PUBLICATIONS OF THE UNIVERSITY OF BRITISH COLUMBIA

The University OF British Columbia

CALENDAR

THIRTY-THIRD SESSION
1947-1948

VANCOUVER, BRITISH COLUMBIA
1947

VOL. 33 GENERAL SERIES NO. 1

NOTICE OF IMPORTANT CHANGES

REGISTRATION AND PAYMENT OF FEES

Attention is drawn to the new regulations and to the increase in fees.

TIME TABLES

Schedules showing hours and rooms for lectures and laboratories will be available during the registration period beginning September 11th.

NEW COURSES

Numerous additional courses are provided in various departments.

SCHOLARSHIPS AND BURSARIES

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

THE DOMINION-PROVINCIAL YOUTH TRAINING BURSARIES AND PROVINCIAL LOAN FUND

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

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

Application forms may be obtained from the Department of Education, Technical Education Branch, Victoria, B. C., and must be returned by August 15th, 1947.

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OF

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CONTENTS

FACULTY OF AGRICULTURE

FACULTY OF LAW

ACADEMIC YEAR

1947

August

1st Friday	Last day for submission of applications for supplemental examinations.
15th Friday 16th Saturday	Supplemental examinations—First Year Nursing.
15th Friday	Last day for submission of applications for admission to First Year Nursing.
15th Friday	Last day for submission of applications for bursaries.

September

1st Monday	ACADEMIC YEAR begins.
1st Monday	Labour Day University closed August 30th to September 1st inclusive.
2nd Tuesday to 9th Tuesday	Supplemental examinations.
11th Thursday	Registration in person for Winter Session begins.
17th Wednesday	Last day for registration and payment of First Term fees of all First and Second Year students. (See August 15th, above.)
19th Friday	Last day for registration and payment of First Term fees of all other students, both undergraduate and graduate except those in Extra-Sessional Classes and Directed Reading Courses.
19th Friday, 9 a.m. to 4 p.m.	Programme for students registering for the first time. Session begins for new students.
22nd Monday	Lectures begin at 8:30 a.m.

October

1st Wednesday	Last day for handing in graduation essays and theses (Autumn Congregation).
3rd Friday	Meeting of the Faculty Council. (Subsequent meetings to be held at the call of the President.)
6th Monday	Last day for change in students' courses.
8th Wednesday	Meeting of the Faculty of Arts and Science.
10th Friday	Meeting of the Faculty of Agriculture.
14th Tuesday	Meeting of the Faculty of Law.
.....	Thanksgiving Day. University closed.
15th Wednesday	Last day for registration and payment of fees of students in Extra-Sessional Classes and Directed Reading Courses.
15th Wednesday	Last day for handing in applications for course leading to Master's degree.
22nd Wednesday	Meeting of the Senate.
29th Wednesday	Congregation.

December

3rd Wednesday	Meeting of the Faculty of Arts and Science.
5th Friday	Meeting of the Faculty of Agriculture.
8th Monday	Meeting of the Faculty of Law.
17th Wednesday	Meeting of the Senate.
20th Saturday	First Term ends.
25th Thursday	Christmas Day. University closed December 24th to 26th inclusive.

1948

January

1st Thursday	New Year's Day. University closed December 31st to January 2nd inclusive.
5th Monday	Second Term begins.
14th Wednesday	Last day for payment of Second Term fees. Payment of second instalment of scholarship money.

February

4th Wednesday	Meeting of the Faculty of Arts and Science.
6th Friday	Meeting of the Faculty of Agriculture.
9th Monday	Meeting of the Faculty of Law.
18th Wednesday	Meeting of the Senate.

March

26th Friday	Good Friday. University closed March 26th to 29th inclusive.

April

15th Thursday	Last day of lectures.
15th Thursday	Last day for handing in graduation essays and theses.
17th Saturday 30th Friday	Sessional examinations.
30th Friday	Last day for handing in applications for scholarships.

May

1st Saturday	Field work in Applied Science begins immediately at the close of the examinations.
8th Saturday	Meeting of the Faculty of Agriculture.
10th Monday	Meeting of the Faculty of Arts and Science.
10th Monday	Meeting of the Faculty of Law.
11th Tuesday	Meeting of the Senate.
13th Thursday	Congregation.
13th Thursday	Meeting of Convocation.
24th Monday	Victoria Day. University closed.

June

.....	King's Birthday. University closed.

July

1st Thursday	Dominion Day. University closed.
5th Monday	Summer Session begins.

August

2nd Monday	Last day for submission of applications for supplemental examinations.
20th Friday	Summer Session ends.
27th Friday	Meeting of the Faculty of Arts and Science.
27th Friday	Meeting of the Senate.
31st Tuesday	ACADEMIC YEAR ends.

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MISS MURIEL UPSHALL, R.N., B.A.Sc. (Brit. Col.), Public Health Nurse.

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

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

MISS VIOLA DAVIES, B.A.Sc. (Brit. Col.), Public Health Nurse.

Physical Education

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

MISS MARION HENDERSON, B.A. (Toronto), Associate Professor and Director of Physical Education, Women.

H. DOUGLAS WHITTLE, B.-P.H.E. (Toronto), Assistant Professor and Associate Director of Physical Education, Men.

IVOR WYNNE, B.A. (McMaster), Assistant Professor.

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

MISS JEAN CARMICHAEL, B.A., Instructor.

MISS ISOBEL CLAY, Diploma in Physical Education (McGill), Instructor. (On leave of absence.)

Veterans' Bureau and Employment and Placement Bureau

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

S. N. F. CHANT, O.B.E., M.A. (Toronto), Counsellor.

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

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

E. S. W. BELYEA, M.A. (Toronto), Part-time Counsellor.

THE UNIVERSITY OF BRITISH COLUMBIA

HISTORICAL SKETCH

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

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

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

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

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

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

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

The first Convocation, held on August 21st, 1912, chose Mr. F. L. Carter-Cotton as first Chancellor of the University. When he retired at the end of two terms in 1918, Dr. R. E. McKechnie was elected Chancellor, and served continuously until his death, May 24th, 1944. On September 18th of that year the Hon. Eric W. Hamber was elected by acclamation to fill out Dr. McKechnie's unexpired term, and on March 7th, 1945, again by acclamation, for the ensuing regular term.

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

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

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

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

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

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

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

LOCATION AND BUILDINGS

Location

The University is situated on the promontory which forms the western extremity of the Point Grey Peninsula. On three sides it is bounded by the Gulf of Georgia. The site comprises an area of 548 acres, of which approximately one-half is campus. In all directions appear snow-capped mountains, strikingly rugged and impressive.

Buildings

The buildings, planned to meet the requirements of fifteen hundred students, are of two classes, permanent and semi-permanent. The former were designed by the University architects, Messrs. Sharp and Thompson, the latter by architects of the Department of Public Works of the Provincial Government. The permanent buildings have been erected in the location originally assigned for them; the others in the quadrangle designated as "unassigned" in the original plan. By utilizing the "unassigned" area for the semi-permanent buildings, all the locations intended for future expansion have been left available.

The entire mechanical equipment of these buildings was designed after a close study had been made not only of present requirements, but of the ultimate development of the institution. This consideration accounts for the fact that only a part of the present equipment is permanent. After a careful survey of the whole situation, a forced hot water system was found to present advantages that made its adoption advisable. Direct radiation with a system of warmed air supply and extraction for ventilation is used to take care of the heat losses in the buildings. A separate system of ventilation is installed for all sanitary conveniences, and a specially constructed system for fume closets. The various services throughout these buildings, such as hot and cold water, distilled water, gas and steam for laboratory purposes, compressed air, etc., with the necessary apparatus, are all of a modern type. An attempt has been made to reduce vibration and noise to a minimum by installing all moving apparatus on floating slabs, with a further insulation of cork.

Library

The University Library consists of more than 170,000 volumes It includes representative works in all the courses offered by the University, and a growing collection of books in other subjects. It is notable for its high percentage of the transactions and proceedings of learned societies, and its long runs of scholarly periodicals—the materials essential to research.

The Library possesses a College Art Teaching Set, presented some years ago by the Carnegie Corporation of New York. This consists of nearly 200 specially selected works covering the fine and applied arts, and of more than 2,000 reproductions, photographed or coloured, illustrating these. Recently it has been possible to expand the art collection somewhat, and the Library has sponsored an Art Loan Collection, from which students may borrow prints and original paintings. The prints are the property of the Library, but most of the paintings have been made available on loan through the kind interest and generosity of local artists.

Another notable gift to the University, made by the Carnegie Corporation of New York, is the College Music Set. The collection of recordings, originally numbering 950, has been greatly expanded, and now consists of over 2,000 records. The Music Set also includes a fine electric gramophone, a collection of books on musical theory and history, and a large number of scores. The recordings are used regularly for student recitals and to illustrate lectures on the appreciation of music. In addition, thousands of records are loaned annually to individual students for home use.

The Library receives regularly over 900 serial publications.

The book collection is classified throughout on the Congressional system.

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

The Library also administers the book collection of the University Extension Department. This consists of about 1,600 volumes, and is increasing as the Department's work develops.

The Extension Department's collection also includes more than 4,000 plays, for the service of dramatic groups and theatre students throughout the Province.

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

The University is deeply indebted to all who have made gifts to the Library. These have been both valuable and numerous. Their number prevents detailed acknowledgment, but recognition should be made of a number of sets of transactions, and complete or partial sets of scientific periodicals, given by societies and friends of the

University. The most interesting and valuable of these gifts are listed in the annual report of the Library to the Senate.

Museums

These consist of (1) the Burnet Collection of South Seas and other ethnological specimens, housed on the main floor of the Library; (2) the Geological and Geographical Museum, in Room 116, Applied Science Building; (3) the Zoological Museum, housed in various rooms of the Applied Science Building.

The Burnet Collection was made by the late Frank Burnet, who donated it and arranged it in its present home. It contains groups of artifacts representative of the ethnology and archaeology of various parts of the Pacific Basin. The largest unit, 1170 catalogued items, is from the islands of the South Pacific, but Malaysia and North and South America are also strongly represented. Doors are open from 4 to 6 hours five days a week throughout the year.

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

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

The collections are freely available to students and research institutions.

Gymnasium

This building was completed in 1929 and presented to the University by the Alma Mater Society. The playing floor has an area of 6,000 square feet, and is surrounded on all sides by tiers

of seats which will accommodate 1,400 persons. In this building are located the dressing rooms, locker rooms, showers, a training and first-aid room, an equipment room, an apparatus room, a kitchen, and the offices of the Physical Education staff and graduate manager of athletics. Equipment for all recreational sports activities is available to the student body free of charge upon presentation of a Physical Education card.

Stadium and Playing Fields

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

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

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

There is also some additional temporary accommodation used by the Department of Physical Education. An army hut, located north of the Brock Memorial Building, was supplied in 1946 to relieve the congestion in the gymnasium. This hut is used primarily

for dance classes and recreational activities. An airforce hangar brought to the campus in the fall of 1946 is expected to be ready for use by September. This building, which will be called the Field House, is 160 feet long and 110 feet wide. It will be used for archery, tennis, golf, and various team practices.

The Brock Memorial Building

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

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

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

The Brock Memorial Building was dedicated in January, 1940.

Forest Products Laboratories

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

Plan of Campus

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

GENERAL INFORMATION

The Session

The academic year begins on the first of September and ends on the last day of August. The Winter Session is divided into two terms—the first, September to December; the second, January to May. The Summer Session consists of seven weeks' instruction in July and August. For *Admission to the University,* see page 33, and for *Registration and Attendance,* see page 35.

Courses of Study

The University offers instruction in each of the four faculties, Arts and Science, Applied Science (including Nursing), Agriculture, and Law, leading to the degrees of Bachelor of Arts, Bachelor of Commerce, Bachelor of Education, Bachelor of Home Economics, Bachelor of Science in Pharmacy, Bachelor of Physical Education, Bachelor of Social Work, Bachelor of Applied Science, Bachelor of Science in Forestry, Bachelor of Architecture, Bachelor of Science in Agriculture, and Bachelor of Laws. In the Faculty of Arts and Science a course is offered leading to a Teaching Training Diploma. Advanced courses of instruction and facilities leading to a Master's degree are offered in each faculty except Law. Admission to these advanced courses, or to the privileges of research, does not in itself imply admission to candidacy for a higher degree.

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 Bachelor's hood is of the Cambridge pattern, black bordered with the colour of the degree obtained; the Master's hood is the same, lined with the distinctive colour. The Bachelor of Arts hood has a border of University blue; the Bachelor of Commerce hood differs from that of Bachelor of Arts by the addition of a white cord; the Bachelor of Education hood has a border of white edged with a cord of University blue. The hood for the degree of Bachelor of Home Economics has a border of turquoise, and that for the degree of Bachelor of Social Service has a border of magenta. The colour for the degree of Bachelor of Applied Science is scarlet red; for the Bachelor of Science in Agriculture it is maize. The hood for the degree of Bachelor of Science in Forestry differs from that of the Bachelor of Applied Science by the addition of a green cord.

The University Student Health Service

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

The Health Service is at present housed in Hut No. 2A directly south of the Armouries.

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. He is advised to make his appointment at the time of registration.

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

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

4. Students who are members of athletic teams must have a yearly medical examination preceding active participation.

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

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

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

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

Control of Communicable Diseases

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

1. Tuberculosis.

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

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

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

2. Other Communicable Diseases.

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

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

Reporting of Other Illnesses or Absence

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

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

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

Summer Session

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

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

Dean of Women

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

Board and Residence

Women

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

Men and women students are not permitted to lodge in the same house, unless they are members of the same family or receive special permission from the Senate. Women students under twenty-five years of age are permitted to occupy suites in apartment houses only when accompanied by some older person. Any residence accommodation arranged by women students for themselves must also meet with the approval of the Dean of Women.

The cost of board and lodging is about $40 a month. Room and breakfast can be secured for $20 to $25 a month. Other meals may be obtained at several places on the campus.

For the Session 1947-48 accommodation will be reserved, for returned women only, at Acadia Camp near the University. The dining room at the Camp is under the supervision of a trained dietitian. Accommodation is in single, double, or triple rooms, and the rates charged are $40 a month. Request for reservations should be made to the Dean of Women's office.

Men

Information concerning accommodation available for men may be obtained by applying to the Department of Extension. Charges for board and room vary from $40 to $45 a month, for room and breakfast from $20 to $25 a month, and for room alone from $15 to $20 a month. Meals may be obtained in the Cafeteria and the Brock Memorial Building; light refreshments are available at different points on the campus.

Students wishing accommodation in either Acadia or the Fort Camp should apply to the Department of Extension at the University. During 1946-47 the charge for room and board was $120

for the First Term and $160 for the Second Term. About 700 students can be accommodated. Preference will be given to returned service men.

General Conduct

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

ADMISSION TO THE UNIVERSITY

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

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

The Faculty of Applied Science reserves the right of selection and admission of students entering the First Year of the Combined Course and the Second Year of the Double Course in Arts and Science and Nursing.

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

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

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

3. Students who have passed the Senior Matriculation examination are admitted to the courses of the Second Year in the Faculty of Arts and Science. Students who have partial Senior Matriculation standing will be granted credit in the First Year in each subject in which they have made 50 per cent. or over.

4. A student who has a failure in a subject of the University Entrance examination standing against him will not be admitted to the University.

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

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

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

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

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

REGISTRATION AND ATTENDANCE

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

In order to facilitate registration, students who have previously attended the University are asked to notify the Registrar's office of their intention to register again and to indicate the faculty and course in which they wish to enrol. A special form is provided for this purpose, a copy of which will be sent to each student with his statement of marks on the final examination. Additional copies may be had at the Registrar's office.

Students should note that the registration fee of $5.00 is now payable during registration at the same time as the First Term fees. It is therefore no longer necessary to send the registration fee with application for either first or subsequent registration.

Registration, except for Directed Reading courses, must be completed *in person* at the Registrar's office between September 11th **and the last day for registration as follows: for First and Second** Year students, Wednesday, September 17th; for other undergraduate and graduate students of the regular Winter Session, Friday, September 19th; for students in Extra-Sessional classes and Directed Reading courses, Wednesday, October 15th.

Registration is not complete until the applicant has turned in his registration booklet at the Registrar's office and has paid his First Term fees. Those who have not completed registration by the last day prescribed will be subject to payment of the late registration fee of $2.00. Students who have been awarded scholarships or bursaries, the first instalment of which is less than the First Term fees, will be required to pay the difference upon registration.

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

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

In the Faculty of Arts and Science no student will be admitted who has more than three units of failures outstanding either from Senior Matriculation or from a previous year in the University.

The Faculty of Applied Science reserves the right of selection and admission of students entering the First Year of the Combined Course in Nursing and the Second Year of the Double Course in Arts and Science and Nursing.

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

1. There are four classes of students:

(a) Graduate students—students who are pursuing courses of study in a faculty in which they hold a degree, whether they are proceeding to a Master's degree or not. Students, however, who are proceeding to a Bachelor's degree in another course in the same faculty in which they hold a degree, or in another faculty, will register as undergraduates.

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

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

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

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

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

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

3. No registration for undergraduate students of the regular Winter Session will be accepted after Monday, September 29th, without the special permission of the faculty concerned, and a candidate so accepted for registration may be required to take fewer courses than the regular year's work.

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

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

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

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

8. Students are required to attend at least seven-eighths of the lectures in each course that they take. Admission to a lecture or laboratory and credit for attendance may be refused by the instructor for lateness, misconduct, inattention, or neglect of duty. Absence consequent on illness or domestic affliction may be excused only by the dean of the faculty concerned, and medical certificates or other evidence must be presented. *If the absence occurs during the session,* the student must appear in person, with the certificate, at the University Health Service immediately on return to the University, and before attendance upon class work. The University Health Service will examine the person concerned and will immediately forward the certificate, with report thereon, to the dean of the faculty. *If the absence occurs during the examinations,* the certificate must be sent to the Health Service within one day after the termination of the examination period. A medical certificate must show the nature and the period of the disability. Medical report forms may be obtained from the Health Service office. In

cases of deficient attendance students may (with the sanction of the dean and the head of the department concerned) be excluded from the Christmas or the final examinations in a course; but, in the case of a final examination, unless the unexcused absences exceed one-fourth of the total number of lectures in a course, such student may be permitted to sit for supplemental examination. (See regulation in each faculty in reference to *Examinations and Advancement.*)

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

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

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

LECTURESHIPS

The Hewitt Bostock Lectureship

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

FEES

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

The registration fee is not returnable.

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

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

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

Ex-service students whose eligibility for assistance under P.C. 5210 has been approved by the Department of Veterans' Affairs are not required to pay fees.

Fees are not transferable from one session to another.

A request for a REFUND OF FEES must be made by the student to the BURSAR within FOUR WEEKS after the student has discontinued his work; and fees for which a refund has not been so requested WILL NOT BE RETURNED.

The Sessional Fees are as follows.

FOR FULL AND CONDITIONED UNDERGRADUATES

IN ARTS AND SCIENCE:

Registration—Payable on registration		$ 5.00
First Term—Payable on registration:		
Sessional Fee	$ 80.00	
Alma Mater Fee	15.00	
Campus and Building Fee	5.00	
		100.00
Second Term—Payable on or before January 15th		75.00
		$180.00

IN SOCIAL WORK COURSE:

Registration—Payable on registration		$ 5.00
First Term—Payable on registration:		
Sessional Fee	$ 80.00	
Campus and Building Fee	5.00	
		85.00
Second Term—Payable on or before January 15th		75.00
		$165.00

IN TEACHER TRAINING COURSE:

Registration—Payable on registration		$ 5.00
First Term—Payable on registration:		
Sessional Fee	$ 77.00	
Alma Mater Fee	15.00	
Campus and Building Fee	5.00	
		97.00
Second Term—Payable on or before January 15th		75.00
		$177.00

IN APPLIED SCIENCE:

Registration—Payable on registration		$ 5.00
First Term—Payable on registration:		
Sessional Fee	$105.00	
Alma Mater Fee	15.00	
Campus and Building Fee	5.00	
		125.00
Second Term—Payable on or before January 15th		100.00
		$230.00

IN NURSING AND PUBLIC HEALTH*:

Registration—Payable on registration		$ 5.00
First Term—Payable on registration:		
Sessional Fee	$ 80.00	
Alma Mater Fee	15.00	
Campus and Building Fee	5.00	
		100.00
Second Term—Payable on or before January 15th		75.00
		$180.00

IN AGRICULTURE:

Registration—Payable on registration		$ 5.00
First Term—Payable on registration:		
Sessional Fee	$ 80.00	
Alma Mater Fee	15.00	
Campus and Building Fee	5.00	
		100.00
Second Term—Payable on or before January 15th		75.00
		$180.00

IN LAW:

Registration—Payable on registration		$ 5.00
First Term—Payable on registration:		
Sessional Fee	$105.00	
Alma Mater Fee	15.00	
Campus and Building Fee	5.00	
		125.00
Second Term—Payable on or before January 15th		100.00
		$230.00

*For Second, Third, and Fourth Year students in Nursing (i.e., students in the affiliated hospital) the Sessional fee is $1.00, payable with an Alma Mater fee of $4.00, on registration. No Campus and Building Fee is payable.

Students admitted to a one-year course for graduate nurses and proceeding to the Certificate on a basis of part-time attendance over two or more years will pay $10.00 per unit.

OCCUPATIONAL COURSE:*

Registration—Payable on registration		$ 5.00
First Term—Payable on registration:		
Sessional Fee	$ 32.00	
Alma Mater Fee	15.00	
Campus and Building Fee	5.00	
		52.00
Second Term—Payable on or before January 15th		30.00
		$ 87.00

FOR PARTIAL STUDENTS

Fees per "Unit"	$10.00	
Registration—Payable on registration		
For 6 units or less	3.00	
For over 6 units	5.00	
First Half—Payable on registration, along with Alma Mater Fee	15.00	
Campus and Building Fee	5.00	

Second Half payable on or before January 15th.

FOR STUDENTS IN EXTRA-SESSIONAL CLASSES AND DIRECTED READING COURSES

Registration—Payable on registration	$ 3.00
Fees per 3-Unit Course	30.00

First Half Unit Fees payable on or before October 15th.
Second Half Unit Fees payable on or before January 15th.

FOR GRADUATES

Registration—Payable on registration	
For 6 units or less	$ 2.00
For over 6 units	5.00
Course Fees (payable at $10.00 per unit for courses taken)	125.00

Course fees due in any session may be paid in two equal instalments, on registration and on January 15th.

FOR BACHELOR OF EDUCATION

Registration—Payable on registration	
For 6 units or less	$ 2.00
For over 6 units	5.00
Course Fees (payable at $10.00 per unit for courses taken)	150.00

Course fees due in any session may be paid in two equal instalments, on registration and on January 15th.

LATE REGISTRATION

See page 35 ..... $2.00

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

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

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

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

FOR SUMMER SESSION STUDENTS

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

Registration—Payable on registration	$ 3.00
Minimum Class Fee	15.00
Per "Unit"	10.00
Summer Session Association	2.00

SPECIAL FEES

Regular supplemental examination, per paper	$ 5.00
Supplemental examination at other centres, per paper	7.50
Special examination (Applied Science and Agriculture), per paper	7.50
Re-reading, per paper	2.00

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

MEDALS, SCHOLARSHIPS, PRIZES, BURSARIES, AND LOANS FOR 1947-48

GENERAL REGULATIONS

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

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

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

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

4. To be eligible for a General Proficiency Scholarship a student must take the full year's course, which must include the required courses for the year in which he is registered, except that in the Faculty of Arts and Science and in Agriculture other subjects may be substituted for the required courses if credit for these has already been obtained.

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

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

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

7. Scholarships and fellowships under the jurisdiction of the University are payable in two instalments, one at the beginning of each term. Undergraduate winners must continue their courses to the satisfaction of the faculty concerned during the session following the award. The payment for the Second Term may be withheld

in the case of an undergraduate scholarship holder whose work in the First Term has been unsatisfactory. A faculty is authorized to permit a scholarship to be reserved for one year, provided the student shows satisfactory reasons for postponing attendance. In the case of University Entrance and Senior Matriculation scholarships, postponement will be granted on medical grounds only. Application for reservation should be made to the Registrar.

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

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

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

10. The University does not guarantee the payment of any prizes, 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. Limited funds are provided from which loans may be made to undergraduate students. Unless otherwise stated loans will not exceed $100 and are limited to students *who have completed satisfactorily two years' University work and who can show that they are in need of pecuniary assistance.* Interest at the rate of 5 per cent. per annum is charged on these loans. They must be secured by approved joint promissory note given for a definite term and signed by the applicant and his parent or guardian. Loans are not granted to graduate students, except in the Teacher Training Course, nor to students in diploma courses. Applications for loans should be addressed to the Bursar of the University.

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

MEDALS

The Governor-General's Gold Medal

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

The Wilfrid Sadler Memorial Gold Medal

A gold medal, given by Sigma Tau Upsilon Honorary Agricultural Fraternity in memory of Professor Wilfrid Sadler, 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 Kiwanis Club Gold Medal

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

The University Medal for Arts and Science

This medal will be awarded to a student in the graduating class for the B.A. degree. For the purposes of this award, students will be divided into two groups as follows: (A) those who have so chosen their majors or Honours courses that at least half 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

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.

The Horner Gold Medal

A gold medal to be known as the "Horner Gold Medal", given by

Frank W. Horner Limited of Montreal, will be awarded annually to the student standing at the head of the graduating class in Pharmacy.

The United Empire Loyalists' Association Medal

The Vancouver Branch of the United Empire Loyalists' Association of Canada is offering a silver medal, and a cash prize of $25, for the best essay received during the session 1947-48 on any topic dealing with the history of the United Empire Loyalists and their influence on the development of Canada. The competition is open to all undergraduates of the University, but preference is given to students enrolled in a Canadian History course.

The Lefevre Gold Medal and Scholarship

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

SCHOLARSHIPS FOR GRADUATES

University Graduate Scholarship

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

The Anne Wesbrook Scholarship

This scholarship of $125, given by the Faculty Women's Club of the University, is open to a student of the graduating class of this University who is proceeding in the following year to graduate study in this or any other approved university. Applications, on forms available at the Registrar's office, must be received by the Registrar not later than March 15th.

The Dr. F. J. Nicholson Scholarships

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

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

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

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

The John and Annie Southcott Memorial Scholarship

A scholarship of the value of $100, given annually by Mrs. Thomas H. Kirk, will be awarded to that student who, possessing exceptional aptitude for research, either intends to pursue, or is already pursuing some approved investigation in the field of British Columbia history. The scholarship will normally be awarded to a Fourth Year student or to a graduate proceeding to a higher degree, but may be awarded to a student of the Third Year. Applications, on forms available at the Registrar's office, must be received by the Registrar not later than March 15th.

The Native Daughters of British Columbia Scholarship

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

The B'nai B'rith District No. 4 Hillel Foundation Scholarships

From the sum of $250 made available by District Grand Lodge No. 4, B'nai B'rith, through Vancouver Lodge, Vancouver, B. C., two scholarships of the value of $125 each were available in the session 1946-47. The terms of award were as follows: These scholarships will be awarded to outstanding graduate students in any of the three faculties—Arts and Science, Agriculture, and Applied Science. The winners shall indicate satisfactory plans for graduate study at the University of British Columbia or at any other university approved by the Joint Faculty Committee on Prizes, Scholarships, and Bursaries. Only one scholarship shall be available in any one faculty in one year. Applications, on forms available at the Registrar's office, must be received by the Registrar not later than March 15th.

The Standard Oil Company of British Columbia Limited Fellowship

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

The Britannia Mining and Smelting Company Limited Scholarship

For research in mineralography the Britannia Mining and Smelting Company Limited offers a scholarship of $250, open to

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

The Cariboo Gold Quartz Mining Company Limited Scholarship

A scholarship of $100, given by the Cariboo Gold Quartz Mining Company Limited, for research in mineralography, was available in the session 1946-47. The terms of award were as follows: This scholarship will be awarded to a graduate in Geological, Mining, or Metallurgical Engineering in the Faculty of Applied Science. A portion of the scholarship not to exceed $20 may be used for special equipment for the research problem. The topic of research shall be chosen after consultation with the Department of Geology and Geography of the University of British Columbia and the Cariboo Gold Quartz Mining Company Limited. Applications, on forms available at the Registrar's office, must be received by the Registrar not later than December 10th. Recipients must be qualified to undertake the research work in respect not only of scholarship and research ability but also of personality and health.

The Powell River Company Limited Scholarship

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

Furthermore, if special aptitude is shown in carrying out this work, an equal amount may be offered for further graduate study and research in wood chemistry, in this or any other approved

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

The British Columbia Electric Railway Company Limited Research Scholarship

The British Columbia Electric Railway Company Limited offers a scholarship of $500 for research related to electrical and mechanical engineering problems. An additional amount not to exceed $100 will be available for special equipment, for other expenses, or for extension of the research beyond the close of the Second Term. The scholarship is open to graduates in the Electrical and Mechanical Engineering courses in the Faculty of Applied Science. The topic of research will be chosen after consultation with the Dean of the Faculty, the Head of the Department, and the donors. Applications, on forms available at the Registrar's office, must be received by the Registrar not later than March 15th.

The Cominco Fellowship

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

The Edith Ashton Memorial Scholarship

A scholarship of $250, given by Mr. and Mrs. Daniel M. Armstead in memory of Edith Ashton, will be offered in the Department of Biology and Botany. This scholarship will be awarded to an outstanding graduate student whose topic of research is in the field of marine and freshwater botany or some field approved by the Head of the Department. Applications, on forms available at the Registrar's office, must be received by the Registrar not later than March 15th.

The Lions Club Fellowship

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

The Canadian Pulp and Paper Association, Western Branch, Fellowship

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

The Shell Oil Fellowship for Research

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

The Dorothy and William Dorbils Scholarship

A scholarship of total value of $2000, the gift of Dorothy and William Dorbils, will be available for award in 1950, and subsequently, to enable a student to undertake an approved programme of graduate studies in the field of the humanities or the pure sciences. To be eligible for the scholarship, an applicant must have completed four years at the University of British Columbia, including at least one year of graduate study. The award will be made

to an outstanding student on the basis of scholastic achievement and promise in research. The winner will receive one third of the total value of the scholarship during each of the first three years of his graduate work outlined in the approved programme. In the event that he complete his course in less than three years, the balance of the award will be used to provide a scholarship for another graduate student. Further details may be obtained from the Chairman of the Committee.

The Shanahan's Limited Scholarship

For research in colloidal chemistry Shanahan's Limited offers a scholarship of $500, open to Honours graduates in Chemistry in the Faculty of Arts and Science, or graduates in Chemical Engineering in the Faculty of Applied Science. The topic of research will be chosen after consultation with the Department of Chemistry of the University and the donors. Recipients must be qualified to undertake graduate and research work in respect of scholarship, research ability, personality, and health. Applications, on forms available at the Registrar's office, must be received by the Registrar not later than March 15th.

The General Construction Company Limited Scholarship

(Donated through the Vancouver Men's Canadian Club)

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

The Canadian Industries Limited Fellowship

A fellowship of $750, the gift of Canadian Industries Limited, is available for students to undertake graduate study and research at the University in Agriculture, Chemistry, Chemical Engineering, Forestry, Forest Engineering, Metallurgy, or Mining. The recipient, who will be selected on the basis of scholarship and research ability, will be expected to pursue investigation in one

of the fields mentioned above. The topic of research will be chosen by the department concerned. Full details of the award are available at the Registrar's office. Applications, on forms available at the Registrar's office, must be received by the Registrar not later than March 15th.

The British Columbia Sugar Refining Company Limited Scholarships

Scholarships to the total of $2500, the gift of the British Columbia Sugar Refining Company Limited, are available annually for students in Agriculture, Bacteriology, Botany and Biology, Chemistry, Fisheries, Home Economics, and Zoology. Awards are open to graduate students, or undergraduates entering the final year of their course. 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 Swift Canadian Company Limited Fellowship

For research work on food products and nutrition the Swift Canadian Company Limited offers a fellowship of $1000. Of this sum $750 will be available for the recipient and $250 for equipment and supplies. This award is open to graduates in Arts and Science, Applied Science, and Agriculture. The recipient will be recommended to Senate by the Scholarship Committee, after consultation with the deans of the faculties.

The British Columbia Telephone Company Scholarships

Scholarships to the total of $2500, the gift of the British Columbia Telephone Company, were made available in May, 1947, for Honours graduates in Physics (including Mathematics and Physics) in the Faculty of Arts and Science, and for graduates in Electrical Engineering, Mechanical Engineering, and Engineering Physics in the Faculty of Applied Science. Awards were 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 were recommended to Senate by the Joint Faculty Committee on Prizes, Scholarships, and Bursaries, after consultation with the heads of the departments concerned.

The British Columbia Packers Limited Research Fellowship

A fellowship of $1200, the gift of the British Columbia Packers Limited, was awarded in May, 1947 for research and investigation in fisheries. Under the terms of award the recipient was enabled to undertake advanced work at another institution and to make observations on fishery methods and procedures on the Atlantic Coast.

SCHOLARSHIPS FOR UNDERGRADUATES

1. IN ALL FACULTIES

University Great War Scholarships

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

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

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

The Players' Club Alumni Scholarship

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

on the recommendation of the Honorary President of the Players' Club, the Director of its spring production, and the Executive of the Players' Club Alumni. Applications must be submitted to the Honorary President of the undergraduate club before April 15th. If no suitable applicant is found, the award will not be made.

2. IN ARTS AND SCIENCE

University Scholarships in Arts and Science

Two scholarships in Arts and Science of $200 each will be awarded to students proceeding to the Fourth Year, the award to be based on the work of the Third Year. These scholarships will be awarded respectively: 1. To the student standing highest with majors in group (1). (See page 102.) 2. To the student standing highest with majors in group (2). (See page 102.) 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 second and third places in the examinations of the First Year in Arts and Science, and proceeding to a higher year.

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 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 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

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

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 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 300-303 with promise of service in the Empire. Applications, on forms available at the Registrar's office, must be received by the Registrar not later than the last day of the final examinations.

Royal Institution Scholarship in Arts and Science

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

The Beverley Cayley Scholarship

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

The N. Leo Klein Memorial Scholarship

A scholarship of $50, in memory of N. Leo Klein, given by Mr. I. J. Klein, Vancouver, B. C., will be awarded to the student obtaining first place in the examinations of the Third Year of the course in Commerce.

The Vancouver Women's Canadian Club Scholarship

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

The John and Annie Southcott Memorial Scholarship

As on page 47.

The Summer Session Students' Association Scholarship

A scholarship of $40, given by the Summer Session Students' Association, will be awarded at the close of the Summer Session to the Summer Session student who in that session completes the Second Year with the highest standing. To be eligible a student must have taken his entire Second Year in the University of British Columbia Summer Session, extra-sessional classes, or reading courses and must be proceeding to a higher year in the University of British Columbia.

The British Columbia Teachers' Federation Scholarship

A scholarship of $50 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, the Third Year of his University work with the highest standing in that year. To be eligible a student must have taken his entire Third Year in the University of British Columbia Summer Session, extra-sessional classes, or reading courses, and must continue in his Fourth Year at the University of British Columbia.

The Vancouver Women's Canadian Club Scholarship in Home Economics

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

The Edwin Waterhouse Scholarship

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

The R. J. Pop Scholarship in Zoology

A scholarship of $150, given annually by Mr. R. J. Pop, will be awarded to the student who completes the third year of the Honour Course in Zoology with highest standing and intends to pursue an investigation into terrestrial vertebrate Zoology related to the conservation of natural resources. If no third year student presents work of sufficient merit, the award may be made to a student in the fourth year who is proceeding to graduate work in the above field at this or any other university.

The Alaska Pine Company Scholarship in Wood Chemistry

(Donated through the Vancouver Men's Canadian Club)

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

The Alaska Pine Company Scholarship in Commerce

(Donated through the Vancouver Men's Canadian Club)

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

The Vancouver Daily Province Scholarship

(Donated through the Vancouver Men's Canadian Club)

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

The Alaska Pine Company Scholarship in Economics

(Donated through the Vancouver Men's Canadian Club)

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

The Burbidge Scholarships

(Donated through the Vancouver Men's Canadian Club)

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

The British Columbia Sugar Refining Company Limited Scholarships

As on page 53.

The Cunningham Scholarship in Pharmacy

(Donated through the Vancouver Men's Canadian Club)

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

The Woodward Scholarships

(Donated through the Vancouver Men's Canadian Club)

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

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

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

The B. C. Drugs Limited Scholarship

(Donated through the Vancouver Men's Canadian Club)

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

The Pharmaceutical Association of the Province of British Columbia Scholarship

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

The Canadian Foundation for the Advancement of Pharmacy Scholarships

Two scholarships of $100 each, the gift of the Canadian Foundation for the Advancement of Pharmacy, are available for students in Pharmacy. One of these scholarships will be awarded in May, to a student completing the Second Year. The other will be awarded as an entrance scholarship in September. Although the awards will be made primarily on the basis of merit, financial need will be considered.

The Dafoe Foundation Scholarship

A scholarship of $200, the gift of the J. W. Dafoe Foundation, was made available in the Session 1946-47 for students in the fields of the social sciences, Anthropology, Economics, Geography, History, Politics, Sociology, and their correlative branches. The terms of award were as follows: This scholarship will be awarded to a candidate who, in the Session 1947-48, will enter the final year of his Honours Course for the degree of B.A. To be eligible, a candidate must take an Honours course made up largely of subjects in the social sciences. He must have obtained first class standing in the Third Year, and present evidence of marked competence in the art of literary exposition and expression. The basis of award will be scholastic merit exclusively. The scholarship is tenable at any Canadian university. Applications, on forms available at the Registrar's office, must be received by the Registrar not later than the last day of the final examinations.

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

A scholarship of $50, the gift of the British Columbia Branch of the Canadian Association for Health, Physical Education, and Recreation, will be awarded annually to a student completing the Physical Education course in the Second Year of Arts and Science,

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

The Winspear, Hamilton, Anderson and Company Scholarships

Scholarships of $150 each, the gift of Winspear, Hamilton, Anderson and Company, are offered annually to students who have selected the accounting option in the course leading to the degree of B.Com. Two scholarships will be awarded, one to a student proceeding to the Fourth Year and the other to a student proceeding to the Fifth Year. The awards will be made at the beginning of the session to candidates of outstanding merit who are recommended by the Department of Commerce. These scholarships will be given for the first time in September, 1948.

3. IN APPLIED SCIENCE

University Scholarship in Nursing and Health

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

The Vancouver Women's Canadian Club Scholarship

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

The Dunsmuir Scholarship*

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

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

University Scholarship in Applied Science

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

Royal Institution Scholarship in Applied Science

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

The G. M. Dawson Scholarship

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

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

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

The R. Randolph Bruce Scholarship

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

The British Columbia Electric Railway Company Limited Scholarships

Two 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 student standing highest in the Electrical Engineering course of the Third Year in Applied Science, and proceeding to the Fourth Year;

(2) 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.

The Canadian Forest Products Limited Scholarships

(Donated through the Vancouver Men's Canadian Club)

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

The Lambert Scholarship

(Donated through the Vancouver Men's Canadian Club)

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

The General Construction Company Limited Scholarship

(Donated through the Vancouver Men's Canadian Club)

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

The John Inglis Company Limited Scholarships

(Donated through the Vancouver Men's Canadian Club)

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

The Alaska Pine Company Scholarship in Forestry

(Donated through the Vancouver Men's Canadian Club)

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

The Boultbee-Bosustow Memorial Scholarship

(Donated through the Vancouver Men's Canadian Club)

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

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

4. IN AGRICULTURE

University Scholarship in Agriculture

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

The David Thom Scholarship

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

The British Columbia Fruit Growers' Association Golden Jubilee Scholarship

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

The Hogarth Scholarships

(Donated through the Vancouver Men's Canadian Club)

Two scholarships of $125 each, the gift of Major General D. M. Hogarth, Toronto, will be awarded annually to students completing the Third Year of Agriculture and proceeding to the Fourth Year. The recipients will be recommended by the Faculty of Agriculture on the basis of general proficiency and outstanding ability in one or more of the fields of Agricultural Economics, Agricultural Mechanics, Agronomy, Animal Husbandry, Dairying, Horticulture (including Plant Nutrition), and Poultry Husbandry.

The British Columbia Sugar Refining Company Limited Scholarships

As on page 53.

5. IN LAW

The Norgan Scholarships

(Donated through the Vancouver Men's Canadian Club)

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

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

The Hon. R. L. Maitland Memorial Scholarship

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

UNIVERSITY ENTRANCE AND SENIOR MATRICULATION SCHOLARSHIPS

The Vancouver Sun Scholarships for Carriers

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

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 and Canadian Boxes Limited who are resident in British Columbia. The scholarship will be awarded to the applicant who ranks highest on the basis of the marks obtained in any year on the written examinations in the scholarship subjects of University Entrance, as outlined in *The Requirements for University Entrance and Senior Matriculation.* Selection of the winner will be made by the University. Full details of the terms of award may be obtained from the Personnel Manager of Pacific Mills Limited, or from the Registrar's office. Applications should be forwarded to the Personnel Manager not later than June 1st.

University Scholarships for University Entrance

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

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

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

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

1. School Districts Nos. 1, 2, 3, 4, 5, 6, 7, 8, 9, and 10;

2. School Districts Nos. 11, 12, 13, 14, 15, 16, and 17;

3. School Districts Nos. 18, 19, 20, 21, 22, and 23;

4. School Districts Nos. 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, and 34;

5. School Districts Nos. 35, 36, 37, 38, and 42;

6. School District No. 39, Britannia, Grandview, John Oliver, and Technical High Schools;

7. School District No. 39, Fairview, King Edward, King George, Kitsilano High Schools, St. Patrick's Private School;

8. School District No. 39, Lord Byng, Magee, Prince of Wales High Schools, University Hill High School, Crofton House, St. George's, Vancouver College, York House Private Schools;

9. School Districts Nos. 40 and 41;

10. School Districts Nos. 43, 44, 45, 46, 47, and 48;

11. School Districts Nos. 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, and 60;

12. School District No. 61;

13. School Districts Nos. 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, and 74.

These scholarships will be paid only to students in attendance at the University of British Columbia, with the exception that

University Entrance scholarships awarded in School Districts 61 to 66 inclusive may be paid to students in attendance at Victoria College.

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

Royal Institution Scholarships for Senior Matriculation

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

(a) $200 to the candidate of highest standing in the Province;

(b) $200 to the candidate of next highest standing in the Province;

(c) $200 to the candidate of next highest standing in all school districts of the Province other than School Districts Nos. 39, 40, 41, 44, and 45; and

$200.00 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, 42, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, and 74.

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

Postponement of Senior Matriculation scholarships will be granted only on medical grounds.

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

PRIZES

1. IN ALL FACULTIES

The University Essay Prize

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

The News-Herald Awards in Journalism

The Vancouver News-Herald offers annually two prizes to students who show promise in journalism. The first prize of $200 is open to undergraduates of the Third or higher years of Arts and Science and Agriculture, the Second or higher years of Applied Science, and any year of Law. The second prize of $150 is open to First or Second Year students of Arts and Science and Agriculture and First Year students of Applied Science. A winner in one of these categories is not eligible for a second award in the same category. Each competitor must submit five original articles published or suitable for publication in the Ubyssey or other newspapers during the year preceding the awards. These articles may be news-stories, feature articles, reports, reviews, or editorials. Awards will be made by Senate on the recommendation of a committee consisting of the Editor of the News-Herald and the Head of the Department of English. Articles must be in the hands of the Registrar not later than March 31st.

The Penfield Prize

A cash prize of $100, the gift of Dr. Wilder Penfield, was awarded in May, 1947, to a student of the graduating classes with good scholastic standing. The purpose of the award was to recognize the initiative of an undergraduate who had done outstanding work in the University of British Columbia. Selection of the winner was made by Senate on the recommendation of the Joint Faculty Committee on Prizes, Scholarships, and Bursaries. Staff and students were invited to submit recommendations.

The J. W. Dafoe Foundation Essay Prizes

Two prizes of $100 each, the gift of the J. W. Dafoe Foundation, will be awarded during the session 1946-47 for essays on topics dealing with the significance of international cooperation in either the political or economic field. The competition is open to undergraduate students of any year or Faculty. Essay topics should be chosen in consultation with the Director of International Studies. Typewritten essays must be submitted by October 1st, 1947. Awards will be made on the recommendation of the heads of the departments of Economics, Political Science and Sociology, and History, and the Director of International Studies. No awards will be made unless essays reach the required standard.

2. IN ARTS AND SCIENCE

Frances Willard Prize

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

The award will be made for the session 1947-48 on recommendation of the Heads of the Department of Education and the Department of Economics, Political Science, and Sociology. Essays must be submitted by April 10th, 1948.

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

The David Bolocan Memorial Prize

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

The Ahepa Prize

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

The Armstead Prize in Biology and Botany

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

The Llewellyn Jones Prize in Zoology

A cash prize of $50, offered by Mr. J. R. J. Llewellyn Jones, will be awarded to the student in the graduating year of the Faculty of Arts and Science whose academic work and promise of research ability in the Honours Course in Zoology, in the field of entomology,

have been outstanding and worthy of recognition. In the event of there being no undergraduate of outstanding merit, the award will be made to a graduate of the University of British Columbia who is carrying out noteworthy graduate work at this or another university.

The International Studies Prize

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

The Cunningham Prize in Pharmacy

(Donated through the Vancouver Men's Canadian Club)

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

The Frosst Proficiency Awards

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

The Pharmaceutical Association of the Province of British Columbia Prize

A cash prize of $50, the gift of the Pharmaceutical Association of the Province of British Columbia, will be awarded annually to a student completing the Fourth Year. The award will be made on the recommendation of the Head of the Department 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 Transportation and Customs Bureau of the Vancouver Board of Trade Prizes

Four prizes, each of $75, the gift of the Transportation and Customs Bureau of the Vancouver Board of Trade, were awarded in May, 1947, for the best major reports submitted by students enrolled in the Department of Commerce in the course on Transportation Practices and Policies (Commerce 543). The prizes were assigned for reports in the fields of railway, highway, waterway, and airway transportation respectively. One prize was awarded in each field.

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.

3. IN APPLIED SCIENCE

The Convocation Prize

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

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

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

The Association of Professional Engineers' Prizes

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

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

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

The Engineering Institute of Canada Prize

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

The British Columbia Lumber and Shingle Manufacturers' Association Prizes

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

The William N. Kelly Prize

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

The Timber Preservers Limited Prizes

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

The Ingledow Prizes

Two prizes of $50 each, the gift of Mr. T. Ingledow, are available for undergraduates in Electrical Engineering who are members of the student branch of the American Institute of Electrical Engin-

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

The H. R. MacMillan Export Company Limited Prizes

Through the generosity of the H. R. MacMillan Export Company Limited, prizes to the total of $750 are available annually for undergraduates registered in the Forestry course. This sum will be divided into three equal parts, to provide a first prize of $150 and a second prize of $100 for the best two reports on each of three specified subjects. Full details regarding the subjects may be obtained from the Head of the Department of Forestry.

The Canadian Forest Products Limited Prizes

(Donated through the Vancouver Men's Canadian Club)

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

The Northern Electric Company Limited Prize

(Donated through the Vancouver Men's Canadian Club)

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

The Trail Board of Trade Prize

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

4. IN AGRICULTURE

The Dr. D. A. McKee Memorial Prize

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

5. IN LAW

The Carswell Company Limited, Prizes

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

The Norgan Essay Prize

(Donated through the Vancouver Men's Canadian Club)

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

The Toronto General Trusts Corporation Prize

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

Special Book Prize

A book prize of the value of $25, the gift of an anonymous donor, was awarded in May, 1947, to a student in the Second Year who obtained high scholastic standing and was not the recipient of any other scholarship or prize.

The Vancouver Bar Association Prizes

Prizes to the total of $100, the gift of the Vancouver Bar Association, were available for students registered in the Faculty of Law during the Session 1946-47. These prizes were offered for Comments on cases submitted for publication in the *Canadian Bar Review*. One prize of $50 was offered for the Comment of highest merit and two prizes of $25 each were offered for the Comments ranking next in merit. Two or more students were permitted to collaborate in the writing of a Comment. Contributions submitted prior to March 31, 1947, were considered for these prizes and were judged by a committee consisting of the Provincial Editor of the *Canadian Bar Review* and two members of Faculty.

The Canada Law Book Company Prize

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

BURSARIES

The Captain LeRoy Memorial Bursary

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

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

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

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

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

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

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

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

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

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

The American Woman's Club Bursary

A bursary of $100, given by the American Woman's Club of Vancouver, will be available for the session 1947-48 to assist a woman undergraduate who has completed at least one year in Arts and Science with satisfactory standing, and who could not otherwise continue her course. Applications, on forms available at the Registrar's office, must be received by the Registrar not later than August 15th.

The University Women's Club Bursary

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

The Inter-Sorority Alumnae Bursary

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

The Mildred Brock Memorial Bursary

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

The Frances Milburn P. E. O. Bursary

A bursary of $150, given by the Vancouver Chapters of the P. E. O. Sisterhood in memory of the late Frances Milburn, will be available for the session 1947-48 to assist a woman undergraduate who has completed at least one year in Arts and Science with high standing in English, and who could not otherwise continue her course. The award will be made on the recommendation of the Dean of Women. Applications, on forms available at the Registrar's office, must be received by the Registrar not later than August 15th.

The Lady Laurier Club Bursary

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

The Alliance Francaise Bursary

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

The Faculty Women's Club Bursary

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

The Alumni Association Bursary

A bursary of the value of $50, given by the Alumni Association of the University of British Columbia, will be awarded on the basis of scholarship and need to a student entering the First Year in Arts and Science or Agriculture. Applications, on forms available at the Registrar's office, must be received by the Registrar not later than August 15th.

The William MacKenzie Swan Memorial Bursary

A bursary of the annual value of $250, given by Colonel and Mrs. W. G. Swan in memory of their son, William MacKenzie Swan, an outstanding all-round undergraduate student and popular athlete who died July 28th, 1937, as a result of injuries received in a fall from the Pattullo Bridge at New Westminster on which he was engaged as Assistant Engineer, will be awarded to a student or students registered in the Second, Third, or Fourth Year of the Faculty of Applied Science, requiring financial assistance to enable him or them to continue studies at the University. In making the award, consideration will be given to the academic record of the applicant and to his participation in undergraduate affairs. Applications, on forms available at the Registrar's office, must be received by the Registrar not later than August 15th.

The Phil Wilson Bursary in Forestry

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

The David Thom Bursaries

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

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

3. A sum of $75 to be awarded to a student who has satisfactorily completed the work of the Third Year in Agriculture and is proceeding to the Fourth Year in that Faculty. Applications, on forms available at the Registrar's office, must be received by the Registrar not later than August 15th.

Delta Gamma Bursary for the Blind

A bursary of $100 given by the Delta Gamma Fraternity will be awarded to a blind student requiring financial assistance to enable him or her to enter the University or to proceed to further studies. The award will be made by the Senate upon recommendation of the Joint Faculty Committee on Prizes, Scholarships, and Bursaries acting in consultation with the Principal of the B. C. School for the Deaf and Blind, the Superintendent of the Canadian National Institute for the Blind of Vancouver, and an accredited representative of Delta Gamma fraternity. Applications, on forms available at the Registrar's office, must be received by the Registrar not later than August 15th.

The Geldart Riadore Bursary

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

The Flying Officer Reverend George Robert Pringle Memorial Bursary

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

The Alberta Meat Company Bursary

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

The Mary C. Lipsett Bursary

A bursary of $300, offered annually by Mrs. Mary C. Lipsett, will be awarded to a student who has completed at least the Second Year in the Faculty of Arts and Science, and who proposes to take his major work in Sociology or Psychology. In making the award, consideration will be given to the applicant's interest in problems of social anthropology and his ability to pursue work in that field. Applications, on forms available at the Registrar's office, must be received by the Registrar not later than August 15th.

The Rotary Memorial Bursaries

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

The Cooperative Seed Growers' Bursary

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

The Vancouver Section National Council of Jewish Women Bursary

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

The Gamma Phi Beta Bursary

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

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

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

University Women's Club General Bursary

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

Bursaries for Proficiency (Special Awards)

Through the generosity of an anonymous donor, a bursary of $1500 was made available to enable a student with high scholastic

standing and need of financial assistance to complete his or her undergraduate course. The recipient was chosen in September, 1944, from among bursary applicants entering First or Second Year in any faculty.

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

The Jack Cohen Bursary

A bursary of $150, the gift of Mr. S. J. Cohen, is available for a student who has completed the Third Year in Commerce and is proceeding to the work of the Fourth Year. To be eligible for this award, the student must have high scholastic standing, and financial need. Applications, on forms available at the Registrar's office, must be received by the Registrar not later than August 15th.

The Kiwassa Club of Vancouver Bursaries

Four bursaries of $150 each, the gift of the Kiwassa Club of Vancouver, will be available annually to assist women students proceeding to the course in Public Health Nursing (Nursing B), or the Professional Course in Social Work. To be eligible for these bursaries, applicants must have high scholastic standing, an aptitude for the field in which they are enrolling, and need of financial assistance. In making the awards, preference will be given to dependents of veterans and residents of Vancouver. Applications, on forms available at the Registrar's office, must be received by the Registrar not later than August 15th.

The McLean Bursaries

Through the generosity of Mr. and Mrs. J. S. McLean of Toronto, four bursaries of $250 each are available for the Session 1947-48. These bursaries will be awarded to students entering the Second Year in Arts and Science or Agriculture, or the First Year in Applied Science. Preference will be given to students whose homes are in more remote parts of the Province. In making the awards, consideration will be given to scholastic ability and financial need. Applications, on forms available at the Registrar's office, must be received by the Registrar not later than August 15th.

The Pacific Meat Company Bursary

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

The Nat Bell Bursary

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

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

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

The Teamsters' Joint Council No. 36 Bursary

(Donated through the Vancouver Men's Canadian Club)

An annual bursary of $250, donated by the Teamsters' Joint Council No. 36, is offered to a student in any year and faculty. This bursary will be given to a student who has need of financial assistance and has high scholastic standing. To be eligible for the award, an applicant must be the son or daughter of a member of the International Brotherhood of Teamsters in B.C. In the event that no such applicant can qualify, the bursary will be awarded to the son or daughter of a member of any International Trade Union. In choosing the recipient, preference will be given to students who are registered in the lower years. Applications, on forms available at the Registrar's office, must be received by the Registrar not later than August 15th.

The Lauder Mercer and Company Limited Bursary

(Donated through the Vancouver Men's Canadian Club)

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

The Pattison Bursaries

(Donated through the Vancouver Men's Canadian Club)

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

The W. D. Shaffer Bursary

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

The Robert S. Day and Son Limited Bursary

(Donated through the Vancouver Men's Canadian Club)

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

The Canadian Foundation for the Advancement of Pharmacy Bursaries

During the Session 1946-47 two bursaries of $300 each were awarded to students with special qualifications taking the course in Pharmacy. The awards were the gift of the Canadian Foundation for the Advancement of Pharmacy. The purpose of these awards was to encourage advanced study and research in Pharmacy. Similar bursaries may be available for deserving students in future years.

The R. G. Cole Bursaries

Two bursaries of $150 each, the gift of Mr. R. G. Cole of Hamilton, Ontario, are available for students entering the Third or Fourth Year of Metallurgical or Mining Engineering. The awards will be made to students who have high scholastic standing and are in need of financial assistance. Applications, on forms available at the Registrar's office, must be received by the Registrar not later than August 15th.

The Vancouver Bar Association Bursaries

Two bursaries of $100 each, the gift of the Vancouver Bar Association, will be awarded in the Session 1947-48 to students in the Faculty of Law. One bursary will be available for a student entering the Second Year and the other for a student entering the Third Year. Awards will be based on scholastic standing and financial need. Applications, on forms available at the Registrar's office, must be received by the Registrar not later than August 15th.

The American Woman's Club Bursary for Social Work

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

The Ellen Ethel McHattie Memorial Bursary

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

The Allied Officers' Auxiliary Bursary

To commemorate the services and sacrifices of members of the armed forces and the merchant navies of the Allied Nations, the Allied Officers' Club Auxiliary has established a bursary of the annual value of $75, open to students in any year and faculty.

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

The Allied Officers' Auxiliary Fund

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

The Louis Toban Bursary

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

Special Bursaries Fund

For the Session 1947-48 a Special Bursaries Fund has been made available by the Board of Governors to enable students to attend the University who would not otherwise be able to do so. To be eligible for an award from this fund a student must have attained at least Second Class standing in the examinations last written, and must give evidence of need.

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

Dominion-Provincial Student Aid

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

LOANS

General Loan Fund

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

The Wheatley Memorial Loan Fund

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

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

The Roy Graham Memorial Loan Fund

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

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

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

The Alma Mater Loan Fund

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

The University Chapter I.O.D.E. Loan Fund

This fund was established by the University Chapter of the I.O.D.E. to assist women students of the Second, Third, and Fourth Years. Loans are to be made on the basis of scholarship and financial need. Applications for assistance under this fund should be made to the Bursar.

The T. Sato Loan Fund

This fund has been established by Mr. Tsutae Sato for students of Second Class standing, or better, in the Third or Fourth Years in the Faculties of Arts and Science, Agriculture, and Applied

Science, or for students in the Fifth Year of a Double Course. For such loans the regulations in paragraph 12 of the *General Regulations for Medals, Scholarships, Prizes, Bursaries, and Loans* are applicable.

The H. R. MacMillan Loan Fund

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

Dean of Women's Fund

Through the generosity of several donors a fund has been established to assist women students who are temporarily in financial need. The fund is intended for use in emergency situations where limited assistance is required, and is administered by the Dean of Women. In the Session 1946-47 contributions to the fund were received from the Alumnae of the University of Toronto (The Marion McElhanney Memorial Bursary), the Kappa Kappa Gamma Mother's Club, and the Kappa Kappa Gamma Sorority.

The Special Spring Session Students' Loan Fund

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

Home Economics Loan Fund

From a fund established from gifts of anonymous donors, loans are available for undergraduates registered in any year of the Home Economics course. Loans are also available for graduates in Home Economics taking further work at the University in a related field or in the Teacher Training course. Loans to any one student will not exceed $200, and are repayable commencing one year after the applicant discontinues attendance at the University, until which

time no interest will be charged. Applicants must be recommended by the Department of Home Economics. Application forms may be obtained from the Bursar.

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 their 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 the Faculty of Applied Science.

SCHOLARSHIPS ANNOUNCED BY THE UNIVERSITY BUT AWARDED BY OTHER INSTITUTIONS

The Rhodes Scholarships

A Rhodes Scholarship is tenable at the University of Oxford and may be held for three years. Since, however, the majority of Rhodes Scholars obtain standing which enables them to take a degree in two years, appointments are made for two years in the first instance, and a Rhodes Scholar will be awarded a third year only if he presents a definite plan of study for that period satisfactory to his College and to the Rhodes Trustees.

In special circumstances Rhodes Scholars may be allowed, if the conditions are approved by their own College and by the Rhodes Trustees, either to postpone the third year, returning to Oxford for it after a period of work in their own countries, or to spend it in graduate work at any university of Great Britain, and in special cases in other parts of the world (excluding, in the case of Canadian Rhodes Scholars, Canada or the United States).

The basic value of a Rhodes Scholarship is £400 a year, but for the next year or two an additional £100 a year is being paid to offset increased living costs. At most Colleges, and for most men, this increased sum is scarcely sufficient to meet a Rhodes Scholar's necessary expenses for term-time and vacations, and Scholars who

can afford to supplement it by, say, £50 a year from their own resources are strongly advised to do so. The cost of the voyage to and from England must be borne by the Scholar.

A candidate must be an unmarried male British Subject domiciled and resident for five years in Canada. He must be in his second year at least of work in a Canadian university and may apply either in the province of his residence or of his university, if these differ. A candidate must have passed his 18th birthday but not have reached his 24th birthday by October 1st, 1947.

However, candidates with one year or more of war service are not disqualified by marriage and may deduct the years of the war in meeting the age qualification.

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

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

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

A candidate for a Scholarship is required to make application by November 1st, 1947, to the Secretary of the Committee of Selection of the province in which he wishes to compete. Full information may be obtained from Dean G. F. Curtis, Faculty of Law, University of British Columbia, Vancouver, B. C.

The Exhibition of 1851 Scholarship

Under the revised conditions for the award of the Exhibition of 1851 Scholarship in Science, the University of British Columbia is included in the list of universities from which nominations for

scholarships allotted to Canada may be made. These scholarships of £350 per annum are tenable, ordinarily, for two years. Scholarship winners with special needs may receive additional money grants during the period of their tenure. The scholarships are granted only to British subjects of not more than 26 years of age who have already completed a full university course and given evidence of capacity for scientific investigation. The scholarships are open to graduates of any university who have spent not less than three years in the study of science. Detailed information may be obtained from the Registrar's office.

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

This fund was established by the I.O.D.E. in order to perpetuate the memory of the men and women who gave their lives in the defence of the Empire in the First Great War. Nine graduate scholarships to the value of $1500 each are offered annually, one in each province of the Dominion. The conditions under which they are awarded may be obtained from the Registrar. Applications must be submitted by October 15th of each year.

Canadian Federation of University Women Scholarships

The Travelling Scholarship of the Canadian Federation of University Women, of the value of $1,250, available for study or research work, is open to any woman holding a degree from a Canadian university, who is not more than 35 years of age at the time of award. In general, preference will be given to those candidates who have completed one or more years of graduate study and have a definite course of study or research in view. The award is based on evidence of character, intellectual achievement, and promise of success in the subject to which the candidate is devoting herself.

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

The Professional Scholarship of the Canadian Federation of University Women, of the value of $700, is open to any woman holding a degree from a Canadian university, who is not more than 35 years of age at the time of award. Preference will be given to candidates who have completed one or more years of

professional work and who desire to spend a year at an accredited Library School, College of Education, School of Social Work or similar professional school.

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

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

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

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

The French Government Scholarship

Scholarships of the present value of 90,000 francs and fees are donated by the French Government for graduate study in France. They are tenable for one year and are renewable. The awards are made by the French Embassy on the recommendation of the Head of the Department of French in the University.

The French Government Book Prizes

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

The Summerland Scholarship

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

Viscount Bennett Trust Fund

Under the terms of a deed of gift to the Canadian Bar Association from the Right Honourable Viscount Bennett, P.C., K.C., LL.D., D.C.L., Honorary Life President of the Association, a trust fund known as the Viscount Bennett Trust Fund has been established. The annual income from the fund or the sum of $1,000, whichever is less, will be paid annually as a scholarship for graduate study at an institution of higher learning to be approved by a scholarship committee. The scholarship is open to a person of either sex who has graduated from an approved law school in Canada or who, at the time of application, is pursuing his or her final year of studies as an undergraduate student. The award is to be made by the committee at the time of the mid-winter meeting of the Council of the Association. The Faculty of Law of this University has been approved by the Committee. Full information as to qualifications of applicants and the necessary forms may be had on application to the Registrar.

The Crofton House Alumnae Scholarship

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

The Imperial Oil Graduate Research Fellowship

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

The United Odd Fellows Bursaries

Six bursaries of $200 each, provided by the Grand Lodge of B. C., I. O. O. F., the Grand Encampment, and the Rebekah Assembly, are available annually for students in any year of any faculty. Under terms approved by the Grand Bodies, one bursary will be offered in each of the following districts of the Province: (1) Vancouver Island and Powell River; (2) Greater Vancouver; (3) New Westminster and the Lower Fraser Valley; (4) the Kootenays; (5) North and South Okanagan, including Princeton and Merritt; (6) Main Line of the C. P. R. east of Chilliwack, and Northern B. C. The awards will be made by a joint committee consisting of two representatives from each of the Grand Bodies. In general, applications will be considered first from members of the immediate families of Odd Fellows or Rebekahs, but failing suitable candidates from these sources, the Committee may award the bursaries to other worthy applicants. Special consideration will be given to applicants with financial need. Full details of the awards and application forms may be obtained from the Secretary of any Odd Fellows Lodge or Rebekah Lodge, or from the Grand Secretary of the Grand Lodge, I. O. O. F. Applications should be submitted to the Odd Fellows or Rebekah Lodge by June 15th or to the Grand Secretary, 144 Hastings Street West, Vancouver, not later than June 30th.

THE FACULTY OF ARTS AND SCIENCE

1947-1948

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 Science in Pharmacy (B.S.P.), Bachelor of Social Work (B.S.W.), Master of Arts (M.A.), and Master of Social Work (M.S.W.).

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

COURSES LEADING TO THE DEGREE OF B.A.

The degree of B.A. is granted with Honours or as a General Course degree. A General Course degree will be granted on completion of courses amounting to 60 units chosen in conformity with Calendar regulations. For students entering the Second Year in the autumn of 1947, or subsequently, an Honours degree will require 66 units. For regulations in regard to Honours degrees see pages 103-118.

Students holding the degree of B.Com. from this University may proceed to the degree of B.A. in one year by completing 15 additional units of work open to students in their Third and Fourth Years, provided that their additional units are chosen so as to complete the requirements for the B.A. degree.

It is possible to obtain the B.A. and B.Com. degrees concurrently in six years on completion of 90 units chosen so as to cover the requirements for both degrees. Students who entered Second Year Commerce not later than September, 1946, may complete the double course in five years under the old regulation.

Double courses are offered in Arts and Science and Applied Science leading to the degrees of B.A. and B.A.Sc., and B.A. and B.A.Sc. (in Nursing), in Arts and Science and Agriculture leading to the degrees of B.A. and B.S.A., and in Arts and Science and Law leading to the degrees of B.A. and LL.B. For the regulations governing these, see the section *Double Courses* at the end of the Calendar.

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

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

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

Six units of undergraduate credit towards a B.A. degree may be granted for music to a student who holds at the time of graduation any one of the following diplomas: Associate of the Toronto Conservatory of Music (A.T.C.M.), Licentiate of McGill Conservatorium (L.Mus.), Licentiate of the Royal Schools of Music, London (L.R.S.M.), Licentiate of Trinity College of Music, London (L.T.C.L.), or an equivalent diploma or certificate from other schools of music which may be accepted by the University of British Columbia. If the student's work in music is done concurrently with the usual University work of the Third and Fourth Years, the credit will be assigned in the Fourth Year; if a student enters Third Year University having already acquired the diploma, the credits will normally be assigned evenly between the Third and Fourth Years. This regulation will remain in force until those who in the academic year 1946-47 were registered in First Year University or Senior Matriculation have had time to complete their course, that is, until the end of the Session 1949-50.

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

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

NOTE 1. Students in any of the affiliated Theological Colleges who file with the Registrar a written statement expressing their intention of graduating in Theology will be allowed to offer in each year of their Arts course, in place of optional subjects set down in the Calendar for the year and the course in which they are registered, Religious Knowledge options, to the extent of three units taken from the following list: Hebrew, Biblical Literature, New Testament Greek, Church History, Christian Ethics, and Apologetics.

NOTE 2. Students intending to enter Normal School are advised to consult *Regulations for Admission to Normal Schools,* issued by the Department of Education, Victoria.

First and Second Years

1. The requirements of the First Year consist of 15 units. In the Second Year, students proceeding to a B.A. degree in the General Course must take 15 units; those proceeding to a B.A. degree in an Honours course must take 15 or 18 units, according to the requirements of individual departments (see pages 105-118). Courses in the first two years must also be chosen in conformity with the requirements that follow. Details of courses are given under the various departments.

*Each student must take:	Units
(a) English 100 and 101 in the First Year and English 200 in the Second Year	6
†*(b)* The first two courses in a language offered for University Entrance, one course in each year	6
(c) Mathematics 100, in the First Year	3
(d) Economics 100 or 200, *or* Geography 102, *or* History 101, 202, 203, or 304, *or* Philosophy 100, *or* Psychology 100, *or* Sociology 200	3
(e) Biology 100, *or* Chemistry 100, *or* Geography 101, *or* Geology 201 and 202, *or* Physics 100, *or* Physics 120	3
(f) At least three courses—not already chosen—selected from the following: Bacteriology 201, Biology 100, Botany 200, Chemistry 100, Chemistry 200, Chemistry 304 and 305, Economics 100, Economics 200, Economics 335, French 101, French 202, French 203, Geography 101, Geography 102, Geography 202, Geology 201 and 202, Geology 302 and 303, ‡German 90, German 100 or 101, German 200, ‡Greek 90, Greek 101, Greek 202, Greek 314, Greek 315, History 101, History 202, History 203, History 304, ‡Latin 90, Latin 101, Latin 202, Mathematics 200, Mathematics 201, Mathematics 202, Music 100§, Philosophy 205, Philosophy 210, Physics 100, Physics 120, Physics 200, Physics 220, Physics 221, Psy-	

*For credit that can be given for Senior Matriculation standing, complete or partial, see page 34.
†See regulations 2, 7, and 8.
‡See regulations 4, 5, 7, 8, and 9.
§Only for students who have presented Music for University Entrance.

chology 100, Psychology 200, Psychology 201, Russian 100, Russian 200, Sociology 200, ‡Spanish 90, Spanish 101, Spanish 201, Zoology 200.....9 or 12

NOTES

1. Bacteriology 201, Botany 200, Economics 200, Economics 335, Geography 202, Geology 201 and 202, 302 and 303, Greek 314, Greek 315, History 304, Sociology 200, and Zoology 200 are not open to First Year Students.

History 202 is open to First Year students only if they are preparing for entrance to the Normal School. Geology 201 and 202 are normally Third Year subjects, but may be taken by Second Year students (full undergraduate and conditioned).

Chemistry 304 and 305 are open to Second Year students providing that the prerequisites have been taken.

Geology 201 and 202 must be taken in the Second Year by students intending to take the Honours course in Geology. Geography 101 may not be taken for credit along with Geology 201 and 202. Geography 101, however, may be substituted for Geology 201 and 202 as a prerequisite by the addition of extra laboratory work to be arranged by the Department of Geology and Geography. Geography 101 and 102 must be taken by students intending to major in Geography. Geography 102 will be accepted as a prerequisite to advanced courses in Geography (with the exception of Geography 305 and 412) if the student is not majoring in Geography.

2. Students who have not presented German or Greek or Latin or Spanish for University Entrance may fulfil the language requirements for the degree by taking Beginners' German or Beginners' Greek or Beginners' Latin or Beginners' Spanish (courses numbered 90 in the several departments), to be followed respectively by German 100 or 101 and German 200 or Greek 101 and Greek 202 or Latin 101 and Latin 202 or Spanish 101 and Spanish 201 to complete 63 units in the General course or 69 units in the Honours courses. The extra three units may be taken in any year.

Students who have completed German III of the high school course of study, or its equivalent, may fulfil the language requirements by taking German 200 for the First Year and German 300 for the Second Year.

3. Students who offer either French IV, German IV, or Latin IV of Senior Matriculation under Group 1 of the Optional Courses of University Entrance may fulfil the language requirements for the

‡See regulations 4, 5, 8, and 9.

First and Second Years by taking French 200, German 200, or Latin 202 respectively in either the First or the Second Year. If the Second Year language is taken in the First Year, a Third Year course in this language may be taken in the Second Year.

4. No student in his First Year may elect more than one beginners' course in a language, and, except as provided in Sections 7 and 8, no beginners' course in a language will count towards a degree unless followed by a second year's work in that language.

5. Except in the case of beginners' courses, no course in a language may be taken by a student who has not offered that language for entrance to the University. A beginners' course in a language may not be taken for credit by a student who has obtained credit for that language at entrance.

6. A student taking three languages in the first two years (18 units) may defer the course selected under section 1 *(e)* to the Third or Fourth Year, and a student taking four science courses (12 units) may defer the course selected under section 1 *(d)* to the Third or Fourth Year.

7. Students offering four science courses (12 units), or three science courses (9 units) and two courses in Mathematics (6 units), in the First and Second Years may fulfil the language requirement indicated above in section 1 *(b)* by taking any two of the following:

French 101, French 202; Latin 90, Latin 101, Latin 202; German 90, German 100 or 101, German 200; Greek 90, Greek 101, Greek 202; Slavonic Studies 100 (Russian); Spanish 90, Spanish 101, Spanish 201.

Only one course numbered 90 may be selected.

8. Students offering six science courses (18 units) in the First and Second Years may postpone the second course in a language under section 8 until the Third or Fourth Year.

The science courses in sections 6, 7, and 8 may be selected from the following:

Bacteriology, Biology, Botany, Chemistry, Geography, Geology, Physics, Zoology.

9. Only one course numbered 90 may be taken for credit toward the B.A. degree.

Note. Students thinking of entering Applied Science are referred to the list of subjects required to be taken by them in First Year Arts and to the regulations in reference to these, given under *Admission* and *General Outline of Courses* in *Faculty of Applied Science*. They are advised to attend the noon hour talks on the choice of a profession and on the life and work in vocations likely to appeal to Applied Science graduates.

Third and Fourth Years

The requirements of the Third and Fourth Years consist of at least 30 units, of which students must take in their Third Year not less than 15 units. The graduation standing is determined by the results of the Third and Fourth Years combined.

A. General Course Curriculum

1. For the General Course a student must select two major subjects according to either of the following schemes:†

a. A minimum of 9 units in one subject and a minimum of 6 units in another subject, both subjects to be chosen from one of the following groups:

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

(2) Economics, Education (not more than six units, chosen from Education 509 and Education 510 to 582 inclusive, and only for those who have completed their Normal Training), English, French, Geography, German, Government, Greek, History, Latin, Mathematics, Music (6 units), Philosophy, Psychology, Sociology, Spanish.

Or

b. A minimum of 9 units in each of two subjects to be chosen from the following:
Biology and Botany, Chemistry, English, French, Geography, German, Greek, History, Latin, Mathematics, Physics, Spanish, Zoology.

Work in the First or Second Year is required in each of the major subjects, except in Education and Government.

In certain cases, however, this requirement may be fulfilled by taking a First or Second Year course in the Third Year (see section 3), but a course thus taken may not count towards the required units for a major.

In addition to the major subjects a minimum of 6 units must be chosen from some other subject or subjects.

2. Details of courses available in the Third and Fourth Years are given under the various departments.

3. Only *two* subjects (6 units) of the First or Second Year courses may be taken in the combined Third and Fourth Years. In a number of these courses extra reading will be required of Third and Fourth Year students.

†Those who intend to enter the Teacher Training Course should consult section 8, page 142.

When two First or Second Year subjects, other than a beginners' language course or a language course numbered 100-199, are taken in the Third and Fourth Years, not more than one of these subjects may be outside the departments in which the student is doing his major work.

For the purpose of this regulation the following subjects are considered Third and Fourth Year subjects: Botany 200 or Zoology 200 (if both are taken), Chemistry 304* and 305*, Economics 335, Geography 202, Geology 201 and 202, Geology 302 and 303, German 200, Greek 202, Greek 314, Greek 315, History 304, Latin 202, Philosophy 202, 205, 210, and Psychology 200, 201, 202; also the subjects under 1 *(d)* or 1 *(e)* postponed to the Third or Fourth Year, as provided for under paragraphs 7 and 8, page 101.

4. No credit will be given for a language course normally taken in the First Year unless it is taken in the Third Year and continued in the Fourth Year.

5. Students in the Third and Fourth Years, with the consent of the departments concerned, may take one or two courses of private reading (each to count not more than 3 units), provided that:

a. *(1)* The candidate for a reading course shall have completed his First and Second Years and shall have taken at least 6 units either of Second or Third Year work or of Second and Third Year work in the subject in which the reading course is taken; and

(2) Shall have made an average of at least Second Class in the 6 units in question.

b. Both reading courses shall not be chosen in the same subject.

c. A reading course shall not be taken concurrently with Extra-Sessional or with Summer Session courses except by a student in the Fourth Year.

Credit for a course of private reading is part of the maximum of 15 units which may be taken in addition to the regular work of Winter and Summer Sessions; and no other additional work may be taken in the same academic year.

B. Honours Curriculum

1. Students whose proposed scheme of work for the Third and Fourth Years involves Honours courses must obtain the consent of the departments concerned and of the Dean before entering on

*See prerequisite for Chemistry 304 and 305.

these courses; and this consent will normally be granted only to those students who have a clear academic record at the end of their Second Year with at least Second Class standing in the subject or subjects of specialization, and who have chosen their courses and fulfilled the prerequisites outlined below. (Cards of application for admission to Honours courses may be obtained at the Registrar's office.)

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

3. Candidates for Honours, with the consent of the department concerned, may offer a special reading course (to count not more than 3 units) in addition to the reading courses offered above under *General Course Curriculum,* section 5.

4. All candidates for Honours, at the option of the department or departments concerned, may be required to present a graduating essay embodying the results of some investigation that they have made independently. Credit for the graduating essay will be not less than 3 or more than 6 units. The latest date for receiving graduating essays in the Second Term shall be the last day of lectures; and the corresponding date for the Autumn Congregation shall be October 1st.

5. Candidates for Honours are required to take at the end of their Fourth Year a general examination, oral or written, or both, as the department or departments concerned shall decide. This examination is designed to test the student's knowledge of his chosen subject or subjects as a whole, and is in addition to the ordinary class examinations of the Third and Fourth Years.

6. Honours are of two grades, First Class and Second Class. Students who, in the opinion of the department concerned, have not attained a sufficiently high ranking, may be awarded a General Course degree. If a combined Honours course is taken, First Class Honours will be given only if both the departments concerned agree; and an Honours degree will be withheld if either department refuses a sufficiently high grade.

7. It is hoped to offer the following Honours courses during the session 1947-48. But if it is found impossible to do so, the University reserves the right to refuse new registrations in any of them.

SINGLE HONOURS COURSES

Bacteriology and Preventive Medicine

Prerequisites: Chemistry 100 and Biology 100. The latter course may be taken concurrently with Bacteriology 201 in the Second Year.

Course: In the Second Year, Bacteriology 201; in the Third and Fourth Years, Bacteriology 301 and at least 15 units selected in consultation with the Head of the Department.

General Biology (Ecology Option)

Prerequisites: Biology 100 and Chemistry 100. For fuller details of the courses to be taken in each year, students should consult the Department of Biology and Botany.

Course: In the Second Year, Botany 200, Physics 90 or 100 (if not already taken), and Zoology 200; in the Third and Fourth Years, Biology 300, 320, 400, 490, Botany 300, 303, 320, 330, 420, three units chosen from Zoology 304, 306, 307, Chemistry 300, Geography 101, and a designated number of units in options and electives selected after consultation with the Department from Biology 303, Botany 302, 310, 311, 315, 316, 333, 340, 403, and courses in certain other departments.

General Biology (Genetics Option)

Prerequisites: Biology 100 and Chemistry 100. For fuller details of the courses to be taken in each year, students should consult the Department of Biology and Botany.

Course: In the Second Year, Botany 200, Physics 90 or 100 (if not already taken) and Zoology 200; in the Third and Fourth Years, Biology 300, 301, 302, 303, Botany 340, 490, Agronomy 407, Chemistry 300, and a designated number of units in options and electives selected after consultation with the Department from Biology 320, 400, Botany 300, 310, 315, 330, 440 and courses in certain other departments.

General Biology (Physiology Option)

Prerequisites: Biology 100 and Chemistry 100. For fuller details of the courses to be taken in each year, students should consult the Department of Biology and Botany.

Course: In the Second Year, Botany 200, Physics 90 or 100 (if not already taken) and Zoology 200; in the Third and Fourth Years, Biology 400, 490, Botany 330, 430, 431, Zoology 300, 303, Chemistry 300, and a designated number of units in options and

electives selected after consultation with the Department from Biology 500, Botany 333, 340, and courses in certain other departments.

Botany (Morphology and Histology Option)

Prerequisites: Biology 100 and Chemistry 100. For fuller details of the courses to be taken in each year, students should consult the Department of Biology and Botany.

Course: In the Second Year, Botany 200, Physics 90 or 100 (if not already taken), and Zoology 200; in the Third and Fourth Years, Biology 300, 301, Botany 300, 303, 310, 330, 340, 490, Chemistry 300, Zoology 303, and a designated number of units in options and electives selected after consultation with the Department from Biology 302, 303, 320, Botany 302, 311, 315, 316, 317, 333, 403, 420, 430, 431, 440, and courses in certain other departments.

Botany (Pathology Option)

Prerequisites: Biology 100 and Chemistry 100. For fuller details of the courses to be taken in each year, students should consult the Department of Biology and Botany.

Course: In the Second Year, Botany 200, Chemistry 200, Physics 90 or 100 (if not already taken); in the Third and Fourth Years, Botany 315, 316, 330, 340, 415, 490, Chemistry 300, Zoology 302, 305, Agronomy 421 and a designated number of units in options and electives selected after consultation with the Department from Biology 300, 301, Botany 300, 302, 317, 430, 431, and courses in certain other departments.

Botany (Physiology Option)

Prerequisites: Biology 100 and Chemistry 100. For fuller details of the courses to be taken in each year, students should consult the Department of Biology and Botany.

Course: In the Second Year, Botany 200, Physics 90 or 100 (if not already taken), and Zoology 200; in the Third and Fourth Years, Biology 400, Botany 330, 333, 430, 431, 490, Chemistry 300, Horticulture 442, and a designated number of units in options and electives selected after consultation with the Department from Biology 300, 301, 320, Botany 300, 340, and courses in certain other departments.

Botany (Taxonomy Option)

Prerequisites: Biology 100 and Chemistry 100. For fuller details of the courses to be taken in each year, students should consult the Department of Biology and Botany.

Course: In the Second Year, Botany 200, Physics 90 or 100 (if not already taken), and Zoology 200; in the Third and Fourth Years, Biology 300, 301, Botany 300, 302, 303, 315, 330, 403, 490, Geography 101, Geology 201 and 202, and a designated number of units in options and electives selected after consultation with the Department from Biology 303, Botany 310, 311, 320, 340, 420, 440 and courses in certain other departments.

Chemistry

Prerequisite: Chemistry 100 and Physics 100.

Course: In the Second Year, Chemistry 200, Mathematics 202, Physics 200, and nine additional units to be chosen in consultation with the Department; in the Third Year, Chemistry 300, 304, 310, Mathematics 300, and six additional units; in the Fourth Year, Chemistry 407, 409, 410, 411, a graduating essay, and three additional units.

Classics

Prerequisites: Greek 101, Latin 101.

Course: Greek 202 and Latin 202 in the Second Year; in the Third and Fourth Years, Greek 310, 410 and Latin 310, 410; any three of Greek 303, 305, 306, 407; any three of Latin 303, 304, 405, 406; and Greek 331, Latin 331.

As proof of ability to write Greek and Latin prose, candidates must attain not less than Second Class standing in Greek 310, 410 and Latin 310, 410. During the candidate's Fourth Year, papers will be set in sight translation, and the candidate is advised to pursue a course of private reading under the supervision of the Department.

There will also be a general paper on antiquities, literature, and history.

Economics

Prerequisites: For admission to the Third Year of the Honours Course, a reading knowledge of French or German and a First Class or a high Second Class average in the Economics course or courses taken in the first two years.

Course: In the Second Year, Economics 100, if not already taken, and Economics 200; in the Third and Fourth Years, Economics 330, 335, 400 and two of 305, 310, 320, 325, 401, 405, 435. In addition a graduating essay, counting three units, must be written in the Fourth Year and an Economics Seminar, counting three units, must be attended in each of the Third and Fourth Years. An oral as well as a written examination on the work of the Seminar is required.

English Language and Literature

Students who intend to take Honours must have the permission of the Department before beginning the work of the Third Year.

Prerequisites: (1) A First Class or high Second Class in English 200. Ordinarily, special work is required of students who intend to take Honours. Such work, if required, is announced at the beginning of the session. (2) A reading knowledge of French or German. The Department may require candidates to write a paper in translation at the end of the Fourth Year.

First Year students who are entering the University in the autumn of 1947 and who are looking forward to Honours in English are advised to begin or continue study of a *second* foreign language, to be chosen from Latin, Greek, French, German.

In 1947-48, Second Year students who intend to enter the Honours course in English and who have not offered two languages (from Latin, Greek, French, German) in the First Year will be required to begin the study of a second language from that group or to continue it as from University Entrance.

All students entering the Honours course in English should have at least an elementary knowledge of Latin, such as can be gained from the University Entrance Course or from Latin 90.

For non-linguistic electives in the First and Second Years, prospective Honours students are advised to select courses from History 101, Economics 100, Philosophy 100, Psychology 100, Sociology 200.

Course: English 434 and 435 (involving an examination on the life, times, and complete works of some major English author), 440, 442 (in the Third Year), 443 (in the Fourth Year), 444 and 445 (the seminars, of which 445 must be attended in both years), and a graduating essay which will count 3 units.

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

1. From the beginning to 1500.
2. From 1500 to 1660.
3. From 1660 to 1780.
4. From 1780 to 1890.

One of these examinations will be oral.

In the award of Honours special importance will be attached to the graduating essay and to the final Honours examinations.

If the candidate's work outside the Department does not include a course in English history, he must take an examination in that subject.

French

Prerequisite: French 101.

Course: In the Second Year, French 202, in which a First or high Second Class standing must be obtained, and French 203; in the Third and Fourth Years, French 300, 301, 302, 400, 401, 402, a graduating essay (6 units), English (3 units), and History 314 or 415.

Geography

Course: In the First and Second Years, Geography 101 and Geography 102, or Geology 201 and 202 and Geography 102. Geography 202 should be taken either in the Second or in the Third Year.

In the Third and Fourth Years, fifteen units chosen from Geography 202, 303, 305, 306, 407, 409, and 412, and also a graduating essay to count three units. Because of breadth of field encompassed by Geography, courses in Economics, Geology, History, Mathematics, Sociology, and the natural sciences may be substituted with the approval of the Department of Geology and Geography.

