Course and Number	Description	Units
Biochemistry 410 or Chemistry 304 or Chemistry 310 or Physics 420.....	Biochemistry Physical Chem. Quant. Chem. Biophysics.....	3
Zoology 306.....	Biol. of Vertebrates.....	3
Zool. 304 or 303.....	Comp. Vert. Embryology or Animal Histology.....	3
GROUP A:		
P.H. 313 and A.H. 313.....	Poultry and Animal Breeding.....	3
Electives from A.H. 418, 419, 421, 424, 324, 320 P.H. 300, 315, 400, 401, 415, 420, etc.....		6
GROUP B:		
Agronomy 313-314 or P.H. 322 and A.H. 322.....	Soil Phys. and Cons. or Fund. of Nutr. and of Animal Growth.....	3
Electives from Agron. 415, 416, 312, 421, 304, 305.....		6

Fifth Year

Course and Number	Description	Units
Botany 304.....	Intro. Systematics.....	3
Zoology 404.....	Exp. Zoology.....	3
Zoology 409.....	Wildlife Biology.....	1½
Zoology 410.....	Upland and Farm Game.....	1½
Essay.....		3
Seminar.....		1-3
Language.....		3
Animal Husb. 522 or Poultry Husb. 410-411 or 3 units from Group B.....	Adv. Animal Nutrition or Poultry Nutrition.....	3

Agronomy**Third Year**

Course and Number	Description	Units
Agronomy 212.....	Soil Fertility	1½
Botany 200.....	General Botany	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
Geology or Geography.....		3
Electives.....		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	
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 or 310.....	Physical Chemistry or Adv. Quan. and Qual. Analysis.....	3
Language.....		3
Electives		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.....	General Botany	3
Chemistry 310, or.....	Adv. Quan. and Qual. Analysis	3
Chemistry 304, or.....	Physical Chemistry	3
Chemistry 409 and.....	Qual. Org. Analysis.....	1½
Dairying 413.....	Dairy Mycology	1½
Geology 200, or.....	General Geology	
Biology 400, or.....	General Physiology	
Bacteriology 300.....	Immunology	3
Electives		3

Fifth Year

Course and Number	Description	Units
Agronomy 423.....	Seminar	1
Agronomy 425.....	Essay	3
Botany 330.....	Plant Physiology	2
Biochemistry 410.....	Biochemistry	
or alternate.....		3
Electives.....		9

Animal Nutrition**Third Year**

Course and Number	Description	Units
Agronomy 210.....	Intro. to Study of Soils.....	1½
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
Electives	(From Agriculture)	3

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.....	General Botany	3
Chemistry 300.....	Organic Chemistry	3
Language.....	.....	3
Electives	(From Agriculture)	4½

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
Poultry Husbandry 322.....	Fund. of Nutrition	1½
Electives .....	.....	7½

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 303.....	Agric. in the Econ. System.....	3
Commerce 261.....	Marketing	3
Language.....		3
Electives.....		9

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 and Composition.....	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.....	General Botany.....	3
Chemistry 300.....	Organic Chemistry.....	3
Zoology 302.....	Intro. to Entomology.....	3
Zoology 303.....	Histology.....	
or Zoology 306.....	Vertebrate Biology.....	3
Electives.....		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	Technology of Animal Products	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	3
Horticulture 317	Vegetable Crops	3
Horticulture 340	Food Values of Horticultural Crops	
or Biology 330	Principles of Genetics	3
Zoology 201	Agricultural Entomology	2

Fourth Year

Course and Number	Description	Units
Botany 316	Plant Path. (Elementary)	2
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
Electives	(From Biology or Agric.)	4

Fifth Year

Course and Number	Description	Units
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
Electives	(From Biology or Agric.)	5

Plant Nutrition**Third Year**

Course and Number	Description	Units
Agronomy 212	Soil Fertility	1½
Bacteriology 100	Intro. Bacteriology	3
Chemistry 300	Organic Chemistry	
or Horticulture 441	Plant Nutrition (a)	3
Horticulture 300	Fruit Growing	3
Horticulture 317	Vegetable Crops	3
Horticulture 340	Food Values of Hort. Crops	3
Elective	(From Biology or Agric.)	1½

Fourth Year

Course and Number	Description	Units
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
Electives	(From Agric. or Botany)	7½

Fifth Year

Course and Number	Description	Units
Horticulture 425	Undergraduate Essay	3
Horticulture 530	Directed Studies	3
Horticulture 547	Advanced Plant Nutrition	
or Horticulture 517	Advanced Vegetable Crops	4
Electives	(From Agric., Biol., or Chemistry)	8

Plant Pathology**Second Year**

Course and Number	Description	Units
English 200	Literature and Composition	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	General Botany	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.....	2
Electives from Agriculture.....		7

Fifth Year

Course and Number	Description	Units
Agronomy 421.....	Biometry	1½
Botany 500 or 519.....	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
Language.....		3
Poultry Husbandry 400.....	Poultry Farm Management.....	
or Poultry Husbandry 401.....	Principles of Incubation.....	1½
Zoology 300.....	Comp. Anat. of Vertebrates.....	
or Zoology 303.....	Histology	
or Zoology 304.....	Comp. Vertebrate Embryology	3
Electives.....		4½

Fourth Year

Course and Number	Description	Units
Agromony 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
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.....	The Genetics of Breed Differences.....	1½
Electives.....		4½

Fifth Year

Course and Number	Description	Units
Animal Husbandry 424.....	Experimental Feeding.....	1½
Biology 400.....	General Physiology.....	3
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
Electives.....		6

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.....	Principles of Incubation.....	1½

Fourth Year

Course and Number	Description	Units
Agromony 421.....	Biometry.....	1½
Animal Husbandry 313.....	Animal Breeding.....	1½
Biology 430.....	Seminar in Genetics.....	3
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
Electives.....		4½

Fifth Year

Course and Number	Description	Units
Biology 400.....	General Physiology	3
Poultry Husbandry 315.....	The Genetics of Breed Differences	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
Electives		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 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," page 210.

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 (see page 45).

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. See also page 53.

11. 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.

12. For regulations regarding re-reading of papers, see Faculty of Arts and Science, "Re-Readings" (page 142).

13. 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.

14. 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.

15. 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 142.

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]

300. (1) **Field Trip.**—Observing, recording and correlating agricultural facts in the field. One week of work is required of all students in Agriculture prior to Third Year entry (see page 285). Staff.

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]

303. (3) **Agriculture in the Economic System.**—Economic institutions associated with agricultural production. Optimum use of resources by agriculture—effect of imperfect competition, uncertainty, trade restrictions, the business cycle, technological progress, land policy, population growth and food supply. Prerequisite: Economics 200. Text: Heady, *Economics of Agricultural Production and Resource Use*. Mr. Anderson. [3-0; 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; problems of economic efficiency and welfare. 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) **Introduction to Agricultural Mechanics.**—A consideration of the scope, work and materials of the department, including an introduction to farm power problems. Mr. Coulthard and staff. [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. [2-2; 2-2]

302. (3) **Farm Power.**—Combustion engines, fuels and lubricants, performance analyses, integration of power units. Text-book: Moses and Frost, *Farm Power*. Prerequisites or concurrently: 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 and drainage systems, methods, and efficient use of water. Text-books: Ayres and Scoates, *Land Drainage and Reclamation*; Israelsen, *Irrigation Principles and Practices*. Prerequisites or concurrently: 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. (Alternate years, given 1953-54.) [2-3; 2-3]

404. (3) Farm Buildings.—Farm building requirements, materials, methods of construction. Farmstead planning. Drafting. Text-book: Barre and Sammet, *Farm Structures*. (Alternate years, given 1954-55.) [2-3; 2-3]

406. (3) Farm Machinery.—Including special purpose machinery used for root crops, bulbs, truck gardening, etc. Emphasis on operation, maintenance, and repair. Prerequisite: Agricultural Mechanics 200. (Alternate years, given 1953-54.) [2-3; 2-3]

408. (1½) Seminar.—Lectures, discussions, and papers. Prerequisites: Agricultural Mechanics 200, 302, 406. Staff.

410. (1½) Shopwork.—Oxy-acetylene and arc welding, heat treating. Mr. Gleave. [0-3; 0-3]

412. (1½) Rural Electrification.—Application of electricity in agriculture. [2-3; 0-0]

425. (3) Undergraduate Essay.—A report on a practical problem.

430. (1½-3) Directed Studies.

501. (3) Food Mechanics.—Care, operation, design of individual machines of food processing industry. (Alternate years, given 1954-55.) [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. [3-0; 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]

300. (3) General Soils.—The genesis, characterization, classification, distribution and use of soils. The course is designed for students requiring a general knowledge of the characterization and factors determining the suitability of soil for specific uses. Credit will not be given to students for this course and Agronomy 210. [2-2; 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.—Properties of clay, soil structure, moisture storage, movement and measurement, soil aeration and temperature. Text: Baver, *Soil Physics*, and Thorne and Peterson, *Irrigated Soils*. 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. [0-0; 2-3]

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. Prerequisites: Agronomy 405, 406, and 407. [1-4; 1-4]

507. (3) Plant Genetics.—The genetics of crop plants. Prerequisites: Biology 330 and Agronomy 407 or equivalent. [1-4; 1-4]

512. (3) Advanced Soil Bacteriology.—Lectures and laboratories relating to specific groups of soil organisms. Prerequisites: 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. Prerequisites: 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* (1951). 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) Technology of Animal Products.—The chemical, physical and microbiological changes arising in the course of the processing of animals and animal by-products. Prerequisites: Chemistry 300, Bacteriology 100. [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 1953-54 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 1953-54 and alternate years). [3-0; 3-0]

502. (3) Laboratory Methods and Procedures. — Quantitative analytical laboratory methods in fermentative and oxidative metabolism of micro-organisms associated with dairy products. Prerequisite: Biochemistry 410, which may be taken concurrently. (Given in 1954-55 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

For descriptions of courses in English, see Arts.

French

110 or 120. (3) As in Arts.

Geology

200. (3) As in Arts.

German

For descriptions of courses see 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 (3) 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; 2-2]

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.

430. (1½-3) Directed Studies.—On an approved problem.

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 1953-54 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 1953-54 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 1954-55 and alternate years.) [2-4; 2-4]

549. (5-6) Master's Thesis.

Mathematics

For descriptions of courses, see Arts.

Physics

100. (3) Elementary Physics.—As in Arts.

101. (3) Elementary Physics.—As in Arts.

200. (3) Mechanics, Heat, and Molecular Physics.—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*, 8th 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]

302. (1½) Turkey Production.—Principles and practice of breeding and management, modern methods of marketing. (Given in 1953-54 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. Merchandising practices. [2-2; 0-0]

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*. Prerequisites: Poultry Husbandry 200, recommended; Biology 330, which may be taken concurrently. (Animal Husbandry 313 must be taken in the Second Term.) [2-2; 0-0]

315. (1½) The Genetics of Breed Differences.—The genetics and morphogenesis of characteristics distinguishing the different breeds and a study of common mutants in the chicken. (Given in 1954-55 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* (1951). 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 1954-55 and alternate years.) [2-2; 0-0]

401. (1½) Principles of Incubation.—A study of physical factors in incubation practice. Physical and chemical changes in the developing embryo prior to and during incubation. Text-book: Taylor, *Fertility and Hatchability in Chicken and Turkey Eggs* (1949). Prerequisite: Poultry Husbandry 200. (Given in 1953-54 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 1953-54 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.—On an approved problem. (Breeding, nutrition, physiology, marketing.)

549. (5-6) Master's Thesis.

Psychology

100. (3) Introductory Psychology.—As in Arts.

Russian

100. (3) Basic Russian.—As in Arts.

200. (3) Russian.—As in Arts.

Spanish

90. (3) Beginners' Spanish.—As in Arts.

Zoology

For descriptions of other courses in Zoology, see Arts.

201. (2) Agricultural Entomology.—Structure, recognition and life histories of insects and their control. Text-book: Metcalf and Flint, *Destructive and Useful Insects*. [0-0; 2-3]

**THE
FACULTY
OF
LAW**

1953-1954

1953-54

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 49-51 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 first three years of the course leading to the degree of Bachelor of Arts in the University of British Columbia and obtained in the Third Year thereof an average of not less than 60%*; or
- (d) successfully completed the first two years of 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.

These requirements are subject to this qualification: candidates who have failed or have other deficient standing in any year of a law course at another institution must, unless the Faculty of Law determines otherwise because of very exceptional circumstances, obtain full standing in that year before they will be considered for admission for repetition or otherwise to the Faculty of Law.

Advanced Standing

Undergraduates in other faculties or schools of law may, upon application, be granted such standing as the Faculty may determine.

General University Regulations

General University regulations concerning discipline, health, and other matters as detailed on pages 43-56 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 19th.

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 to the degrees of B.Com., LL.B. See page 204. For other combined courses see "Double Degrees".

*Students proposing to seek admission to the Faculty of Law are strongly recommended to take Commerce 151.

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 his year, must obtain an average of not less than 55 per cent. on the work of that year. No supplemental examinations will be granted or held. 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, 55 to 65 per cent.

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 142.

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 57-121 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* (Students' Ed.); Readings in the Law of Contracts; Pollock, *Principles of Contracts*; Salmond and Williams, *Contracts*. Mr. Curtis.

Criminal Law

104. References: *U.B.C. Cases on Criminal Law*; Criminal Code; Tremear; 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.

Judicial and Legislative Process

110. References: Glanville Williams, *Learning the Law*; Maxwell, *Interpretation of Statutes*; Hood-Phillips, *First Book of English Law*; Cardozo, *Nature of the Judicial Process*; Wise and Winfield, *Elements of Jurisprudence*; Allen, *Law in the Making*. Mr. Edwards.

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*; Salm-ond, *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. Edwards.

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. Carrothers.

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 I

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: C. K. Allen, *Law and Orders*; Carr, *Concerning English Administrative Law*; Carr, *Delegated Legislation*, Griffith and Street, *Principles of Administrative Law*; Robson, *Justice and Administrative Law*; Landis, *The Administrative Process*; Gellhorn, *Administrative Law*; Report of the Committee on Ministers' Powers. Mr. Bourne.

