The University OF British Columbia

CALENDAR

TWENTIETH SESSION
1934-1935

VANCOUVER, BRITISH COLUMBIA
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CONTENTS

Faculty of Arts and Science

Faculty of Applied Science

FACULTY OF AGRICULTURE

ACADEMIC YEAR
1934

August

27th Monday	Matriculation Supplemental Examinations begin.
31st Friday	Last day for submission of applications for admission to the First Year and to the Teacher Training Course.

September

1st Saturday	ACADEMIC YEAR begins.
3rd Monday	Labour Day, University closed, September 1st-3rd, inclusive.
12th Wednesday to 19th Wednesday	Supplemental Examinations in Arts.
18th Tuesday	Supplemental Examinations in Applied Science begin.
19th Wednesday	Last day for Registration of First Year Students in the Faculties of Arts and Science, and Agriculture. (See August 31, above.)
21st Friday	Last day for Registration of all other undergraduates except students in Extra-Sessional Classes.
24th Monday	All students entering the University for the first time report at 2 p.m. in the Auditorium.
25th Tuesday	The opening addresses to the students of all the Faculties at 3 p.m. in the Auditorium.
26th Wednesday	Lectures begin at 9 a.m.

October

1st Monday	Last day for Registration of Graduate Students and of Students in Extra-Sessional Classes.
8th Monday	Last day for payment of First Term fees. Payment of first instalment of Scholarship money.
	Thanksgiving Day. University closed.
10th Wednesday	Last day for payment of fees for Autumn Graduation.
10th Wednesday	Meeting of the Faculty of Arts and Science.
12th Friday	Meeting of the Faculty of Agriculture.
13th Saturday	Last day for change in Students' courses.
17th Wednesday	Meeting of the Senate.
24th Wednesday	Congregation.
26th Friday	Meeting of the Faculty Council.

November

11th Sunday	Remembrance Day.

December

* 7th Friday	Last day of Lectures for Term.
*10th Monday to *20th Thursday	Examinations.
12th Wednesday	Meeting of the Faculty of Arts and Science.
14th Friday	Meeting of the Faculty of Agriculture.
19th Wednesday	Meeting of the Senate.
25th Tuesday	Christmas Day. University closed December 25th and 26th.

*These dates are subject to change.

1935

January

1st Tuesday	New Year's Day. University closed January 1st and 2nd.
3rd Thursday	Meeting of the Faculty of Agriculture.
7th Monday	Second Term begins.
21st Monday	Last day for payment of Second Term fees. Payment of second instalment of Scholarship money.

February

13th Wednesday	Meeting of the Faculty of Arts and Science.
15th Friday	Meeting of the Faculty of Agriculture.
20th Wednesday	Meeting of the Senate.
22nd Friday	Meeting of the Faculty Council.

April

11th Thursday	Last day of Lectures.
11th Thursday	Last day for handing in graduation essays and theses.
13th Saturday to 27th Saturday	Sessional Examinations.
	Field work in Applied Science begins immediately at the close of the examinations.
19th Friday	Good Friday. University closed April 19th-22nd inclusive.
25th Thursday	Last day for payment of Graduation fees.

May

6th Monday	Meeting of the Faculty of Arts and Science.
6th Monday	Meeting of the Faculty of Agriculture.
8th Wednesday	Meeting of the Senate.
9th Thursday	Congregation.
9th Thursday	Meeting of Convocation.
24th Friday	Victoria Day. University closed.

June

3rd Monday	King's Birthday. University closed.
10th to 29th	Junior and Senior Matriculation Examinations. (Time-tables to be arranged.)

July

1st Monday	Dominion Day. University closed.
2nd Tuesday	Summer Session begins.

August

17th Saturday	Summer Session ends.
23rd Friday	Meeting of the Faculty of Arts and Science.
23rd Friday	Meeting of the Senate.
31st Saturday	ACADEMIC YEAR ends.

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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. In March, 1913, the Lieutenant-Governor in Council appointed as President of the University F. F. Wesbrook, M.A., M.D., C.M., LL.D. On April 4th, 1918, Dr. R. E. McKechnie was elected Chancellor. Dr. McKechnie has been re-elected continuously since that date and entered on his sixth term in May, 1933. On the death of President Wesbrook, October 20th, 1918, L. S. Klinck, Dean of the Faculty of Agriculture, was appointed acting President, and on June 1st, 1919, President.

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. 1924, c. 265, and Amending Acts, which provide

That the University shall consist of a Chancellor, Convocation, Board of Governors, Senate, the Faculty Council, and the Faculties; that the first Convocation shall consist of all graduates of any university in His Majesty's dominions resident in the Province two years prior to the date fixed for the first meeting of Convocation, together with twenty-five members selected by the Lieutenant-Governor in Council. After the first Convocation it shall consist of the Chancellor, Senate, members of the first Convocation, and all graduates of the University; that the Chancellor shall be elected by Convocation; that the Board of Governors shall consist of the Chancellor, President, and nine persons appointed by the Lieutenant-Governor in Council; that the Senate shall consist of: (*a*) The Minister of Education, 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 Superintendent of Education, 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.

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 system, 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 88,000 volumes and about 10,000 pamphlets. It includes representative works in all the courses offered by the University, and a growing collection of works on other subjects.

The Library receives regularly about 686 magazines and periodical publications.

The book collection is classified throughout on the Congressional system.

Books to which the teaching staff have specially referred their students are placed in a "Reserved" class. These are shelved apart from the main collection, and are loaned only for use in the building, and for a limited period.

Unbound periodicals are not loaned. Bound periodicals, and books that are costly, rare, or unsuitable for general circulation, are loaned only under special conditions.

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 University is deeply indebted to all who have made gifts to the Library during the past year. 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. Special mention should be made of the gift of $15,000 by the Carnegie Foundation to the Library for the purchase of books for undergraduate reading. The first unit of this gift, $5,000, was spent in the year 1933-34.

Gymnasium

This building was completed in 1929 and presented to the University by the Alma Mater Society. It is situated adjacent to the tennis courts and conveniently close to the playing fields. The style of architecture and exterior finish harmonizes well with that of the other buildings on the campus. The playing floor has an area of 6,000 square feet, and is surrounded on three sides by tiers of benches which will accommodate 1,400 persons. In the space behind these seats are located the dressing rooms, drying rooms, locker rooms and shower baths. Approximately one-third of this space has been set aside for the exclusive use of the women students. In addition there are four large rooms. Three of these have been assigned to undergraduate clubs; the fourth is a well-equipped kitchen. Equipment suitable for general gymnasium and indoor athletic work has been provided.

Playing Field

In accordance with the original landscape plan prepared by Mawson in 1913, the playing fields 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 to 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. The total cost to date has been approximately $20,000.

The grass field is full-sized and is surrounded by a quarter-mile cinder track. The area is enclosed by an eight-foot board fence.

It is hoped that in the near future some provision may be made for either temporary or permanent seating accommodation.

Forest Products Laboratories

The Forest Products Laboratories of Canada, Vancouver Laboratory, which is maintained by the Forest Service of the Department of the Interior, Canada, occupies three buildings provided and kept up through a co-operative 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. It also shows their relation to the other groups of buildings which are to be erected in the future.

ENDOWMENTS AND DONATIONS

A list of the most important gifts received during last year is given below under the various departments.

Department of Botany

(For Herbarium and Botanical Gardens)

SEEDS

CANADA	Botany Department, University of Toronto. G. Stace Smith, Creston, B. C.
UNITED STATES	Botanical Garden, Buffalo City Hospital. Brooklyn Botanic Garden. Lexington Botanic Garden. Botany Department, University of Pittsburgh. Marsh Botanical Garden, Yale University. U. S. Department of Agriculture.

URUGUAY	Jardin Botanico, Montevideo.
GREAT BRITAIN	Royal Botanic Garden, Edinburgh, Scotland.
	Botanic Gardens, Glasnevin, Ireland.
INDIA	Lloyd Botanic Garden, Darjeeling.
	Dr. M. S. Wallace, Dhar, C. India.
SWEDEN	Botanical Garden, Lund.
DENMARK	Botanical Garden, Universitas Regia Fredericiana, Oslo.
HOLLAND	Arboretum Landbouwhoogeschool, Wageningen.
	Botanical Garden, Amsterdam.
FRANCE	Arboretum des Barres et Fruticetum Vilmorinianum, Loiret.
	Botanical Garden, Nantes.
	Jardin Botanique parc de la Tete-d'or, Lyon.
	Museum d'Historie Naturelle, Paris.
JAPAN	Botanic Garden, Hakkaido Imperial University.
GERMANY	Botanischen Gartens, Bremen.
	Botanical Gardens, Dresden, Germany.
ITALY	University of Rome.
POLAND	The Gardens and Arboretum Kornik.
RUSSIA	Jardin Botanique de l'Academie Agronomique, Gorky.

HERBARIUM AND GARDEN SPECIMENS

Miss J. Bostock, Monte Creek, B. C.—Specimens for Botanical Gardens.
D. Gilbert, Kamloops, B. C.—Specimens for Botanical Gardens.
Miss L. Howell, West Vancouver, B. C.—Specimens for Botanical Gardens.
G. Stace Smith, Creston, B. C.—Specimens for Botanical Gardens.

BOTANY DEPARTMENT

Miss Y. L. Mizunzo, Vancouver, B. C.—A collection of white and yellow silk-worm cocoons from Japan.

Department of Mechanical and Electrical Engineering

From the B. C. Telephone Company, through the kindness of Mr. Hamilton, the following donations were received by the Department of Electrical Engineering:

(a) Two motor-generator sets with switch gear instruments. One set consists of an induction motor of 15 h.p., driving a DC generator, giving 30 volts and 400 amps. The other set consists of an induction motor of 28 h.p., driving a DC generator, giving 30 volts and 600 amperes.
(b) A mercury-arc rectifier for battery-charging, 10 amp. capacity.

Department of Forestry

Dominion Forest Service, New Westminster—Tree seeds.
Forest Products Laboratory, Vancouver—Special set of British Columbia wood samples in yellow cedar box.
Professor S. J. Record, Yale University, New Haven—Complete set of back numbers of the publication, "Tropical Woods."
H. C. Sharp, Vancouver—Sample board of Rocky Mountain juniper.
Professor G. J. Spencer, Vancouver—Trunk section of sagebrush; trunk section of lodgepole pine from Aspen Grove, B. C.; petrified wood from Upper Hat Creek, B. C.
Timberman Publishing Co., Portland—Subscription to "The Timberman."
West Coast Lumberman Publishing Co., Seattle—Subscription to "West Coast Lumberman."
Dr. M. Y. Williams, Vancouver—Petrified wood from McMurray, Alberta.

Department of Geology and Geography

J. B. Bocock, Edmonton—Silver and radium minerals from Great Bear Lake.
H. H. Wilkins, 655 Robson Street—Recent coral from Smith Inlet, opposite north end of Vancouver Island.
Professor H. F. Angus—Human skull cap from Qualicum Bay, V. I.
Douglas James and Raymond Claydon—Human (Indian) bones and burial wrappings from Cortez Island.
Miss M. Winckler—Tufa from Bridge River.
R. Irving—Fossil leaves from near Chu-Chua.

Department of Zoology

Miss Maud Allan, Vancouver—Series of named thrips.
Dr. J. N. Bird, Brandon, Man.—Skull of big horn sheep from peat bog, Vernon.
Mr. Kenneth Graham, Langley Prairie—Bulk series of forest beetles.
Mr. Jack Gregson, Courtenay, V. I.—Extensive collection of B. C. Collembola.
Mr. Ralph Hopping, Vernon—Series of 180 named species of beetles.
Mr. Hugh Leech, Salmon Arm—A series of named aquatic beetles.
Mr. William McCallum, Vancouver—Elasmobranch skull.
Dr. C. H. Bastin, Vancouver; Mr. R. A. Cummings, Mr. Kenneth Racey, Dr. M. Y. Williams—Further extensive series of Mallophaga from birds.

The Department is particularly indebted to the following specialists for gratuitous identifications of considerable series of B. C. animals and insects: Dr. C. P. Alexander, Massachusetts; Dr. Marston Bates, Harvard University; Dr. C. Bequaert, Harvard Medical School; Dr. J. W. Folsom, Tallulah, Louisiana; Mr. Eric Hearle, Kamloops, B. C.; Dr. H. Ross, University of Illinois; Dr. Tracy Storer, University of California.

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 which preparatory reading is required except in certain cases. For "Admission to the University," see Page 27, and for "Registration and Attendance" see Page 29.

Courses of Study

For the Session of 1934-35 the University offers instruction in each of the three Faculties, Arts and Science, Applied Science (including Nursing), and Agriculture, leading to the degrees of Bachelor of Arts, Bachelor of Commerce, Bachelor of Applied Science and Bachelor of Science in Agriculture. In addition a course is given in the Faculty of Arts and Science leading to a Diploma of Social Service, and a Teacher Training Course is offered for graduates of the Faculties of Arts and Science and Applied Science. It is also possible to proceed to a Master's degree in each Faculty. Advanced courses of instruction and facilities for research are offered to students who are graduates of any University or College of recognized standing. 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 distinctive colour of the particular Faculty, the Bachelor of Commerce hood being differentiated by the addition of a white cord; the Master's hood is the same, lined with the distinctive colour. The colours are, for Arts and Science, the University blue; for Applied Science, red; for Agriculture, maize.

University Health Service

The University Campus is situated within the University Endowment Lands, which, as unorganized territory, comes under the direct control of the Provincial Government. Shortly after the opening of the present University Buildings in 1925, the Lieutenant-Governor in Council, by the recommendation of the Provincial Health Officer, appointed a Medical Health Officer for the Reserve, including the University Campus. This Health Officer has on the Campus and in the Reserve all the powers of any Health Officer anywhere.

In the fall of 1927, the Provincial Health Officer added to the University Health Service a Public Health Nurse, whose presence permits the continuous operation of a local Health Department on the Campus and Reserve.

In addition, the Public Health Nurse is engaged by the University for the general supervision of the individual health of the students, first aid, etc. An office for the Public Health Nurse is provided in the Auditorium Building, and, by the gift of the Graduating Class of 1927, has been equipped with first aid furniture and supplies.

Physical Examination. — In order to promote the physical welfare of the student body, students on entering the University are required to report immediately to the University Health Service and obtain an appointment for their physical examination; the examination is conducted by, or under the direction of, the University Medical Examiner. Physical defects and weaknesses, amenable to treatment, may thus be discovered, and the student is advised to apply to his physician for such remedial measures as his case may require. About 10 to 15 per cent. of the students are re-examined in their second and subsequent years.

Rules Governing Medical Examinations.—(1) Students must present themselves for medical examination on the date and at the time assigned by the University Health Service. (2) Students failing to report on the right date or reporting on a wrong date lose their assignment. (3) Students who do not conform to the above regulations will be referred to the University Health Committee.

Infectious Diseases.—Students *developing* any illness or suffering from any injury while on the Campus should apply for first aid to the Public Health Nurse. This is particularly required if the student develops any illness of an infectious nature, including the Common Cold. Provision is made also for the diagnosis of the infectious cases and their safe removal to suitable quarters.

Students *developing* any illness or suffering any injury while at home, boarding house, fraternity house, etc., are required to report the same to the Public Health Nurse. The development of any infectious disease in a University student must be reported by the student to the University Health Service without delay.

Students *exposed* to any infectious disease must immediately report to the University Health Service. Such students 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 Public Health Nurse for such prescribed period. Failure to so report will result in immediate exclusion from the University.

Students absent on account of illness must present Medical Certificates. 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 medical certificate must be sent to the Dean of the Faculty within two days after the termination of the examination period. A medical certificate must show the nature and the period of the disability. Medical report forms may be obtained from the Dean's office.

University Employment Bureau

The objects of the Employment Bureau are to provide students with summer employment, to provide part-time work for students during the Winter Session, and to help students in obtaining positions after graduation. This service is for employers seeking help and for students desiring employment. Those who know of positions vacant are requested to notify the Bureau. Correspondence should be addressed to the Employment Bureau, Registrar's Office.

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

A list of boarding-houses, which receive men or women students, but not both, may be obtained from the Registrar after September 1st. 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 such arrangement must be made in consultation with the Dean of Women. The Dean of Women also undertakes the inspection and approval of the boarding houses listed for women. The cost of good board and lodging is from $25 per month upwards; of a room alone, $8 to $12 per month. A grill is operated under the supervision of the University, and lunch, afternoon tea and light supper may be obtained there at very reasonable prices. Refreshments at social functions are also supplied.

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 inquiries 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.

For the session 1934-35 the number of First Year students in the Faculty of Arts and Science and the Faculty of Agriculture will be limited to 500, in the Second Year of the course in Applied Science to 120, in the First Year of the course in Nursing to 15, and in the Teacher Training course to 60.

1. Except under special circumstances, no student under the age of sixteen is admitted to the University. For admission to the course in Nursing a student must be seventeen years of age, and for admission to any course in Social Service, 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 Junior Matriculation Examination of the Province of British Columbia or to submit certificates showing that they have passed an equivalent examination elsewhere. Students over 18 years of age with full "Normal Entrance" standing, who hold Normal School certificates, are admitted to the University as having full Junior Matriculation standing. 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, obtained in 1927 or subsequently, will be granted credit in the First Year in each subject in which they have made 50 per cent. or over, or in each paper in which they have made 50 per cent. or over, in so far as these papers correspond with those of the First Year.

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

5. The Junior 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 Matriculation are stated in the publication, "Requirements for Matriculation," issued by the University. The courses of study for the various grades in the high school are given in the "Programme of Studies for the High and Technical Schools," issued by the 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 Junior or Senior Matriculation Examinations if the Faculty concerned considers that the examination has covered the same subjects and required the same standard. If, however, the examination covers some but not all of the necessary subjects, the candidate will be required to pass the Matriculation Examination in the subjects not covered.

7. *A candidate who wishes to enter by certificates other than a Matriculation 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. The fee for examination of certificates is $2.00. This fee must accompany the application.

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. The fee for the examination of certificates is $2.00. This fee must accompany the application.

REGISTRATION AND ATTENDANCE

Those who intend to register as students of the University are required to make application to the Registrar, on forms to be obtained from the Registrar's Office. This application should be made in person or by mail early in August, or as soon as the results of the Matriculation examinations are known, and must be accompanied by the Registration and Library Fee of $5.00. For First Year students in the Faculties of Arts and Science, and Agriculture, and for other students coming to the University for the first time, the last day for registration is Wednesday, September 19th, and for all other undergraduate students, Friday, September 21st, 1934. (See regulations in reference to "Admission to the University," Page 27.)

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,

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

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, Page 31.)

2. All students other than graduate students are required to register at the office of the Registrar on or before the last day for registration, to furnish the information necessary for the University records, to enroll 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 churches they propose to make their place of worship. This information is available for any of the city churches desiring it.

3. A late registration fee of $2.00 will be charged all students who register after the above dates and up to and including the day when lectures begin—Wednesday, September 26th.

In addition to the $2.00 for late registration a fine of $1.00 a day ($6.00 a week) for a period of two weeks will be imposed upon all students who register after the day when lectures begin, the maximum fine being $14.00.

No registration after Wednesday, October 10th (two weeks beyond the date when lectures begin), will be accepted without the special permission of the Faculty concerned. A candidate so accepted for registration will have to pay the maximum fine of $14.00 and may be required to take fewer courses than the regular year's work: provided that if the student is required (on account of late registration) to take less than fifteen units the *fine* may be reduced or waived by the Faculty concerned.

4. Students registering for the first time must present the certificates which constitute their qualification for admission to the course of study for which they wish to register. 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 circumstance, no change will be allowed after the fifteenth day 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. Lectures will commence on the hour, and 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 Dean of the Faculty within two days after the termination of the examination period. A medical certificate must show the nature and the period of the disability. Medical report forms may be obtained from the Dean's 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.

FEES

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

The Registration Fee is not returnable.

The Sessional Fees are as follows:—

FOR FULL AND CONDITIONED UNDERGRADUATES

IN ARTS AND SCIENCE—

Registration and Library Fee—Payable before registration		$ 5.00
First Term—Payable on or before October 8th:		
Sessional Fee	$65.00	
Alma Mater Fee	10.00	
Caution Money	5.00	
		80.00
Second Term—Payable on or before January 21st		60.00
		$145.00

IN SOCIAL SERVICE COURSE—

Registration and Library Fee—Payable before registration		$ 5.00
First Term—Payable on or before October 8th:		
Sessional Fee	$65.00	
Alma Mater Fee	10.00	
Caution Money	5.00	
		80.00
Second Term—Payable on or before January 21st		60.00
		$145.00

NOTE:—Social Service Workers taking any of Courses 1-10, and these courses only, are relieved from paying the Alma Mater fee.

IN TEACHER TRAINING COURSE—

Registration and Library Fee—Payable before registration ..... $ 5.00

First Term—Payable on or before October 8th:

Sessional Fee	$65.00	
Alma Mater Fee	10.00	
Caution Money	5.00	
		80.00

Second Term—Payable on or before January 21st 60.00

$145.00

IN APPLIED SCIENCE—

Registration and Library Fee—Payable before registration ..... $ 5.00

First Term—Payable on or before October 8th:

Sessional Fee	$90.00	
Alma Mater Fee	10.00	
Caution Money	5.00	
		105.00

Second Term—Payable on or before January 21st 85.00

$195.00

IN NURSING AND PUBLIC HEALTH—

Registration and Library Fee—Payable before registration ..... $ 5.00

First Term—Payable on or before October 8th:

Sessional Fee	$65.00	
Alma Mater Fee	10.00	
Caution Money	5.00	
		80.00

Second Term—Payable on or before January 21st 60.00

$145.00

NOTE:—For Third and Fourth Year students in Nursing the Sessional fee is $1.00, payable with an Alma Mater fee of $5.00, on or before October 8th.

Students admitted to Nursing B or C and proceeding to the Certificate on a basis of part-time attendance over two or more years, will pay the regular fee for the whole course, but the amount payable each year will be pro-rated to correspond with the proportion of work taken in that year.

IN AGRICULTURE—

Registration and Library Fee—Payable before registration		$ 5.00
First Term—Payable on or before October 8th:		
Sessional Fee	$65.00	
Alma Mater Fee	10.00	
Caution Money	5.00	
		80.00
Second Term—Payable on or before January 21st		60.00
		$145.00

OCCUPATIONAL COURSE—

Registration and Library Fee—Payable before registration		$ 5.00
First Term—Payable on or before October 8th:		
Sessional Fee	$25.00	
Alma Mater Fee	10.00	
Caution Money	5.00	
		40.00
Second Term—Payable on or before January 21st		25.00
		$ 70.00

FOR PARTIAL STUDENTS

Fees per "Unit" $10.00

Registration and Library Fee—Payable before registration 5.00

First half payable on or before October 8th, along with—

Alma Mater Fee 10.00
Caution Money 5.00

Second half payable on or before January 21st.

FOR STUDENTS IN EXTRA SESSIONAL CLASSES

Fees per 3-Unit Course $30.00

First half payable on or before October 8th, along with Caution Money 5.00

Second half payable on or before January 21st.

FOR GRADUATES

Registration and Library Fee—Payable before registration ..... $ 5.00

Class Fees—Payable on or before October 8th:

First Registration	$75.00	
Caution Money	5.00	
		80.00
		$ 85.00
Each subsequent Session Registration	$ 5.00	
Caution Money	5.00	
Registration and Library Fee—Payable before registration	5.00	
		$ 15.00

LATE REGISTRATION

See page 30 ..... $2.00 to $14.00

After the dates given above and up to and including October 25th and February 7th an additional fee of $2.00 will be exacted of all students in default.

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

The Caution Money is a deposit from which deductions will be made to cover breakages, wastage, and use of special materials in laboratories, Library, etc. If the balance to the credit of a student falls below $1.50, a further deposit of $5.00 may be required. Caution Money will be refunded after the 30th day of April. Any caution money unclaimed by the 11th day of May will be turned over to 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 registering after October 8th shall pay their fees at the time of registration, failing which they become subject to the provisions of the preceding Regulation.

Students borrowing books from the University Library for Preparatory Reading courses will be required to make the usual deposit of two dollars ($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 and Library Fee—Payable before registration	$ 5.00
Minimum Class Fee	25.00
Per "Unit"	10.00
Caution Money	5.00
Summer Session Association	2.00

SPECIAL FEES

Regular supplemental examination, per paper	$ 5.00
Special examination (Applied Science and Agriculture), per paper	7.50
Re-reading, per paper	2.00
Graduation	15.00

Supplemental examination fees must be paid two weeks before the examination, and special examination fees and fees for re-reading when application is made.

Graduation fees must be paid two weeks before Congregation.

(See regulation in reference to application for a degree, page 32.)

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

MEDALS, SCHOLARSHIPS, PRIZES, BURSARIES AND LOANS FOR 1934-35

GENERAL REGULATIONS

1. Scholarships, prizes and bursaries which are not based solely on academic standing are indicated by an asterisk. Unless other instructions are given in the Calendar notice, intending candidates must make application to the Registrar not later than the last day of the final examinations on forms provided for the purpose.

2. All awards of medals, scholarships, prizes and bursaries are made by Senate, unless otherwise provided for by special resolution of Senate.

3. 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.

4. 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.

5. 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 shall be determined on the basis of the required number of units to be chosen in a manner most advantageous to the students.

6. Winners of more than one scholarship will be given recognition in the published lists. 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.

7. Winners of scholarships who desire to do so may resign the monetary value, while the appearance of their names in the University list enables them to retain the honour. Any funds thus made available will be used for additional scholarships, bursaries, or student loans.

8. Scholarships under the jurisdiction of the University are paid in two instalments—on the last day for the payment of fees

in each term. Undergraduate winners must continue their courses to the satisfaction of the Faculty concerned during the session following the award. A Faculty is authorized, in some cases, to permit the scholarship to be reserved for one year, provided the student shows satisfactory reasons for postponing attendance. Application for reservation should be made to the Registrar.

9. In awarding bursaries consideration will be given to the financial need of the applicant.

10. The Senate of the University of British Columbia reserves the right so to change the terms under which any exhibition, scholarship 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.

11. Limited funds are provided from which loans, not to exceed $100, may be made to undergraduate students who have completed satisfactorily two years' University work and who can show 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, to students in the Teacher Training Course, nor to students in diploma courses. Applications for loans should be addressed to the Bursar of the University.

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

13. Endowed scholarships and bursaries will be paid provided the invested funds produce the necessary revenue.

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. Honour and pass students are eligible for this medal.

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 French Government Medal

A bronze medal, offered by the French Consul for Western Canada on behalf of the French Government, will be awarded to a student of the French language on the recommendation of the Head of the Department of Modern Languages.

United Empire Loyalists' Association Medal*

The Vancouver Branch of the United Empire Loyalists' Association of Canada is offering a silver medal for the best essay received during the Session 1934-35 on any topic dealing with the history of the United Empire Loyalists and their influence on the development of Canada.

The award will be made on the recommendation of the Department of History, the competition being open to all undergraduates of the University, preference being given to students enrolled in a Canadian History course.

SCHOLARSHIPS FOR GRADUATES

University Graduate Scholarship*

A scholarship of $200 may be awarded to a graduate student who shows special aptitude for post-graduate studies and who is proceeding in the following year to post-graduate study in this or any other approved University.

The Anne Wesbrook Scholarship*

This scholarship of $100, given by the Faculty Women's Club of the University, is open to graduates of this University who are proceeding in the following year to post-graduate study in this or any other approved university.

The French Government Scholarship*

A scholarship of 10,000 francs is donated by the French Government for one year's post-graduate study in France. It is tenable for one year and is contingent upon the voting of the credits for the year by the French Chambers. As this contingency applies to every item of the French budget, the scholarship may be considered as permanent.

*See Page 37.

The award is made by the French Consul for Western Canada, residing in Vancouver, on the recommendation of the Head of the Department of French in the University.

The Brock Scholarship*

A scholarship of $100, given by Dean R. W. Brock, may be awarded to a graduate student in Applied Science who shows special aptitude for post-graduate studies.

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 £250 per annum are tenable, ordinarily, for two years. They are granted only to British subjects under 26 years of age who are *bona fide* students of pure or applied science of not less than three years' standing.

SCHOLARSHIPS FOR UNDERGRADUATES

1. IN ALL FACULTIES

The Rhodes Scholarship*

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 who may wish to remain for a third year will be expected to present a definite plan of study for that period satisfactory to his College and to the Rhodes Trustees.

Rhodes Scholars may be allowed, if the conditions are approved by their own College and by the Oxford Secretary to the Rhodes Trustees, either to postpone their third year, returning to Oxford for it after a period of work in their own countries, or to spend their third year in post-graduate work at any University of Great Britain, and in special cases at any University on the continent of Europe, the overseas Dominions, or in the United States, but not in the country of their origin.

The stipend of a Rhodes Scholarship is fixed at £400 per year. At most colleges, and for most men, this sum is not sufficient to meet a Rhodes Scholar's necessary expenses for Term-time and Vacations, and Scholars who can afford to supplement it by say

*See Page 37.

£50 per year from their own resources will find it advantageous to do so.

A candidate to be eligible must:

1. Be a British subject, with at least five years' domicile in Canada and unmarried. He must have passed his nineteenth, but not have passed his twenty-fifth birthday on October 1st of the year *for* which he is elected.
2. Have reached such a stage in his course at one of the Universities of Canada that he will have completed at least two years at the University in question by October 1st of the year *for* which he is elected.

Candidates may apply either for the Province in which they have their ordinary private domicile, home, or residence, or for any Province in which they have received at least two years of their college education before applying.

In that section of the will in which he defined the general type of scholar he desired, Mr. Rhodes wrote as follows:

"My desire being that the students who shall be elected to the Scholarships shall not be merely bookworms, I direct that in the election of a student to a Scholarship regard shall be had to:

1. His literary and scholastic attainments.
2. His fondness for and success in manly outdoor sports such as cricket, football and the like.
3. His qualities of manhood, truth, courage, devotion to duty, sympathy for and protection of the weak, kindliness, unselfishness and fellowship, and
4. His exhibition during school days of moral force of character and of instincts to lead and to take an interest in his schoolmates, for those latter attributes will be likely in after life to guide him to esteem the performance of public duties as his highest aim."

Full particulars can be obtained from Sherwood Lett, Esq., 626 Pender Street West, Vancouver, B. C., Secretary of the Selection Committee for the Province of British Columbia.

Each candidate for a Scholarship is required to make application to the Secretary of the Committee of Selection of the province in which he wishes to compete not later than October 31st. Application forms may be obtained from the Registrar's office or from the Secretary of the Selection Committee.

University Great War Scholarships*

Two scholarships of $150 each may be awarded, on the basis of the work of the First Year, to returned soldiers, their dependents and the children of deceased soldiers proceeding to the Second Year.

2. IN ARTS AND SCIENCE

University Scholarships in Arts and Science

Two scholarships in Arts and Science of $150 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 (a). (See page 60.) 2. To the student standing highest with majors in group (b). (See page 60.) Students taking full honours in Mathematics will be classified in group (a).

Two scholarships in Arts and Science of $150 each will be awarded to students proceeding to the Third Year, the award to be based on the work of the Second 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 examination of the Second Year in Arts and Science to the undergraduate student standing highest in any two of three courses, English 2, Latin 2, Greek (A or 2), and proceeding to the work of the Third 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 the Third 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 lives in the Great War, will be awarded to the student standing highest in English 2 and Economics 2 in the Second Year in Arts and Science and proceeding to the Third Year.

*See Page 37.

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

The Imperial Order Daughters of the Empire Scott Memorial Scholarship*

This scholarship of $100—the proceeds of an endowment of $2,000—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 for general proficiency in biological subjects to the student who has completed his Second Year in Arts and Science, and who is proceeding in the Third Year to Honour work either in Biology or in a course including Biology.

Royal Institution Scholarship in Arts and Science

A scholarship of $150 will be awarded to the student taking first place in the examinations of the First Year in Arts and Science.

University Scholarships in Arts and Science

Two scholarships of $150 each will be awarded to the students taking second and third places in the examinations of the First Year in Arts and Science.

The P.E.O. Sisterhood Scholarship

A scholarship of $75, given by the Vancouver Chapters of the P.E.O. Sisterhood, will be awarded to the woman student standing highest in English 1 in the First Year of the Faculty of Arts and Science.

The I. J. Klein Scholarship

This annual scholarship of $100, given by I. J. Klein, Esq., Vancouver, B. C., for ten years, beginning in May, 1930, 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 the subject, Canadian History (History 2 or 20).

The Summer Session Students' Association Scholarship

A scholarship of $30, given by the Summer Session Students' Association, will be awarded to the Summer Session student who completes the second year with the highest standing. To be eligible a student must have taken his entire second year at The University

*See Page 37.

of British Columbia Summer Session or Extra-sessional classes and must continue in his third year at 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 to a Summer Session student, who, being a member of the British Columbia Teachers' Federation, completes the third year with the highest standing. To be eligible a student must have taken his entire third year at The University of British Columbia Summer Session or Extra-sessional classes and must continue in his fourth year at The University of British Columbia.

3. IN APPLIED SCIENCE

University Scholarship in Nursing and Health*

A scholarship of $150 will be awarded for general proficiency in previous work in this University, to a student proceeding to the Third Year (or in the double course proceeding to the fourth year) of the Course in Nursing and Health and having successfully completed the hospital probationary period. Applications shall be made to the Registrar not later than September 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 Fourth Year in Applied Science, and proceeding to the work of the Fifth Year.

University Scholarship in Applied Science

A scholarship of $150 will be awarded to a student proceeding to the Fourth Year in Applied Science, the award to be based on the work of the Third Year.

*See Page 37.

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

Royal Institution Scholarship in Applied Science

A scholarship of $150 will be awarded for general proficiency in the work of the Second Year in Applied Science.

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 Fourth Year of the Faculty of Applied Science, and proceeding to the work of the Fifth Year.

4. IN AGRICULTURE

University Scholarship in Agriculture

A scholarship in Agriculture of $150 will be awarded to a student proceeding to the Second 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 the Third Year, the award to be based on the work of the Second Year.

MATRICULATION SCHOLARSHIPS

University Senior Matriculation Scholarship

One scholarship of $150 will be awarded upon the results of the Senior Matriculation Examination to the candidate of highest standing in the Province.

Royal Institution Senior Matriculation Scholarships

Scholarships of the value of $150 each will be awarded to two other students upon the results of the Senior Matriculation examinations. One of these scholarships will be for open competition throughout the Province; the other will be for open competition in all school districts of the Province other than the City of Vancouver, the City of North Vancouver, the District Municipalities of North Vancouver, West Vancouver, and Burnaby, and the City of New Westminster.

Royal Institution Junior Matriculation Scholarships

Eight General Proficiency scholarships will be awarded on the result of the Junior Matriculation examinations: (a) $150 to the candidate of highest standing in the Province, and (b) $150 to the candidate of next highest standing in each of the following

districts: (1) Victoria District, (2) Vancouver Island (exclusive of Victoria District), and Northern Mainland, (exclusive of North Vancouver and West Vancouver), (3), Vancouver Central District (comprising the former limits of the City of Vancouver), together with West Vancouver and North Vancouver, (4) Part of the Lower Mainland in the Fraser Harbour area, (5) The Fraser Valley, (6) Yale, (7) Kootenays.

These scholarships will be paid only to students in attendance at the University of British Columbia, with the exception that the Victoria District Scholarship will be paid to any winner of that scholarship in attendance at Victoria College.

Winners of all Matriculation Scholarships must notify the Registrar before September 1st of their intention of attending the University (or Victoria College in the case of the Victoria District Junior Matriculation Scholarship) during the following session; failing such notification, the winner's rights will lapse.

Postponement of Matriculation Scholarships will be granted only on medical grounds.

PRIZES

1. IN ALL FACULTIES

The University Essay Prize*

A book prize of the value of $25, open to all students of the University, will be awarded for an essay on a special literary subject, to be announced at the beginning of the session by the Department of English.

The Players' Club Prize*

A prize of $50, given by the Players' Club, is offered for an original play suitable for the Club's Christmas performance. The award will be made on the recommendation of the Faculty members of the Advisory Board of the Players' Club. All entries for this prize must be in the hands of the Honorary President of the Players' Club not later than September 30th, 1934.

The Isabel Ecclestone Mackay Prize*

A prize of $25 from the estate of the late Mrs. Isabel Ecclestone Mackay will be awarded to the student of the University who submits an original poem in the English language which shall be deemed of sufficient merit, the award to be made upon the recommendation of the Head of the Department of English. The poem

*See Page 37.

submitted may have been published or may be published subsequently by the writer.

Poems entered for this competition must be in the hands of the Registrar not later than the last day of the final examinations.

2. IN ARTS AND SCIENCE

The French Government Book Prize

A book prize, offered by the French Consul for Western Canada on behalf of the French Government, will be awarded to a student of the French language on the recommendation of the Head of the Department of Modern Languages.

The John Marr Memorial Prize*

A prize of $25, given by Mr. J. F. K. English, known as the John Marr Memorial Prize, will be awarded to the student, enrolled in the Education class or pursuing graduate work for the M.A. degree with Education as a Minor, who presents the best essay on some phase of Secondary Education in this Province. The essay may be prepared especially for the Prize Competition or it may be submitted as part of a Course Requirement. It must be submitted to the Head of the Department of Education not later than the last day of the sessional examinations.

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 Fifth Year of Applied Science whose record, in the opinion of the Faculty, is the most outstanding.

The Walter Moberly Memorial Prize

A book prize of the value of $25, given by the Vancouver Branch of the Engineering Institute of Canada in memory of the late Walter Moberly, will be awarded for the best engineering thesis submitted by any Fifth Year student in the Faculty of Applied Science.

The Engineering Profession's Prizes

Five book prizes, each of the value of $25, are offered by the Engineering Profession in British Columbia (Association of Professional Engineers) for competition by those students in the Fourth Year of the Faculty of Applied Science who are registered as engineering pupils according to the by-laws of the Association.

*See Page 37.

One of these prizes is awarded for the best summer essay in each of any five branches of engineering, to be selected and specified by the Faculty.

The five successful essays may be made available by the Faculty to the Council of the Engineering Profession and, through the Council, may be referred to or quoted in the literature of the Profession.

The Provincial Board of Health Prizes

The Provincial Board of Health of the Province of British Columbia offers the sum of $100 in prizes for competition in the Course in Public Health Nursing.

The Engineering Institute of Canada Prize

The Engineering Institute of Canada offers an annual prize of $25 to each of eleven Canadian Universities of which the University of British Columbia is one.

The prize will be awarded to a student of the Fourth 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.

BURSARIES

The Captain LeRoy Memorial Bursary*

This bursary of the annual value of $250 was given by the Universities Service Club in memory of their comrades who fell in the 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 post-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.

*See Page 37.

The award will be made by the Senate upon the recommendation of the Faculties acting in consultation with the Executive or accredited representatives of the Universities Service Club.

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 ten 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 the soldiers of the 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 expectations of attaining standing as stated above and who are in need of financial assistance should apply to the Registrar on the special form provided, not later than the last day of the final examinations.

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

The American Woman's Club Bursary*

A bursary of $125, given by the American Woman's Club of Vancouver will be available for 1934-35 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. Application must be made to the Registrar not later than September 1st.

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 work of the Fourth Year.

*See Page 37.

David Thom Bursaries

From the funds of the David Thom Estate a sum of $160 is available annually for the following bursaries:

1. A sum of $100 to be awarded to the junior or senior matriculant with the highest standing who is registering for the first time in the Faculty of Agriculture. In the awarding of this bursary Regulation 9 under General Regulations for Medals, Scholarships and Prizes does not apply.

*2. A sum of $60 to be awarded to a student who has satisfactorily completed the work of the First Year in Agriculture and is proceeding to the work of the Second Year.

Special Bursaries Fund*

For the Session 1934-35 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 for these bursaries must be in the hands of the Registrar not later than October 1st, 1934. Special forms may be obtained in the Registrar's office.

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 11 under General Regulations for Medals, Scholarships, Prizes, etc.

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. Applicants for loans must be recommended by the Departments of Geology, Mining and Metallurgy.

The David Thom Fund

From the David Thom Estate funds a sum of $1500 has been set aside for loans to Third and Fourth Year students in Agriculture who have been unable to borrow from the General Loan Fund or who have obtained loans from that fund insufficient for their needs.

*See Page 37.

THE
FACULTY
OF
ARTS AND SCIENCE

TIME TABLE

FACULTY OF ARTS

KEY TO BUILDINGS: A, Arts; Ag, Agr

Mornings

	Monday	Room	Tuesday	Room	Wednesday	Room
9	Biology 2	Ap 101	Botany 2		Biology 2	Ap 101
	Biology 3	Ap 101	Botany 4	Ap 101	Biology 3	Ap 101
	Botany 6 e	Ap 101	Economics 2	S 300	Botany 6 e	Ap 101
	Economics 6	S 300	Economics 17	Ap 100	Economics 6	S 300
	Education	Ap 204	Education	Ap 204	Education	Ap 204
	English 1	A 103 106, 203, 206	English 1	A 100 106, 205, 206	English 1	A 103, 106, 203, 206
	English 13	A 100	French 2, Secs. e, f, g, h	A 101, 104, 105, 207	English 13	A 100
	French 2 Secs. a, b, c, d	A 101 104, 105, 108	Geology 5 and 12	Ap 102	French 2, Secs. a, b, c, d	A 101 104, 105, 108
	Geology 4	Ap 102	German 1, Sec. a	A 108	Geology 4	Ap 102
	Greek A	A 102	German 4	A 201	Greek A	A 102
	History 15	A 207	History 4	A 204	History 15	A 207
	Latin 7	A 205	Latin 2 a	A 103	Latin 7	A 205
	Mathematics 3	A 204	Latin 5	A 102	Mathematics 3	A 204
	Mathematics 10	A 208	Mathematics 16	A 208	Mathematics 10	A 208
	Mathematics 17	A 201	Physics 2	S 200	Mathematics 17	A 201
	Philosophy 1 a, Sec. 1	Ap 100	Zoology 2	Ap 101	Philosophy 1 a, Sec. 1	Ap 100
	Physics 1	S 200	Zoology 3	Ap 101	Physics 1	S 200
10	Botany 5 a	Ap 101	Botany 3	Ap 101	Botany 5 b	
	Botany 6 d	Ap 101	Botany 6 c	Ap 101	Botany 6 b and d	Ap 101
	Chemistry 3	S 300	Chemistry 9	S 417	Chemistry 3	S 300
	Economics 1, Sec. 1	S 400	Economics 1, Sec. 3	A 100	Economics 1, Sec. 1	S 400
	Economics 9	A 201	Economics 4	A 103	Economics 9	A 201
	Economics 19	A 102	Education	Ap 202	Economics 19	A 102
	Education	A 204	English 10	A 204	Education	A 204
	English 9	A 100	French 4 a	A 104	English 9	A 100
	French 3 b	A 104	Geology 2	Ap 102	French 3 b	A 104
	French 4 b	A 105	German 1, Sec. b	A 203	French 4 b	A 105
	Geology 1	Ap 100	Government 1	A 108	Geology 1	Ap 100
	History 20	A 101	History 14	A 101	Geology 7	Ap 106
	Mathematics 1, Secs. 1, 2, 3, 4	A 106 203, 205, 206	Latin 2 b	A 201	History 20	A 101
			Mathematics 1, Secs. 5, 6, 7	A 105, 106, 205	Mathematics 1, Secs. 1, 2, 3, 4	A 106, 203, 205, 206
	Philosophy 1 a, Sec. 2	Ap 202	Mathematics 13	A 102	Philosophy 1a, Sec. 2	Ap 202
	Philosophy 8, Sec 2	A 103	Philosophy 2	A 207	Philosophy 8, Sec. 2	A 103
	Physics 3	S 210			Physics 3	S 210
11	Agricultural Economics	Ag 104	Botany 1	Ap 101	Agricultural Economics	Ag 104
	Biology 1	Ap 100	Botany 6 b	Ap 235	Biology 1	Ap 100
	Chemistry 7	S 417	Chemistry 1, Sec. 2	S 300	Botany 6 b	
	Economics 1, Sec. 2	S 400	Chemistry 4	S 417	Chemistry 7	S 417
	Economics 5	S 200	Economics 1, Sec. 4	Ap 100	Economics 1, Sec. 2	S 400
	Education	Ap 202	Economics 10	A 100	Economics 5	S 200
	English 14	A 103	Education	A 206	Education	Ap 202
	French 1 Secs. a, b, c, d	A105, 106 108, 206	English 19	S 200	English 14	A 103
			French 1, Secs. e, f, g, h	A 104, 105, 108, 203	French 1, Secs. a, b, c, d	A 105, 106, 108, 206
	French 4 e	A 201	French 3 a	106, 208	French 4e	A 201
	Geology 8	Ap 102	Geography 5	A 100	Geology 8	Ap 102
	German, Beg., Sec. a	A 205	Geology 6	Ap 102	German, Beg. Sec. a	A 205
	Government 4	A 208	Government 2	A 201	Government 4	A 208
	History 11	A 203	History 13	A 207	History 11	A 203
	History 19	A 101	Latin 1	A 103	History 19	A 101
	Mathematics 2	A 204	Philosophy 6	A 101	Mathematics 2	A 204
	Philosophy 3	A 102	Philosophy 8, Sec. 1	A 205	Philosophy 3	A 102
	Physics 5	S 210	Zoology 7	Ap 101	Physics 5	S 210
	Zoology 1	Ap 101			Zoology 1	Ap 101

CONSULT DEPARTMENT HEADS FOR

--- 1934-35

AND SCIENCE

iculture; Ap, Applied Science; S, Science.

Mornings

Thursday	Room	Friday	Room	Saturday	Room	
Botany 2	.....	Biology 2	Ap 101	Botany 5 b Lab.	.....	
Economics 2	S 300	Botany 6 f	Ap 101	Chemistry 9 Lab.	.....	
Economics 17	Ap 100	Botany 7 a	.....	Economics 2	S 300	
Education	Ap 204	Economics 6	S 300	Economics 17	Ap 100	
English 1	A 100, 106, 205, 206	Education	Ap 204	Education	Ap 204	
		English 1	A 103, 106, 203, 206	English 1	A 100, 106, 205, 206	
French 2, Secs. e, f, g, h	A 101, 104, 105, 207	English 13	A 100	French 2, Secs. e, f, g, h	A 101, 104, 105, 207	
Geology 5 and 12	Ap 102	French 2, Secs. a, b, c, d	A 101, 104, 105, 108	Geology 10	.....	9
German 1, Sec. a	A 108			German 1, Sec. a	A 108	
German 4	A 201	Geology 4	Ap 102	German 4	A 201	
History 4	A 204	Greek A	A 102	History 4	A 204	
Latin 2 a	A 103	History 15	A 207	Latin 2 a	A 103	
Latin 5	A 102	Latin 7	A 205	Latin 5	A 102	
Mathematics 16	A 208	Mathematics 3	A 204	Mathematics 16	A 208	
Physics 2	S 200	Mathematics 10	A 208	Physics 2	S 200	
Zoology 2	Ap 101	Mathematics 17	A 201			
Zoology 3	Ap 101	Philosophy 1 b, Sec. 1	Ap 100			
		Physics 1	S 200			
Botany 3	Ap 101	Botany 5 a	Ap 101	Botany 5 b Lab.	.....	
Botany 6 c	Ap 101	Chemistry 2	S 300	Chemistry 9 Lab.	.....	
Chemistry 9	S 417	Economics 1, Sec. 1	S 400	Economics 1, Sec. 3	A 100	
Economics 1, Sec. 3	A 100	Economics 9	A 201	Economics 4	A 103	
Economics 4	A 103	Economics 19	A 102	Education	Ap 202	
Education	Ap 202	Education	A 204	English 10	A 204	
English 10	A 204	English 9	A 100	French 4 a	A 104	
French 4 a	A 104	French 3 b	A 104	Geology 10	.....	
Geology 2	Ap 102	French 4 b	A 105	German 1, Sec. b	A 203	
German 1, Sec. b	A 203	Geology 7	Ap 106	Government 1	A 108	10
Government 1	A 108	History 20	A 101	History 14	A 101	
History 14	A 101	Mathematics 1, Secs. 1, 2, 3, 4	A 106, 203, 205, 206	Latin 2 b	A 201	
Latin 2 b	A 201			Mathematics 1, Secs. 5, 6, 7	A 105, 106, 205	
Mathematics 1, Secs. 5, 6, 7	A 105, 106, 205	Philosophy 1 b, Sec. 2	Ap 202	Mathematics 13	A 102	
Mathematics 13	A 102	Philosophy 8, Sec. 2	A 103	Philosophy 2	A 207	
Philosophy 2	A 207					
Botany 1	Ap 101	Agricultural Economics	Ag 104	Botany 5 b Lab.	.....	
Chemistry 1, Sec. 2	S 300	Economics 1, Sec. 2	S 400	Chemistry 1, Sec. 2	S 300	
Chemistry 4	S 417	Economics 5	S 200	Chemistry 9 Lab.	.....	
Economics 1, Sec. 4	Ap 100	Education	Ap 202	Economics 1, Sec. 4	Ap 100	
Economics 10	A 100	English 14	A 103	Economics 10	A 100	
Education	A 206	French 1, Secs. a, b, c, d	A105, 106, 108, 206	Education	A 206	
English 19	S 200	French 4 e	A 201	English 19	S 200	
French 1, Secs. e, f, g, h	A 104, 105, 108, 203	Geology 8	Ap 102	French 1, Secs. e, f, g, h	A 104, 105, 108, 203	11
French 3 a	A106, 208	German, Beg. Sec. a	A 205	French 3 a	A 106, 208	
Geography 5	A 100	Government 4	A 208	Geography 5	A 100	
Geology 6	Ap 102	History 11	A 203	Geology 10	.....	
Government 2	A 201	History 19	A 101	Government 2	A 201	
History 13	A 207	Mathematics 2	A 204	History 13	A 207	
Latin 1	A 103	Philosophy 3	A 102	Latin 1	A 103	
Philosophy 6	A 101	Physics 5	S 210	Philosophy 8, Sec. 1	A 205	
Philosophy 8, Sec. 1	A 205	Zoology 6	Ap 101	Philosophy 6	A 101	
Zoology 7	Ap 101	Zoology 5	Ap 101			

SUBJECTS NOT IN THIS TIME TABLE

Afternoons

	Monday	Room	Tuesday	Room	Wednesday	Room
1	Botany 3 Lab.		Bacteriology 1 and 2		Botany 3 Lab.	
	Botany 5 c Lab.		Botany 2		Botany 5 a and c	
	Chemistry 1, Sec. 1	S 300	Botany 4		Botany 6 c Lab.	
	Chemistry 1 Lab., Secs. a and b		Botany 6 e		Chemistry 1, Sec. 1	S 300
	Education	A 103	Education 1	A 100	Education	A 103
	English 2 a	A 100 Ap 100	English 20	A 104	English 2 a	A 100, Ap 100
	French 1, Secs. i, j	A 104, 105	Geology 1 Lab.		French 1, Secs. i, j	A 104, 105
	French 4 e	A 204	Geology 7 Lab.	Ap 106	French 4 e	A 204
	History 10	A 106	Mathematics 1, Secs. 1, 2, 3, 4	A 106, 203, 205, 206	Geology 7 Lab.	Ap 106
	Latin 3	A 207	Physics 3 Lab., Sec. 1		History 10	A 106
	Philosophy 7	A 201	Economics 13	Ap "T"	Latin 3	A 207
	Philosophy 9	Ap 202	Economics 14	A 102	Philosophy 7	A 201
	Statistics 1	S 210	Zoology 2 Lab.		Philosophy 9	Ap 202
	Zoology 5 Lab.		Zoology 3 Lab.		Statistics 1	Ap 208
	Zoology 6 Lab.				Zoology 5 Lab.	
					Zoology 6 Lab.	
2	Bacteriology 1 and 2		Bacteriology 1 and 2		Botany 3 Lab.	
	Botany 3 Lab.		Biology 1, Sec. 1		Botany 5 a and c	
	Botany 5 c Lab.		Botany 2		Botany 6c Lab.	
	Chemistry 7 Lab.		Botany 4		Education	A 106
	Education	A 106	Botany 6 e		English 16	A 206
	English 16	A 206	Chemistry 4 Lab.		French 4 c	A 203
	French 4 c	A 203	Education	A 104	Geology 7 Lab.	Ap 106
	Geography 1	Ap 100	English 1	A 100, 106, 205, 206	Geography 1	Ap 100
	German, Beg. Sec. c	A 205			German, Beg. Sec. c	A 205
	German 2	A 207			German 2	A 207
	History 1	A 100	Geology 1 Lab.		History 1	A 100
	Philosophy 1 c	S 210	Geology 7 Lab.	Ap 106	Philosophy 1 c	S 210
	Physics 5 Lab.		Latin 8 B	A 203	Sociology 1	A 103
	Sociology 1	A 103	Physics 3 Lab., Sec. 1		Statistics 1	Ap 208
	Zoology 5 Lab.		Zoology 2 Lab.		Zoology 5 Lab.	
	Zoology 6 Lab.		Zoology 3 Lab.		Zoology 6 Lab.	
3	Bacteriology 1 and 2		Biology 1, Sec. 1			
	Botany 1 Lab.		Botany 2 Lab.			
	Chemistry 1 Lab., Secs. a, b		Botany 4 Lab.			
	Chemistry 2 Lab. a		Chemistry 2 Lab. b			
	Chemistry 7 Lab.		Chemistry 4 Lab.			
	Economics 15	Ap 120	Education 2	A 100		
	Education	A 100	Geology 6 Lab.			
	Geology 5	Ap 102	Greek, Begs.	A 102		
	Physics 5 Lab.		Physics 3 Lab., Sec. 1			
	Zoology 5 Lab.		Zoology 2 Lab.			
	Zoology 6 Lab.		Zoology 3 Lab.			
4	Bacteriology 1 and 2		Biology 1, Sec. 2			
	Botany 1 Lab.		Botany 2 Lab.			
	Chemistry 1 Lab., Secs. a, b		Botany 4 Lab.			
	Chemistry 2 Lab. a		Chemistry 2 Lab. b			
	Chemistry 7 Lab.		Chemistry 4 Lab.			
	Economics 15	Ap 120	Geology 6 Lab.			
	Geology 5 Lab.		Zoology 2 Lab.			
	Physics 5 Lab.		Zoology 3 Lab.			
	Zoology 5 Lab.					
	Zoology 6 Lab.					
5	Chemistry 1 Lab., Secs. a, b		Biology 1 Lab. 2			
	Chemistry 2 Lab. a		Botany 2 Lab.			
			Botany 4 Lab.			
			Chemistry 2 Lab. b			

CONSULT DEPARTMENT HEADS FOR

—Continued

Afternoons

Thursday	Room	Friday	Room			
Bacteriology 1 and 2	.....	Bacteriology 5	.....			
Biology 1, Sec. 3	.....	Biology 1, Sec. 5	.....			
Botany 4	.....	Biology 3	.....			
Botany 6 c and e Lab.	.....	Botany 6 d Lab.	.....			
Chemistry 3 Lab.	.....	Chemistry 1, Sec. 1	S 300			
Education 1	A 100	Chemistry 3 Lab. a	.....			
English 20	A 104	Education	A 103			
Geology 1 Lab.	.....	English 2 a	A 100, Ap 100			
Geology 9	Ap 112					
Mathematics 1, Secs. 5, 6, 7	A 105, 106, 205	French 1, Secs. i, j	A 104, 105			
Physics 3 Lab., Sec. 2	.....	French 4 e	A 204			1
Economics 13	Ap "T"	Geology 2 Lab.	.....			
Economics 14	Ap 212	History 10	A 106			
Zoology 1 Lab.	.....	Latin 3	A 207			
		Philosophy 7	A 201			
		Philosophy 9	Ap 202			
		Zoology 7 Lab.	.....			
Bacteriology 1 and 2	.....	Bacteriology 5	.....			
Biology 1, Sec. 3	.....	Biology 2, Sec. 5	.....			
Botany 4	.....	Biology 3	.....			
Botany 6 c and e Lab.	.....	Botany 6 d Lab.	.....			
Chemistry 3 Lab. b	.....	Chemistry 3 Lab. a	.....			
Education	A 104	Chemistry 4 Lab.	.....			
English 1	A 103, 106, 205, 206	Education	A 106			
		English 16	A 206			
		French 4 c	A 203			
English 2 c	A 106	Geography 1	Ap 100			
Geology 1 Lab.	.....	Geology 2 Lab.	.....			2
Geology 9	.....	Geology 8	.....			
Latin 8 A	A 203	German, Beg. Sec. c	A 205			
Physics 3 Lab., Sec. 2	.....	German 2	A 207			
Economics 13	Ap "T"	History 1	A 100			
Economics 14	Ap 212	Philosophy 1 c	S 210			
Zoology 1 Lab.	.....	Sociology 1	A 103			
		Zoology 7 Lab.	.....			
Biology 1, Sec. 4	.....	Bacteriology 5	.....			
Botany 7 Lab.	.....	Biology 1, Sec. 6	.....			
Chemistry 1 Lab., Sec. c	.....	Biology 3	.....			
		Botany 6 d Lab.	.....			
Chemistry 2 Lab. b	.....	Chemistry 1 Lab., Secs. d, e	.....			3
Chemistry 3 Lab. b	.....	Chemistry 2 Lab. a	.....			
Education 2	A 100	Chemistry 3 Lab. a	.....			
Physics 3 Lab., Sec. 2	.....	Chemistry 4 Lab.	.....			
Zoology 1 Lab.	.....	Education 2	A 100			
		English 24	A 104			
		Zoology 7 Lab.	.....			
Biology 1, Sec. 4	.....	Bacteriology 5	.....			
Botany 7 Lab.	.....	Biology 1, Sec. 6	.....			
Chemistry 2 Lab. b	.....	Biology 3	.....			
Chemistry 3 Lab. b	.....	Botany 6 d Lab.	.....			
Zoology 1 Lab.	.....	Chemistry 1 Lab., Secs. d, e	.....			4
		Chemistry 2 Lab. a	.....			
		Chemistry 3 Lab. a	.....			
		Chemistry 4 Lab.	.....			
		English 24	A 104			
		Zoology 7 Lab.	.....			
Chemistry 2 Lab. b	.....	Chemistry 1 Lab., Secs. d, e	.....			5
		Chemistry 2 Lab. a	.....			