Geology

Prerequisites: Chemistry 100, Physics 100, and, if possible, Biology 100. The Department should be consulted.

Course: In the Second Year, Geology 201, 202 and Biology 100 (if not already taken), and, if possible, Geology 302, 303, and 412; in the Third and Fourth Years, eighteen units selected from Geology 304, 305, 307, 308, 406, 407, 408, 409, 410, 411. If Geology 302, 303 are not taken in the Second Year, they must be taken in the Third Year. Zoology 200 is recommended for the Third Year. A graduating essay counting three units is required in the Fourth Year.

German

Prerequisites: A First Class or high Second Class in German 100 (or 200).

Course: In the Second Year, German 200 (or 300); in the Third and Fourth Years German 300, 301, 302, 400, 401, 500, History 314, and a graduating essay counting three units. In addition, a comprehensive 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 or German.

Course: Students entering Honours in the Second Year should pursue the following course: English 200, French 202 (or its equivalent); one of History 202, 203 or 204; Geography 102; and one elective course. Students who have not taken History 101 in the First Year are required to take it in the Second Year in which case they may substitute History 101 for History 202, 203, or 204.

Third and Fourth Year students must elect either History 304 or 309, a graduating essay which will count three units and twelve other units which must be chosen from courses offered in the Third and Fourth Years. They must also attend the Honours Seminar of the Third and Fourth Years.

Students whose standing in Honours History during the Second or Third Year is inadequate may, at the discretion of the Department, be required to discontinue the Honours course.

An Honours paper will be set at the end of the Fourth Year on the work of the 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.

International Studies

Prerequisites: For admission to the Third Year of the Honours Course a First Class or good Second Class standing in History 101 or Economics 200; French 202, or its equivalent.

Course: In the Third and Fourth Years International Studies 400; a graduating essay dealing with international relations chosen in consultation with the Director of International Studies (3 units); a language course. Three courses to be selected in consultation with the Director from History 310, 415, 419, 427, Economics 310, 325, 330, Government 400, 425, 435, Geography 306, Slavonic Studies 310.

Second Year students who intend to proceed with the Honours course in International Studies should take the following subjects: English 200, French 202 or its equivalent, Economics 200, History 101 if not already taken, Geography 102; one elective if History 101 was taken in the First Year.

Students will be required to attend the Economics seminar during the Third Year and the seminar on Canadian External Policy during the Fourth Year.

A general paper will be set at the end of the Fourth Year on the work of the seminars and the courses studied in the Third and Fourth Years. There will be an oral examination on the topic covered in the graduating essay.

Students whose work at the end of the Third Year has not been of sufficiently high standard may be required to withdraw from Honours.

Latin

Prerequisite: Latin 101.

Course: Latin 202 in the Second Year; in the Third and Fourth Years Latin 303, 304, 331, 405, 406, Greek 331, and private reading to count for three units. The candidate must also take Latin 310 and 410, obtaining at least Second Class standing. His general knowledge will be tested by papers on antiquities, literature, and history at the end of the Fourth Year. Candidates are strongly advised to take Greek.

Mathematics

Prerequisites: Mathematics 100, Physics 100. It is suggested that German 90, if not offered for University Entrance, and Chemistry 100 be taken in the First Year.

Course: Mathematics 200, 202, Physics 200, and nine additional units in the Second Year; Mathematics 320, 321, 322, Physics 300, and six or seven additional units in the Third Year; Mathematics 400, 401, 402, 403, 440 and five or four additional units in the Fourth Year. The additional units in any year must be chosen to satisfy the general requirements for the B.A. degree and in consultation with the Department.

Philosophy

Prerequisites: Philosophy 100 and Psychology 100.

Course: In the Second Year, Philosophy 202 and 210; preferably one of Physics 100, Physics 120, Biology 100.

In the Third Year, Philosophy 310, and one of Philosophy 302, 304, 400; four courses selected in consultation with the Department.

In the Fourth Year, three courses not already chosen from Philosophy 302, 304, 400, 402, 410, 415, 500 (at least one of Philosophy 410 or 415 must be taken); three courses selected in consultation with the Department.

NOTE: Philosophy 202 and 9 units chosen from Philosophy 205, 210, 310, 410, 415, must be taken. Philosophy 205 should not be taken by Honours students except with approval of the Department.

A student with Second Class standing in the First Year or Senior Matriculation may, with the consent of the Department, take Philosophy 100 and Psychology 100 in the Second Year and complete his Honours requirement by taking the required courses during the Third and Fourth Years.

Physics

The prerequisites and course are the same as for the combined Honours Course in Mathematics and Physics except that in the Fourth Year Mathematics 440 is not required (see Page 116).

Political Science

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

Course: In the Second Year, Economics 200; in the Third and Fourth Years, Government 300, 400, and any three of Economics 320, History 309, 419, International Studies 400, Government 425, 430, 435, Slavonic Studies 435. In addition a graduating essay counting three units must be written. A Political Science Seminar counting three units must also be attended in each of the Third and Fourth Years. A written as well as an oral examination on the work of this Seminar will be required.

Psychology

Prerequisites: Psychology 100; one of Biology 100, Chemistry 100, Physics 100. At least Second Class standing must be obtained in the work of the First Year.

Course: In the Second Year, *one* of Psychology 200, 201, 202; Philosophy 100 or 205; one not already taken of Biology 100, Chemistry 100, Physics 100, Mathematics 202, or a second course in the science taken in the First Year.

In the Third Year, three not already taken of Psychology 200, 201, 202, 300, 301, 304; Philosophy 202; two courses selected in consultation with the Department.

In the Fourth Year, three not already taken of Psychology 300, 301, 302, 400, 403, 500; three courses selected in consultation with the Department.

NOTE: A student with Second Class standing in the First Year or in Senior Matriculation may, with the consent of the Department, take Psychology 100 in the Second Year and complete his Honours requirements by taking four courses in Psychology and one less elective course in either the Third or the Fourth Year.

Sociology

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

Course: In the Second Year, Economics 200 and Sociology 200; in the Third and Fourth Years a minimum of nine and a maximum

of twelve units selected from Sociology 300, 325, 330, 400, 425, 430, 435 and a minimum of six and a maximum of nine additional units selected from Economics 100, 300, 310, 320, 325, 330, 335, 435, to a total of eighteen units. In addition a graduating essay must be written which will count three units, and a Sociology Seminar counting three units must be attended in each of the Third and Fourth Years. A written as well as an oral examination on the work of this Seminar will be required.

Zoology

Prerequisites: Biology 100, Chemistry 100, and, if possible, Physics 100.

Course: In the Second Year Botany 200, Chemistry 200, Zoology 200; in the Third and Fourth Years Physics 100 (if not already taken), Chemistry 300, Zoology 300, 301, 303, 304, 404 and optional courses.

Optional Courses: Zoology 302, 305, 306, 307, 400, 401, 402, 403, 406; courses in Botany; Biology 300, 301, 302, 303, 400; Geology 406. These optional courses should be selected in consultation with the Head of the Department of Zoology.

COMBINED HONOURS COURSES

(a) Any two of:

Bacteriology and Preventive Medicine, Biology and Botany, Chemistry, Geography, Geology, Mathematics, Physics, Zoology.

(b) Any two of:

Economics, English, French, German, History, Latin or Classics, Philosophy, Political Science, Psychology, Spanish, Sociology.

(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:

Bacteriology and Preventive Medicine

Prerequisites: Chemistry 100, and Biology 100. The latter course may be taken concurrently with Bacteriology 201 in the Second Year.

Course: In the Second Year, Bacteriology 201; in the Third and Fourth Years, Bacteriology 301, 401, 402, and 403, and a thesis.

Chemistry

Prerequisites: Chemistry 100 and Physics 100.

Course: In the Second Year, Chemistry 200, Mathematics 202, Physics 200; in the Third and Fourth Years, Mathematics 300 and twelve additional units to be chosen in consultation with the department.

Classics

Prerequisites: Greek 101, Latin 101.

Course: Greek 202 and Latin 202 in Second Year; in the Third and Fourth Years, Latin 310 and 410; any two of Greek 303, 305, 306, 407; any two of Latin 303, 304, 405, 406.

Economics

Prerequisites: For admission to the Third Year of the Honours Course, a reading knowledge of French or German and a First Class or high Second Class average in the Economics course or courses taken in the first two years. In addition to the requirements following, all students must take Economics 100 except those proceeding to Combined Honours in History and Economics and offering either History 416 or 417. Economics 100 should be taken in the First or Second Year.

Course: In the Second Year, Economics 200; in the Third and Fourth Years, Economics 300, 330 or 400, 435 and three further units in Economics courses numbered above 300. These three units must be replaced by the graduating essay if it is written in Economics. In this case an Economics Seminar counting three units must be attended in each of the Third and Fourth Years.

English

Students who intend to take Honours must have the permission of the Department before proceeding to the work of the Third Year.

Prerequisites: (1) A First Class or high Second Class in English 200. Ordinarily, special work is required of students who intend to take Honours. Such work, if required, is announced at the beginning of the session. (2) A reading knowledge of French or German. The Department may require candidates to write a paper in translation at the end of the Fourth Year.

Course: English 440, 444, 445, and any three of the English courses specified for the Third and Fourth Years. The seminar must be attended during both the final years, but credits which count for the B.A. degree will be given only for the work of the Fourth Year.

See also statement of prerequisites on page 108.

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

1. From 1500 to 1660.
2. From 1660 to 1780.
3. From 1780 to 1890.

In the award of Honours special importance will be attached to these examinations. One of them may be oral.

French

Prerequisite: French 101.

Course: In the Second Year, French 202, which must be passed with a First or high Second Class standing, and French 203; in the Third and Fourth Years French 300, 302, and six additional units; twelve units in the second subject selected in consultation with the Departments concerned; and a graduating essay (6 units) in one or the other field.

Geology

Prerequisites: Chemistry 100 and Physics 100.

Course: In the Second Year Geology 201 and 202; in the Third and Fourth Years twelve units selected in consultation with the Head of the Department; a graduating essay of value three units.

Geology and Geography

Prerequisites: Chemistry 100, Geography 102.

Course: In the Second Year, Geology 201 and 202; in the Third and Fourth Years, twelve units in each of Geology and Geography selected in consultation with the Head of the Department, and a graduation essay counting three units.

German

Prerequisite: A First Class or high Second Class in German 100 (or 200).

Course: German 200, 300, 302, and any two of 301, 400, 401, 500. In addition, a comprehensive 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 or German.

Course: Students entering Honours in the Second Year should pursue the following course: English 200, French 202 (or its

equivalent), one of History 101 (if not taken in the First Year), 202, 203 or 204, and two other courses one of which must be in the other Honour field.

Third and Fourth Year students must elect either History 304 or 309, and any nine additional units of Third and Fourth Year History, of which the graduating essay, if written in History, will count three units. Students must also attend the Honours Seminar of the Third and Fourth Years.

Students whose standing in Honours History during the Second or Third Year is inadequate, may, at the discretion of the Department, be required to discontinue the Honours course.

An Honours paper will be sent 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.

Latin

Prerequisite: Latin 101.

Course: Latin 202 in the Second Year; in the Third and Fourth Years Latin 310 and 410 and any four of 303, 304, 331 (3 units) or Greek 331 and Latin 331 (1½ units each), 405, 406. In the final year candidates must pass an examination *(a)* in sight translation and *(b)* in Latin literature, history, and antiquities. Private reading under the direction of the Department is recommended.

Mathematics

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

Prerequisites: Mathematics 100 and Physics 100.

Course: Mathematics 200, 202, and twelve additional units in the Second Year; Mathematics 320, 321, 322, and nine or ten additional units in the Third Year; Mathematics 440 and any two of Mathematics 400, 401, 402, 403 and additional units to total sixteen or fifteen in the Fourth Year. The additional units in any year must be chosen to satisfy the general requirements for the B.A. degree and in consultation with the departments concerned.

Mathematics and Physics

Prerequisites: Chemistry 100, Mathematics 100, Physics 100.

Course: In the Second Year, Mathematics 200, 202, Physics 200 and nine additional units chosen in conformity with Calendar regulations; in the Third Year, Mathematics 320, 321, 322, Physics 300, 302, 303, 304; in the Fourth Year, Mathematics 402, 440, Physics 401, 402, 403, 405, 406, 407, 409.

Philosophy

Prerequisites: Philosophy 100 and Psychology 100.

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

Physics

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

Prerequisites: Mathematics 100, Physics 100.

Course: In the Second Year, Mathematics 202, Physics 200; in the Third Year, Mathematics 300, Physics 300, 303; in the Fourth Year, Physics 402 and four additional units in the Department.

Political Science

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

Course: In the Second Year, Economics 200; in the Third and Fourth Years, Government 300, 400 and six units to be chosen from Economics 320, Government 425, 435, History 309, 419, International Studies 400, Slavonic Studies 310. Three of the six units mentioned may be replaced by the graduating essay if it is written in Political Science. In this case, the Political Science Seminar counting three units must be attended in each of the Third and Fourth Years.

Psychology

Prerequisites: Psychology 100; Philosophy 100 or 205.

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

Sociology

Prerequisites: For admission to the Third Year of the Honours Course a reading knowledge of French or German and a First Class or high Second Class average in Economics 200 and Sociology 200.

Course: In the Second Year, Economics 200 and Sociology 200; in the Third and Fourth Years, twelve units selected from Sociology 300, 325, 330, 400, 425, 430 and 435. If the graduating essay is written in Sociology it may be substituted for three of these units. In this case the Seminar in Sociology, counting three units, must be attended in each of the Third and Fourth Years.

Spanish

Prerequisite: Spanish 101.

Course: In the Second Year, Spanish 201; in the Third and Fourth Years, twelve units chosen from Spanish 301, 302, 400, 401, 402.

Zoology

Prerequisites: Chemistry 100 and Biology 100.

Course: In the Second Year, Chemistry 200 and Zoology 200; in the Third and Fourth Years, Zoology 300 and nine additional units chosen from Zoology 301, 303, 304, 404 and 406.

COURSE LEADING TO THE DEGREE of B.Com.

Students who entered the University in the session beginning September, 1946, and thereafter, who have not completed the First Year of Arts and Science or its equivalent or who do not hold an honourable discharge from His Majesty's armed services will be required to complete a full five years of work as prescribed by Calendar regulations before being granted the degree of B.Com.

Students who are eligible to enter the Third Year of Commerce in the session 1947-48 as prescribed in the Calendar announcement of 1945-46 or who hold honourable discharge from His Majesty's armed services will be permitted to proceed to the degree of B.Com. on completion of courses amounting to 60 units chosen in conformity with Calendar regulations (i.e. upon completion of four years of work including First Year Arts and Science or its equivalent).

Honours standing will be accorded those students who obtain an average standing of 80 per cent. in the Fifth Year and 75 per cent. in the Fourth Year, and who do not fail in any subject taken in the Fourth and Fifth Years.

For the regulations governing the double course leading to the degrees of B.A. and B.Com. see the section *Double Courses* at the end of the Calendar.

The regulations as to Summer Session credits, number of units to be taken in any academic year, etc., apply to courses leading to the degree of B.Com. in the same way as to courses leading to the degree of B.A.

As the student progresses in his course he will be expected to do an increasing amount of field work in the business community available to him. In this way he will learn to work on his own initiative and will acquire a first hand knowledge of business practice.

Periodic written reports are an important part of the different courses, and students are warned that demands upon their time will be sustained throughout the course.

Students proceeding to the degree of B.Com. are required so to arrange their courses that they will be registered in Commerce subjects over a period of at least three years. Any departure from this regulation must have the approval of the Head of the Department of Commerce and the Dean.

It is desirable that students determine as early as possible the way in which they wish to direct their studies so that even at the First Year level they can take courses which will be useful to them when specializing in the later years.

The Fourth and Fifth Year courses are arranged in groups to meet the needs of a student's special interests and are integrated with the required subjects of the general Commerce course. These groupings are suggestive rather than mandatory and are flexible as to selection. A student wishing to select courses from two or more options or from the general Arts curriculum may do so, but should first consult with the Dean and with the departments concerned. The chief limiting factor in course selection will be the time-table.

Students selecting options in conjunction with other departments of the University (e.g., Agriculture, Forestry, etc.) must take the full option as presented.

The emphasis of course development in Commerce will probably be in the direction of distribution, foreign trade, and transportation, owing to the importance of these aspects of economy in the Province of British Columbia. Class material, insofar as possible, will be centred on the industrial and commercial activities most important to the Province.

Two copies of all major reports and theses must be filed with the Department. The student should also retain a third copy for himself.

Choosing Electives

It is recommended that throughout his course the student try to include in his electives courses in the general Arts curriculum for which he is eligible. In this connection particular attention is directed towards the importance of English for Commerce graduates. Before registering for courses other than those definitely prescribed in each year students must secure the approval of the Dean of the Faculty of Arts and Science and the Head of the Department of Commerce.

Course Numbering

The first digit designates the year of the Commerce course:

2 is Second Year; 3 is Third Year; 4 is Fourth Year; 5 is Fifth Year.

The second digit designates the subject grouping of the course:

3 is Foreign Trade; 4 is Transportation; 5 is Accounting; 6 is Marketing; 7 is Finance; 8 is Industrial Management; 9 is Miscellaneous.

The third digit designates the separation between fundamental and advanced courses in their respective subject groupings:

1 and 2 are fundamental courses; 3-9 are advanced courses.

E.g., 361 means a Third Year course of fundamental character in the marketing group; 453 means a Fourth Year course of advanced character in the accounting group.

Students should take their courses in the year designated by the first digit.

First Year

A complete course in First Year Arts and Science or the equivalent.

Second Year

The following courses comprising 15 units: English 205; Mathematics 201 or an additional course in the language taken in the First Year or Slavonic Studies 100 (Russian); Economics 200; Geography 102; Commerce 251.

Students will not be permitted to register for the Third Year in Commerce unless they have secured a standing of 60 per cent in Economics 200.

In view of the importance which rightly attaches to the capacity for adequate and clear expression in writing, Regulation 12 on page 148 of the Calendar, will be rigidly enforced at the end of the Second Year, and reasonable legibility in handwriting will be insisted upon.

Third Year

Prerequisite for all Commerce courses: Commerce 251, Economics 200.

The following courses comprising 15 units: Commerce 352 and 361; Economics 300; Economics 335 or an additional course of the language taken in the Second Year; an elective, to be chosen from any three unit course in the general Arts curriculum for which the

student has taken the prerequisites or for which he can qualify under the regulations for the General Course as found in section 3 page 102.

Students intending to proceed into Commerce 453 must secure a standing of Second Class in Commerce 352.

Students who at the beginning of the Third Year are definitely interested in a specific Fourth and Fifth Year option are advised to elect the suggested desirable courses unless previously taken as a science in the First Year.

Fourth Year

Prerequisite to all Commerce courses: Commerce 352; Commerce 361; Economics 300.

At the beginning of the Fourth Year every student is required to plan his Fourth and Fifth Year work and before registering must have his course approved by the Dean of the Faculty of Arts and Science and the Head of the Department.

The following courses comprising 18 units: Commerce 471, 481*, 491; Economics 320 or 325**; six units of electives, to be chosen so as to conform with the requirements of the option groupings covering the Fourth and Fifth Years. Students on the language option should continue with their language.

*Commerce 481 is a required course for all male students but not for women, who are recommended to substitute for Commerce 481 some course in the general Arts course for which they have the necessary qualifications. Women desiring to take Commerce 481 should consult with the Dean, the Head of the Department, and the instructor in the course before registering.

**Economics 325 is prerequisite to or concurrent with Commerce 585 and 584; Economics 320 is prerequisite to or concurrent with Commerce 553, 554, 555, and 585.

Fifth Year

Students registering for the Fifth Year must have completed Commerce 471 and 491.

The following courses comprising 18 units: Commerce 593, 594, 599; nine units of electives to be chosen so as to conform with the requirements of the option groupings covering the Fourth and Fifth Years.

Fourth and Fifth Year Options

NOTE. Desirable preliminary science courses are indicated and should be taken before the Fourth Year.

Accounting Option: Commerce 453, 553, 554, and 555. Commerce 453 is prerequisite to the other courses.

Agricultural Option: Agricultural Economics 301 and 400 together with six units of work in Agriculture to be selected in consultation with the Dean of the Faculty of Agriculture. Biology 100 and Chemistry 100 are desirable preliminary courses.

Foreign Trade Option: Commerce 533, 534, and 535; Economics 310 (prerequisite to the Commerce courses); courses in Government; courses in Geography. Geography 101 is a desirable preliminary course.

Fisheries Option: Zoology 200, 307, 403, and 405. Zoology 200 is prerequisite to Zoology 307. Biology 100 is a desirable preliminary course.

Forestry Option: Forestry 471, 473, 474, 475, 481. Botany 200 is a desirable preliminary course.

Language Option: The basic language option is arranged for students who prefer languages to mathematics and statistics; students who elect a language are expected to take as many courses as possible in the Fifth Year.

Special attention is directed towards the possibility of beginning the study of Russian and related subjects in the Second Year. The growing political and industrial importance of the Slavonic bloc presages a high commercial importance for the Russian language.

Marketing Option: Commerce 461, 463, 563, and 564. Commerce 461 is prerequisite to Commerce 564 and 463 is prerequisite to Commerce 563.

Production Option: Commerce 583, 584, and 585.

Statistics Option: Mathematics 202; Economics 435; six units to be selected in consultation with the Head of the Department of Economics.

Transportation Option: Commerce 543, 544, and 545; Economics 320 and 405. Economics 405 is prerequisite to the Commerce courses.

A desirable preliminary course is Geography 202.

COURSE LEADING TO THE DEGREE OF B.H.E.

First and Second Years

Courses must be chosen in conformity with the following requirements.

	Units
(1) *Required course*	24
(a) English 100 and 101 in the First Year	3
(b) Chemistry 100 in the First Year	3
(c) Chemistry 225	3

	Units
(d) Biology 100	3
(e) Physics 100 or Physics 110	3
(f) Home Economics 90 (First Term) Required only if the student does not have credit in Home Economics (A) III or Home Economics (CC) III or equivalent.	1½
(g) Home Economics 91 (Second Term) Required only if the student does not have credit in Home Economics (B) III or Home Economics (CC) III or equivalent.	1½
(h) Home Economics 100 (First Term)	1½
(i) Home Economics 101 (Second Term)	1½
(j) Home Economics 200 (First Term)	1½
(k) Home Economics 201 (Second Term)	1½

(2) *Three courses from the following:*

Agriculture 100, Bacteriology 201, Botany 200, Economics 200 *or* Economics 100, English 200 *or* English 205, Geography 101 *or* Geography 102, History 101 *or* History 202 *or* History 203, language (maximum 6 units), Mathematics 100, Mathematics 200 *or* Mathematics 201, Philosophy 100, Psychology 100, Sociology 200, Zoology 200 — 9

Notes

1. Bacteriology 201, Botany 200, Economics 200, Sociology 200, and Zoology 200 are not open to First Year students.

2. Bacteriology 201, Economics 200, and Psychology 100 are required courses for the degree in Home Economics and are to be taken in the Second or Third Year. Students should elect Economics 200 and Psychology 100 in the Second Year where possible.

3. If the student has presented Home Economics (CC) III for University Entrance, Home Economics 100 and 101 are to be taken in the First Year and Home Economics 200 and 201 in the Second Year.

If the student has presented Home Economics (A) III for University Entrance, Home Economics 91, 100, and 101 are to be taken in the First Year and Home Economics 200 and 201 in the Second Year.

If the student has presented Home Economics (B) III for University Entrance, Home Economics 90 and 101 are to be taken in the First Year and Home Economics 100, 200, and 201 in the Second Year.

If the student has not the required Home Economics standing from the high schools, Home Economics 90, 91, and 101 are to be taken in the First Year and Home Economics 100, 200, and 201 in the Second Year.

If the student enters with Home Economics (CC) IV taken as a Senior Matriculation subject, 3 units will be credited toward the First Year in Home Economics.

4. Students wishing to carry on advanced work in nutrition or textiles should substitute certain other Chemistry courses for Chemistry 225, such substitutions to be arranged after consultation with the Head of the Department of Home Economics.

Third and Fourth Years

The requirements of the Third and Fourth Years consist of 30 units, of which students must take in their Third Year not less than 15 units.

In the Third Year the following courses are required: Bacteriology 201, Biology 401, Chemistry 325, Home Economics 300, 301, 302, and 303.

In the Fourth Year, the course is as follows. Home Economics 420 and 421 are required of all Home Economics students. In addition, those wishing to train as dietitians must take Home Economics 410, 413, 416, and 417, and those planning to enter the teaching profession must take Home Economics 400, 401, 403, and 410.

Animal Husbandry 422 and Horticulture 316, in the Faculty of Agriculture, may be taken as electives.

PHYSICAL EDUCATION

Requirements for Men and Women

Two activity courses in Physical Education are required of all students in First and Second Years of the Faculty of Arts and Science and the Faculty of Agriculture except ex-service personnel and members of military units operating on the campus. Only courses numbered from 100 to 199 may be selected to meet the requirement.

Students who enter with Senior Matriculation or equivalent, with the exception of ex-service personnel and members of military units operating on the campus, will be required to take the Physical Education courses during their first year at the University but for one year only.

Students who enter with a standing equivalent to the first two years at the University will not be required to take Physical Education courses.

No student will receive a degree who has not completed the Physical Education courses required of him at entrance. If a student's work in the Physical Education courses is unsatisfactory in any year, he will be required to repeat the work during the following year.

All First and Second Year students must make an appointment for a medical examination at the time of registration. Students who are placed in medical category 2 or 3 by the University Health Service may be assigned to remedial or special classes after consultation with the Physical Education staff.

All members of athletic teams must have a yearly medical examination preceding active participation.

For courses leading to the degree of Bachelor of Physical Education see page 128.

Men

First Year men may satisfy the regulations on page 124 by selecting two activity courses, one of which must be P.E. 100 or P.E. 130.

Second Year men may satisfy the regulations by selecting any two activity courses.

Students may substitute membership on a University athletic team for one Physical Education activity course.

First Year students intending to major in Physical Education must register for P.E. 104 and P.E. 100 or P.E. 130.

GYMNASTICS

100. *Basic Physical Education.*—General body conditioning, including calisthenics, apparatus work, and games.

102. *Tumbling and Apparatus.*—Fundamental skills on all types of apparatus. Basic and advanced tumbling.

104. *Introduction to Physical Education.* — Open to students registering for the degree course in Physical Education and to students in Teacher Training.

TEAM GAMES

110. *Team Sports and Games.*—Fundamentals and skills at beginners' level in touch football, Borden ball, volleyball, basketball, grass hockey, soccer, and games of low organization.

INDIVIDUAL AND DUAL ACTIVITIES

120. *Individual and Dual Games.*—Fundamentals and skills at beginners' level in tennis, golf, archery, and badminton.

122. *Archery.*—Open only to students in Medical Category 2.

124. *Track and Field.*—Track and field practices under non-competitive conditions.

126. *Weight Lifting.*—General conditioning and body building.

SWIMMING AND LIFE-SAVING

130. *Swimming, Beginners.*—Open to students who cannot swim 150 feet using any recognized stroke.

132. *Swimming, Intermediate.* — Fundamental skills of breast stroke, back stroke, crawl, elementary diving.

134. *Life-Saving.* — An intermediate course leading to Bronze Medallion of Royal Life-Saving Society.

136. *Life-Saving.*—An advanced course leading to Award of Merit, Royal Life-Saving Society.

138. *Swimming Club.*—Recreational and competitive swimming.

DANCE

140. *Square and Ballroom Dancing.*

COMBATIVE SPORTS

150. *Boxing.*—Fundamentals of self-defence, leading to competition on intramural level.

152. *Boxing Club.*

154. *Fencing.*—Introduction to fencing technique with foil, épée, sabre.

156. *Wrestling.*—Fundamental holds and breaks, leading to competition on intramural level.

Women

Women will choose two courses in Physical Education, one before Christmas and one after Christmas, from the following activities each of the first two years.

Students may substitute membership on a University team for one Physical Education activity course.

GYMNASTICS

101. *Gymnastics.*—General conditioning exercises.
Section 1, 1.30-2.30, Tuesday and Thursday;
Section 2, 2.30-3.30, Tuesday and Thursday.

103. *Individual Gymnastics.* — Exercises to correct postural faults. Open to those in Medical Category 3. To be arranged on consultation with the staff.

TEAM GAMES

111. *Team Games.*—Basketball, field hockey, volleyball.
11.30-12.30, Wednesday and Friday.

INDIVIDUAL GAMES

119. *Archery, Beginners.*—Open only to those in Medical Category 2.

Section 1, 9.30-10.30, Tuesday and Thursday;
Section 2, 10.30-11.30, Tuesday and Thursday.

121. *Archery, Intermediate.*—Open to those who have taken Beginners' Archery.

3.30-4.30, Wednesday and Friday.

123. *Badminton, Beginners.*

Section 1, 8.30- 9.30, Monday and Wednesday;
Section 2, 9.30-10.30, Monday and Wednesday;
Section 3, 8.30- 9.30, Thursday and Saturday.

125. *Badminton, Intermediate.*—Open to those who have taken 123.

Section 1, 10.30-11.30, Monday and Wednesday;
Section 2, 9.30-10.30, Thursday and Saturday.

127. *Golf, Beginners.*

Section 1, 9.30-10.30, Monday and Wednesday;
Section 2, 10.30-11.30, Monday and Wednesday;
Section 3, 11.30-12.30, Monday and Wednesday;
Section 4, 1.30- 2.30, Wednesday and Friday.

129. *Tennis, Beginners.*

Section 1, 9.30-10.30, Tuesday and Thursday;
Section 2, 10.30-11.30, Tuesday and Thursday;
Section 3, 11.30-12.30, Tuesday and Thursday;
Section 4, 2.30- 3.30, Wednesday and Friday.

SWIMMING AND LIFE-SAVING

131. *Swimming, Beginners.*

Section 1, 2.30-3.30, Monday, Crystal Pool;
Section 2, 3.30-4.30, Wednesday, Crystal Pool.

133. *Swimming, Intermediate.*

Section 1, 3.00-4.00, Monday, Crystal Pool.
Section 2, 2.30-3.30, Wednesday, Crystal Pool.

135. *Swimming, Senior.*

3.30-4.30, Monday, Crystal Pool.

137. *Life-Saving.*

3.00-4.00, Wednesday, Crystal Pool.

NOTE. Courses in swimming are given once a week throughout the year.

DANCE

141. *Folk Dance.* — Scandinavian, English, Irish, Scotch, and Mexican folk dances.

11.30, Wednesday and Friday.

143. *Modern Dance, Beginners.*—Fundamental rhythmic movements and introduction to composition.

Section 1, 9.30-10.30, Wednesday and Friday;
Section 2, 10.30-11.30, Wednesday and Friday.

145. *Modern Dance, Intermediate.* — Fundamental rhythmic movements with composition.

3.30, Tuesday and Thursday.

147. *Square and Ballroom Dancing.*

Section 1, 11.30-12.30, Monday;
Section 2, 4.30- 5.30, Friday.

NOTE. The course in Square and Ballroom Dancing is given once a week throughout the year.

COURSE LEADING TO THE DEGREE OF B.P.E.

Students enrolling in the course leading to the degree of Bachelor of Physical Education must have a yearly medical examination completed within the first two weeks of the session.

First Year

	Units
English 100 and 101	3
Mathematics 100	3
Biology 100 or Chemistry 100	3
Electives (to be chosen in consultation with the Department of Physical Education)	6
Two hours required Physical Education Activity	

Men students must register for P.E. 104.

NOTES.

1. Physics A of University Entrance is required for entrance into the Physical Education Course or Physics 100 or 120 must be taken as an elective in First or Second Year.
2. Chemistry A is recommended for entrance.
3. Students planning to accompany the major in Physical Education with a major in Science should take two of the following sciences in their First Year and the third in their Second Year: Physics 100, Chemistry 100, Biology 100.
4. Electives should be chosen so as to satisfy the requirements for admission to the Teacher Training course; see pages 142-145.

Second Year

	Units
English 205 or English 200 (English 200 required for students majoring in English)	3
Chemistry 100 or Biology 100, or an elective if both have been taken	3
Psychology 100	3

	Units
Elective (to be chosen in consultation with the Department of Physical Education)	3
Physical Education 260	2
Eight hours of Physical Education Activity a week	4

Men	Women		Men	Women
P.E. 200	201	Gymnastics General Activities	2 hrs.	2 hrs.
210	211	Team Games	2 hrs.	2 hrs.
220	221	Individual and Dual Games	2 hrs.	1 hr.
230	231	Aquatics	1 hr.	1 hr.
240	241	Dance	1 hr.	2 hrs.

Third Year

	Units
Psychology: one course to be selected from Psychology 201, Psychology 202, Psychology 301, or Education 531 and Education 532	3
Elective	3
Physical Education 370	6
Physical Education 360	2
Eight hours of Physical Education Activity a week	4

Men	Women		Men	Women
P.E. 300	301	Gymnastics General Activities	2 hrs.	2 hrs.
310	311	Team Games	2 hrs.	2 hrs.
320	321	Individual and Dual Games	2 hrs.	1 hr.
330	331	Aquatics	1 hr.	1 hr.
340	341	Dance	1 hr.	2 hrs.

Fourth Year

	Units
Psychology: one course not chosen from courses listed in Third Year	3
Electives	6
Physical Education 470	3
Physical Education 460	2
Eight hours of Physical Education Activity a week	4

Men	Women		Men	Women
P.E. 400	401	Gymnastics General Activities	2 hrs.	2 hrs.
410	411	Team Games	2 hrs.	2 hrs.
420	421	Individual and Dual Games	2 hrs.	1 hr.
430	431	Aquatics	1 hr.	1 hr.
440	441	Dance	1 hr.	2 hrs.

NOTE.—Skiing, hiking, and camping programme, to be arranged.

TRAINING IN RECREATIONAL LEADERSHIP

Since it is not practical to construct a four year course that will prepare students as specialists in Recreation as well as in Health and Physical Education and at the same time permit them to qualify for entrance to Teacher Training, and since students specializing only in Recreation may not wish to enter Teacher Training, provision may be made to give the required Recreation courses in lieu of the elective subjects. In addition, certain other substitutions can be made. Such courses would include Music for Recreation Leaders, Handicrafts and Hobbies, Dramatics (Play Production and Stage Craft), Recreation for the Handicapped, Social Problems in Recreation.

COURSE LEADING TO THE DEGREE OF B.S.P.

The degree of Bachelor of Science in Pharmacy will be awarded to candidates who successfully complete the following schedule of academic and practical work.

First Year

Chemistry 100, English 100 and 101, Mathematics 100, Physics 100, and one optional subject to be chosen from the list in paragraph 1(f), page 99. Students who have not obtained standing in Latin III of the high school course of study are advised to take Latin 90 as the optional subject.

PRACTICAL TRAINING

Following completion of the First Year, candidates are required to obtain 12 months' practical training under a qualified pharmacist, as registered students with the Pharmaceutical Association of British Columbia. During this period a prescribed schedule of study and reading must be completed, and an entrance examination based on this work must be passed before proceeding to the Second Year of the course. Further details regarding the conditions and requirements of this period of practical training may be obtained from the Registrar of the Pharmaceutical Association of British Columbia, 618 Homer Street, Vancouver.

Second Year

Biology 100, Chemistry 200, English 205, Pharmacy 201, 202, 203, 204.

Third Year

Bacteriology 201, Biology 400, Chemistry 300, Commerce 359, Commerce 369, Pharmacy 301, 302, 303.

Fourth Year

Chemistry 409 and 419, Pharmacy 401, 402, 403; six units of optional subjects to be selected with the approval of the Head of the Department and the Dean from the following list: Bacteriology 301, Botany 200, Botany 341, Chemistry 304, 410, Commerce 399, Economics 200, English 200, French 202, Geology 201 and 202, German 90 or 101, History 202, Mathematics 200 or 201 or 202, Pharmacy 411, 412, 413, Physics 220, Psychology 300, Slavonic Studies 100 (Russian), Sociology 200, Spanish 90 or 101, Zoology 200.

COURSE LEADING TO THE DEGREE OF B.Ed.

1. *Prerequisites:*
   (a) A bachelor's degree in Arts, Agriculture, or Applied Science, or an equivalent, from a recognized university.
   (b) At least one year's teaching experience before beginning the courses listed under 2 (b) below.
   (c) A permanent teaching certificate, which must be obtained before the degree is conferred.
2. *Course:* The B.Ed. degree represents fifteen units as follows:
   (a) Six units for the completion of the Teacher Training Course or its equivalent.
   (b) Nine units—not already chosen—from Education 510 to 582 inclusive.
3. With the approval of the Dean and the Head of the Department, three units in a subject other than Education may be included in the fifteen units required.
4. Candidates must have their courses approved by the Head of the Department and by the Dean.
5. Standings will be First Class, Second Class, and Pass, according to the average mark obtained in the nine units required under 2(b) above.

SOCIAL WORK

Courses Leading to the Degrees of B.S.W. and M.S.W.

The accepted education for the profession of social work consists of a minimum of two university years of graduate study including lectures, clinical practice work in the field, and a research project or thesis leading to the degree of Master of Social Work. The total course is designed to give a broad preparation for the field of social work and to develop skill in one or more fields of practice. Students may, however, complete one-half of this program, qualifying for the B.S.W. degree, and may accept employment in junior positions for a period of time before becoming candidates for the Master's degree.

Admission

Requirements for entrance to the Department of Social Work are as follows:

(a) The Bachelor of Arts degree, or an equivalent, from a recognized university. An adequate background in the social and biological sciences is necessary.

(b) Personal qualifications for the field of social work. Because maturity is an important factor, students are usually advised to wait until they are at least 21 years of age before beginning their professional education.

Application for entrance is to be made on forms obtainable from the Department and should be filed not later than July 1st for the following September.

Undergraduate students who are looking forward to entering the Department of Social Work should consult the Department each year about their courses.

Requirements for Degrees

THE DEGREE OF BACHELOR OF SOCIAL WORK

The B.S.W. degree will be granted to students who, having received the B.A. degree or an equivalent, satisfactorily complete one University session including twelve units of lectures and three units of field work. Candidates must successfully write a comprehensive examination on the year's work. Lectures and field work are to be chosen from the following courses:

		Units
S.W. 500.	History of Social Welfare	1½
S.W. 501 and 502.	Social Case Work	3
S.W. 503.	Services to Children	1
S.W. 504.	Medical Information	2
S.W. 507.	Group Work 1	1½
S.W. 508.	Social Psychiatry	1
S.W. 509.	Beginning Field Work	3
S.W. 511.	Community Organization	1
S.W. 513.	Public Welfare Programmes	1
S.W. 515.	Programme Skills in Group Activities	1
S.W. 517.	Social Group Work 2	1
S.W. 518.	Development of Personality	1
S.W. 520.	Social Research	1

Those who complete S.W. 499 (Sociology 330) in their Fourth Year need not register for S.W. 500. All students are to consult the Department before registering for courses.

Field work under supervision is taken concurrently with the lecture programme for the First Year, and the student spends a minimum of 450 hours or from 2 to 2½ days each week in this practice

work in a recognized social agency. This constitutes the necessary 3 units of field work credit. The public and private family and child welfare agencies are used in case work practice, since they seem to provide the most general and fundamental work experience. Group work, recreation, and community planning agencies are used for those interested mainly in group work. The student remains in the same agency for the full year and is supervised by a qualified member of the agency staff. The Department maintains a close relation 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.

Student Advisor

On entrance to the Department each student is assigned to a member of Faculty who is responsible for assisting the student in planning his total programme of courses and in advising and helping him at all times.

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 shall begin work leading toward the M.S.W. degree within five years after receiving the B.S.W. degree or they will be required to complete further preparatory work.

2. Candidates for the M.S.W. degree who obtained the Social Work Diploma (for which the B.A. is prerequisite) during the sessions 1943-44 and 1944-45 and who have satisfactory social work experience may proceed with the course for the M.S.W. degree within the five year period without the B.S.W. degree or further work.

3. Candidates for the M.S.W. degree who hold the B.A. degree and the Diploma for Social Work obtained prior to May, 1944, and who have had satisfactory social work experience, may proceed with the course for the M.S.W. degree without the B.S.W. degree but will be required to complete certain other work and to pass a comprehensive examination.

4. Students accepted as candidates for the M.S.W. degree will be required to complete a minimum of one year of University study including nine units of lectures, three units of field work, and a thesis or research project to count for three units. At least Second Class standing is required of all candidates for the Master's degree. Students who proceed directly from the B.S.W. degree to the M.S.W. degree without experience in the field of social work will be expected to work for the four months during the summer either

in paid or in voluntary employment in a social agency or will be required to complete extended field work during that period. For some students block placements in advanced field work will be arranged during the summer preceding or following the second year of study. Candidates for the M.S.W. degree are expected to complete a minimum of 450 hours of field work, but in some special fields, such as medical and psychiatric practice, 600 hours may be required.

Students will pursue courses in their advanced year of social work according to their particular interests. Group work, community organization, medical and psychiatric practice, public welfare administration, family and child welfare are among the possible choices. Students who meet the requirements for admission to candidacy may enrol on a part-time basis and follow a plan of study over two or three years to complete the work for the Master's degree.

5. Candidates for the M.S.W. degree should file an application on a special form obtainable from the Registrar not later than October 15th.

6. Three copies of each thesis or research project, together with an abstract, shall be submitted. The latest date for receiving theses or research projects in the Second Term will be the last day of lectures; and the corresponding date for the Autumn Congregation will be October 1st.

7. A candidate will be granted the M.S.W. degree after a demonstration of knowledge and of skill of performance in social work. An oral and a written comprehensive examination will provide the final evidence of the competence of the candidate.

COURSES LEADING TO THE DEGREE OF M.A.

1. Students registering as graduates must hold either a Bachelor's degree from this University or its equivalent. Those, however, who lack not more than six units toward the Bachelor's degree may register in courses open to graduate students, but may receive graduate credit for such courses only if they subsequently register as graduate students.

2. A graduate of another university applying for permission to enter as a graduate student is required to submit with his application, 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 Faculty will determine the standing of such a student in this University.

3. Graduate students must register in the same registration period as undergraduates.

4. To become candidates for the Master's degree, graduate students must complete application forms, which may be obtained at the Registrar's office, and file them with the Registrar on or before October 15th of the year prior to the Spring or Autumn Congregation at which they expect to receive the degree. Graduate students who expect to take more than one year to complete the requirements for the Master's degree are strongly advised to become candidates as early as possible.

5. 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.

6. Candidates for the Master's degree must hold a Bachelor's degree with

(a) Honours in the major field of the proposed Master's course or at least Second Class standing in each of the undergraduate courses prescribed by the department concerned as prerequisite to the major field of the Master's course;

(*b*) at least Second Class standing in each of the undergraduate courses prescribed by the department concerned as prerequisite to the minor field of the Master's course.

7. Graduate students who do not meet the full requirements of Section 6*(a)* and *(b)* may be permitted to make up any deficiencies concurrently with the Master's course, except that credit will not be given for more than 18 units in any Winter Session.

8. Candidates for the Master's degree, if they have not obtained credit for French 202 or German 200, must satisfy the heads of departments in which their major 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 departments concerned.

9. Candidates for the Master's degree are required either

(a) to spend at least one regular Winter Session in resident graduate study, or

(b) to do two or more years of work under University supervision, during which not more than six units of credit may be counted for reading courses. (See section 11 below.)

10. Graduate students who are assistants, giving not more than four hours a week of tutorial instruction, may be permitted to qualify for the Master's degree after one regular Winter Session of University attendance, provided that in the summer vacation they

have done research work of a nature and extent satisfactory to the head of the department concerned. Such students must be registered as graduate students and must have secured the approval of the head of the department concerned and of the Faculty before entering upon the research in question. Other graduate students doing tutorial work will not be allowed to come up for final examination in less than two academic years after registration as graduate students.

11. At least fifteen units will be required for the Master's course which will comprise a major of at least nine units, of which the thesis counts from three to six units, and a minor of at least five units.

12. The Master's course must be chosen in consultation with the departments concerned. At least Second Class standing is required in each course.

13. Candidates for the Master's degree at a Spring Congregation must submit in its final form three typewritten copies of the thesis, and an abstract approved by the department concerned, on or before the last day of lectures in the Second Term. The date of submission for an Autumn Congregation is October 1st. (See circular entitled *Instructions for the Preparation of Masters' Theses.*)

14. A general examination in the major field will be held at the discretion of the department concerned. Examinations may be written or oral, or partly written and partly oral.

15. The following special requirements are prescribed by different departments.

Bacteriology and Preventive Medicine

Prerequisites:

Minor: At least six units in the Department, including Bacteriology 201, 301.

Major: At least nine units in the Department, including Bacteriology 201, 301, 401.

M.A. Course:

Minor: At least five units in the Department.

Major: Thesis, counting at least five units, and other courses to complete the required units.

Biology and Botany

Prerequisites:

Minor: Biology 100, and six additional units in Botany and Zoology.

Major: Honours; or Biology 100, Botany 200, and eight additional units, including Zoology 200.

M.A. Course:

Minor: At least five units in the Department.

Major: Thesis, counting at least five units, and other courses to complete the required units.

Chemistry

Prerequisites:

Minor: Six units of work in Chemistry regularly offered in the Third and Fourth Years.

Major: Honours in Chemistry.

M.A. Course:

Minor: At least six units of work in Chemistry regularly offered in the Third, Fourth, and Graduate Years.

Major: Nine or ten units of Graduate courses in Chemistry, including a thesis.

Economics

Prerequisites:

Minor: Economics 300, 330 or 400, and 335, and three units other than Economics 200 in Economics, Political Science, or Sociology.

Major: Honours; or Economics 200, 300, 330 or 400, and 335, and six units other than Economics 200 in Economics, Political Science, or Sociology.

M.A. Course:

Minor: Six units in Economics.

Major: Nine units in Economics of which the thesis will count normally for three.

All candidates for the Master's degree in this department must attend the Honours seminar.

Education

Prerequisites:

Minor: Six units (of which at least three must be in Education) chosen from the following: Education 500, 501, 502, 509, 510 to 582 inclusive; Psychology 202, 301. The Academic Certificate will be regarded as satisfying these prerequisites.

Major: The Teacher Training Course or its equivalent. The Academic Certificate will be considered the equivalent of the Teacher Training Course.

M.A. Course:

Minor: *(a)* With the consent of the head of the department in which the candidate is taking his major, the Teacher Training Course with at least Second Class standing in Education 500, 501, and 502 will be accepted for both the prerequisites and the course; *or*

(b) Six units chosen from Education 500, 501, 502, 509, 510 to 582 inclusive.

Major: Nine units chosen from Education 510 to 582 inclusive and a thesis (3 units).

NOTES. 1. The Teacher Training Course may not be counted as a minor if Education is taken as the major.

2. With the consent of the Head of the Department graduate students may substitute Psychology 301, 304, or 500 for one of the Education courses named above.

English

Prerequisites:

Minor: At least nine units in the Department chosen from courses offered in the Third and Fourth Years.

Major: Honours; or at least fifteen units in the Department chosen from courses offered in the Third and Fourth Years.

M.A. Course:

Minor: Six units in the Department chosen from advanced courses not already taken.

Major: Twelve units in the Department chosen from advanced courses not already taken, including English 442 or its equivalent, and a thesis counting as an advanced course of three units.

Oral examinations on the history of English literature are required.

A student who offers both French and German will be allowed three units of credit towards the M.A. degree.

French

Prerequisites:

Minor: French 101, 202, and six additional units in the Department chosen from courses in the Third and Fourth Years.

Major: Honours; or French 101, 202, and twelve additional units in the Department chosen from courses in the Third and Fourth Years.

M.A. Course:

Minor: Six units in the Department chosen from advanced courses not already taken.

Major: At least nine units in the Department chosen from advanced courses not already taken, including French 501 and a thesis counting from three to six units.

Geography

Prerequisites:

Minor: Geography 101 or Geology 201 and 202, and six additional units chosen from courses offered by the Department in the Third and Fourth Years.

Major: Honours; or nine units in advanced courses in Geography.

M.A. Course:

Minor: Geography 101 or 102, and six units of Third and Fourth Year offered by the Department.

Major: Ten units in Geography, including a thesis counting four units.

Geology

Prerequisites:

Minor: Geology 201, 202, 302, and 303, and three additional units in Geology.

Major: Honours; or Geology 201, 202, 302, 303, and eighteen additional units in Geology.

M.A. Course:

Minor: Six units in Geology chosen from courses not already taken.

Major: Six units in Geology chosen from advanced courses not already taken, and a thesis counting six units.

German

Prerequisites:

Minor: German 100, 200, and six additional units in the Department chosen from courses in the Third and Fourth Years.

Major: Honours; or German 100, 200, and twelve additional units in the Department chosen from courses in the Third and Fourth Years.

M.A. Course:

Minor: Six units in the Department chosen from advanced courses not already taken.

Major: At least nine units in the Department chosen from advanced courses not already taken, including German 501 and a thesis counting from three to six units; an examination on the history of German literature is required of all candidates taking a major or a minor in German.

History

Prerequisites:

Minor: One of History 101, 202, 203, 204, or an equivalent course in Senior Matriculation; nine units to be chosen from the Third and Fourth Year courses in History.

Major: Honours; or one of History 101, 202, 203, 204, or an equivalent course in Senior Matriculation; fifteen units to be chosen from the Third and Fourth Year courses in History, and the Third and Fourth Year Honours seminars.

M.A. Course:

Minor: Six units.

Major: Nine units, of which the thesis will count normally for three. All candidates must attend an M.A. seminar.

Mathematics

Prerequisites:

Minor: Mathematics 300, 302, and three additional units chosen from courses in the Third and Fourth Years.

Major: Honours; or Mathematics 300, 302, 401, 440, Physics 200, 300, and eight additional units in the Department chosen from courses in the Third and Fourth Years.

M.A. Course:

Minor: Mathematics 401 and three additional units in the Department chosen from advanced courses not already taken.

Major: Any four of the graduate courses in the Department and a thesis.

Philosophy

Prerequisites:

Minor: Philosophy 100, 202, 205, and three additional units in Philosophy.

Major: Honours; or Philosophy 100, 202, 205, and nine addi-

tional units in Philosophy including at least two of Philosophy 210, 310, 410.

M.A. Course:

Minor: Six units in Philosophy not already taken.

Major: Nine units in Philosophy, including Philosophy 210, 310, 410, 415, if not already taken, and a thesis.

Physics

Prerequisites:

Minor: Physics 200, 300, and either Physics 303 or 304 and Physics 310.

Major: Honours; or Physics 200, 300, 303, 304, 401, 402, 405, 406, 407.

M.A. Course:

Minor: Six units chosen from Physics 401, 402, 403, 405, 406, 407 and Physics 500 to 516.

Major: At least six units chosen from Physics 500 to 516, and a thesis.

Political Science

Prerequisites:

Minor: Nine units in Government.

Major: Honours in Political Science; or in Economics; or in Economics in combination with some other subject; or nine units in Government and six additional units in Economics or Government.

For the minor, three units in Government, and for the major, three units in Government or three units in Economics or three units in each may be replaced by an equivalent number of units chosen from History 309, 310, 311, 312, 419, 420, International Relations, and Slavonic Studies, provided that the units in question are not being offered as part of the prerequisites for a major or a minor in some other subject.

M.A. Course:

Minor: Six units in Government.

Major: Six units in Government and a thesis.

For a major or a minor, three units in Government may be replaced by three units chosen from those listed under the prerequisites.

All candidates for the Master's degree in this department must attend the Honours seminar.

Psychology

Prerequisites:

Minor: Psychology 100 and nine additional units in Psychology.

Major: Honours; or Psychology 100 and twelve additional units in Psychology; Philosophy 100 or 205 and Philosophy 202; and any six units in Mathematics or Science.

M.A. Course:

Minor: Six units in Psychology not already taken.

Major: Nine units in Psychology not already taken, and a thesis.

Sociology

Prerequisites:

Minor: Six units in Sociology, and three additional units in Economics, Government, or Sociology chosen from courses in the Third and Fourth Years.

Major: Honours; or any three of Sociology 300, 325, 330, 400, 425, 430, 435, and three additional units in Economics, Government, or Sociology chosen from courses in the Third and Fourth Years.

M.A. Course:

Minor: Six units in Sociology.

Major: Six units in Sociology and a thesis.

All candidates for the Master's degree in this department must attend the Honours seminar.

Zoology

Prerequisites:

Minor: Biology 100, Zoology 200, and six additional units in Zoology.

Major: Honours; or Biology 100, Zoology 200, Botany 200, and nine additional units in Zoology.

M.A. Course:

Minor: Six units in the Department.

Major: Nine units in the Department and a thesis.

TEACHER TRAINING COURSE

Candidates qualifying for the Academic A Certificate (given by the Provincial Department of Education, Victoria, on the completion of the Teacher Training Course) take the courses prescribed in section 3 of page 187.

1. REGISTRATION.

Documentary evidence of graduation in Arts and Science, Home Economics, Applied Science, or Agriculture 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.

In the case of students who have completed the Teacher Training Course, First or Second Class standing in each of Education 500, 501, and 502 is accepted as equivalent to a minor for an M.A. degree, subject in each case to the consent of the head of the department in which the student wishes to take his major.

3. PREPARATORY COURSES.

Students who intend to proceed to the Teacher Training Course are required to take Psychology 100 as prerequisite to Educational Psychology, and must have fulfilled one of the following:

(a) They must have obtained at least nine units of credit in the academic courses normally offered in the Third and Fourth Years in each of at least two of the following subjects: Biology (including Botany and Zoology), Chemistry, English, French, Geography, German, History, Latin (or Latin and Greek), Mathematics, Physics, Spanish. Equivalent courses in the Faculty of Applied Science may be offered. Candidates offering History may substitute six units of Economics for three units of History, subject to the approval of their courses by the heads of the departments of History and Economics.

(b) They must have completed an Honours course in any one or two of the subjects listed above;

(c) They must have obtained at least twelve units of credit in Agriculture in addition to Agriculture 100 (or an elective from group A, page 342) and at least nine units of credit in any one of the following subjects: Chemistry, Mathematics, Physics, or Biology (including Botany and Zoology), in addition to Chemistry 100, Physics 100, and Biology 100. Furthermore, students planning to enter the Teacher Training Course through Agriculture are required to select undergraduate courses in such a way that, in addition to English 100 and 101 and either 200 or 205, they will have obtained either six units of credit in one, or three units of credit in each of two, of the following: English, Mathematics, the language offered for University Entrance, Social Sciences (History, Economics, Political Science, and Sociology);

(d) They must have obtained a degree in Home Economics from a recognized university.

(e) They must have obtained a degree in Physical Education from the University of British Columbia or its equivalent from a recognized university.

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, Government, and Geography, and one or more advanced courses in English. It is strongly recommended that students choosing Mathematics or one of the sciences take at least one course in each of Biology, Physics, and Chemistry.

Course for High School Teachers of Science

The following course has been designed especially for high school teachers of science:

First and Second Years:	Units
1. English 100, 101, and 200	6
2. Language	6
3. Mathematics 100 and 200 or 202	6
4. Biology 100, Chemistry 100, and Physics 100	9
5. A second course in one of the sciences named in 4	3
	30

Third and Fourth Years:

6. Three courses in the science taken under 5	9
7. One course in each of the sciences named in 4 and not taken under 5 and 6, to be followed by a general course in each of these two sciences, namely, two of Biology 310, Chemistry 300, or 304 and 305, and Physics 230	12
8. Psychology 100	3
9. Two electives from Third and Fourth Year subjects	6
	30
Total	60

Thus candidates will be admitted to the Teacher Training Course who have *(a)* completed the course for high school teachers of science, or *(b)* obtained Honours in Biology, Chemistry, or Physics, or *(c)* obtained credit in nine units of Third and Fourth Year courses in any two of these sciences. But candidates who choose one of the last two alternatives are advised to take at least one course in each of the three sciences mentioned.

Course for High School Teachers of Health

Students who are preparing to teach Health are recommended to take the Course for High School Teachers of Science and to select as the options under 9, Bacteriology 201 and 301. (Regulation 3, page 102, will be waived for this purpose.) They should also take Nursing 466 in their Teacher Training Course.

PRE-MEDICAL COURSES

Candidates who plan to enter Medicine at other universities can, in certain cases, be exempted from one year of their course in Medicine by spending three years at the University of British Columbia and selecting their courses properly. The following subjects should be taken and such others as may be necessary to meet the requirements of the particular medical school selected.

First Year:

English 100 and 101, Modern Language, Mathematics 100, Chemistry 100, Biology 100. 15 units.

Second Year:

English 200, Physics 100, Chemistry 200, Zoology 200; and an elective. 15 units.

Third Year:

Chemistry 300, Physics 220, Zoology 300, and two electives. 15 units.

As most of the Canadian medical schools are overcrowded and as each school gives preference to applicants from the province in which the school is situated, applicants from British Columbia have no assurance that they will be accepted for medical courses even when they have fulfilled the minimum requirements for admission. They are therefore strongly advised to complete the work for their B.A. degree before seeking admission to a medical school. Some medical schools wish the course for the B.A. degree to be as broad as possible so as to include several courses in the humanities, while others prefer Honours courses in the sciences.

EXAMINATIONS AND ADVANCEMENT

1. Examinations in all subjects, obligatory for all students, are held in April. Examinations in December are obligatory in all First and Second Year courses, and in all Third and Fourth Year courses except where exemption has been granted by Faculty. Applications for special consideration on account of illness or domestic affliction must be submitted to the Dean not later than two days after the close of the examination period. In cases where illness is the plea for absence from examinations, a medical certificate must be presented on the appropriate form which may be obtained from the Dean's office.

2. The passing mark is 50 per cent. in each subject. In any course which involves both laboratory work and written examinations, students may be debarred from examinations if they fail to present satisfactory results in laboratory work, and they will be required to pass in both parts of the course.

3. Successful candidates taking at least fifteen units of work will be graded as follows: First Class, an average of 80 per cent. or over; Second Class, 65 to 80 per cent.; Passed, 50 to 65 per cent.

4. A supplemental will be granted in a subject which a candidate has taken during the year, provided he has written the final examination and has obtained a mark of not less than 30 per cent. A candidate, however, will not be granted in any one year supplementals in more than six units.

5. A request for the re-reading of an answer paper must be forwarded to the Registrar WITHIN FOUR WEEKS after the results of the examinations are announced. Each applicant must

state clearly his reasons for making such a request in view of the fact that the paper of a candidate who makes less than a passing mark in a subject is read at least a second time before results are tabulated and announced. The fee for re-reading a paper is $2.00.

6. Supplemental examinations will be held in September in respect of Winter Session examinations, and in June or July in respect of Summer Session examinations. In the Teacher Training Course, supplemental examinations will be held not earlier than the third week in June.

Local centres for supplemental examinations in September will be arranged in British Columbia at the following centres:

Victoria College
Trail or Nelson
Kelowna or Penticton
Kamloops
Prince George
Prince Rupert
Dawson Creek

A student wishing to write supplemental examinations at one of these centres must state in his application the centre chosen and must pay a fee of $2.50 a paper in addition to the regular fee of $5.00 a paper for a supplemental examination.

In the first three years a candidate who has been granted a supplemental may try the supplemental only once. If he fails in the supplemental, he must either repeat his attendance in the course or substitute an alternative chosen in accordance with Calendar regulations. In the case of Fourth Year students two supplemental examinations in respect of the same course will be allowed.

A candidate with a failure or a supplemental examination outstanding in any subject which is on the Summer Session curriculum may clear his record by attending the Summer Session course in the subject and passing the required examinations.

7. Applications for supplemental examinations, accompanied by the necessary fees (see *Schedule of Fees*), must be in the hands of the Registrar by August 1st.

8. No student may enter a higher year with standing defective in respect of more than 3 units. (See regulations in regard to advancement to Third Year Commerce, page 120, and in reference to admission to First Year Applied Science, page 101, note under section 8.)

No student who has failures or supplementals outstanding in more than 3 units, or who has any failure or supplemental outstanding for more than a year of registered attendance, will be allowed

to register for more than 15 units of work, these units to include either the subject (or subjects) in which he is conditioned or permissible substitutes. But a student in the Fourth Year will be permitted to register for 15 units of work in the Fourth Year, even though he may have failures or supplementals outstanding against him, providing that these failures or supplementals do not carry more than three units of credit and that they do not involve the repetition of a course. Such a student will not be permitted to complete his examinations until September.

9. A student may not continue in a later year any subject in which he has a supplemental examination outstanding from an earlier year, except in the case of compulsory subjects in the Second Year.

10. A student who fails twice in the work of the same year may, upon the recommendation of the Faculty, be required by the Senate to withdraw from the University.

11. Any student whose academic record, as determined by the tests and examinations of the first term of the First or Second Year, is found to be unsatisfactory, may, upon the recommendation of the Faculty, be required by the Senate to discontinue attendance at the University for the remainder of the session. Such a student will not be readmitted to the University as long as any supplemental examinations are outstanding.

12. Term essays and examination papers will be refused a passing mark if they are deficient in English; and, in this event, students will be required to pass a special examination in English to be set by the Department of English.

DEPARTMENTS IN ARTS AND SCIENCE

Department of Bacteriology and Preventive Medicine

For Honours courses in Bacteriology and Preventive Medicine see pages 105 and 113.

153 [3]. *Bacteriology in Relation to Health and Disease.*—A course of lectures, demonstrations, and laboratory work, designed to emphasize the practical applications of bacteriology to medical, nursing, and public health problems.

Methods of isolation, culture, and identification of pathogenic micro-organisms; aseptic technique; disinfection and antisepsis; infection and resistance; active immunization procedures; bacteriology in relation to sanitation.

This course should be taken by Nursing A and Pharmacy students. It should not be taken by students intending to proceed to Bacteriology 301, 304, 305, or 312.

References: Henrici, *Biology of Bacteria,* latest edition, Heath; Bigger, *Handbook of Bacteriology,* latest edition, Williams and Wilkins.

Prerequisites: Chemistry 100 and Biology 100, the latter of which may be taken concurrently.

One lecture and four hours laboratory a week. 3 units.

Lectures: 2.30-3.30, Monday.

Laboratory: 3.30-5.30, Monday and 2.30-4.30, Friday.

NOTE. See regulations as to laboratory coats under Bacteriology 201 below.

201 [1]. *Introductory Bacteriology.* — A course consisting of lectures, demonstrations, and laboratory work.

The history of bacteriology, the place of bacteria in nature, the classification of bacterial forms, methods of culture and isolation, the relation of bacteria to agriculture, to industrial processes, to household and veterinary science, and to public health and sanitation.

References: Henrici, *Biology of Bacteria,* latest edition, Heath; Salle, *Fundamental Principles of Bacteriology,* latest edition, McGraw-Hill.

Prerequisites: Chemistry 100 and Biology 100, the latter of which may be taken concurrently.

Two lectures and four hours laboratory a week. 3 units.

Lectures: 9.30-10.30, Tuesday and Thursday.

Laboratory:

Section 1, 10.30-12.30, Tuesday; 10.30-12.30, Thursday;
Section 2, 1.30- 3.30, Tuesday; 1.30- 3.30, Thursday;
Section 3, 8.30-10.30, Wednesday; 8.30-10.30, Friday;
Section 4, 10.30-12.30, Wednesday; 10.30-12.30, Friday.

NOTE. Section 4 may or may not be given, depending on registration.

NOTE. Students must provide themselves with white laboratory coats, ready for use at the *first* laboratory.

301 [2]. *Immunology.*—A course consisting of lectures, demonstrations, and laboratory work.

The protective reactions of the animal body against pathogenic micro-organisms; cellular and humoral immunity. The course will include demonstrations of immunity, and of various diagnostic methods used in public health laboratories.

Reference: Topley & Wilson, *Principles of Bacteriology and Immunity,* latest edition, Macmillan.

Prerequisite: Bacteriology 201.

One lecture and four hours laboratory a week. 3 units.

Lectures: 9.30-10.30, Friday.

Laboratory: 3.30-5.30, Tuesday and Thursday.

302 [11]. *Methodology of Bacteriological Research.*—A course of seminars and discussion periods designed to equip the student preparing for Honours in the Department with a critical appreciation of the literature in the field of bacteriology and preventive medicine; the planning and execution of a limited research problem; the design of protocols, and the general presentation of results.

This course may be taken in their Third Year by prospective Honours course students after consultation with the Head of the Department.

Prerequisites: Bacteriology 201 with at least Second Class standing, and Bacteriology 301, with which this course may be taken concurrently. 3 units.

304 [4a]. *Dairy Bacteriology.* — (This course is the same as Dairying 304, and is given by the Department of Dairying.)

305 [4b]. *Dairy Bacteriology.* — (This course is the same as Dairying 305, and is given by the Department of Dairying.)

312 [6]. *Soil Bacteriology.*—(This course is the same as Agronomy 312, and is given by the Department of Agronomy.)

401 [5]. *Advanced Bacteriology and Immunology.*—A course of lectures, demonstrations, and laboratory work on the nature and antigenic structure of bacteria and viruses; antigen-antibody reactions; theories of susceptibility and immunity; sensitization; preparation and assay of bacterial toxins, toxoids, and antitoxins.

References: Zinnser, Enders, and Fothergill, *Immunity,* 1940, Macmillan; Marrack, Medical Research Council Special Report No. 230, latest edition, H. M. Stationery Office.

Prerequisites: Bacteriology 201 and 301, with at least Second Class standing in both courses.

Four hours a week. 3 units.

Lectures: 9.30-10.30, Tuesday and Thursday.

Laboratory: 9.30-11.30, Monday.

This course must be taken by all students working for nine or more units credit in the Department.

402 [9]. *Microbiological Physiology.*—Lectures, laboratory work, and demonstrations on the physiology of bacteria, yeasts, and molds, including growth, nutrition, respiration, and other aspects of metabolism. Application of microbial physiology to problems in medicine, sanitation, and industry.

Reference: Stephenson, *Bacterial Metabolism,* latest edition, Longmans.

Prerequisites: Bacteriology 201 and 301 with at least Second Class standing in both courses; also Bacteriology 401, which may be taken concurrently.

Four hours a week. First Term. 1½ units.

Lectures: 10.30-11.30, Wednesday and Thursday.

Laboratory: 8.30-10.30, Friday.

403 [10]. *Pathology of Infection.*—A course of lectures, laboratory work, and demonstrations. The history, techniques, and objectives of preventive medicine; modes of conveyance of communicable infections, considered in relation to the prevention of disease; stages in the development of infections in the animal body, illustrated by post-mortem specimens and by microscopic sections.

Reference: Rosenau, *Preventive Medicine and Hygiene,* latest edition, Appleton-Century.

Prerequisites: Bacteriology 201 and 301 with at least Second Class standing in both courses; also Bacteriology 401, which may be taken concurrently.

Four hours a week. Second Term. 1½ units.

Lectures: 11.30-12.30, Wednesday.

Laboratory: 2.30-5.30, Wednesday.

404 [8]. *Reading Course in Bacteriology.*—A directed reading course in some advanced problem within the scope of bacteriology and preventive medicine. No class instruction will be given, but regular meetings will be held for critical discussion, and there will be an examination, either written or oral. 3 units.

Prerequisites: Bacteriology 301; also Bacteriology 401 and one of Bacteriology 402 or 403, with which this course may run concurrently.

405. *Seminar.*—Reviews of bacteriological problems will be presented by students taking Bacteriology 302 and 404. All students accepted for Honours in the Department will be required to attend and to participate in a critical discussion of the presentations.

Second Term. 1 unit.

406. *Research Problem.*—In the final year of the Honours course, students must undertake an investigation approved by the Head of the Department. Their graduating essay will take the form of a report on the results obtained, and will be critically reviewed at an oral examination.

3 units.

407 [7]. *Advanced Dairy Bacteriology.*—(This course is the same as Dairying 407, and is given by the Department of Dairying.)

Department of Biology and Botany

For Honours courses in Biology and Botany see pages 105-107.

Biology

100 [1]. *Introductory Biology.*—The course is introductory to more advanced work in General Biology, Botany, or Zoology; also to courses closely related to biological science, such as Agriculture, Forestry, Medicine, Nursing, Pharmacy, Fisheries, Home Economics.

The fundamental principles of biology; the interrelations of plants and of animals; life processes; the cell and division of labour; life-histories; relation to environment; dynamic biology. The course is prerequisite to all courses in General Biology and Botany. For Zoology see note on page ....

Text-book: MacDougall and Hegner, *Biology the Science of Life*, McGraw-Hill.

Two lectures and two hours laboratory a week. 3 units.

Lectures:
Sections A, B, C, 9.30-10.30, Monday and Wednesday;
Sections D, E, F, 10.30-11.30, Monday and Wednesday.

Laboratory:
Sections 1 to 5, 1.30-3.30, Monday to Friday;
Sections 6 to 10, 3.30-5.30, Monday to Friday;
Sections 11 and 12, 8.30-10.30, Tuesday and Thursday;
Sections 13 and 14, 10.30-12.30, Tuesday and 3.30-5.30, Thursday.

300 [2a]. *Principles of Genetics.*—The fundamentals of genetics; Mendel's Law, applications and modifications; the physical basis of heredity: variations; mutations, natural and induced; the nature of the gene.

Text-book: Sinnott and Dunn, *Principles of Genetics*, McGraw-Hill.

Prerequisite: Biology 100.

Two lectures and two hours laboratory a week. First Term. Mr. Hutchinson, Mrs. Brink. 1½ units.

Lectures: 8.30-9.30, Monday and Wednesday.

Laboratory:

Sections 1 and 2, 8.30-10.30, Tuesday and Friday;
Sections 3 and 4, 10.30-12.30, Tuesday and Friday.

301 [2b]. *Principles of Genetics.*—A continuation of the studies of genetic principles with suggested applications. A lecture and laboratory course. The laboratory work will consist of problems, examination of illustrative material, and experiments with Drosophila.

Prerequisite: Biology 300.

Two lectures and two hours laboratory a week. Second Term. Mr. Brink, Mrs. Brink. 1½ units.

Lectures: 8.30-9.30, Monday and Wednesday.

Laboratory: As for Biology 300.

302 [2c]. *Problems in Genetics.*—An introduction to genetical methods and investigations. Students interested in plant breeding may elect Agronomy 500 as an equivalent of this course.

Prerequisites: Biology 300 and 301.

Three hours a week. Mr. Hutchinson, Mr. Brink, Mrs. Brink. 3 units.

303 [2d]. *Seminar in Genetics.*—A review of advanced phases and the more recent developments in genetics.

Prerequisites: Biology 300 and 301.

Three hours a week. Mr. Hutchinson, Mr. Brink, Mrs. Brink. 3 units.

310 [4]. *General Biology.*—A course primarily for students who intend to teach science in the high schools. (See *Teacher Training Course.*) A review of the modern approaches to the morphology, histology, physiology, and ecology of animals and plants, with applications to man.

A list of reference books is supplied.

Prerequisite: Biology 100.

Two lectures and two hours laboratory a week. Mrs. Brink. 3 units.

Lectures: 11.30-12.30, Monday and Wednesday.

Laboratory: 1.30-3.30, Thursday.

320. *Basic Ecology.*—A course in the primary methods, concepts, and principles of ecology, with special reference to the bioecological view point. The practical work consists of laboratory and field exercises.

References: Shelford, *Laboratory and Field Ecology,* Williams and Wilkins; Weaver and Clements, *Plant Ecology,* McGraw-Hill; Clements and Shelford, *Bioecology,* Wiley. Students are expected to become acquainted with basic articles in the ecological journals and periodicals.

Prerequisites: Botany 200, Zoology 200.

Lectures: 11.30-12.30, Tuesday and Thursday.

Laboratory: 9.30-11.30, Saturday. Excursions as arranged. Mr. Pillsbury. 3 units.

400 [3]. *General Physiology.*—A study of animal and plant life processes. Open to students of Third and Fourth Years having prerequisite Biology, Chemistry, and Physics; the Department should be consulted.

Text-book: Mitchell, *General Physiology,* McGraw-Hill; or Bayliss, *Principles of General Physiology,* Longmans.

Two lectures and three hours laboratory a week. Reference reading. Mr. Allardyce. 3 units.

Lectures: 8.30-9.30, Monday and Wednesday.

Laboratory:

Section 1, 9.30-12.30, Tuesday;
Section 2, 9.30-12.30, Thursday;
Section 3, 2.30-5.30, Friday.

401 [5]. *Basic Physiology.*—This course is designed primarily for students in Home Economics and in the Teachers' Science option. It may be elected also by students taking a major in biological subjects, and not proceeding to Honours in this field.

This course deals with the physiology of digestion and absorption of foods; the liberation and utilization of energy; and the control of the equilibria of life processes.

Prerequisites: Biology 100, Chemistry 100. The Department should be consulted further.

Two lectures and two hours laboratory a week. Second Term. Mr. Allardyce. 1½ units.

Text-book: Best and Taylor, *The Human Body and Its Functions,* Gage.

Lectures: 11.30-12.30, Monday and Wednesday.

Laboratory:

Section 1, 3.30-5.30, Monday;
Section 2, 1.30-3.30, Thursday.

500. *Problems in General Physiology.*—A course for graduate students on physiological controls with particular reference to vitamins and hormones.

Prerequisite: Biology 400.

Two lectures and a problem. Mr. Allardyce. 3 units.

490. *Graduating Essay.*—Students should consult the Department during the Third Year. 3 units.

Botany

200 [1a]. *Botany (Introductory).*—An introductory course that gives a general perspective of the plant kingdom. Physiological anatomy, ecological relations, and developmental trends are illustrated by specific examples.

This course is prerequisite to all other courses in Botany, except the Evening Course.

Text-book: Fuller, *The Plant World,* Holt.

Prerequisite: Biology 100.

Two lectures and two hours laboratory a week. Mr. Taylor. 3 units.

Lectures:

Section A, 10.30-11.30, Tuesday and Thursday;
Section B, 11.30-12.30, Tuesday and Thursday.

Laboratory:

Sections 1, 3, 5, 7, 1.30-3.30, Monday to Thursday;
Sections 2, 4, 6, 8, 3.30-5.30, Monday to Thursday.

300 [5a]. *Economic Flora.*—An introduction to the classification of plants through a study of selected families of economic plants of British Columbia; plants useful for food, fodder, medicine, and industrial arts; plants harmful to crops and stock; weeds and poisonous plants; methods of control.

Text-books: Jepson, *Economic Plants of California,* University of California; Thompson & Sifton, *Poisonous Plants and Weed Seeds,* University of Toronto; Hill, *Economic Botany,* McGraw-Hill.

Prerequisite: Botany 200.

Two lectures and two hours laboratory a week. First Term. Mr. Davidson. 1½ units.

Lectures: 9.30-10.30, Monday and Wednesday.

Laboratory: 1.30-3.30, Monday.

302 [5c]. *Descriptive Taxonomy.*—An advanced course dealing with the collection, preparation, and classification of "flowering plants"; methods of field, herbarium, and laboratory work; plant

description, the use of floras, preparation of keys, identification of species; systems of classification; nomenclature.

Text-books: Hitchcock, *Descriptive Systematic Botany,* Wiley; Henry, *Flora of Southern British Columbia,* Gage.

Prerequisite: Botany 300.

One lecture and four hours laboratory a week. Second Term. Mr. Davidson. 1½ units.

Lectures: 9.30-10.30, Monday.

Laboratory: 1.30-3.30, Monday and Wednesday.

303. *Dendrology (Elementary).*—A course in the identification and distribution of North American trees, particular attention being paid to those native to British Columbia. Emphasis is laid on practical work.

Text-book: Harlow and Harrar, *Textbook of Dendrology,* McGraw-Hill.

References: Davidson and Abercrombie, *Conifers, Junipers, and Yew,* Allen and Unwin; Sudworth, *Forest Trees of the Pacific Slope,* Washington, D.C.; Morton and Lewis, *Native Trees of Canada,* Ottawa; White, *Forest Trees of Ontario,* Toronto.

Prerequisite: Botany 200.

One lecture and one period of two or three hours laboratory or field work a week. Mr. Taylor. 2 units.

Section 1, 1.30- 5.30, Friday;
Section 2, 8.30-12.30, Saturday.

310 [2a]. *Morphology.*—A comparative study of plant structures; the relation of plant groups; comparative life histories. Emphasis is placed upon the increasing complexity of plant structures, from the lower to the higher forms, involving a progressive differentiation accompanied by an interdependence of parts.

Prerequisite: Botany 200.

Two lectures and four hours laboratory a week. First Term. Mr. Hutchinson. 2 units.

311 [2b]. *The Algae.*—A course dealing with the morphology, taxonomy, and specific physiology of the Algae, with a discussion of evolution within the group; practical acquaintance with the fresh water and marine forms, their identification and habitats; collection and preservation of specimens.

References: Smith, *Freshwater Algae of the United States,* McGraw-Hill; Fritsch, *The Structure and Reproduction of the Algae,* Vols. I, II, Macmillan; Tilden, *The Algae and Their Life Relations,* University of Minnesota.

Prerequisite: Botany 200.

Two lectures and four hours laboratory a week. Second Term. Mr. Davidson, Mr. Hutchinson. 2 units.

315 [6e]. *Mycology.*—A course designed to give the student a general knowledge of the fungi from a taxonomic point of view.

Text-book: Stevens, *Plant Disease Fungi,* Macmillan.

Prerequisite: Botany 200.

One lecture and four hours laboratory a week. Credit will be given for a collection of fungi made during the summer preceding the course. Mr. Dickson. 3 units.

Lectures: 8.30-9.30, Monday.

Laboratory: 1.30-5.30, Tuesday.

316 [6c]. *Plant Pathology (Elementary).*—A course dealing with basic concepts of plant disease and plant disease control. A number of economically important plant diseases are studied in detail.

Text-book: Heald, *Introduction to Plant Pathology,* McGraw-Hill.

Prerequisite: Botany 200.

Two lectures and four hours laboratory a week. Second Term. Mr. Dickson. 2 units.

Lectures: 9.30-10.30, Tuesday and Thursday.

Laboratory: 1.30-3.30, Monday and Wednesday.

317 [6b]. *Forest Pathology.*—Nature, identification, and control of the more important tree-destroying fungi and other plant parasites of the forest.

Text-book: Hubert, *An Outline of Forest Pathology,* Wiley.

One lecture and two hours laboratory a week. Second Term. Mr. Dickson. 1½ units.

Lectures: 11.30-12.30, Wednesday.

Laboratory: 10.30-12.30, Thursday.

320 [7a]. *Forest Ecology and Geography.*—The interrelations of forest trees and their environment; the ecological characteristics of important forest trees; forest associations; types and regions; physiography.

References: Toumey and Korstian, *Foundations of Silviculture upon an Ecological Basis,* 2nd edition, Wiley; Weaver and Clements, *Plant Ecology,* McGraw-Hill; Whitford and Craig, *Forests of British Columbia,* Ottawa; Halliday, *A Forest Classification for Canada,* Ottawa.

Prerequisite: Botany 200.

Two lectures and one period of field and practical work a week. Field trips. First Term. Mr. Hutchinson, Mr. Griffith. 2 units.

Lectures: 8.30-9.30, Tuesday and Thursday.

Laboratory: 3.30-5.30, Monday.

330 [3a]. *Plant Physiology.*—An introduction to the physiological processes of plants. A general survey is made of photosynthesis, transpiration, absorption, enzymes, respiration, plant hormones, and growth. This course is prerequisite for Botany 331, 332, and 333.

Text-book: Meyer and Anderson, *Plant Physiology,* Van Nostrand.

Prerequisite: Botany 100.

Two lectures and four hours laboratory a week. First Term. Mr. Wort. 2 units.

Lectures: 9.30-10.30, Tuesday and Thursday.

Laboratory:

Section 1, 1.30-3.30, Monday and Wednesday;
Section 2, 3.30-5.30, Monday and Wednesday;
Section 3, 1.30-3.30, Tuesday and Thursday;
Section 4, 3.30-5.30, Tuesday and Thursday.

331 [3b]. *Plant Nutrition (a).*—As in Agriculture (Horticulture 441).

332 [3c]. *Plant Nutrition (b).*—As in Agiculture (Horticulture 442).

333. *Problems in Plant Physiology.*—Biophysical and biochemical aspects of plant life. Recent advances in the subject are discussed. The course is designed primarily as an experimental approach to the subject. The student is expected to select some problem in plant physiology for original investigation.

Reference: Miller, *Plant Physiology,* McGraw-Hill.

Prerequisites: Botany 330, Chemistry 300, Physics 100.

Two lectures and four hours laboratory a week. Second Term. Mr. Wort. 2-3 units.

Lectures: 9.30-10.30, Tuesday and Thursday.

Laboratory: 1.30-3.30, Monday and Wednesday.

340 [4]. *Histology.*—A study of the structure and development of plants and of methods of killing, fixing, embedding, sectioning, staining, and mounting; drawing, reconstruction; use of microscope, camera lucida, and photo-micrographic apparatus.

Text-books: Eames and McDaniels, *Introduction to Plant Anatomy,* McGraw-Hill; Chamberlain, *Methods in Plant Histology,* University of Chicago.

Prerequisite: Botany 200.

Seven hours a week. Second Term. Mr. Hutchinson. 2 units.

Lectures: 8.30-9.30, Tuesday.

Laboratory: 1.30-4.30, Monday and Wednesday.

341. *Microscopic Pharmacognosy.*—A study of the microscopic features of crude and powdered vegetable drugs, including methods of sectioning, staining, and mounting; use of microscope, camera lucida, and photomicrographic apparatus; detection of adulterants; identification of unknown powders.

To be given in conjunction with Botany 340, *Plant Histology.*

Text-book: Wallis, *Practical Pharmacognosy.*

One lecture and four hours laboratory a week. Mr. Hutchinson. 3 units.

403. *Dendrology (Advanced).*—A course, designed for Honours or Graduate students, more detailed and extensive in its scope than Botany 303, which is prerequisite. In addition to trees a number of important shrubby genera will also be studied.

Prerequisite: Botany 303.

One lecture and three hours of laboratory or field work a week. Mr. Taylor. 2 units.

(Given in 1948-49.)

411 [6f]. *History of Plant Pathology.*—A lecture course dealing with the history of the science of plant pathology from ancient times to the present.

Text-book: Whetzel, *An Outline of the History of Phytopathology,* Saunders.

Prerequisite: Botany 316.

One hour a week. Mr. Dickson. 1 unit.

Lectures: 11.30-12.30, Friday.

415 [6d]. *Plant Pathology (Advanced).*—A course designed for Honours or graduate students. Technique, isolation, and culture work; inoculations; details concerning the various stages in the progress of plant diseases; a detailed study of control measures.

Text-book: Rawlins, *Phytopathological Methods,* Wiley.

Prerequisite: Botany 316.

One lecture and four hours laboratory a week. Mr. Dickson. 3 units.

Lectures: 11.30-12.30, Monday.

Laboratory: 8.30-12.30, Friday.

420 [7b]. A seminar and problem course in more advanced forest ecology.

Prerequisite: Botany 320.

Five hours a week. First Term. Mr. Hutchinson. 2 units.

430. *Synthetic Processes of the Plant; Anabolism.*—An advanced analysis of absorption, translocation, synthesis, storage, and assimilation of carbohydrates, fats, proteins, and derivatives.

Prerequisites: Botany 330, Chemistry 300.

Lectures and laboratory, six hours a week. Second Term. Mr. Wort. 2 units.

431. *Plant Digestion and Catabolism.*—An advanced study of digestion, enzymes, and respiration as essential to plant processes.

Prerequisites: Botany 330, Chemistry 300.

Lectures and laboratory, six hours a week. Mr. Wort. 2 units.
(Given in 1948-49.)

490. *Graduating Essay.*—Students should consult the Department during the Third Year. 3 units.

Evening and Short Courses in Botany

A course in general botany, comprising approximately fifty lectures, is open to all interested in the study of plant life of the Province. No entrance examination and no previous knowledge of the subject is required.

The course is designed to assist teachers, gardeners, foresters, and other lovers of outdoor life in the Province. As far as possible, illustrative material will be selected from the flora of British Columbia.

The classes meet every Tuesday evening during the University session (September-May) from 7.30 to 9.30 p.m. Field or laboratory work, under direction, is regarded as a regular part of the course.

No examination is required except in the case of University students desiring credit for this course. Biology 100 is a prerequisite for such students. This course may be substituted for the lecture part of Botany 200; but credit is not given until the laboratory work is complete.

Students who do not desire credit but wish to ascertain their standing in the class may apply for a written test.

A detailed statement of requirements and of work covered in this course is issued as a separate circular. Copies may be obtained on request. Mr. Davidson.

Department of Chemistry

For Honours courses in Chemistry, see pages 107 and 114.

90 [A]. *General Survey of Chemistry.*—This course will give a general survey of the field of chemistry for students not intending to specialize in any of the sciences. Laboratory experiments designed to give an insight into scientific methods will be performed.

This course will not be accepted as fulfilling the prerequisite for Chemistry 200, or any subsequent Chemistry course.

Reference: Deming, *Fundamental Chemistry,* Wiley.

Two lectures and one laboratory period a week. 3 units.

(Not given in 1947-48.)

100 [1]. *General Chemistry.*—A study of inorganic chemistry against a background of theory. Chemical arithmetic, the Periodic Table, and the fundamental theories will be stressed. Students must reach the required standard in both lecture and laboratory work.

Text-book: Foster and Alyea, *An Introduction to General Chemistry,* Van Nostrand. For the laboratory: Harris and Ure, *Experimental Chemistry for Colleges,* McGraw-Hill.