Conflict of Laws

304. References: *U.B.C. Cases on Conflicts*; Cheshire, Falconbridge, Cook, Dicey, Goodrich, Graveson. Mr. Edwards.

Constitutional Law

307. References: MacRae, *Materials on Constitutional Law*; O'Connor, *Report on B.N.A. Act*; Laskin, *Canadian Constitutional Law*. Mr. Edwards, Mr. Kennedy.

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.

Legislation*

314. References: To be announced. Mr. Carrothers.

Mortgages and Suretyship

316. References: *U.B.C. Cases on Mortgages*; Falconbridge, *Mortgages*; Hanbury and Waldoock, *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 (i) Legislation or (ii) Taxation and either Municipal Law or Shipping.

Procedure II

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*; Perry, *Taxation in Canada*; Magill, *Taxable Income*; Stikeman, *Lectures on Taxation*; Ratcliffe and McGrath, *Income Tax Laws*; Hannan and Farnsworth, *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.

1953-54

**THE
FACULTY
OF
PHARMACY**

1953-1954

1953-54

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 49-51.

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 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 110 or 120, Geography 101, German 90 or 110 or 120 or 130, History 101 or 102, Latin 90 or 110 or 120, Music 105, Philosophy 100, Polish 110, Psychology 100, Russian 100, Spanish 90 or 110 or 120.

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 3, 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 218-220.

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. (See page 45.)
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 142).

5. Supplemental examinations will be held in August. Applications for supplemental examinations must be in the hands of the Registrar on or before July 15th, and must be accompanied by the required fee.
6. A student must pass in all subjects of each year before being admitted to the Pharmacy courses of the succeeding year. If the general standing of 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. 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%.
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 57-121.

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

Bacteriology 100, Biology 100 or Physics 100 or 101, Chemistry 205 or Chemistry 200, English 200, Pharmacy 211, 222, 261.

On account of limited laboratory accommodation the number of students admitted to the Second Year is restricted to 60 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 60 students for the year will permit.

Third Year

Biology 400, Chemistry 300, Commerce 459, Pharmacy 312, 331, 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 369, Economics 200, courses in English, French 202, Geology 200, German 90 or 110 or 120 or 130, History 102, 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 110 or 120, Zoology 200.

Thesis

A thesis will be required of all students in the Fourth Year of Pharmacy as part of the graduation requirements. The topic must be selected, with the approval of the Dean, early in the Fourth Year's work.

COURSES OF INSTRUCTION

211. (4) **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. Various types of official and non-official preparations. Text-books: *Bentley's Text-book of Pharmaceutics*, 5th Edition; *The Canadian Formulary*, 1949; *The British Pharmacopoeia*. [3-3; 3-3]

222. (1) **Metrology and Pharmaceutical Calculations.** — Weights and measures; calculations involved in pharmaceutical procedures. [1-0; 1-0]

261. (1) **Pharmaceutical History and Literature.**—The development of pharmacy and pharmaceutical knowledge from ancient times to the present day; various types of pharmaceutical literature. Text-book: Kremers and Urdang, *Pharmaceutical History*. [1-0; 1-0]

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]

331. (3) **Pharmacognosy and Biopharmacy.**—Crude drugs of animal and vegetable origin with reference to their macroscopic characteristics, sources, constituents, preparations and medicinal uses; biological medicinal products including hormones, antibiotics, vaccines, etc. [2-2; 2-2]

352. (3) **Inorganic Pharmaceutical Chemistry.**—The principles of inorganic chemistry as applied to pharmaceutical procedures: medicinally important inorganic chemicals, including radioactive materials; the compounding 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. [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) **Problems in Dispensing.**—A study of unusual problems occurring in the compounding and dispensing of prescriptions; 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.**—The mechanism of action, therapeutic applications and toxicity of drugs. Text-book: Wilson and Schild, *Clark's Applied Pharmacology*, 8th Edition. [3-0; 3-0]

443. (2) **Common Diseases and Newer Therapeutic Agents.**—General description of the more common diseases with particular reference to newer pharmaceutical preparations used in their treatment; bioassay methods and evaluation of new 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**

1953-1954

1953-54

FACULTY OF MEDICINE

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 practice of medicine.

The first two years of the course are devoted to acquiring a knowledge of the fundamental or preclinical medical sciences, and for the most part are given on the campus of the University. At the beginning of the second term of the Second Year, instruction is transferred in part to the Vancouver General Hospital, Shaughnessy Hospital and St. Paul's Hospital.

The third and fourth years of the course, or clinical years, are designed to bring the student into contact with patients and develop not only a knowledge of the natural history of diseases and how to recognize them, but also the essentials of modern treatment. In addition to the hospitals previously mentioned, during the clinical years the facilities of the Children's Hospital, Grace Hospital and the Provincial Mental Hospitals are also utilized for clinical teaching.

The physical plant of the medical school consists of well-lighted, well-equipped laboratories, lecture halls and research laboratories. Library facilities, including medical reference sections and study areas, are located in the Bio-Medical Section of the University Library and in the Bio-Medical Branch Library at the Vancouver General Hospital.

Admission to The Faculty of Medicine

General Information

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 High School Graduation (University Programme) 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).

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, The University of British Columbia, Vancouver 8, B. C. Any delay in taking the tests 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 disability 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 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.

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, and is at the discretion of the Faculty.

English: English 100 and 101 (Literature and Composition), English 200 (Literature and Composition).

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 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 a baccalaureate degree 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, 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.

Admission of Students by Transfer

Students who are registered and in good standing in accredited medical schools 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.

1. The acceptance of transfer students will depend upon the existence of vacancies.

2. 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.

Registration

The academic year of the Faculty of Medicine begins on the First Tuesday after Labour Day.

Registration of medical students will take place in the Medical School Office, and students in each year of the medical course will be notified of the time of their registration.

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.

No student 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.

Fees

Tuition and incidental fees in each year of the medical course are \$443.00. An additional Graduating Class Fee of \$3.00 is payable by all students in their final year.

Students in the Faculty of Medicine must conform to the general regulations of the University about payment of fees at the office of the Accountant on the day of registration.

Student Expense

The following instruments and supplies will be required during the course; it is recommended that purchases not be 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)

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.

Second Year:	
Haemoglobinometer	(\$12.50-\$15.00)
Haemocytometer	(\$15.00)
Reflex Hammer	(\$2.00)

Third Year:	
Ophthalmoscope with otolaryngological attachments.....	(\$40.00-\$60.00)
Sphygmomanometer	(\$35.00-\$40.00)

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.

Financial Aid

For descriptions of bursaries, fellowships, scholarships and loans, see pages 57-121.

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.

Course Leading to the M.D. Degree

The subjects in which instruction is given in the four academic sessions leading to the M.D. degree are as follows:

First Year:

Anatomy (including Embryology and Histology), Biochemistry, Human Behaviour, Physiology, Introduction to Public Health and Preventive Medicine, and History of Medicine.

Second Year:

Applied Biochemistry, Clinical Microscopy, Medicine (Clinical Diagnosis), Microbiology, Introduction to Obstetrics, Parasitology, General and Special Pathology, Introduction to Paediatrics, Introduction to Psychiatry, Pharmacology and Toxicology, Public Health, Introduction to Surgery, and Social and Cultural Values I.

Third Year:

Medicine and Therapeutics, Obstetrics and Gynaecology, Paediatrics, Special Pathology, Psychiatry, Preventive Medicine I, Radiology, Surgery (including specialties), and Social and Cultural Values II.

Fourth Year:

Medicine (including specialties), Medical Ethics and Economics, Medical Jurisprudence, Obstetrics and Gynaecology, Paediatrics, Clinical Pathology, Preventive Medicine II, Psychiatry, Physical Medicine, Radiology, Therapeutics, and Surgery (including specialties).

The First and Second Years of the medical course are divided into two terms; the Third and Fourth years are divided into quarters of eight weeks each.

Examinations and Advancement**Attendance**

1. Students are expected to attend all lectures and laboratory periods in each course. Admission to a lecture or laboratory and credit for attendance may be refused by the instructor for lateness, misconduct, inattention, or neglect of duty.

2. Students absent from classes because of illness must comply with the regulations of the University as published in the Calendar on page 45.

3. Unavoidable absence of one day or less for reasons other than sickness must be explained to the instructor or instructors concerned when the student returns to classes. If such absence is for longer than one day, the student must receive a class re-admission slip from the Medical School Office and present it to the instructors concerned.

4. Students *planning* to be absent from classes *for any reason* must obtain previous permission from the Medical School Office.

Examinations

1. Examinations in the Faculty of Medicine are held in December and May. These examinations are obligatory for all students.

2. If a student finds that he will be unavoidably absent from a sessional examination, he or someone familiar with his situation must notify the Medical School Office of the facts in the case before the end of the period during which the examination is being written. Failure to observe this rule may result in a failure being recorded in the course.

3. When a sessional examination has been missed through illness or some other justifiable cause, application for deferred examination or special consideration must be made in writing to the Dean not later than two days after the close of the examination period. If the absence was for health reasons, a physician's certificate indicating the nature and duration of the illness must be submitted to the University Health Service.

4. A student may be denied the privilege of writing a sessional examination in any subject because of unsatisfactory work or attendance, in which case he will be considered to have failed in the course.

5. In any course which involves both laboratory work and written examinations, students are required to make satisfactory standing in both parts. If the course is repeated, no exemption will ordinarily be granted from the work in either part.

6. Term essays and examination papers may be refused a passing mark if they are notably deficient in English, or illegible.

7. The passing mark in the Faculty of Medicine is sixty per cent. Successful candidates will be graded as follows: First Class, an average of 80% or over; Second Class, 65% to 79%; Passed, 60% to 64%.

8. All results of final examinations will be announced by the office of the Dean after they have been passed upon by the Promotions Committee and approved by Senate. Simultaneous release will be made by the Registrar. Final examination results will not be communicated through any other channel.

Advancement

1. The Faculty will determine the student's fitness for promotion at the end of each session. No student with defective standing will be promoted.
2. A student whose academic standing is unsatisfactory may, upon the recommendation of the Faculty, be required by Senate either to withdraw from the Faculty or to repeat the entire work of the year.
3. If the progress of a student has been unsatisfactory in any given session, the Faculty may permit supplemental examination in the subject failed provided: (i) his attendance has been satisfactory; (ii) he has not failed in more than three subjects; and (iii) he has passed at least one-half of the year's work, or at least three-quarters of the work of the final year. The department or departments concerned may direct such work as will be necessary to prepare for the supplemental examination. If this work is completed satisfactorily during the summer, and the student passes the supplemental examination, he may be promoted.
4. A student in the First Year who fails to be promoted will not be permitted to repeat the year except under special circumstances and with the permission of Senate upon the recommendation of the Faculty.
5. A student will not be permitted to repeat a year more than once, except under special circumstances and with the permission of the Senate upon the recommendation of the Faculty.

Subjects of the Final Examinations

First Year:

Anatomy (including Embryology and Histology), Biochemistry, Physiology, and Public Health and Preventive Medicine.

Second Year:

Applied Biochemistry, Medicine, Microbiology, Pathology, Parasitology, Pharmacology, Public Health, Surgery, and Toxicology.

Note: Questions on Clinical Microscopy will be asked on the paper in Medicine.

Third Year:

Medicine, Obstetrics and Gynaecology, Paediatrics, Pathology, Psychiatry, Preventive Medicine, and Surgery.

Note: Questions on Radiology may be asked on the papers in Medicine, Surgery, Paediatrics, or Obstetrics.

Fourth Year:

Co-Incidental Examinations

The majority of the Canadian medical colleges now utilize the Medical Council of Canada Examinations as final examinations in the Fourth Year, and the University of British Columbia conforms to this practice.

The Medical Council prescribes papers in Medicine and Therapeutics, Obstetrics and Gynaecology, Pathology and Bacteriology, Public Health and Preventive Medicine, and Surgery. The Faculty of Medicine will grade these papers for University purposes with the exception of the paper on Pathology and Bacteriology. In addition, the Faculty of Medicine will administer University examinations in the subjects of Paediatrics and Psychiatry.

The successful completion of these examinations is prerequisite to the granting of the M.D. degree.

All written and oral examinations will be held at the end of April or beginning of May, depending upon the schedule of the Medical Council of Canada.

Enabling Certificates

1. In order to be admitted to the examinations of the Medical Council of Canada, an Enabling Certificate must be obtained from a Provincial College of Physicians and Surgeons.

2. Where a student plans to practice in British Columbia, he should make application to the Registrar, College of Physicians and Surgeons of British Columbia, to receive the required Enabling Certificate. Application should be made in the final year of the medical course *not later than February 1st*. Provided the applicant has been a bona fide resident of this Province for a period of not less than five years, or has taken his pre-medical course at this University, the fee is \$5.00. For all others, the fee is \$25.00.

3. Students planning to practice medicine outside of this Province should comply with the regulations of the appropriate licensing body, including the requirements of other Colleges of Physicians and Surgeons.

4. It is to be noted that students who have registered in other Provinces should ordinarily obtain their Enabling Certificates from the Province of their student registration.

Requirements for the Degree of M.D.

1. Each candidate for the degree of Doctor of Medicine is required to present a thesis acceptable to the Faculty before March 1st of his final year. The subject is to be decided upon some time between the end of the Second Year and mid-January of the Third Year. The Medical School Office is to be advised of the title of the proposed thesis and the supervisor not later than February 1st in the Third Year.

The thesis must embody the results of original investigation or of a planned course of study in a field of learning, related or unrelated to the medical sciences. It is 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.

2. Every candidate for the M.D. degree must be twenty-one years of age. He must have fulfilled all the requirements for entrance to the Faculty of Medicine and have attended the four full sessions of instruction which comprise the medical course. No one will be admitted in candidacy for the M.D. degree who has not attended at least two full sessions in the Faculty of Medicine at the University of British Columbia.

Students who have transferred to this Faculty must have received instruction where previously registered equivalent to that at the University of British Columbia.