SUBJECTS NOT IN THIS TIME TABLE

Faculty of Arts and Science Supplemental Examinations

SEPTEMBER, 1934

Date	Hour	First Year	Second Year	Third and Fourth Years
Wednesday, September 12th	9 A.M.	History 1, 2, 3	History 1, 2, 3	To be arranged.
	1 P.M.	English Literature	English Literature	
Thursday, September 13th	9 A.M.	Latin Authors	Latin 2	
	1 P.M.	Chemistry 1	Chemistry 1, 2	
		Latin Composition		
Friday, September 14th	9 A.M.	French	French	
	1 P.M.	Geometry	Geometry	
		Greek A	Greek 2	
Saturday, September 15th	9 A.M.	Physics 1, 2	Physics 1, 2, 3	
			Botany	
Monday, September 17th	9 A.M.	Trigonometry	Calculus	
			Zoology 1	
	1 P.M.	Algebra	Algebra	
			Psychology	
Tuesday, September 18th	9 A.M.	English Composition		
	1 P.M.	German Beg. and 1	Biology 1	
		Biology 1	German Beg., 1 and 2	
Wednesday, September 19th	9 A.M.	Economics 1	Economics 1, 2	
	1 P.M.	Geography 1	Economics 10	

FACULTY OF ARTS AND SCIENCE

The degrees offered in this Faculty are Bachelor of Arts (B.A.), Bachelor of Commerce (B.Com.), and Master of Arts (M.A.).

Courses which do not lead to degrees are offered in Teacher Training and Social Service.

*COURSES LEADING TO THE DEGREE OF B.A.

The degree of B.A. is granted with Honours or as a Pass degree. A Pass degree will be granted on completion of courses amounting to 60 units chosen in conformity with Calendar regulations. No distinction is made between Pass and Honour students in the First and Second Years, except as regards prerequisites for later work, but in the Third and Fourth Years there are special requirements for Honour Students.

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 also possible to obtain the B.A. and B.Com. degrees concurrently in five years on completion of 75 units chosen so as to cover the requirements for both degrees.

Double courses are offered in Arts and Science and Applied Science leading to the degrees of B.A. and B.A.Sc., or B.A. and B.A.Sc. (in Nursing).

Credit will not be given for more than 15 units in the First or Second Year of the Winter Session; nor for more than 18 units in the Third or Fourth Year. (*See regulations under "First and Second Years" and "Third and Fourth Years."*)

Credits obtained at the Summer Session (*see "University Summer Session"*) may be combined with Winter Session credits to complete the 60 units required for the degree of B.A.; but not more than 30 units of credit may be obtained in the two academic years subsequent to Junior Matriculation nor more than 15 in the academic year subsequent to Senior Matriculation. The degree of B.A. will not be granted within three years from Senior Matriculation nor within four years from Junior Matriculation.

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

*The University reserves the right to limit the registration in, or to cancel, any of the courses listed in this Faculty. 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.

per academic year, and 15 units in all subsequent to Senior Matriculation or First Year Arts.

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

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

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

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 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 who intend to enter Normal School at any time before or after graduation are reminded they will have to meet the requirements for Normal Entrance in Health IV, Geography II, Arithmetic II and Art I.

FIRST AND SECOND YEARS

1. The requirements of 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. Details of courses are given under the various departments.

*Each student must take:	Units
(*a*) English 1 in the First Year and English 2 in the Second Year	6
†(*b*) The first two courses in a language offered for Matriculation, one course in each year	6

*For credit that can be given for Senior Matriculation standing, complete or partial, see Page 28.
†See Regulation "2."

(*c*) Mathematics 1, in the First Year..... 3

(*d*) Economics 1, *or* History 1 or 2 or 4, *or* Philosophy 1 (a) or 1 (b)..... 3

(*e*) Biology 1, or Chemistry 1, or Geology 1, or Physics 1, or Physics 2..... 3

(*f*) Three courses—not already chosen—selected from the following:

Biology 1, Botany 1, Chemistry 1, Chemistry 2, Economics 1, Economics 2, Economics 10, French 1, French 2, Geography 1, Geology 1, Geology 2, †Beginners' German, German 1, German 2, Greek A, Greek 2, History 1, History 2, History 4, Latin 1, Latin 2 (a), Latin 2 (b), Mathematics 2, Mathematics 3, Philosophy 1 (a), Philosophy 1 (b), Physics 1 or Physics 2, Physics 3, Zoology 1..... 9

NOTE:—Botany 1, Zoology 1, Geology 1 and 2, Geography 1, Economics 10, History 4 and Philosophy 1 (b) are not open to First Year students. Economics 1, and Philosophy 1 are open to First Year students only if the permission of the Heads of these departments is obtained. History 2 is open to First Year students only if they are preparing for entrance to the Normal School. Geography 1, Geology 1, and Philosophy 1 (b), normally Third Year subjects, may be taken by Second Year students (Full Undergraduate and Conditioned). Geology 1 must be taken in the Second Year by students intending to take the Honour course in Geology.

2. Students who have not matriculated in German may take the Beginners' Course to meet the Junior Matriculation requirements (without University credit) and follow it up with German 1 and German 2 to satisfy the language requirements under Section 1 (b). Students who contemplate specializing in any of the natural sciences are advised to take German under this regulation.

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

4. Except in the case of beginners' courses, no course in a language may be taken by a student who has not offered that

†See Regulations "3" and "4."

language at Matriculation. A beginners' course in a language may not be taken for credit by a student who has obtained credit for that language at Matriculation.

Greek A (which may be taken by students having no previous knowledge of Greek), followed by Greek 2, will be accepted as satisfying the Language requirements in the case of students who have matriculated in Latin.

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

6. Students who intend to enter the Teacher Training Course are advised to take Philosophy 1 in the First or Second Year.

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 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.

To ensure the conformity of their courses to Calendar regulations, all students in their Second Year are advised to submit to the Dean of the Faculty, on or before March 31st of each year, a scheme of the courses they propose to take during the last two years.

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. The graduation standing is determined by the results of the Third and Fourth Years combined.

PASS CURRICULUM

1. A minimum of 15 units must be taken in two Major subjects, not less than 6 units in either, and a minimum of 6 units in some other subject or subjects of the Third and Fourth Years. Work in the First or Second Year is required in each of the Major subjects, except Education and Bacteriology. Both Major subjects must be chosen from one of the following groups:

(*a*) Bacteriology, Botany, Chemistry, Geology, Mathematics, Physics, Zoology.

(*b*) Economics, Education (not more than six units), English, French, German, Government, Greek, History, Latin, Mathematics, Philosophy.

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.

When two First or Second Year subjects, other than a Beginners' Language or Language 1, 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.

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. Some courses, however, are intended for Honour students only.

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

1. (*a*) 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

   (*b*) shall have made an average of at least Second Class in the 6 units in question.

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

3. 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.

HONOURS

1. Students whose proposed scheme of work involves Honour courses must obtain the consent of the departments concerned and of the Dean before entering on these courses; and this consent will normally be granted only to those students who have a clear academic record at the end of their Second Year with at least Second Class standing in the subject or subjects of specialization. (Cards of application for admission to Honour courses may be obtained at the Registrar's office.)

2. Certain departments offer Honour courses either alone or in combination with other departments. For Honours in a single department, at least 18 of the requisite 30 units must be taken in the department concerned, and at least 6 outside it. For Honours in combined courses, at least 12 units are required in each of two subjects. Particulars of these courses are given below.

3. Candidates for Honours may, with the consent of the department concerned, offer a special reading course (to count not more than 3 units) in addition to the reading courses offered on page 61, section 5.

4. All candidates for Honours may, at the option of the department or departments concerned, 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.

5. Candidates for Honours are required, at the end of their Fourth Year, to take 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 pass degree. If a combined Honour course is taken, First Class Honours will be given only if both the departments concerned agree; and an Honour degree will be withheld if either department refuses a sufficiently high grade.

7. It is hoped to offer the following Honour Courses during the session 1934-35. But if, for the reasons stated in the footnote to page 57, it is found impossible to do so, the University reserves the right to refuse new registrations in any of them.

HONOUR COURSES IN SINGLE DEPARTMENTS

Biology (Botany Option)

Prerequisites: Biology 1, Chemistry 1, Botany 1.

Chemistry 2 and 3, Physics 1 or 2, and Zoology 1 are required before completion of the course and should be taken as early as possible.

Required Courses: Botany 3 (*a*), 4, 5 (*a*), and 6 (*c*).

Optional Courses: Biology 2 and 3; courses in Botany not specifically required; and courses in Zoology. Optional courses should be selected in consultation with the department.

Biology (Zoology Option)

Prerequisites: Biology 1, Chemistry 1, Botany 1.

Physics 1 or 2, Zoology 1, Chemistry 2 and 3 are required before completion of the course and should be taken as early as possible.

Students specializing in Entomology may substitute Zoology 9 for one of the required courses given above.

Required Courses: Zoology 2, 3, 5, 6.

Optional Courses: Zoology 4, 7, 8, 9; courses in Botany; Geology 6. These optional courses should be selected in consultation with the Head of the department.

Chemistry

Prerequisites: Chemistry 1; Physics 1 or 2 and Mathematics 2.

Course: Candidates are required to complete the following courses: Chemistry 2, 3, 4, 5, 7, 9 and 10.

Classics

Course: Any three of Greek 3, 5, 6, 7; any three of Latin 3, 4, 5, 6; and either Greek 9 or Latin 7.

As proof of ability to write Greek and Latin prose, candidates must attain not less than Second Class standing in Greek 8 and Latin 8. During the candidate's Fourth Year, papers will be set on 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: A reading knowledge of French or German. A paper in translation to be written at the end of the Fourth Year will be required to ensure that this knowledge has been kept up.

Course: Economics 2, if not already taken, any 15 further units in the department, to include Economics 4, Economics 9, and Statistics 1, and two from the following group:

Economics 3, Economics 5, Economics 6, Economics 7, Economics 11, Statistics 2, Government 1, Sociology 1. Also a graduating essay which will count 3 units. (Tutorial instruction will be arranged in connection with the essay.)

Students must pass an oral examination, and, if required, address a general audience on a designated subject.

Attendance at the Seminar in Economics is required in the Third and Fourth Years.

Economics and Political Science

Prerequisites: A reading knowledge of French or German. A paper in translation to be written at the end of the Fourth Year will be required to ensure that this knowledge has been kept up.

Course: Economics 2, if not already taken, any 15 further units in the department, to include Government 1, Statistics 1, and three from the following group:

Sociology 1, Sociology 2, Government 2, Government 3, Government 4, Economics 3, Economics 4, Economics 5, Economics 6, Economics 7, Economics 9, Statistics 2.

Also a graduating essay which will count 3 units. (Tutorial instruction will be arranged in connection with the essay.)

Students must pass an oral examination and, if required, address a general audience on a designated subject.

Attendance at the Seminar in Economics is required in the Third and Fourth Years.

English Language and Literature

Prerequisites: 1. A First Class or high Second Class in English 2. 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 25 (involving an examination on the life, times, and complete works of some major English author), 20, 21 (*a*), 21 (*b*), 22, 24 (the seminar, which must be attended in both years, though credit will be given only for the work of the final year), and a graduating essay which will count 3 units. The graduating essay must be submitted on or before March 31.

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.

Geology

Prerequisites: Geology 1. If possible Geology 2 also should be taken in the Second Year. Chemistry 1 and if possible Physics 1 or 2 should be taken in the First Year, as these are required for Geology 2 and 7 and are of great value in Geology 1. Biology 1 is recommended in the Second Year, as it is prerequisite to Zoology 1, which should be taken in the Third Year as a valuable preparation for Geology 6.

Courses: Eighteen units to be chosen from Geology 4, 5, 6, 7, 8, 10, 12. If Geology 2 has not been taken in the Second Year it must be taken in the Third Year, as it is prerequisite to Geology 7 and 8.

History

Course: Any 18 units, of which the graduating essay will count 3 units. The Seminar (which carries no credit) must be attended in the Third and the Fourth Years. A reading knowledge of French is required.

French

Course: French 3 (*a*), 3 (*b*), 3 (*c*) in the Third Year.
French 4 (*a*), 4 (*b*), 4 (*c*), in the Fourth Year.
A graduating essay (in French) which will count 3 units.

Latin

Course: Latin 3, 4, 5, 6 and 7 and Greek 9. The candidate must also take Latin 8 in both years, 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.

Mathematics

Prerequisites: Mathematics 2, Physics 1 or 2.

Course: Any 18 units in Mathematics, and Physics 3 and 5. A final Honours examination is required.

Physics

Prerequisites: Mathematics 2, Physics 1 or 2, Chemistry 1.

Course: Mathematics 10, 16, 17. Physics 3 and 5, and 15 additional units. Students are advised to take Chemistry 4 and 7, if possible.

COMBINED HONOUR COURSES

(a) Biology (Botany and Zoology) and Bacteriology

Prerequisites: Chemistry 1 and 2; Biology 1; Botany 1, or Zoology 1.

Course: Bacteriology 1, 2 and 5; the required courses for either the Botany option or the Zoology option of the Honour course in Biology.

(b) Biology (Botany and Zoology) and Geology

Prerequisites: Chemistry 1; Biology 1; Geology 1.

Course: Geology 2 and 6; the required courses for either the Botany option or the Zoology option of the Honour course in Biology.

(c) Chemistry and Biology (Botany and Zoology)

Prerequisites: Chemistry 1 and 2; Physics 1 or 2; Biology 1.

Course: Chemistry 3, 4, 5, 7 and 9; the required courses for either the Botany option or the Zoology option of the Honour course in Biology.

(d) Chemistry and Physics

Prerequisites: Chemistry 1; Physics 1 or 2 and Mathematics 2.

Course: Chemistry 2, 3, 4, 5 and 7, and Physics 3, 5, 8 or 19, and two units from 7, 10, 12, 13 or 14. Candidates are advised to take Mathematics 10.

(e) Chemistry and Geology

Prerequisites: Chemistry 1; Physics 1 or 2; and Geology 1.

Course: Chemistry 2, 3, 4, 5 and 7, and at least 12 units in Geology.

(f) Chemistry and Mathematics

Prerequisites: Chemistry 1; Physics 1 or 2; and Mathematics 2.

Course: Chemistry 2, 3, 4, 5, 7, and at least 12 units in Mathematics, including Mathematics 10.

(g) Mathematics and Physics

Prerequisites: Mathematics 2; Physics 1 or 2.

Course: Mathematics, at least 12 units, including Mathematics 10, 16 and 17.

Physics 3, 5, 8, and six additional units.

(h) Any Two of

Economics or Economics and Political Science, English, French, History, Latin, Philosophy.

Economics or Economics and Political Science

Prerequisite: A reading knowledge of French or German. A paper in translation to be written at the end of the Fourth Year will be required to ensure that this knowledge has been kept up.

Course in Economcis: Twelve units, including Economics 4, Economics 9, Statistics 1, and Economics 2, if not already taken.

Course in Economics and Political Science: Twelve units, including Government 1, Statistics 1, and Economics 2, if not already taken.

English

Prerequisite: 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 20 and 24, and any three of the English courses of the first division. 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.

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 will be oral.

The graduating essay, when written for the Department of English, must be submitted on or before March 31.

French

Course: If the graduating essay is written on a French subject, 3 (*a*) and 3 (*c*), 4 (*a*) and 4 (*c*); otherwise either these courses or 3 (*a*) and 3 (*b*), 4 (*a*) and 4 (*b*).

Courses 3 (*b*) and 4 (*b*) are intended primarily for Honour students and should be taken whenever possible, even if they are not required to make up the minimum number of units.

History

Prerequisite: A reading knowledge of French.

Course: History 10 and any 9 additional units, of which the graduating essay, if written in History, will count 3 units.

The seminar (which carries no credits) must be attended in the Third and Fourth Years.

Latin

Course: Latin 8 and any four of 3, 4, 5, 6, 7. 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.

Philosophy

Course: Any 12 units besides Philosophy 1, six units in each year.

COURSES LEADING TO THE DEGREE OF B.Com.

The degree of B.Com. is granted with Honours or as a Pass degree. A Pass degree will be granted on completion of courses amounting to 60 units chosen in conformity with Calendar regulations.

Students holding the degree of B.A. from this University may proceed to the degree of B.Com. by completing 15 additional units of work, provided that the additional units are chosen so as to complete the requirements for the B.Com. degree.

It is also possible to obtain the B.A. and B.Com. degrees concurrently in five years on completion of 75 units chosen so as to cover the requirements for both degrees.

No distinction is made between Pass and Honour students in the First and Second Years; but a student will not be accepted as a candidate for Honours in the Third Year unless he has obtained an average of second class on the courses required to be taken in the Second Year.

While the B.A. degree can be completed in one year by students holding the B.Com. degree, the converse is not true, as work in two consecutive years is required for the B.Com. degree in both Accountany and Commercial Law. It is, however, possible for students who are taking the combined degree in five years to qualify for the B.A. degree at the end of four years by taking additional courses either in Winter or Summer Session to make up for the six units of Accountancy and Commercial Law 1 which do not count towards the B.A. degree.

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.

During the summer vacations students are advised to obtain as much business experience as possible.

FIRST YEAR

The following courses comprising 15 units are required:

English 1.

The first course in a language offered for matriculation (Latin or French or German or Greek).

Mathematics 1.

Economics 1.

One course selected from the following: Biology 1, Chemistry 1, Physics 1, or Physics 2.

SECOND YEAR

The following courses comprising 15 units are required:

English 2.

A continuation course in the language taken in the First Year.

Mathematics 3.

Economics 2.

Economics 10.

A clear academic record at the end of the Second Year will be required of students proceeding to the Third Year.

In view of the importance which rightly attaches to the capacity for adequate and clear expression in writing, regulation 13, on page 81 of the Calendar, will be rigidly enforced at the end of the Second Year, and reasonable legibility in handwriting will be insisted on.

To ensure the conformity of their courses to Calendar regulations, all students in their Second Year are advised to submit to the Dean of the Faculty, on or before March 31 of each year, a scheme of the courses they propose to take during their last two years.

THIRD AND FOURTH YEARS

The requirements of the Third and Fourth Years comprise 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. Courses must be chosen in conformity with the requirements that follow.

Each student must take:

(a) An additional course in a language already taken for credit in the first two years, that is French, German or Latin (to be taken in the Third Year) *or* an additional course in English. 3 units.

(b) The following seven courses:
Economics 4. (Money and Banking.)
Economics 6. (Foreign Trade.)
Economics 17. (Commercial Law 1.)
Economics 18. (Commercial Law 2.)
Economics 14. (Accountancy 1.)
Economics 12. (Statistics 1.)
Economics 15 or 16. (Accountancy 2 or 3.) 21 units.

(c) One of the following courses:
Economics 19. (Marketing.)
Economics 13. (Statistics 2.)
Economics 11. (Transportation.) 3 units.

(d) Mathematics 3, if not already chosen, otherwise one course—not already chosen—selected from the following:
Economics 15 or 16. (Accountancy 2 or 3.)
Economics 13. (Statistics 2.)
Economics 11 (Transportation).
Government 1.
Government 4.
Economics 5 (Taxation).
Mathematics 2.
Education (3 units).
English, if not chosen under (*a*), (3 units).
Additional course in Latin, French or German.
Geology (3 units).
Forestry (3 units).
Mining (3 units).
Agricultural Economics 1.
Biology (3 units). 3 units.

In the Fourth Year satisfactory work must be done in connection with a discussion class of one hour a week.

HONOURS

1. Candidates for Honours are required to take Statistics 2 and to present a graduating essay embodying the results of some investigation that they have made independently. Credit for the graduating essay will be 3 units. These requirements take the place of the options offered to Pass students under (c) and (d) above.

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

3. Honours are of two grades—First Class and Second Class. First Class Honours will not be given unless the Graduating Essay is First Class nor will Second Class Honours be given unless the Graduating Essay is at least Second Class. Students who, in the opinion of the department, have not attained a sufficiently high ranking for Honours may be awarded a Pass degree.

COURSES LEADING TO THE DEGREE OF M.A.

1. Candidates for the M.A. degree must hold the B.A. 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, on or before September 1, 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. The fee for examination of certificates is $2.00. This fee must accompany the application.

3. Candidates with approved degrees and academic records who proceed to the Master's degree shall be required:

To spend one year in resident graduate study; or

(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.

4. One major and one minor shall be required. In general the minor shall be taken outside the Department in which the student is taking his major, but special permission may be given by the

Faculty to take both major and minor in the same department, provided the subjects are different and are under different professors. The major or the minor may, with the consent of the Department or the Departments concerned, be extended to include work in an allied subject.

5. Two typewritten copies of each thesis, on standardized thesis paper, shall be submitted. (See special circular of "Instructions for the Preparation of Masters' Theses.")

6. Application for admission as a graduate student shall be made to the Registrar by October 1st.

7. The following requirements apply to all Departments:

Prerequisites:

Minor: For a minor, courses regularly offered in the Third and Fourth Years amounting to at least six units are prerequisite, and at least second class standing must have been obtained in each of these courses. For details of requirements, see regulations of the several departments.

Major: For a major, courses regularly offered in the Third and Fourth Years amounting to at least eight units are prerequisite, and at least second class standing must have been obtained in each of these courses. For details of requirements, see regulations of the several departments.

Students who have not fulfilled the requirements outlined above during their undergraduate course may fulfil the same by devoting more than one academic year's study to the M.A. work.

M.A. Courses:

Minor: Five or six units of regular Third or Fourth Year work, or equivalents in reading courses. Examinations to be written, or oral, or both at the discretion of the Department concerned. At least second class standing is required in the subjects of the minor.

Major: Nine or ten units of regular Third or Fourth Year work, or equivalents in reading courses, of which units three to six shall be counted for the thesis.

All candidates must submit to a general examination on the major field. This examination may be written, or oral, or both, at the discretion of the Department concerned.

At least second class standing is required in the work of the major.

Languages: No candidate will receive the degree of M.A. who has not satisfied the Head of the Department in which he is majoring of his ability to read technical articles either in French or in German.

8. Philosophy 7 and 9 will be accepted as prerequisites for a minor in Education, if these subjects have not already been counted as prerequisites towards a major or a minor in Philosophy.

Graduate students, who are Assistants, giving not more than four hours a week of tutorial instruction, are permitted to qualify for the M.A. degree after one regular winter session of University attendance, provided they have done, in the summer vacation, 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 shall not be allowed to come up for final examination in less than two academic years after registration as M.A. students.

The following special requirements are prescribed by different departments:

Bacteriology

Prerequisites:

Minor: Bacteriology 1, 2, 3, and 6.

Major: Bacteriology 1, 2, 5, and Bacteriology 3 or 6.

M.A. Course:

Minor: A minimum of five units chosen in consultation with the Department.

Major: Thesis, five or six units, and other courses to complete the required units.

Biology (Botany Option)

Prerequisites:

Minor: Biology 1, and six additional units in Botany and Zoology.

Major: Biology 1, Botany 1, and eight additional units, including Zoology 1.

M.A. Course:

Minor: A minimum of five units chosen in consultation with the Department.

Major: Thesis, at least five units, and other courses to complete the required units.

Biology (Zoology Option)

Prerequisites:

Minor: Biology 1, and six additional units in Botany and Zoology.

Major: Biology 1, Zoology 1, and eight additional units, including Botany 1.

M.A. Course:

Minor: A minimum of five units chosen in consultation with the Department.

Major: Thesis, at least five units, and other courses to complete the required number of units.

Economics

Prerequisites:

Minor: A minimum of fifteen units of work in subjects in the Department, or an equivalent. The fifteen units must include Economics 4, Economics 9, and Statistics 1.

Major: Honours in Economics; or in Economics in combination with some other subject; or an equivalent.

Economics and Political Science

Prerequisites:

Minor: A minimum of fifteen units in the Department (or an equivalent), including Government 1 and Statistics 1.

Major: Honours in Economics and Political Science; or in Economics; or in Economics in combination with some other subject; or an equivalent.

M.A. Course:

All candidates for the Master's degree in this Department must attend the Honour Seminar.

English

Prerequisites:

Minor: At least nine units of credit for English courses elective in the Third and Fourth years of the undergraduate curriculum.

Major: At least fifteen units of credit for courses elective in the Third and Fourth years.

M.A. Course:

Minor: Six units of credit in advanced courses in English not already taken.

Major: (*a*) Twelve units of credit in advanced courses not already taken, one of which courses must be English 21a, or its equivalent, if this has not been previously offered for credit.

(*b*) A graduating essay which will count as an advanced course involving three units of credit.

(*c*) Oral examinations on the history of English Literature.

(*d*) A reading knowledge of either French or German. A student who offers both languages will be allowed three units of credit towards the M.A. degree.

French

Detailed Study:

(*a*) O.F.—*Aucassin et Nicolette.*

(*b*) *XVIth Century*—Authors: Rabelais, Ronsard and Montaigne [see under French 5(b)].

Less Detailed:

(*c*) *XVIIth Century and after*—The evolution of the French Novel, particularly the novels treated in Le Breton's *Roman au XVIIe siècle,* and the chief Romantic Novels.

(*d*) *XVIIIth Century*—Beaumarchais, *Barbier de Seville.* Rousseau, *La Nouvelle Héloise—Emile.* Diderot, *Le Neveu de Rameau.* Voltaire, *Les Lettres philosophiques.*

(*e*) *XIXth Century*—Auzas, *La Poésie au 19e siècle,* Oxford. Alfred de Musset, *Théâtre.* Oxford. Rostand, *Cyrano de Bergerac,* Fasquelle.

(*f*) A general knowledge of French literary history from XVIth Century to end of XIXth. This not to be detailed, but to treat of main movements.

(*g*) A thesis in French on a subject to be approved by the Head of the Department.

NOTE:—It is expected that the candidate will have read and will be able to discuss three plays of Molière, three of Corneille, three of Racine, and something of Boileau, Bossuet, Chateaubriand, La Fontaine, Lamartine, Victor Hugo, Balzac, Flaubert, Anatole France.

Some help will be given by lectures, explanations of texts, and advice in reading; but the Department cannot undertake to cover the whole or any considerable part of the syllabus.

History

Prerequisites:

Minor: Three courses (nine units) to be chosen from History 10 to 20 inclusive.

Major: Four courses (twelve units) to be chosen from History 10 to 20 inclusive.

M.A. Course:

Minor: Two courses (six units) to be chosen from History 10 to 20 inclusive, or the equivalent in Reading Courses.

Major: Two related courses (six units) to be chosen from History 10 to 20 inclusive, or the equivalent in Reading Courses, and a thesis embodying original work to which 3 units of credit are given. All candidates for a major in History who have not already done so must attend the Honours Seminar in Historical Method, or submit to an examination on a parallel Reading Course approved by the Department.

Mathematics

Prerequisites:

Minor: Mathematics 10 and at least two other Honour Courses.

Major: Candidates must have completed the Honour Course in Mathematics, or its equivalent.

M.A. Course:

Minor: Mathematics 16 and an additional three units to be chosen from the Honour Courses.

Major: Any four of the graduate courses and a thesis.

Physics

Prerequisites:

Minor: Physics 3 and 5 and at least two more units of work regularly offered in the Third or Fourth Year.

Major: At least eight units of work regularly offered in the Third and Fourth Years.

M.A. Course:

Minor: Six units of work in advanced courses in Physics not already taken.

Major: (*a*) At least six units of work in the graduate courses. (*b*) A thesis.

TEACHER TRAINING COURSE

Candidates qualifying for the "Academic Certificate" (given by the Provincial Department of Education, Victoria, on the completion of the Teacher Training Course) take the courses prescribed on Pages 102, 103. These courses are open only to graduates registered in the Teacher Training Course.

1. REGISTRATION

Documentary evidence of graduation in Arts or Science 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, from whom registration cards may be procured.

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 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 (1) History and Principles of Education, and (2) Educational Psychology 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 IN ARTS AND SCIENCE

Candidates will not be admitted to courses in High School Methods unless they have obtained at least nine (9) units of credit in each of the corresponding subjects from the academic courses normally offered in the Third and Fourth Years. Special cases will be decided on their merits by the Head of the Department concerned and by the Professor of Education. (The academic courses referred to above are English, History, Mathematics, etc., and not courses in Education.)

4. A description of the courses offered is given under Department of Education.

COURSES LEADING TO THE SOCIAL SERVICE DIPLOMA

The Diploma in Social Service will be granted on the completion of courses amounting to 30 units chosen in conformity with the following outline:

First Year:

Biology 1 (Introductory Biology)	3 units
Economics 1 (Principles of Economics) *or* Economics 2 (Economic History)	3 units
English 1 (Literature and Composition)	3 units
Social Service 1 ((Introduction)	2 units
Social Service 2 (Case Work)	1 unit
Social Service 3 (Child Welfare)	1 unit
Social Service 4 (Hygiene)	1 unit
Social Service 9 (Field Work Seminar)	1 unit

Second Year:

Either one of:	
Philosophy 1 (Psychology) Nursing 24 (Psychology for Nurses) *and* Nursing 27 (The Family)	2 units
Any two of:	
Philosophy 8 (Social Psychology) Philosophy 9 (Child Psychology) Economics 3 (Labour Problems)	6 units
Sociology 1 (General Sociology)	3 units
Social Service 5 (Advanced Case Work)	1 unit
Social Service 6 (Advanced Child Welfare)	1 unit
Social Service 7 (Group Work)	
Social Service 10 (Field Work Seminar)	1 unit
Social Service 11 (Administration)	1 unit

A minimum of eight hours' field work each week for four terms is required. A student must, in addition, spend two months with an accredited social agency as a full-time worker under supervision prior to registration for the technical courses of the second year. The agency is not responsible for expenses (such as carfare) incident to the field work.

Graduates in Arts and Science, who have some experience in social work, and who have taken as part of their undergraduate courses a sufficient number of the subjects required for the Diploma in Social Service to enable them to devote additional time to field work, may be allowed to obtain the Diploma in one Winter Session and the succeeding Summer Session.

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. The passing mark will be 50 per cent. in each subject, except in the case of First and Second Year students who, during one session, do 15 units of regular work, in which case a percentage of 50 or more will be required in each subject *or* a general average of 60 per cent. and not less than 40 per cent. in each subject. In Beginners' German, however, the passing mark is 50 per cent. 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 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 student who makes 50 per cent. of the total required for a full year's work (at least 15 units chosen in conformity with Calendar regulations), but who fails in an individual subject will be granted a supplemental examination in that subject if he has not fallen below 30 per cent. in that subject. If his mark is below 30 per cent. a supplemental examination will not be granted. Notice will be sent to all students to whom supplemental examinations have been granted.

A student who makes less than 50 per cent. of the total required for a full year's work (15 units) will not be allowed a supplemental examination.

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. A re-reading of an examination paper will be granted only with the consent of the Head of the Department concerned. 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. To pass a supplemental examination a candidate must obtain at least 50 per cent.

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 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 at least two weeks before the date set for the examinations.

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 69, and in reference to admission to Second Year Applied Science, page 60.)

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, shall 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.

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 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 exempt 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.

11. A student who fails twice in the work of the same year may, upon the recommendation of the Faculty, be required by the Senate to withdraw from the University.

12. Any student whose academic record, as determined by the tests and examinations of the first term 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 supplementary examinations are outstanding.

13. 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 IN ARTS AND SCIENCE

Department of Bacteriology

Professor: Hibbert Winslow Hill. (On leave of absence.)
Assistant Professor: D. C. B. Duff.
Instructor: Helen M. Mathews.

1. *General 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 and various bactericidal substances and conditions will be studied. The relationship of bacteria to agriculture, household science, and public health will be carefully considered.

Text-book: Lutman, *Microbiology,* latest edition, McGraw-Hill.

Students proceeding to Bacteriology 2 need procure Park, Williams & Krumweide only (see Bacteriology 2).

Prerequisites: Chemistry 1, and Biology 1.

Seven hours a week. First Term. 2 units.

2. *Special Bacteriology.* — A course consisting of lectures, demonstrations, and laboratory work.

The more common pathogenic bacteria will be studied, together with the reactions of the animal body against invasion by these bacteria. The course will include demonstrations in immunity and the various diagnostic methods in use in public health laboratories.

Text-book: Park, Williams & Krumwiede, *Pathogenic Microorganisms,* latest edition, Lea & Febiger.

Prerequisite: Bacteriology 1.

Seven hours a week. Second Term. 2 units.

3. As in Dairying 3 (under Faculty of Agriculture). 1½ units.

4. As in Dairying B (under Faculty of Agriculture). 1½ units.

5. *Advanced Bacteriology.*—A reading and laboratory course, including immunology. Tutorial instruction of one hour per week; laboratory and demonstration hours to be arranged with the class.

Prerequisites: Bacteriology 1 and 2, with at least second class standing in Bacteriology 2. 3 units.

6. *Soil Bacteriology.*—A laboratory and lecture course, in which the bacteria of soils are studied qualitatively and quantitatively, with special reference to soil fertility.

Text-book: Löhnis and Fred, *Text-book of Agricultural Bacteriology,* latest edition, McGraw-Hill.

Prerequisite: Bacteriology 1.
Six hours a week. First Term. 2 units.

7. As in Dairying 7 (under Faculty of Agriculture). 3 units.

8. *Reading Course in Bacteriology*—A directed reading course in advanced bacteriology or immunity. Written or oral examination to be given at the discretion of the department.

Prerequisites: Bacteriology 1, 2 and 5. (The course in certain cases may run concurrently with Bacteriology 5.) 3 units.

Department of Botany

Professor: A. H. Hutchinson.
Associate Professor: Frank Dickson.
Associate Professor: John Davidson.
Assistant: E. Miriam R. Ashton.
Assistant: Edgar Black.
Assistant: Norah Hughes.
Assistant: Elizabeth Halley.

Biology

1. *Introductory Biology.*—The course is introductory to more advanced work in Botany or Zoology; also to courses closely related to Biological Science, such as Agriculture, Forestry, Medicine.

The fundamental principles of Biology; the interrelationship of plants and animals; life processes; the cell and division of labour; life-histories; relation to environment.

The course is prerequisite to all courses in Botany and Zoology.

A list of Reference Books is supplied.

Two lectures and two hours laboratory a week. 3 units.

2. (*a*) *Principles of Genetics.*—The fundamentals of Genetics illustrated by the race histories of certain plants and animals; the physical basis of heredity; variations; mutations; acquired characters; Mendel's law with suggested applications.

Text-book: Castle, *Genetics and Eugenics,* Harvard Press.

Prerequisite: Biology 1.
Two lectures and one laboratory period a week. First Term. 1½ units.

2. (*b*) *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.

Text-book: Sinnott and Dunn, *Principles of Genetics,* McGraw-Hill.

Prerequisite: Biology 2 (a).
One lecture and four hours laboratory a week. Second Term. 1½ units.

2. (*c*) An introduction to biometrical methods as applied to genetics.

Prerequisite: Biology 2 (*a*).
One lecture and two hours laboratory a week. Second Term. 1 unit.

2. (*d*) A review of advanced phases and the more recent development in genetics.

Prerequisite: Biology 2 (*b*).
Two hours a week. First Term.

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: Bayliss, *Principles of General Physiology,* Longmans, Green.

Two lectures and three hours laboratory a week. Reference reading. Second term. 3 units.

Botany

1. *General Botany.*—A course including a general survey of the several fields of Botany and introductory to more specialized courses in Botany.

This course is prerequisite to all other courses in Botany, except the Evening Course. Partial credit (2 units) toward Botany 1 may be obtained through the Evening Course.

Text-book: Coulter, Barnes & Cowles, *Text-book of Botany,* Vol. I, University of Chicago Press.

Prerequisite: Biology 1.
Two lectures and two hours laboratory a week. 3 units.

2. *Morphology.*—A comparative study of plant structures. The relationship 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.

Text-book: Coulter, Barnes & Cowles, *Text-book of Botany,* Vol. I, University of Chicago Press.

Prerequisite: Botany 1.

Two lectures and four hours laboratory a week. First Term. (Not given in 1933-34.) 2 units.

3. *Plant Physiology.*

3. (*a*) A course dealing with the fundamental life processes in plants, such as nutrition, photosynthesis, absorption, permeability, respiration, transpiration and growth. This course is prerequisite for Botany 3 (b) and 3 (c).

Text-book: O. Raber, *Principles of Plant Physiology,* 1929, Macmillan.

Prerequisite: Botany 1.

Two lectures and four hours laboratory work a week. First Term. 2 units.

3. (*b*) This course comprises a more advanced study of the organic constituents of plants and the physiological changes occurring during plant growth.

Prerequisite: Botany 3 (*a*).

Two lectures and four hours laboratory work a week. First Term. 2 units.

3. (*c*) A course similar to Botany 3 (*a*) designed to train students of the plant sciences in an understanding of the interrelations of plants and soils.

Prerequisite: Botany 3 (*a*).

Two lectures and four hours laboratory work a week. Second Term. 2 units.

4. *Histology.*—A study of the structure and development of plants; methods of killing, fixing, embedding, sectioning, staining, mounting, drawing, reconstruction. Use of microscope, camera lucida, photo-micrographic apparatus.

Text-books: Eames and McDaniels, *Introduction to Plant Anatomy,* McGraw-Hill. Chamberlain, *Methods in Plant Histology,* University of Chicago Press.

Prerequisite: Botany 1.

Seven hours a week. Second Term. 2 units.

5. *Systematic Botany.*

5. (*a*) *Economic Flora.*—An introduction to the classification of plants through a study of selected families of economic plants of British Columbia; useful for food, fodder, medicine and industrial arts; harmful to crops and stock. Weeds, and poisonous plants. Methods of control.

Prerequisite: Botany 1.

Texts: Jepson, *Economic Plants of California,* University of California; Thomson & Sifton, *Poisonous Plants and Weed Seeds,* University of Toronto Press.

Two lectures and two hours laboratory a week. First Term. 1½ units.

5. (*b*) *Dendrology.*—A study of the forest trees of Canada, the common shrubs of British Columbia, the important trees of the United States which are not native to Canada. Emphasis on the species of economic importance. Identification, distribution, relative importance, construction of keys.

Prerequisite: Botany 1.

Text-books: Morton & Lewis, *Native Trees of Canada,* Dominion Forestry Branch, Ottawa; Sudworth, *Forest Trees of the Pacific Slope,* Superintendent of Documents, Washington; Davidson and Abercrombie, *Conifers, Junipers and Yew,* T. F. Unwin.

One lecture and one period of two or three hours laboratory or field work a week. 2 units.

5. (*c*) *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.

Prerequisites: Botany 1 and 5 (*a*).

Texts: Hitchcock, *Descriptive Systematic Botany,* Wiley & Sons; Henry, *Flora of Southern British Columbia,* Gage, Toronto.

One lecture and four hours laboratory a week. Second Term. 1½ units.

6. (*b*) *Forest Pathology.*—Nature, identification and control of the more important tree-destroying fungi and other plant parasites of the forest.

Text-book: Rankin, *Manual of Tree Diseases,* Macmillan.

One lecture and two hours laboratory a week during one-half of the Second Term. 1½ units.

6. (*c*) *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, *Manual of Plant Diseases,* McGraw-Hill.

Prerequisite: Botany 1.

Two lectures and four hours laboratory a week. Second Term. 2 units.

6 (*d*) *Plant Pathology* (*Advanced*).—A course designed for Honour 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.

Prerequisite: Botany 6 (*c*).
Two lectures and four hours laboratory a week. 3 units.

6 (*e*) *Mycology.*—A course designed to give the student a general knowledge of the fungi from a taxonomic point of view.
Text-books: Stevens, *Plant Disease Fungi,* Macmillan.
Prerequisite: Botany 1.
Two lectures and four hours laboratory a week. Credit will be given for a collection of fungi made during the summer preceding the course. First Term. 2 units.

6 (*f*) *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 6 (*c*).
One lecture a week. Second Term. ½ unit.
(Not given in 1933-34.)

7. *Plant Ecology.*

7 (*a*) *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.
Reference books: Whitford and Craig, *Forests of British Columbia,* Ottawa; Zon and Sparhawk, *Forests of the World,* McGraw-Hill; Hardy, *The Geography of Plants,* Oxford University Press.
Prerequisite: Botany 1.
One lecture and one period of field and practical work a week. First Term. 1 unit.

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 1 is a prerequisite

in the case of students desiring credit for this course. This course may be substituted for the lecture part of Botany; but credit is not given until the laboratory work is complete.

Other students desiring 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 had on request.

Department of Chemistry

Professor: R. H. Clark.
Professor of Analytical Chemistry: E. H. Archibald.
Associate Professor: W. F. Seyer.
Associate Professor: M. J. Marshall.
Assistant Professor: William Ure.
Assistant: Ralph G. D. Moore.
Assistant: Allan Bell.
Assistant: Lisle Hodnett.
Assistant: Norman Phillips.
Assistant: Munro McArthur.
Assistant: F. Arthur DeLisle.

1. *General Chemistry.*—The course comprises a general survey of the whole field of Chemistry and is designed on the one hand to provide a thorough groundwork for further study in the sciences and on the other to give an insight into the methods of chemical investigation, the fundamental theories and some important applications such as are suitable to the needs of a cultural education. Students must reach the required standard in both lecture and laboratory work.

Texts: *Smith's College Chemistry,* revised by Kendall, 1929 Edition, the Century Co. 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.

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.

Text: A. A. Noyes, *Qualitative Analysis,* Macmillan.

Reference: Miller, *The Elementary Theory of Qualitative Analysis,* The Century Co.

One lecture and six hours laboratory a week. First Term.

(*b*) *Quantitative Analysis.*—This course embraces the more important methods of gravimetric and volumetric analysis.

Text-book: Engelder, *Elementary Quantitative Analysis,* John Wiley & Sons.

Prerequisite: Chemistry 1.

One lecture and six hours laboratory a week. Second Term. 3 units.

Course (*b*) must be preceded by Course (*a*).

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 3 will only be given to those students taking Chemistry 2, or those who have had the equivalent of Chemistry 2.

Books recommended: Holleman-Walker, *Text-book of Organic Chemistry,* Wiley; Gatterman-Wielands, *Laboratory Methods of Organic Chemistry,* Macmillan.

Two lectures and three hours laboratory a week. 3 units.

4 (*a*) *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: Millard, *Physical Chemistry for Colleges,* McGraw-Hill.

Reference: Noyes and Sherrill, *Chemical Principles,* Macmillan.

For laboratory use: Findlay, *Practical, Physical, Chemistry,* Longmans; and Sherrill, *Laboratory Experiments on Physical Chemical Principles,* Macmillan.

Prerequisites: Chemistry 2 (except for students majoring in Physics) and Mathematics 2. Honour students majoring in Chemistry should take Mathematics 10 concurrently.

Two lectures and three hours laboratory a week. 3 units.

4 (*b*) This course is the same as Chemistry 4 (*a*) with the omission of the laboratory, and is open only to students not majoring in Chemistry. 2 units.

5 *Advanced Qualitative and Quantitative Analysis.*

(*a*) *Qualitative Analysis.*—The work of this course will include the detection and separation of the less common metals, particularly those that are important industrially, together with the analysis of somewhat complex substances occurring in nature.

One lecture and six hours laboratory a week. First Term.

(*b*) *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 was possible in the elementary course.

Prerequisite: Chemistry 2.

One lecture and six hours laboratory a week. Second Term. 3 units.

6. *Industrial Chemistry.*—Those industries which are dependent on the facts and principles of Chemistry will be considered in as much detail as time will permit. The lectures will be supplemented by visits to manufacturing establishments in the neighbourhood, and it is hoped that some lectures will be given by specialists in their respective fields.

Prerequisites: Chemistry 2, 3 and 4.

Two lectures a week. 2 units.

7. *Physical Chemistry.*—This course is a continuation of Chemistry 4 and treats in more detail the kinetic theory of gases, properties of liquids and solids, elementary thermodynamics and thermochemistry, properties of solutions, theoretical electrochemistry, chemical equilibrium, kinetics of reactions, radioactivity.

Books recommended: Getman, *Outlines of Theoretical Chemistry,* Wiley; Noyes and Sherrill, *Chemical Principles,* Macmillan; for Laboratory: Sherrill, *Laboratory Experiments on Physico-Chemical Principles,* Macmillan; Findlay, *Practical Physical Chemistry,* Longmans.

Prerequisites: Chemistry 2, 3 and 4. Mathematics 10, which may be taken concurrently.

Two lectures and three hours laboratory a week. 3 units.

8. *Electrochemistry.*—(*a*) Solutions are studied from the standpoint of the osmotic and dissociation theories. The laws of electrolysis, electroplating, electromotive force, primary and secondary cells are considered in detail.

Texts: LeBlanc, *Elements of Electrochemistry,* Macmillan; Creighton-Fink, *Theoretical Electrochemistry,* Vol. I, Wiley; Allmand, *Applied Electrochemistry,* Longmans.

Two lectures and three hours laboratory a week. First Term. 1½ units.

(*b*) As in Applied Science.

9 (*a*) *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, ureides and purine derivatives and enzyme action.

Two lectures and three hours laboratory a week. First Term. 1½ units.

9 (*b*) The terpenes and alkaloids will be considered. The more complicated types of organic reaction and various theoretical conceptions will be presented. In the laboratory some complex compounds will be prepared and quantitative determinations of carbon, hydrogen, nitrogen, sulphur and the halogens made.

Text: Cohen, *Organic Chemistry,* Arnold.

Prerequisites: Chemistry 2 and 3.

Two lectures and three hours laboratory a week. Second Term. 1½ units.

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's Son.

Two hours a week. Second Term. 1 unit.

11. *Physical Organic Chemistry.*—Stereochemical theories will be discussed in greater detail than in Chemistry 9, 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 of the work done in Electro-Organic Chemistry will be given.

Prerequisites: Chemistry 7 and 9.

One hour a week. 1 unit.

(Given in 1935-36 and alternate years.)

12. *Colloid and Surface 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: Taylor, *The Chemistry of Colloids,* Arnold and Co.; Svedberg, *Colloid Chemistry,* Chemical Catalog Co.; Freundlich, *Colloid Chemistry,* Methuen.

Prerequisites: Chemistry 3 and 4.

Two hours a week. First Term. 1 unit.

(Given in 1934-35 and alternate years.)

17. *Chemical Thermodynamics.*—Study of first, second and third laws. Derivation of fundamental equations and application gas laws, chemical equilibrium, theory of solutions, electro-chemistry and capillarity.

Text-book: Lewis & Randall, *Principles of Thermodynamics,* McGraw-Hill. Reference: Sackur, *Thermochemistry and Thermodynamics,* Macmillan.

Prerequisite: Chemistry 7.

One lecture a week. 1 unit.

(Given in 1935-36 and alternate years.)

18. *Advanced Inorganic Chemistry.*—A more detailed treatment of chemistry of the metals than is possible in Chemistry 1, together with the Chemistry of the Rare Elements.

Prerequisites: Chemistry 2 and 4.

Two lectures a week. Second Term. 1 unit.

(Given in 1934-35 and alternate years.)

19. *Biochemistry.*—This course will deal with such topics as, some special applications of colloid chemistry to Biology, the determination of hydrogen-ion concentration, the chemical and physical processes involved in the digestion, absorption and assimilation of foodstuffs in the animal body, the intermediate and ultimate products of metabolism, and nutrition.

Prerequisites: Chemistry 3 and 9 (*a*). Chemistry 9 (*a*) and 19 may, on permission, be taken conjointly.

Two lectures a week. Second Term. 1 unit.

(Given in 1934-35.)

20. *Methods in Teaching High School Chemistry.*—This course is offered primarily for students in the Teacher Training Course and does not carry undergraduate credit.

References: Black and Conant, *Practical Chemistry,* The Macmillan Company. *Smith's College Chemistry,* revised by Kendall, 1929 Edition. The Century Company.

Two lectures a week. First Term.

21. *Chemical Kinetics.*—The applications of statistical mechanics to chemical problems, such as the rates of thermal and photochemical reactions, and the emission and absorption of radiation by molecules. The Quantum theory as applied to molecular processes and band spectra.

Reference: Tolman, *Statistical Mechanics with Applications to Physics and Chemistry.*

Two lectures a week. Second Term. 1 unit.

(Given in 1934-35 and alternate years.)

Department of Classics

Professor: Lemuel Robertson.
Professor: O. J. Todd.
Professor: H. T. Logan.

Greek

A.—*Homeric Greek, A Book for Beginners,* Clyde Pharr, Heath.

History.—Robertson and Robertson, *The Story of Greece and Rome,* Chap. I-XXXII.

Four hours a week. 3 units.

2. *Lectures.*—Homer, *Iliad* I, 304-611 and VI; Plato, *Apology,* Adam, Pitt Press.

Composition.—North and Hillard, *Greek Prose Composition,* Longmans & Green. Selected passages will occasionally be set for Unseen Translation.

Literature.—Norwood, *The Writers of Greece.*

Four hours a week. 3 units.

3. *Lectures.*—Thucydides, *History, Book VII,* Marchant, Macmillan; Sophocles, *Antigone,* Jebb and Shuckburgh, Cambridge; Euripides, *Iphigenia at Aulis,* Headlam, Cambridge.
Three hours a week. 3 units.
(Given in 1934-35 and alternate years.)