Three lectures and two and one-half hours laboratory a week. 3 units.

NOTE. Students who have not taken High School Chemistry A will be required to take additional class work.

Lectures: Section 1, 10.30-11.30, Monday, Wednesday, Friday;
Section 2, 1.30- 2.30, Monday, Wednesday, Friday;
Section 3, 10.30-11.30, Tuesday, Thursday, Saturday;
Section 4, 2.30- 3.30, Monday, Wednesday, Friday;
Section 5, 8.30- 9.30, Tuesday, Thursday, Saturday.

Laboratory: 3.30-6, Monday, Tuesday, Thursday, or Friday.

Additional lecture and laboratory periods will be arranged as required.

200 [2]. *Qualitative and Quantitative Analysis.*

(a) Qualitative Analysis.—A study of the chemical reactions of the common metallic and acid radicals, together with the theoretical considerations involved in these reactions.

Reference: Reedy, *Theoretical Qualitative Analysis,* McGraw-Hill.

Prerequisite: Chemistry 100.

Two lectures and six hours laboratory a week. First Term.

(b) Quantitative Analysis.—This course embraces the more important methods of volumetric and gravimetric analysis.

Text-book: Booth and Damerell, *Quantitative Analysis,* McGraw-Hill.

Reference: Pierce and Haenich, *Quantitative Analysis,* Wiley.

Prerequisite: Chemistry 100.

Two lectures and six hours laboratory a week. Second Term. 3 units.

Course *(b)* must be preceded by Course *(a)*.

Lectures: Section 1: 9.30-10.30, Friday; Section 2: 3.30-4.30, Friday.

Laboratory: 8.30-11.30, Tuesday and Thursday; 2.30-5.30, Tuesday and Thursday.

Other lecture and laboratory sections will be arranged.

225 [C]. *Organic Chemistry.*—A study of carbon compounds with especial emphasis upon the compounds to be dealt with later in courses on food-stuffs, nutrition, and textile fibres.

Prerequisite: Chemistry 100.

Open only to students taking Home Economics or a Pre-Dental course.

Text-book: Lowy-Harrow, *An Introduction to Organic Chemistry,* Wiley.

Two lectures and three hours laboratory a week. 3 units.

301 [B]. *General Chemistry for Teachers.*—This course is intended only for those students who plan to teach science in high school. The course will consist of a more advanced study of general chemistry than Chemistry 100, with special emphasis upon topics in the high school curriculum. The laboratory work will include experiments suitable for high school demonstration purposes.

Prerequisites: Chemistry 100 and 200.

NOTE. Students may substitute Chemistry 300 and 304 for this course.

Text-book: Partington, *Inorganic Chemistry,* Macmillan.

Two lectures and one laboratory period a week. 3 units

(Not given in 1947-48.)

300 [3]. *Organic Chemistry.*—This introduction to the study of the compounds of carbon will include the methods of preparation and a description of the more important groups of compounds in both the aliphatic and the aromatic series.

Chemistry 300 will be given only to those students taking Chemistry 200, or those who have had the equivalent of Chemistry 200.

References: Conant, *The Chemistry of Organic Compounds,* Macmillan; Wertheim, *Text-book of Organic Chemistry,* Blakiston;

Richter, *Organic Chemistry,* Wiley; Gatterman-Wielands, *Laboratory Methods of Organic Chemistry,* Macmillan.

Two lectures and one laboratory period a week. 3 units.

Lectures: 9.30-10.30, Monday and Wednesday.

Laboratory: 1.30-6, Thursday *or* Friday.

304 [4a]. *Theoretical Chemistry.*—An introductory course in the development of modern theoretical chemistry, including a study of gases, liquids, and solids, solutions, ionization and electrical conductivity, chemical equilibrium, kinetics of reactions, thermochemistry and thermodynamics, colloids.

Text-book: Gucker and Meldrum, *Physical Chemistry,* American Book Company.

References: Millard, *Physical Chemistry for Colleges,* McGraw-Hill; Noyes and Sherrill, *Chemical Principles,* Macmillan.

Laboratory text-books: Sherrill, *Laboratory Experiments on Physico-Chemical Principles,* Macmillan; *Handbook of Chemistry and Physics,* Chemical Rubber Company, Cleveland.

Prerequisites: Chemistry 200 (except for students taking Honours in Physics) and Mathematics 202. Honours students majoring in Chemistry should take Mathematics 300 concurrently.

Two lectures and one laboratory period a week. 3 units.

Lectures: 10.30-11.30, Tuesday and Thursday.

Laboratory: 1.30-5, Tuesday, Wednesday, *or* Friday.

305 [4b]. This course is the same as Chemistry 304 with the omission of the laboratory, and is open only to students not taking Honours in Chemistry. 2 units.

310 [5]. *Advanced Quantitative and Qualitative Analysis.*

(a) Quantitative Analysis.—The determinations made will include the more difficult estimations in the analysis of rocks as well as certain 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.

Prerequisite: Chemistry 200.

Text-book: Vogel, *Quantitative Analysis,* Longmans Green.

(b) Qualitative Analysis.—The work of this course will include the detection and separation of the less common metals, particularly those that are important industrially.

Text-book: Vogel, *Qualitative Analysis,* Longmans Green, *or* Treadwell-Hall, *Analytical Chemistry,* Vol. I, Wiley.

Reference: Noyes and Bray, *Qualitative Analysis of the Rarer Elements,* Macmillan.

Two lectures and six hours laboratory a week. 3 units.

Lectures: 1.30-2.30, Monday.

Laboratory: 1.30-4.30, Tuesday; 8.30-11.30, Friday.

325 [D]. *Biochemistry.*—This course will be open to students in Home Economics only, and will deal with the chemistry of digestion, absorption, and the fate of foodstuffs in the body.

Prerequisite: Chemistry 225.

Two lectures and three hours laboratory a week. First Term. 1½ units.

Lectures: 11.30-12.30, Monday and Wednesday.

Laboratory: 1.30-4.30, Monday.

350 [6]. *Introduction to Chemical Engineering.*—As in Applied Science.

407 [7]. *Physical Chemistry.*—This course is a continuation of Chemistry 304 and treats in more detail the kinetic theory of gases, properties of liquids and solids, thermodynamics and thermochemistry, properties of solutions, theoretical electrochemistry, chemical equilibrium, kinetics of reactions, photo-chemistry, radioactivity.

Text-book: Glasstone, *A Text-Book of Physical Chemistry,* Van Nostrand. Reference: Noyes and Sherrill, *Chemical Principles,* Macmillan.

Prerequisites: Chemistry 200, 300, and 304; Mathematics 300, which may be taken concurrently.

Two lectures and one laboratory period a week. 3 units.

Lectures: 10.30-11.30, Monday and Wednesday.

Laboratory: 1.30-5, Monday.

409 [9a]. *Advanced Organic Chemistry.*—The lectures will deal with some of the more complex carbon compounds, such as the carbohydrates and their stereochemical configurations, fats, proteins, purine derivatives, alkaloids, and enzyme action.

Text-book: Hill and Kelly, *Organic Chemistry,* Blakiston.

Prerequisite: Chemistry 300.

Two lectures and one laboratory period a week. First Term. 1½ units.

410 [9b]. The various types of organic reactions, with certain theoretical conceptions, will be presented. The terpenes, various commercial plastics, including the synthetic rubbers, synthetic textile fibres, and synthetic protective and decorative coatings, will be considered.

Prerequisites: Chemistry 200, 300, and 409.

Two lectures and one laboratory period a week. Second Term. 1½ units.

Lectures: 9.30-10.30, Tuesday and Thursday.

Laboratory: 1.30-6, Monday or Tuesday.

411 [10]. *History of Chemistry.*—A general survey of the development of chemical knowledge from the earliest times up to the present day, with particular emphasis on chemical theory.

References: Moore, *History of Chemistry,* McGraw-Hill; Campbell-Brown, *History of Chemistry,* Blakiston; Partington, *A Short History of Chemistry,* Macmillan.

NOTE. This course is open only to students taking Chemistry 407, 409, and 410.

Two hours a week. Second Term. 1 unit.

FOR FOURTH YEAR OR GRADUATE STUDENTS

425. *Outlines of Biochemistry.*—The lectures will deal with the chemistry of cells and tissues. The laboratory work will consist of a study of the methods of preparation, isolation, identification, and determination of compounds associated with biochemical reactions and processes.

Prerequisites: Chemistry 300, 303, and 409; the last may be taken concurrently.

Text-book: Gortner, *Outlines of Biochemistry,* Wiley.

Two lectures and one laboratory period a week. 3 units.

PRIMARILY FOR GRADUATE STUDENTS

511 [11]. *Physical Organic Chemistry.*—Stereochemical theories will be discussed in greater detail than in Chemistry 409 and 410, and chemical and physico-chemical methods employed in determining the constitution of organic compounds will be studied. The electronic conception of valency as applied to organic compounds will be considered, and an outline will be given of the work done in electro-organic chemistry.

Prerequisites: Chemistry 407, 409, and 410.

One hour a week. 1 unit.

(Not given in 1947-48.)

512 [12]. *Colloid Chemistry.*—A consideration of the principles which underlie the behaviour of disperse systems and reactions at surfaces, including electro-capillary phenomena, preparation of colloids, Brownian movement, surface tension, adsorption, emulsions, membrane equilibria, and gels.

References: Thomas, *Colloid Chemistry,* McGraw-Hill; Svedberg, *Colloid Chemistry,* Chemical Catalog Co.; Weiser, *Colloidal Chemistry,* Wiley.

Prerequisites: Chemistry 300 and 304.

One hour a week. 1 unit.

517 [17]. *Chemical Thermodynamics.*—Study of first, second, and third laws; derivation of fundamental equations and their application to the gas laws, chemical equilibrium, theory of solutions, electrochemistry, and capillarity.

Text-books: Lewis and Randall, *Principles of Thermodynamics,* McGraw-Hill; Glasstone, *Thermodynamics for Chemists,* Van Nostrand.

Prerequisite: Chemistry 407.

One lecture a week. 1 unit.

(Given in 1947-48 and alternate years.)

518 [18]. *Advanced Inorganic Chemistry.*—The properties of the elements are considered in relation to the periodic table and atomic structure. The course includes a study of the rarer elements.

Text-book: Partington, *Inorganic Chemistry.*

Prerequisites: Chemistry 200 and 304.

One lecture a week. 1 unit.

Lectures: 8.30-9.30, Tuesday and Thursday.

(Given in 1948-49 and alternate years.)

521 [21]. *Chemical Kinetics.*—The fundamentals of statistical mechanics with applications to the theory of interionic attraction, molecular collisions, specific heat, entropy, and rates of thermal and photochemical reactions.

Reference: Tolman, *Statistical Mechanics with Applications to Physics and Chemistry,* Chemical Catalog Co.

Two lectures a week. Second Term. 1 unit.

(Given in 1947-48 and alternate years.)

522 [22]. *Surface Chemistry.* — Thermodynamics of surfaces, adsorption equations, heats of adsorption, theory of combustion, clean-up of gases in vacuum tubes, reactions on hot filaments, theory of contact catalysis, industrial uses of adsorption phenomena.

Text-book: Gregg, *The Adsorption of Gases by Solids,* Methuen.

References: Brunauer, *The Adsorption of Gases and Vapours,* Princeton; McBain, *The Sorption of Gases by Solids,* Routledge; Adam, *The Physics and Chemistry of Surfaces,* Oxford; Rideal, *Surface Chemistry,* Cambridge.

Prerequisite: Chemistry 407.

One lecture a week. 1 unit.

(Given in 1948-49 and alternate years.)

530 [30]. *Research Conference.*—This course is required of all graduate students. Students will be required to present a paper on an approved topic.

One hour a week. 1 unit.

Department of Classics

For Honours courses in Classics see pages 107-116.

For courses in art, literature, and history, not requiring a knowledge of Greek or Latin, see Greek 314, 315, 331; Latin 331.

Greek

Greek 101 is open to students who have presented Greek for University Entrance; Greek 202 is open to those who have passed in Greek 90, Greek 101, or Senior Matriculation Greek.

Of the courses numbered 303, 305, 306, and 407 only two are normally available in any one year.

Greek 331 and Latin 331 replace the history courses formerly numbered Greek 330 and Latin 329.

90. *Beginners' Greek.*—The elements of Attic Greek.

Text-book: Chase and Phillips, *A New Introduction to Greek,* Harvard.

Four hours a week, to be arranged. 3 units.

101 [1]. *Introduction to Greek Prose Authors.*—After completing the beginners' book, the course will present the first book of Xenophon's eye-witness account of the march made by the "Ten Thousand" Greeks into Asia Minor. There will be practice in composition, and reading in the history of Greece.

Text-books: White, *First Greek Book,* chap. XLIX-LXXX, Ginn (for those who have not taken Greek 90); North and Hillard, *Greek Prose Composition* (one exercise each from sections 1-16), Rivingtons; Robertson and Robertson, *The Story of Greece and Rome,* chap. I-XXXII, Dent.

Text: Xenophon, *The First Four Books of Xenophon's Anabasis,* Goodwin and White, Ginn.

Four hours a week, to be arranged. 3 units.

202 [2]. *Greek Literature of the Classical Period.*—Plato's account of Socrates' defence at his trial will be followed by an introduction to Greek tragedy in a play of Euripides. There will be practice in composition, and a brief survey of Greek literary history.

Text-books: North and Hillard, *Greek Prose Composition* (sections 17-44), Rivingtons; Norwood, *The Writers of Greece,* Oxford.

Texts: Plato, *Apology,* Adam, Cambridge Elementary Classics; Euripides, *Medea,* Bayfield, Macmillan.
Four hours a week, to be arranged. 3 units.

THIRD AND FOURTH YEARS

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

303 [3]. *Greek Drama.*—Lectures on the development of Greek tragedy and comedy and on scenic antiquities; the reading of representative plays of Sophocles, Euripides, and Aristophanes, and of Aristotle's discussion of tragedy in his *Ars Poetica.*

Texts: Sophocles, *Antigone,* Jebb and Shuckburgh, Cambridge; Euripides, *Heracles,* Byrde, Oxford; Aristophanes, *Aves,* Hall and Geldart, Oxford; Aristotle, *Ars Poetica,* Bywater, Oxford.
Three hours a week. 3 units.

304 [5]. *Epic and Lyric Poetry.*—Selections from Homer's *Iliad* and from the Greek lyric anthology.

Texts: Homer, *Iliad,* Monro, 2 vols., Oxford; *Greek Elegiac, Iambic, and Lyric Poets,* Harvard.
Three hours a week. 3 units.

306 [6]. *Greek Historians.*—Lectures on the rise of Greek historical writing; the reading of selections from Herodotus and Thucydides.

Texts: *Herodoti Historiae,* Hude, Oxford; Thucydides, *History, Book VII,* Marchant, Macmillan.
Three hours a week. 3 units.

310 [8a]. *Composition.*—Obligatory for Honours students in the Third Year.
One hour a week. 1 unit.

The following three courses (Greek 314, 315, 331) do not require a knowledge of the Greek language. Greek 314 and 315 may be taken by Second Year students.

314 [14a]. *Greek Art.*—A survey of architecture, sculpture, and the minor arts from the Aegean period to the Hellenistic, with consideration of their aesthetic value and their relation to Hellenic life and thought. Lectures illustrated with lantern slides and photographs from the Carnegie Collection.
This course does not require a knowledge of Greek.

Text-book: Fowler and Wheeler, *A Handbook of Greek Archaeology,* American Book Company.
One hour a week. 1 unit.
Lectures: 11.30-12.30, Monday.

315 [14b]. *Greek Epic and Tragedy.*—A study, in translation, of the *Iliad,* the *Odyssey,* and selected plays of Aeschylus, Sophocles, and Euripides. Collateral reading will be assigned.

This course does not require a knowledge of Greek.

Texts: Homer, *Iliad,* translated by Lang, Leaf, and Myers, Macmillan; Homer, *Odyssey,* translated by Butcher and Lang, Macmillan; Aeschylus, *The House of Atreus* (text to be announced); Sophocles, *Oedipus the King* and one other play, translated by Jebb, Macmillan; Euripides, *Medea* and *Hippolytus,* translated by Murray, Allen and Unwin.

Two hours a week. **2 units.**

Lectures: 11.30-12.30, Wednesday and Friday.

331 [9]. *Greek History to 14 A.D.*—The course will include a study of the background and rise of Greek civilization, with special attention to the social and political life in the fifth century city states; and a survey of Hellenistic civilization, with special emphasis on the contribution of the Hellenistic Age to Graeco-Roman culture. Essays will be assigned on special topics.

For those who wish more than 1½ units of credit, special reading and investigation will be arranged.

For credit in the Department of History see History 331.

This course does not require a knowledge of Greek.

References: Trever, *History of Ancient Civilization,* Harcourt, Brace; Botsford and Robinson, *Hellenic History,* Macmillan; Laistner, *Greek History,* Heath; Cary, *A History of the Greek World from 323 to 146 B.C.,* Methuen.

Three hours a week. First Term. 1½ to 3 units.

Lectures: 8.30-9.30, Monday, Wednesday, and Friday.

407 [7]. *Introduction to Greek Philosophy.*—A survey of the beginnings of Greek philosophic inquiry; the reading of selections from two of the major works of Plato and Aristotle.

Texts: Plato, *Respublica,* Burnet, Oxford; Aristotle, *Ethica Nicomachea,* Bywater, Oxford.

Three hours a week. **3 units.**

410 [8b]. *Advanced Composition.* — Obligatory for Honours students in the Fourth Year.

One hour a week. **1 unit.**

PRIMARILY FOR GRADUATE STUDENTS

521 [21]. Aristotle, *Politica,* Immisch, Teubner.

Latin

Latin 101 is open to students who have presented Latin for University Entrance or have taken the beginners' course in the University; Latin 202 is open to those who have passed in Latin 101 or in Senior Matriculation Latin.

90. *Beginners' Latin.*—This course is intended for students who have no previous knowledge of Latin. It is open for credit only to students who have not offered Latin for credit at University Entrance.

The aims of the course include (1) a mastery of what is fundamental in Latin grammar and composition and the learning of a basic Latin vocabulary; and (2) a continuous correlation with English, in a careful study of the origins and meanings of English words derived from Latin and of the structure of the English sentence. During the latter part of the year selections from Latin authors will be read.

Text-book: Collar and Daniell, *First Year Latin,* revised by Jenkins, Ginn.

Text: To be announced.

Four hours a week. 3 units.

Sections 1 and 3, 11.30-12.30, Tuesday, Thursday, and Saturday; 10.30-11.30, Monday;

Section 2, 2.30-3.30, Monday, Wednesday, and Friday; 10.30-11.30, Saturday.

101 [1]. *Introduction to Latin Literature.*—The course opens with selections from prose authors; in the Second Term will be read selections from some of the representative poets of the late Republic and the early Empire. There will be practice in composition and reading in the history of Rome.

Text-books: Pilsbury, *Latin Prose Composition,* Oxford; Robertson and Robertson, *The Story of Greece and Rome,* chap. XXXIII-LIV, Dent.

Texts: *A Book of Latin Prose Selections,* Neville, Dale, Breslove, and Tracy, Macmillan; *A Book of Latin Poetry,* Neville, Jolliffe, Dale, and Breslove, Macmillan.

Three hours a week. 3 units.

Section 1: 9.30-10.30, Monday, Wednesday, and Friday;

Section 2: 10.30-11.30, Tuesday, Thursday, and Saturday.

202 [2]. *Prose and Poetry of the Golden Age.*—Reading in some of the prose of Cicero and in the developed epic as represented by Vergil; brief history of Greece.

Text-book: Robertson and Robertson, *The Story of Greece and Rome,* chap. I-XXXII, Dent.

Texts: Cicero, *Catilinarian Orations,* Upcott, Oxford; Vergil, *Aeneid VI,* Page, Macmillan.

Three hours a week. 3 units.

Section 1: 8.30-9.30, Tuesday, Thursday, and Saturday;

Section 2: 9.30-10.30, Tuesday, Thursday, and Saturday.

THIRD AND FOURTH YEARS

Courses 303, 304, 310, 329, 405, 406 are open to all students who have passed Latin 202 or its equivalent.

NOTE. All students are advised to provide themselves with Allen and Greenough, *New Latin Grammar,* Ginn. Honours students will be expected to take additional reading in the Third and Fourth Years in connection with at least two of the courses numbered 303, 304, 405, and 406.

303 [3]. *Roman Comedy.*—A study of typical plays of Plautus and Terence, illustrative of the Greek influence on the Roman stage; brief history of Latin literature.

Text-book: Duff, *The Writers of Rome,* Oxford.

Texts: Plautus, *Menaechmi,* Knight, Cambridge; Plautus, *Captivi;* Terence, *Phormio,* Bond and Walpole, Macmillan; Terence, *Heautontimorumenos.*

Three hours a week. 3 units.

8.30-9.30, Tuesday, Thursday, and Saturday.

(Given in 1948-49 and alternate years.)

304 [4]. *Prose and Poetry of the Silver Age.*—The second great period of Latin literature will be studied in the works of the historian Tacitus and the satirist Juvenal. Brief history of Latin literature.

Text-book: Duff, *The Writers of Rome,* Oxford.

Texts: Tacitus, *Selections,* Marsh and Leon, Prentice-Hall; Juvenal, *Satires,* Duff, Cambridge.

Three hours a week. 3 units.

1.30-2.30, Monday, Wednesday, and Friday.

(Given in 1947-48 and alternate years.)

310 [8a]. *Composition.*—Obligatory for Honours students in the Third Year.

One lecture a week and one hour devoted to sight reading; individual conferences at the pleasure of the instructor. 1 unit.

331 [7]. *Roman History.*—A survey of the growth of Rome and the development of its political institutions. Essays will be assigned on selected topics.

For those who wish more than 1½ units of credit special reading and investigation will be arranged.

This course does not require a knowledge of Latin.

For credit in the Department of History see History 331.

References: Cary, *A History of Rome Down to the Reign of Constantine,* Macmillan; Wells and Barrow, *A Short History of the Roman Empire,* Methuen; Parker, *A History of the Roman World from A.D. 138 to 337,* Methuen.

Three hours a week. 1½ to 3 units.

Lectures: 8.30-9.30, Monday, Wednesday, and Friday.

405 [5]. *Latin Letter Writing.*—A study of three different styles of letters—personal correspondence, essays in verse, and philosophical discussions—by three masters in three successive periods.

Texts: Cicero, *Selected Letters,* Prichard and Bernard, Oxford; Horace, *Epistles,* Wilkins, Macmillan; Seneca, *Select Letters,* Summers, Macmillan.

Three hours a week. 3 units.

1.30-2.30, Monday, Wednesday, and Friday.

(Given in 1948-49 and alternate years.)

406 [6]. *General View of Latin Poetry.*—This course offers a survey of Latin poetry from the earliest native verse, through the period of Greek influence, into the late Imperial and early Christian literature.

Text: *The Oxford Book of Latin Verse,* Garrod, Oxford.

Three hours a week. 3 units.

8.30-9.30, Tuesday, Thursday, and Saturday.

(Given in 1947-48 and alternate years.)

410 [8b]. *Advanced Composition.* — Obligatory for Honours students in the Fourth Year.

Prerequisite: Latin 310.

One lecture a week and one hour devoted to sight reading; individual conferences at the pleasure of the instructor. 1 unit.

509 [9]. *Methods in High School Latin.*—This course is offered primarily for students in the Teacher Training Course, and does not carry undergraduate credit. Readings to be assigned.

PRIMARILY FOR GRADUATE STUDENTS

521 [21]. Cicero, *Select Letters,* 2 vols., How, Oxford. Three hours a week. 3 units.

523 [23]. *Roman Comedy.* 3 units.

Department of Commerce

Owing to the nature of work involved in subjects of a commercial character, these courses are not available as reading courses.

It will be noted that a large number of the courses are marked "Not given in 1947-48". This is because the courses outlined are those planned for future years and they will come into effect only as the growth of staff and facilities permit. Students planning their courses at the beginning of each year should consult the Department before registering so as to find out what new courses in their options may be available.

251 [1]. *Fundamentals of Accounting.*—The technique of account construction; preparation of financial statements; the application of accounting principles to practical business problems; a consideration of corporation accounting; preliminary study of depreciation.

Written assignments must be prepared for each class period, and in addition one or two model sets of accounts are handled during the course of the academic year. Owing to the continuity of the work in accounting, students who are more than two weeks late in registering will not be permitted to register in Commerce 251 without the permission of the instructor. In order to qualify for examination the student is required to submit 75 per cent. of the written assignments.

Commerce 251 is a prerequisite to all other courses in Commerce.

Text-book: Johnson, *Elementary Accounting,* Rinehart.

Four hours a week. Mr. Taylor, Mr. Wong, Mr. Van Houten, Mr. Brennan. 3 units.

Lectures:

Section 1, 8.30- 9.30, Monday and Friday;
Section 2, 9.30-10.30, Monday and Friday;
Section 3, 8.30- 9.30, Tuesday and Saturday;
Section 4, 8.30- 9.30, Tuesday and Saturday;
Section 5, 9.30-10.30, Tuesday and Saturday.

Laboratory:

Section 1, 1.30- 3.30, Tuesday;
Section 2, 2.30- 4.30, Wednesday;
Section 3, 8.30-10.30, Thursday;
Section 4, 2.30- 4.30, Friday;
Section 5, 1.30- 3.30, Thursday.

352. *Accounting Analysis and Control.*—Analysis and interpretation of accounting statements with principles of valuation; partnership accounting; study of accounting systems of outstanding importance in British Columbia.

Text-book: Johnson, *Elementary Accounting,* Rinehart.
Assigned practice sets.
Prerequisite: Commerce 251.
Four hours a week. 3 units.

(Not given in 1947-48.)

361 [6]. *Marketing.*—A consideration of methods and channels used for the distribution of consumer and industrial goods, and the merchandising problems of manufacturers and distributors. The course is handled by a discussion of cases taken from actual business. A series of written reports on assigned cases is required as part of the course. In order to qualify for the examination the student is required to submit 75 per cent. of the written assignments.

Text-book: Learned, *Problems in Marketing,* McGraw-Hill.
Assigned readings.
Three hours a week. Mr. Stark, Mr. Mahoney, Mr. Morrow. 3 units.

Lectures:
Section 1, 10.30-11.30, Tuesday, Thursday, Saturday;
Section 2, 11.30-12.30, Tuesday, Thursday, Saturday;
Section 3, 8.30- 9.30, Tuesday, Thursday, Saturday;
Section 4, 2.30- 3.30, Monday, Wednesday, Friday.

453 [2]. *Advanced Accounting.*—This course embraces advanced work in accounting and the study of the financial problems of corporations, including consolidations, depreciation, and the miscellaneous details connected with balance sheet valuations in general.

Text-book: Kester, *Advanced Accounting,* Ronald.
Assigned readings.
Prerequisite: Commerce 352 with Second Class standing.
Three hours a week. Mr. Brennan, Mr. Field. 3 units.

Lectures:
Section 1, 8.30-9.30, Friday;
Section 2, 10.30-11.30, Saturday.
Laboratory:
Section 1, 1.30-3.30 *or* 3.30-5.30, Monday;
Section 2, 1.30-3.30, Monday.

461 [14]. *Fundamentals of Advertising.*—The general field of advertising in relation to the distribution and merchandising of commodities; in particular, the principles and techniques in printed and oral advertising, the organization of advertising departments,

the functions of advertising agencies, and the planning of advertising campaigns.

Text-book: To be announced.

Prerequisite: Commerce 361.

Three hours a week. Mr. Bell and visiting lecturers. 3 units.

Lectures: 10.30-11.30, Monday, Wednesday, and Friday.

463. *Sales Management.*

Prerequisite: Commerce 361. 3 units.

(Not given in 1947-48.)

471 [9]. *Business Finance.*—A study of the problems of financing business concerns, including such factors as promotion, types of organization, the provision of long-term and short-term capital, financial statement analysis, involvements, and the public policy towards corporations. As far as possible instruction will be by means of cases taken from actual business.

Text-book: Masson and Stratton, *Problems in Corporation Finance,* McGraw-Hill.

Assigned readings.

Prerequisites: Commerce 352, Commerce 361, Economics 300.

Three hours a week. Mr. Wong. 3 units.

Lectures:

Section 1, 8.30- 9.30, Monday, Wednesday, and Friday;
Section 2, 11.30-12.30, Monday, Wednesday, and Friday.

481 [11]. *Industrial Management.*—A study of the organization and management of manufacturing concerns from the standpoint of control of raw materials, plant and equipment, operations, labour, etc. Class discussion will be based on cases taken from actual business. Field work comprising visits to factories, and written reports form a part of this course. To qualify for the final examination a student is required to submit 75 per cent. of the written assignments and to take in 75 per cent. of the assigned factory visits.

Text-book: Folts, *Introduction to Industrial Management,* 1940, McGraw-Hill.

Prerequisites: Commerce 352, Commerce 361.

Three hours a week. Mr. Mahoney. 3 units.

Lectures:

Section 1, 10.30-11.30, Monday, Wednesday, and Friday;
Section 2, 10.30-11.30, Tuesday, Thursday, and Saturday.

491 [4]. *Commercial Law.*—Principles of company law and of the law of contract, agency, bills and notes, sale of goods, etc. The primary purpose of this course is to familiarize the student with the various legal situations that arise in the day to day conduct of a business and with their implications.

Assigned readings.
Three hours a week. Mr. Farris. 3 units.
Lectures: 8.30-9.30, Tuesday, Thursday, and Saturday.

533 [13]. *Foreign Trade Problems.* — Methods, policies, and routine practice in the serving of foreign markets, including consideration of import problems. The course will be conducted by discussion of actual business cases and will entail field work and a major report.
Text-book: Horn, *International and Trade Practices,* revised edition, Prentice-Hall.
References: *Commercial Intelligence Journal,* and assigned readings.
Three hours a week. Mr. Morrow. 3 units.
Lectures: 11.30-12.30, Tuesday, Thursday, and Saturday.

534. *Regional and Commodity Study* (with major report).
Prerequisite: Commerce 533, which may be taken concurrently. 1½ units.
(Not given in 1947-48.)

535. *Regional and Commodity Study* (with major report).
Prerequisite: Commerce 533, which may be taken concurrently. 1½ units.

543. *Transportation Practices and Policies.*—A consideration of the management problems pertaining to railway, waterway, highway, and airway transportation. The purpose of the course is to acquaint the student with the various regulations, documents, and rate structures of the different modes of transport. Reports are required.
Assigned readings.
Prerequisite: Economics 405.
Three hours a week. Mr. Bell. 3 units.
Lectures: 9.30-10.30, Monday, Wednesday, and Friday.

544. *Airline Traffic Problems* (with major report). 1½ units.
(Not given in 1947-48.)

545. *Ocean Traffic Problems* (with major report). 1½ units.
(Not given in 1947-48.)

553 [3]. *Cost Accounting.*—A study of the application of accounting principles to the internal operations of a business so as to provide management control of labour, machines, materials, and overhead.
Text-book: Lawrence, *Cost Accounting,* revised edition, Prentice-Hall.
Prerequisites: Commerce 453, Commerce 481.

Three hours a week. Mr. Taylor, Mr. Brennan. 3 units.
Lectures:
Section 1, 9.30-10.30, Monday, Wednesday, and Friday;
Section 2, 9.30-10.30, Tuesday, Thursday, and Saturday.

554. *Auditing.*
Prerequisite: Commerce 453. 1½ units.
(Not given in 1947-48.)

555. *Municipal and Government Accounting.*
Prerequisites: Commerce 453, Economics 320. 1½ units.
(Not given in 1947-48.)

563. *Retail Store Management* (with major report).
Prerequisite: Commerce 463. 1½ units.
(Not given in 1947-48.)

564. *Advertising Problems* (with major report).
Prerequisite: Commerce 461. 1½ units.
(Not given in 1947-48.)

583. *Personnel Management and Labour Relations.*—The First Term will be devoted to a study of current personnel policies and mechanisms and to their practical application. The Second Term will cover the field of collective bargaining in industry with the interrelations of employee, management, and government. A feature of the course will be a lecture series given by leaders in the realms of management and of labour.

Text-book: Scott, Clothier, Mathewson, and Spriegel, *Personnel Management*, 1945, McGraw-Hill.

Prerequisites: Commerce 481, Economics 325. May be taken concurrently with Economics 325 in 1947-48.

Three hours a week. Mr. Mahoney. 3 units.
Lectures: 1.30-2.30, Monday, Wednesday, and Friday.

584. *Production Practices and Controls.*—An advanced study of methods used in planning and controlling factory operations; incentive wage systems; with major report.

Text-book: To be announced.
Prerequisite: Commerce 481.
Three hours a week. Mr. Mahoney. 1½ units.
(May not be given in 1947-48.)

585. *Industrial Procurement.*—A study of the principles and methods used in the purchase, handling, and storing of raw materials of industry; with major report.

Text-book: To be announced.
Prerequisites: Commerce 481, Economics 405.
Three hours a week. Mr. Mahoney. 1½ units.
(May not be given in 1947-48.)

593. *Executive Problems.*—A Fifth Year case course designed to correlate the various courses taken in the previous years so as to impress upon the student the interrelation of the various aspects of a business and to give him practice in solving its over-all problems. Periodic written reports will be featured in this course.

Prerequisites: Commerce 471, Commerce 491, Economics 335.
Three hours a week. 3 units.
(Not given in 1947-48.)

594. *Business Planning and Budgetary Controls and Income Tax.*—A Fifth Year course dealing in detail with the annual preparations and estimates needed for the planned over-all conduct of a business.

Prerequisites: Commerce 471, Commerce 491, Economics 335.
Three hours a week. 3 units.

599. *Thesis.*—Students whose choice of courses does not entail two or more major reports in their Fourth and Fifth Years will be required to submit a thesis on some business topic chosen in consultation with the Head of the Department and with members of the staff. Where major reports are written in conjunction with the advanced courses they will be identified with the thesis requirement and if considered satisfactory will be granted due credit. 3 units.
(This requirement will not come into effect until 1950-51.)

Pharmacy Courses

(Available only to students registered in the Department of Pharmacy.)

359. *Drug Store Accounting.*—A survey of interpretation of accounting data and a study of fundamental accounting methods and procedures with special attention to the requirements of the small retail drug store.

Text-book: Heckert and Dickerson, *Drug Store Accounting,* McGraw-Hill.
One hour a week. Mr. Bell. 1 unit.
Lectures: 10.30-11.30, Tuesday.

369. *Drug Store Merchandising and Management.*—A study of commercial problems common to average retail pharmacies, including store location and arrangement, stock control, display, and advertising.

Text-book: Nolen and Maynard, *Drug Store Management,* McGraw-Hill.
One hour a week. Mr. Bell. 1 unit.
Lectures: 10.30-11.30, Thursday

499. *Advanced Drug Store Management.*—Forms of business organization, commercial law, marketing of drug products, advertising, problems of retail operations.

Two hours a week. 2 units.

(Not given in 1947-48.)

Department of Economics, Political Science, and Sociology

NOTE. Economics 200 is the prerequisite for all other courses in this department except Economics 100, Economics 205, and Sociology 200, but may be taken concurrently with Government 300.

Agricultural Economics 301, 400, 500, and 501 and Geography 102 may be counted as courses in Economics.

For Honours courses in the Department see pages 107-117.

Economics

100 [2]. *Economic History.*—A survey of factors of major social and economic significance in the rise and development of Western civilization, from early times to the present day. Special attention will be given to major economic changes in Europe and the North American continent during the last two centuries.

Text-book: Heaton, *History of Trade and Commerce with Special Reference to Canada,* revised edition, Nelson.

References: Heaton, *Economic History of Europe,* Harpers; Currie, *Canadian Economic Development,* Nelson; Faulkner, *American Economic History.*

Three hours a week. Mr. Jamieson. 3 units.

Lectures: 11.30-12.30, Tuesday, Thursday, and Saturday.

200 [1]. *Principles of Economics.*—An introductory study of the principles of production, value, distribution, money and banking, international exchange, and government finance, and an analysis of the problems of labour.

Text-books: Logan and Inman, *A Social Approach to Economics,* Toronto; Ise, *Economics,* Harpers.

References: Fairchild, Furniss, Buck, *Elementary Economics,* 4th edition, Macmillan; Bladen, *Political Economy,* University of Toronto; McIsaacs and Smith, *Essential Economic Principles,* Little and Brown.

If this course is taken for credit in the Third or the Fourth Year, additional readings will be assigned.

Three hours a week. 3 units.

Lectures:

Section 1, 9.30-10.30, Monday, Wednesday, and Friday;
Section 2, 10.30-11.30, Monday, Wednesday, and Friday;
Section 3, 8.30- 9.30, Tuesday, Thursday, and Saturday.

205 [10]. *Commercial Geography.*—(This is the same as Geography 102.)

300 [4]. *Money and Banking.*—The origin and development of money, credit, and banking and the economic functions performed by commercial, savings, trust, and investment banks; the monetary and banking systems of England, Canada, and the other British Dominions, the United States and other important foreign countries; foreign exchange; financial aspects of the trade cycle; the purchasing power of money; the problems of central banking.

Text-book: James, *The Economics of Money, Credit and Banking,* Ronald.

References: Crumb, *Lessons in Money and Banking;* Willis and Beckhart, *Foreign Banking Systems,* Holt; Hayek, *Prices and Production,* Cape; Haberler, *Prosperity and Depression,* Columbia; Keynes, *The General Theory of Employment, Interest and Money,* Macmillan; League of Nations Publications, viz., *World Economic Survey, World Production and Prices, Money and Banking* (Vols. I and II), *Prosperity and Depression.*

Three hours a week. Mr. Crumb. 3 units.

Lectures: 9.30-10.30, Tuesday, Thursday, and Saturday.

305 [7]. *Business Finance.*—(This is the same as Commerce 471.)

310 [6]. *International Trade.*—The mechanism of international trade; the balance of payments; equilibrium; transfers; investment abroad; price level changes; purchasing power parity; control of exchange rates; the gold standard; gold versus paper; comparative cost; trade policy; free trade; duties on imports; preferences; quotas; general and particular arguments for protection; international cartels and monopolies; trade treaties and international agreements.

References: Haberler, *The Theory of International Trade,* Hodge; Taussig, *International Trade,* Macmillan; Viner, *Studies in the Theory of International Trade,* Allen and Unwin.

Three hours a week. Mr. Drummond. 3 units.

Lectures: 8.30-9.30, Monday, Wednesday, and Friday.

320 [5]. *Government Finance.*—The development of the science of government finance; the growth of the sphere of government and increase in the tax burden; the Canadian, British, and United States tax systems; personal, property, and business taxes; income and inheritance taxes; financing relief and other public undertakings; public borrowing and deficit financing.

Text-book: To be announced.

Readings: Lutz, *Public Finance,* Appleton-Century; Seligman, *Studies in Public Finance,* 1925, Macmillan: Dalton, *Principles of*

Public Finance, 1929, Routledge; Comstock, *Taxation in the Modern State,* 1931, Longmans; Shirras, *Science of Public Finance,* 1936, Macmillan.

Three hours a week. Mr. Crumb. 3 units.

Lectures: 11.30-12.30, Monday, Wednesday, and Friday.

325 [3]. *Labour Economics and Labour Problems.*—A study of the major labour problems arising out of the factory system and large-scale enterprise. Special attention will be given to the history of trade unions in England, the United States, and Canada, and to recent developments in labour relations, with regard to structure and functions of trade unions, employer policies and associations, collective bargaining and industrial conflict, labour legislation, labour and political action.

Text-book: Lester, *Economics of Labour,* Macmillan.

References: To be assigned.

Three hours a week. Mr. Jamieson. 3 units.

Lectures: 10.30-11.30, Monday, Wednesday, and Friday.

330 [9]. *History of Economic Thought.*—The development of economic theory with special reference to the Mercantilists, the Physiocrats, and Adam Smith; the distinguishing characteristics and the modern counterparts of the Classical, Historical, Socialist, and Marxian economic doctrines; the immediate background and present emphases of the science.

Text-books: Roll, *A History of Economic Thought,* Faber and Faber; Gray, *The Development of Economic Doctrine,* Longmans; Scott, *The Development of Economics,* Appleton-Century; Gide and Rist, *A History of Economic Doctrine,* Harrap; Patterson, *Readings in the History of Economic Thought,* McGraw-Hill; Whittaker, *A History of Economic Ideas,* Longmans.

Three hours a week. Mr. Crumb. 3 units.

Lectures: 11.30-12.30, Tuesday, Thursday, and Saturday.

335 [12]. *Statistics 1.*—Averages, dispersion, skewness; the normal curve; sampling; index numbers; time series analysis; correlation; applications of these topics to business problems. A few lectures will be devoted to applications of statistics in each of the following fields: vital statistics, forestry, and agriculture.

Text: Mills, *Statistical Methods,* Holt.

Three lectures and two hours of laboratory a week.

Lectures:

Section 1, 9.30-10.30, Monday, Wednesday, Friday;
Section 2, 11.30-12.30, Monday, Wednesday, Friday;
Section 3, 11.30-12.30, Tuesday, Thursday, Saturday.

Laboratory sections: To be arranged.

Three lectures and two hours of laboratory work a week. 3 units.

400 [8]. *Advanced Economic Theory.*—The field of theoretical economics, with emphasis on the basic principles of the science; the approach and contributions of contemporary authorities, including Joan Robinson, J. R. Hicks, and J. M. Keynes.

Text-book: Boulding, *Economic Analysis,* Harpers.

Readings: Keynes, *General Theory of Employment, Interest and Money,* 1936, Harcourt, Brace; Chamberlain, *The Theory of Monopolistic Competition,* 1933, Harvard; Robinson, *The Economics of Imperfect Competition,* 1933, Macmillan; Homan, *Contemporary Economic Thought,* 1928, Harpers; Hicks, *The Theory of Wages,* 1935, Macmillan; Kierstead, *Essentials of Price Theory,* University of Toronto; Meyers, *Elements of Modern Economics,* Prentice-Hall.

Three hours a week. Mr. Crumb. 3 units.

Lectures: 11.30-12.30, Tuesday, Thursday, and Saturday.

401. *Business Cycles.*—A survey of business cycle theories, and some of the applications to Canadian economic problems. There will be a discussion of the major works related to business cycles of J. M. Keynes, D. H. Robertson, A. C. Pigou, F. Hayek, A. H. Hansen, J. A. Schumpeter, R. G. Hawtrey, G. Heberler, Paul Sweezy, and others.

Text-book: Heberler, Gottfried, *Prosperity and Depression,* League of Nations, 3rd edition, 1941.

Three hours a week. Mr. Clark. 3 units.

Lectures: 10.30-11.30, Tuesday, Thursday, and Saturday.

405 [11]. *Transportation.*—A comprehensive study of the fundamentals of transportation by land, sea, and air, with the legal and economic problems involved; theory and practice of rate-making; discriminations; factors in public control, etc.

Text-book: Jackman, *Economic Principles of Transportation,* University of Toronto.

Assigned readings.

Three hours a week. 3 units.

Lectures: 10.30-11.30, Monday, Wednesday, and Friday.

435 [13]. *Statistics 2.* — General theory of frequency curves; elementary theory of random sampling; advanced sampling problems; multivariate analysis.

Text-books: Smith and Duncan, *Elementary Statistics and Applications,* McGraw-Hill; Smith and Duncan, *Sampling Statistics and Applications,* McGraw-Hill.

References: Fisher, *Statistical Methods for Research Workers,* Oliver and Boyd; Ezekiel, *Methods of Correlation Analysis,* Wiley.

Four hours a week. Mr. Drummond. 3 units.

Two lecture periods: 9.30-10.30, Monday or Wednesday, and Friday.

Laboratory (Statistics Laboratory): 1.30-3.30, Tuesday.
Statistics 2 is open to students who have taken at least Second Class in Statistics 1.

440 [14]. *Honours Seminar.*—Third and Fourth Year Honours and M.A. students in Economics are required to attend an Economics Seminar.
Two hours a week, to be arranged.

Agricultural Economics

For courses in Agricultural Economics (301, 400, 500, 501) open to students in the Faculty of Arts and Science see page 347 under the Faculty of Agriculture.

Forest Economics

481 [1]. *Forest Economics.*—This course is devoted to the economic aspects of land use, forestry resources, timber production, and the forest industries, especially the distribution of lumber and other products. (This course is identical with Forestry 481.)
Three hours a week. 3 units.

Government

300 [1]. *Constitutional Government.*—This course deals with the nature, origin, and aims of the State; and with the organization of government in the United Kingdom and in the United States of America.
Text-books: Ogg, *English Government and Politics,* Macmillan; Ogg and Ray, *Introduction to American Government,* Appleton-Century.
Three hours a week. Mr. Angus. 3 units.
Lectures: 9.30-10.30, Monday, Wednesday, and Friday.

325 [3]. *Imperial Problems.*—A course on problems of government within the British Empire.
Readings to be assigned.
Three hours a week. 3 units.
(Not given in 1947-48.)

400 [5]. *The Government of Canada.*—The development of the Canadian federal system; the crisis in Dominion-Provincial relations; Canadian government in wartime; adaptation of Canadian institutions for the tasks of reconstruction.
Text-book: Clokie, *Canadian Government and Politics,* Longmans.

Reference: *The Report of the Royal Commission on Dominion-Provincial Relations,* King's Printer, Ottawa.

Three hours a week. Mr. Angus. 3 units.

Lectures: 10.30-11.30, Monday, Wednesday, and Friday.

425 [4]. *Problems of the Pacific.*—A course on the problems of the Pacific Area discussed at the conferences of the Institute of Pacific Relations. Each problem will be related to its economic and political background.

Readings to be assigned.

Three hours a week. 3 units.

(Not given in 1947-48.)

430 [7]. *Reconstruction Problems.*—Relief and reconstruction in Europe and Asia; reconversion and re-employment in Canada; the maintenance of full employment; the restoration of multilateral clearance and multilateral trade; the removal of trade barriers other than tariffs; cartels; fair competition; the economic future of the enemy countries; accommodation between state trading and free enterprise.

Three hours a week. Mr. Angus. 3 units.

Lectures: 10.30-11.30, Tuesday, Thursday, and Saturday.

(Not given in 1947-48.)

435 [6]. *Public International Law.*—The nature, sources, and sanctions of international law; the notion of nationhood, with particular reference to the status of the British Dominions; jurisdiction, nationality, normal relations between states; settlement of international disputes; war; organization of peace after the recent conflict.

References: Oppenheim, *International Law;* Brierly, *The Law of Nations;* MacKenzie and Lang, *Canada and the Law of Nations.*

Three hours a week. Mr. MacKenzie. 3 units.

Lectures: 9.30-10.30, Tuesday, Thursday, and Saturday.

445. *Honours Seminar.*—Third and Fourth Year Honours and M.A. students in Political Science are required to take this course.

Two hours a week to be arranged.

Sociology

200 [1]. *Introduction to Sociology.*—The approach to the study of society is by way of the local community and its institutions. An evaluation of the importance of the geographic, the biological, the psychological, and the cultural factors in the determination of the rise, growth, and functioning of groups will be undertaken. There

will be an attempt to discover fundamental principles and to trace these principles in their interrelations. Several of the problems resulting from group contacts will be studied.

Text-book: Pendell, *Society Under Analysis,* Cattell.

Three hours a week. Mr. Topping. 3 units.

Lectures: 9.30-10.30, Tuesday, Thursday, and Saturday.

300 [8]. *Criminology.*—The theoretic and scientific basis of criminology will be sketched through a study of opinions, cases, and institutions. An analysis of contemporary findings concerning causation in juvenile delinquency and in adult crime will be made. Reformist programmes will be evaluated and suggestions for a modern scientific system of treatment for Canadian criminals will be invited.

Text-books: Barnes and Teeters, *New Horizons in Criminology,* Prentice-Hall; Topping, *Canadian Penal Institutions,* revised edition, Ryerson; *Report on the Penal System of Canada,* 1938, King's Printer, Ottawa.

Three hours a week. Mr. Topping. 3 units.

Lectures: 10.30-11.30, Tuesday, Thursday, and Saturday.

325 [2]. *Social Anthropology.*—The different views relating to the origin and evolution of human society; the geographic factor and economic methods in their bearing upon social life; primitive mental attitudes; the development of ethical etc. ideas among primitive peoples; primitive institutions, tools, art, and their modern forms; the growth of cardinal social ideas through the ancient and classical period to the present time.

Text-books: Lowie, *Introduction to Cultural Anthropology,* Farrar and Rinehart; Goldenweiser, *Anthropology,* Crofts.

Three hours a week. Mr. Topping. 3 units.

Lectures: 9.30-10.30, Monday, Wednesday, and Friday.

(May not be given in 1947-48.)

330 [6]. *Introduction to Social Work.*—(This course is the same as Social Work 499.)

400 [7]. *The Dynamic Family.*—The genetic rise of the family will be traced and its modern forms described. Various statements on the functions of the family will be evaluated while the interrelations of religion, science, education, public opinion, law, and social change with the dynamic family are being sketched. An analysis of causation in family break-up will be made and recommendations for facilitating family life and for rehabilitating the broken family will be considered.

Text-books: Baber, *Marriage and the Family,* McGraw-Hill; Burgess and Locke, *The Family,* American Book Company.

Three hours a week. Mr. Topping. 3 units.

Lectures: 9.30-10.30, Monday, Wednesday, and Friday.

425 [3]. *The Urban Community.*—The structural characteristics of the modern city will be outlined and the sociological significance of the functions performed by its inhabitants discussed. A factual study will be made of urban personalities, groups, and cultural patterns. Methods of urban social control will be investigated and solutions for urban problems will be evaluated.

Text-books: Queen and Thomas, *The City,* McGraw-Hill; Gist and Halbert, *Urban Society,* 2nd edition, Crowell.

Three hours a week. Mr. Topping. 3 units.

Lectures: 10.30-11.30, Monday, Wednesday, and Friday.

(Not given in 1947-48.)

430 [4]. *Social Problems and Social Policy.*—A detailed study of significant modern Canadian social problems, together with a statement and evaluation of the more promising suggested solutions for these problems.

Readings to be assigned.

Three hours a week. Mr. Topping. 3 units.

Lectures: 10.30-11.30, Monday, Wednesday, and Friday.

(Not given in 1947-48.)

435 [5]. *Sociological Theory.*—The central trend in thinking of sociologists will be traced with special emphasis on recent developments in sociological theory.

Readings to be assigned.

Three hours a week. Mr. Topping. 3 units.

Lectures: 10.30-11.30, Monday, Wednesday, and Friday.

(Not given in 1947-48.)

445. *Honours Seminar.*—Third and Fourth Year Honours and M.A. students in Sociology are required to take this course.

Two hours a week, to be arranged.

Department of Education

NOTES

1. Undergraduates who intend to proceed to the Teacher Training Course are required to take Psychology 100, and their attention is called to Philosophy 100, 401, Psychology 202, 301, Sociology 200.

2. Six units chosen from Education 509, 510 to 582 may be taken for undergraduate credit but only by students who have completed their normal school training.

3. The Teacher Training Course consists of Education 500 to 506 inclusive.

4. Only a limited number of courses from Education 510 to 582 will be offered in any one year.

COURSES

500 [9]. *Principles of Education.*—The first part of this course deals with some of the broader principles of method and the main types of teaching and learning activities. The second part of the course attempts to develop a philosophy of education around such topics as the individual and society, curriculum theories, and the role of education in a democracy.

Text-books: To be announced.

501 [10]. *Educational Psychology.*—The applications of psychology to education; a consideration of the origin, motivation, development, and modification of human behaviour; native equipment; intelligence; individual differences; learning; the transfer of training; the mental hygiene of the school child; and the psychology of elementary and secondary school subjects.

Text-book: Pressey and Robinson, *Psychology and the New Education,* Harpers.

Prerequisite: Psychology 100.

502 [12]. *School Administration and Law.*—The organization of the school system; aims and characteristics of the elementary, junior high, and senior high schools; fundamentals of school administration; the co-curriculum; accrediting; correspondence courses; the school law of British Columbia.

503 [13]. *Tests and Measurements.*

504 [14]. *Methods.*

1. *Elementary School Subjects.*
2. *High School Subjects.*—English, Social Studies, Latin, French, German, Mathematics, Biology, Chemistry, Physics, General Science, Agriculture, Geography, Home Economics.

   Two of these courses are required, but students are advised to attend a third course. All students taking

one or more of the special sciences (Biology, Chemistry, and Physics) are required to take also General Science.

3. *Additional Subjects.*—Art, Music, Health and Physical Education, Librarianship, Guidance, Speech, Dramatics.

505. *Observation and practice.*

NOTE. Supplementals will not be granted in the practice teaching. Students who fail in practice teaching will be required to repeat this part of the Second Term of the Teacher Training Course.

506 [15]. *Seminar.*—A special study, with an essay or report, in one of the four fields, Education 500, 501, 502, 503.
One hour a week.

509 [16]. *High School Methods.*—In this course, which will be given by reading, methods of teaching two high school subjects will be studied. Not open to students in the Teacher Training Course nor to students who have not taken normal school training.

1½ units.

510 [25]. *Administration of School Systems.*—Dominion participation in education; the Provincial Department of Education; centralization and decentralization; school finance; the local unit of administration.

1½ units.

511 [26]. *Administration of the Elementary School.* — The organization of the elementary school; the work of the principal; participation of staff in administration.

1½ units.

512 [27]. *Administration of the Secondary School.*—The administrative staff and their duties; office routine; administration of guidance programme; assemblies; co-curricular activities; construction of the time table. Applications to British Columbia circumstances will be stressed throughout.
Text-book: Koos and others, *Administering the Secondary School,* American Book Co.

1½ units.

(Given in 1947-48.)

513 [36]. *Supervision.*—A study of techniques for the improvement of instruction. Responsibilities of inspectors, supervisors, and principals.

1½ units.

520 [20]. *History of Education.*—The development of educational theory from the time of ancient Greece to the present day, with special attention to the period since 1800.

3 units.

521 [22]. *Philosophy of Education.*—A study of current trends in educational philosophy; the social implications of contemporary educational theories.

3 units.

(Given in 1947-48.)

522 [29]. *The Secondary School.*—A foundation for this course will be laid by a study of the basic principles of secondary education. Consideration will be given to some of the more important modern developments in the light of these principles both in Canada and in other countries of the world.

1½ units.

523 [37]. *Comparative Education.* — Types and systems of schools in some of the principal nations. Study will be mostly but not entirely of England, France, Germany, the United States, and Canada.

1½ units.

524. *Modern Educational Theories.*—The course will attempt to show why our traditional educational values are now being subjected to re-examination and re-interpretation. It will emphasize the obligation of education, at every level, to provide for intelligent orientation in a modern, changing world. A number of present day theories and movements will be considered, with special reference to their significance for the concept of democracy as a way of life.

1½ units.

530 [21]. *Advanced Educational Psychology.* — A survey of recent psychological theories and a critical analysis of their implications for education. **3 units.**

(Given in 1947-48.)

531 [31]. *Psychology of Childhood.*—The mental, social, emotional, and physical characteristics of pre-school and elementary school pupils; their interests and their problems; implications for organization and administration of school systems.

1½ units.

532 [30]. *Psychology of Adolescence.*—The junior and senior high school pupil as an individual and as a member of social groups; the physical, mental, social, emotional, and religious development typical of adolescence; the interests of teen-age boys and girls and their problems in personal relations, in the home, in the school, and in the community.

1½ units.

533 [33]. *Psychology of Exceptional Children.*—The physical, mental, social, and emotional characteristics of exceptional children

(gifted, backward, crippled, hard-of-hearing, etc.); factors in their growth and development; educational provisions suited to their needs.

1½ units.

534 [32]. *Psychology of the School Subjects.*—This course aims to cover that part of educational psychology which is directly concerned with classroom subject-matter activities. It considers the research findings in the various elementary and secondary school fields and applies them to teaching and learning procedures.

1½ units.

535 [38]. *Evaluation.*—The basic principles of evaluation; tests and measuring instruments for the determination of the outcomes of instruction; analyzing the results of evaluation.

3 units,

550 [35]. *Guidance.*—The objectives of guidance; gathering and using information concerning students; counselling with students; articulation of the different forms of guidance; contributions of teachers, principal, and specialists in guidance; analysis of guidance programmes in secondary schools.

1½ units.

560 [39]. *Teaching in the Secondary School.*—This course on modern techniques of secondary school teaching will include a study of such matters as socialized procedures and provision for individual differences through unit methods. Some opportunity for specialization according to subject will be provided.

1½ units.

561 [34]. *Diagnostic and Remedial Instruction.*—This course is intended to help teachers in their work with seriously retarded pupils. It includes a study of the diagnostic point of view in education, types and causes of subject-matter disabilities, and possible remedies of difficulties. Disabilities in spelling, reading, and arithmetic will be studied chiefly, and over half the course will be devoted to reading. Some opportunity will be given teachers to specialize on primary, intermediate, or secondary school levels of work.

1½ units.

570 [40]. *Educational Sociology.*—This course will include such topics as the following: Individual and Social Aims, The Community and Education, Provincial and Federal Aid to Education, Education and Internationalism, Social Problems of Administration and Control, the Various 'isms (Idealism, Realism, Pragmatism) and Education, Curriculum Problems, Moral Education, Education and

National Unity, Pending Educational Developments in Canada. Special emphasis will also be placed on problems arising out of rehabilitation and reconstruction.

References: Roucek and associates, *Educational Sociology,* Crowell; various publications by federal government committees on Social Security and on Reconstruction and Re-establishment.

3 units.

580 [23]. *Problems in Education.*—An investigation and report of an educational problem.

3 units.

581 [24]. *Methods of Educational Research.* — The scientific method in education; discovering educational problems; types of educational research; standards in thesis writing; critical study of published research. This course may be successfully taken with Education 582.

1½ units.

582 [28]. *Educational Statistics.*—The frequency distribution; measures of central tendency; measures of variability; the normal probability curve and its applications; sampling; reliability; correlation, its meaning and application; partial and multiple correlation.

1½ units.

Department of English

For Honours courses in English see pages 108 and 114.

FIRST YEAR

All students of the First Year are required to take English 100, 101.

100 [1a]. *Literature.*—Elementary study of a number of literary forms to be chosen from the short story, the play, the novel, the essay, the simpler sorts of poetry.

Texts for 1947-48: Larsen and Macdonald, *A Century of Short Stories;* Euripides, *Bacchae,* in Gilbert Murray's paraphrase, Allen and Unwin; Shakespeare, *Julius Caesar;* Sheridan, *The School for Scandal,* Everyman; Ibsen, *A Doll's House,* Everyman; Dilworth, *Twentieth Century Verse,* Oxford.

Two hours a week.

101 [1b]. *Composition.*—Elementary forms and principles of composition.

Text-books: Foerster and Steadman, *Writing and Thinking,* new edition, Houghton Mifflin; Biaggini, *The Reading and Writing of English,* Harcourt, Brace.

Two hours a week.

The work in composition consists (i) of themes and class exercises, and (ii) of written examinations. Students will be required to make a passing mark in each of these two parts of the work.

3 units.

Lectures:
Sections A, 8.30-9.30, Monday, Wednesday, Friday, and 2.30-3.30, Thursday;
Sections B, 11.30-12.30, Monday, Wednesday, Friday, and 2.30-3.30, Thursday;
Sections C, 8.30-9.30, Tuesday, Thursday, Saturday, and 2.30-3.30, Tuesday;
Other sections to be arranged.

SECOND YEAR

200 [2]. *Literature.*—Studies in the history of English literature.

Lectures and texts illustrative of the chief authors and movements from Tottel's *Miscellany* to 1900.

Text-book: *College Survey of English Literature.*

Three hours a week. 3 units.

Lectures: 1.30-2.30, Monday, Wednesday, and Friday.

205 [3 and 4]. *English Composition for Students in Commerce and Agriculture.*—A course in composition especially designed to meet the needs of students in Commerce and Agriculture, offering training in economical and accurate objective writing. The work consists of (1) essays, class exercises, and selected reading, and (2) written examinations. Students will be required to make a passing mark in each of these two parts of the work.

Text-books: To be announced.

Three hours a week. Mr. Read and assistants. 3 units.

For courses in English in Applied Science see page 312.

THIRD AND FOURTH YEARS

401. *Literary Criticism and Advanced Composition.*—A course devoted to the study of critical principles and to practice in writing. Enrolment in this course will be limited to twenty students, who must make special application to the instructor before September 1st.

Three hours a week. Mr. Birney. 3 units.

Lectures: 11.30-12.30, Tuesday, Thursday, and Saturday.

402. *Classics of European Literature.*—A course devoted to the study of some great books representative of various strains in Western civilization.

(Not given in 1947-48.)

405 [5]. *Poetics.*—The imagination and the poetic process; the emotional element in poetry and the tests of value; the content of poetry and the nature of poetic truth; poetic form and its varieties, diction, imagery, tone-colour, and metrics.

Texts: To be announced.

Three hours a week. Mr. Larsen. 3 units.

Lectures: 10.30-11.30, Monday, Wednesday, and Friday.

408 [8]. *Studies in Elizabethan Literature.*—Various literary types will be examined: the lyric, the sonnet sequence, the pastoral, the prose romance, realistic prose and verse, literary criticism, the essay. The authors studied will include Sidney, Daniel, Drayton, Campion, Jonson, Bacon, and Donne. The work of Spenser will be studied in detail. The King James version of the Bible and its influence on English literary style will receive special attention.

Texts: Hebel and Hudson, *Poetry of the English Renaissance,* Dodd, Mead; *The Oxford Spenser.*

Three hours a week. Miss Mawdsley. 3 units.

Lectures: 10.30-11.30, Monday, Wednesday, and Friday.

409; 410 [9]. *Shakspere.*—These courses may be taken for credit in two successive years. In 1947-48, 410 will be given as follows:

i. A detailed study of the text of *Romeo and Juliet, Twelfth Night, Hamlet, King Lear, The Winter's Tale.*

ii. Lectures on Shakspere's development, on his use of sources, and on his relation to the stage and the dramatic practice of his time.

Students will provide themselves with annotated editions of the five plays named above, and with *The Facts About Shakespeare,* by Neilson and Thorndike, Macmillan. They are advised to get *The Complete Works of Shakespeare,* ed. Kittredge, Ginn, or the *New Cambridge Shakespeare,* ed. Neilson and Hill, Houghton Mifflin, or the *Oxford Shakespeare,* ed. Craig.

Three hours a week. Mr. Sedgewick. 3 units.

Lectures: 9.30-10.30, Monday, Wednesday, and Friday.

409 [9a]. Given in 1948-49 and alternate years.)

411 [10]. *The Drama to 1642.*—The course begins with a study of the Theban plays of Sophocles and of Aristotle's theory of tragedy. The main subject of the course is Elizabethan drama: (1) its beginnings in the Miracle and Morality Plays and in the Interludes; (2) its development in Shakspere's predecessors—Lyly, Peele, Greene, Kyd, and Marlowe; (3) its culmination in Shakspere; and (4) its decline in Jonson, Beaumont and Fletcher, Middleton, Webster, Massinger, Shirley, and Ford.

Texts: Campbell, *Sophocles in English Verse,* World's Classics, Oxford; *Everyman and Other Interludes,* Dent; *The Chief Elizabethan Dramatists,* ed. Neilson, Houghton Mifflin; *Shakespeare,* Shakespeare Head Press, or the *New Cambridge Shakespeare,* ed. Neilson and Hill, Houghton Mifflin.

Three hours a week. Mr. Akrigg. 3 units.

Lectures: 9.30-10.30, Tuesday, Thursday, and Saturday.

420. *The History of English Drama Since 1660.*—A survey of the chief developments of dramatic art from the Restoration to the present day.

(Not given in 1947-48.)

421. *Theatre Practice.*—This course deals with the theory and practice of acting and with the fundamentals of voice production. It includes the following subjects: (a) principles of acting, pantomine, interpretation of the role, acting scenes, participation in a play; (b) breath control, tone quality, articulation, interpretation of the spoken line.

Three hours a week and laboratory practice. Miss Somerset and Mrs. Graham. 3 units.

Lectures: 3.30-4.30, Monday, Wednesday, and Friday.

(Given in 1948-49 and alternate years.)

422. *History of the Theatre.*—A course that surveys the history of Western theatrical presentation from the Greek era to the present day. It will examine representative plays of important periods in the development of the theatre, with special emphasis upon the theatres in which they were produced, the art of the actors, scenic effects, styles of production, and dramatic theory. Students will have the opportunity of participating in workshop presentations of plays taken up in class.

Three hours a week. Miss Somerset. 3 units.

Lectures: 1.30-2.30, Monday, Wednesday, and Friday.

(Given in 1947-48 and alternate years.)

425. *The Age of Milton.*—The first term will be devoted to a study of Milton, with particular emphasis on *Paradise Lost.* In the second term certain themes, determined in part by the particular needs of the class, will be traced throughout the seventeenth century; e.g., the "metaphysical" school of poets; mysticism; Anglicanism; the Cavalier and Libertine spirit; Puritanism and the arts; Baroque form in poetry and prose; the new science and the Royal Society; the development of prose styles. Essays will be required and a few seminars arranged for discussion of assigned topics.

Texts: *Complete Poetry and Selected Prose of John Milton,*

Modern Library; Coffin and Witherspoon, *Seventeenth Century Prose and Poetry,* Harcourt, Brace.

Three hours a week. Mr. Daniells. 3 units.

Lectures: 8.30-9.30, Tuesday, Thursday, and Saturday.

426 [14]. *Eighteenth Century Literature.* — This course aims to give a view, as comprehensive as possible, of the main currents of English thought and literature during the period 1660-1800. It is concerned mainly with the work of such men as Dryden, Pope, Swift, Addison, Steele, Johnson, Goldsmith, Burke, and Burns.

Three hours a week. Mr. Read. 3 units.

Lectures: 10.30-11.30, Tuesday, Thursday, and Saturday.

427 [13]. *The English Novel from Richardson to the Present Time.*—The development of English fiction will be traced from Richardson, Fielding, Smollet, and Sterne through Goldsmith, Mrs. Radcliffe, Jane Austen, Scott, C. Brontë, Dickens, Thackeray, and George Eliot to Trollope, Meredith, Stevenson, Hardy, and a few representative novelists now living.

A fair knowledge of the works of Jane Austen, Scott, Dickens, Thackeray, and George Eliot is a prerequisite for those taking this course.

Three hours a week. Mr. Wood. 3 units.

Lectures: 8.30-9.30, Monday, Wednesday, and Friday.

428. *English Literature of the American Continent.* — A study of the major authors and developments in literature produced in the United States and Canada.

Three hours a week. Mr. Watters. 3 units.

Lectures: 2.30-3.30, Monday, Wednesday, and Friday.

430 [16]. *The Romantic Period, 1780-1830.* — Studies in the literature of the Romantic period, based chiefly upon the work of Wordsworth, Coleridge, Byron, Shelley, and Keats.

Texts: Campbell, Pyre, and Weaver, *English Poetry and Criticism of the Romantic Movement,* Crofts, *or* Woods, *English Poetry and Prose of the Romantic Movement,* Scott, Foresman.

References: Bernbaum, *Guide Through the Romantic Movement* and *Selections from the Pre-Romantic Movement,* Nelson; Elton, *A Survey of English Literature, 1740-1830,* Macmillan.

Three hours a week. Mrs. Blakey Smith. 3 units.

Lectures: 11.30-12.30, Monday, Wednesday, and Friday.

431 [17]. *Victorian Poetry.* — This course is chiefly concerned with the work of Tennyson, Browning, and Arnold. A few weeks at the close of the term will be devoted to a survey of the development of later poetry.

Text: Stephens, Beck, and Snow, *Victorian and Later English Poets,* American Book Company.

Reference: Elton, *A Survey of English Literature, 1830-1880,* Macmillan.

Three hours a week. Mr. Robbins. 3 units.
Lectures: 11.30-12.30, Tuesday, Thursday, and Saturday.

432 [18]. *Victorian Prose Literature.*—Literary, social, religious, and scientific currents of thought as represented by the work of Mill, Ruskin, Carlyle, Newman, Arnold, Darwin, Huxley, and Butler. The following texts in whole or part will be dealt with in lectures and class discussion: Mill, *Utilitarianism* and *Liberty,* Everyman; Ruskin, *Unto This Last,* Everyman; Carlyle, *Sartor Resartus* (selections), *Heroes and Hero Worship* (selections), *Past and Present,* Everyman; Newman, *Apologia Pro Vita Sua,* Everyman, *Idea of a University* (selections), ed. Yardley, Cambridge; Arnold, *Representative Essays,* ed. Brown, Macmillan, *Literature and Dogma* (selections), Burt's Home Library; Darwin, *Origin of Species,* Chapter IV, Everyman, or World's Classics, Oxford; Huxley, *Readings from Huxley,* ed. Rinaker, 1934, Harcourt, Brace; Butler, *Erewhon,* Everyman.

Three hours a week. Mr. MacDonald. 3 units.
Lectures: 10.30-11.30, Monday, Wednesday, and Friday.

433 [19]. *Contemporary Literature.*—Some tendencies of English literature of the present generation, in poetry and the essay and the novel, will be studied in this course.

Texts: Sanders and Nelson, *Chief Modern Poets of England and America,* Macmillan; novels and an anthology of essays to be assigned.

Three hours a week. Mr. Lewis. 3 units.
Lectures: 10.30-11.30, Tuesday, Thursday, and Saturday.

434 [25a]. *Private Reading.*—Students who are candidates for an Honours degree in English may elect a course of private reading in their Third Year. 3 units.

435 [25b]. *Private Reading.*—Students of the Fourth Year may pursue, with the consent and under the direction of the Department, a course of private reading. 3 units.

440 [20]. *Chaucer and Middle English.*—(i) Middle English grammar with the reading of representative texts; (ii) *The Canterbury Tales.*

Texts: *Chaucer's Complete Works.* ed. Robinson, Houghton Mifflin; Manly, *The Canterbury Tales,* Holt; a Middle English reader.

Three hours a week. Mr. Sedgewick. 3 units.
Lectures: 1.30-3.30, Tuesday and Thursday.
(Not given in 1947-48.)

442 [21]. *Anglo-Saxon*—Moore & Knott, *The Elements of Old English,* edition of 1940 or later, Wahr.
Two hours a week. Mr. MacDonald. 2 units.
Lectures: 3.30-5.30, Thursday.

443 [22]. *The History of the English Language.*—The study of the vocabulary, syntax, accidence, and phonology of the English language from the historical point of view. A brief introduction to philological method; the ancestry of English; the language in the Old and Middle English periods, with illustrative readings; the development of modern English.
Prerequisite: English 442.
Two hours a week. Mrs. Blakey Smith. 2 units.
Lectures: 2.30-3.30, Monday and Friday, or at hours to be arranged.

SEMINARS

444 [24a]. *Bibliography and General Method.* — Third Year Honours students in English are required to take this course.
One hour a week. Mrs. Blakey Smith. 1 unit.
Lectures: 2.30-3.30, Wednesday.

445 [24b]. In this class Honours students will get practice in some of the simpler methods of criticism and investigation. The subject for 1947-48 will be the literature of the 1590's. All Honours students, *of both Third and Fourth Years,* are required to take this course. Credit is given at the end of the Fourth Year.
Two hours a week. 3 units.
Lectures: 3.30-5.30, Friday.

TEACHER TRAINING COURSE

526 [26]. *Methods in High School English.*—This course does not carry undergraduate credit.
Two hours a week. Second Term. Mr. Hall.

Department of French

With the consent of the professor in charge of the course, a student taking a General Course B.A. degree may be admitted to any course in the Third and Fourth Years in addition to, but not in lieu of French 300 and 400; and a student taking a B.Com. degree may be admitted to French 301 in lieu of French 300. Students from other universities who have already taken the work of French 300

and 400 may be given special permission by the Head of the Department to substitute other courses.

For Honours courses in French see pages 109 and 115.

101 [1]. Texts: March, *Types of the French Short Story,* Ronald; Beaumarchais, *Le Barbier de Séville,* Larousse; Barton and Sirich, *New French Review Grammar and Composition,* Crofts.

Prerequisite: University Entrance French or its equivalent.

Three hours a week. 3 units.

Lectures: Section 1, 10.30-11.30, Monday, Wednesday, Friday; Section 2, 10.30-11.30, Tuesday, Thursday, Saturday; Section 3, 1.30-2.30, Monday, Wednesday, Friday.

202 [2]. Texts: Balzac, *Le Père Goriot,* Larousse; *Anatole France,* Nelson. Independent reading to include Balzac, *Eugénie Grandet,* and the author listed under *Summer Reading.*

Composition in French based on the above readings, and from Barton and Sirich, *New French Review Grammar and Composition,* Crofts.

Prerequisite: French 101 or its equivalent.

Three hours a week. 3 units.

Lectures: Section 1, 8.30-9.30, Monday, Wednesday, Friday; Section 2, 8.30-9.30, Tuesday, Thursday, Saturday; Section 3, 2.30-3.30, Monday, Wednesday, Friday.

203. *The Background of Modern French Literature.*—Instruction in the organization of work; training in speech and writing. Open to students preparing for Honours.

Three hours a week. 3 units.

300 [3a]. *The Literature of the Age of Louis XIV.*—Lectures on the history and social conditions of the period, and on the development of the literature. Careful reading and discussion of the following texts: Schinz and King, *Seventeenth Century French Readings,* Holt; Corneille, *Le Cid,* Didier, or *Polyeucte,* Didier; Racine, *Iphigénie,* American Book Co., or *Andromaque,* Didier, or *Phèdre,* Heath; Molière, *Le Misanthrope,* Didier, or *Les Femmes Savantes,* Didier, or *L'Avare,* Manchester University; *Le Tartuffe,* Didier.

Conversation and written résumés based on the above.

This course is obligatory for all students taking Third Year French. French 202 is a prerequisite. Students who cannot write French with some facility are advised not to attempt French 300.

Students who intend to take French throughout the four years or who wish to teach this subject should take also French 302.

Three hours a week. 3 units.

Lectures: 10.30-11.30, Tuesday, Thursday, and Saturday.

301 [3b]. *French Verse.*—A study of the forms of French verse and of poetic diction and imagery from 1820 onwards. Exercises in scansion, rhythm, and harmony; analysis of language and composition.

Texts: Berthon, *Nine French Poets,* Macmillan; Victor Hugo, *Oeuvres choisies* (Delagrave); Charles Marc des Granges, *Les poètes français 1820-1920,* Hatier.

Independent readings to include Vigny, *Eloa;* or Lamartine, *Jocelyn.* See also, under *Summer Reading,* Chateaubriand and Rivarol.

Three hours a week. For Honours students. 3 units.
Lectures: 9.30-10.30, Monday, Wednesday, and Friday.

302 [3c]. *French Practice.*—Composition and phonetics, training in writing, conversation, and pronunciation. This course should be taken by all who elect French as a Third Year subject. It may not be substituted for French 300.

Text-books: Wilson, *Modern French Prose,* Nelson; Bond, *The Sounds of French,* Heath.

Three hours a week. 3 units.

400 [4a]. *The Romantic Movement.*—Romanticism, lyrical and social, in French literature; its significance in poetry and life.

Texts: Victor Hugo, *Hernani,* Nelson; *Ruy Blas,* Delagrave; Alfred de Vigny, *Chatterton,* Hatier; Alfred de Musset, *Fantasio, On ne badine pas avec l'amour, Lorenzaccio,* Larousse. Independent readings include the plays of Marivaux, Voltaire, Sedaine, and Banville listed under *Summer Reading.*

References: Stewart and Tilley, *The Romantic Movement in French Literature,* Cambridge; Roger Picard, *Le Romantisme social,* Brentano.

Prerequisites: French 300 and 302.
Three hours a week. 3 units.
Lectures: 9.30-10.30, Tuesday, Thursday, and Saturday.

401 [4b]. *The Literature of the Eighteenth Century.*—Lectures on the history and social conditions of the period, with special emphasis on the *philosophe* movement, and the beginnings of Romanticism. The interrelations of French and English thought and literature will be touched upon.

Texts: Havens, *Selections from Voltaire,* Appleton-Century; Mornet, *Rousseau, Morceaux choisis,* Didier; Fallex, *Diderot, Extraits,* Delagrave; Beaumarchais, *Le Barbier de Séville,* Macmillan.

Prerequisites: French 300 and 301.
Three hours a week. 3 units.
Lectures: 9.30-10.30, Monday, Wednesday, and Friday.

402 [4c]. Lectures on the educational and administrative institutions of modern France; one hour. Oral and written practice, readings, and discussions; two hours.

This course may be taken with French 400, but not in place of it.

Prerequisite: French 302.

Three hours a week. 3 units.

COURSES FOR GRADUATE STUDENTS

501 [5b]. *The Middle Ages and XVIth Century.*—Texts: *Aucassin et Nicolete,* Classiques français du moyen-âge, Champion; selected readings from Montaigne, Rabelais, and the poets of the Pléiade in *Anthologie littéraire de la Renaissance française,* Holt. 3 units.

502 [5c]. *The History of French Criticism.*—French literary criticism and theory, from the Pléiade to the present day.

Text-book: Vial-Denise, *Idées et doctrines littéraires,* three vols., Delagrave. 3 units.

503 [5d]. *Contemporary French Literature.*—The poetic movement from Péguy to the Surréalistes.

Texts: *Anthologie de la nouvelle poésie française,* Kra; *Lectures expliquées* from Valéry, *Variété i,* Gallimard; Gide, *Pages de Journal,* Gallimard; Valery Larbaud, *Amants, heureux amants,* Gallimard. Further readings to be specified. 3 units.

504. *Some Aspects of French Classicism.*—The struggle for liberty in the seventeenth century and the part played by Louis XIV, the great writers, and the great institutions. 3 units.

Summer Reading

Upon entering the courses for the years stated, the student must satisfy the instructor that he has read the books mentioned below.

Second Year:

1. Louis Hémon, *Maria Chapdelaine,* Fayard.

Third Year:

1. Chateaubriand, *Atala,* Larousse.
2. Madame de Staël, *De l'Allemagne,* Larousse*.
3. Rivarol, *Discours sur l'universalité de la langue française,* Larousse.

Fourth Year:

1. Marivaux, *Le Jeu de l'amour et du hasard,* Larousse.
2. Voltaire, *Contes,* Hatier.
3. Voltaire, *Zaïre,* Larousse.

4. Sedaine, *Le philosophe sans le savoir,* Larousse.*
5. Bernardin de Saint-Pierre, *Paul et Virginie,* Larousse.*
6. Banville, *Gringoire,* Hatier.*

NOTE. Books marked with an asterisk are to be read by Honours students only.

Department of Geology and Geography

Geology

For Honours courses in Geology and Geography see pages 109-15.

201 [1a and 1c]. *General Geology.*—This course serves as an introduction to the science of geology, and includes the following subdivisions:

Physical Geology, including weathering, the work of the wind, ground water, streams, and glaciers, the ocean and its work, the structure of the earth, earthquakes, volcanoes, igneous intrusions, metamorphism, mountains, plateaus, and ore deposits.

Two hours a week. First Term and to January 31. Mr. Watson and Mr. Okulitch.

Historical Geology, including the history of the earth and its life from pre-Cambrian to recent time.

Two hours a week. Second Term from Feb. 1. Mr. Williams and Mr. Okulitch.

Text-book: Longwell, Knopf, Flint, Schuchert, Dunbar, *Outlines of Geology,* 1941, Wiley.

Prerequisite: See under Geology 202.

2 units.

202 [1b and 1d]. *Laboratory Exercises.*—Laboratory exercises in physical geology, including the study and identification of the commoner minerals and rocks.

Field Work may replace laboratory occasionally, and will take the form of excursions to localities in the immediate neighborhood of Vancouver which illustrate the subject matter of the lectures.

Two hours laboratory a week. First Term and to Jan. 31. Mr. Watson, Mr. Warren, and assistants.

Laboratory Exercises in Historical Geology, including the study of index fossils representative of the periods of geological time, and geological maps.

Two hours laboratory a week. Second Term from Feb. 1. Mr. Okulitch and assistants.

Text-book: Longwell, Knopf, Flint, Schuchert, Dunbar, *Outlines of Geology,* 1941, Wiley.

Prerequisite for Geology 201 and 202: University Entrance Chemistry or Physics, or Chemistry 90 or 100, or Physics 100 or 120, taken either before or concurrently.

1 unit.

Students may be required to pass in each of the laboratory divisions.

302 [2a]. *General Mineralogy.*—A brief introduction to the field of mineralogy, with particular emphasis on the cultural aspect.

Lectures take the form of a concise treatment of (1) elementary crystallography, (2) physical mineralogy, and (3) descriptive mineralogy of 50 of the more common mineral species, with special reference to gem stones and to the minerals which are important in present day Canadian and world economics.

Laboratory Work consists of a study of the more common crystal forms of about 50 prescribed minerals, accompanied by a brief outline of the principles and methods of determinative mineralogy and blowpipe analysis.

Text-book: Dana, *Text-book of Mineralogy,* revised by Ford, 4th edition, Wiley.

References: Brush and Penfield, *Determinative Mineralogy and Blowpipe Analysis,* 16th edition, Wiley; Kraus, Hunt, and Ramsell, *Mineralogy,* 3rd edition, McGraw-Hill.

Prerequisites: Geology 201 and 202 must, and Chemistry 100 and Physics 100 should, precede or accompany this course.

Two lectures and two hours laboratory a week. First Term. Mr. Warren and assistants. 1½ units.

Lectures: 9.30-10.30, Tuesday and Thursday.

Laboratory: 1.30-3.30, Friday.

303 [2b]. *Descriptive and Determinative Mineralogy.*—This course supplements 302 and consists of a more complete survey of crystallography and of physical and chemical mineralogy, with a critical study of about 70 of the less common minerals, special emphasis being laid on their crystallography, origin, association, alteration, and economic significance.

Text-book: Dana, *Text-book of Mineralogy,* revised by Ford, 4th edition, Wiley.

References: Brush and Penfield, *Determinative Mineralogy and Blowpipe Analysis,* 16th edition, Wiley; Kraus, Hunt, and Ramsell, *Mineralogy,* 3rd edition, McGraw-Hill.

Prerequisites: Geology 302. Chemistry 100, and Physics 100 must precede or accompany this course.

Two lectures and two hours laboratory a week. Second Term. Mr. Warren. 1½ units.

Lectures: 9.30-10.30, Tuesday and Thursday.

Laboratory: 1.30-3.30, Friday.

NOTE. Students who take either 302 or 303 separately will be required to pass in both the lecture and the laboratory divisions. Those who take both 302 and 303 may be required to pass in each.

304 [4]. *Structural Geology.*—A study of primary and secondary structures in rocks. The course includes practice in methods for solving various structural problems.

Text-book: Lahee, *Field Geology,* 4th edition, 1941, McGraw-Hill.

Prerequisites: Geology 201 and 202.

Three hours a week. Mr. Gunning. 3 units.

305 [5]. *Theoretical and Historical Geology.*—A brief study of the development of the geological sciences, theories employed in geological interpretations, and the historical geology of North America.

References: Geikie, *The Founders of Geology,* Macmillan; Merrill, *The First One Hundred Years of American Geology,* Yale; Adams, *The Birth and Development of the Geological Sciences,* Williams and Wilkins; Schuchert and Dunbar, *Textbook of Geology,* Part II, *Historical Geology,* 4th edition, 1941, Wiley.

Prerequisites: Geology 201 and 202.

Two hours a week. Mr. Williams. 2 units.

NOTE. Geology 305 may be counted as a course in Geography.

307 [8, part]. *Petroleum and Natural Gas.* — A study of the origin and occurrence of petroleum and natural gas.

Text-book: Bateman, *Economic Mineral Deposits,* 1942, Wiley.

Prerequisites: Geology 201, 202, 302, and 303.

One hour a week. First Term. Mr. Williams. ½ unit.

308 [8, part]. *Coal and Structural Materials.*—A study of the origin and occurrence of coal and structural materials, with special reference to Canadian deposits.

Text-book: Bateman, *Economic Mineral Deposits,* 1942, Wiley.

Prerequisites: Geology 201, 202, 302, and 303.

One hour a week. Mr. Williams. 1 unit.

Lectures: Hours to be arranged.

406 [6]. *Palaeontology.*—A study of invertebrate and vertebrate fossils, their classification, identification, and geological distribution.

Text-book: Twenhofel and Shrock, *Invertebrate Palaeontology,* McGraw-Hill.

References: Shimer and Shrock, *Index Fossils of North America,* Technology Press; Zittel-Eastman, *Text-book of Palaeontology,* Macmillan; Raymond, *Prehistoric Life,* 1939, Harvard; Shimer, *An Introduction to the Study of Fossils,* 1933, Macmillan.

Prerequisites: Geology 201 and 202. Biology 100 and Zoology 200 are recommended. For students majoring or taking Honours in Geography or Zoology, a reading course in historical geology may be substituted for Geology 201 and 202.

Two lectures and two hours laboratory a week. Mr. Williams.
3 units.

407 [7]. *Petrography.* — This course consists of systematic studies of (i) optical mineralogy and (ii) petrography, with an introduction to petrogenesis.

The laboratory work deals with the determination of rocks under the microscope and in hand specimens.

Text-books: Tyrrell, *The Principles of Petrology,* Dutton; Rogers and Kerr, *Optical Mineralogy,* McGraw-Hill.

Prerequisites: Geology 302 and 303.

Two lectures and four hours laboratory a week. Mr. Watson.
4 units.

408 [8, part]. *Mineral Deposits.*—A study of the manner of occurrence, genesis, structure, and distribution of the principal metallic and non-metallic mineral deposits, with type illustrations; special stress is placed upon Canadian deposits.