3. Each candidate for graduation must have passed all of the required examinations in the subjects comprising the medical course.

4. All candidates for the M.D. 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.

Regulations Regarding Licence to Practice Medicine

The possession of an M.D. degree does not, in itself, confer the right to practice medicine in any Province in Canada. Each Province has a College of Physicians and Surgeons, as mentioned previously, and such Colleges have the final authority to grant a licence to practice medicine within their jurisdictions. The holding of the Licentiate of the Medical Council of Canada provides a standard which is acceptable to the Provincial Colleges of Physicians and Surgeons.

In British Columbia, the College of Physicians and Surgeons requires that in addition to holding the certificate of the Medical Council of Canada *an applicant must have served a one-year rotating internship in an approved hospital before being eligible for a licence to practice.*

Internship

The serving of an internship is not prerequisite to graduation from the Faculty of Medicine. However, in all but exceptional cases, it is in the best interests of the medical graduate to interne for at least one year. This is true even where he plans a career which will not require that he care for patients. Basic medical education is not considered complete without the serving of an internship.

The Faculty of Medicine assists in the arrangements for internships. It advises about the merits of the internships which are available. The office of the Dean should be consulted early in the fourth year before students apply to the hospitals in which they are interested.

It should be clearly understood that the Faculty of Medicine does not undertake interne placement or assign graduating students to internships. However, the Canadian Association of Medical Students and Internes operates a placement service.

COURSES OF INSTRUCTION

Medical students are offered courses numbered 400 to 424 in the First Year of the medical course, 425 to 449 in the Second Year, 450 to 474 in the Third Year, and 475 to 499 in the Fourth Year.

Courses offered to non-medical students numbered below 500 are intended primarily for students at pre-baccalaureate levels in the University. Courses numbered 500 or higher are normally for post-graduate students in the Faculty of Medicine and for candidates for advanced degrees in the Faculty of Graduate Studies. Registration in these courses is at the discretion of the department concerned.

Department of Anatomy

390. (3) Elementary Human Anatomy.—An elementary course dealing with the basic structure of the human body. [3-0; 3-0]

400, 401. Human Anatomy.—A correlated course of study of the structure of the human body including gross, microscopic and radiological anatomy, embryology and neuroanatomy. Clinics are held in cooperation with the Departments of Medicine and Surgery. 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 Elywn, *Text-book of Neuroanatomy*.

For Graduate Students

500. (6) Gross Human Anatomy.—An advanced laboratory course in the structure of the human body. Prerequisite: Anatomy 400 or equivalent.

501. (3) Microscopic Human Anatomy.—An advanced laboratory course in the microscopic structure of the human body. Prerequisite: Anatomy 401 or equivalent.

502. (4) Microscopic Anatomy.—The microscopic anatomy of tissues and organs in man.

503. Surgical Anatomy.—A refresher course in human anatomy as applied to surgery. [1-0; 1-0]

510. (2) Neuroanatomy.—The gross and microscopic study of the nervous system in man.

549. (6) M.Sc. Thesis.

Department of Bacteriology and Immunology
(Faculty of Arts)

425. Microbiology for Medical Students.—Principles of sterilization and microscopy; basic techniques of bacteriology and immunology; a systematic study of the more common pathogenic bacteria; and an introduction to pathogenic fungi, rickettsiae, and viruses. Both Terms.

Department of 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) West and Todd, *Textbook of Biochemistry*; (2) Hawk, Oser, Summerson, *Practical Physiological Chemistry*.

410. (3) Outlines of Biochemistry.—A lecture and laboratory course dealing with the chemical 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.

Textbooks: West and Todd, *A Textbook of Biochemistry*; and Hawk, Oser, Summerson, *Practical Physiological Chemistry*. [2-3; 2-3]

For Graduate Students

Biochemistry 400, 410, or the equivalent, is prerequisite to all graduate courses.

500. (2) Intermediary Metabolism.—A course of lectures dealing with advanced topics of intermediary metabolism selected from the current biochemical literature. [2-0; 2-0]

501. (2) Enzymology.—Physical chemistry of enzymes, mechanisms and chemical kinetics of biological reactions; theories of enzyme specificity and inhibition by antimetabolites. [2-0; 2-0]

502. (1) Endocrinology.—The chemistry and metabolic activities of the hormones. [2-0; 2-0]

503. (2) Molecular Structure and Biological Function.—Modern concepts of the relationship between chemical structure and function of biologically important compounds (proteins, carbohydrates, lipids, steroids, vitamins and antibiotics). [2-0; 2-0]

510. (1) Biochemistry of Cancer.—Biochemical aspects of neoplastic as compared with normal tissues. [0-0; 2-0]

520. (5) Advanced Biochemical Techniques.—A laboratory course to provide training in the practical applications of certain advanced techniques to biochemical problems. The following subjects are studied: chromatography, enzyme kinetics, quantitative immuno-chemistry, spectro-phometry and colorimetry, radioactive isotope techniques, electrophoresis.

In collaboration with other departments, practical experience in the following subjects may be included in this course: Histochemical techniques—Department of Anatomy; Manometric techniques—Department of Dairying; Animal nutrition—Department of Animal Husbandry; Poultry nutrition—Department of Poultry Husbandry. [0-12; 0-12]

530. (1) Seminar in Biochemistry.—Attendance at weekly seminars throughout the term and presentation of one or more papers on topics selected from the current biochemical literature. [1-0; 1-0]

549. (6) M.Sc. Thesis.

649. Ph.D. Thesis.

Department of Medicine

425. Clinical Diagnosis.—The methods and application of techniques of clinical history taking and physical examination are covered by lecture demonstrations and bedside clinics. Correlation of disordered function and anatomical changes are emphasized as well as analysis of symptoms and signs. Close integration with the Department of Surgery exists in the presentation of this subject. Both Terms.

Text-books: Chamberlain, *Symptoms and Signs in Clinical Medicine*; and Hutchison and Hunter, *Clinical Methods*.

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. First Term.

Text-book: Cantarow and Trumper, *Clinical Biochemistry*.

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 examinations of the body fluids and excreta are also studied. (A laboratory examination will be held in this subject, and questions will be included on the Medicine 425 paper.) Second Term.

450. Principles of Medicine and Clerkship in Medicine.—1. Systematic lectures and clinics covering the broad range of the common medical disorders. Application of the basic medical sciences to clinical medicine is stressed. 2. Individual work and instruction of small groups on the medical wards. As clinical clerks, the students record case histories, make physical examinations and carry out assigned laboratory studies. Both Terms.

Text-book: Cecil and Lock, *Textbook of Medicine*.

451. Introduction to Therapeutics.—A course of didactic lectures and class exercises to introduce systematic therapeutics and the use of drugs for specific disease processes. Practice in prescription writing is included. (Subject to examination at the end of the Third Year.) Second Term.

465. Principles of Radiological Diagnosis.—A course of lectures to acquaint the student with the use of X-ray in diagnosis. The basic physics of roentgenology is dealt with. (Questions may be included on papers in Medicine, Obstetrics, Paediatrics, or Surgery.) Both Terms.

475. Medicine.—Each student receives instruction for a period of eight weeks during which he is assigned to the medical wards and Out-patients Department. He enters into the general activities of the service, including assignment of cases and participation in ward rounds. Instruction in various medical specialties is scheduled. Theatre clinics are conducted throughout the year. Clinical pathological conferences are held in conjunction with the Department of Pathology.

476. Therapeutics.—Continuation of lectures and class exercises covering systematic therapeutics and the proper employment of drugs. Case presentations are used to demonstrate specific treatment problems. (Questions will be included on paper in Medicine.)

490. Principles of Therapeutic Radiology.—Lectures and conferences cover the physical principles employed in therapeutic radiology. First Quarter.

Department of Obstetrics and Gynaecology

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. (Subject to examination at the end of the Third Year.) Second Term.

Text-books: Eastman, *Williams Obstetrics*; or Beck, *Obstetrical Practice*.

Reference Books: Greenhill, *Principles and Practice of Obstetrics*; Johnstone, *Textbook of Midwifery*.

450. Principles of Obstetrics.—Lectures and demonstrations which deal with normal and abnormal pregnancies, labour and the puerperium. Teaching aids, such as moving pictures, models and museum material, are used extensively. Practical demonstrations and bedside clinics are utilized to collate the principles with the practice of obstetrics in managing obstetrical patients. First Term.

Text-books: Eastman, *Williams Obstetrics*; or Beck, *Obstetrical Practice*.

Reference Books: Greenhill, *Principles and Practice of Obstetrics*; Johnstone, *Textbook of Midwifery*.

451. Principles of Gynaecology.—A series of lectures and demonstrations which deal with the more common gynaecological diseases. Teaching of small groups of students at the bedside supplements the didactic work. Second Term.

Text-books: Curtis & Huffman, *Textbook of Gynaecology*; Young, *Textbook of Gynaecology*; or Novak, *Textbook of Gynaecology*.

475. Obstetrics.—Each student will live in the maternity pavilion for a period of four weeks during which time he will take histories and examine patients in the Out-Patient Department, arrange for their admission to the wards, and continue to observe them through delivery to their discharge from hospital. Daily ward rounds and teaching clinics are scheduled.

There is a weekly Clinico-Pathological Conference throughout the year at which the students living in hospital present cases to the entire class.

476. Gynaecology.—A weekly Clinico-Pathological Conference where students present cases. Gross and microscopic pathology reports are reviewed, and clinical findings are discussed. During the living-in-hospital period, the student attends Gynaecology Out-patient Department Clinics, is assigned patients on the ward for study and is required to assist at operations.

Department of Paediatrics

425. Introduction to Paediatrics.—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 are covered. (Subject to examination at the end of the Third Year.) Second Term.

450. Principles of Paediatrics and Clerkship in Paediatrics.—1. Systematic lectures and clinics devoted to the essential principles of paediatrics. Among the subjects dealt with are: (a) normal digestion and pathological deviations from it in infants; (b) infant and child feeding; (c) deficiency diseases in childhood; (d) acute infectious diseases; (e) metabolic and endocrine diseases in childhood; (f) allergy; (g) heart disease. 2. As clinical clerks, the students are instructed in methods of history taking and physical examination of infants and children. Both Terms.

Text-book: Holt and MacIntosh, *Diseases of Infancy and Childhood*.

475. Paediatrics.—Students are assigned to the Department of Paediatrics for four weeks. Mornings are spent in the Paediatric Out-patients Department; afternoons and certain evenings are spent on the Paediatric wards.

The student is responsible for history taking and general investigation of cases assigned to him.

Formal exercises throughout the period include ward rounds, demonstrations and a theatre clinic each week in which the students participate.

Department of 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.

Text-book: Boyd, *Textbook of Pathology*.

450. Special Pathology.—A continuation of Special Pathology. Students attend demonstrations of pathological material at the Vancouver General Hospital. First Term.

475. Clinical Pathology.—A series of pathological conferences held in co-operation with the Departments of Medicine and Surgery. A Pathology externship of one week will be served.

Department of Pharmacology

425. Medical Pharmacology.—A lecture and laboratory course covering the fundamental pharmacological actions of drugs. First Term.

426. Toxicology.—A lecture course in toxicology. Second Term.

Department of 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. Correlation clinics are held in cooperation with the Department of Medicine. 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*.

410. (3) 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. [1-0; 4-0]

411. (3) 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. [0-3; 0-9]

For Graduate Students

Physiology 410, Biochemistry 410, or the equivalent, or the consent of the department is prerequisite to all graduate courses.

511. (3) Seminar in Mammalian Physiology.—Seminar in selected topics in mammalian physiology. [1-4; 1-4]

512. (3) Advanced Physiological Techniques.—A laboratory course designed to familiarize the student with certain research techniques applicable to investigation of problems in mammalian physiology. Exercises have been arranged in cooperation with the Departments of Anatomy, Biochemistry, Neurological Research and Pharmacology. [1-4; 1-4]

513. (1) **Developmental Physiology.**—Development of physiological function during fetal life, infancy and childhood. [2-0; 2-0]

514. (1) **Physiology of Respiration.**—A study of advances in the physiology of respiration. [1-0; 1-0]

549. (6) **M.Sc. Thesis.**

649. **Ph.D. Thesis.**

Department of 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*.

425. **Introduction to Psychiatry.**—Fundamental psychiatric concepts will be discussed with particular emphasis upon psycho-pathological reactions and patterns. The elementary techniques of psychiatric examination will be covered. (Subject to examination at the end of the Third Year.) First Term.

450. **Principles of Psychiatry and Clerkship in Psychiatry.**—1. Lectures, clinics and ward teaching arranged to show the tangible effects of pathological thinking, feeling and behaviour. 2. As clinical clerks, the students study cases on psychiatric wards. There is correlation of observation of patients with acute emotional disturbances, with a search for psychosomatic factors in illnesses observed on the medical, surgical and obstetrical wards. Both Terms.

Text-book: Henderson and Gillespie, *A Textbook of Psychiatry*.

475. **Psychiatry.**—Lectures and demonstrations of the major psychoses. Each student attends the Provincial Mental Hospital at Essondale as a living-in-hospital clerk during a part of the three-week period he is assigned to the Department of Psychiatry.

Department of Public Health

400. **Introduction to Public Health and Preventive Medicine.**—The concept of prevention is developed and the organization of public health facilities, official and voluntary, is considered. Present needs and problems are stressed. First Term.

425. **Public Health Practices.**—A demonstration of public health facilities in the community and their relation to the private practice of medicine carried on through lectures, discussion groups and field trips. The application of statistical and epidemiological methods to health problems is illustrated through lectures, demonstrations and laboratory exercises. Both Terms.

Text-book: Smillie, *Preventive Medicine and Public Health*.

426. **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.

Text-book: Sawitz, *Medical Parasitology*.

450. **Preventive Medicine I.**—Lectures, conferences and field trips dealing with the prevention of and rehabilitation after communicable diseases, accidents, chronic diseases, and diseases peculiar to aging individuals. Both Terms.