5. *Lectures.*—Homer, *Iliad* (Selections), Monro, *Iliad,* 2 Vols., Oxford; *Greek Elegiac, Iambic,* and *Lyric Poets,* Harvard; Demosthenes, *Third Olynthiac* and *Third Philippic,* Butcher, Oxford (Vol. I).
Three hours a week. 3 units.
(Given in 1935-36 and alternate years.)

6. *Lectures.*—*Herodoti Historiae* (selections), Hude, Oxford; *Lysiae Orationes XVI* (selections), Shuckburgh, Macmillan; Aristophanes, *The Birds,* Hall and Geldart, Oxford. (Open only to those who have taken or are taking Greek 3 or 5.)
Three hours a week. 3 units.
(Given in 1934-35 and alternate years.)

7. *Lectures.*—Aristotle, *Ars Poetica,* Bywater, Oxford; Plato, *The Republic* (selections), Burnet, Oxford. (Open only to those who have taken or are taking Greek 3 or 5.)
Three hours a week. 3 units.
(Given in 1935-36 and alternate years.)

8. *Composition.*—Obligatory for Honour students; to be taken in both Third and Fourth Years. 1 unit.

9. *Greek History to 14 A.D.*—The course will begin with a brief survey of contributory civilizations of pre-Hellenic times and will include a study of social and political life in the Greek world during the period. Knowledge of Greek is not prerequisite.
Text-books: M. L. W. Laistner, *Greek History,* Heath; E. S. Shuckburgh, *Greece,* Fisher Unwin.
Three hours a week. 3 units.
(Given in 1935-36 and alternate years.)

Latin

1. *Lectures.*—Cicero, *De Senectute,* Shuckburgh-Egbert, Macmillan; *A Book of Latin Poetry,* Neville, Jolliffe, Dale and Breslove, Macmillan.

Composition.—Pilsbury, *Latin Prose Composition,* Clarendon Press.

History.—Robertson and Robertson, *The Story of Greece and Rome,* Dent, Chap. I to XXXII.
Three hours a week. 3 units.

2. (*a*) *Lectures.*—*A Book of Latin Poetry,* Macmillan; Cicero, *Pro Archia,* Nall, Macmillan; Horace, *Odes III,* Page, Macmillan.
History.—Robertson and Robertson, *The Story of Greece and Rome, Dent,* Chap. XXXII-LIV.
Three hours a week. 3 units.

2. (*b*) *Lectures.*—Cicero, *Pro Archia,* Nall, Macmillan; *A Book of Latin Poetry,* Macmillan.
History.—Robertson and Robertson, *The Story of Greece and Rome,* Dent, Chap. XXXII-LIV.
Literature.—Duff, *Writers of Rome,* Oxford.
Composition.—Pilsbury, *Latin Prose Composition,* Clarendon Press.
All students are expected to provide themselves with Allen and Greenough *New Latin Grammar.*
Three hours a week. 3 units.

2 (*a*) and 2 (*b*) are alternate courses; students intending to read for Honours in the Third and Fourth Years are expected, and students intending to offer Latin as a subject in the Education course, are advised to take Latin 2 (*b*).

3. *Lectures.*—Terence, *Phormio,* Bond and Walpole, Macmillan; Virgil, *Bucolics and Georgics,* Page, Macmillan.
Three hours a week. 3 units.
(Given in 1934-35 and alternate years.)

4. *Lectures.*—Tacitus, *Histories, I, II,* Godley, Macmillan; Horace, *Epistles,* Wilkins, Macmillan.
Literature.—Duff, *Writers of Rome,* Oxford.
Three hours a week. 3 units.
(Given in 1935-36 and alternate years.)

5. *Lectures.*—Avery, *Latin Prose Literature* (selections 34-40, 44, 50-51, 56, 59-66), Little, Brown & Co.; Juvenal, *Satires,* Duff, Cambridge.
Three hours a week. 3 units.
(Given in 1934-35 and alternate years.)

6. *Lectures.*—Avery, *Latin Prose Literature,* Little, Brown & Co.; Garrod, *Oxford Book of Latin Verse* (selections), Oxford.
Three hours a week. 3 units.
(Given in 1935-36 and alternate years.)

7. *Lectures.*—Roman History from 133 B.C. to 180 A.D.
Text-books: *A Short History of the Roman Republic,* Heitland, Cambridge; *A Short History of the Roman Empire,* Wells and Barrow, Methuen.
A knowledge of Latin is not prerequisite for this course.
Three hours a week. 3 units.
(Given in 1934-35 and alternate years.)

8. *Composition.*—Obligatory for Honour students; to be taken in both Third and Fourth Years.

One lecture a week; individual conferences at the pleasure of the instructor. 1 unit.

9. *Methods in High School Latin.* Spring term only. This course is offered primarily for students in the Teacher Training Course, and does not carry undergraduate credit. Readings to be assigned.

Two hours a week.

Department of Economics, Political Science, Commerce and Sociology

Professor: H. F. Angus.
Professor: W. A. Carrothers. (On leave of absence.)
Associate Professor: J. Friend Day.
Associate Professor: C. W. Topping.
Associate Professor: G. F. Drummond.
Lecturer in Accountancy: Frederick Field.
Lecturer in Commercial Law: F. K. Collins.
Lecturer in Commercial Law: Reginald H. Tupper.
Lecturer in Economics: W. H. Taylor.
Assistant: Gordon W. Stead.

HONORARY LECTURERS:

J. Howard T. Falk.
Laura Holland, O.B.E., Cert. School of Social Work (Simmons College), Part-time Lecturer (Social Service Course).
Mary McPhedran, Diploma, Social Service Department (Toronto), Part-time Lecturer (Social Service Course).
Edna Pearce, B.S. (Knox, Illinois), Supervisor of Field Work, (Social Service Course).
Miss Zella Collins.

Economics

1. *Principles of Economics.*—An introductory study of general economic theory, including a survey of the principles of value, prices, money and banking, international trade, tariffs, monopoly, taxation, labour and wages, socialism, the control of railways and trusts, etc.

Deibler, *Principles of Economics,* McGraw-Hill; Cole, *Intelligent Man's Guide Through World Chaos,* Ryerson; *The Canada Year Book, 1933.*

Additional readings will be assigned for students offering this course for credit in the Third or Fourth Year.

Economics 1 is the prerequisite for all other courses in this department, but may be taken concurrently with Economics 2, with Sociology 1, or with Government 1.

Three hours a week. 3 units.

2. *Economic History.* — A survey of the factors of economic significance from earliest recorded times, leading to consideration of the more important phases of European organisation, with special reference to the Industrial Revolution, the progress of agriculture, and resultant social conditions.

Southgate, *English Economic History,* Dent; Toynbee, *Industrial Revolution,* Longmans; Knowles, *Industrial and Commercial Revolutions,* Dutton; and assigned readings.

Three hours a week. Mr. Day. 3 units.

3. *Labour Problems and Social Reform.*—A study of the rise of the factory system and capitalistic production, and of the more important phases of trade unionism in England, Canada and the United States. A critical analysis of various solutions of the labour problem attempted and proposed; profit-sharing, co-operation, arbitration and conciliation, scientific management, labour legislation and socialism.

Patterson, *Social Aspects of Industry,* McGraw-Hill; Simkhovitch, *Marxism versus Socialism,* Williams & Norgate; and assigned readings. Beveridge, *Unemployment,* Longmans.

Three hours a week. 3 units.

(Given in 1935-36 and alternate years.)

4. *Money and Banking.* — The origin and development of money. Banking principles and operations, laws of coinage, credit, price movements, foreign exchange. Banking policy in the leading countries, with particular reference to Canada.

Text: To be assigned.

Readings: G. D. H. Cole, *What Everybody Wants to Know About Money,* London, Gollancz, 1933; L. D. Edie, *Money, Bank Credit and Prices,* Harpers, New York, 1928; and *Report of the Royal Commission on Banking and Currency in Canada,* Ottawa, 1933.

Three hours a week. 3 units.

5. *Government Finance.*—An outline course dealing with the principles and methods of taxation, and administration of public funds. Topics examined include: Growth of taxation methods; theories of justice in taxation, classification, increase, economic effects and control of expenditures; property, business, personal, commodity and inheritance taxes, with reference to Canada, Britain and other countries; the single tax; double taxation; shifting, incidence and economic effects of taxation; flotation, administration, conversion and redemption of government loans.

Text: To be assigned. H. L. Lutz, *Public Finance.*

Readings: E. R. A. Seligman, *Essays in Finance,* 1925; H. Dalton, *Principles of Public Finance,* 1929; A. Comstock, *Taxation in the Modern State,* 1931.

Three hours a week. 3 units.

(Given in 1934-35 and alternate years.)

6. *International Trade and Tariff Policy.*—A survey of the theory of international trade and the foreign exchanges; the balance of trade, foreign investments and other fundamental factors; the problem of Reparations and of War Debts; the protective tariff and commercial imperialism; the commercial policy of the leading countries, with considerable attention to Canada.

Taussig, *International Trade,* Macmillan; Griffin, *Principles of Foreign Trade,* Macmillan; Taussig, *Selected Readings in International Trade and Tariff Problems,* Ginn; and assigned readings.

Three hours a week. Mr. Drummond. 3 units.

7. *Corporation Economics.* — Historical development of the different forms of industrial organization, including the partnership, joint stock company and the corporation, and the later developments, such as the pool, trust, combination and holding company. Methods of promotion and financing, over-capitalization, stock market activities, the public policy toward corporations, etc.

Readings to be assigned.

Three hours a week. 3 units.

(Not given in 1934-35.)

9. *History of Economic Thought.*—A study of the development of modern economic theory, with special reference to the Mercantilists; the Physiocrats; Adam Smith; the Classical School and its critics; the Historical School; Jevons and Austrian School; Marshall; together with a study of recent trends in economic thought.

Text: W. A. Scott, *The Development of Economics,* New York, Century Co., 1933.

Readings: C. Gide & C. Rist, *A History of Economic Doctrines,* New York, D. C. Heath & Co., n.d.; A. Gray, *The Development of Economic Doctrine,* London, Longmans, Green & Co., 1931; T. Veblen, *The Place of Science in Modern Civilization,* New York, Viking Press, 1930.

Three hours a week. 3 units.

(This *may* be made a Reading Course in 1934-35.)

10. *Economic Geography* (formerly Geography 5).—A general survey of the principal resources and industries of the world, with emphasis on those entering into international trade, leading to a study of the principles and problems of transportation by sea.

MacFarlane, *Economic Geography,* latest edition, Pitman; and assigned readings.

Three hours a week. Mr. Day. 3 units.

11. *Transportation.* — A comprehensive study of the fundamentals of railroad development and organization, with the legal and economic problems involved; theory and practice of rate-making; discriminations; factors in public control, etc.

Acworth, *Elements of Railway Economics,* Clarendon Press, Oxford; Jackman, *Economics of Transportation,* University of Toronto Press; and assigned readings.

Three hours a week. 3 units.

(Not given in 1934-35.)

12. *Statistics 1.* — Statistical methods in relation to economic and social investigations. Statistical groups; types of average. Statistical series in time; trend and fluctuation. Index numbers. Methods of measuring correlation. Elementary probabilities and the normal curve of error. Problem of sampling.

Mills, F. C., *Statistical Methods;* Mills, F. C., and Davenport, D. H., *A Manual of Problems and Tables in Statistics,* Henry Holt and Company.

Prerequisite: Mathematics 2 or 3.

One lecture and two hours laboratory work a week. Mr. Drummond. 3 units.

13. *Statistics 2.*—This course is a continuation of Statistics 1, and aims at giving an understanding of statistical technique in its application to problems of business and economic research. It involves a study of more advanced methods of correlation analysis, cyclical fluctuations and business forecasting. In addition to covering a wide course of reading, students will be required to construct tables, diagrams, etc., based on original data (official or private) of the statistics of trade, production, sales, prices, wages, etc., and to write reports and précis.

Texts: Ezekiel, *Methods of Correlation Analysis,* John Wiley & Sons; Riggleman and Frisbee, *Business Statistics,* McGraw-Hill; Haney, *Business Forecasting,* Ginn & Co.; Persons, *The Problem of Business Forecasting,* Houghton Mifflin; Warren-Pearson, *Prices,* Wiley.

Brown, Bingham and Temnomeroff, *Laboratory Hand Book of Statistical Methods,* McGraw-Hill.

Mills, *Economic Tendencies in the United States,* National Bureau of Economic Research.

Assigned readings.

Three hours a week. Mr. Drummond. 3 units.

Courses Open Only to Candidates for the Degree of B.Com.

14. *Accountancy 1.*—An introductory course to give a broad perspective of accounting principles and methods, and to promote an intelligent appreciation of business transactions in their relation to the balance sheet and income account.

Kester, *Accounting Theory and Practice,* Vol. I, Ronald Press; and assigned readings.

Prerequisites: Economics 2, Economics 10, Mathematics 3.

Three hours a week. Mr. Day. 3 units.

15. *Accountancy 2.*—More advanced work in connection with the accounting and financial problems of corporations, including liquidations and consolidations, and the miscellaneous details connected therewith.

Kester, *Accounting Theory and Practice,* Vol. II, Ronald Press; and assigned readings.

Prerequisite: Accountancy 1.

Three hours a week. Mr. Field. 3 units.

16. *Accountancy 3.*—A study of the principles involved in cost accounting, including the practical working through a model set of accounts and a consideration of the managerial use of cost records.

Prerequisite: Accountancy 1.

Three hours a week. 3 units.

(Not given in 1934-35.)

17. *Commercial Law 1.*—The formation, operation, construction and discharge of contracts; bills of exchange, promissory notes and cheques; company law; principal and agent; the Bank Act; sales of goods.

Three hours a week. 3 units.

(Given in 1934-35 and alternate years.)

18. *Commercial Law 2.* — Bankruptcy; mortgages and liens; trusts; partnership; certain principles in the law of real property and landlord and tenant.

Three hours a week. 3 units.

(Given in 1935-36 and alternate years.)

19. *Marketing and Problems in Sales Management.*—A detailed study of marketing functions, leading up to the analysis of problems which have to be solved by sales executives.

Three hours a week. Mr. Day. 3 units.

(Given in 1934-35 and alternate years.)

Agricultural Economics

1. *Agricultural Economics.*—The principles of Economics as applied to Agriculture; historical background, the agricultural problem; and some special topics, such as the agricultural surplus, production in relation to population growth, the farm income and the share of Agriculture in the national income.

Taylor, *Agricultural Economics,* Macmillan.

References and assigned readings from Gray, Carver, Nourse and others.

Three lectures a week. Mr. Clement. 3 units.

2. *Marketing.*—The principles of Marketing as applied to the individual farm and to Agriculture as a whole. The general principles of Marketing, the marketing of agricultural products as compared to wholesale and retail distribution of manufactured goods, the contributions of national Farmer Movements, co-operative marketing as illustrated by the marketing of wheat, fruit and milk in Canada.

Hibbard, *Marketing Agricultural Products,* Appleton; Mackintosh, *Agricultural Co-operation in Western Canada,* Ryerson Press, Toronto; references and assigned readings from Macklin, Boyle, Benton, Black, Patton and others.

Three lectures a week. Mr. Clement. 3 units.

Government

1. *Constitutional Government.* — This course deals with the nature, origin and aims of the State; and with the organization of government in the British Empire, the United States of America, France and Germany.

Readings to be assigned.

Three hours a week. Mr. Angus. 3 units.

2. *Introduction to the Study of Law.*—(*a*) A rapid survey of Legal History. (*b*) Outlines of Jurisprudence.

Readings to be assigned.

Three hours a week. Mr. Angus. 3 units.

3. *Imperial Problems.* — A course on problems of government within the British Empire.

Readings to be assigned.

Three hours a week. Mr. Angus. 3 units.

(Not given in 1934-35.)

4. *Problems of the Pacific.*—A course on the problems of the Pacific Area discussed at the Conference of the Institute of Pacific Relations in 1933. Each problem will be related to its economic and political background.

Readings to be assigned.

Three hours a week. Mr. Angus. 3 units.

(Given in 1935-36 and alternate years.)

Sociology

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 interrelationships. Several of the problems resulting from group contacts will be studied.

Texts: Davis and Barnes, *Introduction to Sociology,* Heath; Reuter and Hart, *Principles of Sociology,* McGraw-Hill.

The rule that Economics 1 must be taken prior to this course or concurrently with it may be waived in the case of students in Nursing.

Three hours a week. Mr. Topping. 3 units.

2. *Social Origins and Development.* — 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: Wallis, *Introduction to Anthropology,* Harper.

Three hours a week. Mr. Topping. 3 units.
(Not given in 1934-35.)

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: Anderson, Lindeman, *Urban Sociology,* Knopf, 1928.

Three hours a week. Mr. Topping. 3 units.
(Not given in 1934-35.)

Courses Open Only to Candidates for the Diploma of Social Service

NOTE: A student must be of the full age of Twenty-one years for admission to any of these courses.

1. *Introduction to Social Service.*—An introductory course in which is presented a general view of the entire field of social service as illustrated by its present scope and methods.

Two hours a week. Mr. Topping. 2 units.

2. *Social Organization and Case Work Methods.*—An introductory course in which the general principles of the social treatment of unadjusted individuals and disorganized families are elucidated.

One hour a week. Miss McPhedran. 1 unit.

3. *Child Welfare.*—An introductory course in which methods of caring for dependent, neglected, and delinquent children are presented and discussed.

One hour a week. Miss Holland. 1 unit.

4. *Personal Hygiene.*—An introductory course in which basic facts concerning physiological processes, infection, immunity and the more common diseases, as related to the task of the social worker, are presented.

One hour a week. Miss Kerr. 1 unit.

5. *Case Work Methods.*—Selected case records which present complex or difficult situations are studied with a view to determining the principles of diagnosis and treatment involved.

One hour a week. Miss McPhedran. 1 unit.

6. *Child Welfare Case Studies.* — An intensive study of the records of a child welfare organization will be undertaken. Field work to supplement the lectures is arranged for in a child welfare agency.

One hour a week. Miss Collins. 1 unit.

7. *Group Work.* — The principles underlying community organization and group organization are established by a study of case records and through the working out of projects. Field work is arranged to supplement the lectures and discussions.

One hour a week. Miss Pearce. 1 unit.

8. *Public Health.*—Such an understanding of the work of the chief public and private health agencies will be given as will encourage intelligent co-operation on the part of the social worker with these agencies.

One hour a week. 1 unit.

9 and 10. *Field Work Seminar.* — The problems met by the students in connection with field work are discussed, as well as certain other selected problems. The object of the seminar is to unify and integrate the whole course.

One hour a week. Mr. Topping, Miss Pearce.
1 unit each session.

11. *Administration.*—One hour a week. Mr. Falk. 1 unit.

Department of Education

Professor: G. M. Weir. (On leave of absence.)
Acting Head: Daniel Buchanan.
Associate Professor: Jennie Wyman Pilcher.
Associate Professor: W. G. Black.
Special Lecturer: C. B. Wood.
Lecturers in High School Methods: The following professors: R. H. Clark, A. C. Cooke, J. G. Davidson, Janet T. Greig, A. H. Hutchinson, L. Richardson, L. Robertson, G. G. Sedgewick.

NOTES

1. Education 2 and 3 are the same as 10 and 11. They are offered as undergraduate courses only during the Summer Session or as extra-sessional classes and are open only to students who have completed their Normal Training.

2. Philosophy 7 and 9 may be counted as courses in Education.

3. Undergraduates who intend to proceed to the Teacher Training Course are required to take Philosophy 1 (*a*) and are advised to select at least one of the following: Education 1, Philosophy 1 (*b*), 7, 9.

4. Registration for the Teacher Training Course is limited to sixty (60). Applications for admission, accompanied by the registration and Library fee, should be made to the Registrar on or before August 31.

UNDERGRADUATE COURSES

1. *Introduction to the Study of Education.* — This course is intended to serve as a broad survey of current educational theory and practice. The following topics will be studied: The needs of society and of the individual; general and specific objectives of education; educative agencies; the school system; school law; school finance; the pupil; the teacher; the curriculum; the educative process; current tendencies in education; the development of the science of education.

Text-book: Cubberley and Eells, *Introduction to the Study of Education* (Revised Edition), Houghton Mifflin.

2. *Educational Psychology.* (See Education 10.)

3. *History and Principles of Education.* (See Education 11.)

TEACHER TRAINING COURSES

10. *Educational Psychology.*

Texts: Gates, *Psychology for Students of Education* (Revised Edition), Macmillan.

Prerequisite: Philosophy 1 (*a*).

11. *History and Principles of Education.*

(*a*) A study of educational leaders and movements and of school practices, with special attention to the period since 1800.

(*b*) Modern educational systems: Canada, with special reference to British Columbia; England; France; Germany; the United States.

Text-books: Cubberley, *A Brief History of Education,* Houghton Mifflin; Kandel, *Comparative Education,* Houghton Mifflin.

12. *School Administration and Law.*

Texts: Douglass, *Organization and Administration of Secondary Schools,* Ginn & Co. (Selected Chapters); *School Law of British Columbia; Report of the School Survey Commission of British Columbia;* Koos, *The Junior High School,* Ginn & Co.

A list of references will be provided at the opening of the Session.

13. *Tests and Measurements.*

14. *Methods, Observation and Practice.*

(*a*) *Principles of Methods.*

(*b*) *Elementary School Subjects.* First Term.

(*c*) *High School Subjects.* — English, History, Latin, French, Mathematics, Biology, Chemistry, Physics, Art, Physical Education.

Two hours a week in each course. Second Term.

Two courses are required under (*c*), but students are advised to attend a third course.

(*d*) *Observation and Practice.*

(1) First Term: At least forty (40) hours in the elementary schools of the Province.

(2) Second Term: At least sixty (60) hours in the high schools of the Province.

Department of English

Professor: G. G. Sedgewick.
Professor: W. L. MacDonald.
Associate Professor: F. G. C. Wood.
Associate Professor: Thorleif Larsen.
Associate Professor: F. C. Walker.
Assistant Professor: M. L. Bollert.
Assistant Professor: H. C. Lewis. (On leave of absence.)
Instructor: Mrs. H. C. Lewis.
Assistant: Dorothy Blakey.
Assistant: Geoffrey Riddehough.

FIRST YEAR

1. (*a*) *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 1934-35: Bates, *Twentieth Century Short Stories,* Houghton Mifflin. Euripides, *Bacchae,* in Gilbert Murray's paraphrase. Shakspere, *Julius Caesar.* Sheridan, *The School for Scandal,* Everyman. Ibsen, *A Doll's House,* Everyman. Monro, *Twentieth Century Poetry,* Chatto and Windus.

Two hours a week.

(*b*) *Composition.*—Elementary forms and principles of composition.

Text: Foerster & Steadman, *Writing and Thinking,* Houghton Mifflin.

Two hours a week. 3 units.

The work in composition consists of (i) 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.

SECOND YEAR

2. *Literature.*—Studies in the history of English Literature.

Lectures and texts illustrative of the chief authors and movements from Tottel's Miscellany to Shelley. Reynolds, *English Literature in Fact and Story,* The Century Co.

Three hours a week. 3 units.

THIRD AND FOURTH YEARS

9. *Shakspere.*—This course may be taken for credit in two successive years. In 1934-35, 9 (*b*) will be given as follows:

i. A detailed study of the text of *A Midsummer Night's Dream, Henry IV* (part i), *Othello, Antony and Cleopatra, The Tempest.*

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 *Cambridge Shakespeare,* ed. Neilson, or the *Oxford Shakespeare,* ed. Craig.

Three hours a week. Mr. Sedgewick. 3 units.

9. (*a*) (Given in 1935-36 and alternate years.)

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; (4) and its decline in Jonson, Beaumont and Fletcher, Middleton, Webster, Massinger, Shirley and Ford.

Texts: Lewis Campbell, *Sophocles in English Verse,* World's Classics, Oxford; *Everyman and Other Interludes,* Dent; *Chief Elizabethan Dramatists,* ed. Neilson, Houghton Mifflin; *Shakespeare,* ed. Craig, Oxford, or the *Cambridge Shakespeare,* ed. Neilson, Houghton Mifflin.

Three hours a week. Mr. Larsen. 3 units.

13. *The English Novel from Richardson to the present Time.*—The development of English fiction will be traced from Richardson, Fielding, Smollett, 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.

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 mainly concerned with the work of such men as Dryden, Pope, Swift, Addison, Steele, Johnson, Goldsmith, Burke and Burns.

Three hours a week. Mr. MacDonald. 3 units.

16. *Romantic Poetry, 1780-1830.* — Studies in the beginnings and progress of Romanticism, based chiefly on the work of Wordsworth, Coleridge, Byron, Keats, Shelley, Scott.

Text: Bernbaum, *Guide Through the Romantic Movement.*

For reference: Elton, *A Survey of English Literature, 1780-1830.*

Three hours a week. Mr. Walker. 3 units.

17. *Victorian Poetry.*—This course is concerned chiefly 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.

Texts: Browning, *Complete Poetical Works,* Cambridge Edition; Arnold, *Poems,* Oxford Edition; Tennyson, *Poems,* Globe Edition; Pierce, *Century Readings in the Nineteenth Century Poets,* The Century Co.

For reference: Elton, *A Survey of English Literature, 1830-1880.*

Three hours a week. 3 units.

(Not given in 1934-35.)

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: Brown, *Essays of Our Times,* Scott, Foresman Company; Sanders and Nelson, *Chief Modern Poets,* Macmillan Company. Three novels, to be assigned.

Three hours a week. Mr. Lewis. 3 units.

25. (*a*) *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.

25. (*b*) *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.

In such courses examinations will be set, but no class instruction will be given.

20. *Chaucer and Middle English.*—(*a*) Middle English grammar with the reading of representative texts. (*b*) *The Canterbury Tales.*

Texts: A Middle English reader; Chaucer, *The Cambridge Poets,* ed. Robinson, Houghton Mifflin; Manly, *The Canterbury Tales,* Holt.

Three hours a week. Mr. Sedgewick. 3 units.

(Given in 1934-35 and alternate years.)

21. (*a*) *Anglo-Saxon.*—Moore & Knott, *The Elements of Old English,* George Wahr; Bright, *Anglo-Saxon Reader,* Holt.

Two hours a week. Mr. MacDonald. 2 units.

21. (*b*) *Anglo-Saxon.*—Beowulf.

Two hours a week. Second Term. Mr. Walker. 1 unit.

22. *Studies in Linguistic History.*—Origins, growth, and development of the English language. A brief introduction to Germanic philology; the Indo-European language group; Grimm's Law; the Anglo-Saxon period; Norman, French, and Latin influences; study of the gradual evolution of forms, sounds and meanings.

Two hours a week. First Term. Mr. Walker. 1 unit.

24. *Seminar.*—In this class advanced students will get practice in some of the simpler methods of criticism and investigation. The subject for 1934-35 will be announced at the beginning of the session.

Two hours a week. Mr. Larsen. 2 units.

TEACHER TRAINING COURSE

26. *Methods in High School English.* — This course does not carry undergraduate credit.

Two hours a week. Second Term. Mr. Sedgewick.

Department of Geology and Geography

Professor: R. W. Brock.
Professor of Physical and Structural Geology: S. J. Schofield.
Professor of Palaeontology and Stratigraphy: M. Y. Williams.
Lecturer in Mineralogy and Petrography: H. V. Warren.

Geology

1. *General Geology.*—This course serves as an introduction to the science of Geology. The following subjects are treated in the lectures and laboratory.

(*a*) *Physical Geology,* including weathering, the work of the wind, ground water, streams, glaciers, the ocean and its work, the structure of the earth, earthquakes, volcanoes, and igneous intrusions, metamorphism, mountains and plateaus and ore deposits.

Two lectures a week. First Term. Mr. Williams.

(*b*) *Laboratory Exercises in Physical Geology,* include the study and identification of the most common minerals and rocks, the interpretation of topographical and geological maps, and the study of structures by the use of models.

Two hours laboratory a week. Mr. Schofield, Mr. Warren and Mr. Williams.

(*c*) *Historical Geology,* including the earth before the Cambrian, the Palaeozoic, the Mesozoic, the Cenozoic and Quaternary eras.

Two lectures a week. Second Term. Mr. Williams.

(*d*) *Laboratory Exercises in Historical Geology,* consist of the general study of fossils, their characteristics and associations, their evolution and migration as illustrated by their occurrence in the strata. The principles of Palaeogeography are taken up and illustrated by the study of Palaeogeography of North America.

Two hours laboratory a week. Second Term. Mr. Williams.

Field Work will 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.

Prerequisite: Matriculation Chemistry or Physics, or Chemistry 1 or Physics 1, taken either before or concurrently.

Text-book: Pirsson and Schuchert, *Foundations of Geology,* Wiley.

Students will be required to make a passing mark in each of the above subdivisions. 3 units.

2. (*a*) *General Mineralogy.* — A brief survey of the field of Mineralogy.

Lectures take the form of a concise treatment of (1) Crystallography, (2) Physical Mineralogy, and (3) Descriptive

Mineralogy of 40 of the most common mineral species, with special reference to Canadian occurrences.

Laboratory Work consists of the study of the common crystal forms and of 40 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, Wiley.

Prerequisite: Chemistry 1. Physics 1 or 2 should precede or accompany this course.

Two lectures and two hours laboratory a week. First Term. Mr. Warren. 1½ units.

2. (*b*) *Descriptive and Determinative Mineralogy.* — This course supplements 2 (*a*) and consists of a more complete survey of Crystallography, Physical and Chemical Mineralogy, with a critical study of about 50 of the less common minerals, special emphasis being laid on their crystallography, origin, association and alteration.

Text-book: Dana, *Text-book of Mineralogy,* revised by Ford, Wiley.

Prerequisite: Geology 2 (*a*).

Two lectures and two hours laboratory a week. Second Term. Mr. Warren. 1½ units.

4. *Structural and Physiographical Geology.* — The following subjects are treated in the lectures: Fractures, faults, flowage, structures common to both fracture and flow, mountains, major units of structure, forces of deformation, the origin and development of land forms, with special reference to the physiography of British Columbia.

Text-book: Leith, *Structural Geology,* 2nd Ed., Holt.

Prerequisite: Geology 1.

Three hours a week. Mr. Schofield. 3 units.

5. (*a*) *History of Geology.*—A brief history of the study of the earth and the development of the geological sciences. Mr. Brock.

(*b*) *Geology of Canada.*—The salient features of the geology and economic minerals of Canada. Mr. Williams, Mr. Schofield, Mr. Brock.

(*c*) *Regional Geology.*—The main geological features of the continents and oceanic segments of the earth's crust, and their influence upon life. Mr. Brock.

Prerequisite: Geology 1.

Three lectures and one hour laboratory a week. 3 units.

6. *Palaeontology.* — A study of invertebrate and vertebrate fossils, their classification, identification and distribution, both geological and geographical.

Reference books: Grabau and Shimer, *North American Index Fossils;* Zittel-Eastman, *Text-book of Palaeontology.*

Prerequisite: Geology 1.

Two lectures and two hours laboratory a week. Mr. Williams. 3 units.

7. *Petrology.*—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, first under the microscope and then in hand specimen.

Text-books: Harker, *Petrology for Students,* Cambridge University Press; Johannsen, *Essentials for the Microscopical Determination of Rock-forming Minerals and Rocks,* University of Chicago Press; Dana, *Text-book of Mineralogy,* revised by Ford, Wiley.

Prerequisites: Geology 1 and 2.

Two lectures and two laboratory periods of 2 hours a week. Mr. Warren. 4 units.

8. *Economic Geology.*—A study of the occurrence, genesis, and structure of the principal metallic and non-metallic mineral deposits with type illustrations; and a description of the ore deposits of the British Empire, special stress being placed on those in Canada.

Text-book: Ries, *Economic Geology* (6th edition), Wiley.

Prerequisite: Geology 1. Geology 7 must precede or accompany this course.

Four hours a week. Mr. Brock, Mr. Williams, Mr. Schofield, Mr. Warren. 4 units.

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 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: Davy and Farnham, *Microscopic Examination of the Ore Minerals,* McGraw-Hill.

Prerequisite: Geology 7 and 8 must precede or accompany this course.

Two hours laboratory a week. Mr. Warren. 1 unit.

10. *Field Geology.*—The methods taught are the fundamental ones used by professional geologists and by the officers of the Geological Survey of Canada. The 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 in the vicinity of Vancouver which require the use of the various methods and instruments employed in field geology.

Text-books: Lahee, *Field Geology;* Hayes, *Handbook for Field Geologists;* Spurr, *Geology Applied to Mining.*

Prerequisite: Geology 1. Geology 4, if not already taken, must be taken concurrently.

Three hours a week. Mr. Schofield. 3 units.

12. *Meteorology and Climatology.* — A course covering in a general way the whole field, with practice in using instruments, constructing and using weather charts, and weather predicting.

Two lectures and one laboratory period of two hours a week. Second Term. Mr. Schofield. 1½ units.

14. *Crystallography.* — This course consists of a systematic study of the morphology of crystals, with an introduction to mathematical crystallography.

The practical work deals with the measurement of crystals and, in the case of students in chemistry, a certain number of the crystals measured will be grown in the laboratory.

Students are advised to consult with the instructor before registering for this course.

Text-book: Tutton, *Crystallography and Practical Crystal Measurement,* Macmillan.

Two lectures and six or eight hours laboratory work a week. Mr. Warren.

5 or 6 units, dependent on amount of laboratory work.
(Not given in 1934-35.)

Geography

1. *Principles of Geography.*—This introductory course aims to develop in the student the point of view of modern geography and to furnish a foundation or background that will be useful not alone to those who may intend to continue a study of geography or to teach it in the schools but also to those who intend to study history, economics and other subjects, or to enter business or professional careers, into which geographical considerations enter.

Since geography is a study of the surface of the earth and its relation to life, particularly to human life, physical geography (fairly well covered by the prescribed text-book) must be mastered.

The second fundamental is a study of man, to which the lectures are to a large extent devoted. The characteristics of man and the influence of geographical environment are most easily discerned in primitive societies; consequently these are examined in some detail. From these as a starting point the relationships between man and his environment in complex western civilization is investigated.

A knowledge of the main facts in the geography of Canada is assumed so that if the student is not already familiar with them he must become so by private study, for he is expected to be able to give the principles brought out in class work Canadian applications and to be able to furnish Canadian illustrations.

Text-book: Peattie, *New College Geography,* Ginn & Co.

An Atlas—failing a large, comprehensive atlas, one of the following cheap ones will serve: *Philip's Senior School Atlas,* Geo. Philip & Son; *Canadian School Atlas,* J. M. Dent; *Goode's School Atlas,* Rand McNally Co.

Three hours a week. Mr. Brock. 3 units.

Department of History

Professor: W. N. Sage.
Associate Professor: F. H. Soward.
Assistant Professor: A. C. Cooke.

Students who intend to specialize in History are advised to study one or more modern languages. A reading knowledge of at least one foreign language will be required for Honours.

First and Second Years

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. The following topics are discussed: The Great Powers at the Opening of the Century, Alliance and Entente, The Coming of the World War, The World War, The Peace Treaties, The New Map of Europe, Reparations and War Debts, Security and Disarmament, The League of Nations, The Russian Revolution and the U.S.S.R., Italy and Fascism, Germany from Empire to Third Reich, Post-War Britain and Democratic Europe, The New Balkans, The Little Entente and Poland, Nationalism and Imperialism in the Far East, The United States and World Peace.

Text-books: Benns, *Europe Since 1914;* Langsam, *The World Since 1914;* Cole, *The Intelligent Man's Review of Europe Today.*

Essays will be assigned throughout the Session.

Three hours a week. Mr. Soward. 3 units.

2. (*a*) *Outlines of Canadian History.* — Geographical factors; exploration and early settlements; political and constitutional development to Confederation; economic and social history; The Dominion of Canada since 1867; Canada in the Empire; Canada in the world.

(*b*) *The History of British Columbia.* — Early explorations, Spanish, Russian and British; Maritime fur-trade; Overland fur-trade; the North West Company; The Hudson's Bay Company in Old Oregon; the Colonial Period; Confederation; the Province of British Columbia.

Text-books: Lucas and Egerton, *A Historical Geography of Canada, Parts I and II;* Skelton, *The Canadian Dominion;* Newbigin, *Canada;* Wittke, *A History of Canada;* Howay, *British Columbia, the Making of a Province;* Sage, *Sir James Douglas and British Columbia;* Sage, *Outline of British Columbia History.*

Essays will be assigned throughout the session. 3 units.

(Not given in 1934-35.)

4. *Medieval History.*—A sketch of Medieval History from the Council of Nicæa to the Fall of Constantinople. The following subjects will be discussed: The triumph of Christianity; the break-down of the Western Roman Empire, the Barbarian Invasions; the earlier monastic movements; Mohammed and Islam; the rise of the Papacy; the Franks and Charlemagne; the struggle between Empire and Papacy; the Normans in Europe; the Crusades; the Medieval Towns; the latest monastic movements; the rise of the Universities; Frederick II; the later Medieval Empire; the national kingdoms in France, Spain and England; the Turks and the Byzantine Empire.

Text-books: Thompson, *History of the Middle Ages;* Munro and Sontag, *The Middle Ages;* Scott, Hyma and Noyes, *Readings in Medieval History.*

This course is intended primarily for Second Year students who hope to specialize in history.

Essays will be assigned throughout the session.

Three hours a week. Mr. Sage. 3 units.

THIRD AND FOURTH YEARS

History 10, 11, 12, 13 and 14 are intended for Third Year students; History 15, 19 and 20 for Fourth Year. History 10 must be taken by all candidates for Honours.

All Honours students (whether in History alone or in a combined course) must take the History Seminars in their Third and Fourth Years. The Seminar is offered as a training in intensive work and carries no credits.

If the graduating essay be written in History it will count as 3 units.

10. *British History to the Revolution of 1688.*—The geographic factors; Roman Britain; character and institutions of the Anglo-Saxons; relations of Church and State; the Norman Conquest and the Manorial System; royal supremacy under Normans and Angevins; the Great Charter; the evolution of Parliament; social conditions in the 14th Century; the Lancastrian Experiment; the Tudor Monarchy and the Middle Class; the National Church; agrarian and commercial development; struggle between King and Parliament; the Puritan Rebellion; the Commonwealth; the Restoration and the Revolution.

Text-books: Trevelyan, *A History of England;* Williamson, *The Evolution of England;* Davis, *England under the Normans and Angevins;* Trevelyan, *England under the Stuarts;* Lunt, *History of England;* Adams and Stephens, *Documents of English Constitutional History.*

Essays will be assigned throughout the session.

Three hours a week. Mr. Sage. 3 units.

11. *Development of the British Empire and Commonwealth.*—The Age of Discovery; Colonization in North America; the Old Colonial System; India under the Company; Colonization of Australia and New Zealand; Dutch and British in South Africa; Responsible Government; Development of the Dominions; Victorian Imperialism; African Colonies and Protectorates; Indian Nationalism and Reforms; the Dependent Empire; Mandates; Evolution and Problems of the British Commonwealth of Nations.

Text-books: Robinson, *Development of the British Empire;* or Williamson, *Short History of British Expansion;* Trotter, *The British Empire-Commonwealth;* Elliott, *The New British Empire.*

Essay subjects will be assigned throughout the session.

Three hours a week. Mr. Cooke. 3 units.

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 close of the World War.

Text-books: Charles and Mary Beard, *The Rise of American Civilisation;* J. T. Adams, *The Epic of America;* H. Faulkner, *American Economic History;* F. J. Turner, *The Frontier in American History.*

Essays will be assigned throughout the session.

Three hours a week. 3 units.

(Not given in 1934-35.)

13. *The Age of the Renaissance and Reformation.*—The Cultural Development of Europe from the 14th to the 17th Centuries.

The transition from the medieval to the modern world; humanism; renaissance art; overseas exploration and expansion; the rise of modern capitalism and national states; the Reformation; the counter-Reformation; the scientific revolution and intellectual developments.

Text-books: Hulme, *Renaissance and Reformation;* Lucas, *The Renaissance and the Reformation.*

Essays will be assigned throughout the session.

Three hours a week. Mr. Cooke. 3 units.

14. *The Age of Louis XIV; The Revolutionary and Napoleonic Era.*—Europe in the 17th Century; 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: Benians, *Renaissance to Revolution;* Packard, *The Age of Louis XIV;* Bruun, *The Enlightened Despots;* Gottschalk, *The Era of the French Revolution;* or Rose, *The Revolutionary and Napoleonic Era;* Fournier or Kircheisen, *Napoleon.*

Essays will be assigned throughout the session.

Three hours a week. Mr. Cooke. 3 units.

15. *Europe, 1815-1919.* — The political, social and economic history of the chief countries of continental Europe, with especial attention to international relations.

Text-books: Schapiro, *Modern and Contemporary European History;* Fueter, *World History;* Moon, *Imperialism and World Politics;* Buell, *International Relations.*

Essays will be assigned throughout the session.

Three hours a week. Mr. Soward. 3 units.

19. *Great Britain Since 1688.*—This course aims at an interpretation of the constitutional, political, economic and religious development of the British Isles since 1688.

Text-books: Grant Robertson, *England Under the Hanoverians;* Williamson, *The Evolution of England;* Fay, *Life and Labour in the Nineteenth Century;* Trevelyan, *British History in the Nineteenth Century.*

Essays will be assigned throughout the session.

Three hours a week. Mr. Sage. 3 units.

20. *The Evolution of Canadian Self-Government.*—A survey of the period from the Peace of Utrecht to the present day. The following subjects will be dealt with: French and British Colonial Systems; British experience in Acadia; British policy after the Treaty of Paris; the Quebec Act; the effect of the American Revolution; the Constitutional Act; the opening of the West; the War of 1812; the formation of parties and the struggle for Reform;

Durham's Report; the achievement of Responsible Government; Confederation and the completion of the Dominion, the development of Responsible Government and the growth of nationhood.

Text-books: Martin, *Empire and Commonwealth;* Kennedy, *The Constitution of Canada;* Kennedy, *Statutes, Treaties and Documents of the Canadian Constitution, 1713-1929.*

Essays will be assigned throughout the session.

Three hours a week. 3 units.

21. *Methods in High School History.*—This course is offered primarily for students in the Teacher Training Course and does not carry undergraduate credit.

Readings to be assigned.

Two hours a week in Spring term only. Mr. Cooke.

22. *Honours Seminars:*

(*a*) Third Year: *Historical Method.* Mr. Soward.

(*b*) Fourth Year: *The Stuart Constitutional Problem, 1603-1660.* Mr. Sage.

Department of Mathematics

Professor: Daniel Buchanan.
Professor: F. S. Nowlan.
Associate Professor: E. E. Jordan.
Associate Professor: L. Richardson.
Assistant Professor: Walter H. Gage.
Assistant Professor: F. J. Brand.
Assistant: May L. Barclay.

Mathematics 2 and 3 are Second Year Courses. Mathematics 2 is a prerequisite for all the Honour Courses.

PASS COURSES

1. (*a*) *Algebra.*—An elementary course, including ratio, proportion, variation, interest and annuities, theory of quadratic equations, simple series, permutations, combinations, the binomial theorem, logarithms.

Wilson and Warren, *Intermediate Algebra,* Chapters I to XV, Oxford.

Students intending to take Mathematics 2 or to enter Applied Science should purchase the larger edition of *The Intermediate Algebra.* Four hours a week. First Term.

(*b*) *Analytical Geometry.* — Fundamental concepts, loci, the straight line and circle.

Nowlan, *Analytical Geometry,* McGraw-Hill.

Two hours a week. Second Term.

(*c*) *Trigonometry.*—An elementary course involving the use of logarithms.

Playne and Fawdry, *Practical Trigonometry,* Copp Clark.
Wentworth and Hill, *Tables,* Ginn.
Two hours a week. Second Term. 3 units.

2. (*a*) *Algebra.* — The binomial theorem, complex numbers, induction, remainder theorem, Horner's method, exponential, logarithmic and other series, undetermined coefficients, partial fractions, convergence and divergence, determinants.

Wilson and Warren, *Intermediate Algebra* (Larger Edition), Oxford.
Two hours a week. Mr. Gage. 2 units.

(*b*) *Calculus.* — An introductory course in differential and integral calculus, with various applications.

Woods and Bailey, *Elementary Calculus* (Revised Edition), Ginn.
One hour a week. Mr. Buchanan. 1 unit.

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.

Bauer, *Mathematics Preparatory to Statistics and Finance,* Macmillan; Hart, *Mathematics of Investment* (Revised), Heath.
Three hours a week. Mr. Brand. 3 units.

HONOUR COURSES

10. *Calculus.*—The elementary theory and applications of the subject.

Granville, *Differential and Integral Calculus,* Ginn.
Three hours a week. Mr. Buchanan. 3 units.

11. *Plane and Spherical Trigonometry.*—The work in plane trigonometry will deal with the following: Identities and trigonometrical equations, the solution of triangles with various applications, circumscribed, inscribed and escribed circles, De Moivre's theorem, expansions of sin $n\theta$, *etc.,* hyperbolic and inverse functions. The work in spherical trigonometry will cover the solution of triangles with various applications to astronomy and geodesy.

Loney, *Plane Trigonometry,* Parts I and II.
Two hours a week. Mr. Richardson. 2 units.
(Given in 1935-36 and alternate years.)

13. *Plane and Solid Analytical Geometry.*—A general study of the conics and systems of conics, and elementary work in three dimensions.

Three hours a week. Mr. Nowlan. 3 units.

14. *Theory of Equations and Determinants.*—A course covering the main theory and use of these subjects.

Dickson, *Elementary Theory of Equations,* Wiley.

Three hours a week. Mr. Nowlan. 3 units.

15. *Higher Algebra.*—Selected topics in higher algebra, including infinite series, continued fractions, the theory of numbers, probability.

Hall and Knight, *Higher Algebra,* Macmillan; Chrystal, *Textbook of Algebra,* Part II.

Two hours a week. Mr. Jordan. 2 units.

(Given in 1935-36 and alternate years.)

16. *Calculus and Differential Equations.*—A continuation of the previous course in calculus, treating partial differentiation, expansions of functions of many variables, singular points, reduction formulæ, successive integration, elliptic integrals, and Fourier series.

Ordinary and partial differential equations, with various applications to geometry, mechanics, physics and chemistry.

Granville, *Differential and Integral Calculus,* Ginn. Murray, *Differential Equations,* Longmans.

Three hours a week. Mr. Buchanan. 3 units.

17. *Applied Mathematics.*—A course dealing with the applications of mathematics to dynamics of a particle and of a rigid body, and to the two body problem in celestial mechanics.

Prerequisite: Physics 6.

Loney, *A Treatise on Dynamics of a Particle and Rigid Bodies,* Cambridge.

Three hours a week. Mr. Richardson. 3 units.

This course may be taken either as an undergraduate or a graduate course.

(Given in 1934-35 and alternate years.)

18. *History of Mathematics.*—A reading course covering the historical development of the elementary branches of mathematics from the earliest times to the present.

Ball, *History of Mathematics;* Cajori, *History of Elementary Mathematics;* Smith, *History of Mathematics.* Mr. Gage. 1 unit.

19. *Methods in High School Mathematics.*

This course is offered primarily for students in the Teacher Training Course and does not carry undergraduate credit.

Readings to be assigned.

Two hours a week. Second Term. Mr. Richardson.

GRADUATE COURSES

20. *Vector Analysis.*—Weatherburn, *Vector Analysis.*

21. *Theory of Functions of a Real Variable.*—Goursat-Hedrick, *Mathematical Analysis,* Vol. I.

22. *Theory of Functions of a Complex Variable.*—Townsend, *Functions of a Complex Variable.*

23. *Differential Geometry.*—Eisenhart, *Differential Geometry.*

24. *Projective Geometry.*—Veblen and Young, *Projective Geometry,* Vol. I.

25. *Celestial Mechanics.*—Moulton, *An Introduction to Celestial Mechanics.*

26. *Advanced Differential Equations.* — Moulton, *Differential Equations.*

27. *Theory of Numbers and Algebraic Numbers.*—Reid, *Elements of the Theory of Algebraic Numbers.*

28. *Hyper-complex Numbers.*—Dickson, *Algebras and Their Arithmetics.*

29. *Modern Algebraic Theories.* — Dickson, *Modern Algebraic Theories.*

30. *Elliptic and Bessel Functions.*—Byerly, *Integral Calculus,* Whittaker and Watson; *Modern Analysis,* Gray, Mathews and MacRobert, *Bessel Functions.*

Department of Modern Languages

Professor: .....
Professor: D. O. Evans.
Professor: A. F. B. Clark.
Associate Professor: Isabel MacInnes.
Assistant Professor: Janet T. Greig.
Instructor: Joyce Hallamore.
Instructor: Wessie Tipping.
Instructor: Dorothy Dallas.
Instructor: Madame G. Barry.
Instructor: Madame D. Darlington.

With the consent of the Professor in charge of the course, a student taking a Pass Degree may be admitted to any course in the Third and Fourth years in addition to, but not in lieu of, 3 (*a*) and 4 (*a*). Students from other universities who have already taken the work of 3 (*a*) and 4 (*a*) may be given special permission by the Head of the Department to substitute other courses.

French

1. Molière, *Le Bourgeois Gentilhomme,* Didier; Victor Hugo, *Prose et Poésies* (Wilson Green), Cambridge; Kastner and Marks, *French Composition,* Pt. 1, Dent; Ashton, *A Preface to Molière,*

Longmans, Toronto, (Chaps. I to VI, and VIII); Weekley, *Tutorial French Grammar,* Clive.

Summer Reading: See the announcement after the Fourth Year Courses. 3 units.

Prerequisite: Junior matriculation French or its equivalent.

2. La Fontaine, *Fables* (Dent); Balzac, *Gobseck* (Oxford University Press); Maupassant, *Eight Short Stories* (Macmillan). Independent reading will be required.

Conversation in French on the above. Written résumés.

Composition from Mills, *Free Composition,* Nelson. 3 units.

Summer Reading: See the announcement after the Fourth Year Courses.

Prerequisite: French 1 or its equivalent.

3. (*a*) *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); Racine, *Iphigénie* (American Book Co.) or *Phèdre* (Heath); Molière, *Le Misanthrope* (Didier), or *L'Avare* (Manchester Univ. Press); *Le Tartuffe* (Heath).

Conversation and written résumés based on the above.

This course is obligatory for all students taking Third Year French. French 2 is a prerequisite. Students who cannot write French with some facility are advised not to attempt 3 (*a*).

Students who intend to take French throughout the four years or who wish to teach this subject should also take 3 (*c*). 3 units.

3. (*b*) *The Literature of the XIXth Century* (Verse and Novel). Berthon, *Nine French Poets* (Macmillan); Hugo, *Poèmes choisis* (Manchester University Press); Balzac, *Eugénie Grandet* (Oxford). This course is intended for Honours students.

3. (*c*) *French Composition and Phonetics.* Kastner and Marks, *French Composition,* Pt. 2. 3 units.

Summer Reading: See the announcement after the Fourth Year Courses.

4. (*a*) *The Romantic Drama.*—Lectures on the evolution of the drama during the 19th Century. Hugo, *Hernani;* Alfred de Vigny, *Chatterton* (Oxford); Musset, *Three Plays* (Nelson); Rostand, *Cyrano de Bergerac* (Holt); Stewart and Tilley, *The Romantic Movement in French Literature* (Cambridge). Extensive independent reading will be expected. 3 units.

French 3 (*a*) is a prerequisite. Students who cannot write accurate French with facility and understand spoken French are advised not to attempt 4 (*a*).

4. (*b*) *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 inter-relations of French and English thought and literature will be touched upon. Careful reading and discussion of the following texts: *Selections from Voltaire* (Havens), Century Co.; Rousseau, *Morceaux choisis* (Mornet), Didier; Diderot, *Extraits* (Fallex), Delagrave; Beaumarchais, *Le Barbier de Séville,* Macmillan.

French 3 (*a*) and 3 (*b*) are prerequisites. The requirements for entrance to 4 (*b*) are accurate written French and a sufficient mastery of spoken French to permit conversation on a literary subject.

4. (*c*) *Composition and Oral French, and French Institutions.*—Book required: Kastner and Marks, *French Composition,* Pt. 3. This course should be taken in conjunction with French 4 (*a*) and French 4 (*b*). 3 units.

Prerequisite: French 3 (*c*).

4. (*d*) *The History of French Literary Criticism and Theory, from the Pléiade to the Present Day.*—Vial-Denise, *Idées et Doctrines Littéraires du XVIIe Siècle, Idées et Doctrines Littéraires du XVIIIe Siècle, Idées et Doctrines Littéraires du XIXe Siècle* (three vols., Delagrave).

French 3 (*a*) and 3 (*b*) are prerequisites. This course cannot be substituted for French 4 (*a*) or French 4 (*b*). 3 units.

5. (*a*) *Methods in High School.*—Modern Languages. Phonetics during First Term (1 hour a week). Methods during Spring Term (1 hour a week). Texts for discussion: Hedgcock, *Practical French Teaching,* Pitman; *Modern Studies,* 1918. This course is primarily for students in the Teacher Training Course and does not carry undergraduate credit.

5. (*b*) *Old French and XVIth Century.* Texts: *Aucassin et Nicolette* (Classiques français du Moyen Age); Rabelais, *Gargantua* (Jouaust); Ronsard, *Oeuvres choisies* (Larousse); Montaigne *Essais,* (Garnier). (For M.A. candidates only.)

5. (*c*) *The French Novel.*—A study of the evolution of the French Novel with special reference to the Nineteenth Century. Independent readings are required.

(Not given in 1934-35.)