Text-book: Bateman, *Economic Mineral Deposits,* 1942, Wiley.

Prerequisites: Geology 302, 303, 304, and 403 or 407 must precede or accompany this course.

Three hours a week. Mr. Gunning. 3 units.

409 [9]. *Mineralography.*—Principally a laboratory course dealing with the study and recognition of the opaque minerals by means of the reflecting microscope.

The work consists of practice in the cutting, grinding, and polishing of ore specimens, accompanied by training in microchemical methods of mineral determination.

During the Second Term each student is assigned a suite of ores from some mining district for a critical examination and report.

Text-book: U. S. Geological Survey Bulletin 914, *Microscopic Determination of the Ore Minerals.*

Prerequisite: Geology 408 must precede or accompany this course.

Three hours a week by arrangement. Mr. Warren.
1½ units.

410 [10]. *Field Geology.*—The methods taught are the fundamental ones used by professional geologists and by the officers of the Geological Survey of Canada. This course is essentially practical and is designed to teach methods of observing, recording, and correlating geological facts in the field. The students construct geological maps of selected areas and visit localities of interest within reach of Vancouver. The cost to each student may approach $15.

Text-book: Lahee, *Field Geology,* 4th ed., 1941, McGraw-Hill.

References: Hayes, *Handbook for Field Geologists,* Wiley; Spurr, *Geology Applied to Mining,* McGraw-Hill.

Prerequisites: Geology 302, 303, and 304.

Two hours a week in the Second Term by arrangement and ten days in the field at the close of examinations in the spring. Mr. Gunning. 1½ units.

411 [11]. *Regional Geology.*—A study of the geology of Canada and of the main geological features of the continental and oceanic segments of the earth.

References: Young, *Geology and Economic Minerals of Canada,* Geological Survey of Canada, Economic Geology Series No. 1, 1926; Suess, *Das Antlitz der Erde,* Tempsky; maps and reports of various national surveys.

Prerequisites: Geology 305; 304 must accompany or precede.

Three lectures a week. Mr. Williams, Mr. Gunning. 3 units.

412 [12]. *Geomorphology.* — This course is intended for advanced students in geography and geology. The subject represents the overlap between these two major sciences. It involves a study of the processes, principles, and laws of land formation, types of land forms, and their distribution.

Text-book: Hinds, *Geomorphology,* 1943, Prentice-Hall.

References: Lobeck, *Geomorphology,* 1939, McGraw-Hill; Von Engeln, *Geomorphology,* 1942, Macmillan; reports of the Canadian Geological Survey; reports and maps of the U. S. Geological Survey; geological and geographical journals.

Prerequisite: Geography 101 or Geology 201 and 202.

Two lectures and two hours laboratory a week. Mr. Okulitch. 3 units.

COURSES FOR GRADUATE STUDENTS

520 [20]. *Sedimentation.*

Text-book: Twenhofel, *Principles of Sedimentation,* McGraw-Hill.

Prerequisites: Geology 302, 303, and 411.

Two seminars and 6 hours of reading or laboratory a week. Mr. Williams. 3 units.

521 [21]. *Problems in Palaeontology.*

Prerequisite: Geology 406.

One seminar and 6 hours laboratory a week. Mr. Williams. 3 units.

522 [23a]. *Advanced Mineralogy (Gems and Precious Stones).*—A systematic study of the gem minerals and of some of the more popular semi-precious stones.

Text-books: Dana, *Text-book of Mineralogy,* revised by Ford, 4th edition, Wiley; Smith, *Gemstones,* Methuen.

Prerequisite: Geology 302.

One seminar and four hours laboratory a week. First Term. Mr. Warren. 1½ units.

NOTE. This course may be taken as an undergraduate course, subject to the approval of the Department.

523 [23b]. *Advanced Mineralogy.*—A systematic study of some of the rarer minerals, particular attention being given to those of economic importance.

Text-book: Dana, *Text-book of Mineralogy,* revised by Ford, 4th edition, Wiley.

References: Brush and Penfield, *Determinative Mineralogy and Blowpipe Analysis,* 16th edition, Wiley; Kraus, Hunt, and Ramsell, *Mineralogy,* 3rd edition, McGraw-Hill.

Prerequisite: Geology 408.

One seminar and four hours laboratory a week, or six hours laboratory a week. Second Term. Mr. Warren. 1½ units.

524 [24]. *Advanced Mineralography.*—A critical study of some approved suite of ores, using the more recent methods of investigation, including the examination of polished sections under polarized light, microchemistry, microphotography, use of "super-polisher," etc.

Frequent reference will be made to U. S. Geological Survey Bulletin 914, *Microscopic Determination of the Ore Minerals.*

Prerequisite: Geology 409.

Occasional seminars and from five to seven hours laboratory a week. Mr. Warren. 3 to 4 units.

525 [25]. *Petrogeny.*—A seminar course, supplemented with laboratory work, which deals with the origin of igneous and metamorphic rocks.

References: Harker, *Metamorphism,* Methuen; Bowen, ***Evolution of Igneous Rocks,*** Princeton.

Prerequisite: Geology 407.

Two seminars and two hours laboratory a week. Mr. Watson. 3 units.

526 [26]. *Mineral Deposits.*—A seminar course, supplemented by laboratory work, dealing with the character, origin, and structure of mineral deposits, with emphasis on ore deposits.

Text-book: Lindgren, *Mineral Deposits,* 4th edition, 1933, McGraw-Hill.

Reference: *Ore Deposits of the Western States,* A.I.M.E., 1933.

Prerequisites: Geology 308, 407, and 408.

Two hours seminar and two hours laboratory a week. Mr. Gunning. 4 units.

Geography

Students intending to major in Geography are required to take Geography 101 and 102 as prerequisites to all other courses in Geography. Geography 101 is one of the elective sciences as stated on p. 99, sec. 1(e) of the calendar.

Students not intending to major in Geography will be permitted to take some of the senior courses in Geography if they offer one of the other science electives and take Geography 102 in their First or Second Year.

101 [1]. *Elementary Physical Geography.*—This introductory course aims to furnish a foundation for the study of geography. It will be useful not only to those who may intend to continue a study of geography or to teach it in schools, but to all those who are interested in man's physical environment. This course covers the study of land forms, processes of weathering, erosion, diastrophism, materials of the earth's crust, climate, and history of the earth. The laboratory part of the course includes elementary surveying and map making, interpretation of topographic maps, the study of common minerals, rocks, and fossils.

Text-book: Thompson, *Fundamentals of Earth Science,* 1947, Appleton-Century.

References: Wilmore, *Groundwork of Modern Geography,* Bell; Finch and Trewartha, *Elements of Geography,* McGraw-Hill; Moore, *Elementary Geology for Canada,* Dent.

Two lectures and two hours laboratory a week. Mr. Okulitch. 3 units.

Lectures: 2.30-3.30, Monday and Wednesday.

Laboratory: 3.30-5.30, Monday or Friday.

102. *Introductory Human and Economic Geography.*—A general introductory course dealing with man and his occupations. It will be useful for those intending to major in the social sciences. The course deals with the effect of physical environment upon the distribution of the world population, and gives the geographic basis of world population problems. It discusses the distribution of various natural resources as a background to the understanding of national problems of trade and commerce and the interchange of products.

Text-book: Hammond, *World Orientation Atlas,* 1946.

References: Huntington, *Principles of Human Geography,* 5th edition, 1946, Wiley; Bengston and Van Royen, *Fundamentals of Economic Geography,* 1946, Prentice-Hall; Finch and Trewartha, *Elements of Geography, Physical and Cultural,* 1942, McGraw-Hill; Case and Bergsmark, *College Geography,* 1940, Wiley.

Three lectures a week. Mr. Robinson, Mr. Warren. 3 units.

202 [2]. *Weather and Climate.*—A study of weather phenomena, climatic classification and description, and distribution of climatic types.

Text-book; Trewartha, *An Introduction to Weather and Climate,* 2nd edition, 1943, McGraw-Hill.

References: Blair, *Weather Elements,* Prentice-Hall; Kendrew, *Climate of the Continents,* Oxford.

Two lectures and two hours laboratory a week. 3 units.

Lectures: 11.30-12.30, Monday and Wednesday.

Laboratory: 3.30-5.30, Wednesday.

205 [5]. *Commercial Geography.*—Geography 205 may be taken as a Second Year subject, but not as a Third or Fourth Year subject. 3 units.

303 [3]. *Regional Geography.*—An outline course of regional geography covering the world. The physical structure or build of the continents, their climate, population, history of settlement, natural resources, industry, and transportation are studied. Emphasis may change from year to year as to the continents studied.

References: Renner and associates, *Global Geography,* Crowell; Newbigin, *A New Regional Geography of the World,* Harcourt, Brace; Hubbard, *The Geography of Europe,* Appleton-Century; Taylor, *Environment and Nation,* University of Toronto; Taylor, *Environment, Race, and Migration,* University of Toronto; Stamp, *Asia,* Dutton.

An atlas is a requisite: e.g., *University Atlas,* Phillips; *Oxford Advanced Atlas,* Oxford; *Modern School Atlas,* Appleton-Century.

Three hours a week. 3 units.

Lectures: 9.30-10.30, Monday, Wednesday, and Friday.

305. *History of the Earth Sciences, Geological Theories, and Historical Geology.*—(This course is identical with Geology 305.) 2 units.

306 [6]. *Economic Aspects of World Geography.*—An introduction to economic geography. Geographic basis of food supply, energy, natural resources, population, transportation, and trade. This course is intended to give a background for those interested in international and national affairs.

Text-books: Klimm, Starkey, and Hall, *Introductory Economic Geography,* 2nd edition, Harcourt-Brace; Stamp, *An Intermediate Commercial Geography,* Part 1, *Commodities and World Trade,* Longmans. An atlas is a requisite; *Modern School Atlas,* Appleton-Century, is recommended.

Two hours a week and one hour seminar *or* two hours laboratory. Mr. Warren, Mr. Griffith, Mr. Rowles. 3 units.

Lectures: 10.30-11.30, Monday, Wednesday, and Friday.

308. *A Regional Geography of Europe.*—An introduction to the physical and human geography of Europe based on an analysis of the interaction between man and his environment in the major natural regions, and the relation of such regions to the principal political divisions of the continent. The physical and climatic characteristics of the continent; development of resources; population; European expansion overseas.

References: Hubbard, *The Geography of Europe,* Appleton-Century; Newbigin, *The Mediterranean Lands,* Christophers; Stembridge, *Germany,* Christophers; Stembridge, *The British Isles,* Oxford.

Text-book: MacMunn and Coster, *Europe: A Regional Geography,* Oxford.

403. *A Regional Geography of the British Empire and Commonwealth.*—A regional study in broad outline of the British Empire and Commonwealth as at present constituted, paying special attention to man's response to physical conditions in selected areas. The growth, extent, and resources of the Empire and Commonwealth and the interdependence of its various units.

References: *Oxford Pamphlets on World Affairs;* Hodson, *The British Empire;* Williamson, *Life and Growth of the British Empire;* Stembridge, *An Atlas of the British Empire;* Parkes, *India;* Spry, *Canada;* Walker, *South Africa.*

An atlas is a requisite; e.g., *Oxford Advanced Atlas,* Oxford; *University Atlas,* Phillips; *Modern School Atlas,* Appleton-Century.

407. *Human and Cultural Geography.*—A cultural course dealing with the influences of natural environment upon man and his activities. The course covers the mode of life and occupations of man in climatic regions such as the arctic, tropics, deserts, mountains. Discussion of world population problems.

Text-book: Davis, *The Earth and Man—A Human Geography,* 1943, Macmillan.

References: Huntington, *Mainsprings of Civilization,* 1945, Wiley; James, *An Outline of Geography,* 1935, Ginn.

Three lectures a week. Mr. Robinson. 3 units.

409. *Geography of North America.* — Regional geography of North America with particular emphasis on Canada, dealing with physiography, climate, natural resources, population, primary industries. Special reference is given to the development and future of Northern Canada.

Text-book: Currie, *Economic Geography of Canada,* 1945, Macmillan.

References: White and Foscue, *Regional Geography of North America,* 1945, Prentice-Hall; Smith and Phillips, *North America,* 1940, Harcourt, Brace.

Three lectures a week. Mr. Robinson. 3 units.

412 [4]. *Geomorphology.*—This course is identical with Geology 412. 3 units.

Department of German

For Honours courses in German see pages 109 and 115.

90. *Beginners' Course.* — Greenfield, *An Outline of German Grammar,* Barnes and Noble; Hagboldt, *Graded German Readers,* I-V, "Alternate" series, Heath.

Four hours a week. 3 units.

Lectures:

Section 1, 9.30-10.30, Monday, Wednesday, Friday, and 1.30-2.30, Thursday;
Section 2, 9.30-10.30, Monday, Wednesday, Friday, and 11.30-12.30, Saturday;
Section 3, 10.30-11.30, Monday, Wednesday, Friday, and 11.30-12.30, Tuesday;
Sections 4 and 5, 10.30-11.30, Monday, Wednesday, Friday, and 11.30-12.30, Thursday;
Sections 6 and 7, 11.30-12.30, Monday, Tuesday, Wednesday, and Friday;
Section 8, 11.30-12.30, Monday, Wednesday, Thursday, and Friday;

Section 9, 11.30-12.30, Monday, Wednesday, Friday, and 10.30-11.30, Saturday;
Section 10, 1.30-2.30, Monday, Wednesday, Friday, and 11.30-12.30, Tuesday;
Section 11, 1.30-2.30, Monday, Wednesday, Friday, and 11.30-12.30, Thursday;
Sections 12 and 17, 2.30-3.30, Monday, Wednesday, Friday, and 1.30-2.30, Tuesday;
Section 13, 2.30-3.30, Monday, Wednesday, Friday, and 9.30-11.30, Saturday;
Sections 14 and 15, 10.30-11.30, Tuesday, Thursday, Saturday, and 1.30-2.30, Friday;
Section 16, 10.30-11.30, Tuesday, Thursday, Saturday, and 11.30-12.30, Wednesday;
Section 18, 9.30-10.30, Monday, Wednesday, Friday, and 1.30-2.30, Tuesday.

100 [1a]. Texts: Chiles, *German Composition and Conversation,* Part I, Ginn; Hagboldt, *Graded German Readers,* VI-X, Heath; Kästner, *Drei Männer im Schnee,* Crofts; Bruns, *Book of German Lyrics,* Heath.

Prerequisite: University Entrance or Beginners' German.

Three hours a week. 3 units.

Lectures:

Section 1, 8.30-9.30, Tuesday, Thursday, Saturday;
Sections 2 and 3, 9.30-10.30, Tuesday, Thursday, Saturday;
Sections 4 and 5, 10.30-11.30, Tuesday, Thursday, Saturday.

101 [1b]. *Scientific German.*—An introduction to the reading of scientific German, supplemented by a review of essentials in German grammar and composition.

Text-books: Wild, *An Introduction to Scientific German,* Oxford; Wild, *An Anthology of Scientific German,* Oxford; Chiles, *German Composition and Conversation,* Part I, Ginn.

Prerequisite: University Entrance or Beginners' German.

Three hours a week. 3 units.

Lectures:

Section 1, 8.30-9.30, Tuesday, Thursday, Saturday;
Section 2, 9.30-10.30, Tuesday, Thursday, Saturday;
Section 3, 10.30-11.30, Tuesday, Thursday, Saturday.

200 [2]. Texts: Chiles, *German Composition and Conversation,* Part II, Ginn; Diamond and Schomaker, *Lust und Leid,* Holt; Heine, *Die Harzreise,* Holt; Huch, *Der letzte Sommer,* Farrar and Rinehart; Bruns, *Book of German Lyrics,* Heath.

Prerequisite: German 100 or 101 or the equivalent.
Three hours a week. 3 units.
Lectures:
Section 1, 11.30-12.30, Monday, Wednesday, Friday;
Section 2, 2.30-3.30, Monday, Wednesday, Friday;
Section 3, 9.30-10.30, Monday, Wednesday, Friday.

300 [3a]. *The Classical Period.*—Lectures on the development of German literature, with special emphasis on that of the eighteenth century.

Texts for special study: Lessing, *Emilia Galotti,* Heath; Goethe, *Faust I,* Heath; Schiller, *Die Jungfrau von Orleans,* Holt. For less detailed study: Lessing, *Minna von Barnhelm;* Goethe, *Iphigenie;* Schiller, *Maria Stuart.*

Three hours a week. 3 units.
Lectures: 11.30-12.30, Monday, Wednesday, and Friday.
Summer Reading. Before entering German 300 students must read: Fleissner, *Deutsches Literatur-Lesebuch,* Crofts, to page 92. (Robertson, *The Literature of Germany,* Home University Library, is also recommended.)

301 [3b]. *The Novelle.*—Lectures on the development of the German Novelle, with special emphasis on the nineteenth century.

Texts: Fleissner, *Die Kunst der Prosa,* Crofts; Röseler, *Deutsche Novellen des 19. Jahrhunderts,* Holt; Steinbauer, *Die Deutsche Novelle 1880-1933,* Norton. Extensive independent reading will be expected. 3 units.

302 [3c]. A course in oral and written composition, based largely on a study of the development of German civilization.

Text: Jordan, *Deutsche Kulturgeschichte,* Crofts.
Three hours a week. 3 units.
Lectures: 8.30-9.30, Tuesday, Thursday, and Saturday.

400 [4a]. *Nineteenth Century German Drama.*—Text: Campbell, *German Plays of the Nineteenth Century,* Crofts. 3 units.

401 [4b]. *Nineteenth Century German Fiction.*—Lectures on the development of the German novel, with special emphasis on the nineteenth century, and study of the outstanding novels of that period. 3 units.

500 [5a]. *Lessing, Goethe, and Schiller.*—Reading and discussion of the most important works of these authors. 3 units.

501 [5b]. *Middle High German.*—Text-book: Bachmann, *Mittelhochdeutsches Lesebuch.* 3 units.

Department of History

Students who intend to specialize in history or who are preparing for the Teacher Training Course are advised to associate with it such allied subjects as economics, government, sociology, and geography. Economics 100, 200, 205, 330, Government 300, 325, 425, Sociology 200, Philosophy 300, 401, Psychology 201, and Geography 102 will be found especially helpful. *Attention, however, is called to the regulation in paragraph 3, page 102, regarding the number of First and Second Year courses which may be taken in the Third and Fourth Years. This rule applies also to Third and Fourth Year students electing History 101, 202, 203, 204.*

For Honours courses in History see pages 109 and 115.

A reading knowledge of French and German will be found extremely valuable in Third and Fourth Year courses, while in certain classes of more advanced work Latin is advisable. French, at least, will be required for Honours work, and the study of German is recommended.

FIRST AND SECOND YEARS

101 [1]. *Main Currents in Twentieth-Century History.*—This course completes the study of world history in the high schools and offers a background for contemporary world problems. This course is prerequisite to History Honours. If the World History course has been taken in Senior Matriculation, History 202 will be required for Honours.

Text-books: Benns, *Europe Since 1914,* Crofts, or Chambers, Grant, and Bayley, *The Age of Conflict,* Harcourt, Brace; Schmitt, *Triple Alliance and Triple Entente,* Oxford; Carr, *Conditions of Peace,* Macmillan (for upper year credit).

Essays will be assigned throughout the session. (Extra work will be required from Third and Fourth Year students taking this course.)

Four hours a week. Mr. Soward. 3 units.

Lectures: 2.30-3.30, Monday, Wednesday, and Friday.

The fourth hour will be devoted to group discussions.

202 [2]. *The History of Canada.*—A general introductory course on Canadian History from the earliest times to the present. This course is required for Second Year Honours credit unless it has already been taken in the First Year or in Senior Matriculation. If credit has been given for History 202, History 203 or History 204 must be taken for Honours credit. History 202 is prerequisite for History 420, 427, 430, 433, 533.

Text-books: Lower, *Colony to Nation,* Longmans; Wrong, *The Canadians,* Macmillan; Creighton, *Dominion of the North,* Houghton Mifflin; Sage, *Canada from Sea to Sea,* University of Toronto.

Essays will be assigned throughout the session. (Extra work will be required from Third and Fourth Year students taking this course.)

Three hours a week. Mr. Stanley. 3 units.

Lectures: 9.30-10.30, Monday, Wednesday, and Friday.

203 [3]. *Canada West of the Great Lakes.*—The place of Western Canada in Canadian development.

Text-books: Lower, *Colony to Nation,* Longmans; Howay, *British Columbia, the Making of a Province,* Ryerson; Sage, *Sir James Douglas and British Columbia,* University of Toronto; Morton, *A History of the Canadian West to 1870-71,* Nelson; Sage, *Canada from Sea to Sea,* University of Toronto; Howay, Sage, and Angus, *British Columbia and the United States,* Ryerson.

Essays will be assigned throughout the session.

Three hours a week. Mr. Sage. 3 units.

Lectures: 9.30-10.30, Tuesday, Thursday, and Saturday.

(Given in 1947-48 and alternate years.)

204. *The History of French Canada.*—A survey of the French Canadian contribution to the development of Canada.

Readings to be announced.

Three hours a week. Mr. Stanley.

Lectures: 9.30-10.30, Tuesday, Thursday, and Saturday.

(Given in 1948-49 and alternate years.)

THIRD YEAR

Third Year courses may be taken in the Fourth Year and vice versa.

Although History 304 is primarily a Third Year course, Second Year students may be admitted. Second Year pre-Law students may be admitted to History 309.

Honours students must offer either History 304 or History 309.

304 [4]. *Mediaeval Europe, 500-1300.*—A general outline of mediaeval history from the fall of the Roman Empire to the 13th century. Sketches of Byzantine history and of the rise of Islam are included, but the main emphasis is laid upon the culture of the 12th and 13th centuries in the West.

Text-books: Stephenson, *Mediaeval History,* revised edition, Harpers; Strayer and Munro, *The Middle Ages,* Appleton-Century.

Essays are assigned throughout the session. This course is open also to Second Year students.

Three hours a week. Miss Ormsby. 3 units.

Lectures: 10.30-11.30, Monday, Wednesday, and Friday.

305. *The Expansion of Europe.* — The history of European colonial expansion, and problems of colonial administration.

Text-books: To be announced.

Three hours a week. Mr. Cooke. 3 units.

309 [10]. *British History to 1688.*—This course aims at an interpretation of the political, constitutional, economic, and religious development of the British Isles from the earliest times to the Revolution of 1688.

Text-books: Trevelyan, *A History of England,* Longmans; Williamson, *The Evolution of England,* Oxford; Stephenson and Marcham, *Sources of English Constitutional History,* Harpers; Adams, *Constitutional History of England,* Holt; Hall and Albion, *A History of England and the British Empire,* Ginn.

Essays will be assigned throughout the session.

Three hours a week. Mr. Sage. 3 units.

Lectures: 11.30-12.30, Monday, Wednesday, and Friday.

310 [11a]. *The Development and Problems of the British Commonwealth.*—British colonial policy; the development of the Dominions; problems of the Commonwealth.

Text-book: Knaplund, *The British Empire, 1815-1939,* Harpers.

Bibliographies for voluntary summer reading will be supplied on application to the instructor in charge.

Three hours a week. Mr. Cooke. 3 units.

Lectures: 10.30-11.30, Monday, Wednesday, and Friday.

(Not given in 1947-48.)

311 [11b]. *The Development and Problems of the British Colonial Empire.*—The history of the crown colonies and India; problems of colonial administration.

Text-books: Knaplund, *The British Empire, 1815-1939,* Harpers; Simnett, *British Colonial Empire.*

Bibliographies for voluntary summer reading will be supplied on application to the instructor in charge.

Three hours a week. Mr. Cooke. 3 units.

Lectures: 10.30-11.30, Monday, Wednesday, and Friday.

(Given in 1947-48 and alternate years.)

312 [12]. *History of the United States of America.*—This course begins with a sketch of the American colonies at the outbreak of the Revolution and traces the history of the United States from the

commencement of the War of Independence to the outbreak of the Second World War.

Text-book: Faulkner, *American Political and Social History,* Crofts.

Essays will be assigned throughout the session.

Three hours a week. Miss Ormsby. 3 units.

Lectures: 10.30-11.30, Tuesday, Thursday, and Saturday.

313 [13]. *The Age of the Renaissance and Reformation.* — A study of the cultural development of Europe from the 14th to the 17th century, including a consideration of the transition from the mediaeval to the modern world; humanism; Renaissance art; overseas exploration and expansion; the rise of national states; the Reformation; the scientific revolution and intellectual developments.

Text-books: Lucas, *The Renaissance and the Reformation,* Harpers; Smith, *The Age of the Reformation,* Holt.

Readings and reports will be assigned.

Three hours a week. Mr. Cooke. 3 units.

Lectures: 10.30-11.30, Tuesday, Thursday, and Saturday.

314 [14]. *Europe from Westphalia to Waterloo.*—Europe in the 17th and 18th centuries; the establishment of absolutism; the ascendancy of France; expansion and conflict overseas; the enlightened despots; the Age of Reason; the French Revolution; Napoleon; the Congress of Vienna.

Text-books: Garrett, *European History, 1500-1815,* Heath; Dorn, *Competition for Empire,* Harpers; Gershoy, *From Despotism to Revolution,* Harpers; Brinton, *A Decade of Revolution,* Harpers; Bruun, *Europe and the French Imperium,* Harpers.

Readings and reports will be assigned.

Three hours a week. Mr. Cooke. 3 units.

Lectures: 2.30-3.30, Monday, Wednesday, and Friday.

(Not given in 1947-48.)

316 [16]. *Social and Economic History of Mediaeval Europe.*—A course on the development of economic and social life through the Middle Ages in Europe, c. 500-1500 A.D.

Text-books: Pirenne, *An Economic and Social History of Mediaeval Europe,* and *Mediaeval Cities and the Revival of Trade,* Kegan Paul. Further reading assigned.

Essays will be assigned throughout the session.

Three hours a week. 3 units.

Lectures: 1.30-2.30, Monday, Wednesday, and Friday.

(Not given in 1947-48.)

318 [18]. *British History, Tudors and Stuarts, 1485-1714.*—This course offers a general survey of political, economic, social, and cultural change in the Tudor and Stuart periods.

Text-books: Trevelyan, *History of England,* Longmans; Adams and Stephens, *Select Documents of English Constitutional History,* Macmillan; Bland, Brown, and Tawney, *English Economic History, Select Documents,* Bell.

Essays will be assigned throughout the session.

Three hours a week. **3 units.**

Lectures: 1.30-2.30, Monday, Wednesday, and Friday.

(May not be given in 1947-48.)

331. *Ancient History.*—A survey of ancient Greek and Roman historical development. The same as Greek 331, Latin 331. For details see Department of Classics.

Knowledge of Latin and Greek is not required for this course.

Three hours a week. Mr. McKay, Mr. Guthrie. 3 units.

Lectures: 8.30-9.30, Monday, Wednesday, and Friday.

333 [22a]. *Third Year Honours Seminar.*—Problems of bibliography and historical method.

Mr. Cooke, Miss Ormsby.

Two hours a week. 3 units.

FOURTH YEAR

415 [15]. *Europe, 1815-1914.*—The political, social, and economic history of the chief countries of continental Europe, with especial attention to international relations.

Text-books: Hayes, *A Political and Cultural History of Modern Europe,* Vol. II, Macmillan; Hall and Davis, *The Course of Europe Since Waterloo,* Appleton-Century.

Essays will be assigned throughout the session.

Three hours a week. Mr. Soward. 3 units.

417 [17]. *World Economic History, 1850-1943.*—A comparison of the means by which industrial progress has been achieved in Western Europe, the Americas, Japan, Russia, and India, and a study of the social changes involved. Regular reading will be required, but no essays.

Three hours a week. **3 units.**

Lectures: 9.30-10.30, Monday, Wednesday, and Friday.

(Not given in 1947-48.)

419 [19]. *Great Britain Since 1714.*—This course aims at an interpretation of the constitutional, political, economic, and religious development of the British Isles since 1714.

Text-books: Williamson, *The Evolution of England,* Oxford; Ensor, *England, 1870-1914,* Oxford; Stephenson and Marcham, *Sources of English Constitutional History,* Harpers; Woodward, *The Age of Reform,* Oxford; Hall and Albion, *A History of England and the British Empire,* Ginn.

Essays will be assigned throughout the session.

Three hours a week. Mr. Sage. 3 units.

Lectures: 10.30-11.30, Monday, Wednesday, and Friday.

420 [20]. *The Evolution of the Canadian Constitution.*—A survey of Canadian constitutional development from the Ancien Regime to the present day.

Text-books: Kennedy, *The Constitution of Canada,* Oxford; Kennedy, *Statutes, Treaties and Documents of the Canadian Constitution, 1713-1929,* Oxford; Coupland, *The Durham Report,* Oxford; Wheare, *The Statute of Westminster and Dominion Status.*

Essays will be assigned throughout the session.

Three hours a week. Mr. Stanley. 3 units.

Lectures: 2.30-3.30, Monday, Wednesday, and Friday.

424 [24]. *History of Latin America.* 3 units.

(Not given in 1947-48.)

425 [25]. *History of Historical Writing.* — A survey of the development of Western culture as reflected in the changing outlook of historians from classical times to the present day. Emphasis will be laid on 19th and 20th century philosophies of history.

Text-books: Barnes, *A History of Historical Writing,* Oklahoma University; Shotwell, *An Introduction to the History of History,* Columbia; Gooch, *History and Historians in the 19th Century,* Longmans.

Three hours a week. 3 units.

Lectures: 9.30-10.30, Tuesday, Thursday, and Saturday.

(May not be given in 1947-48.)

426 [26]. *Canada After 1867.*—A survey of the main features of political and economic development of Canada after 1867, with some consideration of foreign policy.

Text-books: Lower, *Colony to Nation,* Longmans; Creighton, *Dominion of the North,* Houghton Mifflin; *Report of the Royal Commission on Dominion-Provincial Relations, Book I, Canada, 1867-1939,* King's Printer, Ottawa; Soward and others, *Canada in World Affairs, the Pre-War Years,* Oxford.

Three hours a week. Miss Ormsby. 3 units.

Lectures: 9.30-10.30, Monday, Wednesday, and Friday.

427. *Canadian-American Relations.*—A survey of the diplomatic, social, and economic relations of Canada and the United States from the American Revolution to the present day.

Text-books: Brebner, *North Atlantic Triangle,* Ryerson; Keenleyside, *Canada and the United States,* Crofts; Corbett, *The Settlement of Canadian-American Disputes,* Ryerson.

Three hours a week. 3 units.

(May not be given in 1947-48.)

428. *Economic and Social History of the United States.*—A study of social and economic development in the United States, from the colonial period to the present day.

Text-books: Merle Curti, *The Growth of American Thought,* Harpers; Beard, *The Rise of American Civilization,* 1945, Macmillan.

Three hours a week. Miss Ormsby. 3 units.

(Not given in 1947-48.)

429. *Eastern Europe from the Early Middle Ages.*

(May not be given in 1947-48.)

430. *History of Canadian Defence.*—A survey of the military and political problems of Canadian defence from the French Regime to the present day.

Three hours a week. Mr. Stanley. 3 units.

433 [22b]. *Fourth Year Honours Seminar.*—Development of Canadian external policy since Confederation.

Two hours a week. Mr. Soward. 3 units.

FOR GRADUATE STUDENTS

533 [23]. *M.A. Seminar.*—The history of British Columbia. Mr Sage.

Department of Home Economics

The following courses are open only to students of the degree course in Home Economics except by permission of the faculties concerned.

90 [A]. *Introduction to Foods and Nutrition.*—An introductory course designed to give basic principles of food preparation and of nutrition.

Text-book: Bogert, *Nutrition and Physical Fitness,* 4th edition, Saunders.

Two lectures and three hours laboratory a week. First Term. 1½ units.

Lectures: 8.30-9.30, Tuesday and Thursday.

Laboratory:

Section 1, 1.30- 4.30, Monday;
Section 2, 1.30- 4.30, Tuesday;
Section 3, 8.30-11.30, Saturday.

91 [B]. *Introduction to Textiles and Clothing.*—An introductory course designed to give basic principles of textile selection and of clothing construction by using commercial patterns.

Text-book: Erwin, *Practical Dress Design,* Macmillan.

Two lectures and three hours laboratory a week. Second Term. 1½ units.

Lectures: 8.30-9.30, Tuesday and Thursday.

Laboratory:

Section 1, 1.30-4.30, Thursday;
Section 2, 1.30-4.30, Monday;
Section 3, 1.30-4.30, Wednesday;
Section 4, 1.30-4.30, Friday.

100 [1]. *Foods and Nutrition.*—Lectures are devoted to a study of human nutrition with emphasis on the requirements of the normal adult. The preparation of various types of food is presented from the experimental viewpoint in the laboratory hours.

Text-book: Chaney and Ahlborn, *Nutrition,* 3rd edition, Houghton Mifflin.

Prerequisite: Home Economics 90 or equivalent.

Two lectures and three hours laboratory a week. 1½ units.

Lectures: 10.30-11.30, Tuesday and Thursday.

Laboratory:

Section 1, 1.30- 4.30, Tuesday;
Section 2, 8.30-11.30, Saturday;
Section 3, 1.30- 4.30, Wednesday.

101 [2]. *Principles of Design.*—The study and application of fundamental art principles to problems in design. Application of design principles to dress. Wardrobe planning.

Text-book: Goldstein, *Art in Everyday Life,* 3rd edition, Macmillan.

Two lectures and three hours laboratory a week. 1½ units.

Lectures: 10.30-11.30, Tuesday and Thursday.

Laboratory:

Section 1, 1.30- 4.30, Tuesday;
Section 2, 8.30-11.30, Saturday;
Section 3, 1.30-4.30, Monday.

200 [3]. *Clothing.*—Development of foundation patterns. Flat pattern designing. Consumer problems in relation to ready-to-wear.

Text-book: Latzke and Quinlan, *Clothing,* Lippincott.

Prerequisite: Home Economics 91 or equivalent, and Home Economics 101.

Two lectures and four hours laboratory a week. 1½ units.

Lectures: 8.30-9.30, Tuesday and Thursday.

Laboratory:

Section 1, 1.30-5.30, Tuesday;
Section 2, 1.30-5.30, Thursday;
Section 3, 1.30-5.30, Wednesday.

201 [4]. *Food Management.*—Food buying, meal planning, and table service; food preparation, food legislation; brands, grades.

Text-book: Justin, Rust, and Vail, *Foods,* revised edition, Houghton Mifflin.

Prerequisite: Home Economics 100.

Two lectures and three hours laboratory a week. 1½ units.

Lectures: 8.30-9.30, Tuesday and Thursday.

Laboratory:

Section 1, 1.30- 4.30, Tuesday;
Section 2, 1.30- 4.30, Thursday;
Section 3, 8.30-11.30, Saturday.

300 [5]. *Household Equipment and Furnishings.*—A study of house plans, furnishings, and equipment. Problems of selection and care of equipment and furnishings.

Text-book: Nickell and Dorsey, *Management in Family Living,* Wiley.

Prerequisite: Physics 100 or Physics 110.

Three lectures and two hours laboratory a week. First Term. 1½ units.

Lectures: 9.30-10.30, Monday, Wednesday, and Friday.

Laboratory:

Section 1, 8.30-10.30, Saturday;
Section 2, 10.30-12.30, Saturday;
Section 3, 10.30-12.30, Thursday.

301 [6]. *Economics of the Household.*—Family expenditures and standards of living. Budgeting of time, energy, and family funds.

Text-book: Nickell and Dorsey, *Management in Family Living,* Wiley.

Prerequisite: Economics 200.
Two lectures and two hours discussion a week. Second Term. 1½ units.

Lectures: 9.30-10.30, Monday and Wednesday.

Discussion:

Section 1, 8.30-10.30, Saturday;
Section 2, 10.30-12.30, Saturday;
Section 3, 10.30-12.30, Thursday.

302 [7]. *Experimental Cookery.*—Experimental procedure applied to food preparation. Each student will carry out and write a report of an experimented food problem.

Text-book: Lowe, *Experimental Cookery,* 3rd edition, Wiley.
Prerequisite: Home Economics 201.
One lecture and five hours laboratory a week. Second Term. 1½ units.

Lectures: 10.30-11.30, Friday.

Laboratory:

Section 1, 1.30-4.00, Wednesday; 1.30-4.00, Friday;
Section 2, 1.30-4.00, Thursday; 1.30-4.00, Friday.

303 [8]. *Advanced Nutrition and Dietetics.*—Food requirements of the healthy infant, child, adolescent, and adult. These requirements applied to the planning of adequate dietaries at various cost levels. Students will be expected to present oral reports of recent advances in the science of nutrition.

Text-book: Monsch, *Feeding Babies and Their Families,* Wiley.
Prerequisite: Home Economics 100.
Two lectures and three hours laboratory a week. 1½ units.
Lectures: 10.30-11.30, Monday and Wednesday.

Laboratory:

Section 1, 1.30-4.30, Wednesday;
Section 2, 1.30-4.30, Friday.

400 [9]. *Textiles.*—A study of textile construction, finish, and design. Identification of fibres. Problems of textile consumers.

Text-book: Hess, *Textile Fibres and Their Uses,* revised edition, 1946, Lippincott..

Prerequisite; Chemistry 225.
Two lectures and three hours laboratory a week. First Term. 1½ units.

Lectures: 9.30-10.30, Monday and Wednesday.
Laboratory: 1.30-4.30, Monday.

401 [10]. *Advanced Clothing.*—Development of dress design by means of draping. A study of the social significance of fashion.

Prerequisite: Home Economics 200.

Two lectures and four hours laboratory a week. Second Term. 1½ units.

Lectures: 10.30-11.30, Tuesday and Thursday.

Laboratory:

Section 1, 1.30- 5.30, Tuesday;
Section 2, 1.30- 5.30, Friday;
Section 3, 8.30-12.30, Saturday.

403 [12]. *Interior Decoration.*—Application of design principles to home furnishing. A study of the history of architecture and furniture. Laboratory work includes work on furniture and other household furnishings.

Text-book: Whiton, *Elements of Interior Decoration,* Lippincott.

Prerequisite: Home Economics 101.

Two lectures and four hours laboratory a week. Second Term. 1½ units.

Lectures: 10.30-11.30, Monday and Wednesday.

Laboratory: 1.30-5.30, Wednesday.

410 [11]. *Advanced Foods.*—A course in advanced food preparation. Emphasis will be placed upon methods of presentation, food demonstrations, panel discussions, and radio talks.

Prerequisite: Home Economics 302.

One lecture, two hours discussion, and three hours laboratory a week. First Term. 1½ units.

Lectures and discussion: Time to be arranged.

Laboratory: Section 1, 1.30-4.30, Wednesday;
Section 2, 1.30-4.30, Thursday.

413 [13]. *Diet Therapy.*—A discussion of the relation of normal nutrition to certain diseases and the part that diet therapy may play in their treatment. Special diets are calculated and prepared in the laboratory.

Reference: McLester, *Nutrition and Diet in Health and Disease,* 4th edition, Saunders.

Prerequisite: Home Economics 303, Biology 401.

Two lectures and three hours laboratory a week. Second Term. 1½ units.

Lectures: 8.30-9.30, Tuesday and Thursday.

Laboratory: Section 1, 1.30-4.30, Monday;
Section 2, 1.30-4.30, Thursday.

414 [14]. *Quantity Cookery.*—Experience in the preparation of food in large quantities.

Text-book: Fowler and West, *Food for Fifty,* 2nd edition, Wiley.

Prerequisite: Home Economics 201.

One lecture and five hours laboratory a week. First Term. 1½ units.

416 [16]. *Institution Buying.*—Discussion of problems of purchasing food in large quantities and of the selection, arrangement, and care of equipment for large quantity food service.

Text-book: West and Wood, *Food Service in Institutions,* 2nd edition, Wiley.

Open only to Third and Fourth Year students.

Three lectures a week. First Term. 1½ units.

Field trips to be arranged.

417 [15]. *Institution Administration.*—Discussion of the organization and administration problems of food departments of institutions.

Text-book: West and Wood, *Food Service in Institutions,* 2nd edition, Wiley.

Open only to Third and Fourth Year students.

Prerequisite: Home Economics 416.

Two lectures and four hours laboratory a week. Second Term. 1½ units.

420 [17]. *Home Management.*—Residence in home management house.

Open only to Third and Fourth Year students. 1½ units.

421 [18]. *Child Development and Family Relations.* — The physical, mental, social, and emotional development of the infant and child; a study of family relations. Open only to Third and Fourth Year students.

Three lectures a week and observation periods. 3 units.

Lectures:

First Term, 8.30-9.30, Tuesday, Thursday, Friday;

Second Term, 8.30-9.30, Monday, Wednesday, Friday.

Observation periods to be arranged.

International Studies

400. *The Great Powers and World Politics.*—A study of the Great Powers and their international policies in the 19th and 20th centuries.

Text-book: Beukema and Geer, *Contemporary Foreign Governments,* Rinehart.

Three hours a week. Mr. Soward. 3 units.

Lectures: 9.30-10.30, Tuesday, Thursday, and Saturday.

410. *Canadian External Policy.*—The same as History 433. See Department of History.

Department of Mathematics

For Honours courses in Mathematics see pages 111 and 116.

For First Year Students

100 [1]. *Introductory Mathematics.*—An elementary course in algebra, including proportion, variation, logarithms, progressions, theory of quadratic equations, permutations, combinations, annuities, binomial theorem; analytical geometry, including the study of the straight line and the circle, with an introductory study of the parabola, ellipse, and hyperbola; elementary trigonometry.

Text-books: Currier, Watson, and Frame, *General Mathematics,* Macmillan; any book of five or six place trigonometric and logarithmic tables. Students who plan to enter the Faculty of Applied Science should obtain McGraw-Hill's *Six Place Tables.*

Four hours a week. 3 units.

Lectures:

Sections A, 9.30-10.30, Monday, Wednesday, Friday; 1.30-2.30, Tuesday;

Sections B, 9.30-10.30, Tuesday, Thursday, Saturday; 1.30-2.30, Thursday;

Sections C, 11.30-12.30, Tuesday, Thursday, Saturday; 1.30-2.30, Wednesday.

Other hours to be arranged.

Primarily for Second Year Students

200 [2]. *Algebra and Geometry.* — Review of fundamentals, mathematical induction, complex numbers, theory of equations, determinants, convergency and divergency of series, and probability; review of conics, polar coordinates, and solid analytic geometry.

Text-books: Nowlan, *College Algebra,* McGraw-Hill; Nowlan, *Analytic Geometry,* 3rd edition, McGraw-Hill.

Three hours a week. 3 units.

Lectures:

Section 1, 10.30-11.30, Monday, Wednesday, Friday. Mr. Nowlan.

Section 2, 10.30-11.30, Tuesday, Thursday, Saturday.

201 [3]. *The Mathematical Theory of Investments.*—This course deals with the exponential law, the power law, curve fitting, the theory of interest, annuities, debentures, valuation of bonds, sinking funds, depreciation, probability and its application to life insurance.

Text-book: Hart, *Mathematics of Investment,* revised, Heath.
Three hours a week. Miss Barclay. 3 units.
Lectures: 11.30-12.30, Monday, Wednesday, and Friday.

202. *Calculus.*—Introduction to differential and integral calculus, with applications.

Text-book: To be announced.
Three hours a week. Mr. James. 3 units.
Lectures:
Section 1, 8.30-9.30, Monday, Wednesday, Friday;
Section 2, 10.30-11.30, Tuesday, Thursday, Saturday.

203. *Mathematics for Forestry.*—Introduction to the calculus; practical trigonometry; elementary statistics; mathematics of investments.

This course is open to students in Forestry, and to others only with the consent of the Department.

Text-book: Currier, Watson, and Frame, *General Mathematics,* Macmillan.
Three hours a week. 3 units.
Lectures: 9.30-10.30, Tuesday, Thursday, and Saturday.

PRIMARILY FOR THIRD YEAR STUDENTS

300 [10]. *Calculus.*—The theory and applications of the subject.
Text-book: Miller, *Calculus,* 2nd edition, Wiley.
Prerequisite: Mathematics 202.
Three hours a week. Mr. Nowlan. 3 units.
Lectures: 8.30-9.30, Monday, Wednesday, and Friday.

302 [12]. *Differential Equations.*—An introductory course, with applications to geometry, mechanics, physics, and chemistry.

Text-book: Morris and Brown, *Differential Equations,* revised edition, Prentice-Hall.
Prerequisite: Mathematics 202.
This course may be taken concurrently with Mathematics 300.
Three hours a week. Mr. Kent. 3 units.
Lectures: 10.30-11.30, Tuesday, Thursday, and Saturday.

303 [13]. *Plane and Solid Analytical Geometry.*—A general study of the conics and systems of conics, and elementary work in three dimensions.

Text-book: Nowlan, *Analytic Geometry,* 3rd edition, McGraw-Hill.
Prerequisite: Mathematics 200.
Three hours a week. Mr. Nowlan. 3 units.
Lectures: 9.30-10.30, Tuesday, Thursday, and Saturday.

304 [14]. *Theory of Equations, Determinants, and Matrices.*—A course covering the main theory and use of these subjects.
Text-book: To be announced.
Prerequisite: Mathematics 200.
Three hours a week. Mr. Jennings. 3 units.
Lectures: 9.30-10.30, Monday, Wednesday, and Friday.

305. *Mathematical Statistics.*—A mathematical introduction to statistical analysis, with emphasis on sampling theory and the testing of statistical hypotheses. Applications to problems in the sciences.
Text-book: To be announced.
Prerequisites: Mathematics 202 and 300 or 320. Mathematics 300 or 320 may be taken concurrently with Mathematics 305.
Two hours a week. Mr. Chapman. 2 units.
Lectures: 1.30-2.30, Monday and Friday.

FOR THIRD YEAR HONOURS STUDENTS ONLY

At least Second Class standing in Mathematics 200 and 202 is prerequisite to the following courses. (For 1947-48 only students who did not take Mathematics 200 in their Second Year may apply to the Department for permission to replace Mathematics 322 by Mathematics 200.)

320. *Differential Calculus.*—The real number system, sequences, series; derivatives of functions of one and several variables, implicit functions; applications to the differential geometry of curves and surfaces.
Courant. *Differential and Integral Calculus,* Reference vols. I and II, Blackie.
Two hours a week. Mr. Murdoch. 2 units.
Lectures: 9.30-10.30, Tuesday and Thursday.

321. *Integral Calculus and Differential Equations.*—Definition and properties of the single and multiple Riemann integral; systematic integration; line and surface integrals; elementary differential equations, with various applications.
Reference: Courant, *Differential and Integral Calculus,* vols. I and II, Blackie.
Three hours a week. Mr. James. 3 units.
Lectures: 8.30-9.30, Monday, Wednesday, and Friday.

322. *Algebra and Geometry 2.*—An introduction to n-dimensional vector spaces; linear systems, matrices, and determinants, matric algebra; quadratic forms, with applications to conics and quadrics.

Text-book: To be announced.

Three hours a week. Mr. Derry. 3 units.

Lectures: 10.30-11.30, Monday, Wednesday, and Friday.

FOR FOURTH YEAR HONOURS STUDENTS ONLY

Beginning with the session 1948-49, Second Class standing in Mathematics 320, 321, 322 is prerequisite to all the following courses.

400 [15]. *Modern Algebra.*—The number systems of algebra and analysis. An introduction to groups, fields, linear vector spaces. Various applications.

Text-book: Birkhoff and MacLane, *A Survey of Modern Algebra,* Macmillan.

References: MacDuffee, *Introduction to Abstract Algebra,* Wiley; Albert, *Modern Higher Algebra,* University of Chicago.

Prerequisite: Mathematics 304.

Two hours a week. Mr. Nowlan. 2 units.

Lectures: 8.30-9.30, Wednesday and Friday.

401 [16]. *Advanced Calculus.* — Singular points, asymptotes, differentiation and integration under the sign of the integral, line and surface integrals; Euler's functions, Fourier series, elliptic integrals and functions, integration with a complex variable, Bessel functions.

Text-book: Woods, *Advanced Calculus,* Ginn.

Prerequisite: Mathematics 300.

Three hours a week. Mr. James. 3 units.

Lectures: 9.30-10.30, Monday, Wednesday, and Friday.

402 [17]. *Theory and Applications of Differential Equations.*—An advanced course, with applications to selected topics in dynamics, the theory of potential, and quantum mechanics.

Text-book: Margenau and Murphy, *The Mathematics of Physics and Chemistry,* Van Nostrand.

Prerequisites: Mathematics 300, 302, Physics 300.

Three hours a week. Mr. Gage. 3 units.

Lectures: 9.30-10.30, Tuesday, Thursday, and Saturday.

This course may be taken either as an undergraduate or as a graduate course.

403 [19]. *Projective Geometry.*—A systematic development of the geometry of the projective plane by analytic methods.

Prerequisite: Mathematics 303.

Two hours a week. Mr. Derry. 2 units.

Lectures: 11.30-12.30, Tuesday and Thursday.

440 [18]. *Honours Seminar.*—Fourth Year Honours students in the Department are required to take this course. 1 unit.

COURSES FOR GRADUATE STUDENTS

500 [20]. *Tensor Analysis.*

501 [21]. *Theory of Functions of a Real Variable.*

502 [22]. *Theory of Functions of a Complex Variable.*

503 [23]. *Differential Geometry.*

504 [24]. *Projective Geometry.*

505 [25]. *Celestial Mechanics.*

506 [26]. *Ordinary and Partial Differential Equations.*

507 [27]. *Theory of Numbers and Algebraic Numbers.*

508 [28]. *Linear Algebras.*

509 [29]. *Modern Algebraic Theories.*

510 [30]. *Harmonic and Elliptic Functions.*

511 [31]. *Topology.*

512 [32]. *Theory of Groups.*

Music

NOTE.—Other courses in addition to those listed below are contemplated.

100. *The Theory of Music.*—A study of harmony and counterpoint.

Three hours a week. 3 units.

105. *Ear Training.*

One lecture and two laboratory periods a week. 3 units.

300. *Music Appreciation.*—Analysis of structure and form; the art of listening.

Three hours a week. Mr. Adaskin. 3 units.

Department of Pharmacy

Classes of each year of the Pharmacy course are prerequisite to those of the following year.

201. *General Principles and Processes of Pharmacy.*—A survey of the operations and apparatus used in the manufacture, testing, and dispensing of medicinal products, with special reference to the general principles involved.

Text-book: Burlage, Burt, Lee, and Rising, *Fundamental Principles and Processes of Pharmacy.*

Two lectures and four hours laboratory a week. 3 units.

202. *Metrology and Pharmaceutical Calculations.*—A study of weights and measures and of the common types of calculations involved in pharmaceutical work.

One lecture a week. 1 unit.

203. *Pharmacognosy and Elementary Materia Medica.*—A detailed study of important official and non-official drugs of plant and animal origin, followed by an introduction to the study of chemical drugs.

Text-book: To be announced.

Two lectures and two hours laboratory a week. 3 units.

204. *Pharmaceutical History, Literature, and Latin.* — This course provides a survey of the development of pharmacy from ancient times to the present day, with special reference to the growth of the knowledge of drugs and the conditions of pharmaceutical practice. It also includes an introduction to the various types of pharamaceutical literature, and a study of the form and language of prescriptions.

Students who have not obtained standing in Latin 90 or its equivalent will be required to attend an additional lecture a week for the study of the elements of Latin grammar.

Text-book: Kremers and Urdang, *Pharmaceutical History.*

Two lectures a week. 2 units.

301. *Pharmaceutical Preparations.*—This course includes a survey of the various types of official, non-official, and commercial pharmaceutical preparations, and a detailed study of the more important representatives of each type.

Two lectures and three hours laboratory a week. 3 units.

302. *Pharmaceutical Law and Ethics.*—A study of the Provincial and Dominion legislation affecting the practice of pharmacy and the sale of drugs and poisons, and discussions of the ethical principles and responsibilities involved.

One lecture a week. 1 unit.

303. *Inorganic Pharmaceutical Chemistry.*—The applications of chemical methods and principles in pharmaceutical procedures, and a study of medicinally important inorganic chemicals. The laboratory work includes manufacture, assaying, and testing of chemical drugs and preparations.

Two lectures and three hours laboratory a week. 3 units.

401. *Dispensing and Prescriptions.*—A study of the types of extemporaneous preparations, and extensive practice in the reading, compounding, and dispensing of typical prescriptions.

Two lectures and four hours laboratory a week. 3 units.

402. *Pharmacology and Biopharmacy.*—This course first deals with the mode of action of drugs on the living body, with special reference to therapeutic uses, toxic properties, and biological methods of assay; it then proceeds to a survey of modern types of biological medicinal products, including hormones, antibiotics, serums, and vaccines, etc.

Three lectures a week. 3 units.

403. *Organic Pharmaceutical Chemistry.*—A study of natural and synthetic organic medicinal compounds based on their chemical relations and properties. The laboratory work includes synthesis and testing of representative synthetic drugs, alkaloidal assays, tests of fixed and volatile oils, etc.

Three lectures and three hours laboratory a week. 3 units.

411. *Advanced Pharmaceutics.*—This course deals with the more difficult types of pharmaceutical procedures and preparations, and includes practical assignments involving extensive review of current literature. The laboratory work is largely concerned with independent investigations of official and commercial drug products.

One lecture and four hours laboratory a week. 3 units.

412. *Manufacturing Pharmacy.*—The apparatus, methods, and problems of large scale production of pharmaceutical products.

One lecture and four hours laboratory a week. 3 units.

413. *Advanced Pharmaceutical Chemistry.*—A study of the more recent advances in the chemistry of organic medicinal products. The laboratory is devoted to individual problems related to synthesis and the isolation of active principles from crude drugs.

One lecture and four hours laboratory a week. 3 units.

Department of Philosophy and Psychology
Philosophy

A student in the Second Year may not take more than two courses in Philosophy. Courses numbered 300-500 are not open to Second Year students.

For Honours courses in Philosophy and Psychology, see pages 105-18.

100 [1]. *Introduction to Philosophy.*—A systematic study of the important problems of philosophy with particular emphasis upon proposed solutions relevant to problems of today.

Text-book: Edel, *The Theory and Practice of Philosophy,* Harcourt, Brace.

Three hours a week. Mr. Savery. 3 units.

Lectures: 1.30-2.30, Monday, Wednesday, and Friday.

202 [8]. *Logic.*—A general course in the fundamental problems of logic and scientific method, for students of philosophy and of the natural and social sciences.

Text-books: Cohen and Nagel, *An Introduction to Logic and Scientific Method,* Harcourt, Brace; Lenzen, *Procedures of Empirical Science,* University of Chicago.

Three hours a week. Mr. Maslow. 3 units.

Lectures: 9.30-10.30, Monday, Wednesday, and Friday.

205. *General History of Philosophy.*—A general survey of the history of philosophy from the Greeks to the present day. This course is intended primarily for general course students.

Text-book: To be announced.

Three hours a week. Mr. MacDonald. 3 units.

Lectures: 10.30-11.30, Tuesday, Thursday, and Saturday.

210 [2]. *Ancient Philosophy.* — Western philosophic thought from Thales to St. Augustine, with the principal stress on the works of Plato and Aristotle.

Text-books: To be announced.

Prerequisite: Philosophy 100 or 205 or equivalent.

Three hours a week. Mr. Maslow. 3 units.

Lectures: 10.30-11.30, Monday, Wednesday, and Friday.

302 [6]. *Ethics.* — The study of the development of ethical thought within the history of civilization, followed by a systematic discussion of the fundamental problems of ethics.

Text-books: Lippmann, *Preface to Morals,* Macmillan; Clark and Smith, *Readings in Ethics,* Dodd, Mead; others to be announced.

Three hours a week. Mr. Maslow. 3 units.

Lectures: 9.30-10.30, Tuesday, Thursday, and Saturday.

304 [9]. *Social Philosophy.*—A discussion of social ideals. An evaluation of present social institutions and processes in terms of the democratic ideal.
Text-book: Sabine, *A History of Political Theory,* Holt.
Three hours a week. Mr. Savery. 3 units.
Lectures: 11.30-12.30, Monday, Wednesday, and Friday.

310 [3]. *Mediaeval and Early Modern Philosophy.*—A course tracing briefly the history of mediaeval thought from St. Augustine to the Renaissance and more intensively the rise of modern science, the resulting effect on general European thought, and the philosophical developments of the seventeenth and eighteenth centuries.
Text-books: To be announced.
Prerequisite: Philosophy 205 or 210 or equivalent.
Three hours a week. Mr. MacDonald. 3 units.
Lectures: 11.30-12.30, Tuesday, Thursday, and Saturday.

400 [7]. *Aesthetics.*—An analysis of aesthetic experience, beauty, and art. A discussion of the arts and their place in society. No technical knowledge of any art is presupposed.
Text-book: Parker, *Principles of Aesthetics,* Crofts.
Three hours a week. Mr. Savery. 3 units.
Lectures: 9.30-10.30, Monday, Wednesday, and Friday.

402 [10]. *Symbolic Logic and Semantics.*—Introduction to the elements of symbolic logic and to the general theory of signs.
Text-book: To be announced.
Prerequisite: Philosophy 202 or its equivalent.
Three hours a week. Mr. Maslow. 3 units.
(Not given in 1947-48.)

410 [4]. *Modern Philosophy.*—Intensive study of Kant's *Critique of Pure Reason,* followed by a general critical survey of the philosophy of Kant and the major philosophers of the nineteenth century.
Text-books: To be announced.
Prerequisite: Philosophy 310 or its equivalent.
Three hours a week. Mr. Maslow. 3 units.
Lectures: 10.30-11.30, Tuesday, Thursday, and Saturday.

415 [5]. *Contemporary Philosophy.*—A discussion of the major schools and problems of philosophy of the present century.
Selected readings.
Prerequisites: Philosophy 100, and one of Philosophy 205, 310, 410, or equivalent.
Three hours a week. Mr. Savery. 3 units.
Lectures: 11.30-12.30, Tuesday, Thursday, and Saturday.

500. *Philosophy Seminar.*—A course in selected problems in metaphysics and epistemology as they present themselves at the present time, together with an examination of the historical background of these problems. Students will be expected to prepare and present papers for class discussion. Open only to graduate and Honours students.

Text-book: To be announced.

Three hours a week. Mr. MacDonald. 3 units.

Psychology

Psychology 100 is a prerequisite for all courses in Psychology numbered 200-500.

A student in the Second Year may take only one course in Psychology. Courses numbered 300-500 are not open to Second Year students.

100 [A]. *Introductory Psychology.*—A scientific and practical study of the basic forms of human thinking, emotion, and activity.

Text-book: Ruch, *Psychology and Life,* new edition, Scott, Foresman.

Three hours a week. Mr. Chant and Mr. Morsh. 3 units.

Lectures:

Section 1, 8.30- 9.30, Monday, Wednesday, and Friday;
Section 2, 11.30-12.30, Monday, Wednesday, and Friday;
Section 3, 2.30- 3.30, Monday, Wednesday, and Friday.

200 [2]. *Experimental Psychology.* — An introduction to the application of scientific method to the study of human behaviour and experience. The experimental, genetic, and case history methods; the performance of individual and group laboratory studies to illustrate these methods; laboratory technique; elementary statistics.

Two lectures and two hours laboratory a week. Mr. Belyea. 3 units.

Lectures: 1.30-2.30, Tuesday and Thursday.
Laboratory: 2.30-4.30, Tuesday or Thursday.

201 [3]. *Social Psychology.*—The psychological study of social life, including development of personality, language, leadership, suggestion, propaganda, group behaviour, major social problems.

Text-book: La Piere and Farnsworth, *Social Psychology,* 2nd edition, McGraw-Hill.

Three hours a week. Mr. Black. 3 units.

Lectures: 11.30-12.30, Tuesday, Thursday, and Saturday.

202 [4]. *Psychology of Adjustment.*—Origins and modification of behaviour, varieties of adjustive behaviour, mental hygiene.

Text-books: Shaffer, *The Psychology of Adjustment,* Houghton Mifflin; Dunlap, *Personal Adjustment,* McGraw-Hill.

Three hours a week. Mr. Morsh. 3 units.

Lectures: 10.30-11.30, Monday, Wednesday, and Friday.

300 [7]. *Applied Psychology.*—The application of psychological principles to problems of business and industry. Organization of personnel department; scientific selection, training, and development of personnel; labour relations.

Text-book: Yoder, *Personnel Management,* Prentice-Hall.

Three hours a week. Mr. Fleury. 3 units.

Lectures: 4.30-5.30, Tuesday; 3.30-5.30, Thursday.

301 [9]. *Child Psychology.* — Points of view and methods of study of the psychological development of the child. The developmental process in terms of motor, intellectual, emotional, social, and language development. Implications for the control of child behaviour are dealt with as they grow out of this study.

Text-book: Strang, *An Introduction to Child Study,* revised edition, Macmillan.

Three hours a week. Mr. Belyea. 3 units.

Lectures: 9.30-10.30, Monday, Wednesday, and Friday.

304 [6]. *Statistics.*—Statistical methods applied to psychological investigations.

Text-book: Garrett, *Statistics in Psychology and Education,* Longmans.

Three hours a week. Mr. Chant. 3 units.

400 [5]. *Abnormal Psychology.*—The study of abnormal behaviour and mental processes as an approach to the understanding of human nature. The lectures will be supplemented with field trips and case studies.

Text-book: Dorcus and Shaffer, *Abormal Psychology,* 3rd edition, Williams and Wilkins.

Prerequisites: Psychology 202 and one other advanced course in Psychology.

Three hours a week. Mr. Morsh. 3 units.

Lectures: 11.30-12.30, Monday, Wednesday, and Friday.

403 [10]. *Mental Measurement and Psychological Tests.* — The principles underlying the construction, interpretation, and use of various psychological measuring instruments; intelligence tests, personality inventories, questionnaires, and application blanks.

It is suggested that students should take Psychology 304 before Psychology 403.
Three hours a week. Mr. Tyler. 3 units.
Lectures: 3.30-4.30, Monday, Wednesday, and Friday.

500 [20]. *Psychology Seminar.*—This course is open only to Honours and graduate students. Reports and discussions will be based on assigned readings and research.
Three hours a week. 3 units.

Department of Physical Education

ACTIVITY COURSES

The purpose of the activity courses is to develop skill in fundamentals, and the techniques of teaching, coaching, and officiating.

In the First and Second Year the emphasis is on gaining skills in the fundamentals of the activities. In the Third Year the student is required to exhibit superior skill in the performance of at least three activities and to give satisfactory evidence of his ability to instruct and officiate in all phases of the course.

MEN

SECOND YEAR

200. *Gymnastics.*—Introductory gymnastics. This course is intended to extend the student's experience with movement and to develop skill in fundamental movements. It is to be used as a foundation for the more advanced courses. Free standing exercises (calisthenics), tumbling, and apparatus work will be introduced.
Two hours a week. 1 unit.

210. *Team Games.*—Basketball, English rugby, lacrosse, soccer, group games.
Two hours a week. 1 unit.

220. *Individual and Dual Activities.*—Archery, badminton, handball, track and field, and tennis.
Two hours a week. 1 unit.

230. *Aquatics.*
One hour a week. ½ unit.

240. *The Dance.*—Theory of the dance, elementary folk dance, elementary modern dance.
One hour a week. ½ unit.

THIRD YEAR

300. *Gymnastics.*
Two hours a week. 1 unit.

310. *Team Games.*—Volleyball, baseball, softball, cricket, football, grass hockey, team games of low organization.
Two hours a week. 1 unit.

320. *Individual and Dual Activities.* — Boxing, fencing, golf, track and field, wrestling and judo, hiking, and skiing.
Two hours a week. 1 unit.

330. *Aquatics.*—Intermediate swimming. Principles of water safety, care of facilities, functional swimming, springboard diving, water games and sports, competitive swimming, officiating, swimming meets, pageants, carnivals, deep water emergency tests, personal safety and rescue methods including beach, pool, lake, ice techniques.
One hour a week. ½ unit.

340. *The Dance.*—Intermediate folk dance including square and ballroom dance. Methods and material suitable for mixed recreational groups are emphasized.
One hour a week. ½ unit.

WOMEN

SECOND YEAR

201. *Gymnastics.*—Fundamental exercises to provide a scientific method of conditioning the body, to achieve specific effects on isolated parts or the body as a whole, to correct postural faults. The meaning and history of gymnastics; gymnastic nomenclature; types of gymnastics; gymnastic tables. General activities include elementary jumps, vaults, pyramids, stunts.
Text-book: Christensen and Trap, *Text-book of Gymnastics.*
Two hours a week. 1 unit.

211. *Team Games.* — Games of low organization. Volleyball, fundamental skills, team tactics; basketball, fundamental skills, individual tactics, team tactics; field ball, fundamental skills, team tactics.
Text-books: Mason and Mitchell, *Active Games and Contests; Official Softball, Volleyball Guide; Official Basketball Guide; Official Fieldball Guide.*
Two hours a week. 1 unit.

221. *Individual Games.* — Badminton; strokes, court tactics. Archery. Track and field.
Text-books: *Official Badminton Guide;* Jackson and Swan, *Better Badminton;* Reichart and Keasey, *Archery.*
One hour a week. ½ unit.

231. *Aquatics.*—Strokes, water skills, water entries; Canadian Red Cross Intermediate Swimmer Test; elementary life-saving skills.

Text-books: *Canadian Red Cross Swimming Manual; Canadian Red Cross Guide for Instructors.*

One hour a week. ½ unit.

241. *Dance.*—Elementary folk dance, Scandinavian, American, English, Scottish; elementary modern dance.

Text-books: Bryans and Madsen, *Scandinavian Dances;* Henry Ford, *Good Morning; English Country Dance Book,* Vol. I; *Scottish Country Dance Book,* Vol. I.

Two hours a week. 1 unit.

THIRD YEAR

301. *Gymnastics.*—Classification of gymnastic exercises; principles of varying exercises; progression in fundamental exercises; gymnastic tables.

General activities include intermediate jumps, vaults, pyramids, stunts, tumbling.

Two hours a week. 1 unit.

311. *Team Games.*—Grass hockey; fundamental skills, team tactics. Softball; fundamental skills, team tactics, officiating. Volleyball; fundamental skills, team tactics, officiating. Speedball; fundamental skills, team tactics, officiating.

Text-book: *Official Field Hockey Guide.*

Two hours a week. 1 unit.

321. *Individual Games.*—Tennis; strokes, court tactics. Golf; irons, woods.

One hour a week. ½ unit.

331. *Aquatics.*—Strokes, water skills, water entries; Canadian Red Cross Senior Swimmer Test; Bronze Life-Saving Test.

Text-book: *Royal Life-Saving Handbook.*

One hour a week. ½ unit.

341. *Dance.*—Intermediate folk dance, Scandinavian, American, English, Scottish, European; national dances, intermediate modern dance, fundamental rhythms, dance composition.

Two hours a week. 1 unit.

COURSES IN THEORY

260. *History and Principles of Physical Education.*—A survey of the field of health, physical education, and recreation from the ancient civilizations, with the emphasis placed on present day curricula and methods. A study of fundamental principles, aims,

and objectives to formulate the students' professional point of view. A study of competition, its history, basic principles, and psychological aspects and its place in education.

Text-book: Williams, *Principles of Physical Education.*

Two hours a week. 2 units.

360. *Physical Education Seminar.*—A study of problems relating to the organization and administration of physical education programs.

Two hours a week. 2 units.

370. *Functional Anatomy and Physiology.*—A biological study of the anatomy, histology, and physiology of the various systems of the body, the digestive, the circulatory, the respiratory, the muscular, the excretory, the nervous. A study of muscular contraction, fatigue, and breathlessness and the effect of exercise on circulation, respiration, and coordination.

Text-books: To be announced.

Eight hours a week. 6 units.

Department of Physics

PRIMARILY FOR FIRST AND SECOND YEAR STUDENTS

For Honours courses in Physics see pages 112, 116 and 117.

100 [1]. *Elementary Physics.*—A study of general college physics suitable for those students who have obtained credit for University Entrance Physics A or its equivalent. The course covers the fundamental principles of mechanics, properties of matter, heat, light, sound, electricity, and some of the more recent developments in physics. Students who do not have the necessary prerequisites must take an additional two hours a week of tutorial work. This course is designed primarily for Honours Science and Engineering students.

Text-book: Stewart, *Physics, A Text-book for Colleges,* Ginn.

Reference: Smith, *Elements of Physics,* McGraw-Hill.

Prerequisite: University Entrance Physics A.

Three lectures and two hours laboratory a week. 3 units.

Lectures:

Section 1, 8.30- 9.30, Monday, Wednesday, Friday;
Section 2, 9.30-10.30, Monday, Wednesday, Friday;
Section 3, 10.30-11.30, Monday, Wednesday, Friday;
Section 4, 11.30-12.30, Monday, Wednesday, Friday.

110 [C]. *General Physics.*—An elementary course in general physics for students taking courses in the Department of Home Economics. The course will cover mechanics, molecular physics,

heat, sound, light, electricity, and modern physics without stressing their mathematical aspect. Topics which are of particular interest in home economics will be given special emphasis. Nursing students may take this course in lieu of Physics 100.

Text-book: Whitman, *Household Physics,* latest edition, Wiley.

Three lectures and two hours laboratory a week. 3 units.

Lectures: 11.30-12.30, Tuesday, Thursday, and Saturday.

120. *A Survey of Physics.*—A course of demonstration lectures in non-mathematical language presenting the fundamental principles of physics so that they can be understood by students who have had no previous training in the subject. The lectures deal with the principles of mechanics, heat, light, sound, electricity, and atomic structure, and are supplemented by practical work in the laboratory. The chief aim of the course is to give the minimum acquaintance with physical science requisite for a liberal education to those whose studies will be mainly literary. There are no prerequisites. Students who have received credit for Physics 100 may not take this course.

Text-book: White, *Classical and Modern Physics,* Van Nostrand.

Reference: Lemon, *From Galileo to Cosmic Rays,* University of Chicago.

Three lectures and two hours laboratory a week. 3 units.

Section 1, 8.30- 9.30, Tuesday, Thursday, Saturday;

Section 2, 9.30-10.30, Tuesday, Thursday, Saturday;

Section 3, 10.30-11.30, Tuesday, Thursday, Saturday.

200 [4]. *Mechanics, Molecular Physics, and Heat.*—A study of statics and dynamics of both a particle and a rigid body, the laws of gases, molecular theory, temperature, calorimetry, radiation laws, and elementary thermodynamics.

Text-books: Reynolds, *Elementary Mechanics,* Prentice-Hall; Allen and Maxwell, *Text-book of Heat,* Macmillan.

Prerequisite: Physics 100.

Three lectures and three hours laboratory a week. 3 units.

Lectures: 8.30-9.30, Tuesday, Thursday, and Saturday.

Laboratory:

Section 1, 1.30-4.30, Tuesday;

Section 2, 1.30-4.30, Thursday.

220 [2]. *General Physics.*—A more advanced physics course for students intending to take a medical course, for students of biology, agriculture, and the humanities. In the laboratory special emphasis is laid on physical methods useful in biology and medicine.

No credit for Honours students in Physics will be given.
Text-book: Semat, *Fundamentals of Physics,* Rinehart.
Prerequisite: Physics 100.
Three lectures and two hours laboratory a week. 3 units.
Lectures: 11.30-12.30, Monday, Wednesday, and Friday.

221. *Pre-Optometry.*—A course in optics, geometrical and physical, consisting of a general outline of the nature and properties of light, and optical media, with emphasis on those features particularly applicable to optometry.
Text-book: Noakes, *A Text-book of Light,* Macmillan. Reference: Emsley, *Visual Optics,* Hatton Press.
Two lectures and three hours laboratory a week. 3 units.

222. *Physiological Optics.*—Open only to students taking courses preparatory to optometry. This course does not count for credit toward the B.A. degree.
One hour a week. 1 unit.

230 [3]. *General Physics.*—This course is designed for those students who plan to teach general science in high school and who are not majoring in Physics. In addition to a more advanced study of general physics than is usual in a college text, a critical study of selected topics as presented in a number of high school texts will be made. The laboratory period will be devoted to acquiring laboratory technique along the lines most valuable to prospective teachers.
Candidates for Honours in Physics receive no credit for this course.
Text-book: To be announced.
Reference: Perkins, *College Physics,* Prentice-Hall.
Prerequisite: Physics 100.
Two lectures and three hours laboratory a week. 3 units.

PRIMARILY FOR THIRD YEAR STUDENTS

300 [5]. *Electricity and Magnetism.*—A study of the fundamentals of magnetism and electricity, including alternating currents and electron physics.
Text-book: Loeb, *Fundamentals of Electricity and Magnetism,* 2nd ed., Wiley.
Prerequisite: Physics 100.
Three lectures and three hours laboratory a week. 3 units.
Lectures: 10.30-11.30, Monday, Wednesday, and Friday.
Laboratory: 1.30-4.30, Monday.

302 [7]. *Introduction to Mathematical Physics.*—An introduction to the application of mathematics to physics. The methods rather than specific subject matter will be stressed. Topics will be

selected from forced vibrations, wave motion, elasticity, potential theory, hydrodynamics, heat conduction, and neutron diffusion. If credit has not been obtained in Mathematics 300 and 302 or 320 and 321 they should be taken concurrently with this course.

Two lectures a week. 2 units for students in the Third Year, 1 unit for others.

303 [8]. *Physical Optics.*—A study of geometrical and physical optics supplemented by laboratory work, covering spectroscopy, aberration theory, optical instruments, optical glass, photography, interference, diffraction, polarization, reflection theory, magneto-optics, electro-optics, and experiments on ether drift.

Text-book: Jenkins and White, *Fundamentals of Physical Optics,* McGraw-Hill.

References: Hardy and Perrin, *The Principles of Optics,* McGraw-Hill; Wood, *Physical Optics,* Macmillan.

Lectures: 11.30-12.30, Monday, Wednesday, and Friday. 3 units.

304. *Thermodynamics.*—A more advanced discussion of the three fundamental laws of thermodynamics, with applications in physics and chemistry, including methods of gas liquefaction, the galvanic element, and the properties of dilute solutions. This course should be taken concurrently with Mathematics 300 or 320 and 321. If taken afterwards, only one unit of credit is given for this course.

Reference: Epstein, *Text book of Thermodynamics.*

Prerequisites: Mathematics 202, Physics 200.

Two lectures a week. 2 units.

310 [10]. *Light.*—A short lecture course for students who have not taken Physics 303. A study of optical instruments, photography, spectroscopy, photometry, thermal radiation, refractometers, interference, diffraction, and polarised light.

References: Hardy and Perrin, *The Principles of Optics,* McGraw-Hill; Gibb, *Optical Methods of Chemical Analysis,* McGraw-Hill.

One lecture a week. 1 unit.

330 [9]. *Elementary Modern Physics.*—A survey of the fundamental ideas underlying modern physics. The arrangement of the material is designed especially to suit the needs of general science teachers and others who wish to study some of the recent developments in physics. Analytical demonstrations, such as are given, do not involve advanced mathematics. Among the topics treated are electronic phenomena, radio and television, the nature of light and electromagnetic radiation, X-rays, the *quantum* theory, spectroscopy, astrophysics, relativity, radioactivity, cosmic rays, and elementary particles.

Students are advised to take Physics 300 before or concurrently with Physics 330; those not doing so will be required to do some additional work in order to acquire the necessary background in the fundamentals of electricity. Candidates for Honours in Physics receive no credit for this course.

Text-book: Brown, *Fundamentals of Modern Physics,* Wiley.

Reference: Hull, *An Elementary Survey of Modern Physics,* Macmillan.

Prerequisites: Physics 100, Mathematics 100.

Two lectures and three hours laboratory a week. 3 units.

331. *History of Physics.*—A course on the development of physics and of scientific thought for advanced students of science. No credit for Honours students in Physics will be given.

Two lectures a week. 2 units.

PRIMARILY FOR FOURTH YEAR STUDENTS

401 [11]. *Electricity and Magnetism.*—A course dealing primarily with the theoretical phases of electricity and magnetism, including an introduction to the electromagnetic theory and the special theory of relativity.

Text-book: Page and Adams, *Principles of Electricity,* Van Nostrand.

References: Harnwell, *Principles of Electricity and Magnetism,* McGraw-Hill; Smythe, *Static and Dynamic Electricity,* McGraw-Hill.

Two lectures a week. 2 units.

Lectures: 10.30-11.30, Wednesday and Friday.

402 [12]. *Introduction to Atomic Structure.*—A course of lectures dealing with the various branches of physics which have most directly contributed to the present status of our knowledge of atomic structure. The topics treated include cathode and positive rays, laws of radiant energy, the photoelectric effect, atomic and molecular spectra, X-rays, and elementary notions of wave-mechanics.

Text-book: Richtmyer and Kennard, *Introduction to Modern Physics,* McGraw-Hill.

Prerequisites: Physics 200 and 300, and Mathematics 300 or 320 and 321.

Two lectures a week. 2 units.

Lectures: 11.30-12.30, Tuesday and Thursday.

403 [13]. *Kinetic Theory of Gases.*—A course of lectures giving an exposition of the classical deductions and an outline of recent experimental advances of the subject.

Text-book: To be announced.
Two lectures a week. 2 units.
Lectures: 11.30-12.30, Monday and Wednesday.

405. *Theory of Elasticity and of Flow.*—A study of the mathematical theory of elasticity, propagation of waves, the fundamentals of hydrodynamics and viscosity, and conduction of heat.
Text-book: Joos, *Introduction to Theoretical Physics.*
Prerequisites: Mathematics 300, 302, 303 or 320, 321, 322; Physics 200.
One lecture a week. 1 unit.
(Not given in 1947-48.)

406 [6]. *Theoretical Mechanics.*—A course in analytic and vector mechanics of a particle and a rigid body. Among the topics treated are central forces, vector fields, D'Alembert's Principle, generalized coordinates, and Lagrange's equations of motion. An introduction is given to the principle of Least Action, Hamilton's Principle, canonical transformation, and the Hamilton-Jacobi equation.
Text-book: Edwards, *Analytic and Vector Mechanics,* McGraw-Hill.
If credit has not been obtained in Mathematics 300 and 302 or 320 and 321 they should be taken concurrently with this course.
Two lectures a week. 2 units.
Lectures: 8.30-9.30, Tuesday and Thursday.
Reference: Epstein, *Text-book of Thermodynamics.*

407. *Introduction to Nuclear Physics and Cosmic Rays.*—Discovery of radioactivity; alpha, beta, and gamma rays; nature of radioactivity; artificial transmutations; introduction to nuclear structure; main phenomena of cosmic rays. This course is designed primarily as a companion to Physics 402, but may be taken separately.
Text-book: Richtmyer and Kennard, *Introduction to Modern Physics,* McGraw-Hill.
Prerequisites: Physics 200 and 300, and Mathematics 300 or 320 and 321.
One lecture a week. 1 unit.

409 [19]. *Experimental Physics.*—This is a laboratory course covering work in thermionics, spectroscopy, high vacuum techniques, machine shop practice, and general laboratory technique. Carefully prepared reports, abstracts, and bibliographies constitute an essential part of the course.
Text-books: Hoag, *Electron and Nuclear Physics,* Van Nostrand; Harnwell and Livingood, *Experimental Atomic Physics,* McGraw-Hill; Strong, *Procedures in Experimental Physics,* Prentice-Hall.

Six hours laboratory a week. 2 units.

With the consent of the Head of the Department, Fourth Year students may select one or more units from the following graduate courses.

PRIMARILY FOR GRADUATE STUDENTS

500 [20]. *Spectroscopy.*—A study of the excitation, observation, and theory of optical spectra. This includes such subjects concerning the origin of atomic and molecular spectra as spectral series, atomic and molecular energy states, Zeeman, Paschen-Back, and Stark Effects, etc. Also one or more lectures may be given on spectrographic methods in chemical and metallurgical analysis.

1 unit.

501 [21]. *Radiation and Atomic Structure.*—A study of the theories of radiation and miscellaneous related topics selected from current literature.

One lecture a week. **1 unit.**

502 [22]. *Electromagnetic Theory.*—A study of the classical work of Maxwell, Hertz, Lorentz, and others; the application of the theory of relativity to electrodynamics; and recent advances.

One lecture a week. **1 unit.**

504 [24]. *X-rays and Crystal Structure.*—A study of the modern methods of production and observation of X-rays, the Compton effect, X-ray analysis, and the structure of crystals.

One lecture a week. 1 unit.

505 [25]. *Theory of Measurements.*—A lecture course on the combination of observations, interpolation formulae, frequency distributions, least squares, correlation coefficients, significance tests, application of statistical methods to quality control.

One lecture a week. 1 unit.

506 [26]. *Advanced Analytical Dynamics.*—A lecture course on the generalized methods of Lagrange, Hamilton, and Jacobi.

1 unit.

507 [27]. *Special Relativity Theory.*—An introductory course to the theory of relativity.

Reference: Silberstein, *The Theory of Relativity,* Macmillan.

Prerequisite: Physics 401.

Two lectures a week. First Term. 1 unit.

508 [28]. *Wave Mechanics.*—An introductory course in wave mechanics, including the theory of the spinning electron and Dirac's equation for the electron, with applications to atomic problems.

Prerequisites: Mathematics 303, 401, 402; Physics 402; Physics 507 must have been taken in the First Term or in a previous year.
Two lectures a week. Second Term. 1 unit.

509 [29]. *Nuclear Physics.*—An introduction to modern developments in nuclear physics. Among topics treated are natural and artificial radioactivity, interactions of various radiations with matter, artificial disintegration, and cosmic rays.
One lecture a week. **1 unit.**

510. *Beta-ray Spectroscopy.*—A survey of the techniques employed in the study of the character of the radiations emitted by radio-active nuclei, together with discussions of the interaction of beta and gamma rays with matter as applied in this field. Illustrative material will be selected from current literature.
One lecture a week. 1 unit.

511. *Low Temperature Physics.*—A survey of modern methods and experimental techniques of gas liquefaction together with a study of the properties of matter at low temperatures and related topics selected from current literature.
One lecture a week. 1 unit.

512. *Electronics.*—A course on the application of electromagnetic theory to electronic problems—guided transmission, frequency transients, and vacuum tube phenomena.
One lecture a week. 1 unit.

513. *Thermodynamics.*—A more advanced treatment than that given in Physics 404.
One lecture a week. 1 unit.

514 [30]. *Electron Optics.*—A study of the theory of electrostatic and magnetic electron focusing systems with practical applications in both the electrostatic and the magnetic electron microscopes, cathode ray tubes, television cathode ray tubes, and electron multipliers.
One lecture a week. 1 unit.

515. *Quantum Theory of Wave Fields and of Elementary Particles.*—An introduction to modern *quantum* theory.
Reference: Wentzel, *Einführung in die Quantentheorie der Wellenfelder,* 1943, Deuticke (Vienna).
Prerequisites: Physics 301 or 406 or 506; and Physics 508.
One lecture a week. 1 unit.

516. *Geophysics.*—A course of lectures dealing with gravimetric, seismic, magnetic, and electric measurement on the earth, with special emphasis on their industrial application.
Two lectures a week. 2 units.

530 [40]. *Methods in High School Physics.*—This course is offered primarily for students in the Teacher Training Course and does not carry undergraduate credit. Readings to be assigned.

Slavonic Studies

NOTE. Other courses than those listed below may be offered. For details of these courses, students are advised to get in touch with the instructor in charge.

100. *Basic Russian.*
Text-book: Birkett, *Modern Russian Course,* Methuen.
3 units.

110. *Basic Polish.*
Mimeographed notes will be provided.
3 units.

200. *Russian 2.*—A second course in the Russian language.
Text-book: Semeonoff, *New Russian Grammar,* Dent.
Text: Strelsky, *Russian Reader,* Longmans.
3 units.

310. *Culture of the Slavonic Peoples.*—Cultural history; ethnography; introduction to languages, alphabets, and phonetics of the Slavonic nations.
Text-books: Pares, *History of Russia,* Cape; Dyboski, *Outlines of Polish History,* Allen and Unwin.
References: Mirsky, *Social History of Russia,* Cresset; Prokes, *Histoire Tchechoslavique,* Orbis (Prague); Schmitt, *Poland,* University of California; Temperley, *History of Serbia,* Bell; relevant extracts in English translation from important text-books in Russian, Polish, etc., will be provided in mimeograph form.
Mr. Sobell. 3 units.

Department of Social Work

NOTE. The following courses, except Social Work 499, are open only to students who have made application and have been accepted for admission to the Department.

499 [1]. *Introduction to Social Work.*—A survey of the various fields and activities within the profession of social work, including the general historical development of these fields in England, the United States, and Canada. The Canadian social services are examined by studies and visits to agencies.
Prerequisite: Fourth Year standing or permission of the Department of Social Work.
Three hours a week. Mrs. Read. 3 units.
Lectures: 11.30-12.30, Monday, Wednesday, and Friday.

500 [1a]. *History of Social Welfare.* — A study of the backgrounds of present day social work 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.

Text-book: de Schweinitz, *England's Road to Social Security,* University of Pennsylvania.

First Term. Miss Smith. 1½ units.

501 [2a]. *Social Case Work 1.*—An introductory course including the philosophy of social case work, the types of problems to which case work can make a contribution, and case work methods and technique. Interviewing and recording are emphasized and the use of personal and community resources is presented through analysis of case material.

Prerequisite: Social Work 499 or 500.

Three hours a week. First Term. 1½ units.

502 [2b]. *Social Case Work 2.*—A continuation of 501 with more detailed study of cases in the field of child and family welfare, emphasizing social diagnosis and treatment.

Three hours a week. Second Term. 1½ units.