Text-books: Smillie, *Preventive Medicine and Public Health*; The American Public Health Association, *The Control of Communicable Diseases in Man*.

475. **Preventive Medicine II.**—A review of preventive medicine and its application in private practice, including public health legislation, vital statistics, social aspects of medicine. Both Terms.

Department of Surgery

425. Introduction to Surgery.—A series of lectures designed to illustrate the basic surgical principles. Bedside and out-patient clinics illustrating the principles of physical diagnosis are given in cooperation with the Department of Medicine and surgical specialties. Students are given the opportunity to examine patients. A series of lectures and demonstrations in First Aid technique is given. Second Term.

Text-book: Hamilton Bailey, *Physical Signs in Clinical Surgery*.

450. Principles of Surgery and Clerkship in Surgery.—Systematic lectures and clinics in general surgery, orthopaedic surgery, ophthalmology, otorhinolaryngology, urology, neurosurgery, plastic surgery and chest surgery, which emphasize the relationships of the basic sciences to an understanding of surgical conditions. The students are expected to acquire some knowledge of the whole field of surgery during their third year. Surgical diagnosis is emphasized rather than surgical techniques.

On the surgical wards, and at the B. C. Cancer Institute, individual work and instruction of small groups of students is carried on.

As clinical clerks, the students record case histories, perform physical examinations and carry out assigned laboratory studies on the general surgical, urological and orthopaedic wards. Both Terms.

475. Surgery.—Each student receives surgical instruction in the Department of Surgery for a ten-week period during which he rotates through the services of general surgery, orthopaedic surgery, ophthalmology, otorhinolaryngology, neurosurgery, urology and anaesthesia. The student enters into the routine work of these services, attends the Out-patient and Emergency Departments, and is assigned to operating rooms, etc.

A series of theatre clinics is scheduled in co-operation with the Department of Medicine.

A series of pathological conferences is held in co-operation with the Department of Pathology.

476. Physical Medicine and Rehabilitation.—An introduction to the principles of physical medicine and rehabilitation. Didactic lectures are combined with demonstrations.

Conjoint Courses

400. 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.

425. Social and Cultural Values.—An examination of the basic values of Western civilization with emphasis upon philosophy and the arts. The main theme to be developed is that art is the expression of the cultural values of the age to which it belongs. Mr. Barnet Savery. First Term.

450. Social and Cultural Values.—A brief review of the social sciences. The main themes of economic theory, social economics, political science, sociology, cultural anthropology, and their contributions to the understanding of contemporary problems. Mr. Leonard C. Marsh. First Term.

475. Medical Ethics and Medical Economics.—A course of lectures delivered by members of the Faculty and invited guests in which there is emphasis on the relationship of the physician to the patient, to his fellow practitioner, and to the community. The social and economic aspects of medical care, including hospital insurance, prepaid medical care, etc., are covered in the latter lectures of the course. First Term.

476. Medical Jurisprudence.—A general survey of medico-legal problems likely to be encountered by physicians. The role of forensic medicine and toxicology in the administration of justice is emphasized. Staff. Second Term.

For Graduate Students

500. General Seminar in Experimental Medicine (1).—A seminar course covering recent advances in Experimental Medicine given by staff and graduate students in all departments of the Faculty of Medicine. [1-0; 1-0]

Department of Neurological Research

For Graduate Students

500. (1) Seminar in Research Techniques.—Attendance at weekly seminars throughout the term and presentation of one or more papers on topics selected from the related current literature. Demonstrations of classical and recently developed techniques for research in the basic neurological sciences. [1-0; 1-0]

501. (6) M.Sc. Thesis.

1953-54

1953-54

**THE
FACULTY
OF
FORESTRY**

1953-1954

1953-54

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.

For the requirements for the degree of B.A.Sc. in Forest Engineering, see pages 235-264.

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 Products and Wood Technology*, *Forest Pathology*, *Forest Entomology and Wildlife 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 is \$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 49-51.

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 101.

Language: one of the following—Latin 110 or 120, French 110 or 120, German 90, 110 or 120 or 130, Russian 100.

*Students who offer Physics 100 or 101 with a passing grade of 60 per cent, in lieu of Biology 100 for admission to the Faculty of Forestry may take Biology 100 concurrently with Botany 200 in the First Year of Forestry.

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 intending to enter Forestry are advised to present Chemistry 91, Mathematics 91, and Physics 91 for High School Graduation (University Programme).

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 218.

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 ($8\frac{1}{2}$ x 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 advised 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.....	3	2	3	2
Econ. 200 Principles of Economics.....	3	.....	3	.....
English 150 Composition.....	2	.....	2	.....
For. 151 Profession of Forestry.....	1	.....	1	.....
For. 160 Forest Surveying.....	1	6	1	6
Math. 153 and 156 Forestry Mathematics.....	2	2	2	2
Phys. 100 or 101 Elementary Physics.....	3	2	3	2
†ELECTIVES				
Geog. 302 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.....	.....	.....	.....	.....
Biol. 331 Genetics.....	.....	.....	2	4
Bot. 303 Dendrology.....	1	3	1	3
Bot. 330 Plant Physiology.....	2	4	.....	.....
English 250 Reading and Composition.....	2	.....	2	.....
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. 360 Mensuration.....	2	3	2	3
For. 371 General Logging.....	1	2	1	2
†ELECTIVES				
Bot. 315 Mycology.....	1	4	1	4
Geol. 200 General Geology.....	2	2	2	2
Math. 202 Calculus.....	3	0	3	0
Zool. 200 General Zoology.....	2	3	2	3
Zool. 300 Comparative Anatomy of Vertebrates.....	1	4	1	4

†Students must consult the list of electives (page 351) under the different options for the number and subject of electives to be taken in each year.

Third Year

Subject	First Term		Second Term	
	Lect.	Lab.	Lect.	Lab.
For. 398 Essay.....	.....	.....	.....	.....
†Bot. 318 Forest Pathology.....	2	2	2	2
Com. 457 Accounting and Finance.....	2	.....	2	.....
Com. 498 Industrial Management and Marketing.....	2	.....	2	.....
For. 350 Silviculture.....	.....	.....	3	2
For. 353 Seminar.....	1	.....	1	.....
†For. 355 Seeding and Planting.....	2	.....	.....	.....
†For. 365 Forestry Problems.....	.....	2	.....	2
For. 370 Wood Technology.....	2	3	2	3
For. 380 Forest Policy and Administration.....	1	.....	1	.....
†Zool. 308 Forest Entomology.....	2	2	2	2
†ELECTIVES				
Bot. 304 Systematics of Vascular Plants.....	1	4	1	4
Bot. 467 Introductory Forest Pathology.....	2	2	0	0
Chem. 210 Elements of Organic Chemistry.....	2	3	2	3
Chem. 300 Organic Chemistry.....	3	3	3	3
Com. 341 Traffic Management.....	3	.....	3	.....
Phys. 155 Mechanics.....	2	3*	2	3*
Phys. 156 Heat, Light and Sound.....	2	3*	2	3*
Zool. 306 Biology of the Vertebrates.....	1	4	1	4
Zool. 459 Introductory Forest Entomology.....	0	0	2	2
2 to 3 units selected in consultation with the Dean.				

†Students must consult the list of electives (page 351) under the different options for the number and subject of electives to be taken in each year.

†Not required for students taking the Forest Products and Wood Technology Option.

*Alternate weeks.

Fourth Year

Subject	First Term		Second Term	
	Lect.	Lab.	Lect.	Lab.
For. 498 Essay.....	.....	.....	.....	.....
**For. 390 Summer Camp.....	.....	.....	.....	.....
For. 453 Seminar.....	1	.....	1	.....
For. 463 Management.....	2	3	2	3
For. 473 Milling and Marketing.....	2	3*	1	3*
For. 474 Lumber Grading.....	.....	.....	1	2
For. 475 Forest Products.....	2	3*	2	3*
For. 481 Forest Economics and Finance.....	2	2	2	2
†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. 421 Forest Associations.....	2	3	2	3
Com. 321 Personal Management and Labour Relations.....	3	.....	3	.....
Com. 341 Traffic Management.....	3	.....	3	.....
Com. 371 Business Finance.....	3	.....	3	.....
Com. 458 Forestry Cost Accounting.....	3	.....	3	.....
For. 450 Advanced Silvics and Silviculture.....	2	.....	2	.....
For. 455 Problems in Silvics and Silviculture.....	.....	4	.....	4
For. 460 Advanced Mensuration.....	1	2	1	2
For. 464 Aerial Surveys.....	1	2	1	2
For. 470 Advanced Wood Technology.....	1	3	1	3
For. 476 Plywood and Laminated Wood.....	2	4	.....	.....
For. 477 Wood Seasoning and Preservation.....	.....	.....	2	4
For. 478 Physical and Mechanical Properties of Wood.....	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 Wildlife Biology and Conservation.....	2	.....	.....	.....
Zool. 410 Biology and Management of Upland and Farm Game.....	.....	.....	1	2
Three units selected with the approval of the Dean.....	.....	.....	.....	.....

†Electives

General Forestry (Management, Administration, Protection, Silviculture, Utilization.) In the First Year Geography 302; in the Second Year Geology 200; in the Third Year 2-3 units selected with the approval of the Dean; in the Fourth Year eight to ten units or their equivalent, not less than six of which must be chosen from the following courses: Agron. 304, 313, 314; Botany 421; Commerce 321, 341, 458; Forestry 450, 455, 460, 464, 470, 476, 477, 478, and not more than four units chosen in consultation with the Faculty.

*Alternate weeks only.

**See paragraph 5, page 347.

†Students must consult the list of electives (see page 351) 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 302; in the Second Year Geology 200; in the Third Year Commerce 341; and in the Fourth Year Commerce 321, 371 and 458.

Forest Products and Wood Technology.

In the First Year Geography 302; in the Second Year Mathematics 202; in the Third Year Botany 467, Chemistry 210 or 300, Physics 155, 156 and Zoology 459; in the Fourth Year eight to ten units or their equivalent, not less than six of which must be chosen from the following courses: Forestry 470, 476, 477, 478, and not more than four units chosen in consultation with the Faculty.

Forest Pathology.

In the First Year Geography 302; in the Second Year Botany 315; in the Third Year Botany 304; in the Fourth Year Botany 418 and 421, and Zoology 200.

Forest Entomology.

In the First Year Geography 302; in the Second Year Zoology 200; in the Third Year Botany 304; in the Fourth Year Botany 421, Zoology 302 and 402.

Wildlife 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. For further information see page 45.

2. Candidates, in order to pass, must obtain at least 50 per cent. in each subject; in courses which comprise both lecture and laboratory work students will be required to pass in both the written examinations and laboratory work before standing in the subject will be granted. The grades are as follows: First Class, an average of 80 per cent. or over; Second Class, 65 to 80 per cent.; Passed, 50 to 65 per cent. (See pars. 12 and 13.)

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 142).

4. Supplemental examinations will be held in September. For further information see page 53. 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 235.

5. No student with defective standing will be admitted to the Second Year.

6. No student may enter the Third or higher year with supplemental examinations still outstanding in respect of more than 4 units of the preceding year, or with any supplemental examination outstanding in respect of the work of an earlier year unless special permission to do so is granted by Faculty.

7. No student will be allowed to take any subject unless he has previously passed, or secured exemption, in all prerequisite subjects.

8. A student who is required to repeat his year will not be allowed to take any work in a higher year. 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.

9. Any student repeating his year will not be admitted with any supplementals outstanding.

10. A student who fails twice in the work of the same year may, upon the recommendation of the Faculty, be required by the Senate to withdraw from the University.

11. Any student whose academic record, as determined by the tests and examinations of the First Term, is found to be unsatisfactory, may, upon the recommendation of the Faculty, be required by the Senate to discontinue attendance at the University for the remainder of the session. Such a student will not be re-admitted to the University as long as any supplemental examinations are outstanding.

12. Term essays and examination papers may be refused a passing mark if they are noticeably deficient in English.

13. Honours graduate standing will be granted to those who obtain Honours in the final year and who have passed any one of the three preceding years with at least 50 per cent. in each subject and 75 per cent. on the whole.

The University Research Forest

An area comprising a solid block of land about 7 miles long and 2½ 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 \$140,000 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 LABORATORIES DIVISION
Forestry Branch
DEPARTMENT OF RESOURCES AND DEVELOPMENT,
CANADA

Professional Staff:

Administrative Section

K. G. FENSOM, 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.).
W. M. MCGOWAN, B.A.Sc. (Brit. Col.).

Wood Preservation and Pathology Section

Wood Preservation Unit

W. M. CONNERS, B.A.Sc. (Toronto).
G. BRAMHALL, B.A.Sc. (Brit. Col.).

Wood Pathology Unit

H. W. EADES, B.Sc.F. (Washington).
J. W. ROFF, B.S.F. (Brit. Col.).
MISS JANE M. ATKINSON, B.S.A. (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 Laboratories 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 programme of forest products research in Canada with co-ordination of research at the different laboratories being effected through the Forest Products Laboratories 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 cooperation 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

Agronomy

For descriptions of courses, see Agriculture.

Biology

For descriptions of courses, see Arts.

Botany

For descriptions of courses, see Arts; for Botany 467, see Applied Science.