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. Balzac, *Le Père Goriot.*
2. Saintine, *Picciola;* or Vigny, *Poésies Choisies.*

Third Year:

1. Chateaubriand, *Atala.*
2. Molière, *Les Femmes Savantes, Les Précieuses Ridicules.*
3. Vigny, *Servitude et Grandeur Militaires.*
4. Musset, *Poésies Choisies.*

Fourth Year:

1. Marivaux, *Le Jeu de l'Amour et du Hasard.*
2. Voltaire, *Contes.*
3. Voltaire, *Zaïre.*
4. Racine, *Andromaque.*
5. Bernardin de Saint-Pierre, *Paul et Virginie.*
6. Musset, *Fantasio.*
7. Banville, *Gringoire.*

The above have all been chosen from the series *Les Classiques pour tous* so as to lighten the cost of buying books for vacation reading. At the present rate of exchange they can be bought at the University Bookstore for ten or fifteen cents each. As these books can be carried in the pocket and read at odd moments, *no excuse* will be accepted for failure to do summer reading.

German

Beginners' Course.—Heffner, *Brief German Grammar,* Heath; Koischwitz, *Bilderlesebuch,* Crofts. 3 units.

1. Completion and Revision of Zinnecker. Composition and conversation based on texts read. Diamond and Uhlendorf, *Mitten im Leben,* Holt; Bruns, *Book of German Lyrics,* Heath.

Science Section with alternate reading. 3 units.

Junior Matriculation or Beginners' German is prerequisite for this course.

2. Whitney and Stroebe, *Easy German Composition,* Holt. Composition and conversation based on texts read.

Diamond and Schomaker, *Lust und Leid,* Holt; Keller, *Romeo und Julia auf dem Dorfe,* Holt; Bruns, *Book of German Lyrics.* 3 units.

German 1, or its equivalent, is prerequisite for German 2.

3 (*a*) *Introduction to the Classical Period.*

Lectures on the development of Eighteenth Century literature. Texts for special study: Lessing, *Emilia Galotti,* Heath; Goethe, *Faust I,* Heath; Schiller, *Die Jungfrau von Orleans,* Holt. Composition text: Whitney and Stroebe, *German Composition,* Holt.

3 units.

Summer Reading: Before entering German 3 students must read: Fleissner, *Deutsches Literatur-Lesebuch,* Crofts, to page 92. (J. G. Robertson, *The Literature of Germany,* Home University Library, is also recommended.)

3. (*b*) *Introduction to Modern Literature.* — Texts: Lipzin, *From Novalis to Nietzsche,* Prentice-Hall; Porterfield, *Modern German Stories,* Heath; and other assigned reading.

4. (*a*) *Nineteenth Century German Drama.*—Text: Campbell, *German Plays of the Nineteenth Century,* Crofts.

Department of Philosophy

Professor: H. T. J. Coleman.
Associate Professor of Psychology and Education: Jennie Wyman Pilcher.
Special Lecturer: C. W. Topping.

1. (*a*) *Elementary Psychology.*

Text-book: Warren, *Elements of Human Psychology,* (Revised Edition), Houghton Mifflin.

Three hours a week. Mrs. Pilcher 3 units.

1. (*b*) *Introduction to Philosophy.*—This course is intended for two classes of students: First, those who contemplate specializing in Philosophy either as Honour or Pass students in their Third and Fourth Years; and second, those who wish a single course which will give in an untechnical way a statement and discussion of fundamental philosophical problems and thus assist them in their special studies in other departments.

Text: Patrick, *Introduction to Philosophy,* Houghton Mifflin.

References: Brightman, *An Introduction to Philosophy;* Cunningham, *Problems of Philosophy;* Drake, *An Invitation to Philosophy;* Alexander, *A Short History of Philosophy;* Perry, *The Approach to Philosophy.*

Three hours a week. Mr. Coleman. 3 units.

2. *Ethics.*

Text-book: Urban, *Fundamentals of Ethics,* Holt.

A special study will be made of selected portions of Aristotle's *Ethics,* Mill's *Utilitarianism,* and Kant's *Metaphysic of Morals.*

Three hours a week. 3 units.

3. *History of Greek Philosophy from Thales to Plato* (inclusive).

Text-books: Bakewell, *Source Book in Ancient Philosophy,* Scribners. Burnet, *Greek Philosophy* (Part I), Macmillan. In connection with this course a special study will be made of Plato's *Republic, Phaedo,* and *Philebus.*

Three hours a week. 3 units.

(Given in 1934-35 and alternate years.)

4. *The history of Philosophy from the Renaissance to the Present Time.*

Text-book: Alexander, *A Short History of Philosophy,* Macmillan.

References: Rand, *Modern Classical Philosophers,* and the various Histories of Philosophy.

Three hours a week. 3 units.

(Given in 1935-36 and alternate years.)

5. *The Philosophy of Kant,* with special study of the *Critique of Pure Reason.*

Three hours a week. 3 units.

(Given in 1935-36 and alternate years.)

6. *Philosophic Movements Since the Time of Kant.* Post-Kantian Idealism, Pragmatism, Modern Realism, Bergson and others.

Three hours a week. 3 units.

(Given in 1934-35 and alternate years.)

7. *Philosophy of Education.*—A course of lectures and discussions dealing with educational movements since the beginning of the 19th century, and with the theories of life and of mind which are implicit in these movements.

Texts: Spencer, *Education,* Everyman Edition. Dewey, *Democracy and Education,* Macmillan.

References: Butler, *The Meaning of Education;* Rousseau, *Emile;* Locke, *The Conduct of the Understanding;* Froebel, *The Education of Man;* Dewey, *The School and Society;* Articles in the *Cyclopedia of Education,* Macmillan.

Philosophy 1 (*a*) or Philosophy 1 (*b*) is recommended as preparatory to this course.

Three hours a week. Mr. Coleman. 3 units.

8. *Social Psychology.*—A study of those particular phases of mental life and development which are fundamental in social organization and activity.

Texts: McDougall, *Social Psychology, The Group Mind,* Methuen, London; Ginsberg, *Psychology of Society,* Methuen, London. Collateral reading will be prescribed from the following:

Hobhouse, *Mind in Evolution, Morals in Evolution;* Sutherland, *Origin and Growth of the Moral Instinct;* Cooley, *Human Nature and the Social Order;* Wallas, *Human Nature in Politics, The Great Society;* Ross, *Social Psychology;* Trotter, *Instincts of the Herd in Peace and War;* Bernard, *Introduction to Social Psychology.*

Philosophy 1 (*a*) or Philosophy 1 (*b*) is recommended as preparatory to this course.

Three hours a week. Mr. Coleman. 3 units.

9. (1) *A Study of the Concept of Intelligence.*—Current theories of the nature and growth of intelligence. Its practical bearing in modern life. Principles and applications of the measurement of intelligence. History of the movement. The nature and causes of mental defects and peculiarities.

(2) *Principles of Experimental Procedure.*—Method of Measurement. Practical training in the methods of group examinations. Treatment of subnormal, normal and gifted children. Treatment of problem cases.

Text: Terman, *Measurement of Intelligence,* Houghton Mifflin.

Three hours a week. Mrs. Pilcher. 3 units.

Department of Physics

Professor: T. C. Hebb.
Professor: A. E. Hennings.
Associate Professor: J. G. Davidson.
Associate Professor: G. M. Shrum.
Assistant: Rognvald T. Hamilton.
Assistant: Patrick D. McTaggart-Cowan.
Assistant: Donald K. Coles.
Assistant: Gordon C. Danielson.
Assistant: Thomas G. How.

PRIMARILY FOR FIRST AND SECOND YEAR STUDENTS

1. *Introduction to Physics.*—A general study of the principles of mechanics, properties of matter, heat, light, sound and electricity, both in the lecture room and in the laboratory. The course has two objects: (1) to give the minimum acquaintance with physical science requisite for a liberal education to those whose studies will be mainly literary; (2) to be introductory to the courses in Chemistry, Engineering and Advanced Physics. Students must reach the required standard in both theoretical and practical work. Open only to students who have not matriculated in Physics.

Text-book: Millikan, Gale and Edwards, *A First Course in Physics for Colleges.*

Three lectures and two hours laboratory a week. 3 units.

2. *Elementary Physics.*—This course consists of a general course in Physics suitable for those students who have obtained standing in Junior Matriculation Physics or its equivalent. It covers mechanics, properties of matter, heat, light, sound, electricity and some of the more recent developments and theories.

Text-book: Chant and Burton, *A Text-book of College Physics,* Copp Clark.

Prerequisite: High School Physics.

Three lectures and one two-hour laboratory period a week. 3 units.

References: Watson, *A Text-book of Physics,* Longmans; Kaye and Laby, *Physical and Chemical Constants,* Longmans.

3. *Mechanics, Molecular Physics and Heat.*—A study of statics and dynamics of both a particle and a rigid body, the laws of gases and vapors, temperature, hygrometry, capillarity, expansion, and calorimetry.

Text-books: Reynolds, *Elementary Mechanics,* Prentice-Hall; Edser, *Heat for Advanced Students,* Macmillan.

Prerequisite: Physics 1 or 2.

Two lectures and three hours laboratory a week. 3 units.

PRIMARILY FOR THIRD YEAR STUDENTS

5. *Electricity and Magnetism.*—A study of the fundamentals of magnetism and electricity, including alternating currents and electron physics.

Text-book: Zeleny, *Elements of Electricity,* McGraw-Hill.

Prerequisite: Physics 1 or 2.

Two lectures and three hours laboratory a week. 3 units.

6. *Theoretical Mechanics.*—A selected course in statics, dynamics of a particle and of a rigid body.

Text-book: Smith and Longley, Ginn.

Two lectures a week. 2 units.

7. *Introduction to Theoretical Physics.*—A course of lectures upon selected topics, including elasticity, viscosity, and hydromechanics.

Two lectures a week. 2 units.

8. *Physical Optics.*—A course of lectures accompanied by laboratory work, covering optical instruments, interference, diffraction, polarisation, the nature of light and experiments on ether drift.

Text-book: Wood, *Physical Optics,* Macmillan.

Two lectures and one three-hour laboratory period a week. 3 units.

PRIMARILY FOR FOURTH YEAR STUDENTS

10. *Light.*—A short lecture course for students who have not taken Physics 8. A study of optical instruments, light sources and filters, spectroscopy, photometry, energy measurements, refractometers, interference, diffraction and polarised light.

Text-book: Robertson, *Introduction to Physical Optics,* Van Nostrand.

One lecture a week. 1 unit.

11. *Electricity and Magnetism.*—In this course especial attention is given to the theoretical phases of Electricity and Magnetism.

Text-book: Starling, *Electricity and Magnetism.*

Prerequisites: Physics 3 and 5 and Mathematics 10.

Two lectures a week. 2 units.

12. *Introduction to Atomic Structure.*—A course of lectures dealing with the conduction of electricity through gases, cathode and positive rays, elementary spectroscopy, X-rays, radioactivity and other atomic phenomena.

Text-book: Richtmyer, *Introduction to Modern Physics,* McGraw-Hill.

Prerequisites: Courses 3 and 5, and Differential and Integral Calculus.

Two lectures a week. 2 units.

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: Loeb, *Kinetic Theory of Gases.*

Two lectures a week. 2 units.

14. *Thermodynamics.*—A course of lectures covering the fundamental principles of the subject.

Text-book: Birtwistle, *The Principles of Thermodynamics.*

One lecture a week. 1 unit.

19. *Experimental Physics.*—This is chiefly a laboratory course covering work in thermionics, spectroscopy, high vacua and general laboratory technique.

Carefully prepared reports, abstracts and bibliographies will constitute an essential part of the course.

Six hours laboratory a week. 2 to 3 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

20. *Spectroscopy.*—A study of the methods of excitation and observation of spectra, series in arc and spark spectra, multiplets, Zeeman and Stark effects, and band spectra.

One lecture a week. 1 unit.

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.

22. *Advanced Electricity and Magnetism.* — A study of the Electromagnetic theory and its application, the theories of metallic conduction, and electrical oscillations.

One lecture a week. 1 unit.

23. *Vector Analysis.*—A course of lectures upon the applications of Vector Analysis to problems in Physics.

One lecture a week. 1 unit.

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.

25. *The Theory of Sound.*—A course of lectures covering the propagation of sound, and the general phenomena associated with vibrating systems.

One lecture a week. 1 unit.

26. *The Theory of Potential.*—A general course giving the applications of the Theory of Potential to Physics.

One lecture a week. 1 unit.

27. *The Theory of Relativity.*—An introductory course to the Theory of Relativity.

One lecture a week. 1 unit.

28. *Quantum Mechanics.*—An introduction to the theory of Quantum Mechanics, and the application of Wave Mechanics to atomic problems.

One lecture a week. 1 unit.

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.

Two hours a week. Second Term.

Department of Zoology

Professor: C. McLean Fraser.
Assistant Professor: G. J. Spencer.
Assistant Professor: Gertrude M. Smith.

NOTE:—Biology 1 is prerequisite to all courses in Zoology.

1. *General Morphology.*—General morphology of animals. Comparative anatomy. The relationships of animal groups. Comparative life-histories.

Text-book: Parker and Haswell, *Manual of Zoology,* Macmillan.

This course is prerequisite to other courses in Zoology.

Two lectures and two hours laboratory a week. 3 units.

2. *Comparative Anatomy of Vertebrates.*—A detailed comparative study of a member of each of the classes of Vertebrates.

Two lectures and four hours laboratory a week. First Term. 2 units.

3. *Comparative Anatomy of Invertebrates.*—A detailed comparative study of a member of each of the main classes of Invertebrates.

Two lectures and four hours laboratory a week. Second Term. 2 units.

4. *Morphology of Insects.*—General Entomology.

A collection of insects is required.

Two lectures and four hours laboratory a week. First Term. 2 units.

This course is prerequisite to other courses in Entomology.

5. *Histology.*—Study of the structure and development of animal tissues. Methods of histology.

Ten hours a week. Second Term. 3 units.

6. *Embryology.*—A general survey of the principles of vertebrate embryology. Preparation and examination of embryological sections.

Ten hours a week. First Term. 3 units.

7. *Economic Entomology.*—A study of the insect pests of animals and plants; means of combating them.

Lecture and laboratory work, six hours a week. Second Term. 2 units.

8. *Private Reading.*—A course of reading on Biological theories. In this course examinations will be set, but no class instruction will be given. 2 units.

9. *Advanced Entomology.*—A course in (*a*) Insect Morphology and wing venation, or (*b*) Internal Anatomy and Histology, or (*c*) Taxonomy.

Prerequisite: Zoology 4.

Lecture and laboratory work seven hours a week. First Term. 2 units.

Courses correlated with the work for the major thesis are given to graduate students.

THE
FACULTY
OF
APPLIED SCIENCE

(ENGINEERING, NURSING AND HEALTH)

1934-35

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.

The object, then, is to turn out, not finished engineers or industrial leaders—these are the product of years of development in the school of experience—but young men with a special capacity and training for attaining these goals, and thus for helping to develop the industries of the province. Consequently the undergraduate course is made broad and general rather than narrow and highly specialized.

Furthermore, such a course is not only better suited to the British Columbia conditions that the graduate will encounter in his after-life, but also better for later specialization, for it furnishes a more solid foundation, a better background, a broader outlook and a more stimulating atmosphere, all necessary if the specialist is to achieve the maximum results of which he is capable.

The student is offered a full undergraduate course and an additional year of graduate study. The First Year is intended to increase the student's general knowledge and to broaden his outlook. It is hoped that enough interest will be aroused to encourage the student to continue some study of the humanities as a hobby or recreation.

The Second and Third years in Applied Science are spent in a general course that includes Mathematics and all the basic sciences. This gives not only 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 four of the six years' practical experience required by the Engineering Act of the Province for registration to practise engineering.

Students are advised to register with the Association of Professional Engineers of British Columbia in their third year; and to associate themselves with the appropriate engineering societies.

FACILITIES FOR WORK

For laboratory and other Facilities see Pages 20-22.

ADMISSION

The general requirements for admission to the University are given on Pages 27-32.

As for Arts, complete Junior Matriculation or its equivalent is required for admission to Applied Science, and no student may enter with any outstanding supplemental in Junior Matriculation.

Admission to the Second Year in Applied Science may be granted to students who have fulfilled the requirements of the First Year, as outlined below, by Senior Matriculation or similar work taken outside of the University; but students who are considering entering Applied Science are recommended to take the First Year at the University of British Columbia, if they can, for, while they may master the required subject matter as well outside, in the opinion of the Faculty it is highly desirable to have had a year's experience at the University before entering Second Year Applied Science.

This experience includes special orientation lectures, contact with Arts students, with Applied Science senior students, with specialists, with college organizations, and generally with the University methods and adjustments which prepare him to attack the difficult and heavy work of the Second Year efficiently from the outset, or to select another University course, if desired, on the basis of a year's experience and without loss of time.

DEGREES

The degrees offered students in this Faculty are:

Bachelor of Applied Science (B.A.Sc.). (See Page 135.)

Master of Applied Science (M.A.Sc.). (See Page 162.)

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:

I. Chemical Engineering.
II. Chemistry.
III. Civil Engineering.
IV. Electrical Engineering.
V. Forest Engineering.
VI. Geological Engineering.
VII. Mechanical Engineering.
VIII. Metallurgical Engineering
IX. Mining Engineering.
X. Nursing and Health.

A double course in Arts and Science and in Applied Science is offered, leading to the degrees of B.A., and B.A.Sc. (See Page 160.)

This course 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 Applied Science as set forth on Page 137. The latter can select subjects in their Second Year Arts that will satisfy the Arts requirements for the double degree, and at the same time complete the work of First Year Applied Science. Thus they may qualify for an Arts degree without expending any more time than would be required to qualify them for entrance into Second 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 done at least four months' practical work related to his chosen profession. Fourth and Fifth Year Essays (see Page 139) should be based, as far as possible, upon the summer work.

†The curriculum described in the following pages may be changed from time to time as deemed advisable by the Senate.

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

Lectures begin on Wednesday, September the 26th, and 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 attack upon the work.

The only exception is when the summer employment affords experience necessary for the course the student is specializing in, which will lighten to some extent the work of the session (such as in Geological Survey field work for geological students) and then only when 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 it was impossible for him to release the student earlier, the Dean may allow the student to enter without penalty. 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 4, Page 136.

GENERAL OUTLINE OF UNIVERSITY COURSES

Students in Nursing and Health register directly in Applied Science and take the special course outlined on Pages 153-160. All other students of Applied Science have a general course common to all for the first three years as under:

FIRST YEAR

The students register in Arts and take the following classes as Arts students:

English 1 (a and b).

Mathematics 1 (Algebra, Geometry, Trigonometry).

Chemistry 1.

Physics 1 or 2.

Latin 1 or French 1 or *German B.

The passing grade is 50 per cent. for English, Chemistry, Physics, German B, and each of the Mathematical subjects, but in the others a mark of 40 per cent. will be accepted provided an average of 60 per cent. has been obtained in the total work of the year. No student with any supplemental outstanding will be admitted to Second Year Applied Science.

Biology 1, if taken as an optional extra subject, and passed with a grade of at least 50 per cent., need not be repeated in the Second Year. Economics 1, taken in Arts, is accepted in lieu of Economics in Applied Science.

A reading knowledge of French and German is desirable for students in Engineering.

Students who have passed First Year Arts and Science, but who have failed to make the necessary entrance requirements for the Second Year Applied Science, may take the September Supplemental Examinations of Arts and Science.

First Year students are advised to attend the noon-hour talks on the choice of a profession and on the life and work in various callings likely to be selected by Applied Science graduates, as these may assist the student in determining whether Applied Science is the best course for him. If he finds it is not, he can proceed in Arts without any loss of time.

The work of the Second and Third Years is the same in all courses, except those in Nursing and Health.

*Applied Science students are advised to take German B.

SECOND YEAR

Subject	For Details See Page:	First Term		Second Term	
		Lectures per Week.	Laboratory Hours per Week.	Lectures per Week.	Laboratory Hours per Week.
Math. 1 Trigonometry	187	2	.....	.....	.....
Math. 2 Solid Geometry	187	.....	.....	2	.....
Math. 3 Algebra	187	2	.....	2	.....
Math. 4 Calculus	188	2	.....	2	.....
C.E. 1 Descriptive Geom.	170	.....	3	.....	3
M.E. 1 Drawing 1	188	.....	6	.....	6
Physics 3 Mechanics	200	3	3	.....	.....
Physics 4 Heat	201	.....	.....	3	3
Chem. 2a Qual. Analysis	167	1	3	1	3
M.E. 2a Shop Practice	189	1	2	1	2
Biology 1* Introductory	165	1	2	1	2
C.E. 2 Surveying	170	Field Work			
C.E. 30 Engineering Prob. 1	178	.....	4	.....	4

*Biology 1, Arts, passed with a grade of at least 50 per cent, will be accepted in lieu of this course.

THIRD YEAR

No student with any supplemental outstanding will be admitted to the Third Year of Applied Science.

Subject	For Details See Page:	First Term		Second Term	
		Lectures per Week.	Laboratory Hours per Week.	Lectures per Week.	Laboratory Hours per Week.
Math. 6 Calculus	188	3	.....	3	.....
Math. 7 Anal. Geom.	188	2	.....	2	.....
Chem. 2b Quan. Analysis	167	1	3	1	3
C.E. 4 Graphics	170	.....	2	.....	2
M.E. 6a Elem. Theory	190	2	.....	2	.....
Physics 5 Electricity	201	2	3	2	3
Physics 6 Mechanics	201	2	.....	2	.....
C.E. 5 Mapping	171	.....	3	.....	3
C.E. 6 Surveying	171	2	.....	2	.....
Geology 1 General	184	2	2	2	2
†C.E. 7 Surveying	171	Field Work			
C.E. 31 Engineering Prob. 2	178	.....	3	.....	3

†Students entering Civil, Forest, Geological, Metallurgical, and Mining Engineering are required to take Civil Engineering 7 (see Page 171) immediately after the spring examinations.

FOURTH AND FIFTH YEARS

Essays

Essays are required of all students entering the Fourth and Fifth Years, and must conform to the following:

1. The essay shall consist of not less than 2,000 words.
2. It must 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.
3. It must be typewritten, or clearly written on paper of substantial quality, standard letter size (8½ x 11 inches), on one side of the paper only, leaving a clear margin on top and left-hand side. Every student must 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.
4. *All essays must be handed in to the Dean not later than November 15th.*

All essays, when handed in, become the property of the Department concerned, and are filed for reference. Students may submit duplicate copies of their essays in competition for the students' prizes of the Engineering Institute of Canada, or the Canadian Institute of Mining and Metallurgy.

Essays will be considered as final Christmas examinations. A maximum of 100 marks is allowed, the value being based on presentation, English, including spelling, and matter. In Fourth Year essays, presentation, that is, the manner in which the material is arranged and presented to the reader, is given most weight, with English second and matter third. In Fifth Year essays, most emphasis is placed on matter, but the other two are still rated highly.

COURSES

I. Chemical Engineering

The course in Chemical Engineering is designed to prepare the student for the duties of managing engineer in a chemical manufacturing plant. As such he must be conversant not only with the chemical processes involved, but he must 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 fourth and fifth years the maximum of chemical training, allowed by the time at the disposal of the student, is given in inorganic, organic and physical chemistry. Special emphasis is laid on such problems as the operation of electrolytic cells and electric furnaces, the transportation of gases, liquids and solids, combustion, grinding, mixing, drying, evaporation, distillation, condensation, filtration and adsorption processes.

FOURTH YEAR

Subject	For Details See Page:	First Term		Second Term	
		Lectures per Week.	Laboratory Hours per Week.	Lectures per Week.	Laboratory Hours per Week.
Essay	139	.....	.....	.....	.....
Economics 1 (Arts)	179	3	.....	3	.....
Met. 1 Introductory	198	2	.....	2	.....
Geol. 2 (a) Mineralogy	184	2	2	.....	.....
Chem. 3 Organic	167	2	3	2	3
Chem. 4 Theoretical	168	2	3	2	3
Chem. 5 Adv. Analysis	168	1	9	1	6
E.E. 1 General	193	2	2	2	2
Physics 7 Light	201	1	.....	1	.....
C.E. 12 Hydraulics	173	1	3	1	3

FIFTH YEAR

Subject	For Details See Page:	First Term		Second Term	
		Lectures per Week.	Laboratory Hours per Week.	Lectures per Week.	Laboratory Hours per Week.
Essay	139	.....	.....	.....	.....
Chemistry 6 Industrial	168	2	.....	2	.....
Chem. 7 Physical	169	2	3	2	3
Chem. 8 Electro	169	2	3	2	3
Chem. 9 Adv. Organic	169	2	3	2	3
Chem. 16 Engineering	169	2	.....	2	.....
Met. 2 General	199	2	.....	2	.....
Thesis	.....	.....	12	.....	15

II. Chemistry

The aim of this course is to train the students in the practice of Chemistry, and to give a thorough knowledge in the fundamental principles of this subject, that they may be prepared to assist in the solution of problems of value to the industrial and agricultural life of the Province. The course is arranged to give in the first two years a knowledge of the fundamental principles of Chemistry and Physics, with sufficient mathematics to enable the theoretical parts of the subject to be understood.

In the Fourth Year, Analytical, Organic and Physical Chemistry are studied from the scientific side and in relation to technology; while in the Fifth Year a considerable amount of time is devoted to a short piece of original work.

FOURTH YEAR

Subject	For Details See Page:	First Term		Second Term	
		Lectures per Week.	Laboratory Hours per Week.	Lectures per Week.	Laboratory Hours per Week.
Essay	139	.....	.....	.....	.....
Economics 1 (Arts)	179	3	.....	3	.....
Chem. 3 Organic	167	2	3	2	3
Chem. 4 Theoretical	168	2	3	2	3
Chem. 5 Adv. Analysis	168	1	6	1	6
Met. 1 Introductory	198	2	.....	2	.....
Geol. 2 (a) Mineralogy	184	2	2	.....	.....
Met. 5 Assaying	199	1	5	.....	.....
German B (Arts)	121	3	.....	3	.....
Physics 7 Light	201	1	.....	1	.....

FIFTH YEAR

Subject	For Details See Page:	First Term		Second Term	
		Lectures per Week.	Laboratory Hours per Week.	Lectures per Week.	Laboratory Hours per Week.
Essay	139	.....	.....	.....	.....
Bacteriology 1 (Arts)	81	.....	7	.....	.....
Physics 12 Advanced	201	2	.....	2	.....
Chem. 6 Industrial	168	2	.....	2	.....
Chem. 7 Physical	169	2	3	2	3
Chem. 8 Electro	169	2	3	2	3
Chem. 9 Adv. Organic	169	2	3	2	3
Met. 2 General	199	2	.....	2	.....
Thesis	.....	.....	9	.....	18

III. Civil Engineering

The broad field covered by Civil Engineering makes it an adjunct of many other branches of engineering, yet 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, industrial and commercial enterprises.

The course in Civil Engineering is designed to provide, in so far as time will permit, foundations for continued growth along those lines which the student's interest and environment determine, without compelling too early specialization. Training in pure and applied science, in the humanities, in economics and engineering law, and in the technical phases of professional work establishes a broad basis for the stimulation of a sincere spirit of public service and for the development of that capacity for reliable work and judgment which makes safe the assumption of responsibilities.

The methods of instruction are planned with the view of bringing out the powers and initiative of the students while training them in the habits of accurate analysis and careful work. Students are encouraged to secure summer work which will give them an insight into the various phases of the career upon which they are about to enter, and the summer essays lay the foundation for the ability to set forth, in clear and precise language, descriptions and analyses of projects and engineering activities. In the Fifth Year thesis an opportunity is given for special investigation and research under the supervision of experienced engineers.

FOURTH YEAR

Subject	For Details See Page:	First Term		Second Term	
		Lectures per Week.	Laboratory Hours per Week.	Lectures per Week.	Laboratory Hours per Week.
Essay	139	.....	.....	.....	.....
C.E. 8 Foundations	171	2	3	1	.....
C.E. 9 Elementary Design	172	.....	.....	1	3
C.E. 10 a & b Strength of Mtls.	172	2	3	2	3
C.E. 11 Railways	173	2	.....	2	.....
C.E. 12 a & b Hydraulics	173	1	3	1	3
C.E. 13 Mapping	173	.....	3	.....	3
C.E. 14 Surveying	173	2	.....	2	.....
C.E. 15 Drawing	174	.....	2	.....	2
M.E. 6(b) Laboratory	190	.....	3	.....	3
E.E. 1 General	193	2	2	2	2
Economics 1 (Arts)	179	3	.....	3	.....
C.E. 16 Surveying	174	Field Work			
C.E. 21 Water Power	175	1	.....	1	1
C.E. 28 Seminar	177	1	.....	1	.....

FIFTH YEAR

Subject	For Details See Page:	First Term		Second Term	
		Lectures per Week.	Laboratory Hours per Week.	Lectures per Week.	Laboratory Hours per Week.
Essay	139	.....	.....	.....	.....
C.E. 17 Structural Design	174	1	4	1	6
C.E. 18(a) Engineering Economics	174	2	.....	.....	.....
C.E. 18(b) Engineering Economics	174	.....	.....	2	.....
C.E. 19 Law—Contracts	174	1	.....	1	.....
C.E. 20 Geodesy	175	1	.....	1	.....
C.E. 22 Municipal	175	2	2	2	2
C.E. 23 Transportation	176	2	.....	2	.....
C.E. 24(a) Mechanics of Mtls.	176	2	3	2	3
C.E. 24(b) Reinforced Concrete Design	177	1	2	.....	.....
C.E. 25 Theory of Structures	177	1	6	1	6
C.E. 26 Trips	177	Required Sat. A.M.			
C.E. 27 Thesis	177	.....	3	.....	3
C.E. 28 Seminar	177	1	.....	1	.....
C.E. 29 Hydraulic Machines	178	1	.....	1	1

IV. Electrical Engineering

This course is designed for those students who desire a general training in the theory and practice of Electrical Engineering. The Fourth Year of the course is devoted to the study of the basic principles of Mechanical and Electrical Engineering, and is intended to prepare the student for the more specialized courses which are given in the Fifth Year. In the Fifth Year an intensive course in all the important branches of Design, Transmission, Electro-Technology, Radio and Electric Traction, is given, together with thorough laboratory work in most of these subjects.

FOURTH YEAR

Subject	For Details See Page:	First Term		Second Term	
		Lectures per Week.	Laboratory Hours per Week.	Lectures Per Week.	Laboratory Hours per Week.
Essay	139	.....	.....	.....	.....
*E.E. 2 Direct Current Technology	193	3	3	1	.....
*E.E. 3 Elementary AC Technology	194	.....	.....	2	3
*Math. 8 or 9 (Adv. Calculus)	188	3	.....	3	.....
*M.E. 3 Kinematics	189	2	.....	2	.....
*M.E. 7 Heat Engines	190	3	3	3	3
*M.E. 4 Dynamics	189	2	.....	2	.....
*E.E. 5 Electrical and Magnetic Measurements and Instruments	194	2	.....	2	.....
*E.E. 6 Electrical Problem Course	194	.....	2	.....	2
*C.E. 12 Hydraulics	173	1	3	1	3
*M.E. 5 Machine Design	190	2	.....	2	.....
M.E. 5(a) Problem Course in Strength of Materials and Design	190	.....	1	.....	1
C.E. 10 Strength of Materials	172	2	3	2	3
†M.E. 2 b	189	.....	2	.....	2

*Prerequisite for Electrical Students entering Fifth Year.
†Optional.

FIFTH YEAR

Subject	For Details See Page:	First Term		Second Term	
		Lectures Per Week.	Laboratory Hours per Week.	Lectures Per Week.	Laboratory Hours per Week.
Essay	139	.....	.....	.....	.....
E.E. 7 Design of Electrical Machinery	194	2	3	2	3
E.E. 8 Electrical Traction	195	1	.....	1	.....
E.E. 9 Transmission and Distribution of Electrical Energy	195	2	.....	2	.....
M.E. 15 Prime Movers	192	2	.....	2	.....
M.E. 14 Mechanical Design	192	1	.....	1	.....
E.E. 10 Electrical Problem Course	195	.....	2	.....	2
E.E. 11 Radio Telegraphy and Radio Telephony	195	2	4	2	4
Math. 8 or 9 (Differential Equa. or Adv. Calculus	188	3	.....	3	.....
E.E. 12 Electro-technology	196	2	4	2	4
E.E. 13 Transient Phenomena and Oscillations	197	1	.....	1	.....
M.E. 8 Steam Turbines	191	1	.....	1	.....

V. Forest Engineering

In British Columbia the forest industries, including logging and the manufacture of lumber, pulp and paper, lead all others. They must always play a very important part in the economy of the Province, because seven-eighths of the productive land is absolute forest soil, that will grow good timber but no other crop of value; and because over half the remaining stand of saw-timber — the last big reserve — of Canada is here. The development of these industries is requiring more and more the services of engineers, and especially is this true in logging. Furthermore, most of the forest land is owned by the public, and the management of these vast estates is a task that will require constant growth on the part of the government forest services.

This indicates very briefly the various fields of service open to Forest Engineers, and for which the course of studies is designed. Primarily the course is planned for the lumber industry, and a major part of the time—apart from the preliminary foundation work—is devoted to the branches of engineering most used by it. In addition, the fundamental subjects of forestry are covered. As in other engineering courses, the students are expected to obtain practical experience during the summer vacations, this being an essential supplement to the studies at the University.

Vancouver contains large sawmills, wood-working plants, and plants for seasoning and preserving wood—more, in fact, than any other place in the Province. Pulp mills, logging operations and extensive forests are within easy reach. The advantages of location

are therefore exceptional. A special feature is the affiliation of the Forest Products Laboratory of Canada, maintained at the University by a co-operative arrangement with the Dominion Forestry Branch. A description of the laboratory and its activities is given on Page 182. It affords opportunities for instruction in testing the mechanical properties of timber and other structural materials, and facilities are now provided for experimental and demonstration work in wood seasoning.

The University Forest

A great asset to the University site is the forest, a small remnant of the luxurious stand that once covered the whole peninsula. Not only does it add very much to the beauty of the surroundings, but it is valuable as a shelter belt, a place of recreation, and a convenient demonstration and field study area for the departments of Forestry, Botany and Zoology.

The forest is in the form of a long narrow belt on the western side of the site, flanking Marine Drive for nearly a mile, and containing over 85 acres. In composition it is typical of the low-land stands of the southern coast, and all the principal species of trees and shrubs of the region are represented, including specimens of the old trees as well as a large amount of young growth of different ages.

A small forest nursery is being developed and used for experimental and demonstration work in silviculture and also to provide planting stock for the forest.

FOURTH YEAR

Subject	For Details See Page:	First Term		Second Term	
		Lectures Per Week.	Laboratory Hours per Week.	Lectures Per Week.	Laboratory Hours per Week.
Essay	139	.....	.....	.....	.....
F.E. 1 General Forestry	179	1	.....	1	.....
F.E. 2 (a) Mensuration*	179	1	3	1	3
F.E. 3 Protection	180	.....	.....	1	.....
F.E. 6 (a) Management 1	180	1	.....	1	.....
F.E. 9 Lumbering	181	2	.....	1	.....
Bot. 1 General Botany	165	2	2	2	2
Bot. 5b Dendrology	166	1	2	1	2
Economics 1 (Arts)	179	3	.....	3	.....
C.E. 8 (a) Foundations	171	1	3	.....	.....
C.E. 9 Structural Design	172	.....	.....	1	3
C.E. 10 Strength Materials	172	2	3	2	3
C.E. 11 Railways	173	2	.....	2	.....
C.E. 12 Hydraulics	173	1	1	1	1
C.E. 13 Mapping	173	.....	.....	.....	3
C.E. 14 Surveying	173	2	.....	.....	.....

*Also 1 week Field Work immediately after spring examinations.

FIFTH YEAR

Subject	For Details See Page:	First Term		Second Term	
		Lectures Per Week.	Laboratory Hours per Week.	Lectures Per Week.	Laboratory Hours per Week.
Essay	139	.....	.....	.....	.....
F.E. 2 (b) Mensuration	180	.....	2	.....	2
F.E. 5 Wood Technology	180	2	3	1	2
F.E. 6 (a) Management 1	180	1	.....	1	.....
F.E. 7 History	181	1	.....	1	.....
F.E. 8 Silviculture*	181	2	.....	2	3
F.E. 10 Logging Engineering*	181	1	4	2	4
F.E. 11 Milling*	182	2		.....	.....
F.E. 13 Lumber Grading	182	.....	.....	1	3
Economics 1 (Arts)	179	3	.....	3	.....
Bot. 6b Pathology Zool. 7 Entomology	166 205	.....	.....	1	2
Bot. 7a Ecology	166	1	2	.....	.....
C.E. 17 Structural Design	174	1	3	1	3
C.E. 18 Engineering Economics	174	2	.....	2	.....
C.E. 19 Engineering Law	174	1	.....	1	.....
M.E. 6b Steam Lab.	190	.....	2	.....	2

*Field trips are required in these courses and students should be prepared for a total expense which should not exceed $20 each.

VI. Geological Engineering

This course 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 of training.

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, Palæontologist, 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.

As a supplement to the work in the classroom, laboratory and field during the session, the student is expected to obtain practical experience during the summer vacation.

Students are advised to become student members of the Canadian Institute of Mining and Metallurgy.

FOURTH YEAR

Subject	For Details See Page:	First Term		Second Term	
		Lectures Per Week.	Laboratory Hours per Week.	Lectures Per Week.	Laboratory Hours per Week.
Essay	139	.....	.....	.....	.....
Geol. 2 Mineralogy	184	2	2	2	2
Geol. 4 Structural	185	3	.....	3	.....
Geol. 5 Regional	185	3	1	3	1
Chem. 4 Theoretical	168	2	3	2	3
Min. 1 Metal Mining	197	2	.....	2	.....
Met. 5 Fire Assaying	199	1	5	.....	.....
Met. 1 General	198	2	.....	2	.....
Ore Dressing 1 General	199	1	.....	1	.....
Zool. 1	205	2	2	2	2
C.E. 13 Mapping	173	.....	.....	.....	3
Chem. 5* Adv. Analysis	168	1	6	1	6
Met. 6* Wet Assaying	199	.....	3	.....	3

*Either Chem. 5 or Met. 6 must be taken.

FIFTH YEAR

Subject	For Details See Page:	First Term		Second Term	
		Lectures Per Week.	Laboratory Hours per Week.	Lectures Per Week.	Laboratory Hours per Week.
Essay	139	.....	.....	.....	.....
Geol. 6 Palaeontology	186	2	2	2	2
Geol. 7 Petrology	186	2	4	2	4
Geol. 8 Economics	186	3	1	3	1
C.E. 18 Engr. Economics	174	2	.....	2	.....
Geol. 9 Mineralography	186	.....	2	.....	2
Geol. 10 Field	187	.....	3	.....	3
Min. 2 Coal and Placer	197	2	.....	2	.....
Min. 3 Metal Mining	198	2	.....	2	.....
Min. 5 Surveying	198	1	.....	.....	.....
Met. 2 Smelting	199	2	.....	2	.....
Ore Dressing 1	199	1	.....	1	.....
Ore Dressing 2 Laboratory	200	.....	3	.....	3
Thesis	.....	.....	4	.....	5

VII. Mechanical Engineering

The course 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.

With this in view, stress has been laid upon such subjects as Mathematics, Physics, Applied Mechanics, Strength of Materials, Applied Thermodynamics and Hydraulics. Graduates of this course are therefore qualified to enter upon any of the many specialized branches of this profession, especially in British Columbia, whose rapid industrial development demands Mechanical Engineers prepared to attack a great diversity of problems.

Although fundamentally general in character, the course embodies design of prime movers; mechanical and hydraulic machinery design; power plant operation and design; and the testing of engines and power plants, thus giving sufficient specialized training in Mechanical Engineering to enable students to enter the field of design or research should they so desire.

Students following this course are given a general course in the fundamentals of Electrical Engineering.

FOURTH YEAR

Subject	For Details See Page:	First Term		Second Term	
		Lectures Per Week.	Laboratory Hours per Week.	Lectures Per Week.	Laboratory Hours per Week.
*C.E. 10 Strength of Materials	172	2	3	2	3
*M.E. 3 Kinematics	189	2	.....	2	.....
*M.E. 4 Dynamics of Machines	189	2	.....	2	.....
*M.E. 5 Machine Design	190	2	.....	2	.....
M.E. 5 (a) Problems in Materials and Design	190	.....	1	.....	1
*M.E. 7 Heat Engines	190	3	3	3	3
*M.E. 13 Physical Treatment of Metals	192	1	2	1	2
E.E. 2 and 3 Electrical DC and AC Technology	193	3	4	3	4
*C.E. 12 Hydraulics	173	1	3	1	3
*Math. 8 Advanced Calculus or Math. 9 Differential Equations	188	3	.....	3	.....
†M.E. 2 (b) Shop	189	.....	2	.....	2
*Essay	139	.....	.....	.....	.....

*Prerequisite for Mechanical students entering the Fifth Year.
†Optional.

FIFTH YEAR

Subject	For Details See Page:	First Term		Second Term	
		Lectures Per Week.	Laboratory Hours per Week.	Lectures Per Week.	Laboratory Hours per Week.
M.E. 8 Steam Turbines	191	1		1	
M.E. 9 Internal Combustion Eng.	191	1	5	1	5
M.E. 10 Refrigeration	191	1		1	
†M.E. 11 Heating and Ventilation	191	1	.....	1	.....
M.E. 12 Power Plant Design	191	1	3	1	3
M.E. 15 Prime Movers	192	2	.....	2	.....
M.E. 16 Machine Design	192	2	5	2	5
M.E. 17 Applied Mechanics	192	1	.....	1	.....
†M.E. 18 Aeronautics	192	1	.....	1	.....
M.E. 19 Problems in Mech. and Elec. Eng.	192	.....	2	.....	2
E.E. 14 General	197	2	4	2	4
Math. 9 Differential Equations or Math. 8 Adv. Calculus	188	3	.....	3	.....
Essay	139	.....	.....	.....	.....
*M.E. (2b) Shop	189	.....	2	.....	2

†Alternative subjects.
*Optional.

VIII.-IX. Metallurgical and Mining Engineering

Modern Mining and Metallurgy cover too large a field to cover in detail in a University course, therefore the courses given are intended to give the students a broad training and knowledge of the fundamental, technical, economic and social principles involved, to serve as a sufficient foundation for advancement in any branch of the work that the student may enter after graduation. Sufficient specialized training is given in draughting, assaying and mine surveying to equip the student for the actual job which he is likely to enter upon graduating.

Laboratory equipment is sufficient to give a thorough laboratory drilling in Assaying, Ore Dressing, Pyrometry and Metallurgical Analysis.

Coal, Iron and Steel are covered in general courses and specialization is chiefly in non-ferrous mining and metallurgy, with particular reference to British Columbia conditions.

Students are expected to spend their vacations in practical work in connection with mining or metallurgy and are required to do so between the fourth and fifth year as an essential part of their course, without which a degree will not be granted.

Vancouver is conveniently located in proximity to coal and metal mining districts, and is an important mining centre. Students

and graduates have normally little trouble in getting positions, through the generous co-operation of the mining companies in the Province.

Students are advised to become student members of the Canadian Institute of Mining and Metallurgy.

VIII. Metallurgical Engineering

FOURTH YEAR

Subject	For Details See Page:	First Term		Second Term	
		Lectures Per Week.	Laboratory Hours per Week.	Lectures Per Week.	Laboratory Hours per Week.
Essay	139	.....	.....	.....	.....
Economics 1 (Arts)	179	3	.....	3	.....
C.E. 9 Elem. Design	172	.....	.....	1	3
C.E. 10 Str. of Materials	172	2	3	2	3
C.E. 12 Hydraulics	173	1	3	1	3
C.E. 13 Mapping	173	.....	.....	.....	3
M.E. 6 (b) Laboratory	190	.....	3	.....	3
Geol. 2 Mineralogy	184	2	2	2	2
E.E. 1 General	193	2	2	2	2
Min. 1 Metal Mining	197	2	.....	2	.....
Ore Dressing 1 General	199	1	.....	1	.....
Met. 1 General	198	2	.....	2	.....
Met. 5 Fire Assay	199	1	5	.....	.....
Met. 6 Wet Assay	199	.....	3	.....	3

FIFTH YEAR

Subject	For Details See Page:	First Term		Second Term	
		Lectures per Week.	Laboratory Hours per Week.	Lectures Per Week.	Laboratory Hours per Week.
Essay	139	.....	.....	.....	.....
Geol. 9 Mineralography	186	.....	2	.....	2
Geol. 8 Economics	186	3	1	3	1
C.E. 18 Engr. Economics	174	2	.....	2	.....
Chem. 8 Electro.	169	2	3	2	3
Ore Dressing 2 Laboratory	200	.....	9	.....	9
Min. 3 Metal Mining	198	2	.....	2	.....
Met. 2 Smelting	199	2	.....	2	.....
Met. 3 Calculations	199	2	.....	2	.....
Met. 4 Analysis	199	.....	9	.....	9
Ore Dressing 1	199	1	.....	1	.....

IX. Mining Engineering

FOURTH YEAR

As in Metallurgical Engineering. (See Page 151.)

FIFTH YEAR

Subject	For Details See Page:	First Term		Second Term	
		Lectures per Week.	Laboratory Hours per Week.	Lectures Per Week.	Laboratory Hours per Week.
Essay	139	.....	.....	.....	.....
Geol. 7 Petrology	186	2	4	2	4
Geol. 8 Economics	186	3	1	3	1
C.E. 18 Engr. Economics	174	2	.....	2	.....
Met. 2 Smelting	199	2	.....	2	.....
Ore Dressing 2 Laboratory	200	.....	9	.....	9
Min. 2 Coal and Placer	197	2	.....	2	.....
Min. 3 Metal Mining	198	2	.....	2	.....
Min. 4 Machinery	198	2	.....	2	.....
Min. 5 Surveying	198	1	.....	.....	.....
Min. 7 Methods	198	.....	.....	1	.....
Min. 6 Design	198	.....	3	.....	3
Ore Dressing 1	199	1	.....	1	.....

Short Courses in Mining

In place of the short daytime courses in Mining given at the University in previous years, Short Courses in Mining Subjects will be given each year as night classes in connection with the British Columbia Chamber of Mines and the Vancouver School Board. Classes are held on Monday and Thursday evenings and include lectures on Mining, Smelting, Ore Dressing, Geology and Mineralogy, with practical laboratory work in Mineralogy. These courses usually begin about November 15th and continue until the end of February.

The classes are open to prospectors, business men and any others interested. A fee of $5.00 is charged for the full courses, and registration should be made at the office of the Chamber of Mines, 402 Pender St. W., Vancouver, B. C. Correspondence in regard to the courses and applications for registration, accompanied by fee, should be addressed to the Chamber of Mines.

X. Nursing and Health

1. *Nursing A.*—An undergraduate course, combining academic and professional courses. (See below.)

2. *Nursing B.*—A graduate course of one academic year in Public Health Nursing. (See Page 157.)

3. *Nursing C.*—A graduate course of one academic year in Teaching and Supervision in Schools of Nursing. (See Page 158.)

4. A double course for the combined degrees of B.A. and B.A.Sc. (Nursing). (See Page 160.)

Registration for these courses will be subject to the general University Regulations (see Pages 29-32) and to the special requirements of the Department.

All regulations are subject to change from year to year, and subjects or courses may be modified during the year as the Faculty may deem advisable.

Nursing A (Combined Undergraduate Course)

This is a five-year Combined Course leading to the Degree of B.A.Sc. (Nursing) and to the Diploma in Nursing of an associated hospital. It is given by the University in co-operation with the Schools of Nursing of associated hospitals, which means those hospitals that have signified their willingness to supply the professional part of the course, and have received the approval of the University Senate for that purpose. Up to the present time the Vancouver General Hospital is the only hospital which has entered into association with the University to this end.

The course is open to applicants who meet the general requirements mentioned above, and who, in the opinion of the Department, are personally fitted for the profession of nursing. In addition they must satisfy the entrance requirements of the associated Hospital Schools of Nursing; the individual applicant must make her arrangements for admission to the associated hospital directly with the Superintendent of Nurses and in advance of the opening of the University term.

Nurses who have graduated from a hospital that is in affiliation with this University or otherwise approved by the Senate, may be awarded the degree on complying with the following conditions:

1. They shall have matriculated.
2. They shall take, or shall have taken, the full academic training laid down for this course. At least one year of such training shall be, or shall have been, taken in the University of British Columbia.

3. Except under special circumstances, the course shall be entered upon within two years of the time of graduating as a nurse.

The aim of the Combined Course is to afford a broader education than can be given by the Hospital Schools of Nursing alone, and thus to build a sound foundation for those who desire to fit themselves for Teaching and Supervision in Schools of Nursing or for Public Health Nursing Service.

The First and Second Years (of the Combined Course), or the First, Second and Third Years (of the Double Course), which are academic, give the students an introduction to general cultural subjects and a foundation in the sciences underlying the practice of nursing. Following these academic, or pre-clinical years, the student enters an associated Hospital School of Nursing for a period of thirty-two months. The first four months is a probationary period; upon acceptance by the School of Nursing the student remains for a period of twenty-eight months. This period of professional training is planned to afford a wide experience and training in the care of the sick, and to develop the skill, observation and judgment necessary to the efficient practice of nursing. The Final Year (which is the same for the Five-Year and the Double Course) affords two alternative courses, one in Public Health Nursing (Nursing B) and the second in Teaching and Supervision in Schools of Nursing (Nursing C).

FIRST YEAR (ACADEMIC)

Subject	For Details See Page:	First Term		Second Term	
		Lectures Per Week.	Laboratory Hours per Week.	Lectures Per Week.	Laboratory Hours per Week.
English 1 (a)	103	2	.....	2	.....
English 1 (b)	104	2	.....	2	.....
Choice of Mathematics 1	115				
or Latin 1	92				
or French 1	118	3	.....	3	.....
or History 1, 2 or 4	111				
Economics 1	94	3	.....	3	.....
Chemistry 1	87	3	3	3	3
Biology 1	82	2	2	2	2
History of Nursing	202	1	.....	1	.....

SECOND YEAR (ACADEMIC)

Subject	For Details See Page:	First Term		Second Term	
		Lectures Per Week.	Laboratory Hours per Week.	Lectures Per Week.	Laboratory Hours per Week.
English 2	104	3	.....	3	.....
Zoology 1	128	2	2	2	2
Physics 1 or 2	124	3	2	3	2
Philosophy 1 (a)	122	4	.....	4	.....
Bacteriology 1	81	1	6	.....	.....
Bacteriology 2	81	.....	.....	1	6
Elementary Organic Chemistry	202	.....	.....	1	1

Probationary Period (Hospital)

It has been arranged that the students of both the Combined Course and the Double Course will enter the associated Hospital along with the regular class of probationers entering the Hospital in September. The midsummer vacation period was formerly used for the probationary term, but it is believed that it will be of benefit to the student to have a vacation before entering the Hospital, and also an advantage to enter at the same time as the regular class. The students must meet all admission requirements of the associated Hospital Schools of Nursing; among other requirements, they must have attained such age as is fixed by the School—in the Vancouver General Hospital School of Nursing the student must have reached her nineteenth birthday before she may enter the Hospital.

During this probationary period the student will undergo rigid examination as to fitness in physique, temperament and character for the practice of nursing. This will afford the Hospital School of Nursing information upon which to judge the student's qualifications for the profession of nursing. It also enables the student to determine whether she feels herself personally fitted or inclined to proceed in the course. The Hospital Schools of Nursing reserve the right to reject candidates who do not reach the required standards.

Third and Fourth Years (Professional)

The Third and Fourth Years of the Combined Course (or the Fourth and Fifth Years of the Double Course) will be spent in practical training in an associated Hospital School of Nursing. Students in these years are required to register with the University even though during this portion of the course they are in residence

at the Hospital. During these professional years students are subject to the authority and are under the direction of the officers of the associated Hospital Schools of Nursing. The required professional period is thirty-two months, in which is included the probationary period of four months. The professional period has been extended to thirty-two months in order to include periods of special training in certain affiliated institutions without shortening the period of general training in the associated Hospital. Full maintenance and such allowance as the associated Hospital authorities may designate are provided, and a yearly vacation is granted at the convenience of the Superintendent of the School of Nursing. A registration fee may be required by the associated Hospital.

The following is an outline of the course as given in the Vancouver General Hospital, which is the only Hospital at present associated with the University in giving the Combined Course.

Instruction in the following Nursing subjects is given by members of the medical staff and by qualified nurse instructors: Introductory Ethics of Nursing; Practical Nursing Procedures; Personal Hygiene; Anatomy and Physiology; Psychology; Elementary Nutrition and Cookery; Drugs and Solutions; Materia Medica; Surgical Nursing; Medical Nursing (including charting); Gynecological Nursing; Nursing of Communicable Diseases; Obstetrical Nursing; Diet in Disease; Pediatric Nursing and Infant Feeding; Nursing in Diseases of the Eye, Ear, Nose and Throat; Nursing in Tuberculosis; Urinalysis; Introduction to Anaesthesia; Introduction to Physiotherapy and X-Ray.

This schedule is open to change at any time, at the discretion of the associated Hospital School of Nursing.

The period of Hospital service includes actual nursing experience in the following departments:

Medical	Operating Room
Surgical	Eye, Ear, Nose and Throat
Gynecological	Obstetrical
Pediatric and Orthopædic	Communicable Diseases (including Tuberculosis)
Observation and Neurological	Diet Kitchen
Infants	Out-Patient

In order to give the student an understanding of the tuberculosis situation in the Province, and of the value of sanatorium treatment, an arrangement has been made between the Vancouver General Hospital and the Provincial Sanatorium at Tranquille, and an opportunity will be given to as many of the students as possible to receive instruction in the nursing care of tuberculosis in this latter institution, in lieu of the course in the tuberculosis

department of the Hospital. Experience in the care of acute infectious diseases will be given when possible.