503 [3]. *Services to Children.*—An introductory course in the development and methods of child care; the social movements and social agencies which have developed in response to the needs of children; present practices and trends in the field of child welfare.

Two hours a week. Second Term. Miss Smith. 1 unit.

Lectures: 10.30-11.30, Monday and Wednesday.

504 [4]. *Medical Information.*—The purpose of this course is to provide social workers with effective ways of understanding and working with people who are ill or physically handicapped. The psychosomatic approach is used in reviewing the diseases and disorders of the various systems of the body with emphasis on the social worker's application of this knowledge.

Three hours a week. Second Term. Miss Johnson and lecturers. 1½ units.

505 [5]. *Social Case Work 3.*—Discussion of case work material from various fields of practice with emphasis on greater understanding of behaviour and on the development of skill in treatment.

Two hours a week. First Term. 1 unit.

506. *Social Case Work 4.*—A continuation of 505.

Two hours a week. Second Term. 1 unit.

507 [7]. *Social Group Work 1.*—A study of group work as a process in social work, concepts of social group work, actual methods and techniques of the leader, group work related to other areas of social work practice, to education, and to recreation. Agency programmes in current practice. Group records are used.
Two hours a week. First Term. Miss Thomas. 1 unit.

508. *Social Psychiatry.*—A consideration of the dynamics of behaviour in the neuroses and in functional and organic psychoses. Social implications and treatment possibilities of deviations from the normal. The course will include lectures, discussions, and clinical demonstrations.
Two hours a week. Second Term. Mr. Hutton. 1½ units.
Lectures: 8.30-9.30, Monday, Wednesday, and Friday.

509 [9]. *Beginning Field Work.*—Practice work under supervision in various social agencies.
3 units.

510 [10]. *Advanced Field Work.* — Supervised practice work during the Second Year required for the Master's degree.
3 units.

511 [11]. *Community Organization.*—A study of the problems of identifying social needs in the community and of developing programmes to meet them. An analysis of the function of co-ordinating agencies in the community and the place of the professional social worker in social planning.
Text-book: McMillen, Wayne, *Community Organization for Social Welfare,* University of Chicago.
Two hours a week. Second Term. Miss Thomas. 1 unit.

513 [13a and 13b]. *Public Welfare Programmes.*—A descriptive study of public welfare organization. Dominion, provincial, and municipal programmes of welfare. Public assistance, institutions, and social insurance.
Two hours a week. Second Term. 1 unit.
Lectures: 10.30-11.30, Wednesday and Friday.

515. *Programme Skills in Group Activities.*—An examination of materials and methods in programme skills such as music, drama, arts and crafts, dance, for the use of group leaders.
One hour a week. 1 unit.

517. *Social Group Work 2.*—An examination of principles of social group work as carried out in practice, and the study of organizational and administrative problems from the standpoint of the agency and the group worker. Group records are used. This

course must be preceded by Social Work 507 and is to be taken only in conjunction with field work in a group work agency or by students with previous group work experience.

Two hours a week. Second Term. Miss Thomas. 1 unit.

518. *Development of Personality.*—This course attempts to give an understanding of the "person as a whole" in his various phases of development. It lays the ground work for an appreciation of the individual pattern of life with its manifest as well as its unconscious motivation using the psychosomatic and analytic approach.

Two hours a week. One term. 1 unit.

520 [20]. *Social Research.*—An introduction to social statistics and to methods of social research.

Two hours a week. Second Term. 1 unit.

540. *Advanced Medical Information.*—An advanced course designed for students intending to enter the field of medical and psychiatric social work practice.

Prerequisite: Social Work 504.

Two hours a week. First Term. 1 unit.

545 [12]. *Social Work and the Law.*—Principles of law with which the social worker should become familiar; the structure of the court system; problems of judicial administration and law which particularly affect persons with low incomes.

Two hours a week. First Term. 1 unit.

546. *Administration of Social Agencies.*—The basic principles of administration and organization. A study of the delegation of authority, finance, personnel practices, public relations, office procedures.

Three hours a week. 1½ units.

560. *Legal Protection of the Child.*—A study of the administration of statutes designed to protect the child from the standpoint of health, education, employment, dependency, and general welfare.

Two hours a week. First Term. 1 unit.

563. *Administration and Supervision in Group Work.*—An advanced study of administrative and supervisory functions in group work agencies, with particular emphasis on the selection, training, and supervision of the volunteer and of other non-professional workers.

Two hours a week. First Term. Miss Thomas. 1½ units.

565. *Methods in Community Organization.*—An advanced course in methods and techniques of community organization.

Two hours a week. One term. Miss Thomas. 1 unit.

566. *Seminar in Medical Social Work.*—An advanced discussion of the functions of medical and psychiatric social service departments; organization and administration; inter-agency relations; the place of the medical social worker in non-institutional public health and public welfare programmes. Open only to students specializing in medical social work.

Three hours a week. Second Term. Miss Johnson. 1½ units.

567. *Seminar in Rural Public Welfare Programmes.*

Three hours a week. Second Term. 1½ units.

568. *Medical Care in Social Welfare.*—Organization and administration of public programmes for health and medical care; the extent of illness and disability; the adequacy of services; the costs of medical care.

Two hours a week. One term. 1 unit.

569. *Seminar in Public Assistance Practice.*—Discussion of case studies from public assistance programmes. Administrative, case work, community aspects.

Two hours a week. One term. 1 unit.

570. *Seminar in Foster Care Programmes.*—Institutional and foster home care for children.

Two hours a week. One term. 1 unit.

573. *Seminar in the Problems of Old Age.*—Discussion of case studies involving problems of assistance, housing, medical care, social relations.

Two hours a week. One term. 1 unit.

575. *Seminar in Supervision.*

Open only to advanced experienced students.

Three hours a week. Second Term. 1½ units.

580. *Seminar in Group Work.* This course provides a discussion of topics selected by the students to integrate their experiences in class and in field work with their individual philosophies.

Open only to students specializing in group work.

Two hours a week. Miss Thomas. 1 unit.

581. *Seminar in Advanced Case Work.*—A discussion of advanced problems in case work. Administrative and community aspects.

1½ units.

582. *Seminar in Problems of Public Welfare Administration.*

583. *International Welfare.*—Comparative programmes; international cooperation in social welfare.

1½ units.

585. *Thesis Seminar.*—The planning and preparation of theses. The work includes group discussions and individual conferences.

3 units.

Department of Spanish

For the terms under which Spanish may satisfy the language requirement, see pages 100 and 101.

Spanish 201 is prerequisite to a major.

90. *Beginners' Course.*—Grammar, composition, translation, conversation.

Texts: House and Mapes, *The Essentials of Spanish Grammar,* Ginn; Eoff and King, *Spanish American Short Stories,* Macmillan; Brenes & Patterson, *Conversemos,* Crofts.

Four hours a week. 3 units.

Lectures:

Section 1, 8.30-9.30, Monday, Wednesday, and Friday; 1.30-2.30, Tuesday;
Section 2, 9.30-10.30, Monday, Wednesday, and Friday; 1.30-2.30, Thursday;
Section 3, 10.30-11.30, Monday, Wednesday, and Friday; 2.30-3.30, Tuesday;
Section 4, 8.30-9.30, Tuesday, Thursday, and Saturday; 1.30-2.30, Monday;
Section 5, 9.30-10.30, Tuesday, Thursday, and Saturday; 1.30-2.30, Wednesday;
Section 6, 10.30-11.30, Tuesday, Thursday, and Saturday; 1.30-2.30, Friday.

101 [1]. Review of grammar; composition, translation, conversation.

Texts: Adams, *Brief Spanish Review Grammar and Composition,* Holt; Ramos Carrión and Vital Aza, *Zaragüeta,* Heath; Arjona, *Siglo de Aventuras,* Macmillan; Kasten and Neale-Silva, *Lecturas Escogidas,* Harper; Camba, *La Rana Viajera,* Heath.

Three hours a week. 3 units.

Lectures:

Section 1, 10.30-11.30, Monday, Wednesday, and Friday;
Section 2, 11.30-12.30, Monday, Wednesday, and Friday;
Section 3, 10.30-11.30, Tuesday, Thursday, and Saturday;
Section 4, 11.30-12.30, Tuesday, Thursday, and Saturday.

201 [2]. Translation and discussion of modern authors and *Don Quijote,* composition, assigned themes in Spanish, conversation.

Texts: Adams, *Brief Spanish Review Grammar and Composition,* Holt; Blasco Ibáñez, *La Barraca,* Macmillan; Stoudemire, *Cuentos de España y de América,* Houghton Mifflin; Cervantes, *Don Quijote de la Mancha,* Macmillan; Amner-Staubach, *Revista de América,* Ginn.

Three hours a week. 3 units.

Lectures:

Section 1, 11.30-12.30, Monday, Wednesday, and Friday;
Section 2, 8-30- 9.30, Tuesday, Thursday, and Saturday.

301. *The Golden Age.*—Spanish Literature of the 16th and 17th centuries.

Texts: Buchanan, *Spanish Poetry of the Golden Age,* University of Toronto: Alarcón, *La Verdad Sospechosa,* Heath; Castro, *Las Mocedades del Cid,* Holt; *La Estrella de Sevilla,* Heath; Northup, *Selections from the Picaresque Novel,* Heath; Cervantes, *Novelas Ejemplares,* Holt.

Three hours a week. 3 units.

Lectures: 8.30-9.30, Monday, Wednesday, and Friday.

302. *Modern Authors.*—Romanticism and Realism.

Texts: To be assigned.

Three hours a week. 3 units.

Lectures: 8.30-9.30, Tuesday, Thursday, and Saturday.

401. *The History of the Spanish Language.*

Texts: To be assigned.

Three hours a week. 3 units.

402. *Cervantes, Don Quijote.*—Reading and interpretation of the *Quijote,* with lectures and special reports.

Text: Cervantes, *El Ingenioso Hidalgo Don Quijote de la Mancha,* Sopena.

Three hours a week. 3 units.

Department of Zoology

Biology 100 is prerequisite to all courses in Zoology.

For Honours courses in Zoology see pages 113 and 118.

Students majoring or taking Honours in Zoology may take the courses Biology 300, 301, 302, 303, 400, Agronomy 421, Mathematics 203, and Geology 406 in fulfilment of credit requirements upon the approval of the Head of the Department of Zoology. As a prerequisite for Geology 406, a reading course in historical geology

may be substituted for Geology 201 and 202 and may be taken concurrently with Geology 406.

The attention of students proposing to major or honour in Zoology is called to the possibility of arranging programmes with special reference to the applied fields of fisheries, game management, and economic entomology. Students desiring to enter these fields should consult with the Head of the Department of Zoology.

200 [1]. *General Zoology.*—A course in the structure, classification, life histories, and biology of animals.

This course is prerequisite to other courses in Zoology except in the case of students in Agriculture who wish to take courses in entomology but do not intend to major in it.

Text-book: Storer, *General Zoology,* McGraw-Hill.

References: Hegner, *College Zoology,* Macmillan; Buchsbaum, *Animals Without Backbones,* University of Chicago; Romer, *Man and the Vertebrates,* University of Chicago.

Two lectures and two hours laboratory a week. Mr. Adams.

3 units.

Lectures: 10.30-11.30, Monday and Wednesday.
Laboratory: Section 1, 2.30- 4.30, Monday;
Section 2, 9.30-11.30, Tuesday;
Section 3, 2.30- 4.30, Tuesday;
Section 4, 2.30- 4.30, Wednesday;
Section 5, 9.30-11.30, Thursday;
Section 6, 1.30- 3.30, Thursday;
Section 7, 3.30- 5.30, Thursday;
Section 8, 9.30-11.30, Friday;
Section 9, 9.30-11.30, Saturday.

300 [2]. *Comparative Anatomy of Vertebrates.*—The phylogeny and comparative anatomy of the vertebrates and protochordates; the dissection of representative forms.

Text-book: Neal and Rand, *Chordate Anatomy,* Blakiston.

Laboratory manual: Berland, *Manual of Comparative Anatomy,* 1943, McGraw-Hill.

One lecture and four hours laboratory a week. Mr. Cowan.

3 units.

Lectures: 8.30-9.30, Tuesday.
Laboratory: Section 1, 1.30- 5.30, Monday;
Section 2, 6.30-10.30, Monday;
Section 3, 8.30-12.30, Thursday;
Section 4, 1.30- 5.30, Thursday.

301 [3]. *Invertebrate Zoology.*—A detailed course on the anatomy, taxonomy, and life histories of the invertebrates with special reference to marine forms.

References: Parker and Haswell, *A Textbook of Zoology,* Vol. I, 6th edition, Macmillan; Hyman, *The Invertebrates,* McGraw-Hill; Borradaile, *The Invertebrata,* Cambridge; Pratt, *Manual of the Common Invertebrate Animals,* Blakiston; Ward and Whipple, *Freshwater Biology,* Wiley.

One lecture and four hours laboratory a week. Mr. Clemens.
3 units.

Lectures: 9.30-10.30, Tuesday.
Laboratory: 8.30-12.30, Friday.

302 [4]. *Introduction to Entomology.*—Morphology, classification, life histories, and interrelation of insects; determination of common forms.

This course is prerequisite to other courses in entomology.

Text-book: Folsom and Wardle, *Entomology With Special Reference to Its Ecological Aspects,* 4th edition, Blakiston; *or* Wardle, *General Entomology,* Blakiston.

References: Comstock, *An Introduction to Entomology,* 9th edition, Comstock; Essig, *Insects of Western North America,* Macmillan; Imms, *A General Text book of Entomology,* 4th edition, Dutton; Essig, *College Entomology,* Macmillan.

One lecture and four hours laboratory a week. Mr. Spencer.
3 units.

Lectures: 10.30-11.30, Monday.
Laboratory: 1.30-5.30, Tuesday.

303 [5]. *Histology.*—Normal histology of representative human tissues with references to and illustrations from domestic and common wild animals. Methods in histology, fixing, embedding, sectioning, and staining with standard stains; the golgi method. Each student will prepare a series of about 50 slides during the term.

Text-books: Pre-medical students are advised to purchase the text-book adopted by the medical school they expect to attend; with other students the selection of a text-book is optional. The following are recommended: Maximow and Bloom, *Text-book of Histology,* 2nd edition, Saunders; Elwyn and Strong, *Bailey's Text-book of Histology,* 8th edition, latest reprint, Wood; Bremer, *A Text-book of Histology,* Blakiston; Schäfer, *Essentials of Histology,* Lea and Febiger; Jordan, *A Text-book of Histology,* Appleton-Century.

Two lectures and four hours laboratory a week. Mr. Nicol.
3 units.

Lectures: 1.30-2.30, Wednesday; 10.30-11.30, Friday.
Laboratory: Section 1, 8.30-12.30, Monday;
Section 2, 1.30- 5.30, Monday;
Section 3, 6.00-10.00, Monday;

Section 4, 8.30-12.30, Thursday;
Section 5, 1.30- 5.30, Thursday;
Section 6, 6.00-10.00, Thursday.

304 [6]. *Vertebrate Embryology.*—A general survey of the principles of embryological development of vertebrates as exemplified by the amphibians, birds, and mammals. The preparation and study of chick or pig embryos.

Text-book: Huettner, *Comparative Embryology of the Vertebrates,* Macmillan.

Laboratory manual: Adamstone and Shumway, *A Laboratory Manual of Vertebrate Embryology,* Wiley.

One lecture and four hours laboratory a week. Mr. Nicol. 3 units.

Lectures: 1.30-2.30, Monday.

Laboratory: Section 1, 8.30-12.30, Tuesday;
Section 2, 1.30- 5.30, Tuesday;
Section 3, 6.00-10.00, Tuesday;
Section 4, 8.30-12.30, Wednesday;
Section 5, 1.30- 5.30, Wednesday;
Section 6, 6.00-10.00, Wednesday.

305 [7]. *Economic Entomology.*—A study of the relation of insects to man, his crops, and domestic animals; bionomics and control of economic forms; natural control.

Text-books: Wardle and Buckle, *The Principles of Insect Control,* Manchester University; Metcalf and Flint, *Destructive and Useful Insects,* 2nd edition, McGraw-Hill.

Reference: Wardle, *The Problems of Applied Entomology,* Manchester University.

Two lectures and four hours laboratory a week. Mr. Spencer. 2 units.

Lectures: 10.30-11.30, Monday and Wednesday.

Laboratory: 1.30-5.30, Friday.

306 [11]. *Biology of the Vertebrates.*—The mammals, birds, reptiles, amphibians, and fishes, chiefly of British Columbia; identification of species, observational methods in study of behaviour and habitat relations; systematics, distribution, and speciation; methods of preservation for museum study. Field work will be emphasized.

References: Allen, *Birds and Their Attributes,* Marshall Jones; Hamilton, *American Mammals,* McGraw-Hill.

Laboratory manual: Pettingill, *A Laboratory and Field Manual of Ornithology.*

One lecture and four hours laboratory a week. 3 units.

Lectures: 8.30-9.30, Friday.
Laboratory: 1.30-5.30, Friday.

307 [12]. *Biology of Fishes.*—Classification, identification, life histories, and ecology of fishes with special reference to the British Columbia species.

Text-book: Clemens and Wilby, *Fishes of the Pacific Coast of Canada,* University of Toronto.

One lecture and four hours laboratory a week. Mr. Hoar.
3 units.

Lectures: 8.30-9.30, Friday.
Laboratory: 1.30-5.30, Friday.

400 [8]. *Private Reading and Seminar.*—A course on the history, principles, and theories of biology.

References: Locy, *Biology and Its Makers,* Holt; Nordenskiold, *The History of Biology,* Knopf; Darwin, *Origin of Species;* etc.

Assigned reading and one hour of seminar with preparation of papers. Mr. Clemens. 2 units.

401 [9]. *Practical Entomology.*—Habitat studies of local representatives of all insect orders; collecting, preserving, mounting, dissecting, and sectioning equipment and technique; clearing methods; meteorological instruments and records; rearing methods and equipment; the keeping and writing up of records; literature; the elements of insect photography. Students will rear certain insects under natural and controlled conditions, keeping full records.

References: Peterson, *Manual of Entomological Equipment and Methods,* Parts I and II, Edwards; Kingsbury and Johannsen, *Histological Technique,* Wiley; *The Meteorological Observer's Handbook,* 1939, H.M. Stationery Office; *Culture Methods for Invertebrate Animals,* Comstock; Shelford, *Laboratory and Field Ecology,* Williams and Wilkins.

Six hours a week. Mr. Spencer. 2 units.

402 [10]. *Forest Entomology.*—Insects in their relation to forests, timber, and health of camp personnel, especially in British Columbia.

Text-book: Keen, *Insect Enemies of Western Forests,* U.S. Dept. of Agric., Misc. Publ. No. 273, obtainable from University Book Store or Supt. of Documents, Washington, D.C.

References: Doane, Van Dyke, Chamberlain, and Burke, *Forest Insects,* McGraw-Hill; Graham, *Principles of Forest Entomology,* 2nd edition, McGraw-Hill.

One lecture and two hours laboratory a week. Mr. Spencer.
1 unit.

403. *Economics of the Fisheries.*—The Canadian fishing industry and research problems related to it; populations of important food fishes and factors affecting them, including varying degrees of fishing intensity, mortality rates, etc. Students are advised to take Agronomy 421 or Mathematics 203 in preparation for this course.
Two lectures and one laboratory period a week. Mr. Hoar.
1½ units.

404. *Experimental Zoology.*—An analysis of the relations of temperature, pressures, light, humidity, salinity, gases, etc., to animals and animal populations.
Text-book: Heilbrunn, *Outline of General Physiology,* Saunders.
One lecture and four hours laboratory a week. Mr. Hoar.
3 units.

Lectures: 8.30-9.30, Tuesday.
Laboratory: 9.30-1.30, Tuesday.

405. *Fisheries Technology.*—A course of seminars, laboratory exercises, and demonstrations in the handling, preparation, and preservation of fish. Practical work is under the direction of the staff of the Pacific Fisheries Experimental Station and is given in the laboratories of this institution. The course is open to students in the Commerce and Fisheries option and may be taken by other students only with the permission of the Head of the Department.
Four hours a week. Mr. Hoar. 1½ units.

406. *Parasitology.*—A course dealing with the classification, morphology, and life histories of animal parasites affecting domestic and wild animals and man.
Text-book: Chandler, *Introduction to Parasitology,* 7th edition, Wiley; *or* Hegner, *Parasitology,* Appleton-Century. Pre-medical students are advised to purchase the first mentioned text.
Laboratory manual: Cable, *An Illustrated Laboratory Manual of Parasitology,* Burgess.
One lecture and four hours laboratory a week. Mr. Adams.
3 units.

Lectures: 11.30-12.30, Thursday.
Laboratory: 1.30-5.30, Friday.

COURSES FOR GRADUATE STUDENTS

Advanced courses correlated with the work for the major thesis may be arranged, and the following special courses are offered.

500 [20]. *Biological Methods and Procedures.* — A course to acquaint the student with the methods of dealing with research material, use of literature, rules of nomenclature, designation of types, and preparation of manuscripts and illustrative material.

One hour a week. Mr. Clemens, Mr. Spencer, Mr. Cowan, and Mr. Hoar. 1 unit.

Required of all graduate students.

501 [21]. *Limnology and Marine Zoology.*—A course dealing with the physical and chemical conditions in streams, lakes, and seas; life histories and ecology of aquatic organisms; methods of investigation.

References: Welch, *Limnology,* McGraw-Hill; Needham, *Life of Inland Waters,* Comstock; Harvey, *Biological Chemistry and Physics of Sea Water,* Macmillan; Sverdrup, *The Oceans,* Prentice-Hall.

Two lectures and two hours laboratory a week. Mr. Clemens. 3 units.

502 [22]. *Advanced Entomology.*—A course leading to a better understanding of insect structure and functions. Insect morphology and wing venation; internal anatomy and histology; taxonomy; the physiology of insects.

References: Imms, *Recent Advances in Entomology,* latest edition, Blakiston; Snodgrass, *Principles of Insect Morphology,* McGraw-Hill; MacGillivray, *External Insect Anatomy,* Scarab; Comstock, *The Wings of Insects,* Comstock; Ferris, *The Principles of Systematic Entomology,* Stanford; Wigglesworth, *The Principles of Insect Physiology,* Dutton; Uvarov, *Insect Nutrition and Metabolism,* Trans. Ent. Soc. of London.

Lectures and laboratory, four hours a week. Mr. Spencer. 3 units.

503 [23]. *Economic Vertebrate Zoology.*—Lectures, seminar, and laboratory study of the economically important birds and mammals of Britsh Columbia, particularly with respect to their parasites, diseases, food habits, and biology, and the principles involved in the intelligent use of these resources.

Text-book: Leopold, *Game Management,* Scribners.

Prerequisite: Zoology 306.

Lectures, seminar, and laboratory, four hours a week. Mr. Cowan. 3 units.

504. *Advanced Experimental Zoology.* — Advanced studies in comparative animal physiology, with particular reference to fishes and other cold-blooded vertebrates.

Text-book: Rogers, *Text-book of Comparative Physiology,* McGraw-Hill.

Prerequisite: Biology 400 and Zoology 404.

One lecture and four hours laboratory a week. Mr. Hoar. 3 units.

FISHERIES

Students in Commerce may elect courses in Zoology and Fisheries and should consult with the Departments of Commerce and Zoology.

Special programmes in fisheries technology may be arranged to suit the needs of certain special students. Those interested may obtain advice from Mr. Hoar.

THE

FACULTY

OF

APPLIED SCIENCE

(ARCHITECTURE; ENGINEERING; NURSING AND HEALTH)

1947-1948

FACULTY OF APPLIED SCIENCE

FOREWORD

The object of the courses in Applied Science is to train students in exact and fertile thinking, and to give them a sound knowledge of natural laws and of the means of utilizing natural forces and natural products for the benefit of man and the advancement of civilization. Experience shows that such a training is the best yet devised for a large and increasing proportion of the administrative, supervisory, and technical positions. Consequently the undergraduate course is made broad and general rather than narrow and highly specialized.

A course of this kind is not only better suited to the British Columbia conditions that the graduate will encounter in his afterlife, but also better for later specialization, for it furnishes a more solid foundation, a better background, a broader outlook, and a more stimulating atmosphere, all necessary if the specialist is to achieve the maximum results of which he is capable.

The First and Second Years in Applied Science are spent in a general course that includes mathematics and all the basic sciences. This not only gives a broad training but enables the student to discover the work for which he has special liking or aptitude and to select more intelligently the subjects in which to specialize during the final two years. During these two years students acquire more detailed knowledge and get practice in applying scientific principles and knowledge, in solving problems, in doing things; and there is also training in economics, law, and industrial management.

During the long period between sessions, the student is required to engage in some industrial or professional work that will afford practical experience not obtainable in the laboratory or field classes, but that is a necessary supplement to academic study.

An engineering degree in the Applied Science Course of the University is accepted by the Association of Professional Engineers of the Province of British Columbia in lieu of two of the six years' practical experience required by the Engineering Act of the Province for registration to practise engineering.

Students in Engineering are advised to register with the Association of Professional Engineers of British Columbia in their Second Year; and to associate themselves with the appropriate engineering societies.

ADMISSION

The general requirements for admission to the University are given on pages 33-35.

For admission to Applied Science it is required that the student shall have completed the First Year in Arts and Science, with credit for the courses shown below, or that he shall have fulfilled these requirements by Senior Matriculation or similar work taken outside the University.

Required subjects are:

English 100 and 101
Mathematics 100
Chemistry 100
Physics 100*
Latin 101 or French 101§ or German 90†

The passing grade for entrance to Applied Science is 60 per cent. in Mathematics, Chemistry, Physics, and Biology, and 50 per cent. in other subjects.

Students intending to enter Nursing and Health are required to obtain a grade of 60 per cent. in either Biology or Chemistry; for all other subjects a grade of 50 per cent. will be accepted. For detailed requirements for admission to courses in Nursing and Health see pages 282, 285, and 287.

No student with defective standing will be admitted to the First Year in Applied Science.

Students who are considering entering Applied Science are recommended to take the First Year Arts and Science at the University because in the opinion of the Faculty it is highly desirable for students to have a year's experience at the University before entering Applied Science. This experience includes special orientation lectures, contact with Arts students, with Applied Science senior students, with specialists, with college organization, and with university methods, thus providing a period of adjustment in preparation for the difficult and heavy work of the First Year in Applied Science and an opportunity for the student to decide whether or not he is suited for Engineering or Architecture or whether he might prefer to proceed in other courses without loss of time.

Candidates who expect to complete the requisite entrance standing through University or Senior Matriculation supplemental examinations, held in August or September, may apply for admission and

*Students planning to enter the B.S.F. Course or the Degree Courses in Nursing are required to take Biology 100 instead of Physics 100.
§Students intending to enter Architecture are advised to take French 101.
†Students intending to enter Applied Science are advised to take German 90.

their applications will be considered subject to the results of these examinations.

The Faculty reserves the right of selection and admission of the students entering the First Year of the Combined Course and the Third Year of the Double Course in Nursing. Applications for admission to the First Year in Nursing, or to the Third Year in the Double Course in Arts and Science and Nursing, must be made to the Registrar on or before August 15th. Application to the associated hospital school of nursing must be completed before that date.

Students desiring to enrol in the double course for the degrees of B.A. and B.A.Sc. require complete University Entrance for admission. They will register for the first two years in Arts and Science and take the courses outlined on pages 97-101. Satisfactory completion of the two years' work qualifies the student to register in the First Year Applied Science.

Students intending to enter Applied Science are advised to present Chemistry A and Physics A for University Entrance, and should, preferably, have completed at least one course in French and one course in German before applying for admission to the Faculty of Applied Science. Architecture students should see footnote page 264.

DEGREES

The degrees offered students in this Faculty are:
Bachelor of Applied Science (B.A.Sc.). (See below.)
Bachelor of Science in Forestry (B.S.F.). (See page 274.)
Bachelor of Architecture (B.Arch.). (See page 288.)
Master of Applied Science (M.A.Sc.). (See page 291.)

COURSES LEADING TO THE DEGREE OF B.A.Sc.

The degree of Bachelor of Applied Science is granted on the completion of the work in one of the courses* given below:

1. Agricultural Engineering.
2. Chemical Engineering.
3. Civil Engineering.
4. Electrical Engineering.
5. Forest Engineering.
6. Geological Engineering.
7. Mechanical Engineering.
8. Metallurgical Engineering.
9. Mining Engineering.
10. Engineering Physics.
11. Nursing and Health.

*The curriculum described in the following pages may be changed from time to time as deemed advisable by the Senate.

Double courses are offered in Arts and Science and Applied Science leading to the degrees of B.A. and B.A.Sc. (Engineering), and B.A. and B.A.Sc. (Nursing). For the regulations governing these, see the section *Double Courses,* at the end of the Calendar.

The Double Course leading to the degrees of B.A. and B.A.Sc. (Engineering) is strongly recommended to students who are young enough to afford the time and to students wishing to enter Applied Science, and who have to their credit some, but not all, of the requirements of First Year Arts and Science as set forth on page 99. The latter can select subjects in their Second Year Arts and Science that will satisfy the Arts and Science requirements for the double degree, and at the same time complete the work of First Year Arts and Science. Thus they may qualify for the degree of B.A. without expending any more time than would be required to qualify them for entrance into First Year Applied Science.

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 269) should be based, as far as possible, upon the summer work.

Upon approval of the Dean and the head of the department concerned, University credit may be granted for work done outside the University under the immediate supervision of the University staff, during the University session.

Practical work such as shop-work, freehand drawing, mechanical drawing, surveying, etc., done outside the University may be accepted in lieu of laboratory or field work (but not in lieu of lectures) in these subjects, on the recommendation of the head of the department and approval of the Dean. Students seeking exemption as above must make written application to the Dean, accompanied by certificates indicating the character of the work done and the time devoted to it.

OPENING OF SESSION

1. It is essential to the success of the student that he should be in attendance at the opening of the session, for, in order to allow as much time as possible for practical work in the summer, the length of the session has been reduced to the minimum consistent with the ground to be covered. Consequently a student requires the full session to master the work. A mere pass standing is a very unsatisfactory preparation for subsequent work or professional life. Further, from this standpoint, the opening work is the most important of the whole session for the student, for in it are given the general instructions necessary for the proper approach to the work.

2. The only exception is when the summer employment affords experience necessary for the course in which the student is specializing, and when it will lighten to some extent the work of the session (such as in Geological Survey field work for geological students) and then only provided the nature of this work makes it impossible for the student to reach the University on the opening day. Under these circumstances, if the student furnishes a statement from his employer showing that it was impossible for him to release the student earlier, the Dean may allow the student to enter without penalty as to class attendance. The student must, however, register at the opening of the session in accordance with the regulations in reference to registration.

SUPPLEMENTAL EXAMINATIONS

A student with supplementals must write them off at the regular time for supplemental examinations before the opening of the session, for he will need the entire session for the current year's work. It is also necessary, for a successful year, to have a satisfactory knowledge of the foundational work of the preceding year. No exceptions to the above rule will be granted except as under paragraph 2, above. See regulations 4 and 5, page 294.

COURSES
FIRST AND SECOND YEARS

The work of both years is the same in all curricula, except those in Nursing and Health, Forestry, Forest Engineering, and Architecture.

No student with defective standing will be admitted to First or Second Year Applied Science.

Students entering Second Year are required to submit an essay of not less than 1,000 words. This should take the form of a scientific report based preferably upon original observations made during the summer. Any suitable subject, however, may be chosen. Emphasis will be placed upon the precise and accurate use of English, but credit will also be given to subject matter, form, and illustrations. If the essay is not up to the standard of a pass mark in English, it will be returned for re-writing. One copy only is required, which may be retained for future reference by the department most interested.

FIRST YEAR

Subject	For details see page	First Term		Second Term	
		Lect.	Lab.	Lect.	Lab.
Math. 150 Trigonometry and Solid Geometry	319	2	.....	2	.....
Math. 151 Algebra	319	2	.....	2	.....
Math. 152 Calculus	319	2	.....	2	.....
M.E. 152 Drawing	320	.....	3	.....	3
Physics 150 Mechanics	334	3	3	.....	.....
Physics 151 Heat	334	.....	.....	3	3
*Chem. 150 Qual. Analysis	304	1	3	1	3
C.E. 150 General Engineering	306	1	.....	1	.....
C.E. 155 Graphical Statics	306	.....	2	.....	2
C.E. 160 Engineering Problems	306	.....	4	.....	4
English 150 Composition	312	2	.....	2	.....
†For. 252 Forest Botany	313	2	2	2	2

SECOND YEAR

Subject	For details see page	First Term		Second Term	
		Lect.	Lab.	Lect.	Lab.
Essay	.....	.....	.....	.....	.....
Math. 250 Calculus	320	3	.....	3	.....
Math. 251 Geometry	320	2	.....	2	.....
*Chem. 250 Quan. Analysis	304	1	3	1	3
Physics 250 Electricity	334	2	3	2	3
C.E. 250 Field Work and Mapping	306	.....	4	.....	4
C.E. 251 Surveying	306	2	.....	2	.....
C.E. 255 Descriptive Geometry	307	.....	3	.....	3
C.E. 260 Mechanics and Engineering Problems	307	2	3	2	3
Geol. 201 General Geology	318	2	.....	2	.....
Geol. 202 Geology Laboratory	318	.....	2	.....	2
English 250 Technical Writing	312	1	.....	1	.....
†For. 150 General Forestry	313	2	.....	2	.....
†For. 250 Silvics	313	1	2	1	2

NOTE.—The sum of $3.00 as caution money must be deposited before the opening of the courses in Surveying Field Work.

*Not required for Forest Engineering students.

†For Forest Engineering students only.

THIRD AND FOURTH YEAR ESSAYS*

Essays are required of all students entering the Third and Fourth Years, except that the essay is optional for students entering Fourth Year Chemical Engineering and is not required of students entering Third or Fourth Year Engineering Physics or Fourth Year Geological Engineering. The following regulations should be observed.

1. The essay shall consist of not less than 2,000 words.
2. Two copies shall be submitted in properly bound form. Only one copy need contain maps and illustrations.
3. The essay shall be a technical description of the engineering aspects of the work on which the student was engaged during the summer, or of any scientific or engineering work with which he is familiar. In the preparation of the essay, advantage may be taken of any source of information, but due acknowledgment must be made of all authorities consulted. It should be suitably illustrated by drawings, sketches, photographs, or specimens.
4. The essays shall be typewritten, or clearly written on paper of substantial quality, standard letter size (8½x11 inches), on one side of the paper only, leaving a clear margin on top and left-hand side. Every student shall submit a duplicate copy of his essay, for the correction of English. If typewritten, essays must be "double-spaced." Students are recommended to examine sample reports to be found in the departments and also copies of Masters' theses in the library.
5. The latest date for receiving graduating essays in the Second Term shall be the last day of lectures, and the corresponding date for the Autumn Congregation shall be October 1st. *All other essays shall be handed in to the Dean not later than November 15th.*
6. In the Final Year, students in Nursing and Health will be required to submit a graduating essay, or to present a seminar, covering an original study based upon experiences gained during the academic and professional years, and developed from topics assigned by the Department early in the year. All essays must be handed in, or seminars presented, during the Second Term.

All essays, when handed in, become the property of the department concerned, and are filed for reference. A duplicate copy may be submitted in competition for the students' prizes of the Engineering Institute of Canada, or the Canadian Institute of Mining and Metallurgy.

A maximum of 100 marks is allowed, the value being based on presentation, English, and matter.

*Architecture students should consult Page 289.

1. Agricultural Engineering

The curriculum in Agricultural Engineering is designed to meet the requirements of students who intend to qualify for the engineering profession as it is applied to agriculture.

Broad training is given in basic subjects: Mathematics, Physics, Chemistry, Geology, General Engineering, Mapping, Surveying. To this is added training in general phases of Civil, Mechanical, and Electrical Engineering.

In the final years special stress is placed on the application of engineering to various phases of agriculture and to specific problems connected with power units, machinery, building construction, land utilization, and rural electrification.

THIRD YEAR

Subject	For details see page	First Term		Second Term	
		Lect.	Lab.	Lect.	Lab.
Essay	.....	.....	.....	.....	.....
M.E. 352 Mechanical Drawing	320	At end of 2nd Term, 2nd Year			
C.E. 355 Strength of Materials	308	2	3*	2	3*
C.E. 357 Materials Testing	308	.....	3*	.....	3*
C.E. 360 Hydraulics	308	1	2	1	2
M.E. 371 Applied Thermodynamics	321	2	3	2	3
Geol. 403 Petrology	318	2	.....	2	.....
A.E. 350 Motors	296	2	2	2	2
A.E. 351 Machinery	296	2	2	2	2
Agric. 300 Farm Management	296	2	2	2	2
Agron. 211 Soils	296	2	2	2	2

FOURTH YEAR

Subject	For details see page	First Term		Second Term	
		Lect.	Lab.	Lect.	Lab.
Essay	.....	.....	.....	.....	.....
C.E. 370 Structural Design 1	309	2	3	2	3
C.E. 475 Engineering Economics	311	1	1	1	1
E.E. 451 Electrical Engineering	326	2	2	2	2
Geol. 411 Regional Geology	318	2	2	2	2
Geog. 303 Regional Geography	208	3	.....	3	.....
Ag. Ec. 301 Agricultural Economics	296	3	.....	3	.....
Agron. 313 Drainage, Irrigation	296	2	2	.....	.....
Agron. 314 Soil Conservation	296	.....	.....	2	2
A.E. 450 Building Construction	296	2	2	2	2
A.E. 451 Advanced Agricultural Engineering	296	2	2	2	2

*Alternate weeks.

2. Chemical Engineering

The curriculum in Chemical Engineering has been planned to prepare the student for the task of designing, constructing, or operating a chemical plant. As such he must not only be conversant with the chemical processes involved but be prepared to design and to oversee the construction of new buildings and to direct the installation and use of machinery. Hence the course of study includes, especially in the first three years, a number of courses in the older branches of engineering. In the Third Year the student receives an introduction to the principles of chemical engineering proper, and in the Fourth Year the advanced part of the subject is undertaken. During these years the maximum amount of chemical training allowed by the time at the disposal of the student is given in inorganic, organic, and physical chemistry.

THIRD YEAR

Subject	For details see page	First Term		Second Term	
		Lect.	Lab.	Lect.	Lab.
Essay	.....	.....	.....	.....	.....
M.E. 352 Mechanical Drawing	320	At end of 2nd Term, 2nd Year			
Math. 350 Applied Calculus and Differential Equations	320	3	.....	3	.....
Met. 351 Physical Metallurgy	329	2	.....	1	.....
Met. 352 Metallography	329	.....	3*	.....	3*
Chem. 300 Organic	304	2	3	2	3
Chem. 304 Theoretical	304	2	3	2	3
Chem. 310 Adv. Analysis	304	1	6	1	6
Chem. 350 Introduction to Chemical Engineering	304	2	.....	2	.....
Physics 360 Light	335	1	.....	1	.....
C.E. 355 Strength of Materials	308	2	3*	2	3*
C.E. 357 Materials Testing	308	.....	3*	.....	3*
Summer Reading	.....	.....	.....	.....	.....

FOURTH YEAR

Subject	For details see page	First Term		Second Term	
		Lect.	Lab.	Lect.	Lab.
†Essay	.....	.....	.....	.....	.....
E.E. 451 Electrical Circuits	326	2	2	2	2
Chem. 407 Physical Chemistry	304	2	3	2	3
Chem. 450 Chemical Engineering Theory	304	3	.....	3	.....
Chem. 451 Chemical Engineering Laboratory and Problems	305	.....	6	.....	6
Chem. 452 Thesis: research *or* designing of chemical engineering equipment	305	.....	6	.....	6
Chem. 458 Electro-chemistry	305	2	3	2	3
Chem. 459 Adv. Organic	305	2	3	2	3

*Alternate weeks.
†Optional.
NOTE. For courses for graduate students, see page 305.

3. Civil Engineering

The civil engineer occupies a distinctive field and is intimately associated with a wide group of undertakings vitally affecting the health, comfort, and prosperity of the commonwealth.

The various branches of civil engineering deal with problems in water supply and water purification; in sewerage systems, sewage disposal plants, and the handling of municipal and industrial wastes; in hydraulic power development; in irrigation and drainage for agricultural activities; in all types of structures, bridges and buildings, piers and docks, sea walls and protective works; in transportation, canals, locks, highways, electric and steam railways; and in the management and direction of public works, public utilities, and industrial and commercial enterprises.

THIRD YEAR

Subject	For details see page	First Term		Second Term	
		Lect.	Lab.	Lect.	Lab.
Essay	.....	.....	.....	.....	.....
C.E. 350 Surveying Field Work	307	At end of 2nd Term, 2nd Year			
C.E. 351 Surveying	307	2	.....	2	.....
C.E. 352 Mapping	307	.....	3*	.....	3*
C.E. 353 Drawing	307	.....	3*	.....	3*
C.E. 355 Strength of Materials	308	2	3*	2	3*
C.E. 356 Materials Testing	308	1	3*	.....	3*
C.E. 361 Hydraulics	308	1	3	1	3
C.E. 365 Foundations—Masonry	308	2	3	.....	.....
C.E. 366 Earth Pressure	309	.....	.....	2	.....
C.E. 370 Structural Design 1	309	2	3	2	3
C.E. 375 Railways	309	2	.....	2	.....
C.E. 380 Seminar	309	1	.....	1	.....
M.E. 371 Applied Thermodynamics	321	2	3	2	3

FOURTH YEAR

Subject	For details see page	First Term		Second Term	
		Lect.	Lab.	Lect.	Lab.
Essay	.....	.....	.....	.....	.....
C.E. 380 Seminar	309	1	.....	1	.....
C.E. 450 Surveying Field Work	309	At end of 2nd Term, 3rd Year			
C.E. 455 Theory of Structures	309	2	6	.....	.....
C.E. 460 Structural Design 2	310	2	3	2	6
C.E. 461 Reinforced Concrete Design	310	2	3	.....	4
C.E. 465 Municipal Engineering	310	2	2	2	2
C.E. 466 Water Power Development	311	.....	.....	2	2
C.E. 470 Highway Engineering	311	2	.....	2	2
C.E. 475 Engineering Economics	311	1	1	1	1
C.E. 476 Law—Contracts	311	1	.....	1	...
E.E. 451 Electrical Engineering	326	2	2	2	2

*Alternate weeks.

NOTE. For courses for graduate students, see page 312.

4. Electrical Engineering

Electrical Engineering comprises the broad fields of electric power and electronics. In electric power emphasis is placed upon electrical machines, power generation, distribution, and utilization; while electronics is concerned mainly with communications, measurement, and control; but the fundamental principles underlying these two fields form a unified body of knowledge.

The course in Electrical Engineering is designed to enable students to obtain a knowledge of these fundamental principles and, to some extent, their applications in both the power and electronic fields. Electric power is obtained chiefly by means of steam, hydraulic turbines, or internal combustion engines, and the design of electrical apparatus involves the characteristics of materials. Courses in these allied subjects are therefore included.

THIRD YEAR

Subject	For details see page	First Term		Second Term	
		Lect.	Lab.	Lect.	Lab.
Essay	.....	.....	.....	.....	.....
M.E. 352 Mechanical Drawing	320	At end of 2nd Term, 2nd Year			
Math. 350 Differential Equations	320	3	.....	3	.....
C.E. 355 Strength of Materials	308	2	3*	2	3*
C.E. 357 Materials Testing	308	.....	3*	.....	3*
C.E. 360 Hydraulics	308	1	2	1	2
M.E. 358 Machine Shop Practice	321	.....	3*	.....	3*
M.E. 365 Dynamics of Machines	321	2	.....	2	.....
M.E. 375 Applied Thermodynamics	322	3	3	3	3
E.E. 353 D.C. Machines	325	2	.....	1	.....
E.E. 355 A.C. Circuits	325	1	.....	2	.....
E.E. 356 Electrical Engineering Laboratory	325	.....	3	.....	3
E.E. 357 Electronics and Electron Tubes	325	2	2*	2	2*

FOURTH YEAR

Subject	For details see page	First Term		Second Term	
		Lect.	Lab.	Lect.	Lab.
Essay	.....	.....	.....	.....	.....
M.E. 467 Mechanical Design	322	2	.....	2	.....
C.E. 475 Engineering Economics	311	1	1	1	1
E.E. 457 Principles of A.C. Machines	326	3	6	3	6
E.E. 459 Electrical Machine Design	326	1	3	1	3
E.E. 461 Illuminating Engineering	326	2	.....	.....	2
E.E. 463 Electric Power Transmission	327	2	2	2	2
E.E. 465 Electrical Communication	327	2	3	2	3
E.E. 467 Instruments and Measurements	327	2	.....	2	.....

*Alternate weeks.

NOTE. For course for graduate students, see page 327.

5. Forest Engineering and Forestry

Two main avenues of approach are open to students interested in forestry as a profession: Forest Engineering, in which the main stress is placed upon the engineering phases of the extraction and conversion of forest products: and General Forestry, which deals with the growing, improving, and administering of forest stands. In addition both options deal with the manufacturing and marketing phases of the forest industries.

In the General Forestry (B.S.F.) course, the student has the opportunity of following a specialized course of study in one of three main branches of forestry: Technical Forestry, Forest Business Administration and Chemical Wood Products.

Some short field trips throughout the Third and Fourth Years are required from time to time. The total expense to students will be about $20.00.

Forest Engineering

The curriculum for the first two years in *Forest Engineering* is shown on page 268.

THIRD YEAR

Subject	For details see page	First Term		Second Term	
		Lect.	Lab.	Lect.	Lab.
Essay	.....	.....	.....	.....	.....
C.E. 350 Surveying Field Work	307	At end of 2nd Term, 2nd Year			
C.E. 351 Surveying	307	2	.....	2	.....
C.E. 352 Mapping	307	.....	3*	.....	3*
C.E. 355 Strength of Materials	308	2	3*	2	3*
C.E. 356 Materials Testing	308	1	3*	.....	3*
C.E. 360 Hydraulics	308	1	2	1	2
C.E. 370 Structural Design 1	309	2	3	2	3
For. 251 Fire Protection	313	2	.....	2	.....
For. 270 Wood Technology	313	1	.....	1	.....
For. 350 Silviculture	314	2	3	2	3
For. 360 Mensuration	314	2	3	2	3
Bot. 303 Dendrology	303	1	2	1	2

FOURTH YEAR

Subject	For details see page	First Term		Second Term	
		Lect.	Lab.	Lect.	Lab.
Essay	.....	.....	.....	.....	.....
†For. 390 Spring Field Work	314	.....	.....	.....	.....
For. 361 Management	314	2	3	2	3
For. 370 Wood Technology	314	1	3	1	3
For. 380 History of Forestry	314	2	.....	2	.....
For. 453 Seminar	315	1	.....	1	.....
For. 471 General Logging	315	2	.....	2	.....
For. 472 Logging Engineering	315	2	3	2	3
For. 473 Milling and Marketing	315	2	3*	2	3*
For. 474 Lumber Grading	315	.....	.....	.....	3
For. 475 Forest Products	316	1	3*	1	3*
For. 481 Forest Economics	316	3	.....	3	.....

†A four weeks' field trip to the University Forest, Haney, required immediately following spring examinations at the end of the Third Year. *Alternate weeks

Forestry (B.S.F. Course)

FIRST YEAR

Subject	For details see page	First Term		Second Term	
		Lect.	Lab.	Lect.	Lab.
§Chem. 200 Qualitative and Quantitative Analysis	161	1	6	1	6
Econ. 200 Principles of Economics	179	3	.....	3	.....
Phys. 100 Elementary Physics	239	3	2	3	2
Math. 203 Forestry Mathematics	226	3	.....	3	.....
Bot. 200 General Botany	303	2	2	2	2
English 150 Composition	312	2	.....	2	.....
For. 150 General Forestry	313	2	.....	2	.....
For. 160 Field Work	313	.....	3	.....	3
‡Geog. 202 Weather and Climate	208	2	2	2	2

SECOND YEAR

Subject	For details see page	First Term		Second Term	
		Lect.	Lab.	Lect.	Lab.
Bot. 303 Dendrology	303	1	2	1	2
Bot. 330 and 332 Plant Physiology	303	2	4	2	4
For. 250 Silvics	313	1	2	1	2
For. 251 Fire Protection	313	2	.....	2	.....
For. 260 Surveying and Mapping	313	2	.....	2	.....
For. 270 Wood Technology	313	1	1	1	1
* Geol. 201 General Geology	318	2	.....	2	.....
* Geol. 202 Laboratory	318	.....	2	.....	2
*Chem. 300 Organic Chemistry	304	2	4	2	4
*Bot. 300 and 302 Systematic Botany	155	2	2	1	4
*Zool. 200 General Zoology	335	2	2	2	2

THIRD YEAR

Subject	For details see page	First Term		Second Term	
		Lect.	Lab.	Lect.	Lab.
For. 350 Silviculture	314	2	3	2	3
For. 353 Seminar	314	1	.....	1	.....
For. 360 Mensuration	314	2	3	2	3
For. 361 Management	314	2	3	2	3
For. 370 Technology	314	1	3	1	3
For. 380 History of Forestry	314	2	.....	2	.....
Bot. 317 Forest Pathology	303	.....	.....	2	2
Zool. 402 Forest Entomology	335	2	2	.....	.....
†Comm. 251 Accounting	312	2	2	2	2
§Chem. 304 Theoretical Chemistry	304	2	3	2	3

*One of the four courses marked must be taken in the Second Year. For students entering Chemical Wood Products option, Chemistry 300 is required.

†Not required in Chemical Wood Products option.

§Required in Chemical Wood Products option only.

‡Required of all students except those taking Chemical Wood Products option.

FOURTH YEAR (Technical Forestry Option)

Subject	For details see page	First Term		Second Term	
		Lect.	Lab.	Lect.	Lab.
For. 450 Advanced Silviculture	315	1	3	1	3
For. 453 Seminar	315	1	.....	1	.....
For. 460 Advanced Mensuration	315	1	3	1	3
For. 461 Advanced Management	315	1	3	1	3
For. 471 General Logging	315	2	.....	2	.....
For. 473 Milling and Marketing	315	2	3*	2	3*
For. 474 Lumber Grading	315	.....	.....	.....	3
For. 475 Forest Products	316	1	3*	1	3*
For. 481 Forest Economics	316	3	.....	3	.....
Bot. 320 Forest Ecology	303	2	2	2	2

FOURTH YEAR (Forest Business Administration Option)

Subject	For details see page	First Term		Second Term	
		Lect.	Lab.	Lect.	Lab.
For. 453 Seminar	315	1	.....	1	.....
For. 471 General Logging	315	2	.....	2	.....
For. 473 Milling and Marketing	315	2	3*	2	3*
For. 474 Lumber Grading	315	.....	.....	.....	3
For. 475 Forest Products	316	1	3*	1	3*
For. 481 Forest Economics	316	3	.....	3	.....
Comm. 361 Marketing	312	3	.....	3	.....
Comm. 471 Business Finance	312	3	.....	3	.....
Comm. 481 Industrial Management	312	3	6	3	6
Comm. 491 Commercial Law	312	3	.....	3	.....

FOURTH YEAR (Chemical Wood Products Option)

Subject	For details see page	First Term		Second Term	
		Lect.	Lab.	Lect.	Lab.
For. 471 General Logging	315	2	.....	2	.....
For. 473 Milling and Marketing	315	2	3*	2	3*
For. 475 Forest Products	316	1	3*	1	3*
For. 481 Forest Economics	316	3	.....	3	.....
Chem. 350 Chemical Engineering	304	2	.....	2	.....
Chem. 407 Physical Chemistry	304	2	3	2	3
Chem. 459 Advanced Organic Chemistry	305	2	3	2	3

NOTICE FOR B.S.F. COURSE STUDENTS

The combined courses in Botany and Forestry, Commerce and Forestry, and Economics and Forestry were discontinued at the close of the 1945-46 session. However, students who have already entered these courses and who still require one year of further work to complete the courses may do so by fulfilling the requirements set forth on pages 322 and 323 of the 1945-46 Calendar of the University.

*Alternate weeks.

6. Geological Engineering

This curriculum is designed to meet the requirements of students who intend to enter geology as a profession, and such students are strongly advised to take this particular course.

It gives a broad training not only in geology, but also in the sciences of biology, chemistry, physics, and mathematics, which are extensively applied in the solution of geological problems. The engineering subjects are useful not only to the mining and consulting geologist and the geological surveyor, but to the geologist engaged in original research in any branch of the science.

The course therefore furnishes a foundation for the professions of mineralogist, geological surveyor, mining geologist, consulting geologist, palaeontologist, geographer, etc., and is useful for those who will be in any way connected with the discovery or development of the natural resources of the country.

THIRD YEAR

Subject	For details see page	First Term		Second Term	
		Lect.	Lab.	Lect.	Lab.
Essay	.....	.....	.....	.....	.....
C.E. 350 Surveying	307	At end of 2nd Term, 2nd Year			
Biol. 100 Introductory Biology	303	2	2	2	2
C.E. 352 Mapping	307	.....	.....	.....	3
C.E. 360 Hydraulics	308	1	2	1	2
Min. 350 Principles of Mining	328	2	.....	2	.....
Met. 350 Chemical Metallurgy	329	2	3	2	3
Met. 351 Physical Metallurgy	329	2	.....	1	.....
M.D. 350 Principles of Mineral Dressing	331	2	3*	2	3*
Geol. 302 General Mineralogy	318	2	.....	2	.....
Geol. 303 Determinative Mineralogy	318	.....	2	.....	2
Geol. 304 Structural	318	3	.....	3	.....
Geol. 305 Theoretical and Historical Geology	318	2	.....	2	.....
Geol. 307 Petroleum and Natural Gas	318	1	.....	.....	.....
Geol. 308 Coal and Structural Materials	318	1	.....	1	.....
†Geol. 410 Field Geology	318	.....	.....	.....	2

FOURTH YEAR

Subject	For details see page	First Term		Second Term	
		Lect.	Lab.	Lect.	Lab.
C.E. 475 Engineering Economics	311	1	1	1	1
Min. 450 Principles of Mining	328	2	.....	2	.....
Geol. 406 Palaeontology	318	2	2	2	2
Geol. 407 Petrography	318	2	4	2	4
Geol. 408 Mineral Deposits	318	3	.....	3	.....
Geol. 409 Mineralography	318	.....	3	.....	3
Geol. 411 Regional Geology	318	3	.....	3	.....
Geol. 412 Geomorphology	318	2	2	2	2
Geol. 420 Thesis	318	.....	4	.....	5

*Alternate weeks.
†Includes 10 days' field work after lectures close in the Second Term.
NOTE. For courses for graduate students, see page 318.

7. Mechanical Engineering

The curriculum in Mechanical Engineering has been designed to give the student a thorough knowledge of the theory and application of those basic subjects which are essential in this branch of engineering.

Although fundamentally general in character, the course embodies the design of prime movers, mechanical and hydraulic machinery design, and the testing of engines, fuels, and boilers. It thus gives sufficient specialized training in mechanical engineering to enable students to enter the fields of either design or research should they so desire.

Students following this course are also given a general course in the fundamentals of electrical engineering.

THIRD YEAR

Subject	For details see page	First Term		Second Term	
		Lect.	Lab.	Lect.	Lab.
Essay	.....	.....	.....	.....	.....
M.E. 352 Mechanical Drawing	320	At end of 2nd Term, 2nd Year			
Math. 350 Differential Equations	320	3	.....	3	.....
C.E. 355 Strength of Materials	308	2	3*	2	3*
C.E. 357 Materials Testing	308	.....	3*	.....	3*
C.E. 360 Hydraulics	308	1	2	1	2
E.E. 351 Electrical Engineering	325	2	3	2	3
M.E. 356 Machine Shop Practice	321	.....	2	.....	2
M.E. 361 Kinematics of Machines	321	3	2	.....	.....
M.E. 363 Machine Design 1	321	.....	.....	3	2
M.E. 365 Dynamics of Machines	321	2	.....	2	.....
M.E. 373 Applied Thermodynamics	321	3	3	3	3

FOURTH YEAR

Subject	For details see page	First Term		Second Term	
		Lect.	Lab.	Lect.	Lab.
Essay	.....	.....	.....	.....	.....
C.E. 475 Engineering Economics	311	1	1	1	1
E.E. 453 A.C. Machines	326	2	3	2	3
Met. 351 Physical Metallurgy	329	2	.....	1	.....
Met. 352 Metallography	329	.....	3*	.....	3*
M.E. 456 Machine Shop Practice	322	.....	2	.....	2
M.E. 463 Machine Design 2	322	2	3	2	3
M.E. 465 Applied Mechanics	322	.....	2	2	2
M.E. 471 Prime Movers	322	3	.....	3	.....
M.E. 472 Mechanical Engineering Laboratory	323	.....	3	.....	3
†{ M.E. 475 Power Plant Design	323	2	3	.....	.....
†{ M.E. 477 Heating, Ventilating, Air Conditioning and Refrigeration	323	2	.....	2	3
†M.E. 481 Aeronautics	324	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 course for graduate students, see page 324.

8. Metallurgical Engineering

The curriculum is designed to give the student a thorough knowledge of the basic principles essential in the field of metallurgical engineering. In both Third and Fourth Years stress is laid upon subjects which provide a sound general training such as mathematics, strength of materials, hydraulics, physics, thermodynamics, applied physical chemistry, and electricity.

Other courses in the specific field of metallurgy are included to prepare the student for a professional career in metal production and fabrication in either operation or research.

In the Fourth Year an opportunity is offered for some degree of specialization in one of the principal divisions of the field: ore reduction, mineral dressing, or metal fabrication. Good facilities are available for graduate study in all three fields.

THIRD YEAR

Subject	For details see page	First Term		Second Term	
		Lect.	Lab.	Lect.	Lab.
Essay	.....	.....	.....	.....	.....
M.E. 352 Mechanical Drawing	320	At end of 2nd Term, 2nd Year			
Math. 350 Differential Equations	320	3	.....	3	.....
Geol. 302 General Mineralogy	318	2	.....	2	.....
Geol. 303 Determinative Mineralogy	318	.....	2	.....	2
C.E. 355 Strength of Materials	308	2	3*	2	3*
C.E. 357 Materials Testing	308	.....	3*	.....	3*
C.E. 360 Hydraulics	308	1	2	1	2
M.E. 371 Applied Thermodynamics	321	2	.....	2	.....
Min. 350 Principles of Mining	328	2	.....	2	.....
M.D. 350 Principles of Mineral Dressing	331	2	3*	2	3*
Met. 350 Chemical Metallurgy	329	2	3	2	3
Met. 351 Physical Metallurgy	329	2	.....	1	.....
Met. 352 Metallography	329	.....	3*	.....	3*
Met. 360 Seminar	329	.....	.....	1	.....

FOURTH YEAR

Subject	For details see page	First Term		Second Term	
		Lect.	Lab.	Lect.	Lab.
Essay	.....	.....	.....	.....	.....
E.E. 451 Electrical Circuits	326	2	2	2	2
†Geol. 409 Mineralography	318	.....	3	.....	3
Physics 460 Metallurgical Physics	335	2	.....	2	.....
C.E. 475 Engineering Economics	311	1	1	1	1
M.D. 450 Mineral Dressing	331	2	3	2	.....
Met. 450 Theoretical Metallurgy	329	2	3	2	3
Met. 451 Applied Chemical Metallurgy	329	2	.....	2	.....
Met. 452 Physical Metallurgy	330	2	.....	2	.....
Met. 453 Metallurgical Calculations	330	.....	2	.....	2
Met. 454 Laboratory and Research Methods	330	.....	3	.....	6
§Met. 456 Metallography	330	.....	3	.....	3
Met. 457 Plant Management	330	1	1	1	1

*Alternate weeks. §For students taking Physical Metallurgy option.
†For students taking Chemical Metallurgy or Mineral Dressing options.
NOTE. For course for graduate students, see page 331.

9. Mining Engineering

Although technologic and other advances within the mineral industries are continually enlarging the field of interest of the mining engineer and increasing the tendency toward specialization, few students know in which branch of the profession their future careers may lie; therefore the course in mining engineering is intended to give the student a broad knowledge of the fundamental technical, economic, and social principles involved, to serve as a foundation for advancement in any branch of the work that he may enter after graduation.

Emphasis is placed principally on metal mining, but some attention is devoted to coal mining in order to give an insight into its methods and problems and foster an interest in that important branch of the mining industry.

THIRD YEAR

Subject	For details see page	First Term		Second Term	
		Lect.	Lab.	Lect.	Lab.
Essay	.....	.....	.....	.....	.....
C.E. 350 Surveying	307	At end of 2nd Term, 2nd Year			
Geol. 302 General Mineralogy	318	2	.....	2	.....
Geol. 303 Determinative Mineralogy	318	.....	2	.....	2
Geol. 304 Structural Geology	318	3	.....	3	.....
C.E. 352 Mapping	307	.....	3*	.....	3*
C.E. 355 Strength of Materials	308	2	3*	2	3*
C.E. 357 Materials Testing	308	.....	3*	.....	3*
C.E. 360 Hydraulics	308	1	2	1	2
C.E. 370 Structural Design 1	309	2	3	2	3
Met. 350 Chemical Metallurgy	329	2	3	2	3
Met. 351 Physical Metallurgy	329	2	.....	1	.....
Met. 360 Seminar	329	.....	.....	1	.....
M.D. 350 Principles of Mineral Dressing	331	2	3*	2	3*
Min. 350 Principles of Mining	328	2	.....	2	.....

FOURTH YEAR

Subject	For details see page	First Term		Second Term	
		Lect.	Lab.	Lect.	Lab.
Essay	.....	.....	.....	.....	.....
E.E. 451 Electrical Circuits	326	2	2	2	2
Geol. 308 Coal and Building Materials	318	1	.....	1	.....
Geol. 403 Petrology	318	2	.....	2	.....
Geol. 408 Mineral Deposits	318	3	.....	3	.....
C.E. 370 Structural Design 1	309	2	3	2	3
C.E. 475 Engineering Economics	311	1	1	1	1
Met. 453 Problems	330	.....	2	.....	.....
Met. 457 Plant Management	330	1	1	1	1
M.D. 450 Mineral Dressing	331	2	3	2	.....
Min. 450 Principles of Mining	328	2	.....	2	.....
Min. 451 Mining Methods	328	2	.....	2	.....
Min. 454 Problems and Reports	328	.....	2	.....	4
Min. 490 Mine Surveying	328	.....	.....	1	.....

*Alternate weeks.

10. Engineering Physics

This curriculum is designed to afford a training in mathematics and physics, which will enable an engineering graduate either to enter the new industrial field of applied physics or to proceed with graduate studies leading to an industrial or academic career in the field of research. It should be of particular value to those who desire to enter governmental or industrial research laboratories.

This course of studies will be open only to students who obtain the consent of the Head of the Department of Physics and the Dean of the Faculty of Applied Science.

THIRD YEAR

Subject	For details see page	First Term		Second Term	
		Lect.	Lab.	Lect.	Lab.
M.E. 352 Mechanical Drawing	320	At end of 2nd Term, 2nd Year			
C.E. 355 Strength of Materials	308	2	3*	2	3*
C.E. 357 Materials Testing	308	.....	3*	.....	3*
Math. 320 Differential Calculus	320	2	.....	2	.....
Math. 321 Integral Calculus	320	3	.....	3	.....
Math. 322 Algebra and Geometry 2	320	3	.....	3	.....
Phys. 302 Mathematical Physics	335	2	.....	2	.....
Phys. 303 Physical Optics	335	2	6	2	6
Phys. 304 Thermodynamics	335	2	.....	2	.....
and *one* of the following:					
Chem. 300 Organic Chemistry	304	2	3	2	3
Chem. 350 Chemical Engineering	304	2	.....	2	.....
E.E. 355 A.C. Machines	325	1	.....	2	.....
Geol. 304 Structural Geology	318	2	.....	2	.....
M.E. 371 Applied Thermodynamics	321	2	3	2	3
Met. 351 Physical Metallurgy	329	2	.....	1	.....
Met. 352 Metallography	329	.....	3*	.....	3*

FOURTH YEAR

Subject	For details see page	First Term		Second Term	
		Lect.	Lab.	Lect.	Lab.
E.E. 465 Electrical Communications	327	2	3	2	3
Math. 401 Advanced Calculus	320	3	.....	3	.....
Phys. 401 Electricity and Magnetism	335	2	.....	2	.....
Phys. 402 Atomic Structure	335	2	.....	2	.....
Phys. 403 Kinetic Theory of Gases	335	2	.....	2	.....
Phys. 406 Theoretical Mechanics	335	2	.....	2	.....
Phys. 409 Experimental Physics	335	.....	6	.....	6
and *one* of the following:					
Chem. 450 Chem. Engineering Theory	304	3	.....	3	.....
Chem. 459 Advanced Organic	305	2	3	2	3
E.E. 453 A.C. Machines	326	2	3	2	3
Phys. 461 Geophysics	335	2	.....	2	.....
Geol. 403 Petrology	318	2	.....	2	.....
M.E. 477 Heating, Ventilating	323	2	.....	2	3
M.E. 481 Aeronautics	324	3	3	3	3
Met. 452 Physical Metallurgy	330	2	.....	2	.....
Met. 456 Adv. Metallography	330	.....	3	.....	3

*Alternate weeks.

11. Nursing and Health

The University offers courses in Nursing to students who desire to receive a broader education than can be secured in a hospital school of nursing alone, and who wish, at the same time, to prepare themselves for teaching or supervisory positions in schools of nursing or for Public Health Nursing service.

Included in the regular programme are the following courses:

Nursing A. A combined university and hospital course leading to the degree of B.A.Sc. (Nursing) and to a Diploma in Nursing from the Vancouver General Hospital School of Nursing, which is affiliated with the University for the purpose of providing the professional part of the course. (See below.)

Nursing AA. A double degree course one year longer than Nursing A leading to the degrees of B.A. and B.A.Sc. (Nursing) as well as to a Diploma in Nursing from the Vancouver General Hospital School of Nursing. (See page 285 and *Double Courses*, page 379.)

Nursing B. A course for graduate nurses to prepare them for staff positions in public health nursing organizations. This course consists of one year of academic study supplemented by appropriate field work, and leads to a certificate in Public Health Nursing. (See page 286.)

Nursing C. A course for graduate nurses to prepare them for teaching and supervisory positions in schools of nursing. This course consists of one year of academic study supplemented by appropriate field work, and leads to a certificate in Teaching and Supervision in Schools of Nursing. (See page 286.)

Nursing D. A course for graduate nurses who wish to qualify for the degree of B.A.Sc. (Nursing). (See pages 287-288.)

Students of all courses in Nursing are subject to the general University regulations, and to special regulations of the Faculty of Applied Science. (See pages 29-38 and 293-296.)

All regulations are subject to change from year to year, and subjects may be modified during the year as the Faculty may deem advisable.

Degree Courses in Nursing

Nursing A

This combined university and hospital course assures to the student the educational and cultural advantages available at the University; professional training built on a sound scientific foundation; and preparation for a specialized field of nursing. The course is given by the University in collaboration with the school of nursing of the Vancouver General Hospital, the only hospital school which

has to date signified willingness to provide the professional part of the course and has received the approval of the University Senate for that purpose.

For admission requirements see page 264. No student with defective standing will be admitted to the First Year in Nursing.

As registration is limited, application should be made on or before August 15th. Students will be notified of the acceptance or rejection of their applications.

Applicants are also required:

1. To be eighteen years of age;
2. To satisfy the Department of Nursing and Health that they are personally fitted for the branches of nursing to which the course leads;
3. To have met the entrance requirements of the Vancouver General Hospital School of Nursing.

The course consists of three parts, each of which is described briefly.

I. First Year Nursing.—Students register in the Faculty of Applied Science for the following courses, which provide an introduction to general cultural subjects and a foundation in sciences basic to the practice of nursing.

FIRST YEAR NURSING

Subject	For details see page	First Term		Second Term	
		Lect.	Lab.	Lect.	Lab.
English 200	312	3	.....	3	.....
Zoology 200	335	2	2	2	2
Physics 110	239	3	2	3	2
Psychology 100	234	3	.....	3	.....
Nursing 151 History of Nursing	332	1	.....	1	.....
Nursing 152 Elementary Biochemistry	332	1	.....	1	.....
Nursing 153 Bacteriology in Relation to Health and Disease	332	1	4	1	4

II. Professional course of thirty-two months at the Vancouver General Hospital School of Nursing.*

Following completion of the academic or pre-clinical year (First Year Nursing) the student enters the Vancouver General Hospital School of Nursing for her professional course. This course is planned to afford a wide experience and training in the care of the sick, and to develop the skill, powers of observation, and judgment necessary to the efficient practice of nursing. It includes a study of community health problems as well as those of the hospital.

*Candidates are advised to write to the Director, School of Nursing, Vancouver General Hospital, for the School Calendar.

Students enter upon this part of their course along with the regular hospital students, and during the first four months (the probationary period) undergo a rigid examination as to fitness in physique, temperament, and character. This trial period helps the student to decide whether she feels herself personally fitted or inclined to proceed with the course. It also gives the hospital school of nursing an opportunity to judge the student's suitability for the profession of nursing. The hospital school of nursing reserves the right to reject candidates who do not meet required standards.

During the professional part of the course students are under the direction of the hospital school of nursing and live in residence there, receiving:

(1) full maintenance;
(2) a yearly vacation;
(3) a small monetary allowance as designated by the hospital.

In order to receive University credit for work done at this time, students must register at the University each year and pay the nominal fee required. (See footnote on page 35.)

Following is an outline of the course provided by the Vancouver General Hospital School of Nursing.

1. Instruction is given by qualified nurse teachers and by members of the medical staff in:

Nursing Ethics
Principles and Practice of Nursing
Anatomy and Physiology
Health Education
Psychology
Normal Nutrition and Diet Therapy
(including experience in the Diet Kitchen)
Pharmacology and Therapeutics
Urinalysis
Introduction to: Anaesthesia
Physiotherapy
X-ray
Community Health and Social Needs
(including experience with the Victorian Order of Nurses)

2. Instruction and supervised experience are also provided in the following hospital departments:

Medical
Communicable Diseases (including Tuberculosis and Venereal Diseases)

Surgical, including Operating Room
Eye, Ear, Nose, and Throat
Orthopedic
Gynecological
Infants and Children
Psychiatric
Out-patient

While the preventive and social aspects of nursing are stressed throughout, they are given particular emphasis during experience in the Out-patient Department and with the Victorian Order of Nurses.

The hospital programme is subject to change at the discretion of the hospital in consultation with the Department of Nursing and Health at the University.

Upon satisfactory completion of this part of the course the student is awarded a diploma as a graduate nurse of the Vancouver General Hospital School of Nursing. She also writes the provincial Registered Nurse examinations, and if successful becomes qualified to practise as a Registered Nurse in British Columbia.

Students who, during their period in the hospital school of nursing, have lost time because of illness or for other reasons, may be required to postpone the final academic year at the University. Students who have gained some experience as graduate nurses before returning to University usually find themselves better equipped to benefit from the specialized course.

III. One year of specialization.

For the final year of her course the student elects either Nursing B (see page 286) or Nursing C (see page 286), and upon its satisfactory completion she is awarded the degree of B.A.Sc. (Nursing)*.

Nursing AA

The University also offers a double degree course leading to the degrees of B.A. and B.A.Sc (Nursing). This course requires two years (instead of one) of academic work at the University before entering the hospital school of nursing, but is otherwise similar to Nursing A. (See page 282.) Students receive the degree of B.A. upon completion of their course at the hospital, and the degree of B.A.Sc. (Nursing) when Nursing B or Nursing C has been completed.

The double degree course is advised for

(1) students who wish to enrich their background of knowledge by an additional year of university studies, and who are anxious to obtain the B.A. degree; and

*Before July 15 of the year in which she plans to return to the University each student must notify the Department of Nursing and Health as to whether she proposes to take Nursing B or Nursing C.

(2) students who at the end of the first year of Nursing A would still be too young to enter the hospital school of nursing.

Nursing B and Nursing C (Degree and Certificate Courses)

Degree Courses

Students taking Nursing B or Nursing C as part of the degree course must obtain at least 65 per cent. marks on the aggregate with not less than 50 per cent. in any one subject.

NURSING B (PUBLIC HEALTH NURSING)

Subject	For details see page:	Total hours of lectures
Nursing 454 Preventive Medicine	332	45
Nursing 455 Mental Hygiene	332	18
Nursing 457 Infant and Child Hygiene	332	18
Nursing 459 Sanitation	333	9
Nursing 461 Public Health Organization	333	18
Nursing 463 Principles and Practice of Public Health Nursing	333	54
Nursing 466 Health Teaching	333	54
Nursing 467 Current Nursing Problems	333	18
Nursing 471 Social Case Work	333	18
Nursing 477 Sociology	333	18
Nursing 481 Principles and Methods of Teaching	333	18
Nursing 485 Essay	333	.....
Nursing 486 Field Work	334	.....

NURSING C (TEACHING AND SUPERVISION IN SCHOOLS OF NURSING)

Subject	For details see page:	Total hours of lectures
Nursing 454 Preventive Medicine	332	45
Nursing 455 Mental Hygiene	332	18
Nursing 467 Current Nursing Problems	333	18
Nursing 468 Teaching in Schools of Nursing	333	36
Nursing 469 Principles of Supervision in Schools of Nursing	333	36
Nursing 477 Sociology	333	18
Nursing 481 Principles and Methods of Teaching	333	18
Electives from Nursing B, from Education, or from related Science courses, to make up three units	.....	.....
Nursing 485 Essay	333	.....
Nursing 487 Field Work	334	.....

Certificate Courses

Nursing B and Nursing C are available as Certificate Courses to graduate nurses who possess the required qualifications.

1. *General education.* All applicants must fulfil the educational requirement of University Entrance. An official transcript of the high school education record should be submitted along with the application.

2. *Professional education.* Graduation from a recognized school of nursing. Applicants must satisfy the department that they have received adequate instruction and experience in the nursing care of communicable diseases and of diseases of infancy and childhood.

3. *Professional experience.* Applicants who have had one or two years of satisfactory nursing experience derive greater benefit from the courses than those who come directly from the school of nursing. Applicants for admission to Nursing C are required to have had at least one year of satisfactory experience as graduate nurses.

4. *Health.* A certificate of good health signed by a practising physician and a report on an X-ray of the chest (taken within the preceding three months) are required of all applicants.

5. *Ability to drive a car.* Applicants for admission to Nursing B are advised to learn to drive a motor car and to secure their driver's licence. Ability to drive well is often a deciding factor in securing a position.

6. *Personal fitness.* Because it is very important that applicants have the necessary personal qualifications for their proposed work, and also because facilities for field work limit the number of students who can be enrolled, the Department reserves the right of selection. A personal interview is required whenever possible.

Applications for admission to the Certificate Courses should be submitted before July 1st. The requisite form may be obtained on request from

Department of Nursing and Health,
The University of British Columbia,
Vancouver, B. C.

Nursing D

This is a course for graduate nurses who are eligible for admission to the University and who desire to qualify for the degree of B.A.Sc. (Nursing).

Admission requirements:

1. The applicant's professional preparation shall be considered by the Department to be a satisfactory alternative to the professional course included in Nursing A.

2. The applicant's record, both academic and professional, shall indicate the probability of success in her chosen field.

Course requirements:

1. The applicant shall complete satisfactorily the work of the First Year of the Faculty of Arts and Science or Senior Matriculation with the subject content as outlined on page 264.

2. Candidates will register in the Faculty of Applied Science and take the following courses as First Year students in Nursing D:

Subject	For details see page	First Term		Second Term	
		Lect.	Lab.	Lect.	Lab.
English 205	312	3	.....	3	.....
Psychology 100	234	3	.....	3	.....
Nursing 152 Elementary Biochemistry	332	1	.....	1	.....
Nursing 153 Bacteriology in Relation to Health and Disease	332	1	4	1	4

Six additional units to be selected, on the basis of student interest and needs, after consultation with the Department.

3. Nursing B or Nursing C as outlined on page 286.

Except in very unusual circumstances those candidates who already hold a certificate in Nursing B or Nursing C must meet the requirements listed under (2) above by attendance at a winter session within a period of five years following completion of the certificate course.

COURSE LEADING TO THE DEGREE OF B.Arch.

The course leading to the degree of Bachelor of Architecture requires for its completion five years of study after entering the Faculty of Applied Science. The studies, all related to basic human and social needs, provide a training in the fundamentals of the profession of architecture. This training fits the student for efficient service in the offices of practising architects upon graduation and prepares him for an early start in his professional career.

Basic training in mathematical, physical, and architectural principles is provided in the first three years of the course, while the last two years are devoted to studies and research which are more professional in character.

During this latter period, architectural problems are worked out in a manner similar to that employed in professional offices, in which subjects related to problems of design prevalent in current building practice are coordinated and studied as a comprehensive group. Throughout the course the organization and presentation of subjects is so arranged that the student's power of discrimination

in his choice of materials, structural systems, methods of construction, equipment, finishes, and embellishments is developed in a practical manner on the basis of aesthetic conceptions. Ample opportunity is provided for personal contact and discussion with practising architects, as well as with other leaders in the fields of art, construction, and social work.

The course in Architecture also provides a sound basis for students who are planning to undertake graduate work leading to specialization in related fields, such as Town and Community Planning, Industrial Design, and Prefabrication.

The general requirements for admission to the course in Architecture are the same as those for admission to other courses in Applied Science (see page 264), with the exception that students planning to enter Architecture are advised to take French 101 in the First Year of Arts and Science.

The essay required of students in engineering courses and described on pages 268 and 269 is also required of all Architecture students entering the Second, Third, Fourth, and Fifth Years. The same regulations apply except that Architecture students are not eligible to compete for the students' prizes mentioned on page 269.

Before the degree of Bachelor of Architecture will be granted, every student is required to submit satisfactory evidence of having had 12 months (1900 hours) practical experience in architectural work. Further details of the requirements are shown under Arch. 280, page 299. See also general statement concerning practical work outside the University (page 266).

FIRST YEAR

Subject	For details see page	First Term		Second Term	
		Lect.	Lab.	Lect.	Lab.
Math. 150 Trigonometry and Solid Geometry	319	2	.....	2	.....
Math. 151 Algebra	319	2	.....	2	.....
Math. 152 Calculus	319	2	.....	2	.....
C.E. 155 Graphical Statics	306	.....	2	.....	2
C.E. 160 Engineering Problems	306	.....	4	.....	4
Eng. 150 Composition	312	2	.....	2	.....
Phys. 160 Mechanics and General Physics	334	3	3	3	3
Arch. 150 Elements of Architecture	297	1	.....	1	.....
Arch. 151 Building Materials	297	2	.....	2	.....
Arch. 152 Architectural Drawing and Descriptive Geometry	297	1	4	1	4
Arch. 170 Visual Design	297	.....	3	.....	3

SECOND YEAR

Subject	For details see page	First Term		Second Term	
		Lect.	Lab.	Lect.	Lab.
Essay	.....	.....	.....	.....	.....
C.E. 250 Field Work and Mapping	306	.....	4	.....	4
C.E. 251 Surveying	306	2	.....	2	.....
Eng. 250 Technical English	312	1	.....	1	.....
Arch. 250 Architectural Design 1	297	.....	8	.....	8
Arch. 251 Theory of Planning	298	2	.....	2	.....
Arch. 252 Building Construction	298	3	3	3	3
Arch. 255 Elementary Strength of Materials and Structures	298	1	3	1	3
Arch. 260 History of Architecture	298	2	.....	2	.....
Arch. 261 History of Art	298	1	.....	1	.....
Arch. 262 Architectural Essay	298	.....	.....	.....	.....
Arch. 270 Freehand Drawing	298	.....	3	.....	3
Arch. 280 Summer Work	299	.....	.....	.....	.....

THIRD YEAR

Subject	For details see page	First Term		Second Term	
		Lect.	Lab.	Lect.	Lab.
Essay	.....	.....	.....	.....	.....
Ec. 200 Principles of Economics	179	3	.....	3	.....
Arch. 350 Architectural Design 2	299	.....	15	.....	15
Arch. 351 Industrial Design and Prefabrication	299	1	3	1	3
Arch. 352 Interior Finishes, Colour, and Furniture	299	2	.....	2	.....
Arch. 355 Architectural Engineering (including Foundations and Earth Pressure)	299	2	3	2	3
Arch. 356 Mechanical Services	300	2	.....	2	.....
Arch. 360 History of Architecture	300	2	.....	2	.....
Arch. 362 Architectural Essay	300	.....	.....	.....	.....
Arch. 370 Sketching	300	.....	.....	.....	.....
Arch. 371 Landscape Architecture	300	1	.....	1	.....
Arch. 380 Summer Work	300	.....	.....	.....	.....

FOURTH YEAR

Subject	For details see page	First Term		Second Term	
		Lect.	Lab.	Lect.	Lab.
Essay	.....	.....	.....	.....	.....
Arch. 450 Architectural Design 3	300	.....	16	.....	16
Arch. 455 Architectural Engineering	300	1	3	1	3
Arch. 456 Electricity and Illumination	300	2	.....	2	.....
Arch. 460 Theory of Architecture	301	1	.....	1	.....
Arch. 461 Community Planning	301	1	.....	1	.....
Arch. 462 Architectural Essay	301	.....	.....	.....	.....
Arch. 465 Accounting and Financing	301	3	.....	3	.....
Arch. 466 Family and Urban Sociology	301	3	.....	3	.....
Arch. 470 Sketching	301	.....	.....	.....	.....
Arch. 471 Modelling	301	.....	3	.....	3
Arch. 480 Summer Work	301	.....	.....	.....	.....

FIFTH YEAR

Subject	For details see page	First Term		Second Term	
		Lect.	Lab.	Lect.	Lab.
Essay	.....	.....	.....	.....	.....
Arch. 550 Architectural Design 4 (including Community Planning)	302	.....	24	.....	27
Arch. 552 Specifications	302	1	.....	1	.....
Arch. 560 Theory of Architecture	302	1	3	1	.....
Arch. 561 Town and Regional Planning	302	1	.....	1	.....
Arch. 562 Architectural Essay	302	.....	.....	.....	.....
Arch. 565 Professional Practice	302	2	.....	2	.....
Arch. 566 Seminar on Human Environmental Needs	302	2	.....	2	.....
Arch. 580 Summer Work	303	.....	.....	.....	.....

COURSES LEADING TO THE DEGREE OF M.A.Sc.

CHEMICAL ENGINEERING

Required courses: Chem. 530, and a group of courses selected from Chem. 511, 512, 517, 518, 521, 522, 550.

Electives: Suitable courses to be selected in consultation with the Department.

CIVIL ENGINEERING

Required course: One to be selected from C.E. 550, 551.

Electives: Suitable courses to be selected in consultation with the Department.

ELECTRICAL ENGINEERING

Required course: One to be selected from E.E. 551, 553, 555.

Electives: Suitable courses to be selected in consultation with the Department.

GEOLOGICAL ENGINEERING

Economic Geology.—Required subjects: Geology 526, and three units from Geology 520, 523, 524, and 525.

Mineralography.—Required subjects: Geology 524, and three units from the following: Geology 523, 525, 526.

Mineralogy.—Required subjects: Geology 523, and three units from Geology 520, 524, 525, 526.

Palaeontology.—Required subjects: Geology 521, and three units from Geology 520, Biology 400, Zoology 200, 300, and 301.

Petrology.—Required subjects: Geology 525, and three units selected from Geology 523, 524, and 526.

Stratigraphy.—Required subjects: Geology 520, and three units selected from Geology 521, 525, and Agronomy 415.

Electives: Under each of the above options, electives to the value of six units are required. These will be selected in consultation with the Department of Geology. The following subjects are recommended for

consideration: selected courses from Chemistry, Physics, Metallurgy, Mineral Dressing, Biology, Botany, Zoology, Bacteriology, Agronomy, English, Modern Languages, Mathematics, and Economics.

A thesis of the minimum value of three units is required in each option.

MECHANICAL ENGINEERING

Required course: One to be selected from M.E. 561, 565, 567.
Electives: Suitable courses to be selected in consultation with the Department.

METALLURGICAL ENGINEERING

Mineral Dressing.—Required course: Mineral Dressing 550, and thesis.
Electives: Suitable courses to be selected in consultation with the Department.
Metallurgy.—Required course: Metallurgy 551, and thesis.
Electives: Suitable courses to be selected in relation to the specific option undertaken, as approved by the Department.

ENGINEERING PHYSICS

Required and elective courses.—To be chosen in consultation with the Department. A thesis will be required of all candidates.

REGULATIONS

1. Candidates for the degree of Master of Applied Science must hold a B.A.Sc. degree from this University, or its equivalent.

2. A graduate of another university applying for permission to enter as a graduate student is required to submit with his application an official statement of his graduation, together with a certificate of the standing gained in the several subjects of his course. The Faculty will determine the standing of such a student in this University.

3. Prerequisites: Candidates must have at least Second Class average standing in the Third and Fourth Years, and, in addition, Second Class standing in the subjects of the course in which they wish to specialize. In case this standing has not been obtained, or in case certain subjects have been omitted, the deficiency must be made up by repeating or taking the course or courses concerned.

4. Candidates with approved degrees and academic records who proceed to the Master's degree shall be required:

(a) to spend one year in resident graduate study; or
(b) (at the discretion of the Faculty concerned):
  (i) to do two or more years of private work under the supervision of the University, such work to be equivalent to one year of graduate study; or
  (ii) to do one year of private work under University supervision and one term of resident graduate study, the total of such work to be equivalent to one year of resident graduate study.