Chemistry

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. (1) **The Profession of Forestry.**—Survey of the profession, opportunities available to trained men. Text-book: Shirley, *Forestry and Its Career Opportunities*. Mr. Besley. [1-0; 1-0]

160. (3) **Forest Surveying.**—Field survey and mapping practice. Text-book: Davis and Foot, *Surveying*. Mr. Jobin. [1-6; 1-6]

250. (1) **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. Forest Engineering students take this course in the First Term. [0-0; 1-2]

251. (2) **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. Allen. [1-2; 1-2]

252. (3) **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. (1) **Forest Soils.**—Fundamentals of forest soil science. Text-book: Lutz and Chandler, *Forest Soils*. Mr. Griffith. [1-2; 0-0]

260. (2) **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. Jobin. [1-3; 1-3]

300. (3) **Introduction to Forestry.**—This course is not open to Forestry or Forest Engineering 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. Prerequisite: Botany 200 or Forestry 252. Mr. Griffith and Staff. [2-3; 2-3]

350. (2) **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. [0-0; 3-2]

353. (1) **Seminar.**—Oral presentation and discussion of current forestry topics; reviews of important papers in forestry periodicals. The Staff. [1-0; 1-0]

355. (1) **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. [2-0; 0-0]

360. (3) **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]

365. (1) **Forestry Problems.**—Mathematical and graphical solutions of problems drawn from the various fields of forestry. Mr. Smith. [0-2; 0-2]

370. (3) **Wood Technology.**—The macroscopic and microscopic characteristics and identification of wood; properties, morphology, and economic uses of commercial North American timbers. Text-book: Brown, Panshin and Forsaith, *Wood Technology, Volume I*. Mr. Wilson. [2-3; 2-3]

371. (2) **General Logging.**—General and distinctive logging methods in the forest regions of North America. Text-book: Wackerman, *Harvesting Timber Crops*. Mr. Knapp. [1-2; 1-2]

380. (1) **Forest Policy and Administration.**—The development and implementation of forest policies in Canada, the United States, and other countries. Text-book: B. C., *Forest Act*. Mr. Besley. [1-0; 1-0]

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 347.) The Staff.

450. (2) **Advanced Silvics and Silviculture.**—Fundamental silvicultural problems; the application of research findings to the practice of silviculture. Mr. Allen. [2-0; 2-0]

453. (1) **Seminar.**—Oral presentation and discussion of current forestry topics; reviews of important papers in forestry periodicals. The Staff. [1-0; 1-0]

455. (2) **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 and Mr. Smith. [0-4; 0-4]

460. (2) **Advanced Mensuration.**—Recent developments in mensuration research methods; prediction of growth and yield; statistical methods. Text-book: Bruce and Schumacher, *Forest Mensuration*. Mr. Ker. [1-2; 1-2]

463. (3) **Forest Management.**—Principles of forest organization and regulation of the cut; sustained yield management; working plans. Text-book: Chapman, *Forest Management*. Mr. Griffith. [2-2; 2-2]

464. (2) **Aerial Surveys.**—Aerial surveys; photo-interpretation and plotting methods. Text-book: Trorey, *The Handbook of Aerial Mapping and Photogrammetry*. Mr. Jobin. [1-2; 1-2]

470. (2) **Advanced Wood Technology.**—A basic study of the anatomical tissues of woody plants; preparation, sectioning, staining, and mounting; maceration. Mr. Wilson. [1-3; 1-3]

472. (3) **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. [2-2; 2-2]

†473. (2) **Milling and Marketing.**—Lumber manufacturing methods and machinery, mill layout and design. Lumber markets and marketing methods. Text-book: Brown, *Lumber*. Mr. Knapp. [2-3*; 1-3*]

474. (1) **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. Lumber Manufacturers' Association, *Standard Grading and Dressing Rules*. Mr. Dixon. [0-0; 1-2]

†475. (2½) **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. [2-3*; 2-3*]

†476. (2) **Plywood and Laminated Wood.**—Types and characteristics of wood adhesives; manufacture, properties, and uses of plywood; laminated wood, and modified wood products. Mr. Wellwood. [2-4; 0-0]

†477. (2) **Wood Seasoning and Preservation.**—Principles and methods of seasoning forest products; preservative treatments. Mr. Wellwood. [0-0; 2-4]

478. (2) **Physical and Mechanical Properties of Wood.**—Physical properties of wood in relation to moisture, heat, sound, and electricity. Mechanical properties of wood; standard timber testing procedures; problems. Text-book: to be announced. Mr. Wellwood, Mr. Wilson. [1-3; 1-3]

481. (3) **Forest Economics and Finance.**—Economic values and valuation of forest land, timber, forest products, forest areas and enterprises; land use, taxation, credit, insurance, appraisals. Text-book: Chapman and Meyer, *Forest Valuation*. Mr. Besley and Mr. Ker. [2-2; 2-2]

Courses for Graduate Students

549. (3-6) **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. Allen.

553. (1) **General Forestry Seminar.**—Required of all graduate students in forestry. The Staff.

*Alternate weeks.

†Field trips are a required part of these courses.

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 and Mr. Smith.

565. (2) Forest Research Methods.—Curve fitting, multiple correlation, tests of significance, analysis of variance and covariance, design of experiments. Mr. Ker. [1-2; 1-2]

566. (2) Problems in Forest Surveys.—Mr. Jobin. [1-2; 1-2]

570. (1-3) Research in Wood Anatomy.—Advanced studies in wood anatomy; survey of literature on structure and properties of wood; laboratory technique. Hours to be arranged. Mr. Wellwood, Mr. Wilson.

572. (1-3) Problems in Logging Engineering.—Advanced work and special studies may be taken in logging engineering under direction. Hours to be arranged. Mr. Knapp.

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.

576. (2) Commercial Timbers of the World.—Structure, identification, properties, and uses of commercial timbers of the world. Mr. Wellwood, Mr. Wilson. [1-3; 1-3]

578. (1-3) Research in the Physical and Mechanical Properties of Wood.—Advanced studies in the physical properties of wood; stress-strain relationships in composite materials; derivation of working stresses for wood. Hours to be arranged. Mr. Wellwood, Mr. Wilson.

581. (1-3) Problems in Forest Economics and Finance.—Advanced work may be taken under special assignment. Hours to be arranged. Mr. Besley and Mr. Ker.

645. Thesis.—For Ph.D. degree.

Geology and Geography

For descriptions of courses, see Arts.

Mathematics

153. Mathematics for Forestry.—Practical trigonometry, introduction to calculus, elementary statistics. [0-2; 0-2]

For descriptions of other courses, see Applied Science; for Mathematics 202, see Arts.

Physics

For descriptions of courses, see Arts; for Physics 155 and 156, see Applied Science.

Zoology

For descriptions of courses, see Arts; for Zoology 459, see Applied Science.

**THE
FACULTY
OF
GRADUATE STUDIES**

1953-1954

1953-54

FACULTY OF GRADUATE STUDIES

The degrees offered in the Faculty of Graduate Studies are Master of Arts (M.A.), Master of Science (M.Sc.), Master of Applied Science (M.A.Sc.), Master of Science in Agriculture (M.S.A.), Master of Forestry (M.F.), Master of Commerce (M.Com.), and Doctor of Philosophy (Ph.D.). A Diploma in Criminology is also offered.

COURSES LEADING TO THE MASTER'S DEGREE

Admission

1. Students registering as graduates must hold either a Bachelor's degree from this University or its equivalent. Students completing their courses for the B.A. degree or for the B.S.A. degree may, if they lack not more than 6 units, register in courses open to graduate students provided that they keep within an over-all maximum of 18 units. They will receive credit for such courses towards a higher degree only after registering as candidates for such a degree.

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 in various approved fields, and in each field the degree conferred will be that which, in the view of the faculty, describes most appropriately the character of the work done.

(a) If the field of study lies wholly within a single department the Master's course must be chosen in consultation with that department and approved by its head.

(b) If the field of study involves work in more than one department the candidate's course must be approved by the heads of each department concerned.

(c) If the field of study is one which does not fit into the present departmental structure of the University the candidate's course must be approved by a member of the teaching staff who will supervise his work. The course so chosen must also be approved by the Executive Committee of the Faculty of Graduate Studies.

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 at least 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.

The prerequisites for courses of study arranged in accordance with paragraph 4 (c) will comprise a Bachelor's degree with First Class standing in at least two of the courses and at least Second Class standing in each of the remaining courses of the Third and Fourth Year work prescribed by the member of the Faculty in charge of the special field of study as prerequisite to a Master's course in that field.

6. Graduate students who do not meet the full requirements of Section 5 may be permitted to make up any deficiencies and to proceed concurrently in a Master's course provided that they keep within an over-all maximum of 18 units, (or the equivalent in the departments of Applied Science and Forestry), in any one Winter Session, but may receive credit for such courses only if they become candidates for the Master's degree in accordance with Section 5.

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, 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.

Course

9. 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.

10. Graduate students who are assistants receiving sessional remuneration exceeding \$1000, will not be allowed to come up for final examination in less than a full calendar year of supervised study after registration as graduate students. Graduate students who are assistants receiving sessional remuneration not exceeding \$1000, 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.

11. 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.

12. Except as provided in Sections 1 and 6, no credit towards the Master's degree will be given for work done prior to registration as a candidate for that degree.

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.

Examinations and Thesis

14. A student taking courses in the Faculty of Graduate Studies to fulfil prerequisites or for credit towards a degree will receive credit in each course in which he obtains 65%. For regulations regarding re-readings see page 142.

15. 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, an abstract approved by the department or departments concerned, and a biographical note. The date of submission of the thesis to the department concerned is the last day of lectures in the Second Term for a Spring Congregation and October 1st for an Autumn Congregation. (See circular entitled *Instructions for the Preparation of Master's Thesis.*)

16. 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.

17. Each graduate student who wishes to become a candidate for the 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 or by the member of the faculty in charge of the field of study in which the candidate's work lies 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.

18. 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.

Supplementals

19. 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.

20. 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.

21. 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.

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 11 above.

Bacteriology and Immunology

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 11 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 11 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 11 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 11 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 plus 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 11 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 11 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 120, 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 11 above.

Geography

Prerequisites: Honours; or 12 units in advanced courses in Geography.

M.A. Course: Thesis, counting at least 3 units, and courses to complete the requirements of section 11 above. All graduates must attend the Geography graduate seminar.

German

Prerequisites: Honours; or German 110 or 120, 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 11 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, 102, 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 11 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 11 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 11 above.

Pharmacology

Prerequisites: An M.D. degree; or a Bachelor's degree with Honours in Bacteriology, Biochemistry, Biology, Chemistry, Pharmacy, Physiology, or Zoology. Credit must have been obtained for Chemistry 300 and Physics

200 or 220. Chemistry 304 and Physics 420 (if Physics 220 has not been taken) are strongly recommended.

M.A. Course: If not already taken, Physiology 400 or 410 and 411; Biochemistry 400 or 410; Pharmacology 425 and 426; thesis, counting 6 units, and courses in related fields selected in consultation with the Department to complete the requirements of section 11 above.

The number of M.A. students who can be accepted in any one year is limited.

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 11 above. Greek 407 may count as a Philosophy course.

Physics

Prerequisites: Honours in Physics, Mathematics, or Mathematics and Physics; Physics 200, 300, 304, 308, 401, 402 and Mathematics 402.

M.A. Course: Thesis, counting at least 3 units, Physics 500 or 504, 501, 502, 503, and courses to complete the requirements of section 11 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 11 above.

The number of M.A. students who can be accepted in any one year is limited.

Planning

Prerequisites: See page 379.

M.A. Course in Community and Regional Planning: See page 379.

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 11 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 Philosophy 100, Biology 304, Psychology 200; 12 additional units in Psychology selected in consultation with the Department. Candidates must also satisfy the Department, by examination, of competence in the main fields of Psychology; or the equivalent.

M.A. Course: Thesis counting at least 3 units and courses to complete the requirements of section 11 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: Honours (including Psychology 303) or the equivalent, and Philosophy 100, Biology 304, Psychology 200. Candidates must also satisfy the Department, by examination, of competence in the fields essential to Clinical Psychology.

Course: Psychology 530, 540, 541, 3 to 6 units outside the Department and additional units in Psychology selected in consultation with the Department to complete the 30 units necessary.

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 11 above.

Sociology

Prerequisites: Honours; or 12 units in 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 11 above.

Spanish

Prerequisites: Honours; or Spanish 120, 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 11 above.

Zoology

Prerequisites: Honours; or Biology 100, Zoology 200, Botany 200, Chemistry 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 11 above.

The number of M.A. students who can be accepted in any one year is limited.

THE DEGREE OF MASTER OF SCIENCE

The following special requirements are prescribed by the departments.

Agricultural Microbiology

Prerequisites: Honours in Agricultural Microbiology; or Chemistry 300, Biochemistry 410, and 12 units of approved courses in Agronomy, Bacteriology, and Dairying.

M.Sc. Course: Thesis, counting 6 units; 6 units selected from Agronomy 512, Dairying 501 and 502; other courses in related fields selected in consultation with the departments concerned to complete the requirements of section 11 above.

Anatomy (Human)

Prerequisites: An M.D. degree or equivalent, or a B.A. degree with honours in Zoology, or the courses accepted as prerequisite for the Master's degree in Zoology.

M.Sc. Course: Thesis, counting 6 units, and courses in related fields selected in consultation with the Department to complete the requirements of section 11 above.

Bacteriology and Immunology

Prerequisites and course to be announced.

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.Sc. Course: 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 11 above.

Chemistry

Prerequisites: Honours in Chemistry.

M.Sc. Course: Thesis, counting normally 6 units, Chemistry 548 and courses to complete the requirements of section 11 above.

Geology

Prerequisites: Honours; or Geology 200, 302, and 18 additional units in Geology.

M.Sc. Course: Thesis, counting at least 3 units, and courses to complete the requirements of section 11 above. See options under Geological Engineering, page 370.

Metallurgy

Metal Physics

Prerequisites: Honours in Physics or equivalent. (See Section 5.)

M.Sc. Course: Thesis counting normally 6 units; 3 units selected from courses numbered 500 in Metallurgy; Physics 500 and 501 are required courses; other courses in related fields selected in consultation with the departments to complete the requirements of section 11 above. For descriptions of courses see page 260.

Metal Chemistry

Prerequisites: Honours in Chemistry or equivalent. (See Section 5.)

M.Sc. Course: Thesis counting normally 6 units; at least 3 units from courses numbered 500 in Metallurgy, and at least 3 units from courses numbered 500 in Chemistry; other courses in related fields selected in consultation with the departments to complete the requirements of section 11 above. For descriptions of courses see page 260.

Neurology

Prerequisites: An M.D. degree, or a Bachelor's degree with Honours in one of the related fields in Agriculture, Bacteriology, Biology, Botany, Biochemistry, Chemistry, Physics, Psychology, or Zoology; or the courses accepted as prerequisites for the Master's degree in one of these fields.