The Social Service Department of the Hospital offers opportunity for a four weeks' service to a limited number of students. Selection will be made by the Superintendent of Nurses from the students desirous of receiving this course.

The diploma of the Hospital School of Nursing will be granted at the completion of this period.

Final Year (Academic and Professional)

The Final Year will be spent in either Nursing B or Nursing C, at the option of the student. The selection between these courses need not be made until registering with the University for the Final Year.

Nursing B (Public Health Nursing)

A graduate course of one academic year, including work in the University and appropriate field work under the supervision of the various associated Public Health organizations. This course leads to a Certificate in Public Health Nursing.

NURSING B

Subject	For Details See Page:	Total Hours Lectures	Total Hours Laboratory
Preventable Diseases	202	17	
Epidemiology	202	17	
Tuberculosis	202	8	
Mental Hygiene	202	9	
Bacteriology	202		*
Infant Welfare	203	11	
Public Health	203	17	
Public Health Administration	203	4	
Public Health Organizations	203	4	
Vital Statistics	203	16	
Principles and Practice of Public Health Nursing	203	51	
Urban Visiting Nursing Programme	203	2	
Health Education	203	34	
Contemporary Nursing Problems	203	17	
School Hygiene	204	13	
Social Case Work	204	6	
Hospital Social Service	204	2	
Philosophy 9	124	51	
School Administration and Law	103	51	
Public Speaking and Parliamentary Procedure	204	18	
Sociology	204	18	
Motor Mechanics	204		10
Field Work	.....	To run concurrently with the academic work.	

*Hours to be arranged.

Nursing C (Teaching and Supervision)

A graduate course of one academic year, including work in the University, and opportunity for practice teaching and for the observation of Training School administration and ward supervision in associated Hospitals. This course leads to a Certificate in Teaching and Supervision in Schools of Nursing.

NURSING C

Subject	For Details See Page:	Total Hours Lectures	Total Hours Laboratory
Preventable Diseases	202	17	
Mental Hygiene	202	9	
Bacteriology	202		*
Contemporary Nursing Problems	203	17	
Teaching in Schools of Nursing	204	51	
Principles of Supervision in Schools of Nursing	204	34	
Educational Psychology	102	51	
Introduction to the Study of Education Education	102	51	
Public Speaking and Parliamentary Procedure	204	18	
Sociology	204	18	
Social Case Work	204	6	
Electives from Nursing B or from related Science Courses (to make up three units)	.....		
Field Work	Below		

*Hours to be arranged.

Field Work in Nursing B and C

The academic work and *field work will run concurrently throughout the two University terms, with the exception of the last weeks of the Second Term, which, in Nursing B, will be devoted entirely to field work under the supervision of the Provincial Rural Public Health Nursing organizations and, in Nursing C. to such Hospital Service as may be arranged by the associated Hospitals. Field work for some students may have to be delayed until after the close of the University year.

During the period spent in the Hospital, or with a Public Health or Social Welfare organization, all students will be subject

*That students may have some idea of the probable expenses of the course, they are reminded that in addition to the usual expenses of a University course, there will be additional expenses in connection with the term of approximately eight weeks' field work. The sum of one hundred dollars is mentioned as probably the maximum amount required to cover the expense of board and lodging while with the rural nursing organization, and of transportation.

to the authority, and under the direction, of the officers of the associated Hospital School of Nursing or of the Organization.

Through the courtesy and co-operation of the following agencies, arrangements have been made for supervised field work or observation:

FOR NURSING B

Vancouver General Hospital.—The Social Service Department; Mrs. Laura B. Gordon, Director.

The Provincial Department of Health.—Dr. H. E. Young, Provincial Health Officer.

The Victorian Order of Nurses.—Miss M. Duffield, District Superintendent.

The Medical Department of the Vancouver Public Schools.—Dr. H. White, Medical Director; Miss E. Breeze, Director, Department of School Hygiene.

The Department of Child Hygiene, City of Vancouver.—Dr. J. W. McIntosh, City Health Officer; Miss L. Sanders, Supervisor, Department of Child Hygiene.

The Children's Aid Society of Vancouver.—Miss Zella Collins, Manager.

The Family Welfare Bureau of Greater Vancouver. — Miss Mary McPhedran, Director.

The Government Venereal Disease Clinic.—Dr. J. Ewart Campbell, Director; Miss E. V. Cameron, Nurse in charge.

The Provincial Mental Hospital, Essondale.—Dr. A. L. Crease, Medical Superintendent; Miss Hicks, Superintendent of Nurses.

FOR NURSING C

The Vancouver General Hospital.—Dr. A. K. Haywood, Superintendent; Miss Grace Fairley, Superintendent of Nurses.

Admission to Nursing B and C

The courses are open to students of the Combined Course and of the Double Course, also to nurses who have graduated from recognized Schools of Nursing, who are eligible for registration in British Columbia and who are personally fitted for their proposed work. For Nursing B, applicants shall have received adequate instruction and practical experience in the nursing care of communicable diseases and of diseases of infancy and childhood. For Nursing C, it is required that applicants shall fulfil the University educational requirement of Junior Matriculation.

The enrolment of graduate nurses for the certificate course, Nursing B, may have to be restricted temporarily owing to the fact that opportunities for Field Work are at present limited. In the selection of candidates consideration will be given firstly to residents of the Province, and secondly to those whose preparation (academic and professional) best fits them for the special branch

for which they wish to register. The certificate course, Nursing C, will be offered to graduate nurses only when at least two candidates enrol.

Applications for admission to the courses of Nursing B or C should be sent to the Department of Nursing and Health not later than July 15th of the current year. A certificate of good health and physical condition, signed by a regular practising physician, must be presented with the applications.

As a preparation for Nursing B, nurses without previous Public Health Nursing service are advised to obtain at least one month's experience in a visiting nursing agency, or other public health or social agency approved by the Department. While not obligatory, this month is most important, and various Field Agencies—the Provincial Board of Health, the Vancouver General Hospital Social Service Department and the Victorian Order of Nurses, have each agreed to receive nurses for this month in so far as it can be arranged. Inquiry should be made at as early a date as possible to the Department of Nursing and Health, that arrangement may be made with the Field Agencies; the nurses will be responsible for their own maintenance, and will receive no remuneration during this period.

Nurses registering for Nursing C who have had no experience in family case-work, social service or visiting nursing, are also advised to secure this month's experience with one of the Public Health organizations if possible.

For the convenience of graduate nurses already engaged in nursing, who wish to take Nursing B or C, but are unable to take a year off, provision is made that either one may be taken as a part-time course over a period of two or more years. Nurses registering in this way must fulfil the same requirements as the regular-course students.

DOUBLE COURSES FOR THE DEGREES OF B.A. and B.A.Sc.

I. Arts and Science, and Nursing:

FIRST YEAR	SECOND YEAR
English 1	English 2
Mathematics 1	Language 2
Language 1	Chemistry 1 or Physics 1 or 2
Physics 1 or 2 or Chemistry 1	Zoology 1
Biology 1	Economics 1 or History 1 or Philosophy 1
History of Nursing	

THIRD YEAR

Bacteriology 1 and 2	4 units
Sociology or Public Health	3 units
Elementary Organic Chemistry	1 unit

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. 9 units

FOURTH AND FIFTH 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 the Combined Course—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.

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. Consequently students must not select courses in Arts and Science that are included in the Applied Science years, on account of time-table difficulties.

The requirements for the first and second years are as set forth in the Calendar for the first and second years of Arts (Pages 58-60) except as follows:

1. Physics 1 or 2 and Chemistry 1 must be taken. The passing grade for each of these subjects and for Algebra, Geometry and Trigonometry is fifty per cent. (See also, admission to Applied Science, Page 134.) Students are recommended to take Mathematics 2 (*c*) (calculus).
2. Biology 1, Chemistry 2, Geology 1, Mathematics 2 (a) and 2 (b), and Physics 3 or 5 or 6 may not be taken. 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.

The third, fourth, fifth and sixth years of the Double Course correspond to the second, third, fourth and fifth years of Applied Science. The degree of B.A. is conferred on completing the fifth year of this course.

COURSES LEADING TO THE DEGREE OF M.A.Sc.

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. The fee for examination of certificates is $2.00.

3. 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.

4. One major and one minor shall be required and a thesis must be prepared on some approved topic in the major subject. (Two typewritten copies of each thesis shall be submitted. See special circular of "Instructions for the Preparation of Masters' Theses.")

The work shall be of post graduate nature and equivalent in quantity to at least that of the final year. About one-quarter of the time should be devoted to the minor and the remainder to the major subject and thesis.

The choice of and relationship between major and minor subjects, and the amount of work in each, or of tutorial work, must be approved by each of the departments concerned, by the Committee on graduate studies, and by the Dean.

In the case of students who have completed the Teacher Training Course, First or Second Class standing in each of (1) History and Principles of Education, and in (2) Educational Psychology, is accepted as equivalent to a Minor for an M.A.Sc. degree, subject in each case to the consent of the Head of the Department in which the student wishes to take his Major.

5. Examinations, written or oral, or both, shall be required, and standing equivalent to at least 75 per cent. in the major subjects and 65 per cent. in the minor.

6. Application for admission as a graduate student shall be made to the Registrar by October 1st. For fees see Pages 32-36.

EXAMINATIONS AND ADVANCEMENT

1. Examinations are held in December and in April. December examinations will be held in all subjects of the Second and Third Years, and are obligatory for all students of these. December examinations in subjects of the Fourth and Fifth 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, Auditorium Building, who may furnish the necessary certificate.

2. Candidates, in order to pass, must obtain at least 50 per cent. in each subject (for First Year see Page 137). 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 Paras. 12 and 13.) But in the First and Second Years of the course in Nursing and Health the requirements for passing are the same as those for the First and Second Years in Arts and Science, namely:

(*a*) 50 per cent. or over in each paper, or

(*b*) 60 per cent. on the total with a minimum of 40 per cent. in each paper, provided the whole examination is taken at one time.

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. A re-reading of an examination paper will be granted only with the consent of the Head of the Department concerned. The fee for re-reading is $2.00.

4. Supplemental examinations will be held on September 19th, 20th, 21st and 22nd. 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 second week of January.

5. Applications for supplemental examinations, accompanied by the necessary fees (see Schedule of Fees, Pages 32-36) must be in the hands of the Registrar at least two weeks before the date set for the examinations.

6. No student may enter the fourth 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 third year.

7. No student will be allowed to take any subject unless he has previously passed, or secured exemption, in all pre-requisite subjects. If any subject has another which is concurrent with it, both must be taken in the same session.

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 Civil 2 or 7 of the preceding summer may take Civil 5 or Civil 13 the following session. A student repeating his year need not repeat, however, any of the following subjects in which he has made 65 per cent.: Civil Engineering 2, 5, 7, 13, or Mechanical Engineering 1, 2a, 6b or 7 Lab.

9. 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.

10. Any student whose academic record, as determined by the tests and examinations of the first term of the Second or Third 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 re-admitted to the University as long as any supplemental examinations are outstanding.

11. Term essays and examination papers will be refused as passing mark if they are noticeably deficient in English.

12. Honours will be granted in any one of the last 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 136.

13. Honour 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

N.B.—The following subjects may be modified during the year as the Senate may deem advisable.

Department of Botany

Professor: A. H. Hutchinson.
Associate Professor: Frank Dickson.
Associate Professor: John Davidson.

Biology

1. *Introductory Biology.*—The course is introductory to more advanced work in Botany or Zoology; also to courses closely related to Biological Science, such as Agriculture, Forestry, Medicine.

The fundamental principles of Biology; the interrelationships of plants and animals; life processes; the cell and division of labour; life-histories; relation to environment.

The course is prerequisite to all other courses in Biology.

One lecture and one period of two hours laboratory per week.

2. *Principles of Genetics.*—As in Arts. See Page 83.

3. *General Physiology.*—As in Arts. See Page 83.

Botany

1. *General Botany.*—A course including a general survey of the several fields of Botany and introductory to more specialized courses in Botany.

Prerequisite: Biology 1.

Text-book: Coulter, Barnes & Cowles, *Text-book of Botany.* Vol. I., University of Chicago Press.

This course is prerequisite to all courses in Botany except the Evening Course. Partial credit (2 units) toward Botany may be obtained through the Evening Course. (See Page 86.)

Two lectures and one period of two hours laboratory per week.

2. *Morphology.*—As in Arts. See Page 83.

3. *Plant Physiology.*—As in Arts. See Page 84.

4. *Histology.*—A study of the structure and development of plants; methods of killing, fixing, embedding, sectioning, staining, mounting, drawing, reconstructing. Use of microscope, camera lucida; photo-micrographic apparatus.

Text-book: W. C. Stevens, *Plant Anatomy,* P. Blakiston.
Prerequisite: Botany 1.
One lecture and two periods of three hours laboratory per week. Second Term.

5. *Systematic Botany.*

5. (*a*) *Economic Flora.*—An introduction to the classification of plants through a study of selected families of economic plants of British Columbia; useful for food, fodder, medicine and industrial arts; harmful to crops and stock. Weeds and poisonous plants. Methods of control.
Prerequisite: Botany 1.
Text-books: Jepson, *Economic Plants of California,* Jepson, University of California. Thomas and Sifton, *Poisonous Plants and Weed Seeds,* University of Toronto Press.
Two lectures and two hours laboratory per week. First Term.

5. (*b*) *Dendrology.*—A study of the forest trees of Canada, the common shrubs of British Columbia, the important trees of the United States which are not native to Canada. Emphasis on the species of economic importance. Identification, distribution, relative importance, construction of keys.
Prerequisite: Botany 1.
Text-books: Mortan & Lewis, *Native Trees of Canada,* Dominion Forestry Branch, Ottawa. Sudworth, *Forest Trees of the Pacific Slope,* Superintendent of Documents, Washington, D. C.; Davidson and Abercrombie, *Conifers, Junipers and Yew,* T. F. Unwin.
One lecture and one period of two or three hours laboratory or field work per week.

5. (*c*) *Descriptive Taxonomy.*—As in Arts. See Page 85.

6. (*b*) *Forest Pathology.*—Nature, identification and control of the more important tree-destroying fungi and other plant parasites of forests.
Text-book: Rankin, *Manual of Tree Diseases,* Macmillan.
One lecture and one period of two hours laboratory per week during one-half of one term.

6. (*c*) *Plant Pathology* (*Elementary*).—A course similar to 6 (*a*), but including more details concerning the diseases studied.
Text-book: Heald, *Manual of Plant Diseases,* McGraw-Hill.
Prerequisite: Botany 1.
Two lectures and four hours laboratory a week. Second Term.

7. (*a*) *Forest Ecology and Geography*—The inter-relations of forests and their environment; the biological characteristics of important forest trees; forest associations; types and regions; physiography.

Reference books: Whitford and Craig, *Forests of British Columbia,* Ottawa; Zon and Sparhawk, *Forests of the World,* McGraw-Hill; Hardy, *The Geography of Plants,* Oxford University Press.

One lecture per week during term. Field trips and laboratory work during the session amounting to thirty hours, one period per week.

Department of Chemistry

Professor: R. H. Clark.
Professor of Analytical Chemistry: E. H. Archibald.
Associate Professor: W. F. Seyer.
Associate Professor: M. J. Marshall.
Assistant Professor: William Ure.

1. *General Chemistry.*—The course comprises a general survey of the whole field of Chemistry and is designed on the one hand to provide a thorough groundwork for further study in the sciences and on the other to give an insight into the methods of chemical investigation, the fundamental theories and some important applications, such as are suitable to the needs of a cultural education. Students must reach the required standard in both lecture and laboratory work.

Text: *Smith's College Chemistry,* revised by Kendall, 1929 Edition, The Century Co. 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

2. *Qualitative and Quantitative Analysis.*

(*a*) *Qualitative Analysis.*—During the first six weeks of the term an additional lecture may be substituted for a part of the laboratory work.

Text-book: A. A. Noyes, *Qualitative Analysis,* Macmillan.

For reference: F. W. Millar, *Elementary Theory of Qualitative Analysis,* Century Co.

Prerequisite: Chemistry 1.

One lecture and one period of three hours laboratory per week.

(*b*) *Quantitative Analysis.*—This course embraces the more important methods of gravimetric and volumetric analysis.

Text-book: Engelder, *Elementary Quantitative Analysis,* John Wiley & Sons.

Prerequisite: Chemistry 1.

One lecture and one period of three hours laboratory per week.

Course (*b*) must be preceded by Course (*a*).

3. *Organic Chemistry.*—This introduction to the study of the compounds of carbon will include the method of preparation and a

description of the more important groups of compounds in both the fatty and the aromatic series.

Text-books: Holleman-Walker, *Text-book of Organic Chemistry,* Wiley; Gattermann-Wieland, *Laboratory Methods of Organic Chemistry,* Macmillan.

Two lectures and one period of three hours laboratory per week.

4. (*a*) *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: Millard, *Physical Chemistry for Colleges,* McGraw-Hill.

References: Noyes and Sherrill, *Chemical Principles,* Macmillan. For laboratory use: Findlay, *Practical Physical Chemistry,* Longmans; and Sherrill, *Laboratory Experiments on Physical-Chemical Principles,* Macmillan.

Prerequisites: Chemistry 2 (except for students majoring in Physics). Honor students majoring in Chemistry should take Mathematics 10 concurrently.

Two lectures and three hours laboratory per week. 3 units.

4. (*b*) This course is the same as Chemistry 4 (*a*) with the omission of the laboratory, and is open only to students not majoring in Chemistry. 2 units.

5. *Advanced Qualitative and Quantitative Analysis.*

(*a*) *Qualitative Analysis.*—The work of this course will include the detection and separation of the less common metals, particularly those that are important industrially, together with the analysis of somewhat complex substances occurring in nature.

One lecture and two periods of three hours laboratory per week. First Term.

(*b*) *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 was possible in the elementary course.

Prerequisite: Chemistry 2.

One lecture and two periods of three hours laboratory per week. Second Term.

6. Industrial Chemistry.—Those industries which are dependent on the facts and principles of Chemistry will be considered in as much detail as time will permit. The lectures will be supplemented by visits to manufacturing establishments in the neigh-

bourhood, and it is hoped that some lectures will be given by specialists in their respective fields.

Prerequisite: Chemistry 2, 3 and 4.

Two lectures per week.

7. *Physical Chemistry.*—This course is a continuation of Chemistry 4 and treats in more detail the kinetic theory of gases, properties of liquids and solids, elementary thermodynamics and thermochemistry, properties of solutions, theoretical electrochemistry, chemical equilibrium, kinetics of reactions, radioactivity.

Books recommended: Getman, *Outlines of Theoretical Chemistry,* Wiley; Noyes and Sherrill, *Chemical Principles,* Macmillan; for Laboratory: Sherrill, *Laboratory Experiments on Physico-Chemical Principles,* Macmillan; Findlay, *Practical Physical Chemistry,* Longmans.

Prerequisites: Chemistry 2, 3 and 4.

Two lectures and three hours laboratory per week. 3 units.

8. *Electrochemistry.*—

(*a*) As in Arts. (See Page 89.)

(*b*) Electric furnaces, electrolytic refining and deposition of metals will be studied in detail.

Text-book: Thompson, *Theoretical and Applied Electrochemistry,* Macmillan.

Prerequisites: Chemistry 4.

Two lectures and three hours laboratory per week. Second Term. 1½ units.

9. *Advanced Organic Chemistry.*—As in Arts. (See Page 89.)

11. *Physical Organic Chemistry.*—As in Arts. (See Page 90.)
(Given in 1935-36 and alternate years.)

12. *Colloid Chemistry.*—As in Arts. (See Page 90.)
(Given in 1933-34 and alternate years.)

16. *Chemical Engineering.* — Theory and design of fractionating columns, condensers, multiple effect evaporators; chamber, tunnel, drum, rotary and spray driers. Theory and practice of technical filtration; calculation of capacity of box filters, filter presses, centrifugals, etc. Principles of counter current extraction.

Prerequisites: Chemistry 3 and 4.

Text-book: Walter, Lewis & McAdams, *Principles of Chemical Engineering,* McGraw-Hill.

Reference books: Liddell, *Handbook of Chemical Engineering,* McGraw-Hill; Badger, *Elements of Chemical Engineering,* McGraw-Hill.

Two lectures per week.

The following firms have kindly permitted the students in Chemical Engineering to work one day a week in their plants as part of their practical training:

British Columbia Electric Railway Co. (Gas Department).
Sherwin-Williams Co. of Canada, Limited.
Royal Crown Soaps, Limited.
Imperial Oil Company, Limited.
B. C. Refractories, Limited.
Triangle Chemical Company, Limited.
Westminster Paper Mills.
Canadian Carbonate, Limited.

17. *Chemical Thermodynamics.*—As in Arts. (See Page 90.)
(Given in 1935-36 and alternate years.)

18. *Advanced Inorganic Chemistry.*—As in Arts. (See Page 90.)
(Given in 1934-35 and alternate years.)

21. *Chemical Kinetics.*—As in Arts. (See Page 91.)
(Given in 1934-35 and alternate years.)

Department of Civil Engineering

Professor: .....
Associate Professor: E. G. Matheson.
Assistant Professor: F. A. Wilkin.
Assistant Professor: A. H. Finlay.
Assistant Professor: A. Lighthall.
Instructor: E. S. Pretious.
Instructor: Archie Peebles.
Instructor: A. Hrennikoff.

1. *Descriptive Geometry.*—Geometrical drawing, orthographic, isometric and axometric projections.

Text-book: Armstrong, *Descriptive Geometry,* second edition, Wiley.

One three-hour period per week.

Mr. Matheson, Mr. Wilkin, Mr. Peebles, Mr. Pretious, Mr. Hrennikoff.

2. *Field Work 1.*—Elementary surveying. Practical problems involving the use of the chain, telemeter, compass, transit and level. Traverses, closed circuits, contour and detail surveys. Levels for profiles, benches and contours.

Work commences immediately upon the close of spring examinations, and consists of field work, eight hours per day for twenty days, or equivalent.

Mr. Pretious, Mr. Peebles, Mr. Hrennikoff.

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.

Text-book: Hudson and Squire, *Elements of Graphic Statics,* McGraw-Hill.

Prerequisites: Physics 6 must either precede or accompany Civil 4.

One two-hour period per week. Mr. Peebles, Mr. Pretious.

5. *Mapping 1.*—Draughting from notes obtained in Civil 2. Maps of telemeter, compass and transit surveys. Contour and topographical maps in convention or color.

Prerequisite: Civil 2.

One three-hour period per week. Mr. Pretious.

6. *Surveying 1.*—Chain and angular surveying; the construction, adjustment and use of the transit, level, compass, stadia, minor field instruments, planimeter, and pantograph; levelling; topography; contour surveying; stadia; railway curves; vertical curves; transition curves.

Prerequisite: Civil 2, Math. 1.

Text-books: Breed and Hosmer, *Elementary Surveying,* Vol. I., Wiley. *Field Office Tables,* Allen.

References: Allen, *Curves and Earthwork;* Sullivan, *Spiral Tables,* McGraw-Hill.

Two lectures per week. Mr. Lighthall.

7. *Field Work 2.*—(*a*) Railway 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*) Hydrographic surveys, topography of a section of river-bed by sounding and fixing position by transits and sextants; the three-point problem; steam-gauging by surface and deep floats and by the current meter.

(*c*) Solar and stellar observations for latitude and azimuth; adjustments of instruments; the use of plane table, sextant and minor instruments.

Prerequisite: Civil 2 and Civil 6.

Time, same as for Civil 2.

Mr. Wilkin, Mr. Lighthall, Mr. Finlay, Mr. Matheson.

8. *Foundations and Masonry.*—(*a*) Borings; bearing power of soils; pile and other foundations; cofferdams; caissons; open dredging; pneumatic and freezing processes; retaining walls; estimates of quantities and costs.

Prerequisite: Civil 4; Civil 10 must either precede or be taken concurrently.

Text-book: Jacoby and Davis, *Foundations of Bridges and Buildings,* McGraw-Hill.

One lecture and one three-hour period per week. First Term. Mr. Matheson.

(*b*) Theory of Earth Pressure; combined stresses, ellipse of stress, principal and conjugate axes, as applied to the determination of earth pressures; Rankine's, Coulomb's, Weyrauch's, Cain's and Rebhann's theories and solutions for earth pressure; retaining walls; dams.

Prerequisite: Civil 4; Civil 8 (*a*) must be taken with 8 (*b*) during the First Term.

References: Ketchum, *Walls, Bins and Grain Elevators;* Howe, *Retaining Walls for Earth;* Cain, *Earth Pressure, Walls and Bins;* Morley, *Theory of Structures.*

One lecture per week each term. Mr. Matheson.

9. *Structural Design 1.*—Problems in draughting, illustrating designs in structural engineering; estimates of quantities and costs; preparation of plans.

Text-books: Conklin, *Structural Draughting and Elementary Design,* Wiley; Carnegie, *Pocket Companion,* Carnegie Steel Co.

Prerequisite: First Term of Civil 10.

One lecture and one three-hour period. Second Term. Mr. Matheson.

10. *Strength of Materials.*—(*a*) A thorough introduction to the fundamental principles dealing with the strength of materials; stress, deformation, elasticity and resilience; the application of the laws of derived curves to the construction of load, shear, moment, inclination and deflection diagrams, fibre stress, deflection of simple, cantilever, and continuous beams under any loading; riveted joints; torsion; columns; combined stresses; longitudinal shear; reinforced concrete; special beams.

(*b*) *Laboratory.* — Proportioning of concrete and testing of cement, concrete, timber and steel specimens to determine the strength and elasticity of these materials.

About one-half of the laboratory time will be set aside for the solution of problems in investigation and design.

Text-book: Maurer and Withey, *Strength of Materials,* Wiley.

References: Swain, *Strength of Materials;* Morley, *Strength of Materials.*

Prerequisites: Physics 6, Civil 4 and 31.

Two lectures and one three-hour period per week.
Mr. Lighthall, Mr. Hrennikoff.

NOTE:—The laboratory testing is performed in the Forest Products Laboratories, under the supervision of Superintendent Brown and Mr. Lighthall.

11. *Transportation 1. Railways.* — The inception of railway projects; reconnaissance, preliminary and location; grade problems; grades, curvature and distance and their effects upon operating costs and revenue; velocity and pusher grades; adjustment of grades for unbalanced traffic; construction; railway economics, traffic, revenue, branch lines.

Prerequisite: Civil 6 and 7.

Text-book: Williams, *Design of Railway Location,* Wiley.

References: Allen, *Railroads, Curves and Earthwork,* McGraw-Hill; Wellington, *Economic Theory of the Location of Railways,* Wiley.

Two lectures per week. Mr. Wilkin.

12. *Hydraulic Engineering 1.*—(*a*) Fundamental principles and their application. Problems on gauges, pressure on surfaces. Bernouilli's theorem, flow through orifices, short tubes, weirs, pipes, and open channels, and the dynamic action of jets.

(*b*) Laboratory period includes experimental work on gauges, pipes, weirs, orifices, short tubes and stream measurements.

Prerequisite: Physics 6.

Text-book: Russell, *Hydraulics,* Holt, 3rd edition.

One lecture and one three-hour period per week.

Mr. Wilkin, Mr. Pretious.

13. *Mapping 2.*—Draughting from notes obtained in Civil 7; railway location and hydrographic surveys; topographic maps from photographic plates.

One three-hour period per week. Mr. Pretious.

14. *Surveying 2.*—(*a*) A continuation of Civil 6. Theory and use of aneroid, sextant, plane-table and precise instruments; plane-table surveying; mine, hydrographic and photo-topographic surveying; Dominion and Provincial surveys. First Term.

(*b*) Field Astronomy. Second Term.

Text-book: Breed and Hosmer, *Surveying,* Vol. II., Wiley.

References: Johnson and Smith, *Theory and Practice of Surveying,* Wiley; Wilson, *Topographic, Trigonometric and Geodetic Surveying,* Wiley; Green's *Practical and Spherical Astronomy,* Ginn and Co.; *Manual of Surveys of Dominion Lands; Instructions for B. C. Land Surveyors.*

Prerequisite: Civil 6.

Two lectures per week. Mr. Lighthall.

15. *Perspective Drawing and Map Projections.*—(*a*) Mathematical perspective; perspective drawings of buildings and structures. First Term.

(*b*) Map Projections. Second Term.

Prerequisite: Civil 1.

Text-books: Crosskey, *Elementary Perspective,* Blackie & Son; Armstrong, *Descriptive Geometry,* Second Edition, Wiley.

One two-hour period per week. Mr. Lighthall.

16. *Field Work 3.*—Problems in geodetic and precise surveying; determination of latitude, azimuth and time by solar and stellar observations; baseline measurements; precise levelling.

Prerequisite: Civil 7.

Time, same as for Civil 2. Mr. Lighthall.

17. *Structural Design 2.*—Selection of types of bridges; determination of loadings; stresses; choice of cross-sectional forms and areas; design of combination wood and steel trusses, steel trusses; design of connections; masonry structures, dams and retaining walls; complete drawings.

Text-books: Kuntz, *Design of Steel Bridges,* McGraw-Hill; Jacoby and Davis, *Timber Design and Construction,* Wiley & Sons.

References: Johnson, Bryan and Turneaure, *Modern Framed Structures,* Vol. III., Wiley; Kirkham, *Structural Engineering,* McGraw-Hill; Carnegie, *Pocket Companion.*

Prerequisites: Civil 8, 9 and 10.

One lecture and two one-hour periods per week. First Term.

One lecture and two three-hour periods per week. Second Term.

Mr. Matheson.

18. *Engineering Economics.* — (*a*) A general treatment of sinking funds; yearly cost of service; collecting data; estimating; economic selection, reports.

Text-book: Fish, *Engineering Economics,* 2nd Edition, McGraw-Hill.

Prerequisites: Economics 1.

Two lectures per week. First Term. Mr. Wilkin.

(*b*) Principles of financing; forms of business enterprises; stocks; bonds; operating and fixed charges; business finance; capital and interpretation of financial statements.

References: Fish, *Engineering Economics,* 2nd Edition; Anger, *Digest of Canadian Mercantile Law;* Lough, *Business Finance.*

Two lectures per week. Second Term. Mr. Wilkin.

19. *Engineering Law.*—The engineer's status; fees; salary; as a witness; responsibility; engineering contracts; tenders; specifi-

cations; plans; extras and alterations; time; payments and certificates; penalty, bonus or liquidated damages; maintenance and defects; subcontractors; agents; arbitration and awards; specification and contract writing.

Text-book: Kirby, *Elements of Specification Writing,* Wiley & Sons.

References: Anger, *Digest of Canadian Mercantile Law of Canada,* W. H. Anger; Ball, *Law Affecting Engineers,* Constable & Co.

One lecture per week. Mr. Pretious.

20. *Surveying 3.* — Geodesy; the determination of azimuth, longitude, latitude, time, the figure of the earth; measurement of baselines; triangulation systems; adjustments and reductions of observations; precise levelling.

References: Hosmer, *Geodesy,* Wiley; Cary, *Geodetic Surveying,* Wiley; *Publications of Geodetic Survey,* Ottawa.

Prerequisite: Civil 14.

One lecture per week. Mr. Lighthall.

21. *Hydraulic Engineering 2.*—Waterpower engineering; rainfall, run-off, stream flow; investigation of power problems; selection of hydraulic machines; hydrographs; auxiliary power; mass curves, load factors and characteristics; impulse and reaction wheels; methods of control and operation of various forms of machines; transmission of hydraulic power.

Text-book: Mead, *Water-power Engineering,* McGraw-Hill.

References: Gibson, *Hydroelectric Engineering,* Vol. I., Blackie; Mead, *Hydrology,* McGraw-Hill.

Prerequisites: Civil 12 must either precede or be taken concurrently.

One lecture per week both terms, and fifteen hours in laboratory second term. Mr. Wilkin.

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.

Sewage Disposal: Physical, chemical, biological and economical aspects of sewage treatment; dilution; screening, sedimentation, filtration; disinfection; maintenance and management costs.

References: Metcalf and Eddy, *Sewerage and Sewage Disposal,* 3 Vols., 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.

Reference: Flinn, Westbrook, Bogart, *Waterworks Handbook,* McGraw-Hill.

Town Planning; covering 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.

Prerequisite: Civil 12.

Two lectures and one two-hour period per week. Mr. Matheson.

23. *Transportation 2.*—(*a*) *Railways.* Organization and rules of maintenance-of-way; roadway; ballast; ties; lumber preservation; rails and appurtenances; turnouts, tracks, accessories; structures and their design; stresses in track; track tools; track work; work-train service; maintenance-of-way records and accounts; expenditures; betterments; improvements of old lines, yards and terminals; maximum capacity of single track.

Prerequisite: Civil 11.

Two lectures per week. First Term. Mr. Peebles.

(*b*) *Highways.*—Highway economics, surveys and locations; grades; cross-sections; paving materials; construction methods; designs and estimates.

Streets and pavements; materials, design, construction, maintenance and repairs.

Text-book: Agg, *Construction of Roads and Pavements,* McGraw-Hill.

Reference: Harger and Bonney, *Highway Engineer's Handbook.*

Prerequisite: Civil 11.

Two lectures per week, Second Term. Mr. Peebles.

24. (*a*) *Mechanics of Materials.*—A continuation of Civil 10, Strength of Materials; the application of the Principle of Least Work to the determination of statically indeterminate forces in beams and rigid frames; stress and deflection of unsymmetrical sections and beams with variable moment of inertia; analysis and design of reinforced concrete rigid frames and arches.

Text-book: Cross & Morgan, *Continuous Frames of Reinforced Concrete,* Wiley.

References: Ketchum, *Steel Mill Buildings;* Hool, *Reinforced Concrete,* Vol. III.; Urquhart and O'Rourke, *Design of Concrete Structures,* McGraw-Hill.

Prerequisite: Civil 10.

Two lectures and one three-hour period per week.

Mr. Finlay.

24. (*b*) *Reinforced Concrete Design.*—Intended to familiarize the student with the basic principles involved in the design of reinforced concrete structures, including beams, columns, continuous girders and flat slabs, and to form a foundation for the more advanced work encountered in C.E. 24.

Text-book: Turneaure and Maurer, *Principles of Reinforced Concrete Construction,* 4th Edition, John Wiley.

References: Taylor, Thompson and Smulski, *Concrete, Plain and Reinforced,* Vol. I., Wiley, 4th Edition.

Prerequisite: C.E. 10.

One lecture and one two-hour period per week. First Term.

Mr. Finlay.

25. *Theory of Structures.*—The analysis of framed structures under dead and live loads; distortion of framed structures; the use of influence lines for analysis of stresses; hinged and hingeless arches; secondary stresses and redundant members.

Text-book: Kuntz, *Design of Steel Bridges,* McGraw-Hill.

References: Johnson, Bryan and Turneaure, *Modern Framed Structures,* Vols. I. and II., Wiley; Hool and Kinne, *Framed Structures,* McGraw-Hill; Morley, *Theory of Structures,* Longmans, Green & Co.

Prerequisite: Civil 10.

One lecture and two three-hour periods per week.

Mr. Finlay.

26. Class Excursions.—Members of the Fifth Year class in Civil Engineering, under the supervision of an instructor, will visit such factories, industrial developments, public works, docks, shipyards and important examples of engineering construction as are calculated to assist the student best to grasp the application and scope of the studies pursued and to broaden his vision of the engineering field. Written reports of trips are required.

NOTE:—In periods where no trips are taken, tests of hydraulic machines will be made in the Hydraulic Laboratory. (See Civil 29.)

27. *Civil Engineering Thesis.*—Original research on selected topics; analysis of engineering projects; experimental or theoretical investigations. Topics may be selected from divisions of the Civil Engineering Course: Geodetics, Railways, Hydraulics, Municipal, Highways, Economic and Business Engineering, Structures. Copy of thesis in regular form and binder must be filed with the Department.

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 visited

in Civil 26; written outlines must be prepared for all oral reports; training in technical writing and public speaking.

Required of all Fourth and Fifth Year students in Civil Engineering.

Reference: Rickard, *Technical Writing,* McGraw-Hill.

One hour per week.

29. *Hydraulic Engineering 3.* — Theory, investigation and design of hydraulic motors and machinery. Turbines, Pelton and impulse wheels, centrifugal pumps, hydro-electric installations, plant design and operation.

Laboratory work, testing hydraulic machines, arranged for periods when no trips are taken. (See Civil 26.)

Prerequisite: Civil 12.

Text-book: Daugherty, *Hydraulic Turbines,* 3rd Edition, McGraw-Hill.

References: Gibson, *Hydro-electric Engineering,* Vol. I.; Gibson, *Hydraulics and Its Application,* Van Nostrand; Mead, *Water Power Engineering,* 2nd Edition, McGraw-Hill.

One lecture per week. Mr. Wilkin.

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.

Prerequisite: First Year Arts, or Senior Matriculation.

Text-book: Duckering, *Notes and Problems,* 2nd Edition, McGraw-Hill.

Two two-hour periods per week.

Mr. Wilkin, Mr. Finlay, Mr. Lighthall, Mr. Pretious, Mr. Peebles, Mr. Hrennikoff.

31. *Engineering Problems 2.*—A continuation of Engineering Problems 1, involving a thorough drill in problems in the principal divisions of Mathematics given in the Second and Third Years of Applied Science, drawn from the field of mechanics, surveying, draughting and engineering.

Prerequisites: Civil 30, Math. 1, 2, 3 and 4.

Text-book: Duckering, *Notes and Problems,* 2nd Edition, McGraw-Hill.

One three-hour period per week.

Mr. Lighthall, Mr. Finlay, Mr. Hrennikoff.

50. Elementary problems in rural engineering, dealing with drainage, water supply, sewerage and sewage disposal, ventilation, simple structures and surveying. Adapted to the needs of students in Agriculture.

One lecture per week. Mr. Lighthall.

Department of Economics

Professor: H. F. Angus.
Professor: W. A. Carrothers. (On leave of absence.)
Associate Professor: J. Friend Day.
Associate Professor: C. W. Topping.
Associate Professor: G. F. Drummond.

1. *Principles of Economics.*—An introductory study of general economic theory, including a survey of the principles of value, prices, money and banking, international trade, tariffs, monopoly, taxation, labour and wages, socialism, the control of railways and trusts, etc.

Text-books: Slichter, *Modern Economic Society,* Holt; Cole, *Intelligent Man's Guide Through World Chaos,* Ryerson; *The Canada Year Book,* 1934.

Three lectures per week.

Department of Forestry

Professor: .....
Assistant Professor: F. Malcolm Knapp.
Assistant: George S. Allen.

Honorary Lecturers:
R. M. Brown.
William Byers.
Edward W. Bassett.

1. *General Forestry.*—Economics of forestry; forest distribution, influences and uses. A general survey of forestry.

Text-book: Moon and Brown, *Elements of Forestry,* Wiley, 2nd Edition.

Reference books: Whitford and Craig, *Forests of British Columbia,* Commission of Conservation, Ottawa; Zon and Sparhawk, *Forest Resources of the World,* McGraw-Hill; *A National Plan for American Forestry,* Superintendent of Documents, Washington, D. C. Various government publications.

2. *Mensuration.*—(*a*) Scaling and measurement of felled timber products; cruising and stumpage appraisal.

Text-book: Chapman, *Forest Mensuration,* Wiley, 3rd Edition.

Reference books: Rapraeger, *Log Scaling and Grading Practice in the Douglas Fir Region,* Pacific Northwest Forest Experiment Station, Portland, Oregon. *Instructions for Forest Surveys,* King's Printer, Victoria, B. C. *Instructions for Appraising Stumpage on National Forests,* Superintendent of Documents, Washington, D. C. Carey, *Manual for Woodsmen,* Harvard Press, 4th Edition.

One lecture and one period of three hours field or laboratory work per week. One week field work immediately after April examinations. Fourth Year.

(*b*) Measurement of growth of trees and forests. Preparation of volume, growth, and yield tables.

Reference books: Winkenwerder and Clark, *Problems in Forest Mensuration,* Wiley, 2nd Edition. Graves, *Forest Mensuration,* Wiley. Various government publications.

Two hours lecture or laboratory period per week. Fifth year.

3. *Forest Protection.*—The fire problem, legislation, organization for prevention and control.

Text-book: *Western Fire Fighters' Manual,* Western Forestry and Conservation Association, Portland.

Reference books: Various government publications.

One lecture per week. Second Term.

5. *Wood Technology.*—The structure of wood; the identification of different woods and their qualities and uses; wood seasoning; wood preservation; emphasis on the Canadian woods of commercial importance.

Text-books: Record, *Economic Woods of the United States,* Wiley, 2nd Edition. Forsaith, *The Technology of New York State Timbers,* Technical Publication No. 18, New York State College of Forestry, Syracuse, New York.

Reference books: Koehler, *The Properties and Uses of Wood,* McGraw-Hill. Koehler and Thelen, *Kiln Drying of Lumber,* McGraw-Hill. Snow, *Wood and Other Organic Structural Materials,* McGraw-Hill. Roth, *Timber,* U. S. Forest Service, Bul. 10, Superintendent of Documents, Washington, D. C.

Two lectures and one period of three hours laboratory per week, First Term; one lecture and one period of two hours laboratory per week, Second Term.

6. (*a*) *Forest Management 1.*—The principles and methods of organizing forest areas for sustained yield management on an economic basis. Normal forest, increment, rotation, regulation of cut, theory of working plans.

Text-book: Woolsey, *American Forest Regulation,* Tuttle, Morehouse and Taylor.

Reference books: Roth, *Forest Regulation,* Roth, Ann Arbor, Michigan. Recknagel, Bentley and Guise, *Forest Working Plans,* Wiley, 2nd Edition. Schlich, *Forest Management,* Bradbury Agnew.

One lecture per week. Fourth Year.

6. (*b*) *Forest Management 2.*—The practical application of the principles of forest management. Methods of developing working plans in Europe, in America, and in British Columbia.

Reference books: Roth, *Forest Regulation,* Roth, Ann Arbor, Michigan. *Instructions for Forest Surveys, King's Printer,* Vic-

toria, B. C. Trevor and Smythies, *Practical Forest Management*, Government Press, Allahabad. Various government publications.

One lecture per week. Fifth Year.

7. *History of Forestry and Forest Administration.*—The development of forestry in different parts of the world; forest resources and industries; policy, legislation and education.

Reference books: Fernow, *History of Forestry*, University of Toronto Press, 2nd Edition. Schlich, *Forest Policy in the British Empire*, Bradbury Agnew. Ise, *The United States Forest Policy*, Yale University Press. Various government publications.

One lecture per week.

8. *Silviculture.*—The principles and methods of caring for forests and of growing timber crops. Seed testing, nursery practice, planting, thinning and improvement cuttings, slash disposal.

Text-books: Hawley, *Practice of Silviculture*, Wiley, 2nd Edition. Toumey and Korstian, *Seeding and Planting in the Practice of Forestry*, Wiley. Troup, *Silvicultural Systems*, Oxford University Press.

Reference books: Schlich, *Silviculture*, Bradbury Agnew. Various government publications.

Two lectures per week during the year, and one period of three hours field or laboratory work during the Second Term.

9. *General Lumbering.*—A general study of the principles and practice of logging and milling in the chief timber regions of North America.

Text-book: Bryant, *Logging*, Wiley, 2nd Edition.

Reference books: Gibbons, *Logging in the Douglas Fir Region*, U. S. D. A. Bul. 711, Superintendent of Documents, Washington, D. C. Berry, *Lumbering in the Sugar and Yellow Pine Region of California*, U. S. D. A. Bul. 440, Superintendent of Documents, Washington, D. C. Various government publications.

Two lectures per week. First Term.

One lecture per week. Second Term.

10. *Logging Engineering.*—An intensive study of logging systems and operations in the forests of western North America.

Text-book: Brandstrom, *Analysis of Logging Costs and Operating Methods in the Douglas Fir Region*, Charles Lathrop Pack Forestry Foundation, Washington, D. C.

Reference books: Various articles in *The Timberman, B. C. Lumberman*, and other trade journals and government publications.

One lecture per week. First Term.

Two lectures per week. Second Term.

One period of four hours laboratory or field work per week, alternating with Forestry 11 and 12.

11. *Milling.*—A study of the sawmilling and allied woodworking industries of western North America.

Text-book: Bryant, *Lumber,* Wiley.

Reference books: Oakleaf, *Lumber Manufacture in the Douglas Fir Region,* Commercial Journal Co. Brown, *American Lumber Industry,* Wiley. Berry, *Lumbering in the Sugar and Yellow Pine Region of California,* U. S. D. A. Bul. 440, Superintendent of Documents, Washington, D. C. Seeley, *Small Sawmills,* U. S. D. A. Bul. 718, Superintendent of Documents, Washington, D. C.

Two lectures per week; one period of four hours laboratory or field work per week, alternating with Forestry 10. First Term.

12. *Forest Products and Marketing.*—A study of marketing methods and problems of the lumber trade—domestic consumption and export—markets in foreign countries; also of other forest industries, including pulp and paper, shingles, veneers, boxes.

Text-books: Brown, *Forest Products, Their Manufacture and Use,* Wiley, 2nd Edition. Bryant, *Lumber,* Wiley.

Reference books: Brown, *The American Lumber Industry,* Wiley. Joint authorship, *The Manufacture of Pulp and Paper, Vols. III. to V.,* McGraw-Hill. Knight and Wulpi, *Veneers and Plywood,* Ronald Press Co.

Two lectures per week; one period of four hours laboratory or field work per week, alternating with Forestry 10. Second Term. (Not given in 1934-35.)

13. *Lumber Grading.*—An intensive study of the grading, tallying and shipping of Pacific Coast lumber products for domestic and export markets.

Text-book: Beaulieu and Barton, *Lumber Grading Practice,* B. C. Lumber and Shingle Manufacturers' Association, Vancouver, B. C.

One lecture and one period of three hours field work per week. Second Term.

Vancouver Laboratory
Forest Products Laboratories of Canada,
Forest Service,
Department of the Interior, Canada

R. M. Brown, B.Sc.F. (Toronto), Superintendent.
R. S. Perry, B.Sc. (McGill), Assistant Engineer.

Division of Timber Mechanics

J. B. Alexander, B.Sc. (New Brunswick), Chief, Timber Mechanics Division.
J. T. Lee, Timber Tester.
D. S. Wright, Timber Tester.
W. W. Davidson, Assistant Timber Tester.
R. J. Eades, Assistant Timber Tester.

Division of Timber Products

J. H. Jenkins, B.A.Sc. (Brit. Col.), Chief, Timber Products Division.
H. W. Eades, B.Sc.F. (Washington), Assistant Timber Pathologist.
F. W. Guernsey, B.A.Sc. (Brit. Col.), Assistant in Timber Products.

The Forest Products Laboratories of Canada is a research organization maintained by the Forest Service of the Department of the Interior, 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 co-operative laboratory established at McGill University, Montreal, through an arrangement between the Forest Products Laboratories of Canada, the Canadian Pulp and Paper Association, and McGill University.

The Vancouver laboratory was established in 1918 and has been maintained in association with the University of British Columbia since that time. 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 investigations, timber decay problems, mill studies, waste utilization, wood identification, etc.

One of the most important phases of the work of the laboratory is its technical service to all branches of the timber industry in the dissemination of information on a wide variety of subjects having to do with forest products. While research in wood preservation, wood distillation, container tests, pulp and paper, etc., is at present confined to the Ottawa and Montreal laboratories, the close contact maintained between the three 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 co-operation is maintained between the Laboratory and the University, whereby students of the University in Engineering and Forestry have access to the Laboratory to watch the work being carried on and to use the apparatus at times in testing strength of materials. The staff of the Laboratory also has the benefit of the University library and the advice and assistance of University specialists in related work.

Department of Geology and Geography

Professor: R. W. Brock.
Professor of Physical and Structural Geology: S. J. Schofield.
Professor of Palæontology and Stratigraphy: M. Y. Williams.
Lecturer in Mineralogy and Petrography: H. V. Warren.

Geology

1. *General Geology.*—This course serves as an introduction to the science of Geology. The following subjects are treated in the lectures and laboratory:

(*a*) *Physical Geology,* including weathering, work of the wind, ground water, streams, glaciers, the ocean and its work, the structures of the earth, earthquakes, volcanoes and igneous intrusions, metamorphism, mountains and plateaus, and ore-deposits.

Two lectures per week. First Term. Mr. Williams.

(*b*) *Laboratory Exercises in Physical Geology,* including the study and identification of the most common minerals and rocks, the interpretation of topographical and geological maps, and the study of structures by the use of models.

Two hours laboratory per week. First Term. Mr. Schofield and Mr. Williams.

(*c*) *Historical Geology,* including the earth before the Cambrian, the Palaeozoic, the Mesozoic, the Cenozoic and Quaternary eras.

Two lectures per week. Second Term. Mr. Williams.

(*d*) *Laboratory Exercises in Historical Geology,* consisting of the general study of fossils, their characteristics and associations, their evolution and migration as illustrated by their occurrence in the strata. The principles of Palaeogeography will be taken up and illustrated by the study of the palaeogeography of North America.

Two hours laboratory per week. Second Term. Mr. Williams.

Field Work will replace laboratory occasionally, and will take the form of excursions to localities, in the immediate neighbourhood of Vancouver, which illustrate the subject matter of the lectures:

Prerequisite: Matriculation Chemistry or Physics, or Chemistry 1 or Physics 1 or 2 taken either before or concurrently.

Text-book: Pirsson and Schuchert, *Foundations of Geology,* Wiley.

Students will be required to make a passing mark in each of the above subdivisions. 3 units.

2. (*a*) *General Mineralogy.*—A brief survey of the field of mineralogy.

Lectures take the form of a concise treatment of (1) Crystallography, (2) Physical Mineralogy, and (3) Descriptive Mineralogy of 40 of the more common mineral species, with special reference to Canadian occurrences.

Laboratory Work consists of the study of the common crystal forms and of 40 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, Wiley.

Prerequisite: Chemistry 1.

Two lectures and one laboratory period of two hours per week. First Term. Mr. Warren.

2. (*b*) *Descriptive and Determinative Mineralogy.*—This course supplements 2 (*a*) and consists of a more complete survey of Crystallography, Physical and Chemical Mineralogy, with a critical study of about 60 of the less common minerals, special emphasis being laid on their crystallography, origin, association and alteration.

Text-book: Dana, *Text-book of Mineralogy,* revised by Ford, Wiley.

Prerequisite: Geology 2 (*a*).

Two lectures and one laboratory period of two hours per week. Second Term. Mr. Warren.

4. *Structural and Physiographical Geology.*—The following subjects are treated in the lectures: Fractures, faults, flowage, structures common to both fracture and flow, mountains, major units of structures, forces of deformation, the origin and development of land forms with special reference to the physiography of British Columbia.

Text-book: Leith, *Structural Geology,* Holt.

Prerequisite: Geology 1.

Three lectures per week. Mr. Schofield. 3 units.

5. (*a*) *History of Geology.*—A brief history of the study of the earth and the development of the geological sciences. Mr. Brock.

(*b*) *Geology of Canada.*—The salient features of the geology and economic minerals of Canada. Mr. Williams, Mr. Schofield, Mr. Brock.

(*c*) *Regional Geology.*—The main geological features of the continents and oceanic segments of the earth's crust, and their influences upon life. Mr. Brock.

Prerequisite: Geology 1.

Three lectures and one hour laboratory per week.

6. *Palaentology.*—A study of invertebrate and vertebrate fossils, their classification, identification and distribution both geological and geographical.

Reference books: Grabau and Shimer, *North American Index Fossils.* Zitter-Eastman, *Text-book of Palaeontology.* Berry, *Palaeontology.*

Prerequisite: Geology 1.

Two lectures and two hours laboratory per week. Mr. Williams.

7. *Petrology.*—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, first under the microscope and then in hand specimens.

Text-books: Harker, *Petrology for Students,* Cambridge University Press. Johannsen, *Essentials for the Microscopic Determination of Rock Forming Minerals and Rocks,* University of Chicago Press. Dana, *Text-book of Mineralogy,* revised by Ford, Wiley.

Prerequisites: Geology 1 and 2.

Two lectures and two laboratory periods of two hours per week. Mr. Warren. 4 units.

8. *Economic Geology.*—A study of the occurrence, genesis, and structure of the principal metallic and non-metallic mineral deposits with type illustrations; and a description of the ore deposits of the British Empire, special stress being placed on those in Canada.

Text-book: Ries, *Economic Geology,* 6th Edition, Wiley.

Prerequisite: Geology 1. Geology 7 must precede or accompany this course.

Four hours per week.

Mr. Brock, Mr. Williams, Mr. Schofield, Mr. Warren.

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: Davy and Farnham, *Microscopic Examination of the Ore Minerals,* McGraw-Hill.

Prerequisite: Geology 7 and 8 must precede or accompany this course.

One laboratory period of two hours per week. Mr. Warren and Mr. Schofield.

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 in the vicinity of Vancouver which require the use of the various methods and instruments employed in field geology.

Text-books: Lahee, *Field Geology.* Hayes, *Handbook for Field Geologists.* Spurr, *Geology Applied to Mining.*

Prerequisite: Geology 1. Geology 4, if not already taken, must be taken concurrently.

One period of three hours per week. Mr. Schofield.

14. *Crystallography.*—This course consists of a systematic study of the morphology of crystals, with an introduction to mathematical crystallography.

The practical work deals with the measurement of crystals, and, in the case of students in chemistry, a certain number of the crystals measured will be grown in the laboratory.

Students are advised to consult with the instructor before registering for this course.

Text-book: Tutton, *Crystallography and Practical Crystal Measurement,* Macmillan.

Two lectures and six or eight hours laboratory per week. Mr. Warren. 5 or 6 units, depending on amount of laboratory work.