5. One subject of specialization shall be selected, to which the required thesis must be definitely related. (Three typewritten copies of each thesis, together with an abstract approved by the department concerned, shall be submitted. See special circular entitled *Instructions for the Preparation of Masters' Theses.*)

The latest date for receiving Masters' theses in the Second Term shall be the last day of lectures; and the corresponding date for the Autumn Congregation shall be October 1st.

The work shall be of graduate nature and equivalent in quantity to at least that of a Final Year. About three quarters of the time should be devoted to the subject of specialization including the thesis, and one quarter to other subjects. Special encouragement will be given to the solution of problems related to British Columbia industries.

The choice of courses taken and their relation to the subject of specialization, the amount of work in each, or of tutorial work, must be approved by the heads of the departments concerned, by the Committee on Graduate Studies, and by the Dean. Special forms entitled *Application for a Course Leading to the Master's Degree* may be obtained from the Registrar's office.

6. Examinations shall be written, or oral, or both, and standing equivalent to at least 75 per cent. in the courses of specialization and 65 per cent. in other subjects shall be required.

7. Application for admission as a graduate student shall be made to the Registrar by September 1st. For fees see page 41.

EXAMINATIONS AND ADVANCEMENT

1. Examinations are held in December and in April. December examinations will be held in all subjects of the First and Second Years, and are obligatory for all students of these. December examinations in subjects of the Third and Fourth Years, excepting those subjects that are completed before Christmas, shall be optional with the departments concerned. Applications for special consideration on account of illness or domestic affliction must be submitted to the Dean not later than two days after the close of the examination period. In cases where illness is the plea for absence from examinations, a medical certificate must be presented on the appropriate form which may be obtained from the Dean's office, or if the illness occurs at the University the student may report to the Nurse, Hut No. 2, near the Auditorium Building, who may furnish the necessary certificate.

2. Candidates, in order to pass, must obtain at least 50 per cent. in each subject; in courses which comprise both lecture and labora-

tory work students will be required to pass in *both* the written examinations *and* laboratory work before standing in the subject will be granted. The grades are as follows: First Class, an average of 80 per cent. or over; Second Class, 65 to 80 per cent.; Passed, 50 to 65 per cent. (See pars. 12 and 13.)

Candidates in the Final Year of the B.A.Sc. course in Nursing, in order to obtain this degree, must obtain at least 50 per cent. in each subject, and at least 65 per cent. on the aggregate.

3. If a student's general standing in the final examinations of any year is sufficiently high, the Faculty may grant him supplemental examinations in the subject or subjects in which he has failed. Notice will be sent to all students to whom such examinations have been granted.

A request for the re-reading of an answer paper must be forwarded to the Registrar WITHIN FOUR WEEKS after the results of the examinations are announced. Each applicant must state clearly his reasons for making such a request in view of the fact that the paper of a candidate who makes less than a passing mark in a subject is read at least a second time before results are tabulated and announced. The fee for re-reading is $2.00.

4. Supplemental examinations will be held in September. Special examinations will not be granted, except by special permission* of the Faculty and on payment of a fee of $7.50 per paper, and then only during the third week in October or the third week in January. Nursing students with supplementals in the First Year must, in order to enter the hospital in September, obtain standing in these subjects by attendance at Summer Session. They may, however, take the September supplementals, thus postponing the date of entering upon the hospital course.

5. Applications for supplemental examinations, accompanied by the necessary fees (see *Special Fees*, page 42), must be in the hands of the Registrar by August 1st.

Local centres for supplemental examinations will be arranged in British Columbia at the following centres:

Victoria College
Trail or Nelson
Kelowna or Penticton
Kamloops
Prince George
Prince Rupert
Dawson Creek.

*Special permission of the Faculty is granted only under exceptional circumstances, such as illness, or as outlined on page 267.

A student wishing to write supplemental examinations at one of these centres must state in his application the centre chosen and must pay a fee of $2.50 a paper in addition to the regular fee of $5.00 a paper for a supplemental examination.

6. No student may enter the Third or higher year with supplemental examinations still outstanding in respect of more than 4 units of the preceding year, or with any supplemental examination outstanding in respect of the work of an earlier year unless special permission* to do so is granted by Faculty. Students in Nursing A must remove all outstanding supplemental examinations before entering their Second Year (the First Year of the Hospital Course).

7. No student will be allowed to take any subject unless he has previously passed, or secured exemption, in all prerequisite subjects.

8. A student who is required to repeat his year will not be allowed to take any work in a higher year excepting that a student who has taken the field work of C.E. 350 in the spring may take C.E. 352 during the following session. A student repeating his year need not repeat the laboratory portion of certain courses providing he has obtained a standing in the laboratory work which is acceptable to the head of the department in which the course is given.

9. Any student repeating his year will not be admitted with any supplementals outstanding.

10. A student who fails twice in the work of the same year may, upon the recommendation of the Faculty, be required by the Senate to withdraw from the University.

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 will be granted in any one of the four years to students who obtain at least 50 per cent. in each subject and 80 per cent. on the whole at the annual examinations of that year.

*Special permission of the Faculty is granted only under exceptional circumstances, such as illness, or as outlined on page 267.

14. Honours graduate standing will be granted to those who obtain Honours in the final year and who have passed any one of the three preceding years with at least 50 per cent. in each subject and 75 per cent. on the whole.

DEPARTMENTS IN APPLIED SCIENCE

NOTE. The following subjects may be modified during the year as the Senate may deem advisable.

Department of Agricultural Engineering

350. *Internal Combustion Engines.*—A study of the internal combustion engine; spark and compression ignition. Considerable material is included on fuels, lubricants, and design of combustion chambers.

Text-book: Elliott and Consoliver, *The Gasoline Automobile,* McGraw-Hill.

Reference: Morrison, *American Diesel Engines,* McGraw-Hill.

351. *Agricultural Machinery.*—A study of seeding, tillage, and harvest machines; their application and efficiency.

Text-book: Davidson, *Agricultural Machinery,* Wiley.

450. *Agricultural Building.*—Building construction; design and construction of farm building; plans and specifications; sewage disposal; water supply and ventilation.

Text-book: Foster and Carter, *Farm Buildings,* Wiley.

451. *Advanced Motors.*—Lectures; papers and discussions on various phases of advanced Agricultural Engineering.

Department of Agricultural Economics

300 [A]. *Farm Organization and Management.*—As in Agriculture. (See page 347.)

301 [1]. *Agricultural Economics.*—As in Agriculture. (See page 347.)

Department of Agronomy

211 [11]. *Soils.*—As in Agriculture. (See page 351.)

313 [13]. *Drainage and Irrigation.*—As in Agriculture. (See page 352.)

314 [14]. *Soil Conservation.*—As in Agriculture. (See page 352.)

Department of Architecture

150. *Elements of Architecture.* — Preliminary to History of Architecture and to Architectural Design. Study of function of architects and of architecture. Elements to be considered in plan, in structure, and in coordination of these two. Physiological and psychological needs of man to be satisfied by architecture. Reports with diagrams and sketches are required throughout the year.

151. *Building Materials.*—Sources, processing, outstanding characteristics (mechanical, physical, and chemical), and principal uses of materials employed in buildings. Analysis of their architectural qualities and applications. Visits to manufacturing and production plants.

152. *Architectural Drawing and Descriptive Geometry.*—Drafting and lettering; the principles of drawing and of descriptive geometry; orthographic, isometric, and oblique projections, intersections, and development; angular and parallel perspective; shades and shadows.

170. *Visual Design.*—Basic visual elements, line, form, colour, texture. Practical experiments in water colour, tempera, dyes, inks, and other forms of visual presentation. Three dimensional studies of space with different shapes, materials, and lighting effects.

250. *Architectural Design 1.*—Relation of exterior and interior space, the design of simple areas and buildings, elementary application of materials and methods of construction to design; design workshop studies. Through workshop exercises and discussions the student is made familiar with processes of thought and feeling basic in design. Organized experience in the use of simple tools and materials. Fundamental concepts of space, form, and function, and the primary structural, colour, and light relations by which these are expressed and controlled.

The subject of architectural design is continued through four years. Study of design of buildings suited to their sites. Development of the student's capacity for independent decision and of his competence in integration of formal, technical, economic, and general human factors. Long problems (four to ten weeks) form case studies of specific projects; short problems (one day to one week) provide concentration on minor projects or on some aspect of longer problems. Problems closely follow actual practice. Diagrammatic study of functions, introduction of clients, contractors, and authorities concerned, preparation of programs (clients' requirements), plans, elevations, sections, details, perspectives, models, execution drawings.

251. *Theory of Planning.*—Basic plan and design requirements of different building types studied through analysis of existing good examples. Method of approach to planning, characteristics of good plans; their three dimensional expression and execution.

252. *Building Construction.*—Basic construction technique in its relation to design. Field trips to familiarize students with the problems of construction and of its proper practice, and with the fabrication and production of building parts. Lectures, demonstrations, and reading on procedure in construction, finishing, insulating; development of ideas into practical working details and specifications, including selection and installation of materials; elementary estimating. Class exercises to develop a knowledge of the principles of good detailing; workshop studies and experiments.

Text-books: Huntington, *Building Construction,* Wiley, or Gay, *Materials and Methods of Architectural Construction,* Wiley; Ramsey and Sleeper, *Architectural Graphic Standards,* Wiley; *National Building Code,* Department of Finance and National Research Council of Canada.

255. *Elementary Strength of Materials and Structures.*—A study of the fundamental relations between external forces and their accompanying stresses; strains and deflections in structural members including beams, columns, joints and in a variety of structural forms. Laboratory tests for strength and hardness of specimens of timber, steel, and concrete; tests for strain and stress reactions in models of different types of structures.

260. *History of Architecture.*—History of Ancient, Classical, and Medieval Architecture based on the concept that plans and architectural forms are related to purpose, material, technical skills, climate, traditions, and to activities of life as expressed in literature, paintings, sculpture, and other records.

Text-book: Hamlin, *Architecture Through the Ages,* Putnam's.

261. *History of Art.*—A chronological survey of the changes in painting, sculpture, and other visual arts from prehistoric times to the present day. Illustrated reports are required.

262. *Architectural Essay.*—Students are required to prepare a paper during the session on some aspect of historical architecture. It may be based upon references in literature or other available library records, or it may be a study of technique, material, structure, or function in historic buildings as revealed by available records.

270. *Freehand Drawing and Colour.*—Drawing in pencil and other media and painting in various media to develop skill in visual

presentation to illustrate the structure and characteristic nature of natural forms and of common objects.

280. *Summer Work.*—Before receiving his degree, every student is required to submit satisfactory evidence of having had twelve months (1900 hours) practical experience of an architectural nature. At least four of the twelve months shall be spent on building sites and in contact with the processes of construction. Should a student find it impossible to find sufficient summer employment, and can supply evidence to that effect, he will be required to submit sets of measured drawings to the approval of the Staff; in no case will he be allowed to graduate with less than six months (1000 hours) of practical experience in architectural work.

350. *Architectural Design 2.*—A continuation of Arch. 250. Long problems include residential, educational and industrial buildings. Short problems also are given to develop speed in the formulation of plan and design concepts and to give training in rapid but clear presentation of these concepts. Landscaping and studies with working models prepared in the workshop are important aspects of the work.

351. *Industrial Design and Prefabrication.*—The lectures cover development of industrial design, basic methods of industrial processing, tooling and finishing of materials, principles of machine production with special reference to building parts and equipment, survey of prefabricated methods. The laboratory periods are spent in drafting room or workshop or in visiting plants; exercises are set in designing and in making of models of common building equipment, furniture, hardware, fixtures for services; study is made of a prefabricated system of construction and its application.

352. *Interior Finishes, Colour, and Furniture.*—Fabrics and finishing materials used in interior decoration; performance and costs. Workshop experiments in texture and colour relations (harmony and contrast). Theories of colour mixture and harmony; Munsell and Otswald systems of colour nomenclature and measurement; the use of colour to explain and enhance designs and surfaces of buildings and objects. History of furniture design and construction; basic principles in the design of free and built-in furniture. Problems in conjunction with Arch. 350.

355. *Architectural Engineering.*—A study of the principles and calculations of architectural engineering and their application to practical building design. Classroom problems worked out in conference with the instructor on foundations, soil bearing, earth pressures, wood, and steel. Exercises largely based on problems given in Arch. 350.

356. *Mechanical Services.*—Principles of sanitary hygiene; layouts and practice of plumbing and sanitation for buildings; drainage systems, water supply, sewage disposal, materials, and fixtures. Principles of thermal comfort; heat losses through structures; hot water and steam systems, direct and indirect heating and air washing, piping systems, radiant heating, suitability of various systems for typical buildings; solar heating.

360. *History of Architecture.*—A continuation of Arch. 260. The Renaissance and the Baroque Periods and the nineteenth century; early social and cultural manifestations of the modern movement. Text-book: Giedion, *Space, Time, and Architecture,* Harvard; Burckhardt, *The Civilization of the Renaissance in Italy,* Phaidon Press.

362. *Architectural Essay.*—A continuation of Arch. 262.

370. *Sketching.*—Before the first of October students are required to submit not less than ten sheets of studies of architectural subjects. They are to be presented on sheets approximately 16 by 20 inches and at least five are to be in colour.

371. *Landscape Architecture.*—Historical and critical study of landscape architecture; the effect of economics, sociology, geography, and climate on the development of the various landscape styles and their influence on modern landscape design. Visits to landscaped sites. Problems in conjunction with Arch. 350.

380. *Summer Work.*—A continuation of Arch. 280.

450. *Architectural Design 3.*—A continuation of Arch. 350. Major problems include recreation, transportation, and medical buildings; relation of such buildings to the community and to its development. Presentation drawings to include enough details to indicate a study of structure (see Arch. 455), construction, services, interior finishes, and landscaping. Practising architects are asked to give criticisms of designs for major problems.

455. *Architectural Engineering.*—A continuation of Arch. 355; more advanced studies in structural design and in concrete. The student's knowledge of different types of structural solutions is broadened and his facility in evaluating alternate methods of solving structural problems is further developed. Exercises related to Arch. 450.

456. *Electricity and Illumination.*—The wiring and electric service and equipment needs of buildings. Principles of visual comfort; illumination, natural and artificial; measurements, controls, glare, colour, light differentials, lighting equipment. One of the architectural problems in Arch. 450 is devoted to a study of illumination and wiring in relation to design.

460. *Theory of Architecture.*—A continuation of Arch. 360. The history of architecture reviewed in terms of theories of design, planning, and construction; analysis of theories expounded during the past hundred years as they affect contemporary architecture in relation to social changes brought about by the industrial revolution and to developments in materials, in methods of calculation, in methods of construction, and in the building trades.

461. *Community Planning.*—The historical development of city and community planning; the planning of ancient and modern cities as an expression of the requirements of the times. Elements of a community based upon actual observation of given areas in the Vancouver district; social, economic, and technical factors; possible future developments; basic principles of good community planning. Research work related to Arch. 466.

Text-book: Churchill, *The City Is the People,* Reynal and Hitchcock.

462. *Architectural Essay.*—A continuation of Arch. 362.

465. *Accounting and Financing.*—Financial records of business, modern methods of achieving financial statements; partnership accounting, financing of business concerns, professional business relations. Special reference to financing and to business organization of the building industry. Practice in bookkeeping, preparation of statements, evaluation of building projects in terms of re-sale value and rents, evaluation of existing buildings. Financing through government assistance.

466. *Family and Urban Sociology.*—The different views relating to the origin and evolution of human society; the geographic factor and economic methods in their bearing upon social life and the growth of cardinal social ideas. The changes manifested in family life, old and new concepts of the home, impact of modern community living on family customs. Sociological characteristics of the modern city, cultural patterns, social influence and control; the techniques of mass observation and of social surveys. Through a study of actual social phenomena as expressed by observable examples, this course attempts to train the students in a method of evaluating the course of human emotion and action in relation to design and planning.

470. *Sketching.*—A continuation of Arch. 370, with the same requirements.

471. *Modelling.*—A course designed to develop more fully appreciation of three-dimensional form and to equip the architect for cooperation with sculptors in practice. A study of form, solids, textures. Model making and wood carving.

480. *Summer Work.*—A continuation of Arch. 380.

550. *Architectural Design 4.*—A continuation of Arch. 450; complex buildings and groups of buildings usually including a housing and community planning project and a commercial, business, or public building. The thesis problem occupies the student's attention during most of the Second Term. This problem to be a large and relatively complex one, worked out completely, including construction and cost, from a program submitted by the student not later than the first day of the Second Term to the Head of the Department for approval by the Staff. The student is required to present an oral explanation of the solution to his problem.

552. *Specifications.*—Technique of specification writing, principal clauses to be covered, practice in specifying for common trades. This course is a review of good practice in the choice and handling of materials and in construction.

560. *Theory of Architecture.*—A continuation of Arch. 460. An analytical survey of the factors leading to good design accompanied by experiments; patterns, rhythms, spatial and plastic qualities. An effort is made to arrive at standards of design integrated with the other arts and having social validity corresponding to the requirements of contemporary life and techniques. Most of the Second Term is devoted to round table conferences, when leaders from the other arts and from the profession are asked to participate. The aim of this course is to establish clarity as to the philosophy of contemporary architecture and to summarize and congeal the theoretical training of the student.

561. *Town and Regional Planning.*—A continuation of Arch. 461. Planning at federal, regional, provincial, and local levels. Public and private housing, urban redevelopment, industrial location, the transportation network. Planning in Canada. Community responsibility in the planning process.

562. *Architectural Essay.*—A continuation of Arch. 462.

565. *Professional Practice.*—A continuation of Arch. 465. The architect's administration and organization of his office, his relation to the public, to his client, and to the contractor. Salesmanship and the architect's legal responsibilities in connection with the human and business handling of specific projects. Professional ethics, business conduct, fees, supervision, arbitration, issuing of certificates, competitions, standard forms of contracts, payment, liens, servitudes, public health, building regulations.

566. *Seminar on Human Environmental Needs.*—Seminar for investigating man's physiological and psychological requirements in building and planning. Information from scientists working in

physiology, psychology, and other fields on human environmental needs and from technicians who are making it possible to meet these needs.

580. *Summer Work.*—A continuation of Arch. 480.

Department of Biology and Botany

Biology

100 [1]. *Introductory Biology.*—The course is introductory to more advanced work in General Biology, Botany, or Zoology; also to courses closely related to biological science, such as Agriculture, Forestry, Medicine, Nursing, Pharmacy, Fisheries, Home Economics.

The fundamental principles of biology; the interrelations of plants and animals; life processes; the cell and division of labour; life-histories; relation to environment; dynamic biology.

The course is prerequisite to all courses in General Biology, Botany, and Zoology, except as otherwise stated.

300 [2]. *Principles of Genetics.*—As in Arts. (See page 152.)

310 [4]. *General Biology.*—As in Arts. (See page 153.)

400 [3]. *General Physiology.*—As in Arts. (See page 154.)

401 [5]. *Basic Physiology.*—As in Arts. (See page 154.)

Botany

200 [1*(a)*]. *General Botany.*—As in Arts. (See page 155.)

303 [5*(b)*]. *Dendrology.*—As in Arts. (See page 156.)

317 [6b]. *Forest Pathology.*—As in Arts. (See page 157.)

320 [7a]. *Forest Ecology and Geography.*—As in Arts. (See page 157.)

330 [3a]. *Plant Physiology.*—For students in the B.S.F. course. First Term. As in Arts. (See page 158.)

332 [3c]. *Plant Physiology and Nutrition.*—For students in the B.S.F. course. Second Term. As in Arts. (See page 158.)

Department of Chemistry

150 [2*(a)*]. *Qualitative Analysis.*—During the first six weeks of the term an additional lecture may be substituted for a part of the laboratory work.

Reference: Reedy, *Theoretical Qualitative Analysis,* McGraw-Hill.

Mr. Harris.

250 [2*(b)*]. *Quantitative Analysis.*—This course embraces the more important methods of gravimetric and volumetric analysis.

Text-book: Booth and Damerell, *Quantitative Analysis,* McGraw-Hill.

Mr. Harris.

300 [3]. *Organic Chemistry.*—As in Arts. (See page 162.)

304 [4*(a)*]. *Theoretical Chemistry.* — As in Arts. (See page 163.)

305 [4*(b)*]. This course is the same as Chemistry 304 with the omission of the laboratory.

310 [5]. *Advanced Qualitative and Quantitative Analysis.*—As in Arts. (See page 163.)

350 [6]. *Introduction to Chemical Engineering.*—In this course the elements of unit processes, such as filtration, distillation, crystallization, evaporation, and drying are to be considered. Several lectures will be devoted to the chemistry of combustion. The lectures will be supplemented by visits to manufacturing plants in the neighbourhood.

Summer reading: Read, *Industrial Chemistry,* Wiley.

Text-book: Badger and McCabe, *Elements of Chemical Engineering,* McGraw-Hill.

Mr. Seyer.

407 [7]. *Physical Chemistry.*—As in Arts. (See page 164.)

450 [16*(a)*]. *Advanced Chemical Engineering Theory.* — The First Term will comprise a course of study dealing with the general hydrodynamical equations for fluid flow. The thermodynamic aspect will be stressed wherever necessary. The theory of heat transfer with special reference to heat exchangers and condensers will also be considered. The Second Term will be devoted to theories of diffusion processes in general. The unit processes, such as humidification, drying, extraction, and adsorption will be studied in some detail.

Mr. Seyer.

451 [16*(b)*]. *Chemical Engineering Problems and Laboratory.*—Each student must submit solutions to a list of problems dealing with the unit processes discussed in both Chemistry 350 and Chemistry 450 lectures. The laboratory work will be arranged to supplement the lectures as much as time and equipment will permit.

Text-books: Walker, Lewis, McAdams, and Gilliland, *Principles of Chemical Engineering,* McGraw-Hill; Zemansky, *Heat and Thermodynamics,* Wiley; Binder, *Fluid Mechanics,* Prentice-Hall; Jakob and Hawkins, *Elements of Heat Transfer,* Wiley.

Mr. Seyer and Mr. Stusiak.

452. *Thesis.*

458 [8]. *Electrochemistry.* — Solutions are studied from the standpoint of the osmotic and dissociation theories. The laws of electrolysis, electroplating, electromotive force, and primary and secondary cells are considered in detail. Electric furnaces and electrolytic refining and deposition of metals will be studied in detail.

Text-books: Creighton and Koehler, *Electrochemistry,* Vol. II, Wiley; Thompson, *Theoretical and Applied Electrochemistry,* Macmillan.

Mr. Seyer and Mr. Stusiak.

459 [9]. *Advanced Organic Chemistry.*—As in Arts, Chem. 409 and 410. (See page 164.)

COURSES FOR GRADUATE STUDENTS

511 [11]. *Physical Organic Chemistry.*—As in Arts. (See page 165.)

512 [12]. *Colloid Chemistry.*—As in Arts. (See page 165.)

517 [17]. *Chemical Thermodynamics.*—As in Arts. (See page 166.)

(Given in 1947-48 and alternate years.)

518 [18]. *Advanced Inorganic Chemistry.*—As in Arts. (See page 166.)

(Given in 1948-49 and alternate years.)

521 [21]. *Chemical Kinetics.*—As in Arts. (See page 166.)
(Given in 1947-48 and alternate years.)

522 [22]. *Surface Chemistry.*—As in Arts. (See page 166.)
(Given in 1948-49 and alternate years.)

530 [30]. *Research Conference.*—This course is required of all graduate students. Students will be required to present a paper on an approved topic.

550. *Reactor Design.*—Principles of industrial reaction rates; conduction; convection and heat release in catalytic converters; phase rule applications to heterogeneous systems; principles of extraction processes.

Two lectures a week. Mr. Stusiak.

Department of Civil Engineering

150 [3]. *General Engineering.*—A course designed to give the student a knowledge of the commercial and financial aspects of the engineering profession, its historical background, and the relations between science and modern industry.

Mr. Finlayson.

155 [4]. *Graphical Statics.*—Elementary theory of structures; composition of forces; general methods involving the force and equilibrium polygons; determination of resultants, reactions, centres of gravity, bending moments; stress in framed structures, cranes, towers, roof-trusses, and bridge-trusses. Algebraic check methods will be used throughout.

Reference: Hudson and Squire, *Elements of Graphic Statics,* McGraw-Hill.

Mr. Peebles.

160 [30]. *Engineering Problems 1.*—Training in methods of attacking, analyzing, and solving engineering problems; coaching in proper methods of work and study, including drill in systematic arrangement and workmanship in calculations. The content is based upon the application of mathematics to problems in physics and engineering.

Mr. Peebles.

250. *Surveying and Mapping.*—Elementary surveying; practical problems involving the use of the chain, stadia, compass, transit, and level; traverses, closed circuits, contour and detail surveys; levels for profiles, benches, and contours. Draughting from notes obtained in survey field work; maps of compass, stadia, and transit surveys; contour maps, topographical maps, and conventions.

Mapping and Field Work given in alternate weeks.

Mr. Pretious, Mr. Heslop.

251 [6]. *Surveying 1.*—Chain and angular surveying; levelling; construction, use, and adjustment of surveying instruments; applications to engineering problems.

Text-book: Breed and Hosmer, *Elementary Surveying,* Wiley.

Mr. de Jong, Mr. Heslop.

255 [1]. *Descriptive Geometry.* — Orthographic projection involving points, lines, and planes; use of auxiliary planes; interpenetrations and developments; practical applications.

Text-book: Smith, *Practical Descriptive Geometry,* 4th edition, McGraw-Hill.

Mr. Pretious.

260 [31]. *(a) Mechanics.*—An extension of the subject matter of Physics 150, applying the methods of the differential and integral calculus.

(b) Engineering Problems 2.—A continuation of C.E. 160, involving a thorough drill in problems in the principal divisions of mathematics given in the First and Second Years of Applied Science, drawn from the field of mechanics, surveying, draughting, and engineering.

Text-book: Poorman, *Applied Mechanics,* McGraw-Hill.

Mr. Finlay, Mr. Hrennikoff.

350 [7]. *Field Work 2.* — *(a)* Route surveys, reconnaissance, preliminary and location surveys; methods of taking topography, cross-sectioning; estimating quantities; running in easement and vertical curves, etc. The notes secured will be used in class work for mapping and for estimating quantities and costs.

(b) Hydrometric surveying: cross section of a stream, gauge readings, velocity of flow by current meter, and calculation of the volume of flow.

(c) Solar and stellar observations for latitude and azimuth; adjustments of instruments; the use of plane table, sextant, and minor instruments.

Work commences at the close of spring examinations, and consists of field work, eight hours a day for twelve days, or equivalent.

Mr. Finlay, Mr. Pretious.

351 [14]. *Surveying 2.*—A continuation of Civil 251. Underground, hydrographic, and phototopographic surveying; Dominion and Provincial land surveys; field astronomy.

Text-book: Rubey, Lommel, and Todd, *Engineering Surveys, Elementary and Applied,* Macmillan.

References: *Manual of Surveys of Dominion Lands; Instructions for B. C. Land Surveyors;* Davis, Foote, and Raynor, *Surveying,* McGraw-Hill.

Mr. de Jong.

352 [13]. *Mapping 2.*—Mapping from notes obtained in Civil 350; mining, forestry, or geological maps.

Mr. Pretious.

353 [15]. *Drawing.* — Map projections, perspective drawings, photographic maps.

Mr. Bell.

355 [10*(a)*]. *Strength of Materials.*—A study of the fundamental relations between external forces and their accompanying stresses, strains and deflections in structural members, including simple and continuous homogeneous beams, reinforced concrete beams, shafts, columns, springs, and riveted and welded joints.

Text-book: Timoshenko & McCullough, *Elements of Strength of Materials,* 2nd edition, Van Nostrand.

Reference: Timoshenko, *Strength of Materials,* Vols. I and II, Van Nostrand.

Mr. Finlay.

356 [10*(b)*]. *Laboratory.*—Testing of timber, steel, and concrete specimens to determine the strength of these materials; hardness testing; the testing of cement aggregates and the proportioning of concrete mixes. Lecture course covers properties of engineering materials.

Mr. Hrennikoff, Mr. Alexander.

NOTE. Part of the laboratory testing is performed in the Forest Products Laboratory.

357 [10*(c)*]. *Materials Testing.*—Testing of steel and other metals for their mechanical properties. For students in courses other than Civil or Forest Engineering.

Mr. Hrennikoff, Mr. Alexander.

360 [12]. *Hydraulic Engineering 1.*—Fundamental principles and their application. Problems on gauges, pressure on surfaces; translation and rotation of liquids, Bernouilli's theorem, flow through orifices, short tubes, nozzles, weirs, pipes, and open channels, and the dynamic action of jets. Laboratory period includes experimental work on gauges, pipes, weirs, orifices, and hydraulic machines. Problems and laboratory in alternate weeks.

Text-book: Russell, *Hydraulics,* 5th edition, Holt.

Reference: Freeman, *Hydraulics Laboratory Practice,* A.S.M.E.

Mr. Pretious, Mr. Heslop.

361 [12]. *Hydraulic Engineering.*—A course similar to C.E. 360 for Civil Engineering students only.

One lecture and two hours of problems every week with two hours of laboratory every second week.

Mr. Pretious.

365 [8]. *Foundations and Masonry.*—Soil exploration; bearing power of soils; pile and other foundations; cofferdams; caissons; open dredging; pneumatic and freezing processes.

Text-book: Jacoby and Davis, *Foundations of Bridges and Buildings,* McGraw-Hill.

C.E. 355 must either precede or be taken concurrently.

Mr. Hrennikoff.

366. *Earth Pressure.*—Theory of earth pressure for cohesionless and cohesive materials; active and passive pressures; design of retaining walls; bulkheads; pressure on hoppers; stability of unretained slopes.

References: Ketchum, *Walls, Bins and Grain Elevators;* Cain, *Earth Pressure, Walls and Bins.*

Mr. Hrennikoff.

370 [9]. *Structural Design 1.*—Problems in draughting, illustrating designs in structural engineering; estimates of quantities and costs; preparation of plans.

Text-books: *Manual of Timber Connector Construction,* Timber Engineering Co.; *Steel Construction,* American Institute of Steel Construction.

Mr. Muir.

375 [11]. *Railways.*—The development of railway transportation; co-ordination of transportation systems; railway location, drainage, grades, curvature, and distance, and their effects upon operating costs; maintenance of way and structures.

References: Williams, *Design of Railway Location,* 2nd edition, Wiley; Raymond, *Elements of Railroad Engineering,* 5th edition, Wiley; Tratman, *Railway Track and Track Work,* McGraw-Hill.

Mr. Peebles.

380 [28]. *Seminar.* — Written and oral discussion of articles appearing in the current transactions and proceedings of the various engineering societies, also reviews of important papers in engineering periodicals; reports on local engineering projects; preparation of written outlines for all oral reports; training in technical writing and public speaking.

Required of all Third and Fourth Year students in Civil Engineering.

Reference: Rickard, *Technical Writing,* McGraw-Hill.

450 [16]. *Field Work 3.*—The adjustment, care, and use of precise surveying instruments; method of carrying out triangulation surveys; determination of latitude, azimuth, and time to a high degree of accuracy; base line measurements and precise levelling.

Mr. de Jong.

455 [25]. *Theory of Structures.*—An analysis of the principal types of structures, including simple trusses, 3-hinged arches, continuous girders, and rigid frames, under the action of fixed and moving loads, together with a study of the deflections to which such structures are subject.

Text-book: Timoshenko & Young, *Theory of Structures,* 1st edition, McGraw-Hill.

Reference: Johnson, Bryan & Turneaure, *Modern Framed Structures,* Vols. I to III, Wiley.
Mr. Finlay.

460 [17]. *Structural Design 2.*—Design of simple span steel bridges; determination of stresses due to vertical, longitudinal, and lateral forces; proportioning of parts; design of sections, connections, end supports, and various details; making detail drawings.

Text-books: *Steel Construction,* American Institute of Steel Construction; *Specifications for Steel Railway Bridges,* American Railway Engineering Association; *Standard Specification for Steel Highway Bridges,* Canadian Engineering Standards Association.

Reference: Kirkham, *Structural Engineering,* McGraw-Hill.
Mr. Hrennikoff.

461 [24]. *Reinforced Concrete Design.*—Intended to train the student in methods of analysis and design of reinforced concrete structures, including beams, slabs, columns, footings, and rigid frames. A complete design of a small reinforced concrete building, including the necessary drawings, is prepared by each student.

Text-book: Urquhart and O'Rourke, *Reinforced Concrete Design,* 4th edition, McGraw-Hill.
Mr. de Jong.

465 [22]. *Municipal Engineering.—Sewerage and Sewage Disposal:* general methods and economic consideration; quantity and run-off; design of sewers, man-holes, flush tanks, etc.; construction methods, materials, and costs; estimate, design, maintenance, and management of sewerage systems; physical, chemical, biological, and economic aspects of sewage treatment; dilution; screening, sedimentation, filtration; disinfection; maintenance and management costs.

Text-book: Steel, *Water Supply and Sewerage,* McGraw-Hill.
Reference: Metcalf and Eddy, *Sewerage and Sewage Disposal,* McGraw-Hill.

Water Supply: rainfall; evaporation; run-off; quantity, quality, and pressure required; pumping machinery; storage; aqueducts, pipe lines, and distribution systems; purification systems; valves, hydrants, and fire service; materials, estimates, and designs; construction methods and costs.

Text-book: Steel, *Water Supply and Sewerage,* McGraw-Hill.
Reference: Babbitt and Doland, *Water Supply Engineering,* McGraw-Hill.

Town Planning: the economical and artistic development of a city; city management; street cleaning and disposal of waste;

composition and quantity of city wastes; collection, dumping, and disposal; land treatment; incineration and reduction; costs and returns.

Reference: Lewis, *City Planning,* Wiley.

Mr. Muir.

466 [29]. *Water Power Development.*—The principles of hydrology, rainfall, run-off, stream flow, hydrographs, specific speed, characteristic curves, selection of hydraulic machines, theory of turbines, tangential water wheels, and centrifugal pumps, hydro-electric installations, waterhammer, and surge tanks.

Laboratory work consists of testing pumps and turbines, plotting curves, and solving problems.

Text-book: Barrow, *Water Power Engineering,* McGraw-Hill.

References: Meyer, *Elements of Hydrology,* 2nd edition, Wiley; Creager and Justin, *Hydro-electric Engineering,* 1st edition, Wiley; Daugherty, *Hydraulic Turbines,* 3rd edition, McGraw-Hill.

Mr. Muir.

470 [23]. *Highway Engineering.*—Development and organization; administration and finance; economics and planning; location and design; materials and construction methods; soil studies, including laboratory analysis of soils; highway safety and traffic control; transportation surveys.

References: Hewes, *American Highway Practice,* Vols. I and II, Wiley; Hogentogler, *Engineering Properties of Soil,* McGraw-Hill.

Mr. Peebles.

475 [18]. *Engineering Economics.*—Elementary mathematics of investment; interest; annuities; financial comparison of engineering installations; organization of business enterprise; principles of financing; bonds; stocks; graphical analysis of fixed and variable expense; elementary accounting; interpretation of financial statements; elements of statistical method.

Text-book: Woods and DeGarmo, *Introduction to Engineering Economy,* Macmillan.

References: Dewing, *Financial Policy of Corporations,* Ronald; Jordan, *Investments,* Prentice-Hall.

Mr. Kania.

476 [19]. *Engineering Law.*—The engineer's status; fees, salary; the engineer as a witness; responsibility; engineering contracts; tenders; specifications; plans; extras and alterations; time; payments and certificates; bonus or liquidated damages; maintenance and defects; subcontractors; agents; arbitration and awards; specification and contract writing.

Text-book: Kirby, *Elements of Specification Writing,* Wiley.

References: Laidlaw and Young, *Engineering Law,* University of Toronto; H. D. and W. H. Anger, *Digest of Canadian Mercantile Law,* Anger.

Mr. Pretious.

COURSE FOR GRADUATE STUDENTS

550 [100]. *Advanced Structural Analysis.*—A course devoted to the analysis of statically indeterminate structures, such as arches, rigid frames, continuous trusses, and suspension bridges.

Mr. Finlay.

551. *Advanced Strength of Materials.*—Stresses in shells; torsion of shafts of non-circular section; advanced problems in bending of beams; centre of twist; beams on elastic foundation; trigonometric series; curved beams; column theory; strength theories.

Mr. Hrennikoff.

Department of Commerce

251 [1]. *Fundamentals of Accounting.*—As in Arts. (See page 149.)

361 [6]. *Marketing.*—As in Arts. (See page 174.)

471 [9]. *Business Finance.*—As in Arts. (See page 175.)

481 [11]. *Industrial Management.*—As in Arts. (See page 175.)

491 [4]. *Commercial Law.*—As in Arts. (See page 175.)

Department of English

150 [3]. *Composition.*—A course in composition especially designed to meet the needs of students in the Faculty of Applied Science. It offers training in economical and accurate objective writing. The work consists of (1) essays, class exercises, and selected reading, and (2) written examinations. Students will be required to make a passing mark in each of these two parts of the work.

Text-books: Perrin, *Writer's Guide and Index to English,* Scott, Foresman; Brown, *Present Tense,* revised edition, Harcourt, Brace.

Mr. Ferguson, Mr. Fyfe, Mr. Grant, Mr. Hughes, Mr.Morrison, Mr. Sanford, Mr. Spaulding.

200 [2]. *Literature.*—For students in Nursing. As in Arts. (See page 192.)

205 [3 & 4]. *Literature and Composition.*—For students in Nursing. As in Arts. (See page 192.)

250 [4]. *Technical Writing.*—This course offers instruction in the preparation and writing of technical papers and reports, with emphasis upon the organization and forms appropriate to such work.

Text-book: To be announced.

Mr. Grant, Mr. Hughes, Mr. Morrison, Mr. Sanford, Mr. Spaulding.

Department of Forestry

150 [1c]. *General Forestry.*—A general introduction to the entire field of forestry together with a study of the forest distribution throughout the world by broad types and the importance of forest activities in different regions of the world.

Text-book: Allen, *Elements of Forestry,* McGraw-Hill.

Reference readings are assigned.

Mr. Haines.

160. *Forest Surveying.*—The care, adjustment, and use of simple surveying instruments. Practice in running base lines and traverses, and in topographic mapping.

Text-book: Davis, *Elementary Plane Surveying,* McGraw-Hill.

The Staff.

250. *Silvics.*—An introduction to the study of climatic, edaphic, physiographic, and biotic factors affecting the establishment and growth of trees and forests.

Text-book: Toumey and Korstian, *Foundations of Silviculture,* 2nd edition, Wiley.

Reference readings are assigned.

Mr. Griffith.

251 [3]. *Forest Fire Protection.*—Fire control planning. Prevention, detection, and suppression of forest fires, analysis of fire hazard, and methods of rating and predicting fire weather.

Text-books: Folweiler and Brown, *Fire in the Forests of the United States,* Swift; *Western Fire Fighters Manual,* Western Forestry and Conservation Association.

Mr. Allen.

252 [1b]. *Forest Botany.* — A general introductory course in botany, with special reference to forest conditions. Engineering students only are required to take this course.

Text-book: Holman and Robbins, *A Text-book of General Botany,* Wiley.

Mr. Allen and Mr. Griffith.

260. *Forest Surveying and Mapping.*—A lecture course following Forestry 160, devoted to instruction in the collection, presentation, and analysis of field data.

Mr. Knapp.

270 [5]. *Wood Technology.*—A study of wood structure and identification based on characteristics determined by the naked eye and the hand lens.

Text-book: Brown and Panshin, *Commercial Timbers of U. S.,* McGraw-Hill.

Mr. Wellwood.

350 [8]. *Silviculture.*—Silvicultural systems; intermediate and final cuttings; natural and artificial regeneration.

Text-books: Hawley, *Practice of Silviculture,* 5th edition, Wiley; Toumey and Korstian, *Seeding and Planting in the Practice of Forestry,* 3rd edition, Wiley.

References: Westveld, *Applied Silviculture in the United States,* Wiley; various government publications.

Mr. Allen.

353 [14]. *Seminar.*—Oral presentation and discussion of current forestry topics; reviews of important papers in forestry periodicals; training in technical writing and public speaking.

The Staff.

360 [2]. *Forest Mensuration.*—Log scaling and measurement of felled timber products; preparation of volume and yield tables; measurement of growth and yield of forests; statistical analysis.

Text-book: Bruce and Schumacher, *Forest Mensuration,* 2nd edition, McGraw-Hill.

Reference: Chapman and Demeritt, *Elements of Forest Mensuration,* Lyon.

Mr. Wellwood.

361 [6]. *Forest Management.*—Principles of forest organization and regulation of the cut; sustained yield management of forests; forest working plans; forest finance.

Text-book: Mathews, *Management of American Forests,* McGraw-Hill.

Mr. Griffith.

370. *Wood Technology.*—The microscopic characteristics and identifications of wood and timbers, morphology, economic uses of commercial species.

Text-book: Brown and Panshin, *Commercial Timbers of the United States,* McGraw-Hill.

References: Record, *The Identification of Timber of Temperate North America,* Wiley; Koehler, *The Properties and Uses of Wood,* McGraw-Hill; Koehler and Thelen, *Kiln Drying of Lumber,* McGraw-Hill.

Mr. Wellwood.

380 [7]. *History of Forestry.*—The history and development of forestry in the different timber producing countries of the world.

Reference readings are assigned.

Mr. Wright.

390. *Spring Field Work.*—A four week field trip to the Haney forest required at the end of spring examinations. Third Year.

450. *Advanced Silviculture.*—The practical applications to specific woods problems of silvicultural knowledge. Research methods. Reference readings are assigned.
Mr. Allen.

453. *Seminar.*—Oral presentation and discussion of current forestry topics, reviews of important papers in forestry periodicals, training in technical writing and public speaking.
The Staff.

460. *Advanced Mensuration.*—Recent developments in mensuration research methods.
Reference readings are assigned.
Mr. Wellwood.

461. *Advanced Forest Management.*—Application of knowledge gained in Forestry 361 and other courses to specific management problems as encountered under woods conditions. Actual examples and problems with reference to specific properties are analysed and solved.
Mr. Griffith.

471 [10]. *General Logging.*—A study of the general logging methods in the different forest regions of the continent.
Text-books: Brown, *Logging Transportation,* Wiley; Brandstrom, *Analysis of Logging Costs and Operating Methods in the Douglas Fir Region,* Charles Lathrop Park Forestry Foundation, Washington, D. C.
Reference readings are assigned from trade journals and periodicals.
Mr. Knapp.

472. *Logging Engineering.*—Cost analysis of different logging methods. Principles of engineering as applied to woods conditions. Studies of operating methods on actual operations.
References: Mathews, *Cost Control in the Logging Industry,* McGraw-Hill; Brown, *Logging Principles and Practices,* Wiley; Kirkland and Brandstrom, *Selective Timber Management in the Douglas Fir Region,* U. S. Forest Service, Washington, D. C.
Mr. Knapp.

473 [11, part]. *Milling and Marketing.*—Manufacturing problems and methods of marketing in the lumber industry.
Text-book: Bryant, *Lumber,* Wiley.
Reference: Brown, *American Lumber Industry,* Wiley.
Mr. Knapp.

474 [13]. *Lumber Grading.*—An intensive study of the grading, tallying, and shipping of Pacific Coast lumber products.
Text-book: Beaulieu and Lauritzen, *Lumber Grading Practice,*

British Columbia Lumber and Shingle Manufacturers' Association.
Mr. Dixon.

475 [11, part]. *Forest Products.*—A study of the pulp and paper industry, veneers, plastics, chemical and physical treatment of woods.

References: *The Manufacture of Pulp & Paper,* Volumes III to V, McGraw-Hill; Knight and Wulpi, *Veneers and Plywood,* Ronald.
Mr. Wellwood.

481 [16]. *Forest Economics.*—Principles of forest economics; economic and social value of forests; forestry and land use; forest taxation, forestry credit, and forest fire insurance; forestry as a private business enterprise.

Text-book: Buttrick, *Forest Economics and Finance,* Wiley.
References: Marquis, *Economics of Private Forestry,* McGraw-Hill; Hiley, *The Economics of Forestry,* Oxford; Korstian, *Forestry on Private Lands in the United States,* Duke University.
Mr. Wright.

The University Forest Reserve

On March 1st, 1943, the Provincial Government leased to the University, for twenty-one years subject to further renewal, an area of forest land of approximately 9,600 acres between Pitt Lake and the town of Haney for "forest research and demonstration purposes."

The area comprises a solid block of land about 7 miles long and 2½ miles wide. From the standpoint of size, accessibility, variation in forest sites, and variety of timber types and age classes it is undoubtedly one of the finest school forests on the continent. Thus ample scope is provided for field work in cruising, mensuration, silviculture, logging engineering, and forest management, and for research in forestry and related sciences.

The University Forest

The forest, which consists of a narrow belt on the southern and western sides of the University site, and which is typical of the lowland stands on the southern coast, contains the principal species of trees and shrubs of the region, including specimens of the old trees as well as young growth of different ages, and serves as a convenient demonstration and field study area for the departments of Forestry, Biology and Botany, and Zoology.

A small forest nursery has been established for experimental and demonstration work in silviculture and also to provide planting stock for the forest, which is operated on a sustained yield basis.

Vancouver Laboratory
Forest Products Laboratories of Canada,
Forest Service
Department of Mines and Resources, Canada

TECHNICAL STAFF

R. M. BROWN, B.Sc.F. (Toronto), Superintendent.
R. S. PERRY, B.Sc. (McGill).
J. B. ALEXANDER, M.Sc. (New Brunswick).
H. W. EADES, B.Sc.F. (Washington).
F. W. GUERNSEY, B.A.Sc. (Brit. Col.).
C. F. McBRIDE, B.A.Sc. (Brit. Col.).
C. J. ARCHER, B.Sc.F. (Toronto).
W. J. SMITH, B.A.Sc. (Brit. Col.).
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W. W. DAVIDSON.
J. VARLEY.
J. T. YELF.
MRS. P. D. BIRRELL.

The Forest Products Laboratories of Canada is a research organization maintained by the Forest Service of the Department of Mines and Resources, Canada. Research in forest products is carried on in two laboratories, one in Ottawa and the other in Vancouver, while all questions relating to pulp and paper research are dealt with by a cooperative laboratory established at McGill University, Montreal, through an arrangement between the Forest Products Laboratories of Canada, the Canadian Pulp and Paper Association, and McGill University.

The Vancouver laboratories were established in 1918 and have been maintained in association with the University of British Columbia since that time. Originally equipped only for the mechanical testing of western woods, the organization has shown a rapid expansion and now includes research in all branches of timber mechanics, lumber seasoning investigation, timber decay problems, mill and logging studies, waste utilization, wood identification, etc.

One of the most important phases of the work of the laboratories is the technical service to all branches of the timber industry and wood users in the dissemination of information on a wide variety of subjects having to do with forest products. The close contact maintained with other forest products research organizations permits the extension of this technical service to include such subjects as wood utilization of all kinds, wood preservation, wood distillation, pulp and paper, new industries, etc.

A mutually beneficial scheme of cooperation is maintained between the Laboratories and the University, whereby students of the University in Engineering and Forestry have access to the

Laboratories to watch the work being carried on and to use the apparatus at times in testing strength of materials. The staff of the Laboratories also has the benefit of the University library and the advice and assistance of University specialists in related work.

Department of Geology and Geography

201 [1*(a) & (c)*]. *General Geology.*—As in Arts. (See page 201.)

202 [1*(b) & (d)*]. *Laboratory Exercises.*—As in Arts. (See page 201.)

302 [2a]. *General Mineralogy.*—As in Arts. (See page 202.)

303 [2b]. *Descriptive and Determinative Mineralogy.*—As in Arts. (See page 202.)

304 [4]. *Structural Geology.*—As in Arts. (See page 203.)

305 [5]. *Theoretical and Historical Geology.*—As in Arts. (See page 203.)

307. *Petroleum and Natural Gas.*—As in Arts. (See page 203.)

308. *Coal and Structural Materials.*—As in Arts. (See page 203.)

403 [3]. *Petrology.*—An elementary course on the common rocks and the processes which formed them. Determinations are made entirely on hand specimens. Results to be obtained by microscopic studies of rock sections are outlined and demonstrated, but no attempt is made to instruct the student in Petrography. The course is designed primarily for students in Mining Engineering.

Text-book: Tyrrell, *The Principles of Petrology,* Dutton.

Mr. Watson.

406 [6]. *Palaeontology.*—As in Arts. (See page 203.)

407 [7]. *Petrography.*—As in Arts. (See page 204.)

408 [8]. *Mineral Deposits.*—As in Arts. (See page 204.)

409 [9]. *Mineralography.*—As in Arts. (See page 204.)

410 [10]. *Field Geology.*—As in Arts. (See page 205.)

411 [11]. *Regional Geology.*—As in Arts. (See page 205.)

412 [12]. *Geomorphology.*—As in Arts. (See page 205.)

420. *Thesis.*

COURSES FOR GRADUATE STUDENTS

(To be arranged by consultation with the instructors and the Head of the Department.)

520 [20]. *Sedimentation.*—As in Arts. (See page 205.)

521 [21]. *Problems in Palaeontology.*—As in Arts. (See page 206.)

523 [23]. *Advanced Mineralogy.*—A systematic study of some of the rarer minerals; the determination of some of the more important gem stones.

Text-books: Dana, *Text Book of Mineralogy,* revised by Ford, 4th edition, Wiley; Brush & Penfield, *Determinative Mineralogy and Blowpipe Analysis,* 16th edition, Wiley.

Mr. Warren.

524 [24]. *Advanced Mineralography.*—A critical study of some approved suite of ores, using the more recent methods of investigation, including the examination of polished sections under polarized light, microchemistry, photomicrography, use of "super-polisher," etc.

Text-book: U. S. Geological Survey Bulletin 914, *Microscopic Determination of the Ore Minerals.*

Occasional seminars and seven, nine, or eleven hours laboratory work a week.

Mr. Warren.

525 [25]. *Petrogeny.*—As in Arts. (See page 206.)

526 [26]. *Mineral Deposits.*—As in Arts. (See page 207.)

Department of Mathematics

150 [2]. *Trigonometry and Geometry.*—Graphs and periodicity of simple and compound trigonometric functions; inverse functions, trigonometric equations, and identities; De Moivre's theorem; series expansions; exponential, logarithmic, and hyperbolic functions. Selected topics in geometry.

Text-books: Rider, *Plane and Spherical Trigonometry,* Macmillan; Currier, Watson, and Frame, *General Mathematics,* Macmillan.

Mr. Murdoch.

151 [3]. *Algebra.* — Complex numbers; polynomials, rational functions, and their graphs; interpolation formulae; numerical solution of equations; determinants; infinite series.

Text-book: Nowlan, *College Algebra,* McGraw-Hill.

Mr. Jennings.

152 [4]. *Calculus.*—An introductory study of the differential and integral calculus, and some of the simpler applications.

Text-book: Nelson, Folley, and Borgman, *Calculus,* revised edition, Heath.

Reference: Currier, Watson, and Frame, *General Mathematics,* Macmillan.

Mr. Gage.

203. *Mathematics for Forestry.*—As in Arts. (See page 226.)

250 [6]. *Calculus.*—Differential and integral calculus with various applications.
Text-book: Nelson, Folley, and Borgman, *Calculus,* Heath.
Mr. Gage.

251 [7]. *Plane and Solid Geometry.*—A study of the conics; cycloids, and other plane curves; elementary statistics and curve fitting; solid analytic geometry; introduction to spherical trigonometry; elementary vector analysis.
Mr. James.

320. *Differential Calculus.*—As in Arts. (See page 227.)

321. *Integral Calculus and Differential Equations.*—As in Arts. (See page 227.)

322. *Algebra and Geometry 2.*—As in Arts. (See page 228.)

350 [8]. *Applied Calculus and Differential Equations.*—More advanced calculus, including harmonic analysis, interpolation, Fourier series; probability; ordinary and partial differential equations met in physics and engineering.
Text-book: Reddick and Miller, *Advanced Mathematics for Engineers,* revised edition, Wiley.
Mr. Gage.

401 [16]. *Advanced Calculus.*—As in Arts. (See page 228.)

COURSE FOR GRADUATE STUDENTS

550 [10]. *Analysis.*—A course dealing with selected topics in analysis, designed for graduate students in Engineering.
Mr. Gage.

Department of Mechanical and Electrical Engineering

Mechanical Engineering

152 [1]. *Mechanical Drawing.* — Free hand lettering; orthographic projection; dimensioning; thread conventions; technical sketching; detail and assembly drawings of machine parts; tracing and blueprinting.
Text-book: Svensen, *Essentials of Drafting,* Van Nostrand.
Mr. McIlroy.

352 [2]. *Mechanical Drawing.* — Continuation of M.E. 152. Isometric and oblique projection; auxiliary views; more advanced working drawings; checking a drawing.
This course commences immediately upon the close of the spring examinations and continues for a period of twelve days, eight hours a day.

Required of Third Year students proceeding in Chemical, Electrical, Mechanical, and Metallurgical Engineering.

Text-book: Svensen, *Essentials of Drafting,* Van Nostrand.
Reference: Schuman, *Technical Drafting,* Harpers.
Mr. McIlroy.

356 [30]. *Machine Shop Practice.*—This course is intended to give an introduction to shop practice and some practical experience in the processing of metals. It includes work on the bench, lathe, shaping machine, drill press, and milling machine, lay-off, and tempering.

358 [31]. *Machine Shop Practice.*—Similar to M.E. 356 but intended for students in Electrical Engineering.

361 [3]. *Kinematics of Machines.* — Velocity and acceleration diagrams of mechanisms; instantaneous centre of rotation; slider crank and quadric-crank chain; quick return mechanisms; inversion; straight line motions; epi-cyclic trains; miscellaneous mechanisms.

Text-book: Guillet, *Kinematics of Machines,* 4th edition, Wiley.
Mr. Richmond.

363 [5]. *Machine Design 1.*—A study is made of the design of machines and machine parts. Emphasis is placed on the selection of proper materials and the rational design of standard machine parts for strength, giving proper consideration to rigidity, safety, and economical operation.

Text-books: Faires, *Design of Machine Elements,* Macmillan; Marks, *Mechanical Engineers' Handbook,* 4th edition, McGraw-Hill.
Mr. Richmond.

365 [4]. *Dynamics of Machines.* — Diagrams of crank effort, piston velocity, and acceleration; flywheel; balancing, rotating, and reciprocating masses; secondary balancing; governors, brakes, and dynamometers; belt-drives; dynamics of the gyroscope; friction and friction-clutches; impulsive forces in mechanisms.

Text-book: Low, *Applied Mechanics,* Longmans.
Mr. Vernon.

371 [6]. *Applied Thermodynamics.*— A practical course for students not specializing in Mechanical and Electrical Engineering. Fuels and combustion; steam boilers; steam engines and turbines; combustion engines; air compression; refrigeration.

Text-book: Solberg, Cromer, and Spalding, *Elementary Heat Power,* Wiley.
Mr. Wolfe.

373 [7]. *Applied Thermodynamics.*—This course deals with the application of the laws of thermodynamics to problems concerning

steam cycles and steam engines, the flow and compression of air, the combustion of fuels, internal combustion engines, and refrigerating machines.

Text-book: Faires, *Applied Thermodynamics,* Macmillan.

References: A. S. M. E. *Power Test Codes;* Shoop and Tuve, *Mechanical Engineering Practice,* McGraw-Hill.

Mr. McIlroy.

375. *Applied Thermodynamics.*—Similar to M.E. 373, but modified to meet the needs of students in Electrical Engineering.

Mr. McIlroy.

456 [32]. *Machine Shop Practice.*—A continuation of M.E. 356. Required of students in Fourth Year Mechanical Engineering.

463 [16]. *Machine Design 2.* — A continuation of Mechanical Engineering 363, which includes the design of power transmission equipment such as belts, gears, etc. Emphasis is placed on the use of rational formulas in the design of machine parts.

In the drawing office period the student is required to design simple machines and to prepare the working drawings necessary for their construction.

Text-books: Faires, *Design of Machine Elements,* Macmillan; Marks, *Mechanical Engineers' Handbook,* 4th edition, McGraw-Hill.

Mr. Richmond.

465 [17]. *Applied Mechanics.*—This course deals with the theory of mechanical vibrations, applications being made to the problems of vibration isolation and absorption, and the torsional vibrations of internal combustion engines. In addition, methods of experimental stress analysis are considered, such as photoelasticity and strain measurement by electrie gauges. Some mathematical stress analysis is also included.

Text-book: Freberg and Kemler, *Elements of Mechanical Vibration,* Wiley.

References: Den Hartog, *Mechanical Vibrations,* McGraw-Hill; Timoshenko, *Strength of Materials,* Parts 1 and 2, Van Nostrand.

Mr. Richmond.

467 [14]. *Mechanical Design of Electrical Machinery.*—A course dealing with the various mechanical problems arising in the design and construction of electrical machinery. The subjects treated include the design of transmission lines and supports; the design of shafts and bearings for high-speed rotating machinery; vibrations and balancing. For Fourth Year Electrical Engineering students.

Mr. Thomson.

471 [15]. *Prime Movers.*—A more advanced course in the theory of all types of prime movers, namely, water turbines, steam turbines, and internal combustion engines.

Water Turbines: impulse turbines; Pelton wheel; Girard turbine; reaction turbines; Francis turbine; Kaplan turbine; specific speeds; draft tube; centrifugal pumps; reciprocating pumps; hydraulic pressure machines.

Steam Turbines: flow through nozzles; impulse turbines; De Laval, Curtis, Zoelly, Rateau; velocity compounding; pressure compounding; reaction turbines; Parsons; velocity diagrams; reheating of steam; the reheat cycle; the regenerative cycle; bleeding condensers and air pumps; steam consumption of turbines.

Internal Combustion Engines: a more advanced course in the thermodynamic theory, design, and performance of petrol, gas, and oil engines.

Text-book: Polson, *Internal Combustion Engines,* Wiley.

References: Goudie, *Steam Turbines,* Longmans; Stodola, *Steam and Gas Turbines,* McGraw-Hill; Moyer, *Steam Turbines,* Wiley; Lea, *Hydraulics,* Longmans; Gibson, *Hydro-electric Engineering,* Vol. I, Blackie.

Mr. Vernon.

472 [10]. *Mechanical Engineering Laboratory.* — The work carried out embodies the operation and testing of the various laboratory machines, illustrating the theory covered in the corresponding lecture courses. Written reports are required on the tests carried out.

Mr. Vernon.

475 [12]. *Design of Steam Power Plants.*—A study of the function, construction, and performance of the various units that comprise a modern steam power plant; i.e., boilers, grates, chimneys, pumps, feed-water heaters, economisers, condensers, steam piping and valves, fuel and ash-handling equipment; calculations regarding capacity, efficiency, and operating cost of the various types of these units; inspection trips to a number of local plants.

Text-book: Skratzki and Vopot, *Applied Energy Conversion,* McGraw-Hill.

References: Gebhardt, *Steam Power Plant Engineering,* Wiley; Gaffert, *Steam Power Stations,* McGraw-Hill.

Mr. McIlroy.

477 [11]. *Heating, Ventilating, Air Conditioning, and Refrigeration.*—Factors affecting human comfort; calculation of building heat losses and gains; design of the various steam, hot-water, and warm-air heating systems; measurement of air flow and design of duct systems; air humidification and dehumidification; design and performance of the various refrigerating apparatus; study of refrigerants; heat transfer and flow of fluids.

Text-book: Severns, *Heating, Ventilating, and Air Conditioning Fundamentals,* Wiley.

References: Macintire, *Refrigeration Engineering,* Wiley; A.S. H.V.E. *Guide;* Allen and Walker, *Heating and Air Conditioning,* McGraw-Hill.

Mr. Thomson.

481 [18]. *Aeronautics.*—General theory of flight; aerofoils, lift, drag, distribution of pressure, aspect ratio, effect of variation of camber; stream lines, airscrews, performance curves; general principles of design and methods of construction; theory of stability.

Text-book: Jones, *Elements of Practical Aerodynamics,* Wiley.

Mr. Vernon.

COURSE FOR GRADUATE STUDENTS

561. *Advanced Applied Mechanics.*—This course deals with the various problems of stress analysis of interest to machine designers. The behaviour of actual material in machines will also be considered with emphasis being placed on plasticity and creep effects, fatigue or endurance properties, and impact and dynamic effects. The laboratory period is utilized for problems and computations, and experimental methods of stress analysis.

Text-book: Timoshenko, *Strength of Materials,* Parts I and II, Van Nostrand.

Two lectures and one three-hour laboratory period a week. Mr. Richmond.

563 [101]. *Applied Theory of Elasticity.*—A study of the mathematical theory of elasticity as applied to various problems arising in mechanical engineering. The subjects treated include plane stress and plane strain in rectangular and polar co-ordinates, the torsion problem, and the bending of prismatical bars.

References: Timoshenko, *Theory of Elasticity,* McGraw-Hill; Southwell, *Theory of Elasticity,* Oxford.

Mr. Richmond.

565. *Mechanical Vibrations.*—This course will continue the study of mechanical vibrations started in M.E. 465 and will consider the vibration of elastic bodies, engine dynamics and torsional vibrations, self-excited vibrations, vibration of non-linear systems, and other subjects of interest in machine design. The laboratory period is utilized for problems and computations, and methods of vibration measurement.

Text-book: Den Hartog, *Mechanical Vibrations,* McGraw-Hill.

Two lectures and one three-hour laboratory period a week. Mr. Richmond.

567. *Heat Transfer.*—A study of theory of heat transfer as applied to various problems arising in the field of mechanical engineering. The mechanism of heat transfer by conduction, convection, and radiation is studied and practical applications of each mechanism are considered.

References: McAdam, *Heat Transmission,* McGraw-Hill; Brown and Marco, *Elementary Heat Transfer,* McGraw-Hill; selected references from current engineering periodicals.

Two lecture periods a week. Mr. Wolfe.

Electrical Engineering

351. *D. C. Machines and A. C. Circuits.*—The theory and characteristics of direct current generators and motors. Single-phase and polyphase alternating current circuits; power measurements.

Text-books: Hehre and Harness, *Electrical Circuits and Machinery,* Vols. I and II, Wiley; *Junior Laboratory Manual.*

Mr. Kersey.

353 [2]. *Principles of D. C. Machines.*—Electromagnetic theory. The theory, operating characteristics, efficiency, and applications of direct current generators and motors.

Text-book: Hehre and Harness, *Electrical Circuits and Machinery,* Vol. I, Wiley.

Reference: Langsdorf, *Principles of Direct Current Machines,* McGraw-Hill.

Mr. Morgan.

355 [3]. *Principles of Alternating Currents.*—A thorough treatment of alternating current theory and calculations, with an introduction to the principles of the chief alternating current machines.

Text-book: Kerchner & Corcoran, *Alternating Current Circuits,* Wiley.

Reference: Hehre and Harness, *Electrical Circuits and Machinery,* Vol. II, Wiley.

Mr. Morgan.

356 [2 and 3 *Laboratory*].—Experimental work and problems on D. C. machines and A. C. circuits, illustrating the theory covered in E.E. 353 and E.E. 355.

Text-book: *Junior Laboratory Manual.*

Mr. Morgan.

357. *Electronics and Electron Tubes.*—Motion of charged particles; structure of atoms; electrons in metals; thermionic emission; electrical discharges in gases; electron tubes and their characteristics; rectifiers and elementary circuits.

Text-books: Millman and Seeley, *Electronics,* McGraw-Hill; Wright, *Electronics Laboratory Manual,* McGraw-Hill.
Mr. MacLeod.

451 [1]. *Electrical Circuits and Apparatus.*—A general course for students not specializing in Electrical or Mechanical Engineering. The course includes the theory of D.C. and A.C. circuits and machinery, and the theory and application of electron tubes.

Text-book: Fitzgerald, *Basic Electrical Engineering,* McGraw-Hill.
Mr. Noakes.

453 [14]. *Alternating Current Machines.*—The theory and characteristics of alternating current machines. For Fourth Year students in Mechanical Engineering.

Text-books: Hehre and Harness, *Electrical Circuits and Machinery,* Vol. II, *Alternating Currents,* Wiley; *Senior Laboratory Manual.*
Mr. Morgan.

457 [12]. *Principles of Alternating Current Machines.*—A detailed analysis of the theory and characteristics of alternating current machinery, including the transformer, the alternator, the synchronous motor, the induction motor, the rotary converter, and the commutator motor.

Text-books: Langsdorf, *Theory of Alternating Current Machinery,* McGraw-Hill; Vickers, *The Induction Motor,* Pitman; *Senior Laboratory Manual.*
Reference: Puchstein and Lloyd, *Alternating Current Machines,* Wiley.
Mr. Coulthard.

459 [7]. *Design of Electrical Machinery.*—The design of direct and alternating current motors and generators and of constant potential transformers, with special reference to the theory and limits of design; design problems in radio circuits and transmission systems.

Text-book: Kuhlmann, *Design of Electrical Apparatus,* Wiley.
Reference: Still, *Elements of Electrical Design,* McGraw-Hill.
Mr. MacLeod.

461 [8]. *Electrical Illumination.* — Radiation; luminous flux; light sources; photometric units and measurements; vision; lighting design.

Text-book: Kraehenbuehl, *Electrical Illumination,* Wiley.
Reference: Boast, *Illumination Engineering,* McGraw-Hill.
Mr. Morgan.

463 [9]. *Electric Power Transmission and Distribution.*—The calculation of line resistance, inductance, and capacitance; steady state currents and voltages; circle diagrams; corona and insulators; transmission line design; the electrical layout of power plants, substations, and distribution systems; short circuit calculations; relays; an introduction to the theory of rates.

Text-book: Woodruff, *Electric Power Transmission,* Wiley.

References: Tarboux, *Introduction to Electric Power Systems,* International Textbook Company; Sanderson, *Electric System Handbook,* McGraw-Hill; Lovell, *Generating Stations,* McGraw-Hill.

Mr. Noakes.

465 [11]. *Electrical Communication.*—Properties of coils and condensers; the theory and application of vacuum tubes as amplifiers, oscillators, modulators, and detectors; radio circuits; gas-filled tubes and control circuits; the electrical characteristics of telephone lines and cables; filters; impedance transformation; radiation and antennae.

Text-books: Eastman, *Fundamentals of Vacuum Tubes,* McGraw-Hill; Ware and Reed, *Communication Circuits,* Wiley.

References: Everitt, *Communication Engineering,* McGraw-Hill; *Electronics Laboratory Manual.*

Mr. MacLeod.

467 [13]. *Electrical Theory, Instruments, and Measurements.*—A review of electrical units and dimensions; electrical instruments and measurements; bridges; electrical theory, including transient phenomena.

Text-books: Golding, *Electrical Measurements and Measuring Instruments,* Pitman; Coulthard, *Transients in Electric Circuits,* Pitman.

Mr. Coulthard.

COURSE FOR GRADUATE STUDENTS

551 [101]. *Electromagnetic Theory and Electronics.*—A study of electromagnetic fields and waves with reference to radio and electronics engineering. The main subjects are Maxwell's equations, potentials, circuit concepts, propagation and reflection of electromagnetic waves, radiation; transmission lines, wave guides, radio circuits and apparatus, with special reference to high frequencies.

References: Skilling, *Fundamentals of Electric Waves,* Wiley; Ramo and Whinnery, *Fields and Waves in Modern Radio,* Wiley; Guillemin, *Communication Networks,* Vols. I and II, Wiley; *Ultra High Frequency Techniques,* Van Nostrand; current journals.

Two lectures and one three-hour laboratory period a week.

553. *Electric Power Systems.*—The theory of power flow; synchronous machine characteristics; electrically long transmission lines; generalized circuit constants and circle diagrams; symmetrical components and surge phenomena.

References: Dahl, *Electric Circuits*, Vols. 1 & 2, McGraw-Hill; Crary, *Power System Stability*, Wiley; *The Westinghouse Transmission and Reference Book;* Wagner and Evans, *Symmetrical Components;* current journals.

Two lectures and one three-hour laboratory period a week.

555. *Application of Operational Methods to Engineering.*—Operational mathematics applied to the solution of linear and of partial differential equations; and to topics selected from electric circuit theory, dynamical theory, electric transmission lines, conduction of heat, and electric wave and diffusion problems.

References: Coulthard, *Transients in Electric Circuits,* Pitman; McLachlan, *Complex Variable and Operational Calculus,* Cambridge; Gardener and Barnes, *Transients in Linear Systems,* Wiley.

Two lectures a week.

Department of Mining and Metallurgy

Mining

350 [1]. *Principles of Mining 1.*—Mining economics, prospecting, exploration, mine development, breaking ground, ground support, transportation, drainage.

Text-books: Lewis, *Elements of Mining,* Wiley; Peele, *Mining Engineers' Handbook,* 3rd edition, Wiley, (optional but students in mining engineering are advised to provide themselves with a copy of Peele.)

Mr. Crouch.

450 [3]. *Principles of Mining 2.*—A continuation of Mining 350; mine sampling and valuation, mining methods, mining law.

Mr. Crouch.

451. *Mine Management.*—Mine plant economics; mine ventilation, industrial hygiene, accident prevention; mine organization and management; industrial relations.

Mr. Crouch.

454 [8]. *Problems and Reports.*—Problems in mine plant design; reports on selected topics; discussion of current technical literature.

Mr. Crouch.

490 [5]. *Mine Surveying.*—Methods of surveying underground opening and bore holes, mine models, the mine engineer.

Mr. Crouch.

Metallurgy

350 [1*(b)*]. *Chemical Metallurgy.*—Introduction to metallurgy; fuels; refractories; pyrometry; elementary physico-chemical principles of metallurgical operations. These principles are illustrated in the laboratory by application to hydro-, pyro-, and electro-metallurgical reactions, including some aspects of fire- and wet-assaying.

Text-book: Newton, *Introduction to Metallurgy,* Wiley.

References: Shepard and Dietrich, *Fire Assaying,* McGraw-Hill; Liddell, *Handbook of Non-ferrous Metallurgy,* 2nd edition, McGraw-Hill; *Basic Open Hearth Steelmaking,* Part 2, A.I.M.E.

Mr. Forward, Mr. Samis.

351 [1*(a)*]. *Physical Metallurgy.*—Structure and physical properties of metals; alloy equilibrium diagrams; principles of heat treatment of steel and non-ferrous alloys; properties of alloys; specifications.

Text-book: Heyer, *Engineering Physical Metallurgy,* Van Nostrand.

Mr. Forward, Mr. Armstrong.

352 [1*(c)*]. *Metallography.*—Preparation of specimens and observation of micro-structures; heat treatment of carbon steels and non-ferrous alloys; simple physical tests.

Text-book: Kehl, *The Principles of Metallographic Laboratory Practice,* 2nd edition, McGraw-Hill.

Reference: Teichert, *Ferrous Metallurgy — Metallography and Heat Treatment of Steel,* Volume III, McGraw-Hill.

Mr. Armstrong.

360. *Seminar.*—Discussion of current topics in the field of mining and metallurgy; oral presentation of the subject matter contained in the Third Year Essay; training and practice in public speaking and technical writing.

450. *Theoretical Metallurgy.* — The development of the free energy concepts of the phase rule, heats of reaction and equilibria as they relate to metallurgical processes and alloys. The laboratory course serves to illustrate the application of these principles in oxidation and reduction, electro-metallurgy, melts, gas reactions, and certain phases of alloying operations.

Mr. Samis.

451 [2]. *Applied Chemical Metallurgy.* — The application of chemical principles in roasting, leaching, smelting, and refining, illustrated by the operations encountered in the metallurgy of iron and steel, the common base metals, light metals, precious metals, and ferro-alloys.

References: Stoughton, *Metallurgy of Iron and Steel,* 4th edition, McGraw-Hill; *Basic Open Hearth Steelmaking,* A.I.M.E.; Liddell, *Handbook of Non-ferrous Metallurgy,* 2nd edition, McGraw-Hill.
Mr. Forward, Mr. Armstrong.

452 [3*(a)*]. *Physical Metallurgy.*—The structure and deformation of metals and alloys; phase changes in the solid state; effect of alloy additions to steel; principles of heat treatment; quenching media; special alloys; cast-iron; atmosphere control.

Text-book: Heyer, *Engineering Physical Metallurgy,* Van Nostrand.

References: Hume-Rothery, *The Structure of Metals and Alloys,* Institute of Metals; Bain, *The Alloying Elements in Steel,* American Society for Metals; Bullens, *Steel and Its Heat Treatment,* 4th edition, Wiley; *Metals Handbook,* 1939 edition, American Society for Metals.

Mr. Forward, Mr. Armstrong.

453 [3*(b)*]. *Metallurgical Calculations.*—A laboratory course dealing with problems related to the fields of combustion, roasting, smelting, leaching, and refining, with particular emphasis on the thermodynamic and other physico-chemical principles involved.

Text-book: Butts, *Metallurgical Problems,* 2nd edition, McGraw-Hill.

Mr. Samis.

454 [4]. *Laboratory and Research Methods.*—In the First Term, laboratory analysis of metallurgical products. In the Second Term, study of selected problems in (a) Mineral Dressing, *or* (b) Chemical Metallurgy, *or* (c) Physical Metallurgy. Emphasis is laid on the methods of laboratory procedure and preparation of engineering reports.

Mr. Howard, Mr. Samis, Mr. Armstrong.

456 [9]. *Applications of Metallography.*—A continuation of the work in Metallurgy 352: polishing ferrous and non-ferrous metals; identification of micro-constituents; macro-etching; contact prints; photography; radiographic, magnetic, and fluorescent inspection methods.

Text-book: Kehl, *Principles of Metallographic Laboratory Practice,* McGraw-Hill.

Mr. Armstrong.

457 [7]. *Plant Management.*—Metal production statistics and markets; ore-buying contracts; personnel and labour relations; metallurgical accounting, cost-finding, and inspection; professional ethics. A weekly seminar is included for formal discussion of

current technical and social topics to provide training in the organization and oral presentation of engineering reports. Students are also required to prepare a written report on the production methods and economic aspects of one of the metals.

Mr. Forward, Mr. Crouch, Mr. Howard, Mr. Armstrong.

COURSE FOR GRADUATE STUDENTS

551 [102]. *Metallurgy.*—Advanced studies in the field of reduction metallurgy *or* of physical metallurgy. The major portion of the work will consist of laboratory research on a specific problem in the field chosen.

Mineral Dressing

350 [1]. *Mineral Dressing 1.*—A study of the fundamental principles of mineral dressing; testing procedure; sampling; crushing; screening; grinding; classification; gravity concentration; flotation; cyanidation; magnetic separation; milling calculations. Selected laboratory experiments show the application of the fundamental principles to the treatment of representative ores.

Text-book: Richards and Locke, *Text-book of Ore Dressing,* Wiley.

References: Taggart, *Handbook of Mineral Dressing,* Wiley; Wark, *Principles of Flotation,* Australasian Institute of Mining and Metallurgy; Dorr, *Cyanidation and Concentration of Gold and Silver Ores,* McGraw-Hill; Gaudin, *Principles of Mineral Dressing,* McGraw-Hill; current periodicals.

Mr. Howard.

450 [3]. *Mineral Dressing 2.*—A continuation of Mineral Dressing 350 with special reference to flowsheets; mill location and design; smelter contracts; metallurgical calculations; non-metallics; coal preparation; plant control. Laboratory tests on the treatment of selected ores.

Text-book: Richards and Locke, *Text-book of Ore Dressing,* Wiley.

Mr. Howard.

COURSE FOR GRADUATE STUDENTS

550 [101]. *Mineral Dressing.*—An advanced course in mineral dressing for graduate students, including theory and laboratory work of a research character.

Department of Nursing and Health

151 [1]. *History of Nursing.*—A study of the origin and history of nursing.

One hour a week. First Year. Miss Mallory.

Lectures: 1.30-2.30, Tuesday.

152 [2]. *Elementary Biochemistry, as Applied to Physiology.*

One hour a week. First Year. Mr. Allardyce.

Lectures: 10.30-11.30, Friday.

153 [3]. *Bacteriology in Relation to Health and Disease.*—A course of lectures, demonstrations, and laboratory work, designed to emphasize the practical applications of bacteriology to medical and nursing problems.

Methods of isolation, culture, and identification of pathogenic micro-organisms; aseptic technique; disinfection and antisepsis; infection and resistance; active immunization procedures; bacteriology in relation to public health.

References: Henrici, *Biology of Bacteria,* latest edition, Heath; Bigger, *Handbook of Bacteriology,* latest edition, Williams and Wilkins.

One lecture and four hours laboratory a week. Mr. Ranta.

Lectures: 2.30-3.30, Monday.

Laboratory: 3.30-5.30, Monday and 2.30-4.30, Friday.

This course is the same as Bacteriology 153. (See page 148.)

454 [4]. *Preventive Medicine.*—A study of the public health aspects of preventable disease, including the acute infections; tuberculosis and venereal diseases; heart disease, cancer, and other degenerative conditions; preparation and utilization of biological products; and the newer knowledge of nutrition.

Text-book: Smillie, *Preventive Medicine and Public Health,* 1946, Macmillan.

Three hours a week, First Term. Two hours a week, Second Term. Mr. Dolman, Mr. Ranta.

455 [5]. *Mental Hygiene.*—An introduction to the study of mental illness, with emphasis upon its prevention; child guidance clinics and the psychiatric social history.

457 [7]. *Infant and Child Hygiene.*—A study of the physical, psychological, and other factors affecting the development of the infant and child; the prevention of the common disorders of infancy and childhood, and an analysis of those factors which promote and maintain infant and child health.

One hour a week. Miss Morrison.

459 [9]. *Sanitation.*—A study of community sanitation and of relevant legislative measures; field visits.

One hour a week. One term. Mr. Ranta.

461 [11]. *Public Health Organization.*—A series of lectures dealing with the organization and administration of health services.

One hour a week. Both terms. Special lecturers.

463 [13]. *The Principles and Practice of Public Health Nursing.*—A study of the evolution of the principles of public health nursing and their application to skills which are essential to the professional competence of the public health nurse.

Three hours a week. Both terms.

466 [16]. *Health Teaching.*—A course designed to prepare the public health nurse for her role as a teacher of health to individuals and groups in the community. Consideration is given to content and technique.

Three hours a week. Both terms.

467 [17]. *Current Nursing Problems.*—Consideration of recent developments in the nursing field.

One hour a week. Miss Mallory.

468 [18]. *Teaching in Schools of Nursing.*—A study of the curricula of schools of nursing; the content and arrangement of courses of study, and the application of teaching principles to the subjects found in the nursing curriculum; a study of nursing school records.

Two hours a week. Miss Mallory.

469 [19]. *Principles of Supervision in Schools of Nursing.*—A study of the organization of the school of nursing, with especial reference to the function of a ward or teaching unit; a discussion of experience records, case studies, ward clinics, and other means which assist in the correlation of theory and practice.

Two hours a week. Miss Mallory.

471 [21]. *Social Case Work.*—The general principles underlying social case work and the interrelation of nursing and allied welfare agencies.

Two hours a week. Second Term.

477 [27]. *Sociology.*—The family; an approach to the study of society by way of a basic institution.

Two hours a week. First Term. Mr. Topping.

481 [31]. *Principles and Methods of Teaching.*

Two hours a week. First Term. Mr. Hall.

485 [35]. *Essay.*—Presentation and discussion of a written report upon an elected problem or topic within the scope of nursing education or public health.

486 [36]. *Field Work in Nursing B**.—Field work will be arranged with associated public health and welfare organizations. It may be necessary for part of this field work to be taken before and after the academic year.

487 [37]. *Field Work in Nursing C.*—Opportunities will be provided for observation and limited participation in teaching, supervision, and ward management in the schools of nursing of associated hospitals.

Department of Physics

The instruction includes lectures on the general principles of physics, accompanied by courses of practical work in the laboratory.

100 [1]. *Elementary Physics.*—As in Arts. (See page 239.)

150 [4*(a)*]. *Mechanics.*—An elementary treatment of statics, kinematics, and dynamics, with particular emphasis on the working of problems. This course is given in the first half of the First Year of Applied Science.

Text-book: Poorman, *Applied Mechanics,* McGraw-Hill.

151 [4*(b)*]. *Heat.*—This course is begun when Physics 150 is finished. It is assumed that the student is already familiar with the elementary principles of heat.

Text-book: Edser, *Heat for Advanced Students,* Macmillan.

References: Allen and Maxwell, *A Text-book of Heat,* Macmillan; Cork, *Heat,* Wiley.

160. *Mechanics and General Physics.*—This course is intended for those students who are proceeding to a degree in Architecture. The following are among the topics included in the course: statics, dynamics, heat, acoustics, radiation, light, and electricity. The emphasis is placed upon those fundamental principles of physics which find application in architecture.

Text-book: Poorman, *Applied Mechanics,* McGraw-Hill.

250 [5]. *Electricity and Magnetism.*—A quantitative study of fundamental principles of electricity and magnetism, with special reference to the fact that the student is to be an engineer. The course includes a short treatment of the elements of alternating currents and an introduction to vacuum tube circuits.

Text-book: Loeb, *Fundamentals of Electricity and Magnetism,* 2nd edition, Wiley.

*In calculating the probable expense of the course, students are reminded to allow for costs in connection with field work. The sum of $100.00 is mentioned as probably the maximum amount required to cover the expenses of board and lodging while with the rural nursing organization, and of transportation.

302. *Mathematical Physics.*—As in Arts. (See page 241.)

303. *Physical Optics.*—As in Arts. (See page 242.)

304. *Thermodynamics.*—As in Arts. (See page 242.)

360 [10]. *Light.*—A short lecture course for engineering students. The subject matter includes radiation theory, photography, interference instruments, refractometers, spectroscopy, and applications of polarized light to engineering.

References: Gibb, *Optical Methods of Chemical Analysis*, McGraw-Hill; McAdams, *Heat Transmission*, McGraw-Hill.

401 [11]. *Electricity and Magnetism.*—As in Arts. (See page 243.)

402 [12]. *Introduction to Atomic Structure.*—As in Arts. (See page 243.)

403. *Kinetic Theory of Gases.*—As in Arts. (See page 243.)

405. *Theory of Elasticity and Flow.*—As in Arts. (See page 244.)

406. *Theoretical Mechanics.*—As in Arts. (See page 244.)

407. *Introduction to Nuclear Physics and Cosmic Rays.*—As in Arts. (See page 244.)

409. *Experimental Physics.*—As in Arts. (See page 244.)

460. *Metallurgical Physics.*—Elements of the structure and properties of matter; X-ray methods; spectroscopy; surface phenomena.

461. *Geophysics.*—A course of lectures dealing with gravimetric, seismic, magnetic, and electric measurements, on the earth, with special emphasis on their industrial application.

Two lectures a week.

Department of Zoology

NOTE. Biology 100 is prerequisite to all courses in Zoology.

200 [1]. *General Zoology.*—As in Arts. (See page 254.)

402 [10]. *Forest Entomology.*—As in Arts. (See page 257.)

THE FACULTY OF AGRICULTURE

1947-1948

FACULTY OF AGRICULTURE

INFORMATION FOR STUDENTS IN AGRICULTURE

The particular course of study* selected by any student in the Faculty of Agriculture is determined by his previous training and by the use he intends to make of his university work, whether for farming, district agricultural work, teaching, research, industry, or other vocation.

The first two years of work leading to the degree in Agriculture are devoted largely to acquiring a knowledge of the basic sciences, in adding to the student's knowledge of language, and in laying a foundation for more advanced studies in the practical and scientific phases of agriculture and of related subjects.

During the first year, the student who is not yet clear as to what special phase of agriculture he may care to follow is given an opportunity of becoming acquainted with the general field of agriculture and of its various branches, through the medium of an orientation course (Agriculture 100). This introductory course is given in the applied departments.

During the last two years of the course the student is permitted, in consultation with the Dean, the Committee on Courses, and the head of a department, to select from a wide list of subjects either a generalized course in agriculture or a specialized course in some one phase of agriculture, as in Agricultural Economics, Agricultural Mechanics, Agronomy, Animal Husbandry, Dairying, Horticulture, Poultry Husbandry; or a still further specialized course within these or closely allied fields, such as in Animal or Plant Nutrition, Animal or Plant Pathology, Applied Genetics, Bacteriology, Entomology, Physiology, Soils, and similar fields of study.

The extent of the course, whether for a few weeks or for several years, and the nature of the course, whether generalized or specialized, scientific or practical, is to be decided by each individual on the advice of the Dean, the Committee on Courses, and a department head.

In advising on the selection of courses or vocation, the student's personal preference and his adaptability are given careful consideration.

*The curriculum described in the following pages may be changed from time to time as deemed advisable by the Senate.

For those interested in continuing their university training beyond the work of the four years leading to the bachelor's degree, excellent opportunity is afforded in many of the fields mentioned above for further work leading to the master's degree.

A judicious selection of courses permits of the completion of the required work for both the B.S.A. and the B.A. degrees in five years.

(For further information regarding the various courses, see statements which follow the *Outline of Courses;* also description of courses as listed under the separate departments.)

Admission, Registration, Etc.

For statement as to general requirements for admission to the University, registration, etc., see pages 33-42.

Degrees

The degrees offered in this Faculty are:
Bachelor of Science in Agriculture (B.S.A.).
Master of Science in Agriculture (M.S.A.).

Courses of Study

Six distinct lines of study are offered, as follows:

(1) Four-year courses leading to the degree of Bachelor of Science in Agriculture (B.S.A.).
(2) A double course for the degrees of B.A. and B.S.A. (See *Double Courses.*)
(3) A one-year occupational course leading to a diploma in Agriculture.
(4) A winter course at the University, consisting of a Short Course in one or more of the agricultural subjects: Poultry, Horticulture, etc.
(5) Extension courses at different points in the Province.
(6) Graduate work in agriculture leading to the degree of Master of Science in Agriculture (M.S.A.).