M.Sc. Course: Thesis, counting 6 units, and courses in related fields selected in consultation with the Department to complete the requirements of section 11 above.

It is recommended that students intending to take this degree complete

basic work in Chemistry, Physics, Psychology, and Physiology in their undergraduate work.

Physics

Prerequisites: Honours in Mathematics and Physics, Physics, Mathematics, or Bachelor's degree with at least Second Class standing in Engineering or Applied Science; Physics 200 (or Physics 150 and 151, or Physics 155 and 156), 300 (or Physics 250), 304, 308, 401, 402 and Mathematics 402.

M.Sc. Course: Thesis, counting at least 3 units, Physics 500, 501, 502, 503 and courses to complete the requirements of section 11 above.

Planning

Prerequisites: See page 379.

M.Sc. Course in Community and Regional Planning: See page 379.

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 11 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 11 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 11 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 11 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 11 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 11 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 3 units chosen from courses numbered 500 in Metallurgy, and other courses to complete the requirements of section 11 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 11 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 11 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 11 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 11 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 11 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 11 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 11 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 11 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 11 above.

THE DEGREE OF MASTER OF COMMERCE

Prerequisites: Bachelor's degree in Commerce, Arts, Law, Engineering, Forestry, Agriculture or Pharmacy from an approved university; First Class standing in at least two of the courses and Second Class standing in at least one-half of the remaining courses of the last two years' programme leading to the Bachelor's degree. Before registration as a candidate for this degree a student must submit evidence of satisfactory standing in the following prerequisite courses or their equivalents: Commerce 151, 252, 261, 281, 331, 371, Economics 200. However, courses leading to the Master's degree may be taken concurrently with these prerequisite courses provided that no student may register for more than 18 units in any Winter Session.

Students who have not obtained credit in any of these prerequisites should take Commerce 151 (Accounting) in the Summer Session.

M.Com. Course: Thesis counting not less than 3 and not more than 6 units; at least 3 and not more than 6 units taken in other than Commerce courses; courses to complete the requirements of section 11 above, to be taken in the School of Commerce.

COURSES LEADING TO THE DEGREE OF Ph.D.

Admission

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. Candidates must satisfy the Executive Committee of the Faculty of Graduate Studies 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.

The Executive Committee may, however, accept candidates who do not satisfy this rule on the understanding that they will put themselves in a position to do so by the spring subsequent to their registration at latest. In the event of their failing to do so any further postponement will require the express consent of the Executive Committee.

4. 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.

5. A candidate may not assume teaching duties for which he receives sessional remuneration exceeding \$1000 without the permission of the Executive Committee of the Faculty of Graduate Studies.

6. 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.

Courses of Study

7. 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.

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. 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.

11. 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.

Examinations and Thesis

12. 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.

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 3 on page 372); (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 on 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'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.

At present Ph.D. courses are offered by the following departments only. Particulars of the fields in which this work is offered follow:

Agronomy and Dairying

1. A course leading to the Ph.D. degree is offered in the major field of Agricultural Microbiology only.
2. Related subjects:
Courses in cognate subjects will be selected in consultation with the departments.
3. The following courses will be accepted for Ph.D. credit:
 - (a) Graduate courses (numbered 500 or above) offered in the departments provided 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.

Biochemistry

1. Facilities are available for original investigations in certain fields of Biochemistry leading to the degree of Ph.D.
2. The following courses will be accepted for Ph.D. credit:
 - (a) Graduate courses (numbered 500 or above) offered in the department provided 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.

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.

Chemistry

1. The Department will direct research only in certain fields of physical, organic and inorganic Chemistry. Problems to be investigated will be determined in consultation with the applicant. Courses at the graduate level are offered in each of the above branches of Chemistry.
2. The following courses will be accepted for Ph.D. credit:
 - (a) Graduate courses (numbered 500 or above) offered in the Department provided credit has not already been obtained for such courses.
 - (b) Certain courses number 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 and Properties.
 - (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, Eigenvalue 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.

Metallurgy

The Department offers opportunities for Ph.D. work in the following fields:

Metal Chemistry: Required courses include 500 courses in Chemistry, Mathematics, Physics and Metallurgy, although certain 400 courses in Mathematics and Physics will be accepted. Research projects will be concerned with reactions of metals and metal compounds, including those which are associated with the treatment of minerals, the production and purification of metals, and with electrolytic and corrosion processes.

Metal Physics: Required courses include 500 courses in Physics, Mathematics and Metallurgy. Certain 400 courses will be accepted in Chemistry. Research projects will be concerned with metal structure, alloy theories, ferromagnetism, transformations in the solid state, surface phenomena, electrical and temperature effects, theories of deformation, and other physical phenomena in metals.

Related Courses: Courses in Physics, Chemistry, Mathematics, Geology or Electrical Engineering, to be selected in consultation with the department.

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, scalers, 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, and Polarograph is available for work in **Biophysics** and it is expected that, with the establishment of the 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.

Physiology

1. The Department offers opportunities for advanced study leading to the Ph.D. degree in the field of Mammalian Physiology.

2. Studies in cognate fields will be selected in consultation with the candidate's committee.

3. The following courses will be accepted for Ph.D. credit.
 - (a) Graduate courses (numbered 500 or above) offered in the Department or in related fields of Physiology, 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.

Social Sciences

Courses may be arranged in Canadian History, Economics and Anthropology to meet the needs of students who have adequate reasons for desiring to do their work at the University of British Columbia in Canadian History, in Economics, or in Anthropology, provided that the subject chosen for the candidate's thesis is one which the department concerned is in a position to supervise and to supplement by appropriate courses.

Zoology

1. The Department offers opportunities for advanced study toward the Ph.D. degree in the major fields of Zoology.
2. Studies in cognate fields will be selected in consultation with the candidate's committee.
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.

COURSES IN COMMUNITY AND REGIONAL PLANNING

With the support of the Central Mortgage and Housing Corporation, Ottawa, the University is offering courses in Community and Regional Planning within the Faculty of Graduate Studies leading to a Master's Degree. This degree will be either that of Master of Arts or that of Master of Science, whichever best describes the prerequisites offered by the candidate and the courses chosen. This programme of courses allows the training of planning personnel and provides facilities and background for research into the planning problems of Western Canada.

The programme 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, Q.C., B.A., LL.B. (Dalhousie), LL.M., (Harvard), LL.D. (Mount Allison, New Brunswick, Toronto, Ottawa, Bristol, Alberta, Glasgow), D.C.L. (Whitman), D.Sc.Soc. (Laval), 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 LASSEIRE, B.Arch. (Toronto), M.R.A.I.C., Professor and Director, 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), Associate Professor of Geography.

Secretary and Staff

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.

IRA M. ROBINSON, A.B. (Wesleyan), M.A. (Chicago), Instructor.

In addition to the above Committee, an Advisory Council has been established to advise the Committee from time to time on curriculum and general teaching problems; it also provides a valuable link with current practices in Community Planning and its teaching.

Advisory Council

Chairman

HENRY F. ANGUS, Dean of the Faculty of Graduate Studies.

Members

MR. J. H. DOUGHTY-DAVIES, Provincial Department of Municipal Affairs.

MR. J. GAWTHROP, Provincial Department of Trade and Industry.

MR. J. OLIVER, City Engineer, Vancouver.

MR. G. SUTTON BROWN, Director of Planning, City of Vancouver.

MR. P. R. U. STRATTON, Town Planning Commission, City of Vancouver.

MR. G. E. BAYNES, Community Planning Association of Canada, B.C. Division.

MR. P. M. THORNTON, The Architectural Institute of B.C.

MR. E. W. RICHARDSON, The Association of Professional Engineers of B.C.

All Members of the University Committee as well as the B. C. Regional Supervisor of Central Mortgage and Housing Corporation are ex-officio members of the Council.

Prerequisites and Curriculum

Prerequisites: A Bachelor's Degree in Agriculture, Architecture, Arts, Commerce, Engineering, Forestry, Law or Social Work; adequate in respect of courses and standing to admit the candidate to a course leading to a Master's degree in his previous field of undergraduate study, provided that he has taken Architecture 451 and two of the following courses or their equivalents: Agronomy 210 and 314; Geography 301, 306; Architecture 150; Political Science 300, 310; Economics 320; Sociology 425; Anthropology 300.

If a candidate in addition to his prerequisites has taken courses equivalent to those described for the Master's degree he may be given credit not to exceed 12 units for those courses.

If a candidate's qualifications are not adequate he may be allowed to make up deficiencies concurrently with his Master's course provided that he does not register for more than 18 units in any one Winter Session. For the purpose of making good these deficiencies courses chosen from the above list may be accepted in lieu of the courses required in the previous fields of undergraduate study.

M.A. Course

Satisfactory completion of a programme of study approved by the University Committee which consists of a minimum of 30 units of course work including the following:

Planning 500
Planning 501
Planning 520
Planning 521

and at least four additional courses in fields allied to Community Planning such as Economics, Sociology, Engineering, Political Science, Geography and Agronomy. These must be courses numbered 300 and above.

M.Sc. Course

Satisfactory completion of a programme of study approved by the University Committee which consists of a minimum of 30 units of course work including the following:

Planning 500
Planning 501
Planning 520
Planning 521

and at least four additional courses in fields allied to Community Planning such as Economics, Sociology, Engineering, Political Science, Geography and Agronomy. These must be courses numbered 300 and above.

In either case the Master's thesis will consist of an extensive group field study project in Planning 500 and Planning 520.

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 work together in teams and have the advice of various instructors in the related fields. Mr. Robinson and others.

501. (3) Planning Methods and Techniques.—The evolution of Western cities, their growth, maturity and decline in cultural and aesthetic terms as expressions of planning methods. Lectures and seminars relating the methods and techniques of physical planning to the survey-analysis-design sequence in local, regional and national planning. Text-books: A.P.R.R. *The Town and Country Planning Textbook*; Ian McCallum, *Physical Planning*; A. B. Gallion, *Urban Pattern*. Mr. Oberlander.

502. (3) Planning Engineering. — A broad survey of civil engineering aspects of community planning, the methods and techniques in dealing with public services and utilities, traffic routes and transportation, field surveying and mapping. This is a special course for students with no previous engineering knowledge. Mr. de Jong and others. (Given in alternate years.)

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.

DIPLOMA COURSE IN CRIMINOLOGY

A Diploma Course in Criminology has been designed to meet the needs of students intending to enter employment in the field of corrections or the administration of criminal justice.

Supervisory Committee on Criminology

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

C. W. TOPPING, B.A. (Queen's), S.T.D. (Wesleyan Theol. College), A.M., Ph.D. (Columbia), Professor of Sociology.

CLIFFORD W. EDWARDS, B.A. (Oxon), Faculty of Law.

WILLIAM G. DIXON, B.A. (Brit. Col.), A.M. (Chicago), School of Social Work.

W. DONALD ROSS, B.Sc., M.D. (Manitoba), Diploma in Psychiatry (McGill), F.R.C.P. (C), Faculty of Medicine.

EDRO SIGNORI, B.A. (Alta.), M.A., Ph.D. (Toronto), Department of Psychology.

Secretary

ELMER K. NELSON, JR., A.B., LL.B., M.A. (Wyoming), Assistant Professor of Criminology.

Prerequisites

A student must hold either the degree of B.S.W., LL.B. or an M.A. degree or its equivalent in Sociology or in some other subject, provided that in the

latter case the student has taken the courses specifically prerequisite to those required for the Diploma.

Incomplete prerequisites may be completed concurrently with courses leading to the Diploma provided that the student does not register for more than 18 units in any one Winter Session.

Course

The course will consist of 15 units and will include:

1. Criminology 536 (Applied Criminology)
2. Criminology 539 (Seminar in Criminology)
3. Law 104 (Criminal Law) and Law 110 (Judicial and Legislative Process)
4. Psychology 400 (Abnormal Psychology)
5. Field work to be arranged and to count for 3 units.

A candidate who has already taken one or more of these courses may take, in place thereof, one or more of the following:

1. Psychology 303 (Clinical Psychology)
2. Philosophy 304 (Social Philosophy)
3. Economics 325 (Labour Problems)
4. 3 units of work in the School of Social Work.
5. Political Science 310 (Administration)

provided in each case that he has taken the necessary prerequisites.

INSTITUTE OF FISHERIES OF THE UNIVERSITY OF BRITISH COLUMBIA

An Institute of Fisheries is being established within the Faculty of Graduate Studies. The objective is to give, at the graduate level, broad and advanced instruction in various fields relating to the best use and management of the fisheries resources. The Institute will organize the cooperative efforts of various faculties, departments, schools and institutes within the University such as biology, economics, law, commerce, engineering, nutrition, technology, etc. An opportunity will be offered to students to acquire a broad understanding of the fishing industry in its biological, economic and sociological relations as well as to attain a high competency in a particular field.

Students interested may direct enquiries to the Dean of the Faculty of Graduate Studies or to Dr. W. A. Clemens, Chairman of the Committee on Fisheries.

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, Q.C., B.A., LL.B. (Dalhousie), LL.M. (Harvard), LL.D. (Mount Allison, New Brunswick, Toronto, Ottawa, Bristol, Alberta, Glasgow), D.C.L. (Whitman), D.Sc.Soc. (Laval), 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.

ANDREW H. HUTCHINSON, M.A. (McMaster), Ph.D. (Chicago), F.R.S.C., Professor and Head of the Department of Biology and Botany.