Department of Mathematics

Professor: Daniel Buchanan.
Professor: F. S. Nowlan.
Associate Professor: E. E. Jordan.
Associate Professor: L. Richardson
Assistant Professor: Walter H. Gage.
Asisstant Professor: F. J. Brand.

1. *Plane Trigonometry.*—Review of elementary work, projection, inverse functions, hyperbolic functions, power series, finite series, complex numbers, De Moivre's Theorem and applications, elimination.

Text-book: To be announced.

Two lectures per week. First Term.

2. *Solid Geometry.*—A study of the three-faced corner, the various polyhedra and solid figures, and the theorems of Pappus.

Text-book: To be announced.

Two lectures per week. Second Term.

3. *Algebra.*—A review of simple series, permutations, combinations and the binomial theorem, and a study of exponential and

other series, undetermined coefficients, partial and continued fractions, graphical algebra.

Two lectures per week.

Text-book: Wilson and Warren, *Intermediate Algebra* (Larger Edition), Oxford.

4. *Calculus.*—An introductory study of the differential and integral calculus will be made, and some of the simpler applications considered.

Text-book: Woods and Bailey, *Elementary Calculus,* Ginn.

Two lectures per week.

6. *Calculus.*—Differential and integral calculus with various applications.

Text-book: Woods and Bailey, *Elementary Calculus* (Revised Edition), Ginn.

Three lectures per week.

7. *Analytical Geometry.*—A study of the conics and other curves occurring in engineering practice, and elementary work in three dimensions.

Text-book: Fawdry, *Co-ordinate Geometry,* Bell.

Two lectures per week.

8. *Applied Calculus.*—The applications of calculus to various problems in engineering.

Three lectures per week.

(Given in 1934-35 and alternate years.)

9. *Differential Equations.*—A study of ordinary and partial differential equations and their applications.

Three lectures per week.

(Given in 1935-36 and alternate years.)

Department of Mechanical and Electrical Engineering

Professor: Herbert Vickers. (On leave of absence.)
Professor: F. Creedy. (Substitute for Dr. Vickers.)
Associate Professor of Mechanical Engineering: F. W. Vernon.
Associate Professor of Mechanical Engineering: H. F. G. Letson.
Assistant Professor of Electrical Engineering: E. G. Cullwick.
Assistant Professor of Electrical Engineering: W. B. Coulthard.
Lecturer in Mechanical Engineering: John F. Bell.
Lecturer in Mechanical Engineering: R. Rolleston West.
Assistant: Walter J. Lind.

Mechanical Engineering

1. *Mechanical Drawing.* — Practice in freehand lettering in accordance with common practice. Geometrical Drawing, to give facility in the use of drawing instruments. Freehand sketching of machine parts and structures from which drawings are made to

scale. Drawing to scale of simple machine parts. Making of assembly drawings from detail drawings, and detail drawings from assembly drawings. Tracing and blueprinting.

Two three-hour periods per week.

2. (*a*) *Shop Work.*—This work is intended to supplement the manual training given in the high schools, and also to give the student some knowledge of the more common machine shop methods and processes as employed commercially. The object is to provide some basis for the intelligent design of machines and structural parts.

Lectures.—Physical properties of the materials used in machine construction. Modern methods of handling and finishing wood. Forging and hammering of metals. Annealing and tempering. Making of patterns and cores. Cupola practice.

Soldering and brazing, tinning, electroplating. Drilling and tapping, turning and boring, calipering and fitting, milling and milling cutters, reaming and reamers, screw cutting. Grinding and abrasive wheels. Lapping. Punching and shearing. Drop forging and die-casting. Metal spinning. Torch and electric welding. Cold sawing and torch cutting. Tool-making and dressing. Use of jigs. Machine shop standards, including wire and sheet metal gauges, threads, etc.

Text-book: Colvin & Stanley, *American Machinists' Handbook,* McGraw-Hill.

One lecture per week.

Practice in Metal-working.—Bench work, including marking off, chipping, filing, scraping, tapping, and fitting; lathe work, including turning and boring, screw-cutting and finishing; lathe adjustments; shaping; milling; gear-cutting; tool-dressing.

One two-hour period per week.

2. (*b*) *Machine Shop Practice.*—A continuation of Mechanical Engineering 2.

Two hours laboratory per week, First Term, and two hours, Second Term.

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; valve-gears and miscellaneous mechanisms.

Text-book: McKay, *Theory of Machines,* Longmans Green & Co.

One two-hour lecture period per week.

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 Green & Co.

Two lectures per week.

Prerequisite subject for Fifth Year.

5. *Machine Design.*—A study of the theory of the properties of materials as applied to the design and construction of machines.

Reference books: Case, *Strength of Materials,* Arnold; Kimball and Bar, *Elements of Machine Design,* Wiley; Spooner, *Machine Design Construction and Drawing,* Longmans Green.

Two lectures per week.

Prerequisite subject for Fifth Year.

5. (*a*) *Problem Course in Materials and Design.*—Examples and problems illustrating the lectures of M.E. 5 and including the solution under supervision of actual design problems.

Text-book: L. S. Marks, *Mechanical Engineers' Handbook,* McGraw-Hill.

Reference book: As in M.E. 5.

One one-hour period per week.

6. *Elementary Thermodynamics.*—(*a*) Fuels and combustion. General principles underlying the construction and operation of steam boilers. Elementary theory of the steam engine. Measurement of power. Performance of various types of steam engines. Elementary theory of internal combustion engines. Design and operation of isolated power plants to give the best economic results. Theory of air compressors, transmission and use of compressed air. Elementary theory and practical operation of producer gas plants.

Prerequisite subject for Fifth Year.

Text-book: Inchley's *Heat Engines,* Longmans Green; or Allen & Bursley, *Heat Engines,* McGraw-Hill.

Reference books: Ewing, *Thermodynamics,* Cambridge Press. Callendar, *Steam Power,* Longmans Green. Simmons, *Compressed Air,* McGraw-Hill. Marks and Davis, *Steam Tables and Diagrams,* Longmans Green. Gebhardt, *Steam Power Plant Engineering,* Wiley. Kent, *Mechanical Engineer's Pocket Book,* Wiley. Fernald & Orrok, *Engineering of Power Plants,* McGraw-Hill. Low, *Heat Engines,* Longmans Green.

Two lectures per week.

(*b*) *Laboratory.*—Testing of boilers, steam engines and internal combustion engines. Analysis and calorimetry of fuels.

One three-hour laboratory period per week.

7. *Heat Engines.*—A more precise study of the thermodynamic theory, construction and performance of steam boilers, air com-

pressors, reciprocating steam engines, steam turbines and internal combustion engines.

Text-book: Robinson, *Applied Thermodynamics,* Pitman.
Reference books: As under M.E. 6.
Three lectures and one three-hour laboratory period per week.
Prerequisite subject for Fifth Year.

8. *Steam Turbines.*—A more advanced course in the thermodynamic theory, design and performance of steam turbines, both marine and stationary.

Reference books: Goudie, *Steam Turbines,* Longmans Green; Stodola, *Steam and Gas Turbines,* McGraw-Hill; Moyer, *Steam Turbines,* Wiley.
One lecture per week.

9. *Internal Combustion Engines.*—A more advanced course in the thermodynamic theory, design and performance of petrol, gas and oil engines.

Reference books: Wimperis, *Internal Combustion Engines,* Constable; Bird, *Oil Engines.*
One lecture per week.

10. *Refrigeration.*—A course in the thermodynamic theory, design and performance of refrigerating machines as used for commercial and domestic purposes.

Reference books: Ewing, *Mechanical Production of Cold,* Cambridge; Moyer and Fittz, *Refrigeration,* McGraw-Hill.
One lecture per week.

8, 9, 10. *Laboratory.*—The work carried out embodies the operation and testing of the laboratory machines, illustrating the theory covered in the lectures. Weekly written reports are required on the tests carried out.
One five-hour period per week.

11. *Heating and Ventilation.*—Design of steam, hot water and hot air systems of heating. Heaters for steam and water systems. Use of exhaust steam for heating. Central heating plants. Loss of heat from buildings. Refrigerating systems.

Reference book: Harding & Willard, *Mechanical Equipment of Buildings* (Vols. I. and II.), Wiley.
One lecture per week.

12. *Design of Power Plants.*—A study of the function, construction and performance of the various machines and appliances which enter into the design of industrial plants. Special attention is given to the economic results to be expected from various combinations.

Reference books: Harding & Willard, *Mechanical Equipment of Buildings* (Vols. I and II.), Wiley. Fernald & Orrok, *Engineering of Power Plants,* McGraw-Hill.

One lecture per week, and one three-hour laboratory period per week.

13. *Physical Treatment of Metals.* — A study of the various metals used in commercial work, with special reference to the treatment applied to get the physical properties and qualities required for specific purposes.

Reference books: Colvin and Juthe, *The Working of Steel,* McGraw-Hill; Bullen, *Steel and Its Heat Treatment,* Wiley; Dalby, *Strength and Structure of Steel and Other Metals,* Arnold.

One lecture and one two-hour laboratory period per week.

Prerequisite subject for Fifth Year.

14. *Mechanical Design.*—Design of shafts and high-speed bearings; critical speeds of shafts; machine frames; strength of armature cores and discs; torsional oscillations; transmission towers and supports; catenary suspensions; guy ropes; revolving field magnets; turbo-rotors, etc.

One lecture per week.

15. *Prime Movers.*—Theory and design of all types of hydro-electric machinery from the mechanical standpoint.

Reference book: Gibson, *Hydro-Electric Engineering,* Vol. I., Blackie.

Two lectures per week.

16. *Machine Design.*—The design of machine and structural parts, including parts of engines of all types; design of wheel teeth, belt, rope, and chain gearing, flywheels, cams, clutches, couplings, machine frames, etc.

Text-book: Spooner, *Machine Design,* Longmans.

Two lectures and one five-hour drawing office period per week.

17. *Applied Mechanics.* — A more advanced study of the mechanics of materials and of rigid bodies involving the use of the calculus.

One lecture per week.

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: Warner, *Aeronautics,* McGraw-Hill.

One lecture per week.

19. *Problems in Mechanical and Electrical Engineering.*—The solution under supervision of problems arising from the lecture courses.

One two-hour period per week.

Electrical Engineering

1. *Theory and Operation of Electrical Machines.*—A practical course for students not specializing in Electrical or Mechanical Engineering, designed to introduce to the student the principal factors in electrical machinery. Enough theory is given to explain fully the characteristics of the apparatus studied.

Introductory: Magnetic and electrical circuits, magnetic and electric measurements, electro-magnetic induction, EMF equation, motor law.

Direct Current Machines: The generator; simplex armature windings; EMF equation. Armature reaction; commutation. Methods of excitation, load characteristics. Conditions for self-excitation. The motor—types, speed equation, armature reaction, commutation, load characteristics, speed control, applications. Efficiency, rating, parallel operation of generators.

Alternating Current: Generation; wave form; vector representation; maximum, effective and average values. Resistance, inductance and capacitance in AC circuits—vector, impedance and admittance—solution of simple net works. Resonance, Polyphase circuits, power and its measurement. Polyphase loads.

Alternating Current Machines.—Alternator: EMF equation; armature winding; magneto-motive forces and fluxes; armature reaction; leakage reactance; regulation; efficiency; parallel operation of alternators. *Synchronous Motors:* Principle; vector diagram; output; power factor; synchronizing; hunting. *Transformer:* Constant potential; vector diagrams; leakage reactance; constant current; losses; efficiency; connections; phase transformation; auto and booster transformers. *Induction Motor:* Revolving field; slip; characteristics; circle diagram; variable speed; wound rotor induction motor; choice of type; starting. *Rotary Converters:* Description of operation.

Text-book: MacCall, *Continuous Current and Alternating Current Engineering,* Tutorial Press. *Junior Lab. Manual.*

Prerequisite: Physics 5.

Two lectures and one two-hour laboratory period per week.

2. *Elementary DC Technology.* — Elementary electro-magnetic theory. Theory and use of direct current generators and motors. Direct current transmission. Secondary batteries, Illumination, etc.

Text-books: Langsdorf, *Principles of Direct Current Machines,* McGraw-Hill; MacCall, *Electrical Engineering Continuous Currents,* University Tutorial Press Ltd.; Smith, *Testing Dynamos and Motors,* Scientific Publishing Co.; Maclean, *Electrical Laboratory Course for Junior Students,* Blackie and Sons; Bennett and Crothers, *Electro-Dynamics,* McGraw-Hill; Morecroft & Hehre,

Electrical Circuits and Machinery, Vol. I., Direct Currents, John Wiley & Son; *Junior Lab. Manual.*

For Fourth Year Electrical and Mechanical students only.

Prerequisites: Physics 3.

First Term: Three lectures and one four-hour laboratory period per week.

Second Term: One lecture per week.

Prerequisite subject for Fifth Year.

3. *Elementary Alternating Current Technology.*—A thorough treatment of alternating current theory and calculations, with an introduction to the principles of the chief alternating current machines.

Text-books: Lawrence, *Principles of Alternating Currents,* McGraw-Hill; Morecroft & Hehre, *Electrical Circuits and Machinery, Vol. II.,* John Wiley & Son. MacCall, *Electrical Engineering Alternating Currents,* University Tutorial Press, Ltd.; Smith, *Practical Alternating Currents,* Scientific Publishing Co. *Junior Lab. Manual.*

For Fourth Year Electrical and Mechanical students only.

Prerequisite: Physics 3.

Second Term: Two lectures and one four-hour laboratory period per week.

Prerequisite for Fifth Year.

5. *Electrical and Mechanical Measurements and Instruments.*—A study of the units and quantities of magnetism and electricity, developing therefrom a detailed treatment of measurements and measuring instruments of all kinds, in theory and practice.

Brief Summary: Absolute instruments, secondary instruments; measurements of current, resistance, potential difference and power; measurement of inductance and capacity; watt-hour meters, recording instruments, phase, power-factor, and frequency measurements; instrument transformers; determination of wave form; calibration of instruments, etc.

Text-books: Laws, *Electrical Measurements,* McGraw-Hill.

Reference book: Drysdale and Jolly, *Electrical Measuring Instruments,* London: E. Benn, Ltd.

For Fourth Year Electrical students only.

Prerequisite: Physics 5.

Two lectures per week.

Prerequisite subject for Fifth Year.

6. *Problems in Direct Current and Alternating Current Technology.*

Two hours per week.

7. *Design of Electrical Machinery.*—In this course, the design of slow and high-speed alternators, transformers and induction

motors, and rotary converters will be covered. In each case the design of a machine of each type, together with the underlying principles, will be taught.

Text-books: Gray, *Design of Electrical Machinery,* McGraw-Hill; Slichter, *Design of Electrical Machinery,* Wiley & Son; Vickers, *The Induction Motor,* Sir Isaac Pitman & Sons; Kuhlman, *Design of Electrical Machinery,* Wiley & Son.

Two lectures per week each term.

Three hours laboratory period.

8. *Electric Traction.*—In this course will be considered the various DC and AC systems; speed-time curves, energy consumption curves; train resistance; characteristics of railway motors; control and control systems; regenerative braking; equipment and rolling stock; overhead construction and rail construction; feeder systems and their design. Substation equipment. Corrosion and its prevention.

Text-books: A. T. Dover, *Electric Traction,* Sir Isaac Pitman & Sons; Harding, *Electric Traction,* McGraw-Hill.

Reference book: Wilson & Lydall, *Electric Traction, Longmans* Green & Co.

One lecture per week each term.

9. *Transmission and Distribution of Electrical Energy.* — In this course will be considered the following: Inductance and capacity calculations for short and long lines, voltage drops on short and long lines; charging currents of long lines; voltage rises on AC systems; automatic protective gear; high-tension cables and their design; lightning arresters; design of feeders and distributors; Kelvin's law; switchgear and busbar layout; high-tension insulators; Corona, its laws and losses; voltage and power-factor control of transmission lines; stability.

Text-books: Loew, *Electric Power Transmission,* McGraw-Hill; Still, *Overhead Power Transmission,* McGraw-Hill; Woodruff, *Transmission,* Wiley & Son.

Two lectures per week each term.

10. *Electrical Problem Course.*—In this course problems in electro-technology and transmission and traction will be covered.

Two hours per week each term. 1 unit.

11. *Radio-Telegraphy and Telephony.* — In this course will be considered: Generation of oscillations by spark, arc, high-frequency alternators, and thermionic vacuum tubes. Open and closed circuit oscillators. Resonance; coupled circuits and their characteristics; forced and free vibrations; waves on coils and wires; propagation of electro-magnetic waves; methods of reception; direction finding; the use of the valve as generator, amplifier and detector.

Wireless Telephony microphones; transmitting circuits, receiving circuits, tuning.

Text-books: Everett, *Communication Engineering,* McGraw-Hill; Morecroft, *Principles of Radio Communication,* Wiley & Son; L. B. Turner, *Outlines of Wireless,* Cambridge Press; Duncan & Drew, *Radio Telegraphy and Telephony,* Wiley & Son; *Radio Lab. Manual.*

Two lectures per week.

One laboratory period of four hours.

12. *Electro-Technology.*—Theory of the Transformer. Core and Shell types. Vector diagrams. Magnetizing current, Regulation, Current Rush on suddenly switching on. Systems of Connection. Methods of Cooling. Testing.

The Alternator. Salient and non-salient pole types. Alternator windings. EMF equation. Breadth Factor, Form Factor, Coil-span Factor. Method of obtaining pure sine wave form. Regulation. Calculation of Regulation. Synchronous Impedance. Short Circuit Currents. Method of calculating excitation on loads of various power factors. Synchronizing of Alternators. Synchroscopes. Parallel Operation of Alternators.

The Synchronous Motor. Single and Polyphase types. Vector diagram. Variation of power factor with excitation. Calculation of excitation necessary for power factor improvement. Damping windings. Hunting and its cure. Methods of starting.

The Induction Motor. Windings. Production of Rotating field, Circle diagram. Slip, torque and other characteristics. Squirrel Cage and Slip Ring types. Effect of rotor resistance. Torque slip curves. Starting methods of Squirrel Cage machines. Calculation of steps of starting resistances for wound rotor machines. Crawling of Induction motors. Leakage fluxes in Induction motors. Pole changing. Cascade Connection and its characteristics. Speed Control by rotor resistance, by change of frequency, by use of AC commutating motors. Hunt Cascade motor.

Efficiency Tests. Stroboscopic method of slip measurement. Single Phase Induction Motor Theory.

The Rotary Converter. EMF and current relations. Heating of Rotaries. Methods of changing voltage ratios. Starting and Synchronizing.

The Three Phase Commutator Motor. Shunt and Series types. Vector diagrams and characteristics.

Reference books: McCall, *Alternating Currents,* University Tutorial Press. Lawrence, *Alternating Currents,* McGraw-Hill. Steinmetz, *Theory and Calculation of Electric Apparatus,* McGraw-Hill. Russell, *Alternating Currents,* Cambridge University Press. Steinmetz, *Alternating Current Phenomena,* McGraw-Hill. Miles

Walker, *Induction Motor.* Blondel, *Synchronous Motors and Converters,* McGraw-Hill. H. Vickers, *The Induction Motor,* Sir Isaac Pitman & Sons. *Senior Lab. Manual.*

Two lectures per week.

One laboratory period of four hours.

13. *Transient Phenomena and Oscillations.*—In this course will be considered the transient phenomena which occur in switching electric circuits, long transmission lines; standing and travelling waves; the penetration of current and flux into magnetic materials at high frequency; the effective resistance, inductance and capacity of high frequency circuits; abnormal voltage rises in AC circuits; transients in radio circuits; waves and impulses, etc.

Text-book: Steinmetz, *Transient Phenomena,* McGraw-Hill.

One lecture per week.

14. A general course in electrical engineering for Mechanical Students.

Text-book: Lawrence, *Principles of Alternating Current Machines,* McGraw-Hill. *Senior Lab. Manual.*

Two lectures per week.

One laboratory period of four hours.

Department of Mining and Metallurgy

Professor of Mining: J. M. Turnbull.
Professor of Metallurgy: H. N. Thomson.
Associate Professor of Mining: Geo. A. Gillies.
Assistant in Metallurgy: W. B. Bishop.

Mining

1. *Metal Mining.*—An introductory course in metal mining, covering the following subjects:

Ores and economic minerals; economic basis of mining; ordinary prospecting; mineral belts; conditions in British Columbia; preliminary development of mines; timbering and framing; tunnelling; shaft sinking; transportation and haulage; drainage; ventilation.

Two lectures per week. Mr. Turnbull.

2. *Coal and Placer Mining.* — A general course in coal and placer mining, covering the following subjects:

(*a*) Classification of coals; prospecting; mine development; mining methods; ventilation; transportation and haulage; drainage; tipples; coal mines acts and laws.

(*b*) Gravel deposits; nature and origin of paystreaks; prospecting; examination and testing of deposits; ordinary mining methods; hydraulic and dredging methods; plant and equipment; placer mines acts and laws.

Two lectures per week. Mr. Turnbull.

3. *Metal Mining.* — An advanced course in metal mining, covering the following subjects:

Scientific prospecting; geophysical methods; development work in mines; blasting and explosives; examination of mines and prospects; methods of ore sampling; mine valuation; accounting and costs; administration; welfare and safety work; mining laws and contracts; economics; ethics.

Prerequisite: Mining 1.

Two lectures per week. Mr. Turnbull.

4. *Mining Machinery.*—A special course covering the structural and mechanical features of Mining Engineering, as follows:

Mine structures; mining plant and machinery; core and churn drills; tramways, etc.

Prerequisites: Mining 1; Mechanical Engineering 3, 6; Civil Engineering 3 and 10.

Two lectures per week. Mr. Gillies.

5. *Mine Surveying.*—A practical course covering the work of the surveyor and staff in metal mines.

Methods and practice in mine surveying; geological work underground; maps, plans and models; notes and records.

Prerequisites: Civil Engineering 2 and 6.

One lecture per week. First Term. Mr. Turnbull.

6. *Mining Design.*—A laboratory draughting course covering the special requirements of Mining Students in regard to design of the layout and details of mining plant, structures, and mine survey plans.

One three-hour period per week. Mr. Gillies.

7. *Mining Methods.*—A special course covering the principles and practice of mining methods.

Prerequisite: Mining 1.

Concurrent Courses: Mining 2, 3 and 4.

One lecture per week. Second Term. Mr. Turnbull.

Metallurgy

1. *General Metallurgy.* — This course covers the fundamental principles underlying metallurgical operations in general, and is introductory to subsequent more specialized study.

The lectures follow in general the subject as taken up in *Principles of Metallurgy,* by Chas. H. Fulton, including the following main subjects:

Physical mixtures and thermal analysis; physical properties of metals; alloys; measurement of high temperatures; typical metallurgical operations; electro-metallurgy; slags; matte; refractory materials; fuels; combustion; furnaces.

Reference books: Hofman, *General Metallurgy,* McGraw-Hill. Current Mining and Metallurgical Journals. Trade Catalogues.

Prerequisites: Chemistry 1 and Physics 1 and 2.

Two lectures per week. Mr. Thomson.

2. *Smelting and Leaching.*—A general course covering principles and practice of Pyrometallurgy and Hydrometallurgy as applied to gold, silver, copper, iron, lead and zinc.

Prerequisite: Metallurgy 1.

Two lectures per week. Mr. Thomson.

3. *Metallurgical Calculations.* — A special course covering Thermochemistry; Metallurgical Calculations; Furnace Design and Efficiency; Special Processes.

A large portion of the time will be given to the study of heat balances of typical smelting operations.

Reference book: Richards, *Metallurgical Calculations.*

Prerequisites: Metallurgy 1, Chemistry 1.

Two hours per week. Mr. Thomson.

4. *Metallurgical Analysis.*—Advanced course in Metallurgical Analysis of Ores and Furnace Products, Pyrometry and Refractories.

Special attention will be given to analytical methods used by smelting plants in purchase of ores and control of furnace operations.

Prerequisites: Metallurgy 1, Metallurgy 6.

Nine hours laboratory work per week. Mr. Thomson.

5. *Fire Assaying.*—Quantitative determination of gold, silver and other metals by fire assaying methods, with underlying principles.

Text-book: Bugbee, *Fire Assaying,* Wiley.

One lecture and one five-hour laboratory period per week. First Term. Mr. Thomson, Mr. Bishop.

6. *Wet Assaying.*—An introductory course in metallurgical analysis of ores and concentrates.

Most of the time will be given to the technical determination of zinc, copper and lead.

One three-hour laboratory period per week. Mr. Thomson, Mr. Bishop.

Ore Dressing

1. *Ore Dressing.*—A general course covering the concentration of ores by mechanical means.

Most of the time is spent in considering fundamental principles, typical machines, and their general operations and relations in modern milling practice, emphasizing the economic and practical aspects.

Students are taught the commercial and technical characteristics of true concentrating ores, the general principles on which the size, character, site, and other features of a mill are designed. The general layout of crushing, handling, and separating machinery. The laws of crushing and of various classifying and separating actions, and the design, operation and comparative efficiency of typical machines, such as crushers, rolls, stamps, ball and tube mills, jigs, tables, screens, classifiers, and slime handling devices.

Attention is paid to pneumatic, magnetic, electrostatic, flotation and other special processes, including coal-washing.

Reference books: F. Taggart, *A Manual of Flotation Processes,* Wiley; S. J. Truscott, *Text-book of Ore Dressing;* Richards and Locke, *Text-book of Ore Dressing.*

One lecture per week for two years. Mr. Gillies.

2. *Ore Dressing Laboratory.* — A variety of crushing, sizing, classifying and separating operations are carried out by the students and studied quantitatively on appropriate machines, singly and in combination. Special attention is paid to flotation processes, several types of machines being used.

Ores from British Columbia mines are usually chosen, so that the work of the students is along practical lines in comparison with actual work in operating plants.

Prerequisite: Ore Dressing 1.

Nine hours laboratory per week. Mr. Gillies.

NOTE.—All students in Mining and Metallurgy are advised to provide themselves with a copy of Peele's *Mining Engineer's Handbook* (Wiley), which is used for reference in many of the courses in which no special text-book is required.

Department of Physics

Professor: T. C. Hebb.
Professor: A. E. Hennings.
Associate Professor: J. G. Davidson.
Associate Professor: G. M. Shrum.

The instruction includes lectures on the general principles of Physics, accompanied by courses of practical work in the laboratory.

1. *Introduction to Physics.*—See Physics 1, Arts and Science, Page 124.

2. *Elementary Physics.* — See Physics 2, Arts and Science, Page 125.

3. *Mechanics.* — An elementary treatment of the subject of statics, dynamics and hydrostatics, with particular emphasis on the working of problems. The course is given in the first half of the Second Year of Applied Science.

Text-book: Reynolds, *Elementary Mechanics,* Prentice-Hall.
Prerequisite: Physics 1 or 2.
Three lectures and one three-hour laboratory period per week.

4. *Heat.*—This course is begun when Physics 3 is finished, and the six hours devoted to it are divided in the same manner. The course is based on the supposition that the student is already familiar with the elementary principles of heat.
Text-book: Edser, *Heat for Advanced Students,* Macmillan.

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.
Text-book: Zeleny, *Elements of Electricity,* McGraw-Hill.
Two lectures and one three-hour laboratory period per week.

6. *Mechanics.*—The subject-matter consists of an extension of the statics and dynamics of Mechanics 1, but with the use of the differential and integral calculus.
Prerequisite: Physics 3.
Text-book: Poorman, *Applied Mechanics,* McGraw-Hill.
Two lectures per week.

7. *Light.*—A short lecture course for engineering students. A study of optical instruments, light sources and filters, spectroscopy, photometry, energy measurements, refractometers, interference, diffraction and polarized light.
Text-book: Robertson, *Introduction to Physical Optics,* Van Nostrand.
One lecture per week.

12. *Introduction to Atomic Structure.*—See Physics 12, as in Arts and Science, Page 126.

Department of Nursing and Health

Professor: Hibbert Winslow Hill. (On leave of absence.)
Assistant Professor: Mabel F. Gray.
Instructor: Margaret E. Kerr.
Lecturer: G. F. Amyot.
Lecturer: J. W. McIntosh.

Part-time Lecturers:
W. John Allardyce, M.A. (Brit. Col.), Ph.D. (McGill).
Miss Elizabeth Gertrude Breeze, R.N., Cert. P.H.N. (University of California).
Miss Anne Cavers, R.N., Cert. School for Graduate Nurses (McGill).
Arthur L. Crease, M.D., C.M. (McGill).
Miss Margaret Duffield, R.N., Cert. P.H.N. (University of Toronto).
Miss Laura Holland, R.N., Cert. School of Social Work (Simmons).
Mrs. Laura B. Gordon, R.N., Cert. P.H.N. (British Columbia).
Miss Ruby Adeline Kerr.

Miss Josephine F. Kilburn, R.N.
Miss Agnes McLeod, R.N., B.Sc. (Alberta), M.A. (Columbia).
Miss Laura M. Sanders, R.N.
Alfred Howard Spohn, M.B. (Toronto).
Charles Harvey Vrooman, M.D., C.M. (Manitoba).
Harold White, M.D. (McGill), D.P.H. (Toronto), L.M.C.C.
Henry Esson Young, B.A. (Queen's) M.D., C.M. (McGill), LL.D. (Toronto), LL.D. (McGill), LL.D. (British Columbia), L.M.C.C.

Subjects of Nursing A
(Combined Undergraduate Course and Double Course)

1. *History of Nursing.*—A series of lectures dealing with the origin and history of nursing.
One hour a week, First Year. Both Terms. Miss Gray.

3. *Public Health* (Introductory).—(See Page 203, Social Service 4 and Social Service 8.)
Three hours a week. Both Terms. Dr. Hill, Miss Gray, Miss Kerr.

4. *Elementary Organic Chemistry,* as applied to Physiology and Biochemistry.
Second Term. Twenty hours. One lecture and one laboratory period per week for ten weeks. Dr. Allardyce.

Nursing B (Public Health Nursing) and Nursing C (Teaching and Supervision)

Preventive Medicine in the Public Health Nursing Programme

1. *Preventable Diseases.*—Brief sketches of the more important of the preventable diseases; immunology; vaccine therapy.
One hour a week. Both Terms. Dr. Amyot.

2. *Epidemiology.* — Principles and practice in the control of disease.
One hour a week. Both Terms. Dr. Amyot.

3. *Tuberculosis.*—A study of tuberculosis, its prevention and cure.
Eight lectures. Second Term. Dr. Vrooman.

5. *Mental Hygiene.*—An introduction to the study of mental illness, with emphasis upon its cure and prevention. Child guidance clinics and the psychiatric social history.
Nine lectures. First Term. Dr. Crease, Miss Kilburn.

6. *Bacteriology.* — A short laboratory course to familiarize students with the practical application of laboratory technique in Public Health measures.
Hours to be arranged. Miss Mathews.

Child Welfare

7. (*a*) *Infant Welfare.*—A series of lectures and clinics dealing with pre-natal care, and the normal development of the infant; also dealing with the disorders of infancy, their prevention and cure.

Nine hours. First Term. Dr. Spohn.

(*b*) *Child Hygiene.*—An outline of the work of the City Child Hygiene Department preparatory to Field Work.

Two lectures. Miss Sanders.

Public Health, Hygiene and Sanitation

9. *Public Health.*—A series of lectures covering the fields of general hygiene and sanitation.

One hour a week. Both Terms. Seventeen lectures. Dr. McIntosh.

10. *Public Health Administration.* — A study of the official relation of the Public Health Nurse to the Department of Health.

Four lectures. Dr. McIntosh, Dr. Young.

11. *Public Health Organizations.*—A series of single lectures dealing with special aspects of their work.

(*a*) Diagnostic Clinics for Tuberculosis. Dr. Lamb.

(*b*) The Hospital's Relation to the Community Health Programme. Dr. Haywood.

(*c*) The Workmen's Compensation Act. Dr. Bastin.

12. *Vital Statistics.* — The general principles governing the collection and arrangement of statistical facts and their application in Public Health Nursing.

One hour a week. Both Terms. Seventeen lectures. Dr. Duff.

Nursing

13. *Principles and Practice of Public Health Nursing.*—A study of the principles and practice of public health nursing.

Three hours a week. Both Terms. Miss Kerr.

15. *Urban Visiting Nursing Programme.*

Two lectures. Miss Duffield.

16. *Health Education.*—A consideration of the material to be presented in the teaching of personal hygiene and home nursing, and the method of presentation.

Two hours a week. Both Terms. Miss Kerr.

17. *Contemporary Nursing Problems.*—Consideration of recent developments in the nursing field.

One lecture a week. Both Terms. Miss Gray.

18. *Teaching in Schools of Nursing.* — A study of the Curriculum; the selection of subjects, content of each, and methods of presentation. Demonstrations and supervised practice in classroom and ward teaching.

Three lectures a week. Both Terms. Miss Gray, Miss Cavers, Miss McLeod.

19. *Principles of Supervision in Schools of Nursing.*—A study of the organization of the School of Nursing; its relation to the various departments of the Hospital; and the problems of training and record keeping.

Two lectures a week. Both Terms. Miss Gray.

20. *School Hygiene.*—A series of thirteen lectures given by members of the staff of the Medical Department of the Vancouver School Board, dealing with the specific problems of this division of Public Health.

Thirteen lectures. First Term. Miss Breeze, Miss Kerr, Dr. White.

21. *Social Case Work.* — Its relationship to Public Health Nursing.

Six lectures. Miss Holland.

22. *Hospital Social Service.*—A presentation of the principles underlying Medical Social Service.

Two lectures. Mrs. Gordon.

24. *Educational Psychology.*
(See Page 102.)

25. *School Administration and Law.*
(See Page 103.)

26. *Public Speaking and Parliamentary Procedure.*—Principles and practice, fitting students for giving addresses and conducting meetings.

One hour a week. Both Terms. Seventeen hours. Miss Kerr.

27. *Sociology.* — The Family. An approach to the study of society by way of a basic institution.

Two hours a week. First Term. Dr. Topping.

Text-book: Groves, *Social Problems of the Family,* Lippincott, 1927.

29. *Motor Mechanics.* — Practical instruction in the structure and operation of automobiles.

One hour a week. One Term. Mr. Bell.

30. *Philosophy 9.*
(See Page 124.)

Department of Zoology

Professor: C. McLean Fraser.
Assistant Professor: G. J. Spencer.
Assistant Professor: Gertrude M. Smith.

NOTE:—Biology 1 is prerequisite to all courses in Zoology.

1. *General Morphology.* — General morphology of animals. Comparative anatomy. The relationships of animal groups. Comparative life-histories.

Text-book: T. J. Parker and W. A. Haswell, *Manual of Zoology,* Macmillan.

This course is prerequisite to other courses in Zoology.

Two lectures and two hours laboratory per week.

7. *Economic Entomology* (in part).—The portion of the course in Economic Entomology that deals with forest insects.

One lecture and two hours laboratory work per week for half of Second Term.

THE FACULTY OF AGRICULTURE

TIME TABLE

Faculty of Agriculture—First and Second Years

FIRST AND SECOND TERMS

	Monday	Room	Tuesday	Room	Wednesday	Room	Thursday	Room	Friday	Room	Saturday	Room
9-10	Physics 1	S 200	Agriculture 2 English 1b	Ag 102 100	Physics 1	S 200	Agriculture 2 English 1b German Beg. a	Ag 102 A 100 Ap 108	Physics 1 Agriculture 1	S 200 Ag 102	English 1a Agriculture 2 Lab.	 A 108
10-11	Mathematics 1 Geology 1	A Ap 100	Agriculture 1 Lab.	Ag 100	Mathematics 1	A. 106	Agriculture 1 Lab.	Ag 100	Mathematics 1 Chemistry 2	 S 300	Agriculture 2 Lab.	
11-12	Biology 1 German Beg. a	Ap 100 A 205	Chemistry 1 Botany 1 Agriculture 1 Lab.		Biology 1	Ap 100	Chemistry 1 Agriculture 1 Lab. Economics 1 Section 4	S 300 Ap 100	German Beg. a	A 205	Chemistry 1 Economics 1 Section 4	S 300 Ap 100
12-1												
1-2	English 2b	A 100	Bacteriology 1 Geology 1	S 400 Ap	Chemistry 1a English 2a	S 300 A 100	Mathematics 1 Zoology 1 Lab. Bacteriology 1 Lab.	A Ap S 400	Chemistry 1a			
2-3	Bacteriology 1	S 400	English 1a Geology 1 Lab.	 Ap	Agriculture 2 Lab.		Biology 1 Lab. Bacteriology 1 Lab.	A 100 S 400	Agriculture 1 Lab.	Ag 100		
3-4	Bacteriology 1 Lab. Botany 1 Lab.	S 400 Ap	Bacteriology 1 Lab. Chemistry 2 Lab.	 S	Agriculture 2 Lab.		Chemistry 1 Lab. Chemistry 2 Lab.		Agriculture 1 Lab.	Ag 100		
4-5	Bacteriology 1 Lab. Botany 1 Lab.	S 400 Ap	Bacteriology Lab. 1 Chemistry 2 Lab.	 S			Chemistry 1 Lab. Chemistry 2 Lab.		Biology 1 Lab.	Ap		
5-6	Chemistry 1 Lab. Botany 1 Lab.	S Ap	Chemistry 2 Lab.	S			Chemistry 1 Lab. Chemistry 2 Lab.		Biology 1 Lab.	Ap		

FACULTY OF AGRICULTURE

INFORMATION FOR STUDENTS IN AGRICULTURE

The primary object of a University education is to develop in men and women the power of logical, exact and independent thinking. The teaching of the Science of Agriculture has an additional aim—*viz.*, giving to the student an understanding of the principles of life, both plant and animal, and knowledge of the application of these principles to Agriculture and allied industries.

The particular course of study* selected by any student 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, 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 allied subjects.

During the first two years, 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 1 and 2), which includes a survey of the History and Development of Agriculture. This introductory course is given by the applied departments.

During the last two years of the course the student is permitted, in consultation with the Dean and the Head of the 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 Agronomy, Animal Husbandry, Dairying, Horticulture, Poultry Husbandry, Agricultural Economics; or a still further specialized course within these or closely allied fields, such as in Soils, Animal or Plant Nutrition, Animal or Plant Pathology, Applied Genetics, Bacteriology, Entomology, Physiology 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 and a Department Head.

*The curriculum described in the following pages may be changed from time to time as deemed advisable by the Senate.

In advising on the selection of courses or vocation, the student's personal preference and his adaptability are given careful consideration.

For those interested in continuing their University training beyond the work of the four 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.)

Facilities for Work

For statement regarding buildings, laboratories, equipment and other facilities, see pages 20-22.

Admission, Registration, Etc.

For statement as to general requirements for admission, registration, etc., to the University, see pages 27-32.

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

Five 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 One-year Occupational Course leading to a Diploma in Agriculture.

(3) A Winter Course at the University, consisting of a Short Course in one or more of the agricultural subjects: Poultry, Horticulture, etc.

(4) Extension Courses at different points in the Province.

(5) 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 Junior Matriculation or its equivalent before entering upon these courses (see "Matriculation Requirements").

The Occupational Course

The Occupational Course is planned for those students whose academic qualifications are not high, but whose practical qualifications are satisfactory. The course permits of work in Agronomy, Animal Husbandry, Poultry Husbandry, Dairying, Horticulture, Farm Management and Marketing on the part of those who wish to extend their practical knowledge. A successful completion of the course leads to a Diploma in Agriculture. Matriculation standing for entrance 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 Registrar on application.

Extension Courses

In order to reach those engaged in Agriculture who are not able to avail themselves of the Winter Courses given at the University, the Faculty of Agriculture offers extension short courses in various centres throughout the Province. These courses are of at least four days' duration, are proceeded with according to a definite time-table, and include lectures and demonstrations in connection with the work of each department of the Faculty. Detailed programmes are prepared to suit the specific centres, and requests for such courses may be addressed to the Registrar.

(Not offered in 1934-35.)

Graduate Work

For regulations, see pages 213, 214.

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) per week throughout

the session, or two lecture hours (or equivalent laboratory periods) throughout a single term.

Outline of Courses

FIRST YEAR

Agriculture 1.
Biology 1.
Chemistry 1.
English 1.
Mathematics 1.

To assist students who contemplate proceeding to the Normal School after taking one year of the course in Agriculture, a first year course in the language taken on Junior Matriculation may be substituted for either Chemistry 1 or Biology 1; but any such student who later registers for a second year in the Faculty of Agriculture must complete the regular course of studies for the first year.

SECOND YEAR

Agriculture 2.
English 2.

Physics 1, if Physics was not taken as a Junior Matriculation subject, and any of the following subjects as approved by the Dean and the Committee on Students' Courses, up to a total of not less than 15 units:

Bacteriology 1.
Bacteriology 2.
Botany 1.
Chemistry 2.
Economics 1.
Geology 1.
Mathematics 2 or 3.
Matriculation Language 1.
Matriculation Language 2.
Beginners' German.
Philosophy 1.
Physics 2.
Zoology 1.

Subject to the approval of the Dean and a Head of a Department, 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 and the Head of a Department 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, in the Third and Fourth Years.

A student completing credits for the Bachelor's degree may also do work toward the Master's degree, provided that not more than six units of credit are required to complete his undergraduate courses.

A student who, before completing work for the Bachelor's degree, has done work towards the Master's degree, may have six units of credit applied towards his Master's degree, provided these six units of credit are secured in courses for which graduate credit may be allowed. These units may be applied toward the Master's degree only after the student has completed his undergraduate requirements.

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-sized paper (8½ x 11 in.) shall be submitted on or before the 1st of April in the graduating year.

The particular course or courses to be taken by any student must be approved by the Dean and a Head of a Department.

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. (See also Curriculum of Third and Fourth Years, paragraphs 3 and 4 above.)

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. The fee for examination of certificates is $2.00.

3. Candidates with approved degrees and academic records who proceed to the Master's degree shall 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.

4. Students doing tutorial work shall not be allowed to come up for final examination in less than two academic years after registration as M.S.A. students.

5. One major and one minor shall be required. Candidates may select their minor in another Faculty.

At least second class standing is required in the subjects of the minor.

6. 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.

7. (*a*) A thesis must be prepared on some approved topic in the major subject.

(b) Examinations, written or oral, or both, shall be required.

8. Two typewritten copies of each thesis, on standard-sized thesis paper, shall be submitted. (See special circular of "Instructions for the Preparation of Masters' Theses.")

9. Application for admission as a graduate student shall be made to the Registrar by October 1st. (See schedule of fees.)

Examinations and Advancement

1. Examinations in all subjects, obligatory for all students, are held in April. In the case of subjects which are final at Christmas and in the case of courses of the First and Second Years, examinations will be held in December as well. Applications for special consideration on account of illness or domestic affliction must be submitted to the Dean not later than two days after the close of the examination period. In cases where illness is the plea for absence from examinations, a medical certificate must be presented on the appropriate form, which may be obtained from the Dean's office.

2. In the First and Second Years, candidates taking a full course will not be considered as having passed unless they obtain (a) 50 per cent. or more in each subject, or (b) at least 40 per cent. on each subject and 60 per cent. on the aggregate taken at

one time. In the Third and Fourth Years, candidates will not be considered as having passed unless they obtain at least 50 per cent. on each subject. Candidates taking less than a full course (15 units) must obtain at least 50 per cent. on each subject of the First and Second Years, and at least 60 per cent. on each subject of the Third and Fourth Years. Students 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 Schedule of Fees), must be in the hands of the Registrar at least two weeks before the date set for the examinations.

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 Matriculation, unless special permission to do so is granted by Faculty. Such permission will be granted only when 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

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 per week. First Year.
The Staff. 3 units.

2. *General Agriculture, History of Agriculture.*—A continuation of Course 1, so far as it embraces a study of the development of Agriculture from early primitive stages to its present state of scientific advancement.

Special attention is paid to the evolution of Agriculture in Great Britain and the Dominions, and to agricultural settlement and growth on the North American continent.

Two lectures and one laboratory per week. Second Year.
Mr. P. A. Boving.

Department of Agronomy

Professor: G. G. Moe.
Professor: P. A. Boving.
Associate Professor: D. G. Laird.

General Agronomy.—(Included in *Agriculture* 1 and 2 in the First and Second Years respectively).

14. *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 per week.
Mr. Moe. 3 units.

15. *Field and Crop Management.*—Embraces a study of cultural practices, rotations and costs in connection with the economics of crop production, and also includes theoretical and practical exercises in drainage and field mensuration.

Two lectures and one laboratory per week. Second Term.
Mr. P. A. Boving. 1½ units

16. *Soil Management.*—Different systems of cultivation, rotation, manuring and irrigation as practised in Canada and elsewhere are discussed, and the influence of these factors on the maintenance or exhaustion of soil fertility.

Two lectures and one laboratory per week. Second Term.
Mr. Laird. 1½ units.

17. *Seed Growing and Plant Breeding.* — Plant breeding methods and the improvement of field crops by breeding are considered, together with the production and marketing of first-class root, vegetable, clover and grass seed.

Two lectures and one laboratory per week. First Term.
Mr. P. A. Boving. 1½ units.

18. *Experimental Methods.*—Field experimentation, corrections for plot variability. Use and application of probable error, standard deviation, coefficient of variability, correlation coefficient. Students' method of paired experiments. Peter's and Bessel's formulæ.

Two lectures and one laboratory per week. Second Term.
Mr. Laird. 1½ units.

19. *Field Crops* (Advanced). — Studies of the climatic, ecological and biological factors which influence the distribution and world production of field crops.

Three lectures per week. First Term.
Mr. Moe. 1½ units.

20. *Soil Bacteriology.*—Laboratory and lecture course, in which the bacteria of soils are studied qualitatively and quantitatively, with special reference to soil fertility. (Same as Bacteriology 6.)

Five hours per week. First Term.
Mr. Laird. 2 units.

25. *Undergraduate Essay.*—The preparation of a report on an applied problem. 3 units.

30. *Directed Studies.*—Systematic work on an approved problem. 3 units.

50. *Applied Plant Genetics.*—The genetics of crop plants. Lectures, seminar periods and research.
Mr. Moe. 3 to 5 units.

51. (*a*) *Soils.*—The interaction of the physical, chemical and biological forces of the soil.
Three lectures per week. 3 units.

51. (*b*) A laboratory course based on 51 (*a*).
Two laboratory periods per week. 2 units.
Course (*b*) must be preceded by or taken concurrently with course (*a*).

Department of Animal Husbandry

Professor: H. M. King.
Assistant: Rolfe Forsyth.

Lecturer: H. R. Hare.

General Animal Husbandry.—(Included in *Agriculture* 1 and 2 in the First and Second Years respectively).

15. *Breeds of Livestock.*—A study of the origin, history of development, characteristics and adaptations of the breeds of dairy cattle, beef cattle, sheep, swine, horses and goats. Students may be required to visit conveniently located farms.
Two lectures and one laboratory per week. 3 units.

16. *Animal Nutrition.*—A study of 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. A study of the various foodstuffs.
Two lectures and one laboratory per week. 3 units.

17. *Animal Feeding and Breeding.*—The economic and other problems involved in the feeding of all classes of livestock; the sires, dams and families of the leading herds. A study of blood lines and pedigree construction.
Two lectures and one laboratory per week. 3 units.

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 per week. 3 units.

19. *Seminar.*—Current problems and literature. Research and experimental work with animals. The selection and development of herd sires and breeding herds. Students may be required to visit conveniently located farms.
One lecture and two laboratories per week. 3 units.

20. *Animal Pathology.* — Pathological conditions of animals; their causes, prevention and treatment.
Two lectures and one laboratory per week. 1½ units.

21. *Applied Animal Genetics.*—Variation and inheritance in livestock and poultry. Principles and methods of animal improvement. Genetic aspects of sex and the physiology of reproduction in animals.
Prerequisite: Genetics 1 (*a*).
Three lectures per week. Second Term. 1½ units.

25. *Undergraduate Essay.* 3 units.

30. *Directed Studies.* 3 units.

50. *Research.*—Special problems in dairy cattle production. Sanitary and pathological conditions in relation to milk production. 3 to 5 units.

51. *Research.*—Special phases of animal nutrition as related to growth, production and reproduction. 3 to 5 units.

Department of Dairying

Professor: .....
Assistant Professor: Blythe Eagles.

Research Assistants under grant from the National Research Council:
Miss Olga Okulitch
Mrs. Thelma Ingledew.

General Dairying.—(Included in *Agriculture* 1 and 2 in the First and Second Years respectively).

(*A*) *Cheese-Making and Butter-Making.* — An elementary course.
Two lectures and one laboratory per week. First Term. Third Year. 1½ units.

3. *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.
Third Year. First Term. 1½ units.

(*B*) *Market Milk and the Judging and Grading of Milk and Milk Products.*—The physical and chemical constituents of milk; testing of milk, cream, butter and cheese; buying and selling of

milk on a quality basis; pasteurization, control and distribution of milk.

Third Year. Second Term. 1½ units.

6. *Cheese and Cheese-Making.*—This course deals with the principles and practices of cheese-making—hard-pressed, blue-veined, and soft.

Two lectures and two laboratories per week. Fourth Year. 4½ units.

(Not offered in 1934-35.)

7. *Dairy Bacteriology.*—The ripening of hard-pressed cheese and a systematic study of the lactic acid bacteria.

One lecture and two laboratories per week. 3 units.

13. *Dairy Mycology.*—This course concerns itself with a study of the molds that take part in the ripening of cheese. To an extent, attention is given to the molds associated with the spoilage of butter.

One lecture and two laboratories per week. First Term. 1½ units.

(Not offered in 1934-35.)

25. *Undergraduate Essay.*—A written report on a prescribed laboratory study.

Fourth Year. 3 units.

30. Studies, under direction, of bacteria responsible for flavours and odours of milk. 3 units.

50. Directed systematic studies of defined phases of the work introduced in Courses 3 or 7. 3 to 5 units.

(Open to Graduates only.)

Department of Horticulture

Professor: F. M. Clement.
Professor: A. F. Barss.
Assistant Professor: G. H. Harris.
Lecturer: F. E. Buck.

General Horticulture.—(Included in *Agriculture* 1 and 2, in the First and Second Years respectively).

13. *Practical Horticulture.*—A detailed study of the principles involved in plant propagation; in tree-fruit and small-fruit growing; and in nursery and greenhouse management; supplemented by laboratory, field, orchard, nursery and greenhouse practice in the various horticultural operations.

Two lectures and one laboratory per week. 3 units.

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 per week. First Term.
1½ units.

15. *Special Horticultural.*—The study of special branches of Commercial Horticulture, including the manufacture of horticultural products—canning, dehydration, etc.; and the growing and marketing of such horticultural crops as nuts, citrus fruits, figs, dates, etc.

Two lectures and one laboratory per week. Second Term.
1½ units.

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 per week. First Term.
1½ units.

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 per week. Second Term.
1½ units.

18. *Systematic Horticulture.* — The description, identification, classification, displaying and judging of horticultural crops—tree fruits, small fruits and vegetables.

One lecture and two laboratories per week. First Term.
1½ units.

19. *Horticultural Problems and Seminar.*—An introduction to the study of problems in Horticulture, including the breeding of Horticultural crops, variety adaptations, and methods of research, together with a review of Horticultural investigational work in other institutions. There will also be practice in outlining investigations, and in preparing reports.

Two lectures and one laboratory per week. Second Term.
1½ units.

25. *Undergraduate Essay.* — A satisfactory report on some approved subject upon which the student has done special investigational work. 3 units.

30. *Research in Horticulture.*—Directed study on some special problem in the applied phases of Horticulture. 3 units.

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.

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 laboratories per week. First Term. 1½ units.

Plant Nutrition

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 3b.)

Two lectures and four hours laboratory work per week. First Term. Fourth Year. 2 units.

42. *Plant Nutrition (b).*—A course dealing with the underlying principles and 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 inter-relations of plants and soils. (Same as Botany 3c.)

Two lectures and four hours laboratory work per week. Second Term, Fourth Year. 2 units.

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 per week. Either term. 1 unit.

54. *Research in Plant Nutrition.*—(Open to Graduate Students only). 3 to 5 units.

Department of Poultry Husbandry

Professor: E. A. Lloyd.

General Poultry Husbandry.—(Included in *Agriculture* 1 and 2, in the First and Second Years respectively).

13. *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, packing, storing of poultry meats, marketing breeding stock, co-operative marketing, prices.

Two lectures and one laboratory per week. First Term, Third Year. 1½ units.

14. *Breeding and Judging.* — The breeds of poultry, their history, origin and economic qualities. Study of production records. Methods of breeding for egg and meat production. Judging and selection for egg and meat production.

Two lectures and one laboratory per week. 3 units.

16a. *Management.* — Types of poultry farms and their respective problems. Farm layouts. Poultry-house construction. Economy of investment of capital in land, buildings, stock and equipment. Efficiency in breeds, maintenance, labour, housing, feeding, production and personnel. Marketing. Incubation and Brooding. Studies of individual farms.

Two lectures and one laboratory per week. First Term, Fourth Year. 1½ units.

16b. *Advanced Poultry Management.* — Analysis of farm records taken from the survey. Cost of buildings and equipment, valuation of land. Inventory valuation. Returns on investment. Farm income, labour income and profit as based on farm surveys. Factors in economical production. Costs of production. Visits to farms.

Two lectures and one laboratory per week. Fourth Year. 1½ units.

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. Autopses. Study of the literature. Inspection of farms.

Two lectures and one laboratory per week. Second Term, Fourth Year. 1½ units.

19. *Feeding.*—Principles of poultry feeding. A detailed study of the nutrients. Digestion and assimilation. Compounding of rations for poultry. Study of feed-stuffs. Feeding practices. 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.

Two lectures and one laboratory per week. First Term, Fourth Year. 1½ units.