Courses Leading to the Degree of B.S.A.

These courses are planned for students who wish to obtain practical and scientific knowledge of agriculture, or closely allied subjects, either as a basis for demonstration, teaching, or research, or as an aid to successful farming.

Students are required to have University Entrance or its equivalent before entering upon these courses. (See *University Entrance Requirements.*)

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, Agronomy, Animal Husbandry, Dairying, Farm Mechanics, Horticulture, and Poultry Husbandry on the part of those who wish to extend their practical knowledge. A successful completion of the course leads to a diploma in Agriculture. University Entrance standing is not required.

Short Courses

The Short Courses are planned for those men and women who are unable to take advantage of the longer courses, but who desire to extend their knowledge of agriculture in one or more of those branches in which they are particularly interested. The work throughout is intensely practical. Illustrative material and periods devoted to demonstration and judging work are features of the course. No entrance examination is required, nor are students asked to write an examination at the conclusion of the course.

Special announcements giving details of the various divisions of the course are issued in December of each year, and may be obtained from the Director of University Extension on application.

Extension Courses

All extension courses are under the direction of the Director of the Department of University Extension.

Graduate Work

For regulations, see pages 343-345.

Curriculum

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

Outline of Courses

Students are required to select their courses in consultation with the head of the department in which the undergraduate essay is to be written. In addition to Agriculture 100, all students are required to take as a minimum of agricultural subjects outside of their

major department twelve units of courses to be chosen in not fewer than three of the seven departments: Agricultural Economics, Agronomy, Animal Husbandry, Dairying, Agricultural Mechanics, Horticulture, and Poultry Husbandry. Students writing essays in fields other than those indicated above, such as Plant Pathology and Economic Entomology, are required to include in their outlines at least Agronomy 202, Horticulture 213, Horticulture 441, and Horticulture 442.

At the beginning of the First Term of each session all students are required to submit to the Dean for approval by the Committee on Courses an outline of courses to be taken during that session.

FIRST AND SECOND YEARS

The requirements for the first two years consist of 30 units, 15 of which must be taken in each year. Courses must be chosen in conformity with the requirements that follow.

Each student must take:

(a) Agriculture 100
(b) Biology 100
(c) Chemistry 100
(d) English 100 and 101, and either English 200 or English 205
(e) Mathematics 100
(f) Three units from electives A
(g) Not less than 9 units from electives B and C, at least 6 of which shall be from electives B

ELECTIVES

A	B	C
Agricultural Mechanics 201	Bacteriology 201	German 90
Agronomy 202	Biology 300 and 301	Spanish 90
Agronomy 211	Botany 200	Commerce 251
Animal Husbandry 215	Chemistry 200	Economics 200
Dairying 203	Geology 201 and 202	History 101
Horticulture 213	Mathematics 200 *or* 201	University Entrance Language 3 *or* 6 units
Poultry Husbandry 200 and 201	Physics 100	Psychology 100
	Zoology 200	Home Economics

Students who enter with standing higher than that of University Entrance may on approval of the Committee on Courses be excused from Agriculture 100, but if so excused, are required to take 6 units from electives A for credit in First and Second Years.

Students who contemplate proceeding to the Normal School after taking one year of the course in Agriculture may take the First

Year course in the language taken for University Entrance in First Year and defer either Chemistry 100 or Biology 100 until Second Year.

Subject to the approval of the Dean and the Committee on Courses, other subjects from the Faculty of Arts and Science, or from the Faculty of Applied Science, may be accepted for credit in the Faculty of Agriculture; also, but for First Year only, from Senior Matriculation; further, any two of the elective subjects in the Second Year not taken in that year, subject to approval, may be taken in the Third Year. A student may take in his Fourth Year an elective of the Second Year subject to the approval of the Faculty.

THIRD AND FOURTH YEARS

Prior to registration, and preferably before the close of the Second Year, all students are required to discuss with the Dean all courses which they intend to take.

There are no specific subjects which must be taken by all students; students are required, however, to elect up to a total of 36 units, essay included, but not more than 18 units of study may be undertaken in either year without approval of the Faculty.

A student's standing at graduation will be determined by averaging the grades obtained in the best 36 units of required work taken in the Third and Fourth Years.

An essay shall be prepared by each student on some topic, the subject of which shall be selected, with the approval of the heads of the departments concerned, before the end of the Third Year's work.

Two typewritten copies of each essay on standard-size paper (8½x11 in.) shall be submitted not later than the last day of lectures in the Second Term of the graduating year. The corresponding date for the Autumn Congregation shall be October 1st.

Courses Leading to the Degree of M.S.A.

1. Candidates for the degree of Master of Science in Agriculture (M.S.A.) must hold a bachelor's degree from this University, or its equivalent. Students, however, who have not more than six units of the undergraduate course to complete will be allowed to take courses counting toward a graduate degree; but these courses will not be counted as graduate credits until the students have registered as graduate students.

2. A graduate of another university applying for permission to enter as a graduate student is required to submit with his application an official statement of his graduation, together with

a certificate of the standing gained in the several subjects of his course. The Faculty will determine the standing of such a student in this University.

3. The prerequisites for graduate work include a major and minor consisting of eight and six units, respectively, of courses regularly offered in the Third and Fourth Years.

A standing of at least Second Class must have been obtained in each course.

The candidate must satisfy the Committee on Graduate Studies that he is fitted to undertake advanced work.

4. Candidates with approved degrees and academic records who proceed to the Master's degree will be required:

(a) to spend at least one year in resident graduate study; or

(b) (at the discretion of the Faculty concerned)

(i) to do two or more years of private work under the supervision of the University, such work to be equivalent to one year of graduate study; or

(ii) to do one year of private work under University supervision and one term of resident graduate study, the total of such work to be equivalent to one year of resident graduate study.

5. Students doing tutorial work will not be allowed to come up for final examination in less than two academic years after registration as M.S.A. students.

6. One major and one minor will be required. Candidates may select their minor in another Faculty.

At least Second Class standing is required in the subjects of the major and minor.

The choice of and relation between major and minor subjects, and the amount of work in each, or of tutorial work, must be approved by the head of each of the departments concerned, by the Committee on Graduate Studies, and by the Dean. Special forms of *Application for a Course Leading to the Master's Degree* may be obtained from the Registrar's office.

7. A candidate presenting himself for the degree of M.S.A. may be required by the head of the department in which he is majoring to have a reading knowledge of French or German.

8. *(a)* A thesis must be prepared on some approved topic in the major subject and must 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 will be October 1st.

(b) A thesis represents three to six units of work.
(c) Examinations, written or oral, or both, will be required.

9. Three typewritten copies of each thesis, together with an abstract approved by the department concerned, shall be submitted. (See special circular of *Instructions for the Preparation of Masters' Theses.*)

10. Application for admission as a graduate student shall be made to the Registrar by September 19th. (See *Fees.*)

Teacher Training Course

Students planning to enter the Teacher Training Course through Agriculture must have obtained at least twelve units of credit in Agriculture in addition to Agriculture 100 (or an elective from group A, page 342), and at least nine units of credits in any one of the following subjects: Chemistry, Physics, Mathematics, or Biology (including Botany and Zoology), in addition to Chemistry 100, Physics 100, and Biology 100.

In addition to the above, prospective candidates for the Teacher Training Course are required to select undergraduate courses in such a way that, in addition to English 100 and 101 and either 200 or 205, they will have obtained either six units of credit in one, or three units of credit in each of two of the following: English, Mathematics, University Entrance Language, Social Sciences (History, Economics, Political Science, and Sociology).

Students who intend to proceed to the Teacher Training Course are required to take Psychology 100 as a prerequisite to Educational Psychology.

For further particulars, see *Teacher Training Course* under Faculty of Arts and Science.

Examinations and Advancement

1. Examinations in all subjects, obligatory for all students, are held in April. In the case of subjects which are final at Christmas and in the case of courses of the First and Second Years, examinations will be held in December as well. Applications for special consideration on account of illness or domestic affliction must be submitted to the Dean not later than two days after the close of the examination period. In cases where illness is the plea for absence from examinations, a medical certificate must be presented on the appropriate form, which may be obtained from the Dean's office.

2. Undergraduate students in all years as well as those taking work in the Summer Session will not be considered as having passed unless they obtain 50 per cent. or more in each subject.

3. Successful candidates will be graded as follows: First Class, an average of 80 per cent. or over; Second Class, 65 to 80 per cent.; Passed, 50 to 65 per cent.

4. If a student's general standing in the final examinations of any year is sufficiently high, the Faculty may grant him supplemental examinations in the subject or subjects in which he has failed. Notice will be sent to all students to whom such examinations have been granted.

5. Supplemental examinations will be held in September. Special examinations will not be granted, except by special permission of the Faculty, and on payment of a fee of $7.50 for each paper. Application for special examinations must be made at least two weeks prior to the scheduled meetings of the Faculty in October and February.

6. Applications for supplemental examinations, accompanied by the necessary fees (see *Fees*), must be in the hands of the Registrar by August 1st. For local centres at which supplemental examinations may be written in September see page 147, section 6.

7. No student may enter a higher year with supplemental examinations still outstanding in respect of more than 3 units of the preceding year, nor with any supplemental examination outstanding in respect of the work of an earlier year or of University Entrance, unless special permission to do so is granted by the Faculty. Such permission will be granted only when the Faculty is satisfied that the failure to remove the outstanding supplemental examinations had an adequate cause.

8. A student may not continue in a later year any subject in which he has a supplemental examination outstanding from an earlier year, except in the case of compulsory subjects in the Second Year.

9. A student who is not allowed to proceed to a higher year may not register as a partial student in respect of the subjects of that higher year. But a student who is required to repeat his year will be exempted from attending lectures and passing examinations in subjects in which he has already made at least 50 per cent. In this case, he may take, in addition to the subjects of the year which he is repeating, certain subjects of the following year.

10. A student who fails twice in the work of the same year may, upon the recommendation of the Faculty, be required by the Senate to withdraw from the University.

11. Any student whose academic record, as determined by the tests and examinations of the First Term of the First or Second Year, is found to be unsatisfactory, may, upon the recommendation

of the Faculty, be required by the Senate to discontinue attendance at the University for the remainder of the session. Such a student will not be readmitted to the University as long as any supplemental examinations are outstanding.

12. Term essays and examination papers will be refused a passing mark if they are noticeably deficient in English, and, in this event, students will be required to pass a special examination in English to be set by the Department of English.

DEPARTMENTS AND COURSES IN AGRICULTURE

Agriculture

100 [1]. *General Agriculture.*—This course provides by means of lectures, demonstrations, and laboratory exercises a general survey of the field of Agriculture and an introduction to the work of the various branches of Agriculture, such as Agronomy, Animal Husbandry, Dairying, Horticulture, and Poultry Husbandry.

Two lectures and one laboratory period a week. First Year.

The staff. 3 units.

Department of Agricultural Economics

300 [A]. *Farm Organization and Management.*—An intimate study of the business and organization of farms of the general and specialized types, as revealed by a detailed analysis of the financial records of British Columbia farms and a general study of the farm business in Europe, the United States, and Canada.

References and assigned readings from Warren, Adams, and others.

Two lectures and one laboratory period a week. The staff. 3 units.

301 [1]. *Agricultural Economics.*—The principles of economics as applied to agriculture; historical background, the main problems of agriculture, and some special topics, such as production in relation to population growth, farm tenancy, rural credits, prices of farm products, and the share of agriculture in the national income.

References and assigned readings from Taylor, Carver; Nourse, Gray, Black, and others.

Three lectures a week. Mr. Woodward. 3 units.

Lectures: 10.30-11.30, Monday, Wednesday, and Friday.

401 [2]. *Marketing.*—The principles of marketing as applied to the individual farm and to agriculture as a whole. The contributions

of farmer movements to our knowledge of marketing, cooperative marketing, and the evolution of marketing legislation.

References and assigned readings from Patton, Mackintosh, Hibbard, Black, Boyle, Macklin, Benton, and others.

Three lectures a week. Mr. Clement. 3 units.

Lectures: 11.30-12.30, Monday, Wednesday, and Friday.

500 [50]. *Agricultural Economics.*—The principles of economics as applied to the individual farm and to agriculture as an industry. Lectures, discussions, and assigned readings. (Open to graduates only.) 3 to 5 units.

Prerequisite: Agricultural Economics 301.

501 [51]. *Agricultural Economics.*—The general principles of marketing, price fixing, marketing by commission, the influence of the market on production, co-operation; special topics and assigned reading. (Open to graduates only.) 3 to 5 units.

Prerequisite: Agricultural Economics 400.

Commerce

Senior Matriculation standing or First Year University or their equivalent is required for entrance to this option.

This grouping of courses takes the place of the former grouping of courses leading to the B. Com. and B.S.A. degrees.

FIRST AND SECOND YEARS

Agriculture 100, English 100 and 101 and English 200 or 205, Chemistry 100, Mathematics 100 and 201, Biology 100, Commerce 251, an elective from Group A, an elective from Group B.

THIRD YEAR

Commerce 361, Agricultural Economics 301, a pure science, three electives from courses in Agriculture.

FOURTH YEAR

Economics 300, Economics 335, Commerce 453, Agricultural Economics 401, and two electives from Agriculture.

FIFTH YEAR

Commerce 471, Commerce 481, Commerce 491, two electives from Agriculture, and undergraduate essay.

Department of Agricultural Mechanics

The studies in this department are designed to give the student a knowledge of the fundamental principles related to internal combustion engines and machinery. Emphasis is placed on the maintenance, care, and operation of equipment used in agriculture, through practical laboratory training.

201. *General Mechanics.*—A study of the internal combustion engine and related material such as fuels, lubricants, and general maintenance, operation, and repair.
Text-book: Elliott and Consoliver, *The Gasoline Automobile,* McGraw-Hill.
Two lectures and three hours laboratory a week. 3 units.

301. *Food Mechanics.*—A study of the mechanics of food technology, including power drives, pumps, refrigeration, steam, use of concrete, and maintenance of equipment.
Text-book: Farrell, *Dairy Engineering,* Wiley.
Prerequisites: Physics 100, Mathematics 202.
Two lectures and three hours laboratory a week. 3 units.

302. *Advanced Motors.*—An advanced study of motors as applied to agriculture, including dynamometer tests, etc.
Prerequisites: Agricultural Mechanics 201, Physics 200.
Two lectures and three hours laboratory a week. 3 units.

401. *Advanced Food Mechanics.*—An advanced study of the mechanics of food technology.
Text-book: Badger, *Heat Transfer and Evaporation,* The Chemical Catalog Co., 19 E. 24th St., New York.
Reference: Seferns, *Heating, Ventilation, and Air Conditioning,* Wiley.
Prerequisite: Agricultural Mechanics 301.
Two lectures and three hours laboratory a week. 3 units.

404. *Building Construction.*—A study of building requirements for the farm, including use of concrete, framing, ventilation, insulation, sewage disposal, and heating. Some material will be included in lettering and drafting.
Text-book: Foster and Carter, *Farm Buildings,* Wiley.
Two lectures and one laboratory period a week. 3 units.

406. *Advanced Machinery.*—A study of special purpose machinery as used for such products as root crops, bulbs, truck gardening. Emphasis will be on operation, maintenance, and repair.
Prerequisite: Agricultural Mechanics 201.
Two lectures and one laboratory period a week. 3 units.

408. *Advanced Mechanics.*—Lectures, discussions, and papers on advanced agricultural mechanics and related subjects.

Prerequisites: Agricultural Mechanics 201, 302, 406.

Two lectures and one laboratory period a week. 3 units.

Department of Agronomy

General Agronomy.—(Included in Agriculture 100 in the First Year.)

FIELD CROPS

202 [2]. *Field Crops.*—A systematic study of the most important grain, forage, and root crops. The laboratory work includes studies of noxious weed seeds, the commercial and seed grades of Canada, the commercial grain and hay grades of the United States, and the identification and judging of the principal types and varieties of field crops. Special problems of production, weed control, harvesting, and storage are considered, as well as the physical phases of marketing.

Two lectures and one laboratory period a week. 3 units.

303. *Weeds.*—A study of the common noxious weeds of the Province. Influence of weeds on crop growth; identification; mode of reproduction; cultural and chemical methods of control.

Two lectures and one laboratory period a week. Second Term. 1½ units.

304 [4, part]. *Range Management.*—A study of western dryland pastures and their ecological relations. Experimental methods and maintenance problems.

Two lectures and one laboratory period a week. First Term. 1½ units.

305 [4, part]. *Pasture Management.*—Principles underlying the management of pasture and haylands of humid areas. Studies in the conservation of fodder crops.

Two lectures and one laboratory period a week. Second Term. 1½ units.

306. *Identification and Standards.*—A study of the grades of farm crops. Particular emphasis is placed on crop types and their quality as determined by different environments.

Open only to students taking the Food Technology Option or with approval of the Head of the Department.

Two lectures and one laboratory period a week. First Term. 1½ units.

405 [5a]. *Field Crops (Advanced).*—Studies of the climatic, ecological, and biological factors which influence the distribution and world production of field crops.

Prerequisite: Agronomy 202.

Two lectures and one laboratory period a week. First Term. 1½ units.

406 [5b]. *Field Crop Technology.*—A study of the chemical constituents of field crops as influenced by climate, soil, and variety, with applications to the processing of farm crops.

Prerequisite: Chemistry 200.

Two lectures and one laboratory period a week. Second Term. 1½ units.

407 [6]. *Plant Breeding and Seed Production.*—Principles of plant breeding, methods of crop improvement. Production of improved seed of cereals, forage crops, and roots.

Prerequisites: Biology 300, 301.

Two lectures and one laboratory period a week. 3 units.

422 [22]. *Crop Production Problems.*—Preparation of reports and submission of recommendations based on a detailed study of crops, cropping systems, soils, and soil management practices on individual farms.

Lectures, seminar periods, and research. 3 units.

SOILS

211 [11]. *An Introduction to the Study of Soils.*—Physical, chemical, and biological agencies of weathering; the mechanical constitution of a soil—organic matter, mineral fraction, water and air; the living phase of a soil. Soil development and classification. First Term.

Different systems of cultivation and manuring and their relation to environment. Nutrient levels and moisture relations; soil reaction and liming; use of farm and green manures; commercial fertilizers and their use. Special consideration is given to the soils of British Columbia. Second Term.

References: Lyon and Buckman, *Nature and Properties of Soils,* latest edition; Millar and Turk, *Fundamentals of Soil Science,* latest edition; Collings, *Commercial Fertilisers, Their Sources and Uses,* latest edition.

Two lectures and one laboratory period a week. 3 units.

312 [12]. *Soil Bacteriology.*—Soil as a natural habitat for microorganisms; factors determining distribution and activity of bacterial species. A number of distinct physiological groups of bacteria studied in some detail with particular reference to influence on fertility. (Same as Bacteriology 312.)

Prerequisite: Bacteriology 201.

References: Waksman, *Principles of Soil Microbiology,* latest edition; Fred, Baldwin, and McCoy, *Root Nodule Bacteria and Leguminous Plants.*

One lecture and two laboratory periods a week. 3 units.

313. *Physical Properties of Soils.*—Relation of physical properties of soil to plant growth, soil management practices, and land utilization. Mechanical make-up of soils, clay minerals, soil structure, soil moisture, air, and temperature relations.

Prerequisites: Agronomy 211 and Physics 100 or approval of instructor.

Reference: Baver, *Soil Physics,* latest edition.

Two lectures and one laboratory period a week. First Term. 1½ units.

314 [14]. *Soil Conservation.*—Utilization of soil and water resources past and present. A study of the physical and chemical properties of soils, land use, tillage and cropping practices as they pertain to conservation of soil and water resources. Assigned reading.

Prerequisite: Agronomy 313 or approval of instructor.

Two lectures and one laboratory period a week. Second Term. 1½ units.

415. *Chemical Properties of Soils.*—Chemical properties in relation to plant growth. A study of soil colloids, base exchange soil acidity and alkalinity; factors affecting the supply, fixation, and availability of nutrient elements.

Prerequisite: Agronomy 211.

References: Russell, *Soil Conditions and Plant Growth,* latest edition; assigned reading.

Two lectures and one laboratory period a week. 3 units.

416. *Soil Genesis, Morphology, and Classification.*—Factors of soil formation; principles underlying the classification of soils; soil surveying and soil maps. Special emphasis is given to the soils and soil maps of British Columbia. Analytical study of soil horizons.

Two lectures and one laboratory period a week. First Term. 1½ units.

417. *Soil Surveying.*—Two to three months of field work under direction of an accredited soil surveyor. 1½ units.

NOTE. Second Class standing in Agronomy 416 must be obtained and an essay submitted on field work before credit will be granted in Agronomy 417.

421. *Biometrical Methods.*—Studies in biological variation and its measurement; machine calculation of measures of central tendency and dispersion; elementary analysis of variance, correlation, and goodness-of-fit tests; applications of biometrical techniques to field experimentation.

Two lectures and one laboratory period a week. First Term. 1½ units.

423 [23]. *Undergraduate Seminar.* — Discussion of literature relative to student problems.. 1 unit.

425 [25]. *Undergraduate Essay.*—The preparation of a report on an applied problem. 3 units.

430 [30]. *Directed Studies.*—Systematic work on an approved problem. 3 units.

500 [50]. *Applied Plant Genetics.*—The genetics of crop plants. Lectures, seminar periods, and research. 3 to 5 units.

510 [51]. *Field Crops.*—Special phases of field crop production, management, and improvement, with particular emphasis on the application of recent research findings.

Lectures, seminar periods, and research. 3 to 5 units.

512. *Advanced Soil Bacteriology.*—Directed studies on an approved problem. 3 units.

515. *Directed Studies.*—Research in problems related to chemical or physical properties of soils. 3 units.

518. *Graduate Seminar.* 2 units.

Department of Animal Husbandry

General Animal Husbandry.—(Included in Agriculture 100 in the First Year.)

215 [15]. *Fundamentals of Animal Husbandry.*—An introductory course. The judging of livestock and a study of the origin, development, characteristics, and adaptations of the various breeds of cattle, horses, sheep, swine, and goats; principles of breeding, selection, feeding, management, and marketing; disease problems. Students may be required to visit conveniently located farms.

Two lectures and one laboratory period a week. 3 units.

316. *Fundamentals of Fur Production.*—The development of fur farming in Canada, together with the origin and improvement under domestication of the various species suitable for fur production. Selection of ranch sites, suitable layouts, buildings, and equipment.

Fur farm management practices, including: (a) breeding, rearing of young, feeding, priming, and pelting; (b) sanitation and hygiene as related to production.

Two lectures and one laboratory period a week. 3 units.

320 [20]. *Comparative Anatomy and Physiology.*—The gross anatomy of farm animals, with special laboratory dissection study of the respiratory, circulatory, digestive, and urogenital systems; the fetus and fetal membranes. Physiological functions of the body organs and systems, with special study of the fluid circulation, endocrine activity, growth, reproduction, nutrition, and the response of the body to injury and disease.

Two lectures and one laboratory period a week. 3 units.

322 [22]. *Animal Nutrition.*—The elements and compounds important to animal nutrition and their relation to the animal organism; the digestive system; the digestion, absorption, assimilation, and disposition of food materials; the causes and effects of malnutrition.

References: Morrison, *Feeds and Feeding,* 20th edition; Maynard, *Animal Nutrition,* 1947.

Two lectures and one laboratory period a week. 3 units.

323 [23]. *Animal Breeding.*—A study of variation and inheritance in animals; selection and mating systems for the improvement of livestock; herd, flock, and pedigree studies; hereditary defects and lethals; methods of analyzing animal breeding data.

Three lectures a week. 3 units.

324. *Advanced Livestock Judging.*—Open only to Third Year students in Animal Husbandry. An intensive laboratory course in judging dairy cattle. Students will be required to make judging trips to near-by farms.

Prerequisite: Animal Husbandry 215.

One laboratory period, 3-5 hours a week. Second Term. 1½ units.

406. *Identification and Standards.*—A study of the grades and definitions for animals and animal products.

Open only to students taking the Food Technology Option, or with the approval of the Head of the Department.

Two lectures and one laboratory period a week. Second Term. 1½ units.

416. *Advanced Fur Production.*—A study of fur farming, including comparative methods of management, feeding, and production. Laboratory and field studies on nutritional diseases, methods of parasite identification and control, and methods of disease prevention.

Prerequisite: Animal Husbandry 316.

One lecture and two laboratory periods a week. 3 units.

418 [18]. *Livestock Marketing and Management.*—A study of the requirements of livestock markets, marketing livestock products, and breeding stock; the management of the range, ranch, and farm for the production of livestock.

Two lectures and one laboratory period a week. 3 units.

419 [19]. *Seminar.*—Open to all students interested in animal husbandry. Research and experimental problems; preparation of reports and bulletins; private libraries of research reports, bulletins, and periodicals; livestock advertising and sales, exhibitions, field service, and promotion work. Conducted by staff in Animal Husbandry.

Three periods a week. 3 units.

421 [21]. *Animal Diseases, Hygiene, and Sanitation.*—A microscopic study of organs and tissues, including histology, embryology, and pathology. Applied studies in the recognition of functional and nutritional disturbances in growth and reproduction, of parasitism, and of sporadic and infectious diseases. Outlines of programmes for eradication of diseases, control of parasites, health inspection and quarantine of livestock for export or import, animal hygiene, sanitation, and public health regulations.

Prerequisite: 3 units of Animal Husbandry; Bacteriology 201.

Two lectures and one laboratory period a week. 3 units.

422 [17]. *Animal Feeding.*—A study of feeds and their suitability to the various kinds and classes of livestock; the importance of home-grown materials; the economic and other problems involved in the feeding of all classes of livestock.

References: Morrison, *Feeds and Feeding,* 20th edition; MacEwan, *The Feeding of Farm Animals,* 1945.

Two lectures and one laboratory period a week. 3 units.

425 [25]. *Undergraduate Essay.* 3 units.

430 [30]. *Directed Studies.* 3 units.

500 [50]. Research in production, management, and marketing of animals and animal products. 3 to 5 units.

501 [51]. Research in problems associated with physiological disturbances in animals. 3 to 5 units.

502. *Research in Animal Nutrition.*—Directed research in nutritional problems related to animal production. 3 to 5 units.

503. *Research in Animal Breeding.*—Directed research in problems associated with improving the hereditary worth of farm animals. 3 to 5 units.

504. *Graduate Seminar.* — A seminar period for all graduate students in Animal Husbandry.

One hour a week. 1 unit.

522. *Advanced Animal Nutrition.*—A study of special phases of animal nutrition. The course includes a study of the nutritional deficiency state, bioenergetics, and growth.

References: Brody, *Bioenergetics and Growth,* 1945; Youmans, *Nutritional Deficiencies,* 1941; Benedict, *Vital Energetics,* 1938; Ritzman and Benedict, *Nutritional Physiology of the Adult Ruminant,* 1938.

Two lectures and one laboratory period a week. 3 units.

Option in Nutrition

Senior Matriculation or First Year University, or an equivalent, is required for entrance to this grouping of courses, which is designed to equip the student with a broad knowledge of the sciences required for work in the field of nutrition.

FIRST AND SECOND YEARS

English 100 and 101, English 200 or 205, Chemistry 100 and 200, Mathematics 100 and 202, language of Matriculation 100 or 101 or German 90, Physics 100, Biology 100, Agriculture 100, Botany 100 or Zoology 100. 33 units.

THIRD YEAR

Chemistry 300, Chemistry 305, Agronomy 211, Bacteriology 201, Horticulture 441, elective (3 units). 18 units.

FOURTH YEAR

Chemistry 409, Chemistry (Biochemistry), Biology 400, Biometrics (Agronomy 421), Applied Bacteriology, Nutrition (3 units). 18 units.

FIFTH YEAR

Nutrition (6 units), essay (3 units), and 9 units to be arranged. 18 units.

The undergraduate essay may be written in any one of the departments.

Department of Dairying

General Dairying.—(Included in Agriculture 100 in the First Year.)

203. *Fundamentals of Dairying.*—An introductory course. Principles underlying the hygienic aspects of milk production; the processing, testing, and grading of market milk and related products.

Text-book: Sommer, *Market Milk and Related Products,* latest edition.

Two lectures and one laboratory period a week. 3 units.

301. *Dairy Technology.*—The principles and practices concerned with the manufacture of butter, cheese, ice cream, and concentrated milk products.

References: Hunziker, *The Butter Industry;* Van Slyke and Price, *Cheese,* Orange Judd Pub. Co. Inc.; Turnbow, Tracy, and Raffetto, *Ice Cream,* Wiley.

Prerequisites: Dairying 203; also Dairying 304 and 305, which may be taken concurrently.

One lecture and six hours laboratory a week. 3 units.

304 [4a]. *Dairy Bacteriology.*—The bacteriology of milk; sources of bacteria in milk, and quantitative and qualitative determinations of the bacterial content of milk; normal and abnormal fermentations of milk and a study of certain organisms responsible therefor.

References: Orla-Jensen, *Dairy Bacteriology,* latest edition, Churchill; Hammer, *Dairy Bacteriology,* latest edition, Wiley.

Prerequisite: Bacteriology 201.

Four hours a week. First term. 1½ units.

305 [4b]. *Dairy Bacteriology.*—The physical and chemical properties of milk and their influence on the growth of bacteria in milk and in milk products; the handling and management of milk for city consumption; the grading of milk and milk products on bacterial standards.

Reference: Rogers, *Fundamentals of Dairy Science,* latest edition, A. C. S. Monograph.

Prerequisite: Bacteriology 201.

Four hours a week. Second term. 1½ units.

406. *Identification and Standards.*—Laws and regulations relating to the production, manufacturing, and sale of dairy products; the scoring and grading of dairy products; standard methods of bacteriological and chemical analysis.

References: *Standard Methods for the Examination of Dairy Products,* latest edition; *Methods of Analysis of the Association of Official Agricultural Chemists,* latest edition.

Open only to students taking the Food Technology Option, or with the approval of the Head of the Department.

Two lectures and one laboratory period a week. First Term. 1½ units.

407 [7]. *Advanced Dairy Bacteriology.*—The ripening of hard-pressed cheese and a systematic study of the lactic acid bacteria.

Reference: Orla-Jensen, *The Lactic Acid Bacteria,* Copenhagen.

Prerequisites: Bacteriology 201 and Dairying 304.

One lecture and two laboratory periods a week. 3 units.

413. *Dairy Mycology.*—A study of the molds concerned with the ripening of cheese and the molds and yeasts associated with the spoilage of butter and other dairy products.

References: Henrici, *Molds, Yeasts, and Actinomyces,* Wiley, latest edition.

One lecture and two laboratory periods a week. Second Term. 1½ units.

425 [25]. *Undergraduate Essay.*—A written report on a prescribed laboratory study.

Fourth Year. 3 units.

430 [30]. *Directed Studies.*—Systematic work on an approved problem. 3 units.

500 [50]. Directed systematic studies of defined phases of the work introduced in Dairying 304 or 407. 3 to 5 units.

(Open to graduates only.)

Food Technology

Senior Matriculation or First Year University or an equivalent is required for entrance to this grouping of courses, which is designed to equip the student with a broad knowledge of the sciences underlying the preservation and manufacture of foodstuffs and to provide instruction in the general techniques of the food laboratory.

FIRST AND SECOND YEARS

Agriculture 100, Bacteriology 201, Biology 100, Chemistry 100 and 200, English 100 and 101 and English 200 or 205, language of Matriculation 100 or 101 or German 90, Mathematics 100 and 202, and Physics 100. 33 units.

THIRD YEAR

Agricultural Mechanics 301, Agronomy 211, Agronomy 306, Chemistry 300 and 305, Dairying 304 and 305, and Poultry Husbandry 306. 18 units.

FOURTH YEAR

Agricultural Mechanics 401, Agronomy 312, Agronomy 421, Animal Husbandry 406, Chemistry 409, three additional units in Chemistry, Dairying 406, Horticulture 406, and electives (1½ units). 18 units.

FIFTH YEAR

Dairying 413, Nutrition, electives, (13½ units). 18 units.

The undergraduate essay may be written in any one of the departments.

Department of Horticulture

General Horticulture.—(Included in Agriculture 100 in the First Year.)

213 [13]. *Practical Horticulture.*—A detailed study of the principles involved in tree-fruit and small-fruit growing, in plant propagation, and in nursery and greenhouse management, supplemented by orchard, garden, laboratory, nursery, and greenhouse practice in the various horticultural operations.

Two lectures and one laboratory period a week. 3 units.

314 [14]. *Commercial Horticulture.*—A study of the problems connected with the handling of fruits and vegetables—harvesting, grading, packing, shipping, storing, marketing; packing and storage houses; costs of production and of marketing.

Two lectures and one laboratory period a week. First Term. 1½ units.

315 [15a]. *Horticultural Products and By-Products.*—A study of the principles and practices involved in canning of fruits and vegetables; preparation of fruit juices; vinegar making; preservation by freezing; dehydration; etc.

Two lectures and one laboratory period a week. Second Term, 1½ units.

Note. Course 315 takes the same hours as Course 314 in the time table, to give a combined 3 units of work in the marketing and processing of horticultural crops.

316 [16]. *Landscape Gardening and Floriculture.*—The course aims to give the student a working knowledge of the selection, planting, and care of ornamental plants—trees, shrubs, and flowers; with the principles for the improvement of home grounds, school grounds, city streets, and parks. The course includes practice in identification of plant materials; also practice in making of planting plans.

Two lectures and one laboratory period a week. First Term. 1½ units.

317 [17]. *Vegetable Gardening.*—A study of the problems connected with the commercial growing of vegetables, including the selection of a location, soil requirements, fertilizing, irrigating, and special cultural methods for the more important vegetables. This course also deals with the forcing of vegetable crops.

Two lectures and one laboratory period a week. Second Term. 1½ units.

406. *Identification and Standards.*—A study of horticultural crops and products with particular emphasis on identification and on government grades for fruits and vegetables, both fresh and processed.

Open only to students taking the Food Technology Option or with the approval of the Head of the Department.

Two lectures and one laboratory period a week. First Term. 1½ units.

418 [18]. *Systematic Horticulture.*—The description, identification, classification, displaying, and judging of horticultural crops—tree fruits, small fruits, and vegetables.

One lecture and two laboratory periods a week. First Term. 1½ units.

419 [15b]. *Special Horticultural Crops.*—A brief study of the origin of horticultural plants; horticultural history; plant exploration and introduction, together with a study of special horticultural crops, such as citrus fruits, bananas, pineapples, dates, avocadoes, sweet potatoes, walnuts and other nuts, and crops of world economic importance but not commonly grown in Canada.

Three lectures a week. Second Term. 1½ units.

420 [19]. *Methods of Research.*—A study of the methods of research, with special reference to problems in horticulture, including the breeding of horticultural crops and variety adaptations; and a review of horticultural and related investigational work in other institutions. There will also be practice in outlining investigations and in preparing reports.

Three lectures a week. 3 units.

425 [25]. *Undergraduate Essay.*—A satisfactory report on some approved subject upon which the student has done special investigational work. 3 units.

430 [30]. *Research in Horticulture.*—Directed study on some special problem in the applied phases of horticulture. 3 units.

500 [50]. *Research in Horticulture.*—Directed study on some special problem in systematic horticulture, plant propagation, genetics as related to horticultural crops, etc. 3 to 5 units.

510 [60]. *The Structure of Economic Plants.*—A detailed study from growing material supplemented by microscopic slides of a number of important crop plants. (To be taken only with consent of instructor.)

Three laboratory periods a week. First Term. 1½ units.

Plant Nutrition

340. *Food Values of Horticultural Crops.*—A study of the food values of horticultural crops. This course comprises a consideration of factors which affect these values, such as variety, locality, climate,

photoperiod, soil type, fertilizer, and cultural practice. Comparisons are made of local B. C. grown fruits and vegetables with similar imported competing produce; also crops ordinarily grown under glass as contrasted with field grown. Various methods of food assay, chemical and biological, vitamin determinations, etc. are studied in this course.

Two lectures and one laboratory period a week. 3 units.

441 [41]. *Plant Nutrition (a).*—This course comprises a study of the organic constituents of plants and the physiological changes occurring during plant growth. (Same as Botany 331.)

Two lectures and four hours laboratory work a week. First Term. 2 units.

Two hours laboratory a week to be arranged with the consent of the instructor only. Second Term. 1 unit.

Text-book: Onslow, *Plant Biochemistry,* latest edition, Cambridge.

References: Haas & Hill, *The Chemistry of Plant Products,* vol. i, latest edition, Longmans; Harvey, *Plant Physiological Chemistry,* Appleton-Century.

442 [42]. *Plant Nutrition (b).*—Diagnosis and control of plant deficiency diseases; nutrient solutions; hydroponics (tank farms); photoperiodism; growth hormones; and the latest developments of such subjects as utilization of inorganic elements, nitrogen relations, plant buffer systems, permeability, photosynthesis, respiration, enzyme action, and growth rates. This course includes laboratory and greenhouse experiments, designed to train students of the plant sciences in an understanding of the interrelations of plants and soils. (Same as Botany 332.)

Reference: Miller, *Plant Physiology,* latest edition, McGraw-Hill.

Two lectures and four hours laboratory work a week. Second Term. 2 units.

443 [43]. *Seminar in Plant Nutrition.*—This course comprises a discussion of papers on modern views of plant nutrition, together with more recent papers on applied plant physiology.

Two hours a week. 2 units.

545 [51]. *Research in Plant Nutrition.*—Directed study on some special problem in plant nutrition or applied plant physiology. 3 to 5 units.

547 [54]. *Advanced Plant Nutrition.*—An advanced study of the physiology and the organic constituents of plants and plant products. Special attention is given to specific problems in this Province which require a knowledge of the correlation of the various sciences to plants and plant products. Food values of horticultural crops, and factors which affect these, are emphasized.

(Open to graduates or to others with the permission of the instructor.)

Two lectures and four hours laboratory a week. 4 units.

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 1947-48. Details will be provided through the Registrar's office.

Department of Poultry Husbandry

General Poultry Husbandry.—(Included in Agriculture 100 in the First Year.)

200 [12a]. *Fundamentals of Poultry Husbandry.*—Feeds, feeding management, poultry housing, sanitation, hygiene, and diseases.

References: Lippincott and Card, *Poultry Production,* sixth edition, 1939, Lea and Febiger; Winter and Funk, *Poultry Science and Practice,* Lippincott.

Two lectures and one laboratory period a week. First Term. 1½ units.

201 [12b]. *Fundamentals of Poultry Husbandry.*—Breeds, breeding, judging, selection, culling, incubation, brooding, egg grading, marketing, general management.

References: *American Standard of Perfection,* 1942-1944; Lippincott and Card, *Poultry Production,* seventh edition, 1946, Lea and Febiger; Jull, *Poultry Husbandry,* second edition, McGraw-Hill.

Two lectures and one laboratory period a week. Second Term. 1½ units.

300 [13a]. *Markets and Marketing.*—Poultry products in British Columbia, the British Columbia market, inter-provincial trade, export trade, egg grading, Dominion and Provincial regulations,

channels and functions of marketing, care and preparation of eggs and poultry for market, judging, culling, and selection for egg and meat production, killing, dressing, grading, packing, and storing of poultry meats, marketing baby chicks and breeding stock, cooperative marketing, prices.

Reference: Benjamin and Pierce, *Marketing Poultry Products,* Wiley.

Two lectures and one laboratory period a week. First Term. 1½ units.

301 [13b]. *Advanced Marketing.*—Organization in marketing, including the history and development of cooperative marketing of eggs and poultry; domestic and export trade.

Two lectures and one laboratory period a week. Second Term. 1½ units.

302. *Turkey Production.*—Principles and practice of breeding and management, modern methods of marketing.

References: Marsden and Margin, *Turkey Management,* 1946, Interstate Printing Co.; Jull, *Raising Turkeys, Ducks, Geese, and Game Birds,* 1947, McGraw-Hill. 1½ units.

306. *Identification and Standards.*—Standards used in grading eggs and poultry meat; laws and regulations applying to marketing; processing; trade practices.

Reference: *The Food and Drug Act.*

Open only to students taking the Food Technology Option, or with the approval of the Head of the Department.

Two lectures and one laboratory period a week. Second Term. 1½ units.

310 [14a]. *Breeding and Judging.*—The breeds of poultry, their history, origin, and economic qualities; judging and selection for egg and meat production.

Reference: Rice, Hall, and Marble, *Judging Poultry for Production,* Wiley.

Two lectures and one laboratory period a week. First Term. 1½ units.

311 [14b]. *Advanced Breeding.*—Theories of inheritance; study of progeny tests.

Reference: Jull, *Poultry Breeding,* second edition, Wiley.

Two lectures and one laboratory period a week. Second Term. 1½ units.

400 [16a]. *Poultry Farm Management.*—Types of poultry farms and their respective problems; farm lay-outs; poultry-house construction; investment of capital in land, buildings, stock, and equip-

ment; efficiency in labour, housing, production, and personnel; farm income, labour income, and profit as based on farm surveys; costs of production. Visits to farms.

References: Jull, *Successful Poultry Management,* McGraw-Hill; Charles and Stuart, *Commercial Poultry Farming,* fifth edition, Interstate Printing Co.; Knandel, *Profitable Poultry Keeping,* Orange Judd.

Two lectures and one laboratory period a week. First Term, Fourth Year. 1½ units.

401 [16b]. *Incubation and Hatchery Management.*—An advanced course dealing with the principles and practices of incubation. Students will study and be required to operate different types of incubators and brooders. Inspection of hatcheries and survey of hatchery business methods and costs.

References: Hartman and Vickers, *Hatchery Management;* Lippincott and Card, *Poultry Production,* sixth edition, Lea and Febiger; Winter and Funk, *Poultry Science and Practice,* revised edition, 1946, Lippincott.

One lecture and two laboratory periods, or one laboratory period of four hours' duration a week. Second Term, Third or Fourth Year. 1½ units.

405 [20]. *Seminar.*—Poultry literature; research and experimental problems; preparation of reports and bulletins; marketing problems; advertising poultry products; poultry services and organizations.

One lecture a week. Four hours practice a week. 1½ units.

410 [19a]. *Poultry Nutrition.*—A general study of the underlying principles and recent advances in the field of nutrition, involving a detailed examination of the nutrients, the physiology of digestion, and the requirements of the body for maintenance and production. Students are required to conduct personally or observe nutritional experiments.

References: Sherman, *Chemistry of Food and Nutrition,* latest edition, Macmillan; Maynard, *Animal Nutrition,* McGraw-Hill.

Two lectures and one laboratory period a week. First Term, Fourth Year. 1½ units.

411 [19b]. *Feeding Management.*—Study of feed-stuffs; compounding of rations for poultry; feeding practices and costs; feeding chicks, growing stock, laying hens, breeding males and females; turkeys, ducks, and geese; use of lights; study of standard methods of routine management. Problems and assigned reading. Survey of recent literature on poultry feeding.

References: Jull, *Poultry Husbandry,* second edition, McGraw-Hill; Morrison, *Feeds and Feeding* (abridged), Morrison Publishing Co.

Two lectures and one laboratory period a week. Second Term, Fourth Year. 1½ units.

415[18]. *Diseases and Hygiene.*—Anatomy and physiology of the fowl; poultry sanitation and hygiene; common ailments of poultry and their treatment; external and internal parasites; bacterial diseases of poultry, chicks, turkeys, geese, and ducks; virus diseases. Study of micro-organisms pathogenic for poultry. Practice in serological tests. Microbial content of eggs. Autopsies. Study of the literature. Inspection of farms.

References: Barger and Card, *Poultry Diseases,* Lea and Febiger; Biester and Devries, *Diseases of Poultry,* Iowa State College.

Two lectures and one laboratory period a week. Second Term, Fourth Year. 1½ units.

420 [17]. *Physiology of Sex, Reproduction, and Endocrinology.*—An advanced course dealing with the fundamentals of egg production and reproduction in the domestic fowl. Recent advances in the knowledge of endocrinology as affecting poultry. Study of recent literature.

References to be assigned.

One lecture and two laboratory periods a week. Second Term, Fourth Year. Credit for graduate work is given for this course.

425 [25]. *Undergraduate Essay.* 3 units.

430 [30]. *Research* (Directed). 3 units.

500 [19c]. *Seminar in Poultry Nutrition.*—This course comprises a study of current problems and literature in poultry nutrition. Students will be required to conduct biological tests with chicks.

Reference: Ewing, *Handbook of Poultry Nutrition,* revised edition, W. R. Ewing, South Pasadena, California.

Laboratory work to be arranged. 1½ units.

(Open to graduates only.)

540 [50]. *Research* (Directed). 3 to 5 units.

(Open to graduates only.)

Department of English

SECOND YEAR

205 [3 and 4]. *Composition.*—A course in composition especially designed to meet the needs of students in the Faculty of Agriculture, offering training in economical and accurate objective writing. The work consists of (1) essays, class exercises, and selected reading,

and (2) written examinations. Students will be required to make a passing mark in each of these two parts of the work.

Text-book: To be announced.

Three hours a week. Mr. Akrigg. 3 units.

Genetics

300 [1a]. *Principles of Genetics.*—This course is the same as Biology 300. (See page 152.)

Prerequisite: Biology 100.

Two lectures and three hours laboratory a week. First Term. 1½ units.

301 [1b]. *Principles of Genetics.*—This course is the same as Biology 301. (See page 153.)

Prerequisite: Genetics 300.

Two lectures and two hours laboratory a week. Second Term. 1½ units.

302 [1c]. *Problems in Genetics.*—This course is the same as Biology 302. (See page 153.)

Prerequisites: Genetics 300 and 301.

Three hours a week. 3 units.

303 [1d]. *Seminar in Genetics.*—This course is the same as Biology 303. (See page 153.)

Prerequisites: Genetics 300 and 301.

Three hours a week. 3 units.

Department of Bacteriology and Preventive Medicine

(For details of courses see pages 148-152.)

Department of Biology and Botany

(For details of courses see pages 152-160.)

Department of Chemistry

(For details of courses see pages 161-167.)

Department of Civil Engineering

(For details of courses see pages 306-312.)

Department of Classics

(For details of courses see pages 167-173.)

Department of Commerce

(For details of courses see pages 173-178.)

Department of Economics, Political Science, and Sociology

(For details of courses see pages 179-186.)

Department of English

(For details of courses see pages 191-197.)

Department of French

(For details of courses see pages 197-201.)

Department of Geology and Geography

(For details of courses see pages 201-210.)

Department of German

(For details of courses see pages 210-212.)

Department of History

(For details of courses see pages 213-219.)

Department of Mathematics

(For details of courses see pages 225-229.)

Department of Philosophy and Psychology

(For details of courses see pages 232-236.)

Department of Physics

(For details of courses see pages 239-247.)

Department of Spanish

(For details of courses see pages 252-253.)

Department of Zoology

(For details of courses see pages 253-260.)

THE
FACULTY
OF
LAW

1947-1948

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 33-35 of the University Calendar.

Candidates must present evidence of having successfully completed not less than two years of work in the course leading to the degree of B.A. in the University of British Columbia, or its equivalent at an approved university.

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 29-33 of the University Calendar are applicable to students in the Faculty of Law.

Registration

Application for entrance to the Faculty of Law must be made to the Registrar of the University not later than September 19th.

It is recommended that those planning to enter the Faculty interview the Dean as early as possible in their University course.

Combined Course

Students who have completed their matriculation requirements may take a combined course in the Faculties of Arts and Science and of Law consisting of three years in the course leading to the degree of B.A. at this University followed by three years in the Faculty of Law. The degree of Bachelor of Arts will be granted to such candidates on completion of the Second Year in the Faculty of Law, and the degree of Bachelor of Laws will be granted on completion of the Third Year in the Faculty of Law.

Attendance and Examinations

A student who fails to comply with the regulation in respect of attendance at lectures, except for reasons deemed satisfactory by the Faculty, may, upon the recommendation of the Faculty, be

required by the Senate either to repeat the work of the year or to withdraw from the Faculty.

Examinations will be held in April at the close of each session except in respect of those subjects which are given in the First Term only, when examinations will be held immediately prior to the Christmas vacation.

A student, in order to pass, must obtain at least 50 per cent. in each subject. Successful candidates will be graded as follows:

First Class, an average of 80 per cent. or over; Second Class, 65 to 80 per cent.; Passed, 50 to 65 per cent.

A student must pass in all subjects of his year before being admitted to the succeeding year.

A student who has failed at the regular examinations in not more than two subjects but has made an average of at least 50 per cent. on the work of the year may be granted supplemental examinations in the subject or subjects in which he has failed. Notice will be sent to students to whom such supplemental examinations have been granted.

Supplemental examinations will be held in September. Applications for supplemental examinations must be in the hands of the Local Registrar on or before August 1st, and must be accompanied by the required fee.

A student who does not meet the above requirements in any year may, on the recommendation of the Faculty, be required by the Senate either to repeat the work of the year or to withdraw from the Faculty.

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, Victoria, 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.

Prizes, Bursaries, Scholarships

A number of University prizes, bursaries, and scholarships, are open to students in the Faculty of Law. See pages 43-94 of the University Calendar.

Moot Court

Students in the Faculty will be required to argue at least one case before the Moot Court in their First Year and one in their Second Year.

COURSES OF INSTRUCTION

FIRST YEAR

Contracts

101. Text-books: Wright, *Cases on the Law of Contracts;* Cheshire and Fifoot, *Law of Contracts;* Anson, *Law of Contract;* Williston, *Contracts;* Pollock, *Principles of Contracts;* Salmond and Williams, *Contracts.*

Three hours a week. Mr. Read.

Criminal Law

104. Text-books: Criminal Code; Tremeear; Crankshaw; Kenny, *Outlines of Criminal Law.*

Two hours a week. Mr. Remnant.

History of English Law

107. Text-books: Potter, *Historical Introduction to English Law;* Maitland and Montague, *Sketch of English Legal History;* Windeyer, *Legal History;* MacRae, *History of English Law;* Holdsworth, *History of English Law;* Pollock and Maitland, *History of English Law.*

Two hours a week. Mr. Curtis.

Procedure 1

110. Text-books: Supreme Court Act; County Court Act.

Two hours a week. Mr. Kennedy.

Property

113. Text-books: Read and Macdonald, *Cases on Personal Chattels;* Williams, *Personal Property;* Goodeve, *Personal Property;* Brown, *Personal Property;* Cheshire, *Modern Real Property;* Megarry, *Law of Real Property.*

Three hours a week. Mr. Read.

Torts

116. Text-books: Wright, *Cases on the Law of Torts;* Salmond, *The Law of Torts;* Prosser, *Torts;* Pollock, *The Law of Torts;* Winfield, *Text-book on the Law of Tort;* Charlesworth, *The Law of Negligence.*

Three hours a week. Mr. McAllister.

SECOND YEAR

Agency and Partnership

201. Text-books: Wright, *Cases on Agency;* Pollock, *Law of Partnership.*

Two hours a week. Mr. Kennedy.

Bills and Notes

204. Text-books: Russell, *Bills of Exchange;* Falconbridge, *Banking and Bills of Exchange;* Maclaren, *Bills, Notes, and Cheques.*

Two hours a week. Second Term. Mr. Read.

Company Law

207. Text-books: Palmer, *Company Law;* Stiebel, *Company Law and Precedents;* MacRae, *Material on Company Law;* Companies Act of British Columbia.

Three hours a week. Mr. Curtis.

Equity

210. Text-books: Smith and Read, *Selection of Cases on Equity;* Ashburner. *Equity;* Hanbury, *Modern Equity;* Maitland, *Equity.*

Two hours a week. Mr. McAllister.

Insurance

213. Text-books: Insurance Act of British Columbia.

Two hours a week. Second Term. Mr. Curtis. Mr. Sheppard.

Labour Law

216. Text-books: To be announced.

Three hours a week. First Term. Mr. McAllister.

Landlord and Tenant

219. Text-books: Williams, *Canadian Law of Landlord and Tenant;* Hill and Redman, *Law of Landlord and Tenant.*

Three hours a week. First Term. Mr. McAllister.

Procedure 2

222. Text-books: Odgers, *Pleading and Practice;* Supreme Court Rules.

Two hours a week. Mr. Justice Wilson.

Public International Law

225. Text-books: Oppenheim, *International Law;* Brierly, *The Law of Nations;* MacKenzie and Laing, *Canada and the Law of Nations;* Schuman, *International Politics.*

Three hours a week. Mr. MacKenzie.

THIRD YEAR

Administrative Law

301. Text-books: To be announced.

Three hours a week. Second Term. Mr. McAllister.

Conflict of Laws

304. Text-books: Cheshire, *Private International Law;* Dicey, *Conflict of Laws.*

Three hours a week. Second Term. Mr. Kennedy.

Constitutional Law

307. Text-books: MacRae, *Materials on Constitutional Law;* Clement, *Canadian Constitution;* Lefroy, *Short Treatise on Canadian Constitutional Law.*

Two hours a week. Mr. Kennedy.

Domestic Relations

310. Text-book: Eversley, *Domestic Relations.*

Three hours a week. First Term. Mr. Read.

Evidence

313. Text-books. Phipson, *Law of Evidence;* Cockle, *Leading Cases on Evidence;* Wigmore, *Evidence.*

Two hours a week. Mr. Justice Coady.

Mortgages and Suretyship

316. Text-books: Falconbridge, *Mortgages;* Hanbury and Waldock, *Law of Mortgages;* Turner, *Equity of Redemption.*

Three hours a week. First Term. Mr. Curtis.

Procedure 3

319. Text-books: Court of Appeal Act and Rules; Supreme Court Act (Dom.) and Rules.

Two hours a week. Mr. Justice Bird.

Shipping

322. Text-books: Mayers, *Admiralty Law and Practice;* Roscoe, *Admiralty Practice;* Canada Shipping Act; Admiralty Act; Water Carriage of Goods Act.

One hour a week. Mr. Justice Sidney Smith.

Taxation

325. Text-books: Stikeman, *Lectures on Taxation;* Konstam, *Income Tax;* Ratcliffe and MacGrath, *Income Tax Law;* Plaxton, *Canadian Income Tax Law.*

Two hours a week. Second Term. Mr. Curtis.

Trusts

328. Text-books: Keeton, *Trusts;* Hanbury, *Modern Equity;* Scott, *Trusts;* Trustee Act.

Three hours a week. First Term. Mr. Kennedy.

Wills

331. Text-books: Bailey, *Wills;* Widdifield, *Executors' Accounts;* Administration Act; Wills Act.

(Not given in 1947-48.)

DOUBLE COURSES

DOUBLE COURSES FOR THE DEGREES OF B.A. and B.A.Sc.

I. Arts and Science, and Nursing

Nursing AA. See page 285.

FIRST, SECOND, AND THIRD YEARS

The students register in the Faculty of Arts and Science for three years' work as follows: English 100 and 101, Mathematics 100, a language course numbered 100-199, Chemistry 100, Biology 100, in the First Year; English 200, a language course numbered 200-299, Bacteriology 201, in the Second Year; Physics 110, Zoology 200, Psychology 100 or 101, in the First, Second, or Third Years; Bacteriology 301, Nursing 151, Nursing 152, in the Third Year; nine additional units to be chosen in accordance with Calendar regulations, not more than three of which may be chosen from First and Second Year subjects.

FOURTH, FIFTH, AND SIXTH YEARS (Professional)

The degree of B.A. is granted upon completion of the professional years. The diploma from the hospital school of nursing is also awarded.

FINAL YEAR

As in Nursing A; *i.e.*, a choice between the two courses, Nursing B and Nursing C. The degree of B.A.Sc. (Nursing) is granted upon completion of the Final Year.

The degree of B.A.Sc. (Nursing) may also be awarded to other candidates holding the degree of B.A. who have fulfilled all requirements for the degree of B.A.Sc. (Nursing).

II. Arts and Science, and Engineering

Two complete years in Arts and Science and four complete years in Applied Science are required for a Double Degree. On account of time table difficulties, students must not select courses in Arts and Science that are included in the Applied Science years.

The requirements for the First and Second Years are as set forth in the Calendar for the First and Second Years of Arts (pages 99-101) except as follows:

1. Physics 100 and Chemistry 100 must be taken. The passing grade for each of these subjects and for Mathematics 100 is 60 per cent. (See also *Admission to Applied Science,* page 264.)
2. Chemistry 200 (except for Forestry), Geology 201 and 202, Mathematics 202, Physics 200, Physics 300, or Physics 301 may not be taken except as an extra subject. These subjects are covered later in Applied Science.

3. A course in German is recommended (and, for those intending to enter Geological or Civil Engineering, French also). Two years in the language elected is necessary to count towards a degree, three years when the student has not presented the language for University Entrance.

The Third, Fourth, Fifth, and Sixth Years of the Double Course correspond to the First, Second, Third, and Fourth Years of Applied Science. The degree of B.A. is conferred on completing the Fifth Year of this course.

DOUBLE COURSE FOR THE DEGREES OF B.A. and B.Com.

Except as noted below, students may obtain the degrees of B.A. and B.Com. concurrently in six years on completion of 15 units of work above the requirements of the B.Com. degree and so chosen as to cover the requirements of both degrees. While the B.A. degree may be completed in one year by students holding the B.Com. degree, the converse may not be true, because prerequisites in some of the Commerce courses involve two years of consecutive work. Students intending to qualify for the two degrees are advised to obtain the necessary forms from the Registrar's office and to have their course approved by the Head of the Department of Commerce and the Dean.

DOUBLE COURSE FOR THE DEGREES OF B.A. and B.S.A.

Students may so plan their courses that the degrees of Bachelor of Arts and Bachelor of Science in Agriculture may be obtained in five years of attendance at the University. The courses must be so chosen that all requirements of both faculties are met. Students intending to qualify for the two degrees are advised to obtain the necessary forms from the Registrar's office and to have their courses approved by the deans of the two faculties concerned before embarking on their courses of study.

DOUBLE COURSE FOR THE DEGREES OF B.A. and LL.B.

Three complete years in Arts and Science in this University in the course leading to the degree of B.A. followed by three complete years in Law are required for the double degree. The degree of Bachelor of Arts will be granted to such candidates on completion of the Second Year in the Faculty of Law.

ENDOWMENTS AND DONATIONS

May 15th, 1946, to May 15th, 1947

Fellowships and Scholarships

Canadian Foundation for the Advancement of Pharmacy, two Teaching Fellowships of $300 each to assistants in Pharmacy.

Canadian Industries Limited, annual fellowships of $750 for graduate study and research in Agriculture, Chemistry, Chemical Engineering, Forestry, Forest Engineering, Mining or Metallurgy.

B. C. Sugar Refining Company Limited, scholarships to the value of $2,500 annually for scholarship in Agriculture, Bacteriology, Biology and Botany, Chemistry, Fisheries, Home Economics and Zoology.

British Columbia Telephone Company, scholarships to the total of $2,500 for a year's graduate study at the University of British Columbia in Physics, Mathematics and Physics, Engineering Physics and Electrical and Mechanical Engineering.

Canadian Association for the Advancement of Pharmacy, two scholarships of $100 each.

Canadian Association for Health, Physical Education and Recreation, annual scholarship of $50 to a student completing the Physical Education Course in the Second Year of Arts and Science.

Crofton House Alumnae, annual scholarship of $175 for a student entering University of British Columbia from Crofton House School.

The Dafoe Foundation Scholarship, $200 scholarship to a student in Social Sciences.

The T. E. and M. E. Ladner Memorial Scholarship (Mr. Leon J. Ladner), $10,000, annual scholarship of $300 for a student whose home is in the Delta Municipality of the Lower Fraser Valley.

Pharmaceutical Association of the Province of British Columbia, annual scholarship of $100 for a student entering Second Year Pharmacy.

Players' Club Alumni Scholarship, annual scholarship of $50 for an active member of the Players' Club.

Primrose Club Scholarship, annual scholarship of $150 in memory of the late Honourable R. L. Maitland, K.C., for a student in the Faculty of Law.

Shanahan's Limited, Importers, annual scholarship of $500 in Chemistry.

The Transportation and Customs Bureau of the Vancouver Board of Trade, four scholarships of $75 each in the following branches of Transportation: Airways—Highways—Railways and Waterways.

Winspear, Hamilton, Anderson and Company, two scholarships of $150 for students in Commerce taking the Accounting Option.

Relinquishment of British Columbia Electric Railway Company Limited, scholarship of $600 by Mr. George Best—winner—to be used for special equipment in the Department of Mechanical and Electrical Engineering.

Prizes

The J. W. Dafoe Foundation, two prizes of $100 each for essays in the Department of History and the Department of Economics, Political Science and Sociology on subjects dealing with international co-operation (Session 1946-47).

Dr. Wilder Penfield, prize of $100 to a student in the Graduating Class of any Faculty (Session 1946-47).

Pharmacy Awards — The Frosst Proficiency Awards from Pharmaceutical Association, Inc., two prizes of $50 each, five prizes of $25 each (similar prizes for 1947-48).

Pharmaceutical Association of the Province of British Columbia, annual prize of $50 for a student in Pharmacy.

Toronto General Trust Corporation, annual prize of $30 in the Faculty of Law.

Trail, B. C., Board of Trade, $75 book prize for Department of Architecture relative to Community Planning.

The Transportation and Customs Bureau of the Vancouver Board of Trade, four annual prizes of $75 each for reports on Transportation.

United Empire Loyalists Association (Vancouver Branch), $25—cash prize—replacing a $10 book prize formerly awarded.

Vancouver Bar Association Prize, prizes to the total of $100 for the Faculty of Law.

Anonymous Book Prize for the Faculty of Law, $25.

Bursaries

Allied Officers' Auxiliary Bursary, fund of $2,500 to provide annual bursary of $75 for a Veteran Student.
Allied Officers' Auxiliary Fund, sum of $2,500 to provide special bursaries from time to time for Veterans requiring financial assistance.
American Women's Club, Vancouver, B. C., an additional bursary of $100 for Social Work.
Mr. R. G. Cole, Hamilton, Ontario, $300 to be used to assist a student in Mining Engineering (or some other purpose as the University might see fit).
Mr. C. T. McHattie, annual bursary of $300 in the Social Work Course in memory of his wife, Ellen Ethel McHattie.
Mr. and Mrs. J. Stanley McLean, four bursaries of $250 each (Session 1946-47), for scholastic ability and financial need, with preference to students whose homes are in remote parts of British Columbia.
Nursery School Association of Victoria, B. C. (Miss V. E. Ashdown, Organizing Secretary), two bursaries of $250 each in order to assist students who plan to take up Nursery School Work.
W. D. Shaffer Bursary, annual bursary of $200 to be awarded to a student entering Teacher Training Course.
The United I.O.O.F. Bursaries, six bursaries of $200 each provided by the Grand Lodge of the British Columbia I.O.O.F., the Grand Encampment and the Rebekah Assembly for students in any Faculty.
University Women's Club General Bursary, $100 for a woman student in any year and Faculty.
Vancouver Bar Association Bursaries, two bursaries of $100 each for students in the Faculty of Law.
Anonymous Bursary, $1,000 to assist a worthy student to continue his course.

Medal

Frank W. Horner Limited, gold medal for efficiency each year in the Department of Pharmacy.

Endowment of Chair of Instruction

Mr. Robert Fiddes, $5,000 for support of Department of Music (second instalment).

Loan Funds

Mrs. J. W. deB. Farris, $10 to assist the Art Loan Fund.
Mr. and Mrs. Walter Koerner, Mr. and Mrs. Leon Koerner—$100 to assist the Art Loan Collection.
Donation of $150 (contribution of Social Work students), fund to be under the direction of Miss Marjorie J. Smith, Department of Social Work.
Home Economics Loan Fund, miscellaneous donations received by the Department of Home Economics amounting to approximately $600.
Mr. H. R. MacMillan, C.B.E., third annual contribution of $500 to the Forestry Loan Fund for students in Forestry (Session 1946-47).
Spring Session Students' Association, $2,054.60 for Loan Fund for Veteran Students.
Mrs. Douglas Stewart, $150 for the President's Fund.
Donations to Dean of Women's Loan Fund (University of Toronto Alumni—Kappa Kappa Gamma, Active Sorority—Kappa Kappa Gamma Mothers' Club, $140).
Anonymous, $50 for the President's Fund.
Anonymous, $1,500 for the Student Loan Fund.

Donations for Research

Associate Committee on Synthetic Rubber Research, National Research Council, Ottawa, grant of $3,520 made to Department of Physics.
Appropriation for "assisted researches"—
(a) $5,900—for Rubber Research;
(b) $5,400—for Nuclear Physics.
The above amounts are mainly for expenditures on equipment, although in the case of (b) provision is made for a full-time Assistant.
B. C. Fruit Trees Limited, expenses paid for three students to inspect facilities in Okanagan in connection with survey of fruit industries.
B. C. Telephone Company, $1,500 for scientific research, to be used for the purchase of equipment in the field of engineering.

Canadian Fishing Company, Limited, $1,000 additional donation for continuation of the research on Fish Oils.
Consolidated Mining and Smelting Company of Canada, Ltd., Trail, B. C., donation—$50,000 for scientific research.
Consolidated Mining and Smelting Company of Canada Ltd., Trail, B. C., donation of 4060 pounds of lead valued at $406 to the Department of Physics for the protection of research investigators who will be working in Nuclear Physics.
Research Donation from Geological Society of America, $2,000 for an investigation on the relationships of plants to ore deposits, received through Dr. M. Y. Williams, to be carried on by Dr. H. V. Warren; also $400 granted for special research on fossial pleospongia, to be carried on by Dr. V. J. Okulitch.
H. R. MacMillan Export Co. Ltd., $5,000 for development of the Forest Research Area at Haney, B. C.
Small Fruit Farm Study, $2,000 from outside sources for research. (Safeway Stores, Ltd.)
$1,000 Canadian Fishing Company for continuation of the research on Fish Meals.
$5,000 for Milk Cost Survey—

Vancouver Milk Distributors	$2,000
Provincial Department of Agriculture	2,500
Victoria Pasteurized Milk Distributors' Association	500
	$5,000

Swift Canadian Company Limited, fellowship $1,000 for research on Food Products and Nutrition:
$750 for recipient of fellowship;
$250 for equipment for research, etc.

Awards Made Available Through the Vancouver Men's Canadian Club

B. C. Drug Company, Limited, $100 a year for a period of five years for a student in Pharmacy.
The Robert S. Day & Son Bursary, $150 for a student proceeding to Fourth Year Commerce (annual).
Mr. H. R. MacMillan, C.B.E., $500 a year for a period of five years for Special Lecturers in the Department of Forestry.
Mr. Austin C. Taylor, Boultbee-Bosustow Memorial Scholarships, scholarships of $250 a year for a period of ten years to students completing the third year in Mining or Metallurgical Engineering.
The W. C. Woodward Scholarships, $250 a year for a period of five years for a student in Commerce.

Donations for Buildings

Ogilvie Flour Mills Company Limited, $1,000 for the Poultry Mortality Building to supplement the $5,000 given by various Feed Companies previously.
Pharmaceutical Association for the Province of British Columbia, $5,000 to purchase equipment for the Pharmacy Building.

Miscellaneous

CKNW Radio Station, New Westminster, B. C., $25 donation to the University of British Columbia Musical Society.
Forestry—
B. C. Forest Products Limited, donation of $5,000 per annum for a period of five years to establish a Professorship in Forest Entomology.
H. R. MacMillan Export Company, Ltd., $5,000 per annum for a period of five years to establish a Professorship in Forest Mensuration.
Mr. H. R. MacMillan, C.B.E., $5,000 per annum for a period of five years for work in the Department of Forestry (Professor of Silviculture).
Mr. H. R. MacMillan presented to the University Library an original water colour of Nootka Sound painted by a British officer about 1792.
Gift of material for classroom purposes from the International Nickel Company of Canada, Ltd.
Gift to The University of British Columbia of the late Judge Helen Gregory McGill's LL.D. gown, hood and cap.
Mrs. R. E. McKechnie, gift of a billiard table to be used by student veterans.

Survey Map Store, Iveagh Estate, London, England, gift of maps to the Department of Geology and Geography.
Junior League of Vancouver, for work in the Department of Social Work, $3,000 (third instalment).
Knights of Columbus, $250 for a student entering Social Work.
Grant from the Dominion Government for Social Work education at the University of British Columbia in order to increase the number of qualified social workers—University of British Columbia portion of grant $8,576 for scholarships and $7,700 for administration.
Pharmacy—
A. W. Scott, $55 for Department of Pharmacy.
Mr. B. Knowlton, $55 for Department of Pharmacy (to be used to purchase some piece of equipment for the Pharmacy Building).
Mr. C. Lightbody, $55 for books or other equipment for the Department of Pharmacy.
Mr. C. D. Houghland, $55 for books or other equipment for the Department of Pharmacy.
Pharmaceutical Association of the Province of British Columbia, valuable contribution of equipment and supplies for the Department of Pharmacy
Pumps and Power Limited, hydraulic turbine for use in the proposed new Hydraulic Laboratory.
Summer Session Students' Association, $40 donated to the Department of University Extension.
The Hon. H. H. Stevens, complete set of "The Report and Evidence of the Royal Commission on Price Spreads".
University Women's Club of Vancouver, brass plaque in memory of the late Judge Helen Gregory McGill, LL.D., to be placed in the University of British Columbia Library.
Vancouver Board of Trade, Advertising and Sales Bureau, $1,000 for the Course in Advertising in the Department of Commerce. (Second annual instalment.)
Veterans' Land Act, Mr. I. T. Barnet, District Supervisor, Vancouver, B. C., $250 to assist some phase of work under the Veterans' Land Act.

Gifts of Books, Periodicals, Etc., to the Library

Mr. H. R. MacMillan, for a further grant of $2,000 for the expansion of the MacMillan Collection in Forestry, and for other books, periodicals, and early maps.
Mrs. A. J. T. Taylor, for the collection of 500 volumes relating to the Arctic and Antarctic assembled by her late husband.
The "Vancouver Daily Province", for a complete file of the "Province", 1894-1945, and a file of the Vancouver "Sun", from 1927 to 1945.
The Vancouver "Sun" for a model C. Recordak microfilm reader, valued at $479.
Mr. A. E. Miller, of Penticton, for 383 volumes relating to literature and the fine arts.
Dr. Annie H. Abel Henderson, of Aberdeen, Wash., for 227 volumes and a large number of pamphlets from her historical library.
Miss E. J. Bostock, Monte Creek, for a large collection of official publications assembled by her father, the late Senator Bostock.
The B. C. Lumber and Shingle Manufacturers' Association, for copies of the evidence and arguments submitted to the Sloan Commission on Forestry.
The Library of Congress and the Department of Geology for large and important collections of British, American and German military maps.
Mrs. Lucy Edwards Crittenden, for a collection of books and pamphlets relating to John Ruskin.
Mr. H. Mortimer Lamb, for books, periodicals, and an original painting, "The Totems", by Jack Shadbolt.
The Vancouver Women's Musical Society for the gift of its library of sheet music.
Mrs. E. G. Sutcliffe, and Mrs. Don Haet, of Nanaimo, for gifts of operatic and orchestral scores, etc.
The Soviet Embassy, Ottawa, for a collection of recent Russian publications.
Major-General H. F. G. Letson, for the gift of his technical library, and the loan of his military library.
The Provincial Library, Victoria, for periodical files, duplicate year books, etc., and a duplicate set of the British Columbia Sessional Papers.
The Canadian Trades and Labor Congress, for a file of the Congress "Journal".
Mr. William Dorbels, for books, pamphlets, etc., for the Howay-Reid Collection.
From: Dr. Lorne Pierce, Toronto; Mr. Frank Buckland, Kelowna; Mrs. J. G. A. Hutcheson; Dr. William Proctor; the Swedish Consulate, Vancouver; Mr. Isaac Burpee, Portland; Mr. J. Duff, Sidney; Miss Julia C. Stockett; the Vancouver Public Library; Mr. A. Hotson; Dr. W. H. Taylor, Wash-

ington, D.C.; Mrs. Nelson Spencer; Mrs. Jonathan Rogers; Miss Dallas Johnson, Victoria; Mr. A. T. Ruffle, Chapman's Camp; Mr. D. H. Le Page, Powell River; the Canadian Pharmaceutical Association; the Canadian Medical Association; the Library of the College of Puget Sound; Dr. H. V. Warren; Dr. F. J. Belinfante; Mr. J. R. Browning; Dr. J. G. Hooley; the Canadian Embassy, Paris; Mr. A. S. Wootton; Mr. Alfred Watts; Mrs. H. C. Tait; Mrs. A. Pringle; Mr. Lester McLennan, Richmond, California; the Cleveland Public Library; Dr. L. M. Greene, Smithers; the late Rev. W. T. Keeling; Field Marshal the Viscount Montgomery; Prof. T. Larsen; Mr. H. S. Fowler, Blubber Bay; Mrs. Gordon Bell; Mr. J. W. Eastham; Miss E. Beck; Mrs. P. W. Barker; Mrs. G. W. Knipe; the Vancouver Medical Association; Mr. Grenfell Allen; Mr. Ralph Gustafson, New York; Dr. Dave Turner; Miss E. Molesworth; Dr. Lionel Stevenson, Los Angeles; the Library of the University of Western Ontario; the British Council, London; the Summer Session Association, 1946, and the Class of Agriculture '21.

Gifts of Books to the Law Library, Faculty of Law

Attorney-General for Ontario, Statutes.
H. E. Bond, Esq., Canadian Bar Review and B. C. Reports.
Mrs. N. P. Buckingham, textbooks and Reports.
Messrs. Campney, Owen and Murphy, textbooks.
Canada Law Book Company, Notable British Trials.
J. Chalmers, Esq., Hansard (Can.).
G. F. Curtis, Esq., textbooks.
C. T. Hamilton, Esq., textbooks and Statutes of Canada and British Columbia.
Messrs. Holgate and Summerfield, miscellaneous.
Gilbert D. Kennedy, Esq., textbooks.
Garfield A. King, Esq., Canadian Bar Review and miscellaneous.
Messrs. Ladner, Carmichael and Downs, textbooks.
Mrs. A. P Luxton, Halsbury (1st ed.) and textbooks.
J. A. Macdonald, Esq., Reports.
R. M. Macdonald, Esq., Rare old nominate Report.
Messrs. MacDougall, Morrison and Jestley, Supreme Court Reports.
M. A. MacPherson, Esq., K.C., Hansard (Can.) 1917-1934.
Elmore Meredith, Esq., Revised Reports.
The Minister of Labour, Ottawa, Labour Gazette.
T. G. Norris, Esq., K.C., textbooks.
S. J. Remnant, Esq., textbooks.
H. Richmond, Esq., Canadian Bar Review and miscellaneous.
Henry Smilie, Esq., textbooks.
Dr. C. W. Topping, textbooks.
R. K. Walkem, Esq., Reports.
His Honour Judge D. Whiteside, Reports and texts.
A. M. Whiteside, Esq., K.C., Set of All England Reports; and miscellaneous.

Department of Biology and Botany

Dr. George S. Allen, Department of Forestry, University of British Columbia: Two volumes of "Puerto Rico Trees". Twenty-two volumes "Caribbean Forester".

(For Herbarium and Botanical Gardens)
Seeds and Herbarium Specimens

CANADA	Dominion Arboretum and Botanic Garden, Ottawa
GREAT BRITAIN	Royal Botanic Gardens, Kew
	Royal Botanic Garden, Edinburgh
UNITED STATES	Morton Arboretum, Lisle, Ill.
SWITZERLAND	Botanic Garden, Basel.

Professor G. Spencer, Department of Zoology. The University of British Columbia: Fruit of Kigelia africana, Africa.

Mr. Neil MacGregor, Chilliwack, B. C.: Herbarium of the late Mr. H. B. MacGregor.

Department of Geology and Geography

Professor G. A. Gillies: A valuable specimen of telluride gold ore from Calgoorlie, Australia.
Miss Jane Halling, Vancouver, B. C.: A dentalium necklace from an Indian grave, Alaska.
Mrs. Wallace O. Wright, Vancouver, B. C.: A mounted mule deer head.
Mr. G. E. Whitner, Vancouver, B. C.: Indian artifacts from Lytton and Lillooet, B. C.
Mr. R. C. McCrossan, Dr. A. Lawson and Associates of the former "Word Museum": A Pleistocene horse skull, Alaska.

Department of Home Economics

Northland Automatic Appliances, Vancouver, B. C.: Gift of a Bendix Automatic Home Laundry.
National Pressure Cooker Company: Presto-Cooker and Pressure Cooker.

Department of Mechanical and Electrical Engineering

British Columbia Telephone Company, Vancouver: A length of 600 pair telephone cable for experimental work in the Communications Laboratory.
Crossman Machinery Co. Ltd., Vancouver: Early type of Bipolar Electric Generator.
Robinson Electric Co. Ltd., Vancouver: Steam pressure regulating leslie valve in section for demonstration purposes.
Dr. Gustav Schilder, Vancouver: Mercury Vapor Quartz Lamp with transformer and stand.
Mr. A. C. R. Yuill, Vancouver: A section of hollow copper conductor of the Boulder Dam transmission line type.

Department of Mining and Metallurgy

The Aluminum Company of Canada, Ltd., Vancouver, B. C.: 25 pounds of Aluminum Casting Alloys.
Cave and Company, Vancouver, B. C.: Mineralite Collection—mounted specimens of fluorescent minerals.
Copper Development Association, London, England: A collection of publications on Copper Metallurgy.
Dominion Oxygen Company, Ltd., Vancouver, B. C.: Complete series of Welding Instructions and process literature.
Electro Metallurgical Company of Canada, Ltd., Welland, Ontario: A collection of samples of pure ferro-alloys and inoculants.
Marshall-Wells, Limited, Vancouver, B. C.: A collection of alloy steels for experimental work.
Westland Iron & Steel Foundries Ltd., Vancouver, B. C.: Specimens of pig iron and ferro-alloys.
Wilkinson's Limited, Vancouver, B. C.: Length of inconel tubing for special application in the laboratory.

Department of Social Work

The Provincial Division of Child Welfare—Books.
The Vancouver Island Canadian Association of Social Workers: $20 for Social Work Students' Fund.

THE UNIVERSITY OF BRITISH COLUMBIA

Registration for 1946-47

FACULTY OF ARTS AND SCIENCE	*Men*	*Women*	*Total*
First Year	1436	359	1795
First Year Home Economics	.....	70	70
Second Year	1086	363	1449
Second Year Commerce	338	22	360
Second Year Home Economics	.....	60	60
Second Year Physical Education	39	8	47
Second Year Pharmacy	60	8	68
Third Year	554	298	852
Third Year Commerce	216	17	233
Third Year Home Economics	.....	52	52
Fourth Year	310	190	500
Fourth Year Commerce	153	15	168
Fourth Year Home Economics	.....	36	36
Graduates	221	49	270
Teacher Training	24	22	46
Social Work	26	67	93
	4463	1636	6099
Included in above:			
Reading Course Students	179	55	234
Extra-Sessional Students	51	9	60

FACULTY OF APPLIED SCIENCE			
First Year	855	.....	855
First Year Architecture	33	.....	33
First Year Forest Engineering	83	.....	83
First Year B.S.F.	128	.....	128
Second Year	433	1	434
Second Year Architecture	8	.....	8
Second Year Forest Engineering	35	.....	35
Second Year B.S.F.	50	.....	50
Third Year	183	2	185
Third Year Forest Engineering	8	.....	8
Fourth Year	129	.....	129
Fourth Year Forest Engineering	6	.....	6
Fourth Year B.S.F.	11	.....	11
Graduates	38	.....	38
	2000	3	2003

NURSING			
First Year	.....	26	26
Second Year	.....	17	17
Third Year	.....	11	11
Fourth Year	.....	11	11
Fifth Year	.....	15	15
Certificate Course	.....	61	61
	.....	141	141

FACULTY OF AGRICULTURE			
First Year	88	19	107
Second Year	157	18	175
Third Year	93	19	112
Fourth Year	55	6	61
Graduates	32	4	36
Occupational Course	59	2	61
	484	68	552
FACULTY OF LAW			
First Year	162	4	166
Second Year	67	2	69
Third Year	4	1	5
	233	7	240

Veterans Men:	4517
Veterans Women:	279
Non-Vet. Men:	2663
Non-Vet. Women:	1576
	9035

SUMMER SESSION—1946			
All Years	1907	461	2368
BOTANY EVENING CLASS—1946-47	23	20	43

DEGREES CONFERRED

MAY, 1946

THE DEGREE OF DOCTOR OF LAWS

Lawren Harris
National President of the Federation of Canadian Artists

THE DEGREE OF DOCTOR OF SCIENCE

John Hubert Craigie, A.B., M.S., Ph.D.
Dominion Botanist

Richard Claxton Palmer, B.S.A., M.S.A.
Superintendent of the Dominion Experimental Station, Summerland, B. C.

Faculty of Arts and Science

THE DEGREE OF MASTER OF ARTS

Bannerman, Lloyd Charles Francis, B.A. ..... Major: Philosophy
Minor: Psychology

Thesis: "Education as Presented in the Writings of the Classical Chinese Philosophers"

THE DEGREE OF MASTER OF ARTS—(Continued)

Bertrand, Raoul Crawford, B.A. ..... Major: Philosophy
Minor: English

Thesis: "The Political Philosophy of Bertrand Russell"

Buchanan, James Balfour, B.A. ..... Major: Chemistry
Minor: Physics

Thesis: "The Decomposition of Methane Induced by Free Radicals"

Ferguson, William Cooper, B.A. ..... Major: Physics
Minor: Mathematics

Thesis: "A Study of the Alpha Band of the Oxyammonia Flame Spectrum"

Forster, John Heslop, B.A. ..... Major: Physics
Minor: Mathematics

Thesis: "The Faraday Effect in Trans-Decahydronapthalene, n-Octadecane and n-Docosane"

Garstin, Lawrence Hamilton, B.A. ..... Major: Philosophy
Minor: Psychology

Thesis: "Representative Philosophies of Immanent Social Change from Vico to Pitrim Sorokin"

Goodman, Abraham Henry, B.A. ..... Major: History
Minor: Education

Thesis: "The League and Cultural Cooperation: A Survey of the History, Aims, Methods and Achievements of the League of Nations Intellectual Cooperation Organization"

Ivey, Donald Glenn, B.A. ..... Major: Physics
Minor: Mathematics

Thesis: "The Heat Conductivity of Synthetic Rubber at Low Temperatures"

Johnson, Arthur Clark, B.A. ..... Major: Physics
Minor: Mathematics

Thesis: "The Scattering of Light by Small Particles"

Lindgren, William Marcellous, B.A. (Minnesota) ..... Major: Political Science
Minor: Economics

Thesis: "Canada: The League of Nations and the United Nations"

Munro, Marjory Helen, B.A. ..... Major: Psychology
Minor: Philosophy

Thesis: "A General Survey and Evaluation of an Institution for the Observation and Treatment of Problem Children"

McGeer, James Peter, B.A. ..... Major: Chemistry
Minor: Physics

Thesis: "The Chemisorption of Water Vapour on Activated Charcoal"

THE DEGREE OF BACHELOR OF ARTS

With Honours

Ainsworth, Allan Harrison	First Class Honours in Economics and English
Ajello, Peter Arnott	First Class Honours in Philosophy and Psychology
Alderdice, Donald Francis	First Class Honours in Zoology.
Barton, George Markwick	Second Class Honours in Chemistry
Burroughs, William Harding Mason	First Class Honours in Mathematics and Physics
Carter, David Southard	First Class Honours in Physics
Codrington, Robert Smith	First Class Honours in Physics
Daykin, Harold Calvert	First Class Honours in History and French
DeGrace, Lawrence Alexander, B.A. (Alta.)	First Class Honours in Biology and Botany (Foresty Option)
Edmonds, Mildred	Second Class Honours in Mathematics
Gidney, Eileen Lee	Second Class Honours in Philosophy
Giovando, Laurence Frank	Second Class Honours in Mathematics
Halpin, Kathleen Beatrice	Second Class Honours in Philosophy
Harris, Gordon Richard	Second Class Honours in Chemistry
Hughes, Richard David	Second Class Honours in Geology
Johnston, Ellen Rosemary	Second Class Honours in Chemistry
Katznelson, Edith	Second Class Honours in Biology and Botany (Genetics Option)
Klopp, Thomas Alexander	Second Class Honours in Chemistry
Lang, Frank Alexander	Second Class Honours in Physics and Mathematics
Mitchell, Patricia Ann Margaret	First Class Honours in History
McConnell, John Anderson	First Class Honours in Zoology
McDougall, Donald Norman	Second Class Honours in French and English
McLeod, Hugh Norman	Second Class Honours in Philosophy and Psychology
Nordin, Vidar John	Second Class Honours in Biology and Botany (Forestry Option)
Olson, Beatrice Eleanor	First Class Honours in Chemistry
Ozeroff, Michael John	First Class Honours in Physics and Mathematics
Parker, Margaret Jane	Second Class Honours in Chemistry
Peele, Rohan Florence Mae	First Class Honours in French
Pudney, Peter Harington	Second Class Honours in Mathematics
Reimer, David Philip	Second Class Honours in History
Richards, Joan Anita	First Class Honours in Chemistry
Rothstein, Morton	Second Class Honours in Chemistry
Roulston, Aline Margaret	First Class Honours in French

THE DEGREE OF BACHELOR OF ARTS—HONOURS—(Continued)

Sinclair, Jean Graham	Second Class Honours in Mathematics
Sinclair, Jean Louise	First Class Honours in French
Stewart, Ross	First Class Honours in Chemistry
Syrett, John Henry	First Class Honours in History
Tener, Mrs. Norma Marion	First Class Honours in Psychology and Philosophy
Thomas, Blodwen	First Class Honours in Physics and Mathematics
Tryon, Muriel Joan	First Class Honours in Bacteriology and Preventive Medicine
White, Pamela Bridget	Second Class Honours in Bacteriology and Preventive Medicine
White, Patrick Cecil Telfer	First Class Honours in History
Willcox, Edward Charles	Second Class Honours in Chemistry
Wilson, Donal Stuart	Second Class Honours in History
Woodward, Faith Marion	Second Class Honours in History

THE DEGREE OF BACHELOR OF ARTS

General Course

Class I

Beech, Emma L.
Bishop, Frank L.
Cook, F. Ward
Davy, Isabel S.
Jardine, Judith
Moore, D. Eileen
McKim, Audrey E.
Peterson, Nancy F.
Rauch, Edith C.
Rumsey, Jane S.
Tunbridge, Marjorie A.
Warden, John G., B.A. (Toronto)
Whelan, Patricia R.