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.), Ph.D. (California), Associate Professor.
MILTON KIRSCH, B.Sc., Ph.D. (McGill), Assistant Professor.
G. L. PICKARD, M.B.E., M.A., D.Phil. (Oxon.), Associate Professor.
R. F. SCAGEL, M.A. (Brit. Col.), Ph.D. (California), Assistant 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

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]

Oceanography 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]

Oceanography 502. (1) Special Topics.—Instrumentation, submarine geology, marine meteorology, navigation. Staff. [1-0; 1-0]

Oceanography 503. (1) Oceanographic Methods.—Observation and collection at sea; processing and analysis of data. Cruises to be arranged. Staff. [0-3; 0-3]

Biological Oceanography

Biology 513. (2) Marine Organisms and their Environment.—Oceanographic factors as related to the distribution of marine benthic organisms. Prerequisite: Zoology 511. Desirable antecedents: Botany 411, and Zoology 301 and 501. Mr. Scagel. [1-3; 1-3]

Botany 512. (2) Marine Phytoplankton.—Collection, identification and quantitative analysis of marine phytoplankton in relation to oceanographic factors. Prerequisites: Botany 411 and Zoology 511. Mr. Scagel. [1-3; 1-3]

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]

Zoology 512. (2) Marine Zooplankton.—Collection, identification, and analysis of marine zooplankton; correlation of distribution with environment. Prerequisites: Oceanography 500, 501, Chemistry 509, Physics 536, Zoology 511. Mr. Cameron. [1-3; 1-3]

Chemical Oceanography

Chemistry 509. (1) Introduction to Chemical Oceanography.—The composition of sea water, factors affecting its variation, standard methods for its determination. Mr. Kirsch. [2-0; 0-0]

Chemistry 510. (1) Advanced Chemical Oceanography.—An examination of some specific problems. Mr. Kirsch. [0-0; 2-0]

Physical Oceanography

Physics 536. (1) Introduction to Dynamic Oceanography. — Hydrostatics, geostrophic flow, continuity, eddy viscosity and diffusion. Mr. Pickard. [2-0; 0-0]

Physics 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]

Physics 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]

Physics 539. (1) Waves and Tides.—Surface and internal waves, tides of the oceans, tidal currents. Prerequisite: Physics 536. Mr. Pickard. [1-0; 1-0]

1953-54

MISCELLANEOUS

1953-54

1953-1954

1953-54

DOUBLE DEGREES

The special courses of study leading to the degree of B.A. combined with another bachelor's degree have been discontinued. Any student registered in Arts and Science during, or prior to, the session 1952-53, and who is eligible to enter at least the Second Year by September, 1953 may, however, proceed under the regulations announced in the Calendar for 1952-53, provided he notifies the Registrar of his intention not later than October, 1954.

For the degree of B.Com. combined with the degree of LL.B. see page 204.

UNIVERSITY SUMMER SESSION

The announcement of the courses to be offered in the Summer Session (approximately seven weeks in length) 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 125-142.)

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 125;

Senior Matriculation Credits, page 49;

General Regulations (1, 3, 5, 7, 8), page 126.

First and Second Years, page 126;

Third and Fourth Years, page 129;

General Course Curriculum, page 129;

Faculty of Graduate Studies, pages 361-384.

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 High School Graduation (University Programme) of this Province, or its equivalent.

3. Summer Session students will be classified in accordance with the regulations given on page 52.

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 56.

Examinations and Advancement

Summer Session examinations are held at the close of the Summer Session.

For regulations regarding standing, credit, and supplementals undergraduates should refer to pages 141-2, and graduates to pages 363 and 373.

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 125-142).

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 49-51, 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 a 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 56.

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-session 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-session 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 125, 126, 141, 142.

DEPARTMENT OF UNIVERSITY EXTENSION

Under a grant from the British Dominions and Colonies Fund of the Carnegie Corporation of New York, the University of British Columbia organized early in 1936 a Department of University Extension. This department carries on a comprehensive and varied programme of adult education.

The grant from the Carnegie Corporation enabled the University to collect much valuable information on the special requirements of adult education in British Columbia. Various experimental projects were tried and, in accordance with the experience gained, were rejected, modified, or accepted as the basis for a more permanent programme. As a result a practicable policy has been evolved—one adapted to local conditions, yet within the financial resources of the University. Through the activities of the Department of University Extension, the University is contributing enduring benefits to the educational, cultural and economic life of the Province.

The 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 Education.

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 including agriculture, business, art, crafts, and courses of general interest are held in 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), Psychology 100 (Introduction to Psychology), 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. Assistance includes short courses on the principles and methods of group discussion.

(e) **Visual Education.**

The Department has over twelve hundred 16 mm. sound and silent 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, Summer 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) **Art and Crafts.**

Through short courses, lectures, demonstration, books, pamphlets and films, the Department offers information and instruction in painting, drawing, ceramics, weaving, leatherwork, decorative and printing processes, and many other crafts.

(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) **Music.**

A Phonograph Record Loan Service, a music appreciation course and a small collection of books on music are available to groups and individuals interested in increasing their knowledge of good 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 broadcasting 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 (C.O.T.C.), the University Naval Training Division (U.N.T.D.), or the R.C.A.F. (Reserve) University Squadron (R.U.S.). 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. (Reserve) University Squadron (R.U.S.), 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 (C.O.T.C.).**

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 basic pay rate of \$170 per month. He is required to devote a minimum of three hours per week at the Armoury to theoretical training in the Winter Session during which he may earn up to \$100 and he may engage in summer training for up to 22 weeks during each of two summers at one of the various Active Force Corps Schools across Canada. The third summer he spends as a junior officer in one of the regular army units in Canada or in Germany. On the successful completion of his military training, and in case of the engineers, upon graduating from the University, the Officer Cadet is qualified for the rank of Lieutenant in the Reserve Force and for the rank of Lieutenant in the Active Force. After further experience in the Reserve force he is automatically granted a qualification for the rank of Captain. 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 with all fees paid. A Regular Officer Training Plan (R.O.T.P.) has also been established whereby selected students with Senior Matriculation will be subsidized throughout University to their degrees. Their tuition and books will be paid for and, in addition, they will receive an allowance of \$65 per month during the University terms. During the summer they receive \$170 per month and during the first winter an additional \$30 per month for general expenses. On acceptance for R.O.T.P. a student must undertake to serve in the Regular Army for 3 years following graduation.

Further 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) The University Naval Training Division (U.N.T.D.)

On the 29th of March, 1943, the University of British Columbia's Board of Governors approved the establishment of a University Naval Training Division (U.N.T.D.) on the campus. Naval Headquarters appointed H. M. McIlroy as Lieutenant in command of the division. Lieutenant-Commander McIlroy retired in 1947 and was succeeded by Lieutenant-Commander (g) F. J. E. Turner, R.C.N. (R), the present Commanding Officer.

Since the war the U.N.T.D. has served as an Officer training establishment for the Regular and Reserve Forces of the Royal Canadian Navy. Thus, students who are interested in the Navy, may avail themselves of training which will develop qualities of leadership, loyalty, sound physique and self-confidence, while fitting themselves for commissions in the Regular or Reserve Force.

All applicants are given medical and personnel tests, prior to enrolment, to determine their fitness.

Students desiring to make the Navy a career are selected and enrolled under the "Regular Officer Training Plan" (R.O.T.P.). The selected student is given the rank of Cadet. The Royal Canadian Navy pays his fees and he is entitled to receive a book allowance of \$50 per year, a living allowance of \$65 per month, and during his first year an additional \$30 per month for general expenses. During the academic year he trains with the U.N.T.D. and each summer he receives professional training, ashore and afloat, at one of the Naval Bases, with pay of \$170 per month. On completion of the requisite academic training, he receives further professional training prior to joining the Fleet as a Sub-Lieutenant.

A student who is interested in a commission in the Royal Canadian Navy (Reserve) is enrolled as a Probationary Cadet, in the branch of his choice. During his first winter in the U.N.T.D. he appears before a Regional Selection Board, and if found suitable is promoted to the rank of Cadet. Then, as a Cadet, he must complete two more winters and two summers of training with the U.N.T.D., and have to his credit three years of University, in order to be considered by a Selection Board for promotion to Acting Sub-Lieutenant, R.C.N. (R). On graduation he is confirmed in his rank of Sub-Lieutenant. He may earn up to sixteen days' pay for regular drills during each winter of training, and additional pay is normally earned during the winter for special training. During each summer

training period, at Naval Establishments and in ships, Reserve Cadets are paid at the rate of \$170 per month, with uniform, medical care and board and room provided.

A Royal Canadian Navy (Reserve) Cadet may be selected for a Regular service commission if he so desires.

Full information pertaining to the U.N.T.D. may be obtained by writing to the Commanding Officer, U.N.T.D., University of British Columbia, Vancouver 8, B.C., or by applying in person to the Resident Staff Officer, U.N.T.D., in the Armoury.

(c) **R.C.A.F. (Reserve) University Squadron.**

In 1948 a Reserve University Flight of the Royal Canadian Air Force was established on the Campus. In October, 1951, the Flight became a Squadron and is now known as such.

The University Squadron offers students an opportunity to qualify for commissions in the R.C.A.F. Regular, Auxiliary Reserve or Supplementary Reserve.

Aircrew applicants must have reached their 17th but not their 25th birthday on date of application and non-flying list applicants must have reached their 18th but not their 29th birthday on date of application. They are required to meet R.C.A.F. medical standards, and to have good academic records. To qualify for a Commission in one of the components of the R.C.A.F. a flight cadet must complete two years of training at the University and at Air Force Units.

Applications are received for training in certain non-flying list branches from female students who have reached their 18th birthday.

While they undergo training, members of the squadron have the status of officers and hold the rank of flight cadet. Not only do members of the squadron qualify for commissions, but they also receive payment for attendance at winter lectures and for summer training which covers a period of from 16 to 22 weeks. Pay of a flight cadet is equivalent to that of a pilot officer.

Candidates selected for aircrew training undergo three summers of flying training and, if successful, gain their wings either as pilots, navigators or radio officers.

Students who have full senior matriculation standing may apply for enrolment in the Regular Officer Training Plan whereby they serve in the Regular Force as flight cadets until graduation from University when they are granted permanent commissions. Under this scheme the R.C.A.F. pays all tuition and registration fees, allows the flight cadets of the Faculty of Medicine \$75 annually and those of other faculties \$50 annually for the purchase of books. During the summer R.O.T.P. flight cadets are on full pay and allowances and during the academic year subsistence allowances are paid.

Full information may be obtained at the R.C.A.F. (Reserve) University Squadron Orderly Room in the University Armoury.

STUDENT ORGANIZATION

Alma Mater Society

President: Raghbir Singh Basi

Secretary: Ann Willis

Treasurer: Gerard Duclos

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 International Students' Service 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 Ubyyssey", student newspaper; the "Totem", yearbook of the Alma Mater Society; and the "Student Handbook", containing a list of addresses and telephone numbers of all members of the Society, and other pertinent information about student affairs.

The Literary and Scientific Executive

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 Handbook.

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

1952-53 EXECUTIVE

President: A. J. Longmore

Secretary: L. Peterson

Treasurer: J. Locke

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.

U.B.C. ALUMNI ASSOCIATION

ASSOCIATION OFFICERS

President: Doug. Macdonald, B.A.

1st Vice-President: Arthur H. Sager, B.A.

Treasurer: G. Dudley Darling, B.Com.

Chairman, Publications Board: Ormonde J. Hall, B.Com., LL.B.

Executive Director: Frank J. E. Turner, B.A., B.Com.

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. 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 Board of Management elected at the annual meeting and the president of each organized branch. There is one representative of each undergraduate degree, plus a representative for Medicine, on this Board. 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 Executive Director. 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. Fund." This Society receives donations from Alumni and other friends of U.B.C., and these donations are income tax deductible. 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. Aubrey F. Roberts is the present Chairman of the Directors, and the Alumni Director is Executive Secretary.

The Association magazine, the "U.B.C. Alumni Chronicle", is issued quarterly throughout the calendar year. "The Chronicle" is mailed to all contributors to the Alumni-U.B.C. 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 with 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

- W. HARRY HICKMAN, M.A. (Brit. Col.), Docteur de l'Université de Paris, Principal, and Professor of French.
- ROBERT T. D. WALLACE, M.A. (Brit. Col.), Vice-principal, and Associate Professor of Mathematics.
- LEWIS J. CLARK, B.A. (Brit. Col.), M.Sc. (Washington), Associate Professor of Chemistry.
- G. REID ELLIOTT, B.A. (Sask.), M.A. (Toronto), Associate Professor of Economics and Commerce.
- SYDNEY G. PETTIT, M.A. (Brit. Col.), Associate Professor of History and Sociology.
- ROGER J. BISHOP, B.A. (Brit. Col.), M.A. (Toronto), Associate Professor of English.
- W. GORDON FIELDS, B.A. (Brit. Col.), A.M. (Stanford), Associate Professor of Biology and Zoology.
- EDWARD J. SAVANNAH, A.B., S.B. (Calif.), Assistant Professor of Chemistry.
- RODNEY P. D. POISSON, M.A. (Brit. Col.), Assistant Professor of English.
- CHARLES H. HOWATSON, M.A. (Brit. Col.), Assistant Professor of Geology and Geography.
- 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.
- G. GRANT McORMOND, M.A. (Sask.), Assistant Professor of English.
- JOHN CARSON, M.A. (Oxon.), Assistant Professor of Classics.
- JOHN L. CLIMENHAGA, M.A. (Sask.), Assistant Professor of Physics.
- MISS GWLADYS V. DOWNES, M.A. (Brit. Col.), Assistant Professor of French.
- MISS WINONA J. BETHUNE, B.A. (Brit. Col.), Instructor in Biology and Botany.
- MISS EILEEN L. GIDNEY, M.A. (Brit. Col.), Instructor in Philosophy.
- MISS DOROTHY M. CRUICKSHANK, B.A. (Brit. Col.), Registrar.
- MRS. E. JOYCE MCKAY, B.A. (Man.), Book Store Manager.
- PHILIP A. MORRIS, B.A. (Brit. Col.), B.L.S. (Toronto), Librarian.
- MISS PATRICIA SULLIVAN, B.A. (Sask.), Assistant 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, 102, 304
Chemistry 101, 200, 210	Latin 90, 110, 120, 202
Commerce 151	Mathematics 100, 101, 200, 201, 202
Economics 100, 200	Philosophy 100
English 100-101, 200	Physics 100, 101, 103, 200
French 110, 120, 202, 203	Psychology 100, 202
Geography 101, 201	Sociology 200
Geology 200	Zoology 200
German 90, 110, 120, 130	

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 8, 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., Th.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 126.)