20. *Seminar.*—Poultry literature. Preparation of a library. Reports on current events. Research and experimental problems. Preparation of reports and bulletins. Marketing problems. Advertising poultry products.

One lecture per week. Four hours practice per week. 1½ units.

21. *Applied Animal Genetics.*—Variation and inheritance in livestock and poultry. Principles and methods of animal improvement. Genetic aspects of sex and the physiology of reproduction in animals.

Prerequisite: Genetics 1 (a).

Three lectures per week. Second Term. 1½ units.

25. *Undergraduate Essay.* 3 units.

30. *Research* (Directed). 3 units.

50. *Research* (Directed).
(Open to Graduates only.) 3 to 5 units.

Agricultural Economics

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 400 British Columbia farms over a period of ten years; a general study of the farm business in Europe, United States and Canada.

References and assigned readings from Gray, Ross, Warren, Adams and others.

Two lectures and one laboratory per week throughout the year. 3 units.

1. *Agricultural Economics.*—The principles of Economics as applied to Agriculture; historical background, the agricultural problem, and some special topics, such as the agricultural surplus, production in relation to population growth, the farm income and the share of agriculture in the national income.

Text: Taylor, *Agricultural Economics,* Macmillan.

References and assigned readings from Grey, Carver, Nourse and others.

Three lectures per week.

Mr. Clement. 3 units.

2. *Marketing.*—The principles of Marketing as applied to the individual farm and to Agriculture as a whole. The general principles of Marketing, the marketing of agricultural products as compared to wholesale and retail distribution of manufactured goods, the contributions of national Farmer Movements, co-operative marketing as illustrated by the marketing of wheat, fruit and milk in Canada.

Texts: Hibbard, *Marketing Agricultural Products,* D. Appleton & Co.; Mackintosh, *Agricultural Co-operation in Western Canada,* Ryerson Press, Toronto.

References and assigned readings from Macklin, Boyle, Benton, Black, Patton and others.

Three lectures per week.

Mr. Clement. 3 units.

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.)

Mr. Clements. 3 to 5 units.

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 readings from general reference and the reports of the American Institute of Co-operation. (Open to Graduates only.)

Mr. Clement. 3 to 5 units.

Genetics

A. H. Hutchinson.
G. G. Moe.

1. (*a*) *Principles of Genetics.*—The fundamentals of genetics illustrated by the race histories of certain plants and animals; the physical basis of heredity; variations; mutations; acquired characters; Mendel's law with suggested applications. (Same as Biology 2 (*a*) under Botany.)

Text-book: Castle, *Genetics and Eugenics,* Harvard Press.

Prerequisite: Biology 1.

Three hours per week. First Term.

Mr. Hutchinson. 1½ units.

1. (*b*) *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. (Same as Biology 2 (*b*) under Botany.)

Text-book: Sinnott and Dunn, *Principles of Genetics,* McGraw-Hill.

Prerequisite: Genetics 1 (*a*).

One lecture and four hours laboratory per week. Second Term.

Mr. Moe. 1½ units.

2. *Advanced Genetics.*—

(*a*) An introduction to biometrical methods as applied to genetics.

Prerequisite: Genetics 1 (*a*).

One lecture and two hours laboratory per week. First Term. 1 unit.

(*b*) A review of advanced phases and the more recent developments in genetics.

Prerequisite: Genetics 1 (*b*).

Two hours per week. Second Term. 1 unit.

Department of Bacteriology

Professor: Hibbert Winslow Hill.
(For details of courses see Pages 81-82.)

Department of Botany

Professor: A. H. Hutchinson.
(For details of courses see Pages 82-87.)

Department of Chemistry

Professor: R. H. Clark.
(For details of courses see Pages 87-91.)

Department of Classics

Professor: Lemuel Robertson.
(For details of courses see Pages 91-94.)

Department of Economics

Professor: Henry F. Angus.
(For details of courses see Pages 94-101.)

Department of English

Professor: G. G. Sedgewick.
(For details of courses see Pages 103-106.)

Department of Geology

Professor: R. W. Brock.
(For details of courses see Pages 107-111.)

Department of Mathematics

Professor: Daniel Buchanan.
(For details of courses see Pages 115-118.)

Department of Modern Languages

Professor: H. Ashton.
(For details of courses see Pages 118-122.)

Department of Philosophy

Professor: H. T. J. Coleman.
(For details of courses see Pages 122-124.)

Department of Physics

Professor: T. C. Hebb.
(For details of courses see Pages 124-127.)

Department of Zoology

Professor: C. McLean.
(For details of courses see Pages 128-129.)

LIST OF STUDENTS IN ATTENDANCE
SESSION 1933-34

FACULTY OF ARTS AND SCIENCE

First Year

Full Undergraduates

Name	*Home Address*
Adair, Irvine J.	New Westminster
Aicken, Alex. C.	Vancouver
Ainley, William G.	Vancouver
Allan, O. Bruce	Vancouver
Allen, Ronald C.	Prince Rupert
Allison, Margaret	West Vancouver
Anderson, A. Brookman	Vancouver
Arbuckle, J. William	Vancouver
Arima, Junichi	Eburne
Armstrong, Kathleen E.	Merritt
Atkinson, Margaret M.	Vancouver
Bagshaw, Irwin W.,	Britannia Beach
Bain, David L.	Vancouver
Baird, Constance M.	Vancouver
Bardwell, R. Bruce	Vancouver
Barss, Walter M.	Vancouver
Beamish, Ludlow W.	New Westminster
Bee, David N.	Vancouver
Begg, Roy F.	Vancouver
Bell, Donald K.	Vancouver
Berrettoni, Julio N.	Vancouver
Biggs, Raymond F.	Princeton
Bowden, Madeleine M.	Vancouver
Bowen-Douglas, Beverly	Bowen Island
Bowers, Kathleen	Vancouver
Boyd, Lillian	Vancouver
Brandon, Ruth M.	Vancouver
Briggs, Edmund W.	Vancouver
Brookes, Rose L.	Vancouver
Brunton, Fred M.	Ladner
Buckham, Thomas	Qualicum Beach
Burnett, Philip N.	Wells
Cain, Elizabeth	Vancouver
Cameron, Ian B.	New Westminster
Chalmers-Hughes, Robert B.	Penticton
Chandler, Ethelyne H.	Vancouver
Charlton, John W.	Britannia Beach
Chave, Muriel W.	Victoria
Cheng, Nina	Lillooet
Chester, Roger N.,	New Westminster
Chin, James	Vancouver
Church, Thomas G.	Vancouver
Cicconi, Harry	Vancouver
Clancy, Patricia M. I.	Vancouver
Clark, John C.	Ocean Falls
Clark, Violet D.	Vancouver
Cliff, Harold N.	Revelstoke
Collins, Gordon L.	Haney
Copp, Stanley A.	New Westminster
Cornish, John B.	Vancouver
Cosens, Phyllis M.	Vancouver
Coulter, Arthur H.	Vancouver
Cox, John C.	Victoria
Crosby, R. Gordon	Vancouver
Crosson, George N.	Vancouver
Cumming, Joan A. C.	Vancouver
Cumming, W. Patrick	Vancouver
Darbyshire, Joan	Vancouver
Darwin, Edgar C.	North Vancouver
Daugherty, Margaret	Vancouver
DeVitt, Charles A. S.	Vancouver
Dickie, A. Gordon	Vancouver
Dickie, William R.	Vancouver
Dickson, Isabelle Y.	Victoria
Disher, Edward W.	Vancouver
Ditmars, Eric S.	Vancouver
Ditmars, William C.	Vancouver
Dodd, Herbert L.	Creston
Dodds, Ronald V.	Vancouver
Eastham, Arthur M.	Vancouver
Eastman, Dorothy J.	Vancouver
Edmonds, W. Freth	Vancouver
Elliott, Thomas A.	Vancouver
English, William N.	Vancouver
Evans, Elizabeth I.	Vancouver
Falconer, R. Juanita	Alice Arm
Fargey, Willa A.	Vancouver
Farina, Caroline F.	Kamloops
Forin, Mary E.	Vancouver
Forster, John F. A.	Vancouver
Foster, Alan F.	Vancouver
Francis, George H.	Vancouver
Freeman, Gordon E.	Vancouver
Frost, Hubert M.	Vancouver
Gerow, Alice E.	Crescent Beach
Gibson, Eleanor M. G.	Vancouver
Gillies, R. John D.	Vancouver
Golightly, Francis H.	Vancouver
Gordon, Bruce MacM.	Vancouver
Gorrie, Cameron	Vancouver
Graham, Colin D.	Vancouver
Graham, Hector C.	Agassiz
Gray, Helen	North Vancouver
Green, Arthur H.	Vancouver
Greenwood, Stanley	New Westminster
Gurney, Mary M.	Matsqui
Hager, Norman P.	Vancouver
Hall, James Z.	Vancouver
Hargreaves, George	Burnaby
Harris, Jack E.	Vancouver
Harrison, John R.	Vancouver
Harvey, Constance C.	Vancouver
Haslett, John W.	Ocean Falls
Hay, Frank G.	Vancouver
Hebb, Evelyn S.	Vancouver
Henderson, F. Scott	Vancouver
Henderson, Ralph	Vancouver
Higashi, Shinobu	Vancouver
Hill, John G.	Vancouver
Hill, Marjorie K.	Hollyburn
Hinton, George	Toluca, Mexico
Hobden, Lloyd H.	West Vancouver
Hobson, Marjorie M.	Vancouver
Hogg, John D.	Vancouver
Holland, D. Clarke	Vancouver
Horwood, Audrey F.	Vancouver
Houston, Elizabeth J.	Vancouver
Howarth, Charles L.	Nakusp
Idyll, Clarence P.	Vancouver
Ingham, Donald G.	Nanaimo

FACULTY OF ARTS AND SCIENCE—FIRST YEAR—*(Continued)*

Name	*Home Address*
Irwin, James E.	Vancouver
Irwin, Mary I.	Regina, Sask.
Jackman, Jack M.	Vancouver
James, R. Warren	Vancouver
Janes, Caesar N.	Vancouver
Jessup, Reginald G.	Ocean Falls
Johnson, Goodwin W.	North Vancouver
Jones, Robert A.	Vancouver
Kato, Joichi	Vancouver
Kendall, Edgar C.	Vancouver
Kennedy, Jack S.	Vancouver
Kennedy, Louise M.	North Vancouver
Kenny, Eric L.	Vancouver
Killam, Cecil G.	Vancouver
Kondo, Tsuneo	Vancouver
Kusaka, Shuichi	Vancouver
Ladner, Yvonne M.	Vancouver
Laidlaw, William A.	West Summerland
Lambert, Maurice J.	Prince George
Larsen, M. Patrick	Vancouver
Leary, Mabel P.	Ladner
Lee, Barbara V.	Anyox
Lee, Daniel	New Westminster
Lexier, Vivian F.	Vancouver
Lloyd, H. Alun	Vancouver
Logan, John E. M.	Vancouver
Lord, William C.	New Westminster
Lowe, Robert A.	Vancouver
Lowery, E. Jean	Vancouver
Lowrie, Donald W.	Vancouver
Lowrie, Jean M.	Vancouver
Lucas, Donna A.	Vancouver
Macey, Maud E.	Williams Lake
Maguire, Edward H.	Vancouver
Maguire, John S.	Vancouver
Mann, Aileen E.	Vancouver
Manson, K. Marguerite	Vancouver
Marlatt, Sholto P.	Vancouver
Marr, A. Zella	Vancouver
Martin, David D.	Montreal, Que.
Martyn, James R.	Vancouver
Matheson, Helen F. M.	Vancouver
Menten, Dorothy E.	New Westminster
Milburn, Margaret C.	Vancouver
Mimms, Ruth	Vancouver
Morris, Valetta B.	Matsqui
Morrison, John G.	Vancouver
Mullin, Anna F.	Woodfibre
Munro, Ellice S.	Vancouver
Murphy, Dalton N.	Kaslo
Murphy, Patricia J.	Kimberley
McAllister, Ernest M.	Vancouver
McCammon, James W.	New Westminster
MacDermot, John G.	Vancouver
McDiarmid, Allan N.	Vancouver
McDiarmid, Ian H.	Vancouver
McDonald, Jeanne M.	Vancouver
McDuffee, David W.	Vancouver
McEwen, Walter K.	Vancouver
Macintyre, John F.	Courtenay
Mackintosh, Catharine M.,	Vancouver
McKinlay, Bessie	Vancouver
McLeish, Charles A.	Kimberley
McLennan, Alastair H.	Vancouver
McLeod, Anne K.	Vancouver
MacMillan, G. Jean	Vancouver
McMillan, John	Port Alberni
McNeely, Constance E.	Vancouver
McPhillips, Alex. G.	Victoria
MacRae, Jessie M.	Caulfeild
Nasmyth, Peggy E.	Vancouver
Newcombe, Edward A.	Vancouver
O'Brien, Margaret	North Vancouver
Okumura, Hachiro	Toyohashi-shi, Japan
Oliver, Warrena N.	Ladner
Palitti, Victor H.	Vancouver
Pallas, Thomas E.	Vancouver
Patterson, Frank P.	Vancouver
Patterson, Pauline	Penticton
Patterson, Ralph F.	Ocean Falls
Paul, John H.	Vancouver
Paul, Virgil C.	Vancouver
Paulin, George B.	Vancouver
Pease, Fred L.	Vancouver
Peterson, H. Dora	Anyox
Petrie, Marie C.	Vancouver
Phair, Harold A. E.	Lillooet
Poole, Harold C.	Vancouver
Poole, John G.	Sorrento
Pooley, A. George	Vancouver
Porter, Margaret C.	Vancouver
Potter, Charles	Vancouver
Prentice, William R.	Fernie
Prest, Dorothy	Duncan
Price, Frampton B.	Vancouver
Rae, William C.	Vancouver
Ramsay, Margaret B.	North Vancouver
Read, Doris M.	Kaslo
Reid, C. Barbara	West Vancouver
Robarts, E. Audrey	Vancouver
Robson, Clifford A.	New Westminster
Roddan, Sam. M.	Vancouver
Ross, Rod R.	Vancouver
Roussel, Florence A.	Agassiz
Rush, Kathleen W.	Vancouver
Sadler, King T.	Vancouver
Saito, George	Cumberland
Samis, Gordon H.	Vancouver
Scott, Katherine E.	Vancouver
Seed, Amy K.	Vancouver
Selman, Merle B.	Vancouver
Shaffer, Marion A.	Vancouver
Shannon, Helen V.	Vancouver
Smith, Geoffrey G.	Vancouver
Smith, Margaret G.	Vancouver
Smith, Merle W.	Vancouver
Smith, R. Hector	Vancouver
Stenstrom, James A.	Vancouver
Stewart, Caroline J.	Vancouver
Stewart, Lyle Mack	Vancouver
Street, Elisabeth R.	Portland, Oregon
Sweetnam, Patience E.	Vancouver
Tanaka, Fuji-Kazu	Steveston
Taylor, Raymond R.	Vancouver
Taylor, Walter N.	Vancouver
Thompson, Callum	Penticton
Trousdale, Glenna M.	Vancouver
Vance, John R. B.	Vancouver
Walkem, Albert D.	Vancouver
Walkem, Jack K.	Vancouver
Wallace, C. A. Blake	Vancouver
Wallace, Fred L.	Vancouver
Wallbridge, Eleanor S.	Vancouver
Walsh, Allan F.	Vancouver
Watts, John H. H.	Vancouver

FACULTY OF ARTS AND SCIENCE—FIRST YEAR—*(Continued)*

Name	*Home Address*
West, Kenneth A.	Vancouver
Westby, Helen M.	Vancouver
Whellams, Julius H.	Kaslo
White, John E.	Vancouver
Whitelaw, John W.	Vancouver
Wilkinson, Edward D. N.	Vancouver
Williscroft, Stuart B.	Vancouver
Wilson, Beverly E.	Vancouver
Wilson, James L.	Vancouver
Wilson, William G.	Gibson's Landing
Wolverton, Elisabeth	Vancouver
Wong, Quon H.	Vancouver
Wood, Eric I.	Vancouver
Worthington, John R.	Vancouver
Yatabe, Eiji	Vancouver
Yoshida, Kiyoko	Steveston

SECOND YEAR

Full Undergraduates

Full undergraduates .... W.	
Agnew, Boyd F.	Vancouver
Agnew, Doreen E.	Vernon
Allen, Leslie A.	Vancouver
Alston, George F.	Vancouver
*Anderson, Margaret D.	Nordegg, Alberta
Armstrong, M. Kathleen	Vancouver
Astbury, Harold B.	North Vancouver
Baird, Barbara C.	Vancouver
Barber, Leslie E.	Chilliwack
Bastin, Arthur C.	Vancouver
Baxendale, Phyllis	Vancouver
Bayley, Charles M.	Vancouver
Beckett, William E.	Vancouver
Bell, Raymond C.	Nelson
Berry, Harry A.	Vancouver
Berry, John P.	Vancouver
Bingham, Winifred B.	Vancouver
Blatter, Myrtle	Lethbridge, Alberta
Bloom, Morris	Vancouver
Bodie, Mina M. J.	Vancouver
*Bossy, Elinor M.	Vancouver
Bourne, E. Kathleen	Vancouver
*Bowen-Colthurst, Theo. G.	Milne's Landing
Braidwood, Helen	Vancouver
Brelsford, Kathleen	Ioco
Bremner, Herbert J. R.	North Vancouver
*Bremner, Kenneth A.	Vancouver
Brink, Marian E.	Vancouver
Brockley, Michael R.	Vancouver
Buchanan, M. Margaret	Vancouver
Burch, Percy T.	Vancouver
Cade, John A. V.	Prince Rupert
*Campbell, M. Joy	Prince George
Carson, Donalda T.	Vancouver
Carson, E. Lorna	Vancouver
Carter, Edna	Vancouver
Carter, Norman McL.	Vancouver
Charlton, Frederick W.	Vancouver
Clabon, Pauline E. L.	Vancouver
Clapperton, Roderick D.	Vancouver
Clark, Leslie F.	Ocean Falls
*Clarke, John L.	Vancouver
Claydon, Raymond P.	Vancouver
Cook, Francis Y.	North Vancouver
Cosgrave, Masala M.	Vancouver
Custance, John P.	New Westminster
Davies, Francis R. E.	Victoria
Davis, Edwin P.	Vancouver
Davis, Lucille M.	Vancouver
*Dawson, Dorothy V.	Kelowna
*Dawson, Jean M.	Vancouver
*Day, Olive L.	New Westminster
Day-Smith, Alan	Vancouver
DePencier, Mary A.	Vancouver
Dignan, Marian M.	Vancouver
Disney, Peter J.	Vancouver
Dobson, T. Albert	Vancouver
*Douglas, Gordon W.	New Westminster
Draeseke, Gordon L.	Vancouver
Easler, Lloyd C.	Vancouver
*Ecker, Margaret	Vancouver
Elliott, Dorothy M.	Vancouver
Elliott, M. Ruth	Vancouver
Ellis, Madeleine B.	Vancouver
Ellis, Patrick R.	Comox
Elson, Richard L.	Spokane, Wash.
Farris, M. Louise	Great Central
†Fergusson, Gavin N.	Vancouver
*Ferris, James McC.	Vancouver
*Ferris, Violet	Vancouver
Findlay, James A.	Vancouver
Folkins, Mabel L.	Vancouver
*Fulton, E. Davie	Kamloops
Gallia, Norma	North Vancouver
Gifford, Phyllis E.	North Vancouver
Gillett, Margaret H.	New Westminster
Ginther, W. Lorne	Vancouver
Gomery, Eleanor D.	Vancouver
Grayson, Beatrice	Medicine Hat, Alta.
*Grayson, Gertrude S.	Medicine Hat, Alta.
*Griffin, Marjorie	North Vancouver
Hackman, Annie	Vancouver
Hamilton, William D.	Vancouver
Harowitz, Aser I.	Vancouver
Harper, Harold E.	Vancouver
Harvey, Jack H.	Vancouver
Haspel, Margaret M.	Vancouver
*Henderson, Jean	Vancouver
*Herbison, Hugh	New Westminster
*Heron, Gordon L.	Vancouver
Hewetson, Robert W.	Vancouver
Hodgson, Faith F.	Alberni
Hoicka, John A.	Whonnock
Holloway, Clifford J.	Vancouver
*Holt, Leonard	Vancouver
Housser, George E. B.	Vancouver
*Housser, Harry K.	Vancouver
Hughes, Audrey L.	Vancouver
*Hunt, Lyman M.	Vancouver
Hutton, Barbara J.	Vancouver
*Ingledew, Kenneth W.	Vancouver
Irving, Evelyn E.	Kamloops
*Islip, Nancy	Nakusp
Jantz, Leo	Vancouver
*Jeffery, Harold W. T.	Vancouver

*Conditioned. †Partial

FACULTY OF ARTS AND SCIENCE—SECOND YEAR—*(Continued)*

Name	*Home Address*
Johnston, Douglas T.	Vancouver
Johnston, George R.	Vancouver
Johnston, Margaret E. H.,	Ladysmith
Kadzielawa, Joseph L.	Vancouver
*Kay, Marjorie M.	Vancouver
*Kellett, Gertrude	Vancouver
Kennedy, Donald McC.	New Westminster
*Killam, Ralph J.	Vancouver
Kirk, David K.	Vancouver
Kirk, Thomas D.	Vancouver
Knox, Doris M.	Vancouver
Latimer, William W.	Vancouver
Lieven, Dagmar E.	Vancouver
Livingston, Gordon A.	Vancouver
Lock, F. Molly	Vancouver
*Lougheed, Milford S.	Vancouver
Lunn, Alan	Quesnel
Madeley, Samuel T.	Vancouver
Malkin, James M.	Vancouver
Manson, Marjorie	Vancouver
*Marin, Velia A.	Vancouver
Martin, Joan	North Vancouver
Martin, John A.	Vancouver
Mayers, Helen F.	Vancouver
Mellish, Margery E.	Vancouver
Menzies, Harold H.	Vancouver
Mercer, Allan W.	Vancouver
Meredith, Wendy A. D. M.	North Vancouver
Miller, Alexander J.	Vancouver
Minshull, Raymond G.	West Summerland
Mitchell, Flora B.	Steveston
Mizuno, Yuriko L.	Steveston
Moorhouse, Donna L. L.	Vancouver
Morley, Alan P.	Penticton
Morrison, Rex A.	Vancouver
Morrow, Henry	Vancouver
Moscovich, Rebecca	Lethbridge, Alta.
Munro, Alastair	Vancouver
*McCallum, William M.	Vancouver
McDonald, M. Jean	Vancouver
McGeachie, A. Gordon E.	New Westminster
*McGregor, J. T. King	Vancouver
McHugh, John L.	Vancouver
MacInnes, Alexander S.	Vancouver
MacIntosh, J. Alexander	Vancouver
McKee, George H.	Courtenay
†Mackenzie, Sheila E.	Vancouver
*MacKenzie, Vivian J.	Pioneer Mine
McKeown, Robert,	New Westminster
McKinley, J. Garfield	Prince Rupert
McLean, M. Jean	Vancouver
McLeod, Douglas S.	Vancouver
*McMullen, Sydney G.	Victoria
Nelson, Emily L.	Anyox
Nimmons, Jane	Vancouver
O'Brian, Peter D.	Vancouver
O'Brien, Desmond	Vancouver
Ouchi, Edward T.	Vernon
*Paine, Roy J.	Vancouver
*Palmer, Margaret M.	Vancouver
Paradis, Rodolphe	Vancouver
Patmore, Alan M.	Vancouver
Petrie, Elizabeth G.	Ashcroft
*Phillips, Audrey C.	Cumberland
Planche, Dorothy	Vancouver
*Poole, Jack B.	Vancouver
Price, Lennie H.	Vancouver
Pym, Gwen N.	Vancouver
Radcliff, Vera E.	Vancouver
Raphael, E. Ellen	Vancouver
Reeve, Helen M.	Vancouver
Rhodes, G. Morgan	Vancouver
*Roberts, John R.,	North Vancouver
Robertson, Betty deL.	New Westminster
Robertson, William T.	Vancouver
Robinson, Bruce L.	Vancouver
Rolston, Robert C.	Vancouver
Rose, John M.	Vancouver
Roxburgh, Jean W.	Vancouver
Russell, John M.	Vancouver
*Ryall, William	Vancouver
Sanmiya, Mamoru	Vancouver
Scott, John D. B.	Peachland
Seldon, George E.	Vancouver
Sharp, Peter J.	Vancouver
*Smith, Russell M.	Vancouver
Snelling, Gordon A.	Vancouver
*Stewart, Clayton P.	Hollyburn
Strong, A. Bernice	Vancouver
*Sullivan, Juliet	Vancouver
*Sutherland, Gerald A.	Vancouver
*Sutton, Howard McC. B.,	Courtenay
Teetzel, Lorin F.	Vancouver
*Tha, George L.	Vancouver
Thomson, Mary I.	Bradwardine, Man.
Thomson, Robert McD.	Vancouver
*Thorne, Harry L.	Calgary, Alta.
*Thurber, Judson B.	Prince Rupert
*Tomkinson, William	New Westminster
Tracy, Frank F.	New Westminster
Trapp, William G.	New Westminster
Turin, Boris	Vancouver
Urquhart, Zena A.	Vancouver
Vance, Thomas C. B.	Vancouver
*Vick, Anton	New Westminster
Vine, C. A. Lyall	Vancouver
Vingo, Joseph	Nelson
Wainwright, William S.	Vancouver
*Walkem, Nancy E. Y.	Vancouver
Walker, Lillian R.	Brentwood P.O.
Watson, Charles B.	Vancouver
*Webber, Olga M.	Vancouver
*Webster, Charles R.	Kaslo
Weeks, Beatrice B.	Vancouver
Wharton, Joan K.	Victoria
Wilkin, William C.	Vancouver
*Willis, Byron L.	Creston
Willoughby, Arthur W.	Vancouver
Winckler, Mary J.	Vancouver
Wirick, Arthur J.	Vancouver
Woo, Dick C.	Vancouver
*Wood, Frederick F. A.	Vancouver
*Worthing, Eileen	Vancouver
Wright, Frances M.	Kamloops
Wright, Maurice M.	Vancouver
Young, Leslie F.	Ladner
Young, Mary W.	Victoria

*Conditioned. †Partial

Faculty of Arts and Science—*(Continued)*

Third Year

Full Undergraduates

Name	*Home Address*
Abbott, Grace E.	Port Moody
Aish, Deborah A. K.	Esquimalt
†Akhurst, H. Weldon	Vancouver
Allchin, Eileen S.	Vancouver
Arkwright, Bevan H.	Vancouver
*Atwater, Donald B.	Vancouver
Backler, Charles L.	Victoria
*Bailey, Nancy M.	Vancouver
*Bain, Roger M.	Vancouver
Baker, J. Alan	Sidney
Baru, Ben	Lulu Island
Batzold, Marjorie M.	Vancouver
Beaumont, Margaret A.	Vancouver
*Black, Mary K.	Vancouver
†Blanchard, Esperance G.	Mission City
*Bogardus, Jeanne I.	Vancouver
Brearley, Katherine W. T.	White Rock
Brown, Clare M.	Vancouver
Brown, Denis W.	Victoria
Buchanan, Donald	Vancouver
Buchanan, Dorothy A.	New Westminster
†Callan, Leslie	Vancouver
Campbell, James D.	Vancouver
Carpenter, K. Mary	Nanaimo
Carrie, Elizabeth E.	Nelson
Caufield, Rita F.	Fernie
*Cavan, Grace A.	Vancouver
*Chapman, Charles N.	Vancouver
Christy, Robert F.	Vancouver
Clark, Grace H.	Vancouver
*Clarke, C. Stewart	Nanaimo
Clarke, Robert S.,	New Westminster
Clarke, William D. W.	New Westminster
Clayton, Henry H.	Victoria
Clotworthy, M. Joan	Vancouver
Coles, Kathleen	Vancouver
Conway, John J.	Vancouver
Covernton, Carleton C.	Vancouver
Crump, Lawrence F.	Vancouver
Cunningham, Margaret T.,	Vancouver
Curr, James	Vancouver
Currie, Lucy I.	Vancouver
Dangelzer, Joan Y.	Vancouver
Daniels, Alice M.	New Westminster
Darrach, Marvin D.	Vancouver
*Davies, Doreen A.	Vancouver
Dawe, Frank H.	Upper Lynn P.O.
Dawe, Helen I.	Vancouver
*Day-Smith, Miriam	Vancouver
Dellert, Berna A.	New Westminster
*Dick, Archibald N.	Cumberland
†Dick, Jean M.	Vancouver
Dill, Charlotte E.	Vancouver
Eakins, Mollie	Vancouver
Eddie, Gordon C.	Sardis
*Edmonds, Rosemary	New Westminster
Eld, Harold C. R.	Anyox
Elgie, Helen P. J.	North Vancouver
Elliot, M. E. Madeleine	New Westminster
*English, S. Roy	Vancouver
Evans, Eldred K.	Kelowna
Evans, Sidney E.	Vancouver
†Farmer, Donald W.	Vancouver
Filmer, Evelyn B.	Vancouver
*Fisher, Jack H.	Vancouver
Fowler, Wilbert R. T.	Vancouver
Fox, Edward J.	Oshawa, Ont.
Fraser, Jean M.	Vancouver
Fraser, Mildred M.	Vancouver
Galloway, Jean C.	Kamloops
*Garner, Christina	Vancouver
Garrett, Elizabeth L.	Oak Bay
Gibson, Doreen E.	Vancouver
*Gibson, Jessie M.,	New Westminster
*Gray, Janet D.	New Westminster
Green, Clare A.	Victoria
Greene, J. Margot	Vancouver
Hall, Elenita E.	Victoria
Hanna, Carol M.	Vancouver
Harman, John H.	Victoria
Harston, Nellie	Vancouver
*Higginbotham, Janet L.	Vancouver
Hillary, Ruth-Fay C.	Vancouver
Hilton, Irma J.	Sointula
Holder, Eleanor M.	Vancouver
Holland, Charles E.	Victoria
Holmes, Richard	Victoria
Hori, Chikao G.	Vancouver
Hudson, Dorothy A.	Vancouver
Hunter, T. Murray	Vancouver
Hunter, William R.	North Vancouver
Inkster, James A.	North Vancouver
Irwin, Floyd L.	Rutland
*Jack, Wilfred R.	Hatzic
Jackson, Thomas H. G.	Victoria
Jamieson, Stuart M.	Vancouver
Johnson, Arthur J.	Vancouver
Johnson, George H. F.	Vancouver
*Joost, Helen	Vancouver
Joubin, Francis R.	Victoria
†Keate, J. Stuart	Vancouver
Keenlyside, Harold S.	Vancouver
*Kerr, M. Patricia	Vancouver
Kilgour, Marjorie	Vancouver
*Kipling, Rudyard T.	Victoria
Komiyama, Takashi	Vancouver
Lane, Stuart C.	Vancouver
Largue, Marjorie H.	Nanaimo
*Lendrum, Charles E.	Victoria
Lesser, David A.	Vancouver
Lindblom, Leonard R.	Vancouver
Loat, Christopher J.	New Westminster
Lock, A. Vera	Vancouver
*Lort, John C. R.	Vancouver
Lovell, Edwin L.	Vancouver
Lundy, Helen	Vancouver
*Lundy, Ruth B.	Vancouver
*Lyman, Evelyn V.	Vancouver
*Malone, Dorothy K.	Vancouver
*Mansfield, Tom	New Westminster
Manson, James N.	Vancouver
Masuda, Peter F.	Vancouver
Mather, R. Murray	Vancouver
Matheson, Estelle C.	Victoria
†Mayse, Arthur W.	Vancouver
Mellish, M. Violet	Vancouver

*Conditioned. †Partial.

FACULTY OF ARTS AND SCIENCE—THIRD YEAR—*(Continued)*

Name	*Home Address*
Melvin, W. Breen	Vancouver
Milburn, John E.	Vancouver
Miles, Nancy P.	Cranbrook
*Miller, Frank P.	North Vancouver
Mitchell, David M.	Vancouver
Mooney, Alvin W.	Vancouver
Mossop, George H.	Summerland
McClelland, Robert	Kelowna
McDiarmid, John A.	Vancouver
McGee, John A.	Bamfield
McGeer, A. Mary	Vancouver
MacKay, Margaret	Fernie
McKee, Margaret C.	Vancouver
MacKenzie, Kenneth R.	Victoria
McLauchlin, John S.	Victoria
McMahon, Howard O.	Victoria
McMartin, Pauline K.	Vancouver
MacNeill, A. Daisy	Vancouver
MacRae, Catherine J.	Vancouver
McRae, Dorothy B.	Vancouver
*Macrae, Douglas K.	Vancouver
MacRae, Lachlan F.	Caulfeild P.O.
Nelson, George H.,	New Westminster
Nelson, Leona M.	Vancouver
*Newman, Bella	Vancouver
Nowlan, F. Stanley	Vancouver
*Palmer, Hugh M.	Vancouver
Pan, Vadim O.	Vancouver
Parnall, John E. A.	Duncan
*Patmore, William H.,	Prince Rupert
*Patten, Mildred L.	Chilliwack
Paulin, Esther A.	Vancouver
Pearson, Leslie T. H.	Bashaw, Alta.
Peirson, Arabell	Vancouver
*Pennington, Harold R.	Vancouver
Pettipiece, Barbara D.	Ilinton, Alta.
Poisson, Rodney P.	West Vancouver
Potts, Jerrald A.	Alert Bay
Prevost, Gerald F.	Duncan
Prior, Llewellyn J.	Vernon
*Pyle, James J.	Vancouver
Rally, Carmen M.	North Vancouver
Ramsay, Nancy A.	Capilano P.O.
*Rathbone, William P.	Vancouver
Reid, Constance M.	Vancouver
Rendle, Clarence T.	Victoria
Riddle, O. Phoebe	Victoria
Ringle, Viola A. E.	Vancouver
Ritchie, Irvine F.	Vancouver
Ritchie, Myles H.	Vancouver
Roberts, Joseph	Victoria
Roberts, Robert C. W.,	Errington V.I.
Robertson, Kathleen E.	North Vancouver
*Robinson, A. Leslie	Vancouver
Root, Jean A.	Vancouver
*Root, Marian E.	Vancouver
*Rothstein, Maurice	Vancouver
Rutter, A. Isabel L.	Vancouver
Sargent, Richard W.	Hazelton
Savitsky, Irene E.	Mt. Lehman
*Scott, Margery	Vancouver
Sibley, Eunice S.	Vancouver
Simons, William H.	Vancouver
Smith, Elsie K.	Victoria
*Smith, Gordon C.	New Westminster
Smith, Jack D.	Victoria
Smith, Josephine E.	Trail
Smith, W. H. Vernon	Vancouver
Soames, Kathleen I.	Grantham's Landing
Southcott, Ernest W.	Vancouver
Spurling, K. Dora	Nanaimo
*Stark, John	Victoria
Stephenson, Margaret J.	Vancouver
Stevenson, Avril L.	Vancouver
*Stevenson, Jack H.	Vancouver
†Stewart, Kathleen A.	Vancouver
Stewart, Margaret C.	Vancouver
Stewart, N. Russell	Vancouver
†Stobbs, George H.	Vancouver
Stokoe, Marjorie A.	Vancouver
Stradiotti, Aldo F.	Vancouver
Taylor, Helen M.	Vancouver
*Templeton, Frank J.	Vancouver
Thomas, Jean	Vancouver
Thompson, Archibald J.	Prince Rupert
*Thomson, Mary E.	Vancouver
Tisdall, F. Ruth	Vancouver
Todd, A. Ellis	Victoria
Town, Victor J.	Vancouver
*Trapp, Helen F.,	New Westminster
Tremaine, William S.	Ioco
Tweedale, Esme J.	Vancouver
Twining, Russell C.	Victoria
Van Camp, Fraser E.	Vancouver
Van Dusen, Phae	Vancouver
Wales, Isobel M.	Vancouver
*Wallace, Irene E.	Vancouver
Warren, Robert	Innisfail, Alta.
*Washimoto, Daniel K.	Vancouver
Watts, Barbara M.	New Westminster
*Webber, Margaret F.	Vancouver
Weiss, Bella	Vancouver
Whelan, I. Rose	Vancouver
Whitten, Madeline L.	Vancouver
Wighton, John L.	Vancouver
*Williams, Claire	Vancouver
Williams, Margaret A. G.	Nanoose Bay
Willows, Pearl A.	Calgary, Alta.
Wilson, Joy G. P.	Vancouver
Wilson, Margaret	Vancouver
Wilson, Marjorie M.	Vancouver
Wilson, Robert J.	Vancouver
Winter, Margaret F.	Vancouver
*Witton, Thelma E.	North Vancouver
Wood, Hilda K.	Vancouver
Woodbridge, Cyril G.	Vancouver
Woollard, Margaret J.	Vancouver
Would, Kathleen A. C.	Qu'Appelle, Sask.
*Wright, Richard J.	Vancouver
Youdall, Katharine B.	Victoria

COMMERCE

Alpen, Frank	Vancouver
Andrew, William J.	Summerland
Atkinson, Jack L.	Calgary, Alta.
Bain, Isobel	Vancouver
Breen, Allan W.	Vancouver
Cantwell, E.	Victoria
Chernov, Morris	Vancouver
Davidson, Charles P.	Qualicum Beach
Davis, David D.	Vancouver
Dolsen, George W.	Vancouver

*Conditioned. †Partial

FACULTY OF ARTS AND SCIENCE—THIRD YEAR—(*Continued*)

Name	*Home Address*
Fletcher, Christie W.	Vancouver
Fox, Morley H.	Vancouver
Harvey, Netta	North Vancouver
Hentig, J. Kenneth	Vancouver
Jewett, R. Douglas	New Westminster
Large, Kelvin D. M.	Vancouver
Leeson, Robert B.	Didsbury, Alta.
Little, T. Murray	Revelstoke
Mills, Douglas W.	Vancouver
McIntyre, John A.	Vancouver
Okuda, Hiroshi	Cumberland
Rush, Frank F.	Vancouver
Rutledge, Jack B.	Vancouver
Shaneman, Jack A.	Vancouver
Shaw, Douglas W.	Vancouver
Stevens, Frank S.	Victoria
Swift, Sidney A. S.	Vancouver
Williams, Enid	Vancouver
Willis, Harry B.	Powell River
Wright, R. Cecil	Vancouver

FOURTH YEAR

Agnew, Haddon W.	Vancouver
Alston, Jessie W.	Vancouver
Anderson, Arthur L.	Vancouver
Anderson, Fredena L.	Vancouver
*Anderson, Stanley H.	Vancouver
Armstrong, J. Kathleen M.	Victoria
Armstrong, L. Gwendolyn R.	New Westminster
Baker, Kathleen M.	Victoria
Barclay, Herbert R.	Campbell River
Barclay, J. Henry	Vancouver
Beall, Molly	New Westminster
Beatty, Myrtle G.	Vancouver
Belitzky, Jack T.	Montreal, Que.
Bentall, Charles H.	Vancouver
Black, Betty A.	Vancouver
*Blackaller, David W.	Vancouver
*Bligh, Una M.	Vancouver
Bloor, George	Vancouver
Bone, Hilda M.	Vancouver
Bourne, John A.	Vancouver
*Briggs, Richard A.	Vancouver
Bromiley, Reginald B.	North Lonsdale
Brooks, Frederick C.	Vancouver
Brown, Ernest W. H.	North Vancouver
*Brown, V. Yvonne	Vancouver
Burditt, Mary	Van Anda
Burg, Agnes	Vancouver
†Campbell, Alex G.	Vancouver
Campbell, J. Meryl	Vancouver
Campbell, Patricia	Nelson
Carrick, Marjorie I.	Vancouver
†Chan, Sarah	Victoria
Chang, Gan	Vancouver
Chave, Cyril S.	Vancouver
Christie, Muriel E.	Vancouver
Chu, Rose D.	Vancouver
Clark, K. Margaret P.	Vancouver
*Cliff, Arnold B.	Vancouver
*Cook, Mary C.	Vancouver
Cooke, Beatrice M.	Vancouver
Cornwall, M. Faith K.	Victoria
Cotter, Margaret	Vancouver
Creamer, William S.	New Westminster
Creighton, Winnifred M.	Vancouver
*Crump, Constance L.	Vancouver
Crysdale, R. C. Stewart	Vancouver
Davie, Agnes D.	Ladner
Davis, Ethel N.	Vancouver
Denne, Charles E.	Powell River
Dobson, Arthur W.	Vancouver
Downes, Gwladys V.	Victoria
Edgar, Edmund G.	West Vancouver
*Edge-Partington, Pauline	Nanaimo
Elgie, Irene G.	Vancouver
Ensor, Annie A.	Vancouver
Erenberg, Rebecca	Vancouver
Esler, Reynolds	Vancouver
Esler, Robert M.	Vancouver
*Farenholtz, William	Nelson
Farquhar, E. Lorraine	Victoria
†Findlay, Janey N.	New Westminster
Findlay, Robert A.	Vancouver
*Foellmer, Florence B.	Vancouver
Fothergill, Margaret A.	Vancouver
Fowler, Dorothy McL.	Vancouver
Fulton, B. A. Eileen	Vancouver
Gage, D. Elizabeth J.	Slocan City
Galloway, Dorothy I.	Vancouver
Gautier, Thomas E.	Victoria
Grant, John D.	Victoria
Gray, John G.	New Westminster
Gregson, John D.	Courtenay
Guthrie, Andrew	Ladysmith
Hacking, Norman R.	Vancouver
Hall, Arthur H.	Vancouver
Hall, Avis M.	Vancouver
Hall, Margaret C.	Vancouver
*Hanning, Mary E.	Vancouver
*Harley, Margaret B.	North Vancouver
Harper, Arthur M.	Vancouver
Harris, Dorothy Z.	Victoria
Harrison, Thomas A.	Port Haney
Hart, Edward G.	Victoria
Henderson, Margaret McI.	Cranbrook
Henning, Josephine M.	Vancouver
*Herd, Harold H.	Campbell River
Hillary, Bertrand B.	Vancouver
Hooley, J. Gilbert	Vancouver
*Hulley, Clarence C.	Vancouver
*Idyll, Clifton P.	Vancouver
Ingham, Gertrude L.	Nanaimo
James, Beulah	Vancouver
Jenkins, Marjorie B.	Vancouver
Johnston, M. Winnifred	Vancouver
Kato, Mary	Vancouver
Keenlyside, William M.	Vancouver
Klinkhamer, Maurice G.	Ladner
Korenaga, Shiosaburo	Vancouver
Kozoolin, Paul	Shanghai, China
Lambert, Irenee B.	Sidney
Lando, Harold	Vancouver
Latta, F. Mary	Vancouver
*Lauder, Isobel	Merritt
Lea, J. Gordon T.	Vancouver
Leach, Eleanor S.	Vancouver
*Leckie, Phyllis E. G.	Vancouver

*Conditioned. †Partial.

FACULTY OF ARTS AND SCIENCE—FOURTH YEAR—*(Continued)*

Name	*Home Address*
Lehman, Elspeth E.	Vancouver
Little, Vera M.	Vancouver
Lotzkar, Harry	Vancouver
Lowe, Helen E.	Vancouver
*Lowrence, Jean A.	Vancouver
Luxton, E. A. George	Vancouver
Maguire, Frances M.	New Westminster
Manson, N. Alex	Vancouver
Marlatt, Margaret E.	Vancouver
Marling, Alexander J.	Victoria
Millard, Christine R.	Courtenay
Miller, M. Juanita	Vancouver
Morse, John J.	Kamloops
Muir, James F.	Victoria
Munton, F. Audrey	Vancouver
*McAllister, Howard G.	Vancouver
McArthur, Harold	Nelson
McDiarmid, Doris K.	Vancouver
McDiarmid, Josephine	North Vancouver
Macdonald, Donald C.	Vancouver
Macdonald, Elena B.	Vancouver
McDonald, John A.	Victoria
McDonald, Robert S.	New Westminster
McDonell, Robert A.	Vancouver
Macdougall, J. Innes	Vancouver
McDougall, Richard B.	North Vancouver
McFarlane, Kathleen A.	Vancouver
McGill, William M.	Vancouver
McGown, Walter M.	Vancouver
McIntyre, Douglas F.	Vancouver
MacKay, Ruth I. M.	Vancouver
MacKenzie, W. Hector	Vancouver
McKeown, William	New Westminster
McKinlay, Donald J.	Vancouver
McKinnon, Patricia	Vancouver
McLaren, Dorothy E.	Victoria
McLaren, Scott	Vancouver
McLennan, Ruth D.	Steveston
Macleod, Arthur K.	Vancouver
McMaster, Robert J.	Vancouver
McTavish, Donald S.	Vancouver
Neal, G. Morley	Victoria
Nelson, Elsie L.	Vancouver
Nemetz, Nathaniel T.	Vancouver
Newcomb, Elma M.	Vancouver
Nicholson, William S.	Vancouver
Niven, Ivan M.	Vancouver
Niven, Tom B.	Vancouver
*Norgrove, Olive L.	Cranbrook
Owen, D. Milton	New Westminster
Palmer, Guy S.	Ucluelet
Palmer, Hope E.	Vancouver
Parnell, John L. M.	Victoria
Patmore, Elizabeth M.	Vancouver
Pearson, Dorothy S.	Nanaimo
*Perkins, Douglas W.	Vancouver
*Perley, Donald A.	Grand Forks
Plummer, Theodore S.	New Westminster
*Powlett, Margaret H. E.	Calgary, Alberta
Pringle, George R.	Vancouver
Quigley, Daniel C.	Vancouver
Reay, Gladys	Nanaimo
Reay, Sybil	Victoria
Reid, Helen M.	Vancouver
Reid, Margaret J.	Vancouver
Reid, Margaret W.	Hollyburn
Rennie, Dorothy-Jean	New Westminster
Roberts, Alice G.	Vancouver
Roberts, Harry N.	Vancouver
†Roberts, Katherine L.	Vancouver
*Roberts, Mary G.	Vancouver
Robinson, Doris E.	Vancouver
Rogers, Beryl	Vancouver
Rome, David	Vancouver
Ross, Marian E. G.	Vancouver
Roy, Henrietta	Vancouver
Salter, Doris M.	Vancouver
Saltzman, Percy P.	Vancouver
Sanderson, Catherine E.	Vancouver
Schultz, William A.	Vancouver
*Share, Milton	Vancouver
Simms, M. Frances G.	Vernon
Slater, John H.	New Westminster
Smith, Dorothy R. M.	Vancouver
Smith, Mervyn M.	Vernon
Smith, Richard G.	Vancouver
Smith, Sidney W.	Vancouver
South, Jessie A.	Penticton
Spence, Kay F.	Vancouver
Spragge, J. Allan	Vancouver
Stead, Gordon W.	Vancouver
Stewart, Maxwell MacL.	Vancouver
Stokvis, Wilhelmina P.	New Westminster
Strong, G. Gordon	Vancouver
Sumida, Rigenda	Vancouver
Swan, James O.	Nanaimo
Symes, Nancy I.	Vancouver
*Takahashi, Yukio	Victoria
Taylor, Christopher I.	North Vancouver
*Telford, Kenneth M.	Vancouver
*Thomas, Audrey M.	Vancouver
*Thompson, Margaret E.	Saanich
Thomson, Violet M.	Vancouver
Thrower, Grace V.	Vancouver
Timperley, Mary I.	Vancouver
*Todd, David P.	Vancouver
Turner, Phyllis W.	Vancouver
Uchiyama, R. Rita	Royston
*Vick, Edgar B.	Vancouver
Volkoff, George M.	Harbin, Manchukuo
Wade, E. Madeline	Vancouver
Wales, Muriel	Vancouver
Walker, Eleanore M.	Brentwood
*Walker, Forestier	Victoria
Ward, Robert C. W.	Victoria
Watson, Charles C.	Vancouver
Weston, David	Vancouver
Westover, Phyllis J.	Vancouver
Whitelaw, Donald M.	Vancouver
Wilkinson, Percival E.	Chemainus
Williams, Ruby E. E.	Vancouver
Wilson, Alice F.	Fernie
Wilson, E. C. Duff	Victoria
Wilson, Jessie C.	Vancouver
Wilson, J. Norton	Vancouver
Wilson, R. Morris	Britannia Beach
*Witter, Sophie W.	Vancouver
Yates, Sybil A.	New Westminster
Yoshimura, Tsugi	Kelowna
Yow, Gilbert	Vancouver
Zuback, Anne M.	Port Hammond

*Conditioned. †Partial

FACULTY OF ARTS AND SCIENCE—FOURTH YEAR—(*Continued*)

COMMERCE

Name	*Home Address*
*Arthur, Kelvin M.	Vancouver
Balcombe, Jack K.	Woodlands
Balfour, Jean M.	Vancouver
Boyes, Robert L.	Vancouver
*Brand, A. Gordon	Victoria
Campbell, David D.	Victoria
Collins, Mark	Vancouver
Cornwall, William L.	Vancouver
*Crothall, William E.	Victoria
Dalton, Christopher J. A.	North Vancouver
Eyre, C. A. Roy	Vancouver
Farrington, Richard T.	Vancouver
Henderson, George M.	Vancouver
Hilker, J. Gordon	Vancouver
Hutchinson, Clara K.	Vancouver
Hyland, James N.	Vernon
*Ikuta, Katsutaro	Kobe, Japan
Jones, George F.	Vancouver
Jones, Howard F.	New Westminster
Korenaga, Yujiro	Vancouver
Lougheed, T. Evans	Vancouver
Lydiatt, Walter M.	Vancouver
Mercer, R. Kendall	Vancouver
*Millar, James McK.	Vancouver
Morley, Eva E.	Vancouver
McCadden, Charles	Vancouver
McClellan, W. Arthur	Vancouver
McCrimmon, D. Farquhar	Vancouver
*Pearson, Harold B.	Vancouver
*Pugh, David V.	Vancouver
Purves, Donald F.	Victoria
Sanderson, George B.	Vancouver
Simpson, W. Elmer C.	Vancouver
Smith, Hughie L.	Vancouver
Stott, William G.	Vancouver
Tryon, Kenneth G.	Vancouver
Turvey, Jack N.	Vancouver

FACULTY OF APPLIED SCIENCE

SECOND YEAR

Full Undergraduates

Adams, Percy A.	Vancouver
Alexander, Howard F.	Prince George
Ames, Arnold M.	North Vancouver
Armstrong, George S.	Merritt
Armstrong, James H.	Revelstoke
Bain, Gordon A.	Vancouver
Bell, Norman	Vancouver
Bennett, Charles E.	Vancouver
Bennett, Jack N.	Vancouver
Bentall, H. Clarke	Vancouver
Boe, Bernard	North Vancouver
Brent, Allan M.	Vancouver
Brown, Maurice K.	Vancouver
Brown, Philip A. P.	Vancouver
Buller, Frederick H.	Vancouver
Byers, Willson F.	Vancouver
Campbell, Charles McK.	Vancouver
Campbell, Royden MacD.	Ocean Falls
Carruthers, William H.	Vancouver
Cazalet, Frank M.	Cobble Hill
Clayton, George E.	Victoria
Cloke, William A.	Anyox
Cooper, Burt M.	New Westminster
Currie, James C.	Victoria
Davidson, Harry H. A.	Vancouver
Dolphin, John W.	Vancouver
Douglas, Lionel P.	Vancouver
Easton, John R.	Kelowna
Elfstrom, Roy H.	Vancouver
English, J. Morley	Vancouver
Fawley, Allan P.	North Battleford, Saskatchewan
Fraser, Joseph W.	Vancouver
Fulton, Oscar R.	Prince Rupert
Gissing, Harold R.	Merritt
Gould, Leslie R.	Port Moody
Gray, Laurence F.	Vancouver
Greenwood, Arthur D.	Trail
Hamersley, Hugh L. S.	Victoria
Hand, Carl E.	Vancouver
Hartley, James P.	Mission City
Hawkins, Harold G.	Vancouver
Hemmingsen, John O.	Victoria
Hemmingsen, William B.	Victoria
Hendry, Noel W.	Vancouver
Howland, Bradfield G.	Victoria
Ingraham, Hugh W.	Vancouver
Ingram, John A.	Kamloops
Irish, E. J. Wingett	Hollyburn
Irvine, William T.	Burnaby
Jamieson, John V.	Vancouver
Keil, Hugh D.	Vancouver
Keillor, Gordon R.	Vancouver
Killin, Alan F.	Vancouver
King, J. Cameron	New Westminster
Lafon, John	Vancouver
Law, Henry	North Vancouver
Lee, Lin K.	New Westminster
Leggat, William S.	Vancouver
Long, Moses	Vancouver
Lunde, Magnus	Trail
Lynott, William J.	Vancouver
Lyons, Robert H.	Victoria
Machin, Laurence E.	Mission City
Mahon, Bryan E.	Vancouver
Martin, A. Norman	Vancouver
Mathews, William W.	Vancouver
Maxwell, John J.	Swift Current, Saskatchewan
Mead, Bruce R.	Vancouver
Minns, George W.	Vancouver
Mitchell, Clarence J.	Wellington
Moodie, Russell L.	Vancouver
Moore, Thomas G.	Vancouver
Morris, Gordon B.	Vancouver
Morris, William M.	Vancouver
MacAulay, Wilmer W.	Munson, Alberta
McDonald, John D.	Rossland
Mackenzie, Malcolm H.	Vancouver
McLeish, Charles W.	Vancouver
McLeod, J. Douglas	Vancouver
MacMillan, Patrick W.	Vancouver
McMynn, John E.	Vancouver
MacPhail, Donald C.	Vancouver
Nemetz, Herman	Vancouver

*Conditioned. †Partial

FACULTY OF APPLIED SCIENCE—SECOND YEAR—*(Continued)*

Name	*Home Address*
Obata, Roger	Prince Rupert
Peebles, Robert M.	Vancouver
Polson, Jack A.	Vancouver
Porter, Robinson M.	Victoria
Potkins, Jack E.	New Westminster
Pratt, Charles E.	North Vancouver
Radcliffe, John A.	Vancouver
Ramsden, Henry T.	Vancouver
Raphael, Harold G.	Vancouver
Roff, Jack W.	Alberni
Ross, Rupert	Prince Rupert
Shelly, William B.	Vancouver
Sowerby, John C.	Vancouver
Swan, William McK.	Vancouver
Taylor, Clarence R.	Jasper, Alberta
Thomson, Daniel W.	New Westminster
Thorson, Julius L.	Vancouver
Tomblin, Charles	Vancouver
Trapp, Thomas J.	New Westminster
Trethewey, Graham D.	Vancouver
Upward, Ronald A.	Victoria
Uretzky, Abe	Edmonton, Alberta
Watson, Kenneth DeP.	Vancouver
Wilson, Ridgeway W.	Vancouver
Wilson, Sidney E.	Vancouver
Witbeck, John L.	Vancouver
Wolfe, William	Vancouver
Wright, Leonard F.	Vancouver

THIRD YEAR

Allen, Alfred R.	Vancouver
Bremner, Thomas S.	Vancouver
Bruce, Stanley G.	Vancouver
*Bunn, Wale L.	Vancouver
*Calhoon, Marvin L.	Vancouver
*Catherwood, Ernest S.	Mission City
*Chew, Yit P.	Vancouver
Ciccone, Dante	Vancouver
Darling, David A.	Vancouver
Dayton, William A.	Vancouver
Duncan, Allix J.	West Vancouver
*Ferguson, Donald R.	Vancouver
Fyke, George G.	Victoria
Gautschi, Edward H.	Vancouver
Gillies, G. Brodie	Vancouver
Godard, Hugh P.	Vancouver
*Green, G. Frederic	Victoria
*Gwyer, William K.	Pouce Coupe
Hamilton, Richard A.	Vancouver
Hill, Victor R.	Vancouver
Irwin, Arthur B.	North Vancouver
James, Douglas	Vancouver
*Johnsen, Peter F.	Wayne, Alberta
Johnston, John W.	Arrowhead
Kersey, Lorne R.	Vancouver
Killam, F. Richard	Vancouver
King, Robert A.	New Westminster
*Kirby, Albert	Nelson
Lammers, Walter A.	Vancouver
Matheson, Hugh N.	Vancouver
Melvin, John F.	Vancouver
Mitchell, James St. G.	Vancouver
Monroe, David L.	Nanaimo
*Moodie, Norman F.	Calgary, Alta.
*Motherwell, James S.	New Westminster
McArthur, Harold R.	Nelson
McDonald, Murray	Vancouver
McDonald, Robert S.	Vancouver
*McGinn, Thomas W.	Vancouver
McLellan, John G.	Vancouver
Orr, James McP.	Nelson
Potter, Telfer H.	Trail
Richardson John	Powell River
Ridland, G. Carman	Vancouver
Robinson, Bruce A.	Vancouver
Schmidt, Elliot A.	Vancouver
Shortley-Luttrell, Colborne H.	Victoria
Smith, Donald C.	New Westminster
Teal, Sydney	New Westminster
Urquhart, Alexander M.	Victoria
Walker, Robert D.	Vancouver
Williamson, Stanley	Vancouver
Wilson, Thomas G.	Victoria

FOURTH YEAR

CHEMICAL ENGINEERING

Baker, Donald H.	Sidney
Beeman, John S.	Vancouver
Cornett, Walter F.	Vancouver
Donald, Robert J.	Vancouver
Fordyce, Reid G.	Vancouver
French, Robert H. B.	Victoria
*Haslett, Thomas A.	Ocean Falls
Kirk, Loren M.	Vancouver
Mortimer, John M.	Victoria
Rogers, Forrest	Vancouver
Scott, Walter F.	Vancouver
Simonds, Peter	Vancouver
Sumner, John	New Westminster
Willis, Clarence H.	Regina, Sask.