Class II

Adams, Donald K.
Angove, Edith
Bell, William M.
Bennett, Owen K.
Brown, Helen M.
Brown, Martin L.
Brown, Norval H.
Brownell, J. Ross, B.Com.
Buchanan, Audrey J.
Bunker, Jacqueline L.
Calder, Sheila H.
Campbell, Annette V. L.
Carter, Philip A.
Caulderwood, Joan M. D.
Chenoweth, Patricia M.
Colquhoun, J. Lenore
Copp, Marion E.
Couling, Phyllis M.
Coyle, Patricia F., B.Com.
Creighton, Kenneth D.
Cumming, Robert C.
Dahlquist, Herbert E.
Dale, Grant E.
DeBeck, Myra E.
Duncan, David M.
Ellingham, Joan C.
Ferguson, Marion A.
Flavelle, Sidney S.
Fleetwood, Cecilia C.
Flesher, Mary F.
Fowler, Mrs. Rae E. E.
Freeman, I. Doreen
Garrard, B. Audrey
Grant, Phyllis F.
Hardy, Ruth E.
Harman, Joyce A.
Harris, M. Julienne
Hickey, Gordon R.
Hicks, Roger B.
Hobbins, Rebecca
Hofmann, William G.
Hole, Leonard W., B.Com.
Hulford, Edward J.
Johnson, Caroline L.

THE DEGREE OF BACHELOR OF ARTS—GENERAL COURSE—(Continued)

Jones, Elvet G.
Martinson, Muriel E.
Michell, John S.
Miller, Edward F.
Moll, Joyce E. M.
Mollison, Joseph J.
Monk, Richard H. J.
Morris, Philip A.
Morton, Kenneth S.
Moyls, F. David
McDonald, Isabel G.
McLennan, H. Ann
Nichols, Dorothy
Nickerson, D'Arcy G., B.Com.
Noble, John G.
Nutchey, Henry
Pallas, Ethel
Parker, C. William
Pepper, Peggy E.
Phillips, Jacquelyn N.
Polson, Robert C.
Poore, Dorothy E.
Reid, William D.
Roberts, Evelyn M.
Robertson, Fred S.
Robson, Marita H.
Rose, Margaret A.
Salt, Lionel H.
Sanford, Malchia
Saunders, Marybeth
Savard, Daisy J. I.
Scott, Mrs. Anita J.
Semple, Robert E.
Shepard, Michael P.
Shields, Lorna M.
Shore, Julius
Silver, Lorna M.
Simpson, Carl
Smart, Catherine J.
Sollers, Thomas H.
Stacey, Iris
Stacey, May
Stone, Dorothy I.
Swallow, Mrs. Olga K.
Thompson, S. Elizabeth
Toombs, Ralph B., B.A.Sc.
Truax, Clarence W.
Veeberg, Ruth E. M.
Walsh, Helen M.
Wark, Marshall S.
Watt, Nancy W.
Weare, Maxwell K.
Webber, Stuart C.
Westlake, Charles A.
White, Roy A.
Wood, Donald S. C.
Young, Diana R.

Passed

Allen, George
Baker, Wallace R.
Ball, Marian
Belton, Nancy K.
Berson, Morris J.
Borden, Jane L.
Brine, Ralph H.
Brockman, A. McKenzie
Brown, Edith A.
Clyne, Norval S.
Culter, Barbara A.
Davies, Lewellyn B.
Davis, Richard N.
DePencier, E. Mary
Dewdney, Pamela R.
Ewing, Frances M.
Faulkner, Leone C.
Fowler, Evelyn M.
Francis, M. David
Gardiner, Gloria E. L.
Grodzki, Leonard N.
Hall, Ranjit Singh
Harris, Betty H.
Hebb, Marion C.
Henderson, Barbara M.
Jones, Arthur F.
Kazun, Walter
Kidd, W. F. Cleve
King, E. Ilene N.
Lee, Dart Lim
Lindow, Maxine L.
Martin, Muriel E.
Matheson, Willard
Murphy, John B.
MacLaren, Nancy A.
McPherson, Charles J.
Nickells, Robert G.
Nielson, Alfreda M.
Odynsky, Peter
Ogilvie, Sheila
Pedlow, Kenneth D.
Petrie, Don J. McK.
Pettit, A. B. Wayne
Pitman, Nancy M. A.
Poje, Tony
Rae, Elizabeth B.
Reid, June C.
Ritchie, David MacD.

THE DEGREE OF BACHELOR OF ARTS—GENERAL COURSE—(Continued)

Robinson, Joyce
Sager, S. Murray
Scott, Robert W.
Seidler, Alfred
Smith, Dorothy B.
Standeven, Rita D.
Stewart, William E.
Vandt, David
Vantreight, Elsie E.
Watts, William B.
Weaver, June M.
Worth, Helen C.
Yeo, Shirley-Anne A.

THE DEGREE OF BACHELOR OF COMMERCE

Class I

Carncross, Charles A., B.A.Sc.
Handling, Mary J.

Class II

Adams, Donald K.
Bakken, Ole
Barlow, C. Vernon
Bond, W. Elsmore
Campbell, Barbara J.
Carlile, Jack C., B.A.Sc.
Clarke, Joyce M.
Creighton, Kenneth D.
Dennis, Melvin W.
Dickenson, John E.
Duncan, Helen J.
Edwards, Gilbert J. T.
Forbes, Jack A.
Fowler, Richard W.
Gilley, Gordon R.
Gordon, Hugh W.
Gracey, Andrew S., B.A.
Grahame, Richard W., B.S.A.
Grant, Patricia M.
Henderson, Ralph R.
Hill, Clifford J.
Kersey, William G.
Lott, Joseph W.
Meredith, Thomas W.
McArthur, John P., B.A.Sc.
McFarlane, Alex W.
Macgowan, Kenneth O.
McKee, George E.
McMaster, William J.
Nation, George H.
Neil, Kingsley C.
Peacock, Robert C.
Schuthe, George M.
Vernon-Jackson, H. O.

Passed

Asselstine, James W.
Bennet, Margaret K.
Black, Runa A.
Blair, Olive M.
Bruce, Charles D.
Crawford, William M.
Day, M. June
Inman, William Van N.
King, William N.
Miller, R. S. Garry
McBride, Ronald T.
MacDonald, Donald J.
Pidgeon, Edward
Punter, William F. G.
Smith, Arthur B.
Tambellini, Albert P., B.A.
Wilson, Nancy M.
Zahar, Edward

THE DEGREE OF BACHELOR OF HOME ECONOMICS

Class I

Johnson, Maxine
Katainen, Violet O.
Parks, Doreen M.

Class II

Forbes, Mary A.
Gibbard, Margaret H.
Gulloch, Muriel I.
Hammond, Mary E.
McEachern, Lillian M.
MacKenzie, A. Isabel
Rogers, M. Elaine
Rosenberg, Jean S.
Stead, Ursula
Weber, Marjorie E.

THE DEGREE OF BACHELOR OF HOME ECONOMICS—(Continued)

Passed

Curnow, T. Bernice
Frostrup, Eilsha K.*

THE DEGREE OF BACHELOR OF EDUCATION

Class II

Buckland, Elizabeth C., B.A.
Carefoot, Garnet L., B.A. (Sask.)
Colbert, John A., B.A.
Harrop, Esther G., B.A. (Queen's)
Sanderson, Thomas J., B.A.
Sims, Edward S., B.A.
Taylor, George S., B.A.

Passed

Macdonald, David Wm., B.A.
McPhee, Edward I., B.A.

THE DEGREE OF BACHELOR OF SOCIAL WORK

Class I

Carlisle, Sheila J., B.A.
Craig, Marie I., B.A.
Mills, Laura E., B.A.
Munroe, F. Marguerite, B.A., B.Ed. (Sask.)
Pearce, Irene S., B.A.
Wanden, June E., B.A. (Alta.)

Class II

Anderson, Elizabeth M., B.A.
Ashby, Arthur C., B.A. (Sask.)
Bell, Marion M., B.A., B.Acc. (Sask.)
Bell, Phyllis M., B.A. (Sask.)
Bowie, D. Joan, B.A. (West. Ont.)
Brown, Joanne V., B.A.
Chatwin, Mary K., B.A.
Clark, Richard J., B.A.
Dalrymple, Suzanne I., B.A.
Farina, A. John O., B.A.
Haugan, Wilbert M., B.Sc. (Alta.)
Hood, Marjorie H., B.A.
Jessop, Harvey C., B.A.
Johnson, Helen L., B.A. (Sask.)
Kinnaird, Ellen A. S., B.A.
Kirkpatrick, Sheila W., B.A.
McPherson, Hugh J., B.A.
Sanders, John L., B.A.
Sanderson, Phyllis A., B.A.
Sloan, Barbara J., B.A.
Smith, Barbara A., B.A.
Stamatis, D. Patricia, B.A.
Van Gorder, C. Julia, B.A.
Vincent, Vivian A., B.A.
Webber, Erminie L., B.A.
Weeks, Donald J., B.A.
Williams, Claire, B.A.
Winch, Eric W., B.A.
Worcester, Doris E., B.A. (Sask.)
Zuckerberg, Asta M. R., B.A. (Alta.)

Passed

Taylor, Audrey R., B.A. (Man.)

Faculty of Applied Science

THE DEGREE OF MASTER OF APPLIED SCIENCE

DeLeen, John Louis, B.A.Sc., Geological Engineering

Thesis: "The Geology and Mineralogy of The Little Billy Mine, Texada Island, B. C."

Jones, Frank Raymond Roy, B.A., B.A.Sc., Metallurgical Engineering

Thesis: "The Behaviour of Some Reagents in Non-Sulphide Flotation."

THE DEGREE OF BACHELOR OF APPLIED SCIENCE

Chemical Engineering

Honours

Barrow, Gordon M.
Fordyce, David
Miniato, Oswald K.
Perris, George
Stewart, Donald L.

Class II

Allen, George
Banman, John
Bevan, Rhys D.
Beveridge, John W.
Bowell, Stephen T.
Burrows, Michael
Dowding, Charles W.
Jorgensen, Harry D.
Martin, James P.
Mearns, Alan N.
Moore, Charles A.
Underwood, Eldin S.
Waters, H. Bryce
Welton, R. John H.
Wood, Norman M.

Passed

Aitken, Thomas
Bramhall, George
Evans, Wilfred M.
Gee, Roy W. C.
Wate, G. Kenneth

Civil Engineering

Honours

McNaughton, James H.

Class II

Currie, Robert H.
Dimock, Arthur C.
Ellis, Gordon McL.
Gallaher, Ernest E.
Golcman, Robert
Harris, Robert G.
Heal, D. Gordon
Johnson, Leonard C.
Kolbeins, Henry
Peatfield, John H.
Robertson, Edward A.
Teevan, James T.

Passed

Munroe, Lawrence R.

Electrical Engineering

Honours

Auld, Bert A.
Hammerslag, Julius
Moore, William J. M.
Nalos, Ervin J.

Class II

Bodnar, Michael W.
Broe, Kenneth L.
Cheriton, Wm. Ross, B.E. (Sask.)
Fisher, Ralph E.
Howlett, Stephen B.
Kenny, Wilfred E.
Kent, Norman S.
Lindenfeld, Peter
Long, Luke
Marks, Walter
Nicholson, William V.
Olsen, J. Norman
Sansum, John D.
Wight, Lawrence E.

Passed

Ascroft, Gerald C.

THE DEGREE OF BACHELOR OF APPLIED SCIENCE—(Continued)

Forest Engineering

Class II

Bakewell, David R.
Lloyd, William E.

Geological Engineering

Honours

Fyles, John G.

Class I

Jones, Alexander G.
Roots, E. Frederick

Class II

Campbell, Douglas D.
Gouin, Leon O.
Hodgson, Alexander G.
Whiting, Francis B.

Passed Unranked

Macdonald, Ralph C.

Mechanical Engineering

Honours

Edwards, Owen C.
Galloway, Leslie C.
LeBrun, Julius A.
Parkinson, Geoffrey V.
Scott, Tom F.
Stevens, Donald R.
Taylor, David H.

Class I

Horton, John W.

Class II

Bird, John McI.
Burgess, John A.
Chutter, Paul W.
Crocker, Charles B.
Gagliardi, Samuel
George, Stanley E.
Gordon, Harry
Johannson, Edgar F.
Lake, Addison A.
Latimer, Norman H.
Lewis, L. Allen
Lyle, Wallace E.
Matthews, Glenn F.
Mitten, Leonard A.
Morriss, Harry F.
McLellan, Robert N.
McLeod, George W.
Newson, Donald A.
Rhodes, Ernest S.
Skene, Alexander W.
Sutherland, John H.
Tapay, Harold M.
Wales, Donn
Waller, Arnold B.
Warrender, A. Campbell
Wong, D. William

Passed

Moran, John R.
Newberry, Gordon E.

Metallurgical Engineering

Honours

Scott, Donald A.

Class I

Kilburn, James H.

THE DEGREE OF BACHELOR OF APPLIED SCIENCE—(Continued)

Class II

Bewell, Bruce E.
Hansen, Harris T.
Hilton, Herbert B.
Rutquist, Fred E.
Woodward, Jack R.

Mining Engineering

Class II

Odynsky, Peter G.

THE DEGREE OF BACHELOR OF SCIENCE IN FORESTRY

Honours

DeGrace, Lawrence A., B.A. (Alta.)
Smith, Douglas S., B.A.

Class I

Byers, Archie McA., B.Com.
Nash, Andrew J., B.A.

Class II

Allison, George W., B.Com.
Aqua, Harry, B.Com.
Cotter, H. B. Chester, B.Com.
Korsch, Stanford, B.Com.
Marples, Edward G., B.A.
McKercher, R. John, B.Com.
Waldie, R. Arthur, B.A.
Waldron, Benjamin H., B.Com.

THE DEGREE OF BACHELOR OF APPLIED SCIENCE IN NURSING

Class II

Abernethy, Margaret J.
Ades, Audrey I., B.A.
Atkins, Roma J.
Augustine, Betty V.
Boyes, Margaret M.
Butler, Emma I.
Driver, Joyce I.
Duncan, Margaret W., B.A.
Hazlewood, Mary G.
Hobden, Frances E., B.A.
Humphreys, Marjorie E.
Lane, Ruth A.
Martin, Sally V. W.
Morison, Joan D.
Morris, Dorothy R. A., B.A.
Rendell, Norah J.
Taylor, Jean E.
Taylor, Joyce M.
Wilkinson, Mary H.

Faculty of Agriculture

THE DEGREE OF MASTER OF SCIENCE IN AGRICULTURE

Taylor, Milton Cecil, B.S.A. ..... Major: Agricultural Economics
Minor: Economics

Thesis: "An Income Analysis of a Sample Farming District with Particular Reference to the Importance of Self-sufficiency."

THE DEGREE OF BACHELOR OF SCIENCE IN AGRICULTURE

Class I

Blair, David J.
Buchanan, Sheila C., B.A.
Deas, Catherine P.
Gyles, N. Roy
Jameson, Kenneth R.
Milroy, James E.
Ney, Phyllis W., B.A.
Nilan, Robert A.
Noble, Roy S.
Watt, Alexander W.

THE DEGREE OF BACHELOR OF SCIENCE IN AGRICULTURE—(Continued)

Class II

Bell, Gordon R.
Caldecott, Richard S.
Devlin, Kenneth A.
Domville, Winston, M.S. (Mich. State)
Gasperdone, Herbert C.
Hall, Sylvia R.
Harrower, John A.
Huntingdon, A. Ronald
Klinkhamer, Thomas L.
Leavy, Jack A.
Leavy, Leo F.
Miller, Robert A.
Monk, Fred C. J.
Mowatt, J. Graham
McCarthy, James A.
Ripley, T. Andrew F.
Shewan, Robert H.
Stevens, Joan M.
Tater, William M. J.
Turner, John H.
Woo, Effie

Passed

Webb, Halcyone

DEGREES CONFERRED

OCTOBER, 1946

THE HONORARY DEGREE OF DOCTOR OF LAWS

Samuel John Willis, B.A., LL.D.

THE HONORARY DEGREE OF DOCTOR OF SCIENCE

Wilder Graves Penfield, C.M.G., M.D., D.Sc., F.R.C.S.C., Hon. F.R.C.S.E., F.R.S.
Director of the Montreal Neurological Institute

Faculty of Arts and Science

THE DEGREE OF MASTER OF ARTS

Checov, Louis, B.A. ..... Major: Psychology
Minor: Philosophy

Thesis: "An Analysis of the California Test of Mental Maturity; Advanced Battery"

Filmer-Bennett, Gordon Thomas, B.A. ..... Major: Psychology
Minor: Philosophy

Thesis: "The Group Measurement of Generalizing Ability at the Grade Six Level"

Gaddes, William Henry, B.A. ..... Major: Psychology
Minor: Education

Thesis: "The Mental Effects of Pellagra"

Goodlad, John Inkster, B.A. ..... Major: Education
Minor: History

Thesis: "The Male Institutional Juvenile Delinquent"

Magee, William Henry, B.A. ..... Major: History
Minor: English

Thesis: "The Growth of Canadian National Feeling as Reflected in the Poetry and Novels of English Canada"

THE DEGREE OF MASTER OF ARTS—(Continued)

McDonald, Ruth Elizabeth, B.A. ..... Major: French
Minor: Education

Thesis: "La présence de Jean Giraudoux dans son oeuvre"

Ostle, Bernard, B.A. ..... Major: Economics
Minor: Mathematics

Thesis: "War Finance in Canada"

Peyman, Douglas Alastair Ralph, B.A. ..... Major: Psychology
Minor: Philosophy

Thesis: "Some Factors Involved in the Spread of Venereal Disease"

Ridgway, Walter Sydney, B.A. ..... Major: Greek
Minor: Latin

Thesis "Soli-Lunar Cycles in Greek Research and Jewish Revelation"

Robertson, Roderick Francis, B.A. ..... Major: Chemistry
Minor: Physics

Thesis: "The Conversion of British Columbian Softwoods into Hardwoods by the Methylolureas" and "The Preparation of Methyl-Trimethylol-Methane"

Rush, Jack Thomas, B.A. ..... Major: French
Minor: Education

Thesis: "Rousseau et le Nouveau Type Humain"

Taylor, Arthur Edwin, B.A. ..... Major: Chemistry
Minor: Physics

Thesis: "Studies in the Rare Earths—The Fractional Crystallization of the Rare Earth Double Magnesium Nitrates—The preparation and Fractional Crystallization of the Rare Earth Bromates"

THE DEGREE OF BACHELOR OF ARTS

With Honours

Batt, Jacqueline Ann ..... Second Class Honours in Economics
Brandreth, Harold Gordon ..... Second Class Honours in Economics
Carbert, Leslie ..... First Class Honours in Economics
Fieldhouse, Roger Hyde ..... Second Class Honours in Economics
Harvey, James Wilton ..... First Class Honours in Economics
Keeffe, John ..... Second Class Honours in Political Science
McLeod, Donald Charles ..... First Class Honours in Economics
Smith, Marjorie Catherine Lynis ..... First Class Honours in Economics
Zubek, John Peter ..... First Class Honours in Psychology

THE DEGREE OF BACHELOR OF ARTS

General Course

Class I

Cuthbert, Grace Irene, B.Com.
Fitch, Handley Freeman
Macdonald, Harold Struthers
MacKenzie, Mrs Mabel Hunter

THE DEGREE OF BACHELOR OF ARTS—GENERAL COURSE—(Continued)

Class II

Allan, James
Bell-Irving, Elizabeth
Bucknall, Margaret Alice Joy
Calder, John
Canty, John Leslie
Carlsen, Alfred Edgar
Cavalier, Eva Edith
Chambers, Edward James Stewart, B.Com.
Charters, John Alfred
Clayton, Blanche-Petite
Donald, Archibald Scott
Dundas, Marion Isobel
Fleck, William James
Green, John Willison
Haworth, Gerald Nixon
Henderson, Clarence Roy
Hitchen, Richard Charles Horatio
Horne, Anne
Johnson, Dereck Fuller Geoffrey
Keith, Jean Marrion
Laird, Daphne Evangeline
Lazareff, Anne Eileen
Lazzarin, Fioretta Gloria
Leitch, Alexander Havill
Linsey, Frederick Geoffrey
Lips, Annie
Lipson, Peggy
Lynch, James Carrell
Marriott, Earl
Matheson, Betty-Jane Margaret
Monk, John Lawrence
McGregor, Marjorie Helen
McWilliams, Robert Winter
Palsson, Asbjorn Oscar
Perkins, Edgar Everett
Perry, Frank Selby
Price, Robert Shrewsbury
Rickaby, John Dockrill
Ross, Winona Patricia
Saunders, Henry Marshall
Shaffer, Philip
Smith, Denis Charles
Steiner, Irene Ruth
Stephen, John Ernest
Stevenson, Brigham Kyle
Stewart, Hazel Eunice
Tuckey, Grace Dorothy
Tweed, Reginald Cyril Ralph
Walker, Murray Keith
Watson, Henry Tolson

Passed

Anderson, Kathleen Joyce
Bales, Russell Clifford
Begert, Henry Kendall
Borgerson, Maisie Patricia
Chatwin, James Charlton
Clark, Alec Fraser
Clarke, Joan Louise
Cull, Henry Francis George Newbould
Dashwood-Jones, Edmund
DeBeck, Betsy Anne
Done, Dorothy Mary
Elefthery, Demetrie George
Field, Joan Elizabeth
Gray, Gordon Kendall
Hazell, Jack
Hodgins, Barrie Lyall
Kostman, Philip
Lawrence, Blair Grant
Mah, Eva
Manzer, Nobel Rhodes
Murray, Robert McKay
McGhee, William Peter Tennent
McIntosh, Phyllis Jane
Norton, Mary Anne Jean
Oben, Jean Dorothy
Oehlerking, Roy Frederic
Paradis, Rodolphe
Smyth, James Douglas
Stevens, John Earl
Strachan, Jessie
Trefry, Ethel Luella
Warren, Marjorie Isabel
Welsh, Dorothy Audrey

THE DEGREE OF BACHELOR OF COMMERCE

Class I

Goldie, David Michael Mills

Class II

Affleck, William Burchill
Blake, Ian Simpson
Bradner, Gilbert Gregg
Corbett, Lorne Rae
Cromie, Peter Esmond
Dean, Roland Richard

THE DEGREE OF BACHELOR OF COMMERCE—(Continued)

Fieldhouse, Roger Hyde
Frith, Patrick Vincent
Harris, Richard Charles
Howsam, Peter Somerville
Johnston, William Lloyd
Lynn, James Fraser
Martin, Kenneth Rupert
Monahan, Arthur Ronald
Myers, Fred Chester
MacDonald, Alastair Ranald
McKendrick, Bruce James
MacKenzie, John Wilfred
McLeod, Donald Thomas
McLeod, John Norman
McLeod, Joseph Donald Penn
Oughtred, William Thomas
O'Brien, William James
Pearson, Donald Edward Thomas
Percival, Joseph Kenneth
Perry, Francis Aloysius
Prior, Dennis Charles
Ralfs, Roy Benham Henderson
Scott, Anthony Dalton
Stephen, John Ernest
Swallow, Mrs. Olga Kathleen, B.A.
Walkem, Charles Anthony
Wilkinson, Hugh Clennel
Williscroft, Stuart Burton
Wilson, David Reid

Passed

Abbott, Robert Wilfred
Allan, James Grant
Begert, Henry Kendall
Bushell, Norman Frank
Carey, Leo Patrick
Carmichael, Herbert Angus
Frolic, Gordon Ennis
Gilbert, John Albert
Grinnell, James Briggs
Hammersley, Donald William
Johnson, Chester Alison
Johnstone, Alan Don
Lam, Paul
Milner, Ronald Stanley
Morris, Robert Arnold
Peirson, George Fredrick
Pidgeon, Frank Henry Bradshaw
Thompson, Ross Seton
Wiles, Gordon Austin
Wilson, Joseph Woods

THE DEGREE OF BACHELOR OF EDUCATION

Class I

Gibbard, John Edgar, M.A.
Hutchison, James Christie, B.A.
Whittingham, Eric Harold, B.Sc. (London)
Wilks, Arthur Frederick, B.A.

Class II

Chamberlain, Douglas Goddard, B.A.
Charter, Harold Rennison, M.A.
Harford, Barrie Herbert, B.A.
Lock, Arthur Ernest, B.A.
Muir, James French, M.A.
Muraro, Sylvio, B.A.
Maclean, Richard Vincent, B.A.
Platt, Arthur Launce Vernon, B.A. (Sask.)
Robinson, Robert John, B.A.
Sprinkling, Ransford Gray, B.A.
Veazey, Clair Thompson, B.Sc. (Man.)
Wood, Donald Scott Conley, B.A.
Yerburgh, Ernest Robert Marryat, M.A.

Passed

Coleman, William Aubrey, B.A.
McIntyre, Neil Alexander, B.A. (Toronto)

THE DEGREE OF BACHELOR OF SOCIAL WORK

Passed

McGhee, Margaret Grace, B.A.

Faculty of Applied Science

THE DEGREE OF MASTER OF APPLIED SCIENCE

Cavers, Stuart Donald, B.A.Sc.....Chemical Engineering
Thesis: "The Specific Heat of Cis-Decahydranaphthalene by the Isothermal Method"

Cooke, Norman Edward, B.A.Sc.....Chemical Engineering
Thesis: "Batch Distillation"

Dunell, Basil Anderson, B.A.Sc.....Chemical Engineering
Thesis: "A Method for Measuring the Dielectric Constant of Liquids"

Ekman, Frank Oscar, B.A.Sc.....Chemical Engineering
Thesis: "Solvent Extraction Experiments on Hat Creek Coal"

Howie, Henry James, B.A.Sc.....Chemical Engineering
Thesis: "Anomalous Specific Heat in the Liquid Phase"

Leith, James Alexander, B.A.Sc.....Chemical Engineering
Thesis: "The Sulfur Dioxide, Oxygen, Sulfuric Acid Cell"

Robinson, Donald Baker, B.A.Sc.....Chemical Engineering
Thesis: "The Thermal Conductivities of Cis and Trans Decahydranaphthalene"

Williams, Ford Campbell, B.A.Sc.....Chemical Engineering
Thesis: "The Transition Points of Hexamethylethane"

Yip, Chuck Wing, B.A.Sc.....Chemical Engineering
Thesis: "The Conversion Velocity of the Cis- to the Trans-Form of Decahydranaphthalene in the Presence of Aluminum Chloride"

Younger, Andrew Hunter, B.A.Sc.....Chemical Engineering
Thesis: "The Thermal Conductivities of Cis and Trans Decahydranaphthalene"

THE DEGREE OF BACHELOR OF APPLIED SCIENCE

Chemical Engineering

Passed

Josephson, Gilbert Martin

Civil Engineering

Passed

Bayly, Lemuel James

Electrical Engineering

Passed

McMichael, William George

Mechanical Engineering

Passed

Gagnon, Bernard Ulric
Wong, Gilbert

Forestry

THE DEGREE OF BACHELOR OF SCIENCE IN FORESTRY

Class II

Prior, Dennis Charles

Nursing and Health

THE DEGREE OF BACHELOR OF APPLIED SCIENCE IN NURSING

Class II

Allport, Margaret Harrison
Robinson, Kathleen Estelle

Faculty of Agriculture

THE DEGREE OF MASTER OF SCIENCE IN AGRICULTURE

Lawrance, Howard Williams, B.S.A. — Major: Plant Nutrition; Minor: Horticulture
Thesis: "A Study of Methods for the Production of Low-Sugar Pectinates from B. C. Apples"

Tamboline, Florence Rosena, B.S.A. — Major: Dairying; Minor: Soils
Thesis: "Studies on the Incidence, Diagnosis and Control of Bovine Mastitis in British Columbia"

Wright, Norman Samuel, B.S.A. — Major: Plant Pathology; Minor: Plant Nutrition
Thesis: "A Species of *Stemphylium* as Part of the Early Blight Complex on Solanaceous Plants"

THE DEGREE OF BACHELOR OF SCIENCE IN AGRICULTURE

Class II

Gray, Neil Talbot
Maurer, Alfred Robert
Neilson, James Alexander Shepherd
Smith, Alexander Fleming

MEDALS, FELLOWSHIPS, SCHOLARSHIPS, PRIZES, AND BURSARIES

(October 30th, 1945, to December 31st, 1946)

HEADS OF THE GRADUATING CLASSES, MAY, 1946

The Governor-General's Gold Medal (Head of the Graduating Class for the B.A. Degree) — William H. M. Burroughs

The Wilfrid Sadler Memorial Gold Medal (Head of the Graduating Class for the B.S.A. Degree) — Alexander W. Watt

The Convocation Prize (Head of the Graduating Class for the B.A.Sc. Degree), $50.00 — Geoffrey V. Parkinson

The Kiwanis Club Gold Medal (Head of the Graduating Class for the B.Com. Degree) — Mary Janet Handling

OTHER AWARDS

MEDALS

The Lefevre Gold Medal and Scholarship (Chemistry)
Ross Stewart, with the Scholarship ($150.00) by reversion to Joan A. Richards (Award relinquished)

The United Empire Loyalists' Association Medal and Prize (History)
Effie I. Smallwood

FELLOWSHIPS AND SCHOLARSHIPS FOR GRADUATES

University Graduate Scholarship, $200.00 ..... John H. Syrett

The Anne Wesbrook Scholarship, $125.00 ..... Beatrice E. Olson

The Dr. F. J. Nicholson Scholarships:
1. For Chemistry, $500.00 ..... Ross Stewart
2. For Geology, $500.00 ..... Ernest Frederick Roots

The B'nai B'rith District No. 4 Hillel Foundation Scholarships, $125.00 each:
1. Norman Bulman, B.A. (Arts and Science)
2. Phyllis W. Ney, B.A. (Agriculture)

The Standard Oil Company of British Columbia Limited Fellowship, $950.00
George Perris

The Powell River Company Limited Scholarship, $700.00
James A. Cochrane, B.A.Sc.

The British Columbia Electric Railway Company Limited Research Scholarship, $500.00 ..... Ervin J. Nalos

The Britannia Mining and Smelting Company Limited Scholarship, $250.00
Charles H. Howatson, B.A. (awarded December, 1945, and renewed December, 1946).

The Cariboo Gold Quartz Mining Company Limited Scholarships, $100.00:
1. John Lamb, B.A.Sc.
2. John Walter Young, B.A.Sc.

The Native Daughters of British Columbia Scholarship, $50.00
H. Keith Ralston, B.A.

The Cominco Fellowship, $750.00 ..... Oswald K. Miniato

The Lions Club Fellowship, $1200.00 ..... Charles A. Claridge, B.A.

The Canadian Pulp and Paper, Western Branch, Fellowship, $1000.00
No award

The Shell Oil Fellowship for Research, $750.00 plus tuition fees
Gordon M. Barrow

The Canadian Industries Limited Fellowship for Research, $750.00
Cameron R. Hammersley, B.A.Sc.

SCHOLARSHIPS FOR GRADUATES AND UNDERGRADUATES

The British Columbia Sugar Refining Company Limited, Scholarships for Research:

Norman Bulman, B.A., Chemistry ($300.00)
George Constabaris, B.A., Chemistry ($300.00)
H. Dean Fisher, B.A., Zoology ($375.00)
Pamela B. White, B.A., Bacteriology ($375.00)
Fred C. Withler, B.A., Fisheries ($375.00)
Harold P. Capozzi, Chemistry ($175.00)
Kenneth F. Gregory, Agronomy ($250.00)
Harold MacLean, Chemistry ($175.00)
Arthur M. Peers, Chemistry ($175.00)

SCHOLARSHIPS FOR UNDERGRADUATES

I. IN ALL FACULTIES

University Great War Scholarships (First Year), $200.00 each:
1. Martin H. Edwards
2. Glyn M. Edwards

SCHOLARSHIPS FOR UNDERGRADUATES—(Continued)

II. IN ARTS AND SCIENCE

Third Year

University Scholarships in Arts and Science (general proficiency), $200.00 each:
Group 1—Gertrude Lee
Group 2—Donald G. Brown

The N. Leo Klein Memorial Scholarship (general proficiency—Commerce), $50.00.....Robert T. Bodie, by reversion to D. Michael M. Goldie

The Vancouver Women's Canadian Club Scholarship (First in Canadian History), $100.00.....Robert Cail, by reversion to James W. Evans

The Vancouver Women's Canadian Club Scholarship (general proficiency—Home Economics), $100.00:
Ann P. Symonds, M. Jean Wilson } Equal, $50.00 each

The John and Annie Southcott Memorial Scholarship, $100.00 (B. C. History)
Robert Cail

The Edith Ashton Memorial Scholarship (Biology and Botany), $250.00
Robert F. Scagel

The Edwin Waterhouse Scholarship (Commerce), $250.00.....Robert Thorne Bodie

The R. J. Pop Scholarship in Zoology, $150.00.....David Munro

The British Columbia Teachers' Federation Scholarship, $50.00 (Summer Session, 1946).....William J. A. McPhail

Second Year

University Scholarships in Arts and Science (general proficiency), $200.00 each:
1. Bertram Brockhouse
2. Nick Harrick

The Pharmaceutical Association of the Province of British Columbia Scholarship, $100.00.....Allan F. McArthur

The Shaw Memorial Scholarship (First in two of English, Latin, and Greek), $125.00.....Mary V. Plaskett

The McGill Graduates Scholarship (First in English and French), $125.00
Anne S. Angus

The Terminal City Club Memorial Scholarship (first in English and Economics), $100.00.....Mary V. Plaskett, by reversion to Norah J. Corbould, by reversion to Evelyn A. Fawcett

The Imperial Order Daughters of the Empire Scott Memorial Scholarship (Biology), $100.00.....Craig McPhee

The Summer Session Students' Association Scholarship, $40.00 (Summer Session, 1946).....Helen A. M. Urquhart

First Year

Royal Institution Scholarship (general proficiency), $200.00
J. R. Hugh Dempster

University Scholarships in Arts and Science (general proficiency), $200.00 each:
1. Neil Tomlinson, 2. Harry B. Wolfe } Equal

The Beverley Cayley Scholarship (first male student in English), $100.00
Howard M. Harris

SCHOLARSHIPS FOR UNDERGRADUATES—(Continued)

III. IN APPLIED SCIENCE

The Vancouver Sun Scholarship for Carriers, $200.00 (award renewed)
Gordon M. MacDonald

University Scholarship in Nursing and Health (general proficiency), $200.00 (awarded in December, 1946)....Margaret Anne Fullerton

The Vancouver Women's Canadian Club Scholarship in Nursing and Health, $100.00....Ann Elizabeth Scoones

The Dunsmuir Scholarship (highest in Mining Engineering, proceeding to the Fourth Year), $150.00....James T. Fyles

University Scholarship in Applied Science (general proficiency, proceeding to the Third Year), $200.00....Edward B. D. Lambe

Royal Institution Scholarship in Applied Science (general proficiency, proceeding to the Second Year), $200.00....Dick Quan

The G. M. Dawson Scholarship (highest in Geological Engineering, Geological subjects, proceeding to the Fourth Year), $50.00....John O. Wheeler

The B'Nai B'rith Auxiliary No. 77 Scholarship (highest in Chemical Engineering, proceeding to the Fourth Year), $50.00....Bruce H. Levelton

The R. Randolph Bruce Scholarship (highest in Metallurgical Engineering, proceeding to the Fourth Year), $200.00....No award

The British Columbia Electric Railway Company Limited Scholarships, $200.00 each:

1. Highest in Electrical Engineering and proceeding to the Fourth Year
Relinquished by David J. Rose to Donald J. Evans
2. Highest in Mechanical Engineering and proceeding to Fourth Year
William J. Ross

IV. IN AGRICULTURE

University Scholarship in Agriculture (general proficiency, proceeding to the Second Year), $200.00....Margaret E. Norris

The David Thom Scholarship (general proficiency, proceeding to the Third Year), $100.00....Flora C. Norris

The British Columbia Fruit Growers' Association Golden Jubilee Scholarship (proceeding to the Horticultural Course of the Fourth Year), $125.00
Dorothy M. MacLeod

PRIZES

I. IN ALL FACULTIES

The University Essay Prize (books), $25.00....Lorna Downman

The Dorothy and William Dorbils Prize (Canadian Literature), $50.00
No award

The News-Herald Awards in Journalism, two prizes:
Senior Prize, $200....Francis David (Luke) Moyls
Junior Prize, $150.00....Norman Klenman

The Dorothy and William Dorbils Essay Prize in Botany and Geology, $100.00
Charles H. Howatson, B.A.

II. IN ARTS AND SCIENCE

The Francis Willard Prize, $50.00....No award

The David Bolocan Memorial Prize (Philosophy and Psychology), $25.00
Peter Arnott Ajello

The Ahepa Prize (Greek), $100.00....Iris Stacey

The Armstead Prize in Biology and Botany, $50.00....Gerald V. Howard, B.A.

SCHOLARSHIPS FOR UNDERGRADUATES—(Continued)

The British Columbia Packers Limited Prizes in Fisheries:
First Prize, $100.00 each ..... { Keith S. Ketchen, B.A.
Darryl K. Foerster
Second Prize, $50.00 each ..... { Paul Gifford
William J. Couldwell

The Essay Prize in International Relations, $30.00 ..... Douglas Stone Leiterman

The Dorothy and William Dorbils Prize (Bacteriology and Preventive Medicine), $50.00 ..... Muriel Tryon

The Dorothy and William Dorbils Prize (Zoology), $50.00 ..... John A. McConnell

The J. W. Dafoe Foundation Prizes ($100.00 each) ..... No award

III. IN APPLIED SCIENCE

The Engineering Institute of Canada, Vancouver Branch, Walter Moberly Memorial Prize (Engineering Thesis in Fourth Year)—(books), $25.00
Geoffrey V. Parkinson, "Mathematics Applied to Aircraft Lofting"

The Association of Professional Engineers Prizes (books), $25.00 each:
1. Frank H. Seyer, Chemical Engineering, "The Design and Operation of Hortonspheroids."
2. Gordon A. Tanner, Civil Engineering, "The Logging Topographical Map."
3. Thomas K. Naylor, Electrical Engineering, "Underground Electrolytic Corrosion."
4. James W. Lee, Geological Engineering, "Report on the Geology of Part of the Ashcroft Sheet."
5. John D. Allan, Mechanical Engineering, "Installation of a Diesel Engine."

The Provincial Board of Health Prize in Public Health Nursing, $100.00
Mrs. Doris L. Brentzen

The Engineering Institute of Canada Prize (Third Year), $25.00
Edward T. Kirkpatrick

The William N. Kelly Prize (highest in Mechanical Engineering 30, Machine Practice), $15.00 ..... Ben Quan

The Timber Preservers Limited Prizes (Fourth Year), Civil Engineering:
1. $65.00, Robert H. Currie
2. $45.00, John H. Peatfield
3. $25.00 each { Leonard C. Johnson
Lawrence R. Munroe

The Canadian Institute of Mining and Metallurgy (British Columbia Section) Prize, $100.00 ..... F. Raymond R. Jones, B.A., B.A.Sc.

The Ingledow Prizes in Electrical Engineering, two prizes, $50.00 each:
1. William J. M. Moore
2. David J. Rose

The British Columbia Lumber and Shingle Manufacturers' Association Prizes:
First Prize, $100.00 ..... Roy F. Hooley
Second Prize, $50.00 ..... Edwin Quirk
Third Prize, $25.00 ..... William V. Coventry

IV. IN AGRICULTURE

The Dr. D. A. McKee Memorial Prize, $30.00
Dorothy M. MacLeod, by reversion to Ronald R. Heal

The Llewellyn Jones Prize in Zoology, $50.00 ..... Melville Gerald Thomson

SCHOLARSHIPS FOR UNDERGRADUATES—(Continued)

V. IN LAW

The Carswell Company Limited Book Prize, $20.00.....George Buchan McIntosh

BURSARIES (All Faculties)

The Captain LeRoy Memorial Bursary (preference to returned soldiers or dependents), $150.00.....Joan Beverley Nagle

The Khaki University and Y.M.C.A. Memorial Fund Bursaries, $100.00 each (in alphabetical order):

1. John G. Hannan
2. Maud Hazel Hurst
3. Mary Emily Lane
4. Marney J. McLellan
5. Dorothy May Tubbs (Victoria College)

The University Women's Club Bursary, $100.00.....Rosemary J. Brough

The William MacKenzie Swan Memorial Bursary, $250.00.....Ronald Seller

The Mary C. Lipsett Bursary, $300.00.....Thomas J. Mallinson

The American Woman's Club Bursary, $100.00.....Helen A. M. Urquhart

The Inter-Sorority Alumnae Club Bursary, $200.00.....Mary V. Plaskett

The Mildred Brock Memorial Bursary, $75.00.....Jean M. Grunlund

The Lady Laurier Club Bursary, $100.00.....Agnes E. Mehling

The Frances Milburn P.E.O. Bursary, $150.00.....Linda C. Rosen

The Faculty Women's Club Bursary, $75.00.....Barbro E. Grunlund

The Alumni Association Bursary, $50.00.....Nora J. Clague

The W. D. Shaffer Bursaries, $100.00 each
Thomas G. Cundill and Jacob C. Doell

The Phil Wilson Bursary in Forestry, $225.00.....Allan Wallace Webster

The Delta Gamma Bursary for the Blind, $100.00.....No award

The Flying Officer Reverend George Robert Pringle Memorial Bursary, $200.00.....John O. Wheeler

The Alberta Meat Company Bursary, $50.00.....Robert D. Archibald

The Pacific Meat Company Bursary, $100.00 each
Warren Kitts and Walter Oliver

The Co-operative Seed Growers' Bursary, $100.00.....Alexander R. Holmes

The Alliance Française Bursary, $50.00.....Irene Thelma Nelson

The Rotary Memorial Bursaries (names in alphabetical order), $200.00 each:

1. Rodney Elliott
2. Helen Foster
3. Walter J. Hartrick
4. Eldon F. Rideout
5. John D. Ross

The Vancouver Section National Council of Jewish Women Bursary, $100.00
Elizabeth J. Bigsby

The Gamma Phi Beta Bursary, $50.00.....Marie E. Stanley

The Provincial Council of British Columbia, Canadian Daughters' League, Bursaries, $100.00 each:

1. Nancy F. Peterson
2. Jane S. Rumsey

The Jack Cohen Bursary, $150.00.....Robert S. Price

BURSARIES—(Continued)

The Lauder Mercer and Company Limited Bursary, $250.00
Harry R. Simmons

The Nat. Bell Bursary, $150.00 ..... Lorraine I. Ourom

The Pattison Bursaries, $100.00 each:
1. Pauline Diamond
2. Anne C. Munn

The McLean Bursaries (names in alphabetical order):
1. William C. Cook, $250.00
2. Ross H. Hall, $100.00
3. Gordon M. MacDonald, $250.00
4. Margery Montgomery, $150.00
5. Phyllis M. Reid, $125.00
6. Floyd C. Wartnow, $125.00

Special Bursary for Proficiency (anonymous donor) ..... Aubrey C. Tanner

The David Thom Bursaries:
No. 1, $150.00 ..... Charles Cliffe Midwinter
No. 2, $75.00 ..... Patricia B. McDonald
No. 3, $75.00 ..... David Borthwick

The University Women's Club Bursary for Social Work, $100.00
By special arrangement to Constance Liddell (Fourth Year)

The Kiwassa Club Bursaries (names in alphabetical order), $150.00 each:
1. Mary K. Chatwin
2. Margaret Jenkins
3. Margaret Joan Matthews
4. Asta Zuckerberg

The Geldart Riadore Bursary, $150.00 ..... Ian Frederick Greenwood

UNIVERSITY SCHOLARSHIPS FOR UNIVERSITY ENTRANCE

Provincial—$175.00 ..... Stanley E. G. Tench

District 1—$175.00 relinquished by ..... Denis H. Pratt
to ..... David H. Clegg (Victoria College)
$175.00 ..... Anna Maria Attfield and Margaret E. Creasey (equal); relinquished to Margaret E. Creasey

District 2—$175.00 relinquished by ..... Jan Oostermeyer
to ..... La Verne Velma Stables
$175.00 relinquished by ..... Yoshinori Hiraki
to ..... Roy A. North and John A. R. Coope (equal)
relinquished to ..... Roy A. North

District 3—$175.00 ..... Gilbert C. E. Semail
$175.00 ..... Barbara Anne Percy

District 4—$175.00 ..... Gilbert C. Power Gray
$175.00 ..... Walter D. Duerksen

District 5—$175.00 relinquished by ..... Henry J. Wiebe
to ..... James V. Taylor
$175.00 relinquished by ..... Eleanor B. Trehearne
to ..... Evelyn Patricia Ross

District 6—$175.00 ..... Irene L. Kirshfelt
$175.00 relinquished by ..... Howard E. Johnson
and runner-up ..... Graham J. C. Atwood
to ..... Helen Louise Kulchyski
$175.00 ..... Sara Lee Tidball

UNIVERSITY SCHOLARSHIPS FOR UNIVERSITY ENTRANCE—(Continued)

District 7—$175.00 relinquished by ..... George S. Fukuyama and all eligible runners-up
$175.00 relinquished by ..... Douglas D. Cake and all eligible runners-up

The Vancouver Sun Scholarships for Carriers (University Entrance), $200.00 each:
1. Roy A. North
2. John T. Saywell (Victoria College)

ROYAL INSTITUTION SCHOLARSHIPS FOR SENIOR MATRICULATION

Provincial—$200.00 relinquished by Helen J. Allison to Eric Stanley Goode
$200.00 relinquished by Eric Stanley Goode to Norman J. Phillips
$200.00 relinquished by William H. Weldon to Robert Vincent de Vito
$200.00 relinquished by Alfred Milton Alden to Shirley Anne Stevens
$200.00 ..... Jessie F. E. Stringer
$200.00 ..... Margaret McIntosh Black
$200.00 ..... Margery K. Montgomery

SCHOLARSHIPS AND BURSARIES ANNOUNCED BY THE UNIVERSITY BUT AWARDED BY OTHER INSTITUTIONS

The Rhodes Scholarship ..... Allan H. Ainsworth

The Pacific Mills Limited Scholarship (University Entrance), $250.00 ..... La Verne Velma Stables

The Crofton House Alumnae Scholarship (University Entrance), $175.00 ..... Mary Joan Williams

The Summerland Scholarship (University Entrance), $250.00 ..... Joan Bennett

The International Pulp, Sulphite and Paper Mill Workers Scholarship (University Entrance), $200.00 ..... No award

The French Government Scholarships:
Award 1946-47 ..... Jacques L. Metford, B.A. (50,000 fr.)
Renewals 1946-47 ..... Lloyd H. Hobden, M.A. (50,000 fr.)
James H. Hood, B.A. (50,000 fr.)
Vacation Scholarship ..... Jack T. Rush, B.A. (8,000 fr.)

The Imperial Oil Graduate Research Fellowship in Mechanical Engineering, $1,000.00 ..... Owen C. Edwards, B.A.Sc.

The Imperial Oil Undergraduate Scholarships, $500.00 each:
1. Clifford McLean Stone
2. Delbert Roger Wright (awarded in Alberta)

The United I.O.O.F. Bursaries (names in alphabetical order), $200.00 each:
1. William James Bell
2. Greeson C. Fielding
3. Marilyn Betty Anne Gray
4. Donna Laura Haskins
5. Fraser A. MacLean
6. Greta Louise Ward

THE UNIVERSITY OF BRITISH COLUMBIA

UNIVERSITY SUMMER SESSION, 1948

Seven Weeks—July 5th to August 21st

The Announcement of the courses to be offered in a Summer Session will be issued in January if possible.

No course may be offered for which there are fewer than eight registrations. Students, therefore, desiring any courses, particularly Third and Fourth Year courses, are requested to advise the Director of the Summer Session as early as possible and not later than May 15 as to the courses desired. If the demand for these courses seems adequate, an effort will be made to offer them.

The regulations, etc., governing the Summer Session, the Directed Reading courses, and the Extra-sessional classes follow.

COURSES LEADING TO THE DEGREE OF B.A.

1. The degree of B.A. will be granted on completion of courses amounting to 60 units chosen in conformity with Calendar regulations. (See pages 97-118.)

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

3. The maximum credit for Summer Session work in any one calendar year is six units.

4. Courses of private reading will be open to Summer Session students in the same way as to Winter Session students (see page 103), but only to those students who are proceeding to a B.A. degree at this University (except as at present to M.A. candidates).

5. Directed Reading courses will be offered mainly for students not in attendance. The following regulations pertain to these courses:

(a) A minimum registration of twenty is required.

(b) An applicant for a Directed Reading course (1) must be at least 18 years of age; (2) must qualify for registration at least as a Second Year student (full undergraduate or conditioned), or must hold a normal school diploma; and (3) must have completed the course prerequisite for the Directed Reading course for which he is applying.

(c) The final examinations will be held at the University.

(d) If the Directed Reading course is one on which there is a sessional examination in April, the student may either write this sessional examination in April or the Directed Reading course examination at the opening of the Summer Session, otherwise only at the opening of the Summer Session.

(e) No Directed Reading course may be taken for undergraduate credit concurrently with an Extra-sessional course, nor with a course of private reading as outlined on page 103, except by special permission of Faculty.

(f) Not more than one Directed Reading course may be taken during the academic year.

6. Extra-sessional classes to be held at the University may be arranged, and, if so, may be taken for credit by students proceeding to the B.A. degree, who are at least 18 years of age, who are qualified for registration as Second Year students (full undergraduate or conditioned), or who hold normal school diplomas, and who have the prerequisite standing.

7. The maximum credit for work other than that of the regular Summer and Winter Sessions may not exceed 15 units subsequent to Senior Matriculation or First Year Arts, nor 3 units in any one academic year.

8. Extra-mural work done at other universities prior to registration at this University may be accepted if approved by Faculty, but may not exceed the total number of units of credit obtainable at this University without attendance at either Winter or Summer Session.

9. If credit is granted for extra-mural work taken elsewhere, the total amount of work which the student concerned may take at this University without attendance at a Winter or Summer Session will be correspondingly reduced.

10. No credit will be granted for extra-mural work done at other universities in the same academic year in which any work has been attempted at this University, whether in the Summer Session or in the Winter Session or by Reading courses or Extra-sessional classes.

Courses which count towards an Honours B.A. degree, the B.Ed. degree, or the M.A. degree in the Winter Session will be allowed equivalent credit in the Summer Session.

REGISTRATION AND ATTENDANCE

1. *Students are required to register on or before the opening day of the session. A fee of two dollars ($2.00) will be charged for late registration.*

2. All students desiring to obtain formal credit for work done in the Summer Session must, upon entrance, present evidence of University Entrance standing of this Province, or its equivalent.

3. Summer Session students shall be registered as follows:

Students proceeding to a degree in due course whose full University Entrance standing has been approved shall register as *First Year* students until they have completed the 15 units of work prescribed by the Calendar.

Students proceeding to a degree in due course with full First Year standing shall register as *Second Year* students until they have completed the Second Year in conformity with Calendar regulations.

Those students only may register as *Third* or *Fourth Year* students who have completed the work of the previous years in accordance with Calendar regulations.

Students who do not come under one of these classes shall register as *Partial* students.

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 42.

EXAMINATIONS AND ADVANCEMENT

1. Summer Session examinations are held at the close of the Summer Session. Students attending Extra-sessional classes will be tested by the ordinary Winter Session examinations.

2. The passing mark on each paper is 50 per cent. Credit, however, will not be granted for any part of a course until the whole course has been completed. Part courses in different subjects may not be combined.

3. In any course which involves both laboratory work and written examinations, students may be debarred from examination if they fail to present satisfactory results in laboratory work, and they will be required to pass in both parts of the course.

4. Supplemental examinations may be granted by Faculty to students attending the Summer Session or the Extra-sessional classes in the subject or subjects in which they have failed, but a student obtaining less than 30 per cent. in a subject will not be granted a supplemental in that subject. Supplemental examinations on Summer Session courses are held in the first week of the Summer Session. If the course is given again in the current Summer Session, the candidate may write the final examination in this course as a supplemental.

Department of University Extension

Under a grant from the British Dominions and Colonies Fund of the Carnegie Corporation of New York, the University of British Columbia organized early in 1936 a Department of University Extension. This department carries on a comprehensive and varied programme of adult education.

The grant from the Carnegie Corporation enabled the University to collect much valuable information on the special requirements of adult education in British Columbia. Various experimental projects were tried and, in accordance with the experience gained, were rejected, modified, or accepted as the basis for a more permanent programme. As a result a practicable policy has been evolved —one adapted to local conditions, yet within the financial resources of the University. Through the activities of the Department of University Extension, the University is contributing enduring benefits to the educational, cultural, and economic life of the Province.

The Dominion Provincial Youth Training Programme, which was carried on by the Department from 1938 to 1941, was resumed in January, 1947, with an eight-week Leadership Training Course held at the Acadia Camp. This programme is sponsored jointly by the Dominion Department of Labour and the Provincial Departments of Education and Agriculture.

Since 1940 the Department of University Extension has been co-operating with the Dominion Department of Fisheries in providing an educational programme for British Columbia fishermen. The Department of University Extension, in conjunction with the Dominion Department of Labour has conducted a series of short courses in Personnel Management. The Department is also conducting film circuits in the rural areas for the National Film Board.

The present activities of the Department include the following.

(a) Extension Lectures.

Through the Department arrangements are made for members of the University teaching staff to give lectures at various centres throughout the Province.

(b) Evening Classes.

Each year evening classes on various subjects are held in the city of Vancouver and adjacent centres.

(c) Discussion Groups.

Discussion group courses are offered each year. These include:

(i) Canadian Affairs.
(ii) You and Your Home—a course in Interior Decorating.
(iii) Child Psychology for Parents.
(iv) Community Clinic.
(v) Marriage and Family Life.
(vi) Modern Literature.
(vii) Art Appreciation.
(viii) Music Appreciation.
(ix) Acting for Drama Groups.
(x) Public Speaking.
(xi) Introduction to the Cooperative Movement.
(xii) Credit Unions.
(xiii) Introduction to Navigation.

(d) Visual Instruction.

(i) Lantern Slide and Film Strip Service. Approximately 1050 sets of lantern slides and film strips, many with lectures, are available for loan to schools, churches, and other organizations. A catalogue of these may be obtained upon request.

(ii) Motion Picture Service. A Film Library of 800 educational subjects has been established. Films from the National Film Board and the National Film Society are distributed in British Columbia through the Extension Department. A catalogue listing the films may be obtained upon application.

(e) Dramatics.

During the winter the Department offers short courses in dramatics, as well as correspondence courses and general assistance to drama groups throughout the Province. The regular Summer School of the Theatre is held during the months of July and August. A large lending library of plays and books on the theatre has been established.

(f) Agriculture.

Through its agricultural division, the Department is helping to make available to groups and individuals throughout the Province the facilities of the Faculty of Agriculture of the University. Various short courses are arranged in cooperation with agricultural organizations, and an advisory service is maintained.

(g) Home Economics.

Short courses, lectures and advice on sewing, home management, foods and nutrition, handicrafts and other phases of home economics are now available through this division of the Department.

(h) Workshop in International Relations.

Each summer the Department offers a five-week course in International Relations. Established at the suggestion of the Canada-United States Committee on Education, this course is open to teachers and students from Canada and the United States.

(i) Short Courses.

Short courses and institutes in various subjects are offered by the Department during both the Winter and Summer Sessions.

(j) Extension Library.

The University Extension Library is maintained for the purpose of providing good books in fields of current interest for groups and individuals throughout the Province. Pamphlets on a wide variety of topics are available on request.

(k) Radio.

For the past six years the Department has cooperated with the National Farm Radio Forum in organizing listening groups throughout the Province of British Columbia. During the past four years it has also cooperated with the Canadian Broadcasting Corporation and the Canadian Association for Adult Education in organizing groups for the programme "Citizens' Forum." For the "U. B. C. Music Hour" of the Canadian Broadcasting Corporation, recordings are selected from the Carnegie Music Set.

The Department usually conducts a Summer School in Radio Script Writing.

(*l*) *Art and Music.*

The facilities supplied by the Carnegie Art Teaching Set and the Carnegie Music Set enable the Department to offer courses in this field. Courses in Music Appreciation and in Art Appreciation have been specially prepared by well-known artist-teachers and are available to study groups throughout the Province.

A phonograph record loan service has been established for the use of music appreciation groups.

(*m*) *Educational Programme for British Columbia Fishermen.*

Through assistance received from the Dominion Department of Fisheries, the University has been able to offer courses on Credit Unions and Cooperatives to British Columbia fishermen.

(*n*) *Public Relations.*

A regular news coverage of university activities is provided for newspapers, radio stations, and other news agencies. The Department of University Extension offers its services to any individual, group, or organization requiring information regarding the University.

Full particulars regarding any of the above services will be furnished upon application to the Director, Department of University Extension.

UNIVERSITY SERVICE TRAINING CORPS

Students who can meet the physical requirements may take training in either the University Contingent of the Canadian Officers' Training Corps or the University Naval Training Division. 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. and U.N.T.D., the Deans of the Faculties of Arts and Science, Agriculture, and Applied Science, and representatives from the Navy and the Army.

(a) Canadian Officers' Training Corps.

The U. B. C. contingent of the C.O.T.C. was re-established in 1928 and has operated continuously since that time. At the outbreak of World War II it was the only military unit in British Columbia organized for the specific purpose of training and qualifying officers. Until Active Service Officer Training Centres were established, University graduates

were permitted to join the C.O.T.C. and take the examinations for officer candidates. Many took advantage of this opportunity and as a result in the early years of the war the supply of reinforcement officers for British Columbia units came largely from the C.O.T.C.

The strength of the unit reached its greatest height in November, 1942, when there were 1,595 all ranks on strength.

During World War II one thousand, four hundred, and fifty-two men left the C.O.T.C. to go on active service with the Navy, Army, and Air Force. There are many former members of the unit who joined the Services after leaving the University and, unfortunately, there is not, as yet, a complete record of these men.

From 1928 to 1945 all ranks of the C.O.T.C. waived their local headquarters training pay. The total amount so waived exceeded $125,000.00. Approximately $100,000.00 of this was used to construct and furnish the University Armoury, the first unit of which was opened on November 22nd, 1941. The second unit was completed on September 22nd, 1943. The remainder of the funds has been placed in trust for the unit and for the promotion of military training at the University. Commencing in September, 1945, the practice of waiving pay was discontinued.

With the return of peace, military training has been placed on a voluntary basis. The newly-revised programme governing training in the C.O.T.C. provides an opportunity for selected students to qualify for commissions in the Canadian Army, Active and Reserve. Prospective officer candidates are required to apply in writing for admission to the C.O.T.C. Upon acceptance, the candidate is appointed as an Officer Cadet and is required to devote a minimum of three hours per week in Local Headquarters Training and from 3½ to 4 months each Summer in Basic Training and Special to the Arm Summer Camps under Permanent Force officers and instructors. On the successful completion of his military training and upon graduating from the University, the Officer Cadet will emerge qualified for the rank of Captain in the Reserve Force and for the rank of Lieutenant in the Active Force. A limited number of these officers may be accepted into the Active Army each year.

All inquiries for information should be directed to the Officer Commanding. Consultation with the Resident Staff Officer may be had at the C.O.T.C. Orderly Room situated in the University Armories.

(b) University Naval Training Division.

On March 29th, 1943, the Board of Governors approved the establishment of a University Naval Training Division on the campus. Lieut. H. M. McIlroy of the C.O.T.C. was appointed by the Naval Service as Commanding Officer of the U.N.T.D. with the rank of Lieut. Commander (Special Branch). During the war the U.N.T.D. served as a preliminary training establishment for University students who intended to serve with the Navy. Since the close of the war the U.N.T.D. is functioning as a permanent peace-time Naval Training Unit for students who are interested in the Navy. Members of the U.N.T.D. are attested as ratings in the R.C.N. (Reserve) on Divisional Strength at H.M.C.S. "Discovery". A four year syllabus of training has been put into effect and ratings who complete the course are eligible to appear before an Officer Selection Board for a commission in the R.C.N. (Reserve). Training involves twenty three-hour parades during the University session and two weeks sea duty during the vacation period. Provision is also made for those who desire additional sea duty during the summer.

UNIVERSITY OF B. C. VETERANS' BUREAU

The University provides an advisory and counselling service for student veterans. Full-time counsellors appointed to the University staff are available to confer with students regarding their admission, courses, and progress. Incoming students are advised to report to the bureau on arrival. Students requiring assistance with their courses are invited to consult the counsellors. Cheques for the payment of rehabilitation benefits are distributed at the bureau and a close liaison is maintained with the Department of Veterans' Affairs on all matters affecting the rehabilitation of veterans.

SUMMARY OF TRAINING PROVISIONS OF THE POST-DISCHARGE RE-ESTABLISHMENT ORDER, P.C. 5210

Department of Veterans' Affairs

University Training

1. *Undergraduate Students (Paragraph 8, P.C. 5210).*

The Minister has authority to approve training, including maintenance grant and fees—together with appropriate allowances for dependents,—for any discharged person who has the aptitude and inclination and who

(a) has been regularly admitted to a university before his discharge and resumes within one year and three months after discharge a course, academic or professional, interrupted by his service, or

(b) becomes regularly admitted to a university and commences any such course within one year and three months after his discharge, or

(c) because of ill health or because his admission to the university has been conditional upon his fulfilling some additional matriculation requirements or for any other good reason shown to the satisfaction of the Minister, delays resumption or commencement of such course beyond the aforementioned periods.

The period of assistance in university training is governed by the length of service. *Where progress is satisfactory, the assistance may be continued for as many months, in university, as the man served in the Forces.* If the student's progress and *attainments* in his course are such that the Minister deems it in his interest and in the public interest, the payment of the grant may be extended beyond the period of service to permit the man to complete his course.

"No allowance under this section shall be paid to a veteran who, having failed in one or more classes or subjects in any academic year, fails in more than one of the supplementary examinations next offered by the university in any of such classes or subjects."

NOTE. *"Attainments"* means unconditioned standing in the top 25 per cent. of his class on the final examinations on the full work of the year next preceding the year in which his period of entitlement expires.

II. *Graduate Students (Paragraph 9, P.C. 5210).*

In case any discharged person

(a) *has entered upon a graduate course, either academic or professional, in a university before enlistment, or was about to do so at the time of his enlistment,* or having completed his undergraduate course in a university after his discharge, enters upon a graduate course as aforesaid, and

(b) resumes or commences such graduate course within

i. one year from his discharge, or

ii. one year from the commencement, next following his discharge, of such course in such university, if his dis-

charge precedes such commencement by not more than three months, or

iii. in the case of a discharged person who completes his undergraduate course after his discharge, as soon as may be after such completion,

if the Minister, having considered such person's attainments and his course, deems it in the public interest that he should continue such course, the Minister may, subject to the provisions of this Order, authorize the payment to such person of a maintenance grant and fees for as many months as he served. The assistance may be extended if the progress and *achievements* are so outstanding that it is in the public interest that the grant should be continued.

Vocational, Technical, or Other Educational Training

(Paragraph 6, P.C. 5210.)

This makes provision for

(1) resumption of education leading to high school graduation or University Entrance;

(2) "refresher" or "brush-up" courses in the professions.

The Minister has authority to approve training, including maintenance grant and fees—together with appropriate allowances for dependents,—to any discharged person, provided he has the aptitude and inclination, where

i. such person is pursuing vocational, technical, or other educational training;

ii. the Minister approves such training as being training which will fit him or keep him fit for employment or re-employment or will enable him to obtain better or more suitable employment; and

iii. he makes progress in such training to the satisfaction of the Minister.

NOTE. This training is governed by the length of service. For most types of training the maximum will be twelve months. In instances where the required training exceeds twelve months grants may be continued for a period not exceeding the length of service. In no case shall grants be paid beyond the period of service except in the case of a disability pensioner.

Maintenance Grants

A "grant" under the provisions of paragraphs 6, 8, or 9 of this Order means a grant at the rate of $60.00 per month in the case of an unmarried person and at the rate of $80.00 per month in the case of a married person, together with, in either case, such additional allowance for dependents, if any, as is provided by sub-paragraph 3 hereof, and, in either case, reduced by such amount on account of any pension, wages, salary, or other income such person may have received or be entitled to receive in respect of the period for which such grant is paid, as to the Minister seems right.

(Sub-paragraph 3). Additional allowance may be paid to or on behalf of the following dependents at the following rates per month and subject to the following conditions:

Additional allowance for person in lieu of wife	$20.00
Additional allowance for one child	12.00
Additional allowance for second child	12.00
Additional allowance for third child	10.00
Additional allowance for each subsequent child not in excess of three	8.00
Additional allowance for parent or parents	15.00

STUDENT ORGANIZATION

Alma Mater Society

President: E. T. "Ted" Kirkpatrick.
Secretary: Joyce A. P. Donegani.
Treasurer: Donald A. McRae.

The Alma Mater Society with its governing executive, the Students' Council, handles all student activities. Each student on admittance to the University automatically becomes a member of the Society. The eleven members of Students' Council are elected every spring, to take office the following year. They control activities of the students and of the clubs and societies under the Alma Mater Society, and are responsible for student discipline.

Funds for the Society are obtained from the compulsory fee of $7.00 per student, plus a compulsory levy of $5.00 for the War Memorial Gymnasium Fund and a fee of $3.00 for the Pass System, a total of $15.00.

Students may take part in many sports, in debating and public speaking, and in other activities noted below. No student, however, will be allowed during the session to take part in athletic competition or games for any team or organization other than a University

team, without the consent in writing of the Men's or Women's Athletic Association duly approved by resolution of the Students' Council.

Administrative Facilities

For the use of the students, and to carry on the business of the Society, the Students' Council maintains an office in the Brock Memorial Building. The services offered at this office are outlined in the student handbook, the *Tillicum*, issued each year. Members of Council may be interviewed at the office.

Book Exchange

This bureau operates to exchange second-hand books between students in the most convenient manner possible. The office of the exchange will be located in a hut at the rear of the Brock Memorial Building.

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. It is limited to $500 per year and is repayable on January 1st next following completion of training. It is administered by the University. Information may be obtained by enquiring at the Veteran's Bureau, Hut M7.

Employment and Placement Bureau

A permanent employment bureau succeeded the former Student Employment Bureau in March, 1946. It endeavours, in cooperation with the various faculties concerned, to take care of part time, vacation and permanent employment for graduates and undergraduates. Close liaison with the executive and professional branch of the National Employment Service is maintained. Registration for part time employment should be made early in September; registration for vacation or full time employment will normally take place in April or May at the Bureau office situated in Hut M7.

In addition to job placement the bureau maintains a file of information on professional and vocational opportunities. Aptitude and interest tests may be taken by those desiring direction and advice.

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

Publications Board

The Publications Board has charge of the *Ubyssey,* the student newspaper published thrice a week; of the *Totem,* the Society's yearbook; of the *Thunderbird,* the Society's quarterly magazine; of the *Student Directory,* which lists addresses and telephone numbers of all members of the Society; and of the *Tillicum,* the student handbook issued to all freshmen.

The Literary and Scientific Executive

The Literary and Scientific Executive coordinates the following campus clubs and its president represents those clubs on Students' Council.

The Players' Club presents to the public four one-act plays at Christmas, one of which will be entered in the Inter-Varsity Drama Festival, and a full-length play in the spring which tours the province. Membership is granted after competitive tryouts.

The Musical Society presents its annual operetta in the spring and maintains a strong Glee Club; the orchestra and chorus are under professional leadership. Membership in this likewise is granted after tryouts.

The Radio Society broadcasts several weekly radio programmes. It has its own campus studio, for downtown and campus broadcasting. Membership is granted to persons able and interested in script writing, announcing, producing, or technical work.

The University Amateur Radio Operator's Association is constructing equipment for the reception and transmission of short-wave broadcasts.

The public speaking and debating clubs are the Parliamentary Forum, open to all students, which is a member of the Western Universities Debating League; and the Women's Public Speaking Club and Men's Public Speaking Club.

The engineering clubs are the Civil Engineering Club, the G. M. Dawson Club, the Forestry Club, the American Institute of Electrical Engineers, the American Society of Mechanical Engineers, the American Institute of Chemical Engineers, and the Engineering Institute of Canada.

The Thunderbird Gliding and Soaring Club constructs gliders and instructs its members in flying operations.

The Film Society trains its members in projection technique and presents films to the student body throughout the year.

Clubs open to students in the upper years are the Economics Society, El Circulo Latino Americano, Letters Club, the Historical Society, the International Relations Club, the Biological Discussion Club, the Mathematics Club, the Physics Society, the Physics Exchange, the Psychology Club, Le Cercle Français, B. C. Teachers Federation, Architectural Club, Pre-Optometry, and Junior Agriculture Institute of Canada.

Membership in the Social Problems Club, University Socialist Forum, Democratic Forum, the Chess Club, the Jazz Society, the University Symphonic Club and the Pharmaceutical Society is open to all students.

The social club is the Chinese Students' Club; the religious clubs are the Student Christian Movement, the Varsity Christian Fellowship, the B'nai B'rith Hillel Foundations, the Newman Club, the Luthern Organization, and the Christian Science Organization.

Instrumentalists may play in the Varsity Band, the Varsity Dance Band, the Musical Society Orchestra, or the University Concert Orchestra Society.

The Camera Club is equipped with dark room and facilities for all those interested in photography of any kind.

The Mamooks is the campus service organization, participating in yell leading, ticket selling, decorating, etc.

The Jokers participate in pepmeets and stunts in order to promote and to publicize student activities.

Recognition of outstanding club members takes the form of election to the Literary and Scientific Honorary Society. A limited number of students, nominated by their respective clubs, are voted this award each year.

Women's Undergraduate Society

The Women's Undergraduate Society unites all the women of the University under a representative executive body. The object of the society is to consider and advance the interests of the women students through the promotion of extra-curricular activities. These activities include a welcome to the women of the freshman class, extensive Red Cross work, consisting of sewing and knitting, many social functions such as tea dances, mixers, a Coed Ball, Hi-Jinx and various other functions throughout the year.

Women's Athletics

The Women's Athletic Association, under the jurisdiction of the Women's Athletic Directorate, includes all the women's athletic clubs of the University and is affiliated with the Women's Amateur Athletic Federation of Canada. The W. A. D., made up of the President of the W. A. A., the Director of Physical Education for Women, two faculty members, and three students, cooperates in administering the athletic programme of the University. The Directorate is designed to carry out long-term policies by establishing a continuity in the personnel.

The chief clubs in the Women's Athletic Association are the Women's Basketball Club, which enters two teams in the City Cagette League, and plays challenge games, and the Grass Hockey Club, which enters three teams in the Lower Mainland League and also plays challenge games.

Women may also join the Badminton, Fencing, Archery, Swimming, Tennis, Golf, and Outdoor Clubs, which are under the Men's Athletic Association, and the Women's Rifle Club.

Women's gymnasium classes meet during morning and afternoon hours under a physical instructor. Inter-class matches are arranged in basketball, badminton, archery, volley-ball, swimming, etc., for which points are awarded, the winning classes being the holders of the Chris. Spencer Cup for the ensuing year.

Points are given for women's participation on athletic teams. These are accumulated for a Big Block award and membership in the Big Block Club. The Women's Big Block Club was organized to maintain a high standard of awards.

Men's Athletics

All men students in the Alma Mater Society are members of the Men's Athletic Association. The Association is a local board of the Amateur Athletic Union of Canada, and is affiliated with the Western Canadian Intercollegiate Rugby Union comprising the athletic associations of the Universities of Manitoba, Saskatchewan, Alberta, and British Columbia; and the Pacific Northwest Inter Collegiate Athletic Conference with American Colleges of the Pacific Northwest.

Supervising the Association is the Men's Athletic Directorate, made up of the president of the Alma Mater Society, the president of the Men's Athletic Association, two faculty members, the four senior managers of the four major sports, namely, basketball, American football, English rugby, and soccer, a representative

from minor sports, an Alumni Association representative, a treasurer, a secretary, and an ex-officio member of the Publications Board.

A certain scholastic standing is required of students wishing to represent the University on any team, and this is sufficiently high to ensure that scholastic achievement is not subordinated to athletic prowess. By this means, athletics at the University are maintained on a sound and healthy level.

Detailed information may be obtained from the *Student Handbook* and from any of the executive of the above sports or the Men's Athletic Directorate.

Fraternities

Fraternities are officially recognized as active student organizations. They are governed by an Inter-fraternity Council composed of representatives of each of the fraternities and a member of the Faculty. Mutual friendship and interest in the University are stressed by the individual fraternities. Membership is by invitation.

Sororities

Sororities, also, are officially recognized by Senate as active student organizations. The Women's Panhellenic Association is established to regulate all matters of common interest to the sororities on the campus, and to advise and foster sorority and inter-sorority relations. Membership in sororities is by invitation.

ALUMNI ASSOCIATION

OFFICERS OF THE ALUMNI ASSOCIATION

President: Darrel T. Braidwood, M.A., LL.B.
Secretary-Manager (Permanent): Frank J. E. Turner, B.A., B.Com.
Chairman, Publications Board: Ormonde J. Hall, 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 paid their annual fee of $3.00 or the life membership fee. Associate membership includes all other graduates of the University or former students at University of British Columbia, Victoria College or old McGill College, who successfully completed fifteen units during attendance.

The aims and objects of the Association are:

(*a*) to bring about the unity of all graduates and former students at the University of British Columbia and to further among them the spirit of friendship of undergraduate days;

(*b*) to instill in all graduates and former students at the University of British Columbia a feeling of loyalty to the University and a sense of responsibility for the continuance of the educational work of the University and for service to the public of British Columbia;

(*c*) to support suitable undertakings for the facilitation of the work of the University or of education in general, and to cooperate with organizations with the same 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, graduates of the University of British Columbia, or persons engaged in educational work in the Province of British Columbia.

The new constitution of the Alumni Association has provided for a system of branches to be organized in any place where there are a sufficient number of University of British Columbia alumni to make an active organization.

The governing body of the Association is composed of a general executive elected at the annual meeting and the president of each organized branch. This body conducts the affairs of the Association and maintains contact with the branches, University of British Columbia alumni, and persons interested in education generally, through the Secretary-Manager. The latter is employed by the Association on a full-time basis.

The Association magazine, called *The Graduate Chronicle*, is issued quarterly throughout the college term to paid-up members.

Further information concerning the Association may be obtained through the Alumni Office, University.

Notices of change of address and reports in regard to the activities of members should be sent to the Alumni Office.

SUMMER SESSION STUDENTS' ASSOCIATION

1946-1947 EXECUTIVE

President: J. Phillipson.
Secretary: D. A. Smith.
Treasurer: W. E. Whatmough.

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 brought it to one of major importance on the summer campus.

Dances, banquets, teas, musicales, lectures, variety programmes, athletic tournaments embracing golf, tennis, badminton, horseshoes, soft-ball, and table tennis, all fall within the Association executives' scope. On the more serious side the executive deals with student resolutions, fees, matters of constitution; in reality, all matters pertaining to student life at the Summer Session. It serves as a liaison group between the student body and the various governing bodies of the University and helps to provide a proper balance between academic pursuit and recreation.

The Summer Session Students' Association holds at least two general meetings each summer. The executive meets at least weekly during the summer and as often as is deemed necessary throughout the year.

INTER-UNIVERSITY EXCHANGE OF UNDERGRADUATES

Through this plan the National Federation of Canadian University Students offers to Canadian students the opportunity to study for one year at a university in another part of Canada. The favoured students, whose number must not exceed one per cent. of the total enrolment, are chosen by a selection committee from their own universities, and the university which the student selects for the year's study remits the fees for that year. The only prerequisite is that any student who desires to take advantage of this opportunity must have completed at least two years of study with at least second class standing in the second year, and must be an undergraduate below the final year. All applications must be in the hands of the Registrar on or before the first day of March. Further information may be obtained from the Registrar.

VICTORIA COLLEGE

VICTORIA, B. C.

(In Affiliation with the University of British Columbia)

Staff

JOHN M. EWING, B.A. (Queen's), D.Paed. (Toronto), Principal, Professor of Philosophy and Psychology.

JEFFREE A. CUNNINGHAM, B. A. (Queen's), Vice-Principal, Associate Professor of Biology, Botany and Zoology.

GEORGE P. BLACK, M.A., (Man.), Associate Professor of Classics.

W. HARRY HICKMAN, M.A. (Brit. Col.), Associate Professor of Modern Languages.

JAMES H. AITCHISON, B.A., B.Ed. (Sask.), B.Sc. (London), Associate Professor of Economics and Commerce.

WILLIAM H. HUGHES, B.A. (Queen's), B.Sc. (Sask.), Associate Professor of Physics.

ROBERT T. D. WALLACE, B.A. (Brit. Col.), Assistant Professor of Mathematics.

SYDNEY G. PETTIT, M.A. (Brit. Col.), Assistant Professor of History and Sociology.

ROGER J. BISHOP, B.A. (Brit. Col.), M.A. (Toronto), Assistant Professor of English.

EDWARD J. SAVANNAH, A.B., S.B. (Calif.), Assistant Professor of Chemistry.

LEWIS J. CLARK, B.A. (Brit. Col.), M.Sc. (Washington), Assistant Professor of Chemistry.

RODNEY P. D. POISSON, M.A. (Brit. Col.), Assistant Professor of English.

W. GORDON FIELDS, B.A. (Brit. Col.), Assistant Professor of Biology.

MISS PHYLLIS BAXENDALE, B.A. (Brit. Col.), Assistant Professor of German.

MRS. O. PHOEBE NOBLE, B.A. (Brit. Col.), Instructor in Mathematics.

GORDON G. MCORMOND, B.A., (Sask.), Instructor in English.

WILLIAM H. GADDES, M.A. (Brit. Col.), Instructor in Psychology.

MISS CECILY GIRVAN, B.A. (Mt. Allison), Instructor in Physics. Session 1946-47.

AUGUST STRODYK, B.A. (Amsterdam), Instructor in German. Session 1946-47.

MISS OTTILIE G. BOYD, B.A. (Brit. Col.), Instructor in Biology. Session 1946-47.

MRS. H. D. WALLIS, B.A.Sc. (Brit. Col.), Instructor in Chemistry. Session 1946-47.

MISS BETH T. RAMSAY, B.Sc. in H.E. (Washington), M.A. (Columbia), Instructor in Home Economics.

MISS MURIEL JOHNSON, B.Sc. (Sask.), Instructor in Home Economics.

MISS DOROTHY M. CRUICKSHANK, B.A. (Brit. Col.), Registrar.

MRS. E JOYCE MCKAY, B.A. (Man.), Assistant Registrar.

MISS MARJORIE GRIFFIN, B.A. (Brit. Col.), Librarian.

The College at Victoria, B. C., gives instruction in the first two years of the course in Arts and Science (including Commerce). The courses offered are as follows.

First and Second Years

The work of the first two years consists of 30 units, 15 of which must be taken in each year.

Each student must take:	Units
(*a*) English 100 and 101 in the First Year and English 200 in the Second Year	6
(*b*) The first two courses in a language offered for University Entrance, one course in each year	6
(*c*) Mathematics 100 in the First Year	3
(*d*) Economics 100 or 200, or History 101, 202, 203, or 304 or Psychology 101, or Philosophy 100, or Sociology 200	3
(*e*) Biology 100, or Chemistry 90 or 100, or Physics 90 or 100	3
(*f*) Three courses, not already chosen, selected from the following: Biology 100, Botany 200, Chemistry 90, Chemistry 100, Chemistry 200, Economics 100, Economics 200, Economics 205 (Commerce 191), French 101, French 202, German 90 (Beginners'), German 100 or 101, Greek A, Greek 2, History 101, History 202, History 203, History 304, Latin 90 (Beginners'), Latin 101, Latin 202, Mathematics 200, Mathematics 201, Mathematics 202, Psychology 101, Philosophy 100, Physics 90, Physics 100, Physics 200, Sociology 200, Zoology 200	9

The rules and regulations governing the College are the same as those in force at the University.

Information regarding Victoria College and calendars of the College may be obtained on application to the Registrar, Victoria College, Victoria, B. C.

UNION COLLEGE OF BRITISH COLUMBIA

(United Church of Canada)

VANCOUVER, B. C.

(In Affiliation with the University of British Columbia)

Principal

REV. J. G. BROWN, M.A., D.D.

Union College offers courses of instruction in Theology leading to the degree of B.D., and for ordination to the Christian ministry,

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 98.)

For further information in reference to Faculty, courses of study, etc., see Calendar of Union College.

THE ANGLICAN THEOLOGICAL COLLEGE OF BRITISH COLUMBIA

VANCOUVER, B. C.

(In Affiliation with the University of British Columbia)

Principal

REV. H. R. TRUMPOUR, M.A., B.D., D.D.

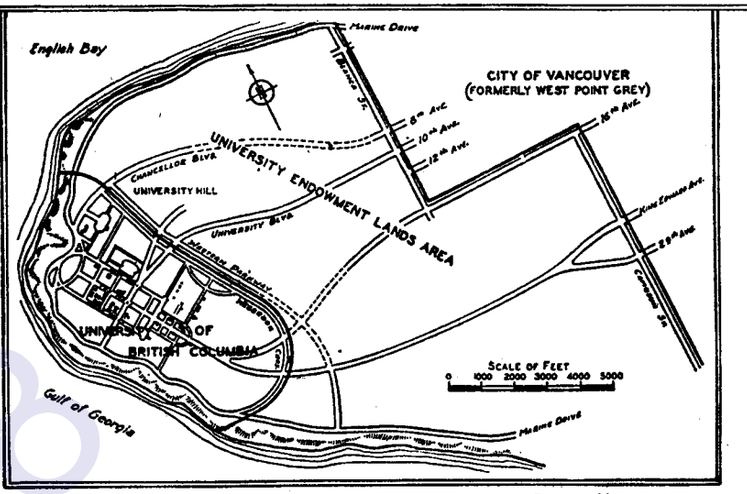
Registrar

REV. D. P. WATNEY, M.A., B.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 98.)

For further information in reference to Faculty, courses of study, etc., see Calendar of the College.

KEY TO UNIVERSITY BUILDINGS
UNIVERSITY OF BRITISH COLUMBIA
VANCOUVER, B. C.
1947



KEY MAP – UNIVERSITY OF BRITISH COLUMBIA AND ITS RELATION TO GREATER VANCOUVER

Reference Numbers	Buildings		Huts	
1 Brock Memorial	Administration	9	Auditorium	"A" 1-9
2 Gymnasium	Agriculture	12	Brock	"B" 1-2
3 Library	Agronomy	38	Gymnasium	"G" 1-13
4 Physics	Agricultural Engineering	38	Library	"L" 1-12
5 Science	Applied Science	13, 15	Mall	"M" 1-39
6 Faculty Club	Arts	11	Orchard	"O" 1-17
7 Scenery Shop	Armoury	8	Science	"S" 1-11
8 Armoury	Auditorium	10		
9 Administration	Beef Barn	34		
10 Auditorium, Cafeteria	Brock Memorial	1		
11 Arts	Bus Terminal	14		
12 Agriculture	Cafeteria	10		
13 Applied Science	Campus Tool House	17		
14 Bus Terminal	Dairy Barn	36		
15 Applied Science	Electrical Laboratories	22		
16 Power House	Farm Cottages	32		
17 Campus Tool House	Farm Dairy	26		
18 Receiving House	Federal Forest Products Laboratories	24		
19 Firehall	Firehall	19		
20 Workshops	Forestry Field Houses	41		
21 Mechanical Laboratories	Greenhouse	40		
22 Electrical Laboratories	Gymnasium	2		
23 Mining, Metallurgy and Hydraulics	Horse Barn	39		
24 Federal Forest Products Laboratories	Horticultural Barn	37		
25 Poultry Mortality	Hydraulics Laboratory	23		
26 Farm Dairy	Library	3		
27, 28 Vocational Buildings (Agriculture)	Mechanical Laboratories	21		
29 Poultry Experimental	Mining and Metallurgy	23		
30 Poultry Practice House	Physics	4		
31 Agricultural Pavilion	Piggery	35		
32 Farm Cottages	Poultry Experimental	29		
33 Sheep Barn	Poultry Mortality	25		
34 Beef Barn	Poultry Practice House	30		
35 Piggery	Power House	16		
36 Dairy Barn	Receiving House	18		
37 Horticultural Barn	Scenery Shop	7		
38 Agronomy and Agricultural Engineering	Science	5		
39 Horse Barn	Sheep Barn	33		
40 Greenhouse	Vocational Buildings (Agriculture)	27, 28		
41 Forestry Field Houses	Workshops	20		

PERMANENT BUILDINGS
SEMI-PERMANENT BUILDINGS

0 500 1000 1500