For further information in reference to Faculty, courses of study, etc., see Calendar of Union College.

THE ANGLICAN THEOLOGICAL COLLEGE OF BRITISH COLUMBIA

VANCOUVER 8, B. C.

(In affiliation with the University of British Columbia)

Principal

REV. W. A. FERGUSON, M.A., D.D.

Registrar and Librarian

(to be appointed)

Dean of Residence

GORDON CAMPBELL, M.A., Ph.D.

The Anglican Theological College offers courses in Theology leading to the Diploma of Licentiate in Theology, the Diploma of Scholar in Theology, and the degrees of B.D. and D.D., and, under the general regulations of the University in reference to affiliated colleges, provides Religious Knowledge options, for which credit is given in the course leading to the B.A. degree. (See page 126.)

For further information in reference to Faculty, courses of study, etc., see Calendar of the College.

REGISTRATION FOR 1952-53

FACULTY OF ARTS AND SCIENCE

	<i>Men</i>	<i>Women</i>	<i>Total</i>
Arts and Science:			
First Year	779	297	1076
Second Year	403	171	574
Third Year	284	146	430
Fourth Year	263	146	409
Total	1729	760	2489
School of Commerce:			
First Year	131	14	145
Second Year	122	2	124
Third Year	87	7	94
Fourth Year	80	4	84
Total	420	27	447
School of Home Economics:			
First Year		54	54
Second Year		39	39
Third Year		33	33
Fourth Year		31	31
Total		157	157
School of Physical Education:			
First Year	19	11	30
Second Year	18	12	30
Third Year	22	8	30
Fourth Year	16	5	21
Total	75	36	111
School of Education:			
Teacher Training Course	79	34	113
B.Ed. Course		1	1
Total	79	35	114
School of Social Work:			
B.S.W. Course	23	38	61
M.S.W. Course	20	8	28
Total	43	46	89
Total in Faculty	2346	1061	3407

FACULTY OF APPLIED SCIENCE

	<i>Men</i>	<i>Women</i>	<i>Total</i>
Engineering:			
First Year	229		229
Second Year	140		140
Third Year	138		138
Fourth Year	160		160
Total	667		667

School of Architecture:

First Year	23	23
Second Year	15	15
Third Year	15	15
Fourth Year	12	12
Fifth Year	13	13

Total	78	78
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School of Nursing:

First Year	23	23
Second Year	15	15
Third Year	11	11
Fourth Year	12	12
Fifth Year	8	8
Certificate Course	32	32

Total	101	101
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Total in Faculty	745	101	846
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FACULTY OF AGRICULTURE

	<i>Men</i>	<i>Women</i>	<i>Total</i>
First Year	29	3	32
Second Year	32	5	37
Third Year	38	7	45
Fourth Year	50	8	58
Fifth Year	7	1	8
Occupational Course	11	2	13

Total in Faculty	167	26	193
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FACULTY OF LAW

	<i>Men</i>	<i>Women</i>	<i>Total</i>
First Year	93	4	97
Second Year	71	6	77
Third Year	60	4	64

Total in Faculty	224	14	238
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FACULTY OF PHARMACY

	<i>Men</i>	<i>Women</i>	<i>Total</i>
Second Year	40	7	47
Third Year	32	9	41
Fourth Year	37	9	46

Total in Faculty	109	25	134
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FACULTY OF MEDICINE

	<i>Men</i>	<i>Women</i>	<i>Total</i>
First Year	56	4	60
Second Year	51	5	56
Third Year	57	3	60

Total in Faculty	164	12	176
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FACULTY OF FORESTRY

	<i>Men</i>	<i>Women</i>	<i>Total</i>
First Year	30	30
Second Year	23	23
Third Year	15	15
Fourth Year	23	23

Total in Faculty	91	91
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FACULTY OF GRADUATE STUDIES

	<i>Men</i>	<i>Women</i>	<i>Total</i>
Course leading to: Ph.D.	46	2	48
M.A.	71	15	86
M.A.Sc.	13		13
M.S.A.	25	1	26
M.Sc.	33	4	37
M.Com.	2		2
M.F.	6		6
Not candidates for degree	43	9	52
Total in Faculty	239	31	270
Grand Total	4085	1270	5355

	<i>Men</i>	<i>Women</i>	<i>Total</i>
Extra-Sessional Classes, 1952-53	101	99	200
Correspondence Courses	103	63	166
Partial Students (Recreation Course)	12	9	21
Summer Session, 1952	623	335	958
Total	839	506	1345

DEGREES CONFERRED

1952

May Congregations:

May 15th and 16th—LL.D. (Honoris Causa)—5; Ph.D.—3; M.A.—29; M.A.Sc.—8; M.S.A.—8; M.F.—1; M.S.W.—5; B.S.W.—46; B.Ed.—5; B.A.—380; B.Com.—60; B.H.E.—26; B.A.Sc.—205; B.Arch.—17; B.S.F.—27; B.S.N.—15; B.S.A.—54; B.S.P.—36; B.P.E.—12; LL.B.—100.

Special Congregations:

September 4th—LL.D. (Honoris Causa)—8.

October 9th—D.Sc. (Honoris Causa)—2.

October Congregation:

October 30th—LL.D. (Honoris Causa)—3; Ph.D.—2; M.A.—14; M.A.Sc.—5; M.S.A.—6; M.Sc.—2; M.S.W.—19; B.S.W.—8; B.Ed.—30; B.A.—146; B.Com.—10; B.H.E.—7; B.A.Sc.—12; B.Arch.—2; B.S.F.—2; B.S.N.—3; B.S.A.—13; B.S.P.—4; B.P.E.—7; LL.B.—21.

UNIVERSITY PUBLICATIONS

The University of British Columbia issues the following official publications, which may be obtained on request from the Registrar:

1. The Calendar.
 2. Summer Session Announcement of Courses.
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THE UNIVERSITY BOOK STORE

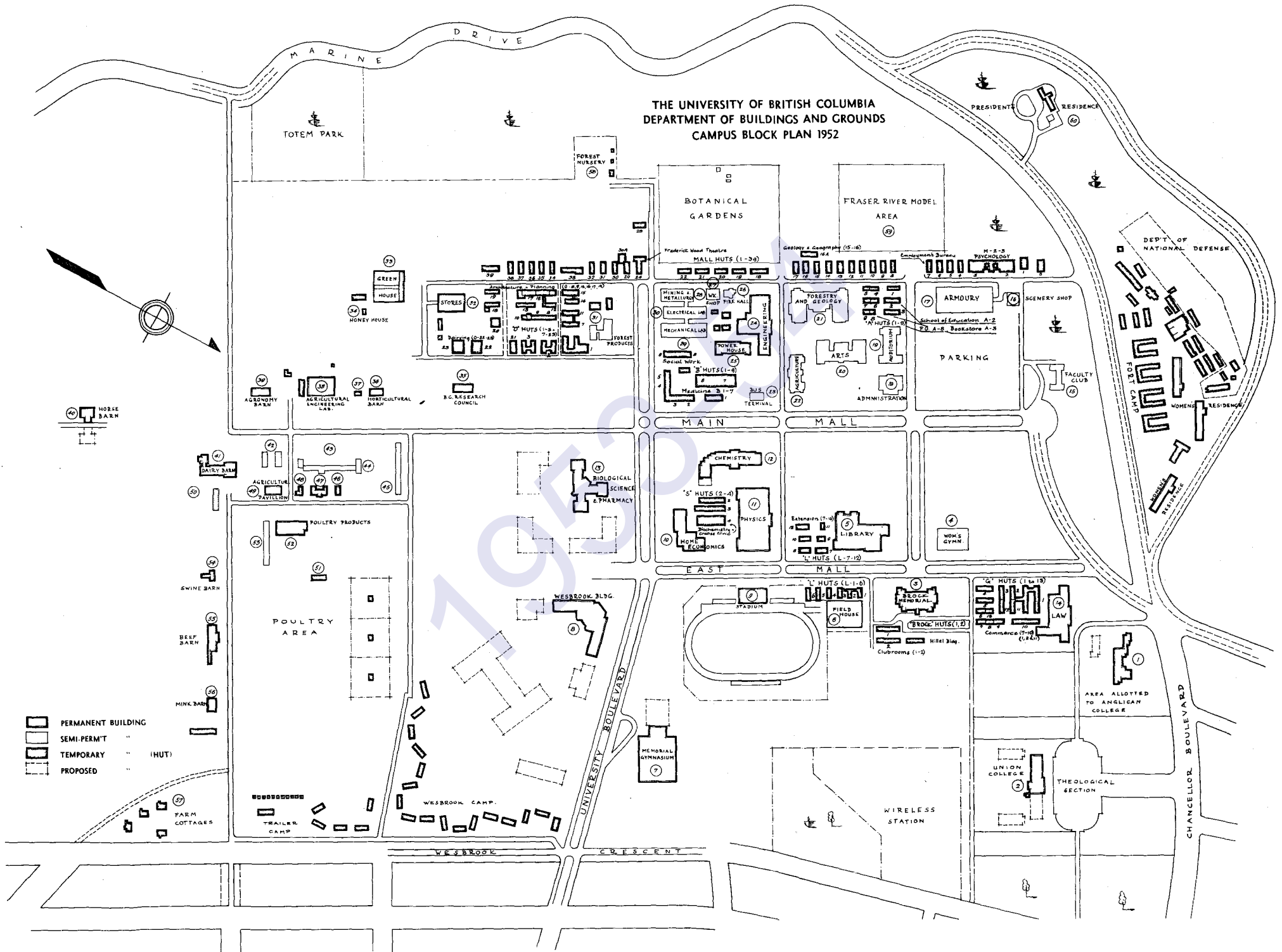
The book store, which occupies Hut A3, was established for the convenience of the students, and has effected a considerable saving to the students in time and money. It is prepared to supply all the text-books required for the various courses offered in the University, also such articles as note books, 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. 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., Executive Director, U.B.C. Alumni Association, Alumni Office, Room 201, Brock Memorial Building, University of British Columbia. Donations, which are deductible from taxable income, should be made payable to the "Trustees of the Alumni-U.B.C. Fund".

THE UNIVERSITY OF BRITISH COLUMBIA
DEPARTMENT OF BUILDINGS AND GROUNDS
CAMPUS BLOCK PLAN 1952



REFERENCE NUMBERS

0. Theological Colleges	31. Federal Forest Products Laboratories
1. Anglican College	32. Stores
2. Union College	33. Greenhouses and Headhouse
3. Brock Memorial	34. Honey House
4. Womens' Gymnasium	35. B. C. Research Council
5. Library	36. Horticultural Barn
6. Field House	37. Insectory
7. Memorial Gymnasium	38. Agricultural Engineering Laboratories
8. Westbrook Building	39. Agronomy Barn
9. Stadium	40. Horse Barn
10. Home Economics	41. Dairy Barn
11. Physics	42. Animal Nutrition Laboratories
12. Chemistry	43. Poultry Nutrition
13. Biological Sciences and Pharmacy	44. Turkey House
14. Law	45. Poultry Research
15. Faculty Club	46. Dairy Laboratories
16. Scenery Shop	47. Vocational Building
17. Armoury	48. Incubator Building
18. Administration	49. Agricultural Pavilion
19. Auditorium	50. Bull Pens
20. Arts	51. Poultry Field Laboratory
21. Forestry and Geology	52. Poultry Products
22. Agriculture	53. Poultry Husbandry
23. Bus Terminal	54. Swine Barn
24. Engineering	55. Beef Barn
25. Power House	56. Mink Barn
26. Fire Hall	57. Farm Cottages
27. Workshops	58. Forest Nursery
28. Mining and Metallurgy	59. Fraser River Model
29. Mechanical Laboratories	
30. Electrical Laboratories	

BUILDINGS

Administration	18	Honey House	34
Agriculture	22	Horticultural Barn	36
Agronomy Barn	39	Incubator	48
Agricultural Engineering Laboratories	38	Insectory	37
Agricultural Pavilion	49	Law	14
Animal Nutrition Laboratories	42	Library	5
Arts	20	Mechanical Laboratories	29
Armoury	17	Memorial Gymnasium	7
Auditorium	19	Mink Barn	56
Beef Barn	55	Mining and Metallurgy	28
Biological Sciences and Pharmacy	13	Physics	11
B. C. Research Council	35	Poultry Field Laboratory	51
Brock Memorial	3	Poultry Husbandry	53
Bull Pens	50	Poultry Nutrition	43
Bus Terminal	23	Poultry Products	52
Chemistry	12	Poultry Research	45
Dairy Barn	41	Power House	25
Dairy Laboratories	46	Scenery Shop	16
Electrical Laboratories	30	Stadium	9
Engineering	24	Stores	32
Faculty Club	15	Swine Barn	54
Farm Cottages	57	Theological Colleges	
Federal Forest Products Laboratories	31	Anglican	1
Field House	6	Union	2
Fire Hall	26	Turkey House	44
Forest Nursery	58	Vocational Building	47
Forestry and Geology	21	Westbrook Building	8
Fraser River Model	59	a) Bacteriology and Immunology	
Greenhouses and Headhouse	33	b) Health Service	
Home Economics	10	c) Nursing	
		Women's Gymnasium	4
		Workshops	27

HUTS

Reference	Occupancy
Auditorium "A" 1-9	School of Education A-2
Brock "Brock" 1-2	Bookstore and Post Office A-3
Bus Stop "B" 1-9	Clubrooms "Brock" 1-2
Gymnasium "G" 1-13	Faculty of Medicine B1-7
Library "L" 1-12	School of Social Work B8-9
Mall "M" 1-39	School of Commerce G1, 2 and 11
Orchard "O" 1-3 and 7-23	G7-10
Science "S" 2-4	Extension Department L7-10
	Psychology M2-3
	Employment Bureau M-7
	Geology and Geography M15-16
	Frederick Wood Theatre M-24
	Architecture and Planning 0-8, 9, 12, 16
	0-17 and 19
	Dairying 0-22 and 23
	Biochemistry and Crease Clinic S-4