CIVIL ENGINEERING

Davis, Ralph	Victoria
Lipson, Sam L.	Vancouver

ELECTRICAL ENGINEERING

Barr, William G. A.	Vancouver
Brown, James R.	Regina, Sask.
Farnden, A. John	Powell River
Goudenkoff, Anatoly	Harbin, Manchuria
*Goumeniouk, Glieb I.	Dairen, S. Manchuria
*Hemsworth, Edward G.	Vancouver
Jeffery, Wilfrid H.	Vancouver
Rader, Italo A.	Vancouver
Senkler, Edmund J.	Victoria
Shelling, Louis	New Westminster
Wallace, Sydney J.	Vancouver
Warnock, Samuel	Victoria
Wright, James H.	West Vancouver
Yip, Kenneth W.	Vancouver

*Conditioned. †Partial

FACULTY OF APPLIED SCIENCE—FOURTH YEAR—(*Continued*)

FOREST ENGINEERING

Name	*Home Address*
Douglas, Ross R.	New Westminster
McBride, Clarke F.	Vancouver
Phillips, W. Cyril	New Westminster
Wellwood, Robert W.	Victoria

GEOLOGICAL ENGINEERING

Black, James M.	Vancouver
Gaul, Robert W.	Vancouver
King, Richard H.	Millarville, Alta.
Malcolm, Douglas C.	Vancouver
Richards, Frederic	Vancouver
Snow, William E.	North Vancouver

MECHANICAL ENGINEERING

Brookes, Dennis W.	Vancouver
*Caldicott, Arthur H.	Trail
Kennedy, Walter E.	Vancouver
Morton, Arthur S.	Victoria
McLellan, Donald B.	Vancouver
McMeans, Frederick A.	Vancouver
Northcott, Philip L.	Vancouver
Purdy, Dwight W.	New Westminster
Sandwell, Percy R.	Powell River
Verner, James	Burnaby Lake P.O.
Wilson, Ronald	Vancouver

METALLURGICAL ENGINEERING

Macdougall, Archie D.	North Vancouver
Smith, Harold W.	Matsqui

MINING ENGINEERING

Brynelsen, Bernard	Vancouver
Carey, Davis M.	Victoria
Hemsworth, Fredric J.	Vancouver
Johnston, Robert H.	N. Vancouver
Matheson, Robert K.	Prince Rupert
*MacInnes, William E.	Vancouver
Rice, David F. ap R.	Duncan
Robinson, Stephen C.	Duncan
Sullivan, Godfrey G.	Saskatoon, Saskatchewan

FIFTH YEAR

CHEMICAL ENGINEERING

Anderson, Gordon M.	Vancouver
Huskins, W. Eric	Vancouver
†Irving, Roden	Kamloops
Manley, Douglas V.	Vancouver
Mitchell, Ernest A.	Rossland
Nicholson, Laurence J.	Vancouver

CHEMISTRY

*Ford, Lorne G. S.	Vancouver

CIVIL ENGINEERING

Bowering, Alfred J.	West Summerland
Copeman, John U.	Vancouver
Dingle, W. Brian	New Westminster
Fairley, John J.	Vancouver
Inglis, William	Vancouver
West, Henry A. S.	Mayne Island
Wheeler, Herbert V. G.	Victoria
Whittaker, John D.	Kaslo

ELECTRICAL ENGINEERING

Bardsley, James M.	Vancouver
Bolton, Frederic D.	Vancouver
Deane, John	Riondel
Doherty, Thomas H.	N. Vancouver
Durkin, Peter J.	Nakusp
Hilton, Richard R.	Vancouver
Hynd, Ronald F.	Vancouver
Lind, C. Arthur A.	Nelson
Mathews, J. Donald	Vancouver
Mitchell, Jack D.	Rossland
McHattie, George T.	Vancouver
McMynn, J. Douglas	Midway
Sladen, Herbert E.	Salmon Arm
Pullinger, William W.	Vancouver

FOREST ENGINEERING

McMullan, D. Lawrence	Salmon Arm
MacQueen, Ian C.	Victoria

GEOLOGICAL ENGINEERING

Armstrong, John E.	Cloverdale
Cleveland, Courtney E.	Vancouver
Maconachie, James R. A.	Vancouver

MECHANICAL ENGINEERING

*Moffat, William B.	Victoria
Mouat, Thomas W.	Vancouver
Smith, Douglas McC.	Vancouver
Vince, G. Travers	New Westminster

METALLURGICAL ENGINEERING

Edwards, Harry C.	Victoria
Johnson, Eric W.	Vancouver

MINING ENGINEERING

Fraser, Stewart T.	Prince Rupert
Hurley, Patrick M.	Shawnigan Lake
Parr, Eric H.	New Westminster
Stirling, Andrew G.	Kelowna

NURSING

FIRST YEAR

Allin, Jean E.	Vancouver
Broughall, Margaret J.	Agassiz
Capelle, Pauline M. A.	Chilliwack
Darby, Katherine A.	Vancouver
Hutton, Mary P.	Vancouver
Jackson, Florence I.	Vancouver
Kennedy, Janet S. M.	N. Vancouver
Marlatt, Mary S.	Vancouver
Mitchell, Grace M.	Oliver
McCann, Elizabeth K.	Vancouver
Maclean, Mary C.	Woodfibre
Peirson, Gertrude	Vancouver
Pitman, Gertrude D.	Prince George
Robinson, Margaret M.	Vancouver
Yelland, Dorothy I.	Vancouver

*Conditioned. †Partial

FACULTY OF APPLIED SCIENCE—*(Continued)*

SECOND YEAR

Name	*Home Address*
*Connor, Kathleen	Vancouver
Leitch, Asenath J.	Vancouver
Leitch, Donna A.	Vancouver
Martin, Alice E. MacL.	Vancouver
*Robson, Carolyn M.	New Westminster
Scouler, Phyllis D.	Vancouver
Trant, Helen M.	Vancouver
Taylor, Kathleen	Vancouver

THIRD YEAR

Creelman, Lyle	Vancouver
Graham, Eleanor S.	New Westminster
Maguire, Evelyn C.	Vancouver
McQuarrie, Frances U.	Vancouver
Rolston, Ethel J.	Vancouver
Skitch, Dorothy I.	Vancouver
Williams, Vivian I. E.	New Westminster

FOURTH YEAR

Barbaree, Florence A.	New Westminster
Barton, Doris J.	Vancouver
Cheeseman, Ruth	Vancouver
Cunningham, Norah	Vancouver
Davies, Eileen M.	Vancouver
Morris, Maxine W.	Matsqui
Olund, Mabel	New Westminster
Sharpe, Dorothy A.	Winnipeg, Man.
Wilson, Jean E.	Vancouver

FIFTH YEAR

Allyn, Laura G.	Edmonton, Alta.
Chodat, Isabelle R.	Vancouver
Dorgan, H. Jean	New Westminster
Jackson C. Normansell	Edmonton, Alta.
Jenkinson, Margaret E.	New Westminster
Law, Annie S.	North Vancouver
Moffat, Margaret B.	Saanich
McArthur, Helen G. W.	Wetaskiwin, Alta.
Reid, Alison	Vancouver

FACULTY OF AGRICULTURE

FIRST YEAR

Bans, Raghbir Singh	Punjab, India
Clandinin, Don R.	Vancouver
Clark, Frank C.	Kamloops
Forshaw, Robert P.	Greenwood
Kadzielawa, Arthur S.	Vancouver
Louie, Tong	Vancouver
Moodie, C. Dawson	Vancouver
Nicoll, Russell E.	Vancouver
Sadler, James A.	Vancouver
Sanders, John L.	North Vancouver
Whiting, Richard B.	Whonnock

SECOND YEAR

*Allin, James S.	Vancouver
Black, J. Donald	Vancouver
*Browne-Clayton, Zoe W.	Okanagan Mission
Clement, Paul W.	Vancouver
Crickmay, Peter W.	Vancouver
Dicks, W. John H.	Langley Prairie
*Dyson, Margaret E.	Vancouver
Hatcher, Gilbert T.	Vancouver
Hornby, Cedric A.	New Westminster
*Jenkins, Evelyn E.	N. Vancouver
*Jones, Barbara R.	Vancouver
Moxon, Alfred H. W.	Vancouver
*O'Neil, James B.	Vancouver
Wood, Charles W.	Vancouver

THIRD YEAR

Bowen, John F.	North Vancouver
Brand, Nancy B.	Vancouver
Campbell, Blake A.	Vancouver
Carder, Alfred C.	Cloverdale
Clarke, Mills F.	Vancouver
Cornish, Geoffrey J.	Vancouver
Farley, Helen M.	Vancouver
Menzies, James D.	Vancouver
*Miller, John P.	Campbell River
Milligan, M. Kathryn	Vancouver
*Odlum, Nelson E.	Vancouver
Renny, Arthur J.	Nanaimo
Smith, L. Samuel	Vancouver
*West, Philip M.	Vancouver
Wood, Alexander J.	Vancouver
Wood, George R.	Vancouver

*Conditioned. †Partial

FACULTY OF AGRICULTURE—*(Continued)*

FOURTH YEAR

Name	*Home Address*
Aalbersberg, Willem J. G.	Woodland, Washington
Andison, Harry	Kelowna
Bickerton, Jack M.	New Westminster
Brink, Vernon C.	Vancouver
Derrinberg, Robert C.	Saanichton
Fedoroff, Roman	Vancouver
*Goumeniouk, Boris	Dairen, S. Manchuria
Hall, Alexander McD.	Victoria
Katznelson, Harry	Vancouver
Locke, Richard P.	Lavington
Plommer, Constance L.	Vancouver
Salisbury, H. Frederick	Vancouver
Tennant, J. F. Walton	Salmon Arm
Touzeau, Walter D.	Vancouver
*Vrooman, Charles W.	Vancouver

GRADUATES

FACULTY OF ARTS AND SCIENCE

Abercrombie, William T.	Vancouver
Allen, Maude A.	Vancouver
Baker, Maurice G.	Vancouver
Beeuwkes, Marjorie E.	Seattle, Washington
Bell, Alan	Vancouver
Bidwell, Dorothea	Victoria
Black, Albert F.	Vancouver
Black, Edgar C.	Strathclair, Man.
Bogardus, Frederick W.	Vancouver
Bowles, Annie M.	Vancouver
Brooks, W. Robert T.	Vancouver
Broome, Enoch B.	Vancouver
Bruce, Graham	Vancouver
Buckley, John M.	Vancouver
Buller, Arthur E.	Vancouver
Burnham, Frank L.	Vancouver
Carl, G. Clifford	Vancouver
Coles, Donald K.	North Vancouver
Cornish, Naomi H.	Hollyburn
Creelman, R. Currie	Vancouver
Danielson, Gordon C.	Ladner
Darnbrough, Mary	Vancouver
DeLisle, F. Arthur	Vancouver
Edwards, Howard L.	Vancouver
Estey, Margaret J.	Vancouver
Flather, Donald McI.	Vancouver
Gale, A. Moira	New Westminster
Gamey, Harold W.	Vancouver
Gamey, Herbert T.	Vancouver
Gordon, Roth G.	Prince Rupert
Grantham, Herbert H.	Vancouver
Halley, Elizabeth M.	North Salt Spring Island
Hamilton, Marion M.	Vancouver
Hards, Albert A.	Vancouver
Hardwick, Francis C.	Vancouver
Hart, Josephine F. L.	Victoria
Healey, Agnes M.	Vancouver
Hisette, Andre	Vancouver
Hood, Jean A.	Hollyburn
Horn, Howard J.	Vancouver
How, Thomas G.	Vancouver
Howard, Arthur M.	Vancouver
Hughes, Norah L.	Vancouver
John, Harold P.	Prince Rupert
Johnson, Juliet P.	West Vancouver
Jones, David R.	Vancouver
Kennedy, Mervyn E.	Vancouver
Large, Margaret	Vancouver
Leith, Margot T. M.	Vancouver
Little, Margaret E.	Victoria
Mathews, Helen M.	Vancouver
Mayse, Shirley I.	Vancouver
Meadows, Lyman E.	Vancouver
Milley, Elva M.	Vancouver
Moase, Mary J.	New Westminster
Mockridge, Geraldine Ivy	Calgary, Alta.
Moore, Ralph G. D.	Victoria
Morgan, J. George	Vancouver
Mouat, M. Robina	Vancouver
Mouat, Olivia D.	Vancouver
Murray, M. Kathleen	Vancouver
McArthur, Munro	Vancouver
McIntosh, Donald J.	Vancouver
MacKay, Ronald D.	Vancouver
MacNeill, Lorne C.	Vancouver
McTaggart-Cowan, Patrick D.	North Vancouver
Norman, Ralph O.	Vancouver
Oates, Creswell J.	Vancouver
Okulitch, Olga	Abbotsford
Orr, Mildred C.	Vancouver
Parker, S. Thomas	Victoria
Patrick, John M.	Vancouver
Patterson, Harold E.	Vancouver
Patterson, Kenneth E.	Vancouver
Perry, G. Neil	Ucluelet
Phillips, Norman W. F.	North Vancouver
Poole, Louise E.	Vancouver
Robbins, William	Victoria
Russell, George W.	Vancouver
Shaneman, Russell D.	Vancouver
Skelton, Jean W.	Victoria
Sutherland, John H.	Vancouver
Thomas, Owen J.	Vancouver
Thompson, Helen G.	Vancouver
Tipping, Vera L.	Vancouver
Trueman, Allan S.	Gibson's Landing
Waites, Kenneth A.	Vancouver
Waugh, John	Nanaimo
Weir, Elizabeth	Vancouver
Wilson, Clara M.	Hollyburn
Wilson, Emma	Fernie
Wilson, Gordon S.	Vancouver
Woodrow, Jean	Vancouver
Youds, Lilian M.	Vancouver

*Conditioned. †Partial

FACULTY OF APPLIED SCIENCE

Name	*Home Address*
Allen, George S.	Vancouver
Bailey, Basil E.	Prince Rupert
Barer, Arie	Gliniany, Poland
Bartlett, Eugene	North Bend
Bell, Douglas E.	Vancouver
Cummings, John M.	Cranbrook
Freedman, Harry C.	Vancouver
Gordon, Arthur I. E.	Vancouver
Hodnett, Lisle	Vancouver
Inouye, Kuramitsu	Vancouver
Johnston, John R.	New Westminster
Klinck, Ronald W.	Vancouver
Mumford, Patrick F.	Vancouver
Richmond, Richard H.	Chilliwack
Smith, Irving C.	Summerland
Smith, John Y.	Victoria
Smith, Wilbert B.	Vancouver

FACULTY OF AGRICULTURE

DesBrisay, Eileen	Vancouver
Fisher, Donald V.	Kelowna
Ingledew, Norman H.	Vancouver
McRae, Roderick H.	Vancouver
Spilsbury, Richard H.	North Vancouver
Tait, Wilfred J. C.	Van Anda
Uyeda, Takaji	Vancouver

TEACHER TRAINING COURSE

Anderson, Frances M.	Langley Prairie
Bardsley, Mary E.	Vancouver
Benedict, Verda L.	New Westminster
Black, G. Margaret	Vancouver
Bowden, Mary	Vancouver
Costain, Ernest J.	Vancouver
Davidson, Alice M.	Vancouver
Davidson, George F.	Vancouver
Dew, Harold	Brighouse
Elliot, Ottowell B.	New Westminster
Ferguson, Helen	Nelson
Ferris, Robert J.	Vancouver
Frost, Gladys H.	Moose Jaw, Sask.
Gillespie, Ruth M.	North Vancouver
Fulton, Anna C.	Vernon
Grant, Mary W.	Vancouver
Hall, Helen F.	Vancouver
Hamilton, Rognvald T.	Vancouver
Hammond, Betty D.	Vancouver
Harper, Andree M.	Vancouver
Harper, Louella M.	Victoria
Higham, Grace E. C.	Victoria
Hogg, Rowland V. H.	Vancouver
Hubbs, Margaret W.	Vancouver
Ireland, Willard E.	New Westminster
Jackson, Helen P.	Vancouver
Johnson, Patricia M.	Vancouver
Johnston, Kathleen A.	Victoria
Kastner, Mildred D.	Fernie
Lakeman-Shaw, Jeanne	Vancouver
Lobb, Hilda I.	Vancouver
Makepeace, Ronald A.	Vancouver
Marshall, Jeanne	Vancouver
Mercer, Eleanor B.	Vancouver
Mitchell, Irene T.	Prince Rupert
Munton, Gladys E.	Vancouver
McDougal, Mary	Fort Smith, N.W.T.
McGregor, Z. Jacqueline	Penticton
Maciver, Margaret	Vancouver
MacKenzie, Helen J.	Vancouver
McLellan, M. Dorothy	Vancouver
MacNaughton, Jean K.	Cumberland
Macpherson, James	Vancouver
Orme, Francis J.	Victoria
Osborne, Robert F.	Vancouver
Palmer, Margaret L.	Vancouver
Prentice, Duncan F.	Vancouver
Reid, M. Audry	Vancouver
Rowe, Alice C.	Vancouver
Russell, Elphinstone M.	Vancouver
Somerton, Thomas W.	Prince George
Spragge, Elsie M.	Vancouver
Stewart, Dorothy J.	Duncan
Stuart, James F. A.	North Vancouver
Trant, Geoffrey A.	Vancouver
Tye, Derek H.	Victoria
Vollans, Everett H.	Vancouver
West, Harold E.	Vancouver
Whellams, Diana M.	Kaslo
Whiles, Bill O.	Vancouver
Willard, John H. W.	Vancouver

EXTRA-SESSIONAL CLASSES

FACULTY OF ARTS AND SCIENCE

Abel, M. Beatrice	Vancouver
Alsbury, Albert T.	Vancouver
Boyd, Ian D.	Vancouver
Boyes, William E.	Vancouver
Burch, Arthur F.	Vancouver
Capon, Donald	Vancouver
Clague, John E.	Vancouver
Currie, Theodore G.	Vancouver
Davidson, Margaret H.	Vancouver
Davy, John G.	New Westminster
Dempsey, Daniel C.	North Vancouver
Eades, William J.	Vancouver
Efford, Ruby E.	Vancouver
Franklin, W. Douglas	Vancouver
Garrison, Florence T.	Vancouver
Gillson, John W.	Vancouver
Grant, James V.	Vancouver
Grant, Louis S.	Vancouver
Grimmett, Jack A.	Vancouver
Hardy, Garnet R.	Agassiz
Harris, Ernest A.	Vancouver
Harris, Gordon G.	Vancouver
Henderson, Albert E.	Vancouver
Hill-Tout, James E.	Vancouver

EXTRA-SESSIONAL CLASSES—*(Continued)*

Name	*Home Address*
Hockridge, Charles M.	Vancouver
Hodson, Phyllis E.	Vancouver
Hudson, William O.	New Westminster
Hyndman, William A.	Vancouver
Irwin, Everett J.	Vancouver
Johnston, Harry S.	Vancouver
James, William	Vancouver
Killip, Bessie H.	Vancouver
Lower, Joseph A.	New Westminster
Lucas, Charles F.	New Westminster
Mercer, A. Mildred	New Westminster
Miller, Ivan R.	Vancouver
Montgomery, George R.	Vancouver
Moodie, Charlotte A.	New Westminster
Moodie, Stephen T.	New Westminster
Mulloy, Florence	Vancouver
Macdonald, Angus M.	Vancouver
MacDonald, Wilfred J.	Vancouver
McGechaen, John	West Vancouver
MacKenzie, Glenn L.	Vancouver
McLachlan, Charles W.	Vancouver
Nichol, Margaret J.	North Vancouver
Peebles, Archibald	Vancouver
Pritchard, Donald L.	Vancouver
Robinson, Evelyn A.	Vancouver
Sager, John E.	Vancouver
Smith, Harry	Lynn Creek
Stevenson, Frederick C.	Vancouver
Sweet, Arthur F.	New Westminster
Taylor, Bernard W.	Vancouver
Taylor, Christopher I.	North Vancouver
Terry, Joseph S.	Vancouver
Thompson, Nora K.	Vancouver
Weatherbee, Ava R.	Vancouver
Whiles, Dorothy E.	Vancouver
Wilander, William A.	Vancouver
Williams, Maud A.	Vancouver

SOCIAL SERVICE

Abbott, Ruth E.	Port Moody
Bingham, Dorothy A.	Vancouver
Campbell, Jean	Vancouver
Carver, Arabella F.	Vancouver
Griffin, Eileen B.	Vancouver
Kyles, Beatrice N.	Powell River
Mess, Adalina L.	Bredenbury, Sask.
McLeay, Ellen I.	Edmonton, Alta.
Pollock, Mildred M.	Vancouver
Ranking, Florence L.	Vancouver
Shipp, Alfred A.	Vancouver

PUBLIC HEALTH NURSING

FACULTY OF APPLIED SCIENCE

Bell, Eileen	Vancouver
Bellamy, Dorothy	Vancouver
Bonner, Mary E.	Vancouver
Bullock, Doris M.	Vancouver
Campbell, Mary P.	Vancouver
Christie, L. Phoebe	Vancouver
Conner, Helen W.	Vancouver
Croll, Allena B.	Vancouver
Dickson, Ann E.	Edmonton, Alta.
Edwards, Evelyn	Vancouver
Elliott, Ethel M.	Vancouver
Ewart, Ida B.	Vancouver
Granger, Marion L.	Vancouver
Jukes, Harriet	Vancouver
Marsh, Helen E.	Vancouver
McLellan, M. Aletha	Vancouver
Neen, Winnifred	Vancouver
Paulson, Esther I.	New Westminster
Riddell, Elizabeth M.	New Westminster
Russell, Thelma M.	Lillooet
Sanders, Laura M.	Vancouver
Schultz, Maude D.	Vancouver
Shields, Dorothea	Vancouver
Smith, Isabel	Vancouver
Smith, Jessie F.	Regina, Sask.
Stevens, V. Bernice	Vancouver
Stewart, Irene	Penhold, Alta.
Tait, Grace M.	Vancouver
Travis, Winnifred R.	Victoria

OCCUPATIONAL COURSE

FACULTY OF AGRICULTURE

Biely, George G.	Vancouver
Russon, Arthur D. C.	Princeton
Singh, Amer	North Vancouver

REGISTRATION FOR 1933-34

FACULTY OF ARTS AND SCIENCE

	Women	Men	Total	
First Year	94	177	271	
Second Year	94	138	232	
Third Year	128	148	276	
Fourth Year	124	150	274	
				—1053

FACULTY OF APPLIED SCIENCE

Second Year	.....	111	111	
Third Year	.....	53	53	
Fourth Year	.....	62	62	
Fifth Year	.....	44	44	
				— 270

FACULTY OF APPLIED SCIENCE (NURSING)

First Year	15	.....	15	
Second Year	8	.....	8	
Third Year	7	.....	7	
Fourth Year	9	.....	9	
Fifth Year	9	.....	9	
				— 48

FACULTY OF AGRICULTURE

First Year	.....	11	11	
Second Year	4	10	14	
Third Year	3	13	16	
Fourth Year	1	14	15	
				— 56

GRADUATES

Arts and Science	38	56	94	
Applied Science	.....	17	17	
Agriculture	1	6	7	
				— 118
TEACHER TRAINING COURSE	39	22	61	
				— 61
Total				1606

	Women	Men	Total
Extra-Sessional Classes	15	46	61
Occupational Course in Agriculture	.....	3	3
Public Health Nursing	29	.....	29
Social Service	10	1	11
Evening Class in Botany	8	12	20
Summer Session, Arts and Science (1933)	133	237	370

DEGREES CONFERRED

MAY, 1933

Faculty of Arts and Science

THE DEGREE OF MASTER OF ARTS

(Names in alphabetical order)

Andrew, Jean Elliott, B.A. — Major: English; Minor: History
Thesis: "The Narrative Technique of Henry Fielding."

Cornish, Naomi Hilda, B.A. — Major: Philosophy; Minor: Education
Thesis: "A Study of Scepticism in Morals."

Creighton, James Hugh, B.A. — Major: Economics; Minor: History
Thesis: "Central Banking in Canada."

Doherty, Sheila Martin, B.A. — Major: English; Minor: Education
Thesis: "The Ethics of *The Spectator* and *The Tatler*."

English, John Frederick Kerr, B.A. — Major: Philosophy; Minor: Education
Thesis: "The Junior-Senior High School in British Columbia."

Keatley, William Mahaffy, B.A. — Major: History; Minor: Government
Thesis: "Some Chroniclers of the Age of Richard I, Coeur de Lion."

Kelly, Dorothy Baxter, B.A. — Major: French; Minor: Education
Thesis: "L'Inspiration démocratique des *Misérables*, de Victor Hugo."

Makepeace, Ronald Allen, B.A. — Major: Physics; Minor: Mathematics
Thesis: "The Sensitive Surface of Geiger-Muller Counter Tubes."

Mennie, Jessie Rosa, B.A. — Major: French; Minor: Education
Thesis: "Louis XIV, son influence sur les arts."

Murdoch, David Carruthers, B.A. — Major: Mathematics; Minor: Physics
Thesis: "Determination of Bases for Certain Quartic Number Fields."

Macarthur, Margaret Isobel, B.A. — Major: Bacteriology; Minor: Chemistry
Thesis: "Studies on the Viability of *Bacillus Salmonicida*."

McKee, Kenneth Merritt, B.A. — Major: Economics; Minor: Government
Thesis: "Possibilities of Managed Sterling as an International Standard."

Palmer, Edna Irene, B.A. — Major: Zoology; Minor: Botany
Thesis: "The Anatomy of the Porcupine, Erithizon epixanthum."

Smith, Alexander, B.A. — Major: Structural Geology; Minor: Stratigraphy
Thesis: "The Structure of the Eastern Belt of the Cordillera in Canada."

Smith, Ronald Neville, B.A. — Major: Physics; Minor: Mathematics
Thesis: "A Portable Device for Detecting Radio-active Ores."

Speed, Marjorie Elizabeth Jenny, B.A. — Major: Mathematics; Minor: Education
Thesis: "Second Genus Orbits of the Normal Hydrogen Molecule."

Swain, Lyle Alloway, B.A. ..... Major: Chemistry
Minor: Education
Thesis: "Low-pressure Adsorption of Oxygen on Charcoal."

Wright, Harold, B.S. ..... Major: Economic Geology
Minor: Structural Geology
Thesis: "The Ores of Copper Mountain, B. C."

Wylie, Dorothy Elinore, B.A. ..... Major: Chemistry
Minor: Biology
Thesis: "A Comparison of the Efficiencies of Bromates and Nitrates in the Separation of the Rare Earth Elements from One Another."

THE DEGREE OF BACHELOR OF ARTS

With Honours

(Names in alphabetical order)

Allen, Maude Andrew, B.S.A. ..... 1st class honours in Biology (Botany option)
Anderson, Frances Maud ..... 2nd class honours in French and History
Armitage, Thomas Franklin Harvey ..... 2nd class honours in Biology (Zoology option)
Armstrong, Frances Maude ..... 2nd class honours in Mathematics
Bardsley, Mary Eileen ..... 2nd class honours in Chemistry
Bell, Alan ..... 1st class honours in Chemistry
Benedict, Verda Lucille ..... 2nd class honours in French
Black, Catherine Ledbetter ..... 1st class honours in Biology (Botany option)
Cockburn, George Hubert ..... 2nd class honours in History
Danielson, Gordon Charles ..... 2nd class honours in Physics
Davidson, Donald Curtis ..... 1st class honours in History
DeLisle, Frederick Arthur ..... 1st class honours in Chemistry
Dryer, Victor Leonard ..... 1st class honours in Economics
Elliot, Ottowell Blake ..... 2nd class honours in History
Fulton, Anna Caroline ..... 1st class honours in English Language and Literature
Grant, Mary Winnifred ..... 1st class honours in Latin and French
Grauer, Haakon Peter ..... 2nd class honours in History
Greenwood, Kathleen Muriel ..... 1st class honours in Latin and French
Hacker, George Cecil ..... 1st class honours in History
Hammond, Betty Doris ..... 1st class honours in Latin and French
Harper, Louella Mildred ..... 2nd class honours in Mathematics
Higham, Grace Elizabeth Chadwick ..... 1st class honours in Classics
Horn, Howard John ..... 1st class honours in Bacteriology
Houghton, David Bradley ..... 1st class honours in Philosophy
How, Thomas Gerald ..... 2nd class honours in Physics
Humphrey, Max Collington ..... 2nd class honours in Classics
Ireland, Willard Ernest ..... 1st class honours in History
Jackson, Albert Bernard ..... 2nd class honours in Mathematics and Economics
Jackson, Helen Phoebe ..... 1st class honours in Mathematics
Johnson, Patricia Mary ..... 1st class honours in History
Jure, Roy ..... 2nd class honours in Geology
Lakeman-Shaw, Jeanne ..... 1st class honours in English Language and Literature
Livesey, Ernest Edward ..... 2nd class honours in Mathematics
Moore, May Amelia Ermine ..... 1st class honours in English Language and Literature
Maciver, Margaret ..... 1st class honours in French
McArthur, Munro ..... 1st class honours in Chemistry

McKinnon, Sheila Joyce ..... 2nd class honours in Mathematics
McTaggart-Cowan, Patrick Duncan ..... 1st class honours in Mathematics and Physics
Okulitch, Olga ..... 1st class honours in Bacteriology
Parkinson, Grace Mary ..... 1st class honours in French
Perry, Gordon Neil ..... 2nd class honours in Economics
Phillips, Norman William Frederick ..... 1st class honours in Chemistry
Rich, Mavis ..... 1st class honours in Latin
Russell, Elphinstone Mather ..... 2nd class honours in Latin
Stavrianos, Leften Stavros ..... 1st class honours in History
Steele, Hannah Edith ..... 1st class honours in Bacteriology
Tait, Sheila Denise ..... 1st class honours in French
Whiles, Bill Ogilvy ..... 2nd class honours in Chemistry
Wilson, William George ..... 2nd class honours in Chemistry

In Pass Course

(Names in order of merit)

Class I

Lobb, Hilda I.
Winslow, Rosemary E. (Aegrotat)

Class II

Lucas, Celia F.
Stanton, Jack H. F.
Thompson, Helen G.
Stewart, Dorothy J.
Bowden, Mary E. M.
Black, Georgina M.
Whellams, Diana M.
Stobie, James D.
Harper, Andrée M.
Stobie, Margaret C.
Campbell, Louise J. D.
Hodgson, Barbara E.
Mitchell, Irene T.
Mercer, Eleanor B.
Ferguson, Helen
Gillespie, Ruth M.
Munton, Gladys E.
Lucas, William E.
Hogg, Gilbert P.
Patrick, John M.
Little, Margaret E.
Young, Rosalind
Tye, Derek H.
McGregor, Z. Jacqueline
Fairley, Helen E.
Kerr, Edna L.
Sutherland, Fiona J.
Ruttan, John G.
How, L. Kathleen
Killam, M. Eleanor
Palmer, Margaret L.
Wiggins, Winifred M.
McQuarrie, Colin D.
Marshall, Jeanne
Campbell, David H.
Holland, George P.
Rowe, Alice C.
Lucas, Frances M.

McDiarmid, H. Jean
Hall, Helen F.
Shugarman, Beatrice
Brine, Eleanor
Dunmore, Herbert H.
Harvey, K. Isobel
Frost, Gladys H.
Mathers, Wm. W.
Bell, Jack E.
Thompson, Dorothy D.
Thompson, J. Esmé
Martin, Catherine V. C.
Hogg, Roland V. H.
Prentice, Duncan F.
Young, H. Esson
Birmingham, William H.
MacLeod, Roderick M.
Orme, Francis J.
Covernton, Daphne M.
Crosby, Kathleen M.
Stratton, Muriel A.
White, Arnold C.
Bogardus, Frederick W.
Ramsden, Cecil W.
Campbell, Jean
McLellan, M. Dorothy
Walker, Dorothy M.
Sutton, Beatrice M.
Brown, Douglas McK.
Manning, Cyril M.
Harley, James
Scott, Annie E.
Emerson, Jean W.
Purves, Margaret R.
Ladner, Graham B.
Mouat, M. Robina
Stuart, James F. A.
Washington, A. Day C.

Passed

Goode, Muriel E.
Perdue, Frank S.
Wilson, Emma
Abbott, Ruth E.
Darnbrough, Mary E.
Howard, Ronald
Hartley, M. Ann
Fairfoull, May
Gibson, William C.
Todd, Harold J.
Sangster, Marion C.
Cornish, Peggy
Johnston, Kathleen A.
West, Helen A.
Somerville, Mary B. F.
Witbeck, Ruth
Boomer, Laura J.
Wright, Gwen. W.
Cameron, William H. Q.
Davidson, Alice M.
Brown, H. MacB.
Rudkin, Gerard H.
Quail, Frances O.
Crowley, Terence
Lai, Joe
West, Harold E.
Rolston, Audrey G.
Ferris, Robert J.
Wyness, Patricia M.
Vollans, Everett H.
McCaw, Lyla J.
Richardson, Nordia D.
Hebb, Kathryn
Carson, Amy C.
Agnew, Eleanor R.
Boe, Phyllis E.
Grant, Elizabeth W.
Fannin, Jean G.
Ramage, E. Irene
Arthur, Isabella E.
Heath, Eva M.
Lamont, Gertrude M.
Bain, Margaret
Willard, William J. H.
Falls, Marion
Cummings, Virginia F.
Spragge, Elsie M.
Feir, Douglas
O'Hagan, Patricia M.
Costain, Ernest J.
MacNaughton, Jean K.
Pelman, Isadore
Lang, George W.
Wright, Rika L.
McClure, Ann O.
McIntyre, Frances H.
Scott, Lillian P.
Bowles, A. Morea

Passed (Unranked)

(Names in alphabetical order)

Atkinson, J. Ray
Dodd, Arthur J.
Fisher, Alexander W., B.Com.
Gaetz, Halley T.
Graham, Kenneth
Hards, Albert A.
Hutchison, Donald F.
Kagnoff, Morris
MacLean, Samuel
McInnes, Robert H.
Nash, Raymond E.
Strain, Robert E.
Smith, Marion W.
Stewart, Arthur J.
Thompson, Lloyd B.
Vicary, Vivian C.
Woodward-Reynolds, Kathleen

Passed (Aegrotat)

Jack, Elizabeth D.

Double Course, Arts and Science and Applied Science

Receiving B.A.

(Names in alphabetical order)

Anderson, Gordon M.
Brown, Brenton S.
Creighton, George L. D.
Frattinger, Peter A.
Hurley, Patrick M.
Nicholson, Laurence J.
Southey, Victor John

Double Course, Arts and Science and Applied Science, Nursing

Receiving B.A.

(Names in alphabetical order)

Barlow, Ada Annie
Clibborn, Catherine M.
Law, Annie S.

THE DEGREES OF BACHELOR OF ARTS AND BACHELOR OF COMMERCE

(Double Course)

In Pass Course

Class II

Campbell, J. Kenneth — Johnson, Constance C.

Passed

Madeley, F. St. John

THE DEGREE OF BACHELOR OF COMMERCE

With Honours

First Class

(Names in alphabetical order)

Luxton, E. A. George — Powell, George

In Pass Course

(Names in order of merit)

Class I

Brennan, Cecil N.

Class II

Schultz, William A.
Strong, George G.
Jackson, Stephen J.
Stead, Gordon W.
Moyes, James T.
Mercer, Arthur F.
Davis, Charles A.

Passed

Weeks, Harold L.
Andrews, Harold S.
Kirkpatrick, John A.
Parker, Warren E.
Cleveland, Howard D.
Atkinson, Kenneth W.
Steele, John P.
Darling, Frances

Passed (Unranked)

Cox, Douglas

Faculty of Applied Science

THE DEGREE OF MASTER OF APPLIED SCIENCE

Flynn, James Benjamin, B.A.Sc. — Major: Chemistry; Minor: Mathematics
Thesis: "An Investigation on Possible Isomers of Cyclohexane."

Lawley, James Ernest Ryan, B.A.Sc. — Major: Chemistry; Minor: Physics
Thesis: "The Three Component System of Sulphur Dioxide, Benzene and Cyclohexane."

Lord, Clifford Symington, B.A.Sc. — Major: Economic Geology; Minor: Metallurgy
Thesis: "A Study of Tetrahedrite in Ores of British Columbia."

Lunn, Edward Otty, B.A.Sc. — Major: Electrical Engineering; Minor: Physics
Thesis: "Theory of the Performance of the Induction Motor Under Unbalanced Conditions."

McKechnie, Neil Douglas, B.Sc. — Major: Structural Geology; Minor: Mining
Thesis: "The Geology of the Beltian Rocks of the Cordillera in Canada."

Smith, Allan James, B.E.E., B.M.E. ..... Major: Electrical Engineering
Minor: Civil Engineering
Thesis: "The Economics of Transmission and Distribution of Electrical Energy."

Somerton, Thomas Watson, B.A.Sc. ..... Major: Chemistry
Minor: Physics
Thesis: "The Rate of Diffusion of Methane Through a Palladium Membrane."

Trant, Geoffrey Allan, B.A.Sc. ..... Major: Mechanical Engineering
Minor: Metallurgy
Thesis: "Oil Film Lubrication."

THE DEGREE OF BACHELOR OF APPLIED SCIENCE

With Honours

Chemical Engineering

Richmond, Richard Henry — Hodnett, Lisle
Ellison, Robert

Electrical Engineering

McRae, James Wilson — Tregidga, Angus Campbell, B.A.

Forest Engineering

Allen, George Samuel

THE DEGREE OF BACHELOR OF APPLIED SCIENCE

In Pass Course

(Names in order of merit)

Chemical Engineering

Class II

Bardsley, John Howarth — Carswell, Ernest Richmond
Mitchell, Robert Fraser — Inouye, Kuramitsu
Moore, John Dickson

Civil Engineering

Class I

Brown, Brenton Simpson

Class II

Donaldson, James Wilson — Sanderson, Adrian Barclay
Webster, Alan — Smith, Cyril Horace
McConnell, Norman Elmore — Ladner, Frank Ellis
Verner, Edwin Abercrombie

Electrical Engineering

Class II

Freedman, Harry Charles — Deane, Richard
Nixon, Frederick Gordon — Hedley, John Baldwin
Rader, Louis Telemacus — Tull, Eric Harold

Passed

Carre, Stephen Norwood — Rogers, Joseph Victor

Passed (Unranked)

Henderson, Gibb Gilmour

Forest Engineering

Class II

Jacob, J. Kenneth

Geological Engineering

Class II

Cummings, John Moss
Johnston, John R.
Smith, John Young

Mechanical Engineering

Class II

Creighton, George Leonard Douglas
Reeve, David Douglas
Moorhead, Harold Parker Jackson
Cowan, Sydney Godwin
Rigby, Christopher Prater
Frattinger, Peter Anthany

***Passed** (Unranked)*

Abraham, Francis Joseph

Metallurgical Engineering

Class II

Currie, John Mearns

Mining Engineering

Class II

Fowler, Hedley Stewart
Brookes, Norman Frederic
Pike, Albert Edward
Southey, Victor John

Nursing

Class I

Smith, Muriel Rae
Tate, Dorothy Emeline
Phelps, Dorothy Livingstone
Murdoch, Mary Jean
Baynes, Margaret Anderson

Class II

Cumming, Jean Isobel
Hardy, Margaret Elizabeth

Faculty of Agriculture

THE DEGREE OF MASTER OF SCIENCE IN AGRICULTURE

Oldfield, Frederick Allen, B.A., B.S.A. — Major: Agric. Economics; Minor: Animal Husbandry
Thesis: "A Study of Steer Feeding by Contract in the Lower Fraser Valley."

Wasson, Frederick Cleveland, B.S.A. — Major: Dairying; Minor: Dairy Bacteriology
Thesis: "A Contribution to the Bacteriology of Ice Cream."

Wilcox, John Carman, B.S.A. — Major: Plant Nutrition; Minor: Soils
Thesis: "Determining the Moisture-holding Capacity of Soils; Some Modifications of the Tube Drainage Method."

Winram, James Mills, B.S.A. — Major: Agric. Economics; Minor: Agric. Economics
Thesis: "Instalment Credit in Agriculture."

THE DEGREE OF BACHELOR OF SCIENCE IN AGRICULTURE

(Names in order of merit)

Class I

Okulitch, George
Phillips, Arthur Harold
Osborn, Clendon Deason
Brooks, Frederick Charles

Class II

Naganobu, Harry
Uyeda, Takaji
Leech, Hugh Bosdin
McRae, Roderick Howard
Hewetson, Frank Nutter
Fisher, Donald Vince
Des Brisay, Eileen
Turner, David Binnie

DEGREES CONFERRED

OCTOBER, 1933

Faculty of Arts and Science

THE DEGREE OF MASTER OF ARTS

Draper, James, B.A. ..... Major: Chemistry
Minor: Mathematics

Thesis: "The Behaviour of Hydrous Beryllium Oxide in Solutions of Sodium Acid Carbonate."

Hensley, Charles Arthur Edward, B.A. ..... Major: Botany
Minor: Zoology

Thesis: "An Ecological Study of a Limestone Ridge in the Red River Valley."

Loch, Margaret Stevenson, B.A. ..... Major: Latin
Minor: Education

Thesis: "Virgil and Youth."

Lugsdin, Claribel, B.A. ..... Major: French
Minor: Education

Thesis: "La philosophie épicurienne d'Anatole France."

THE DEGREE OF BACHELOR OF ARTS

With Honours

Buller, Arthur Edmund ..... 2nd class honours in Geology
Logan, Kenneth ..... 2nd class honours in Chemistry
Saunders, Montague Brandreth ..... 1st class honours in English Language and Literature

In Pass Course

(Names in alphabetical order)

Affleck, Robert Dalton
Ashby, John
Ashworth, Reginald William
Bell, Margaret Eleanor
Brown, Hugh Agassiz
Buckley, Hubert Leslie, B.S.A.
Cameron, William Murray
Cant, George Beattie
Chu, Fred
Farrant, Maurice Howard
Foubister, Alfred Edward
Found, Richard Keith
Frederickson, Clarence John
Godfrey, John Dand
Harris, Laurence George
Henderson, Arnold Edwards, B.Com.
Howard, Arthur Muirhead
Hubbs, Margaret Winnifred
Jamieson, Gordon Thomas
Kelly, Robert Rodgers
Kendall, Elizabeth Ethel
Kennedy, Mervyn Ewart
Lane, Edwin Ivor
Lang, Jean Helen

Mulvin, Vernon Wallis
McDougal, Mary
McIntosh, Donald James
MacKenzie, Helen Jessie
Osborne, Robert Freer
Pratt, Frederick Henry
Reid, Murial Audry
Russell, Ronald Charles Miller
Sedgwick, Harvey James
Shannon, Jean Marjory
Sharp, Eleanor Lea
Smith, Elizabeth Wilhelmina
Timberlake, Morley
Watson, Charles Caithness
Weld, George Frederick
Wiedrick, Vernon Ansel
Wilson, Clara Maud
Wilson, Frances Elizabeth
Young, James Gordon

THE DEGREE OF BACHELOR OF COMMERCE

Jorgensen, Ralph Hoffard
Leckey, Robert George
Mason, Miller Hamilton, Jr.
Tervo, Randolph Wilfred
Wilson, Ernest Charles Duff

Faculty of Applied Science

THE DEGREE OF MASTER OF APPLIED SCIENCE

Hrennikoff, Alexander, B.A.Sc.....Major: Civil Engineering
Minor: Mathematics

Thesis: "Elastic Stability of a Pony Truss."

LePage, David Harold, B.A.Sc.....Major: Chemistry
Minor: Physics

Thesis: "The Heat of Adsorption of Oxygen on Charcoal."

Smith, Donald Sinclair, B.A.Sc.....Major: Electrical Engineering
Minor: Physics

Thesis: "A Study of the Electrical Effects of Armature Eccentricity in a Four-pole Lap-wound DC Machine."

THE DEGREE OF BACHELOR OF APPLIED SCIENCE

Civil Engineering

Miard, Henry Thomas

Electrical Engineering

Smith, Wilbert Brockhouse

Mechanical Engineering

Campbell, Harry Douglas
Ellett, Alec Sydney
Saunders, Arthur Jackson

Faculty of Agriculture

THE DEGREE OF BACHELOR OF SCIENCE IN AGRICULTURE

Lott, Thomas Belsham

MEDALS, SCHOLARSHIPS AND PRIZES

AWARDED MAY, 1933

MEDALS

1. The Governor-General's Medal.....Grace Mary Parkinson
(Head of Graduating Class for the B.A. Degree)
2. The Kiwanis Club Gold Medal.....Edward Arthur George Luxton
(Commerce)

SCHOLARSHIPS FOR POST GRADUATE STUDIES

1. University Graduate Scholarship, $200.00.....James Wilson McRae
2. The Anne Wesbrook Scholarship, $100.00
Patrick Duncan McTaggart-Cowan
3. The Brock Scholarship, $100.00.....George Samuel Allen

SCHOLARSHIPS FOR UNDERGRADUATES

I. IN ALL FACULTIES

First Year

1. University Great War Scholarships—
1. No award.
2. No award.

II. IN ARTS AND SCIENCE

Third Year

1. University Scholarships in Arts and Science (General Proficiency, proceeding to the Fourth Year), $150.00—
1. George Michael Volkoff
2. Andrew Guthrie
Special awards—
1. $75.00, Robert Artemas Findlay
2. $75.00, Joseph Gilbert Hooley

2. I. J. Klein Scholarship (General Proficiency, proceeding to the Fourth Year of the course in Commerce), $100.00—
Donald Frederick Purves

Second Year

3. University Scholarships in Arts and Science (General Proficiency, proceeding to the Third Year)—
1. $150.00.....Henry Hubert Clayton
2. $150.00.....George Howard Mossop
4. The Shaw Memorial Scholarship, $125.00.....Clare Marie Brown
(First in English, Latin and Greek)
5. The McGill Graduates Scholarship, $125.00.....Joan Yvonne Dangelzer
(First in English and French)
6. The Terminal City Club Memorial Scholarship, $100.00.....Netta Harvey
(First in English and Economics)
7. The I.O.D.E. Scott Memorial Scholarship, $100.00.....Chikao George Hori
(First in Biology)
8. Vancouver Women's Canadian Club Scholarship, $100.00—
(First in History)
Arthur Joseph Johnson, Isobel Rose Whelan } Equal

First Year

9. Royal Institution Scholarship in Arts and Science, $150.00
George Arthur Fallis
(First in General Proficiency)

10. University Scholarships in Arts and Science (Second and Third in General Proficiency)—
1. $150.00 ..... Charles William McLeish
2. $150.00 ..... Peter James Disney } Equal
William George Trapp }

11. P.E.O. Sisterhood Scholarship, $75.00 ..... Eleanor Darrel Gomery
(First woman student in English)

12. Beverley Cayley Scholarship, $100.00 ..... Peter James Disney
(First man student in English)
by contingent reversion to John Montgomery Rose

Special awards—
1. $50.00 ..... William M. Morris
2. $50.00 ..... M. Margaret Buchanan

III. IN APPLIED SCIENCE

1. Vancouver Women's Canadian Club Scholarship in Nursing and Health, $100.00 ..... Annie Sinclair Law
2. The Dunsmuir Scholarship, $150.00 ..... Patrick Mason Hurley
(Highest in Mining Engineering, proceeding to the Fifth Year)
3. University Scholarship in Applied Science, $150.00 ..... Samuel Lloyd Lipson
(General Proficiency, proceeding to the Fourth Year)
4. Royal Institution Scholarship in Applied Science, $150.00—
Harold Russell McArthur
(General Proficiency, proceeding to the Third Year)
5. G. M. Dawson Scholarship ..... No award
(In Geological subjects, Fourth Year Geological Engineering)

IV. IN AGRICULTURE

1. University Scholarship in Agriculture, $150.00 ..... Cedric Hornby
(General Proficiency, proceeding to the Second Year)
2. The David Thom Scholarship, $100.00 ..... Robert Caines Derrinberg
(General Proficiency, proceeding to the Second Year)

PRIZES

I. IN ALL FACULTIES

1. The University Essay Prize, $25.00 ..... No award
2. The Players' Club Prize, $50.00 (original play) ..... No award
3. The Isabel Ecclestone Mackay Prize, $25.00 ..... Arthur Mayse
(Original poem) ("Pagan Resurrection")

II. IN APPLIED SCIENCE

1. The Convocation Prize, $50.00 ..... James Wilson McRae
(General Proficiency in Fifth Year)
2. The Walter Moberly Memorial Prize, $25.00 ..... James Wilson McRae
(Engineering Thesis in Fifth Year) ("The Parallel Type Thyratron Inverter")
3. The Engineering Profession's Prizes, $25.00 each—
1. George Melvin Sinclair
2. Courtenay Ernest Cleveland
3. Ernest Alexander Mitchell
4. William Inglis
5. Thomas Harry Doherty

4. The Engineering Institute of Canada Prize, $25.00.....Patrick Mason Hurley
5. The Provincial Board of Health Prizes in Public Health Nursing, $100.00—
   1. $30.00.....Agnes T. Thom
   2. $25.00.....Kate F. Robinson
   3. $15.00.....Margaret L. Hargrave
   4. $15.00.....Kathleen Lord
   5. $15.00.....Muriel R. Smith

BURSARIES

1. The Captain LeRoy Memorial Bursary, $250.00.....Alan Bell
   (Preference to returned soldiers or dependents)
2. The Khaki University and Y.M.C.A. Memorial Fund Bursaries, $100.00 each—
   1. Stanley Henry Anderson
   2. Patricia Campbell
   3. Gwladys Violet Downes
   4. Richard Philip Locke
   5. Alexander John Marling
   6. George Robert Pringle
   7. Beryl N. Rogers
   8. George Travers Vince
   9. Jessie Cameron Wilson
   10. .....
3. The American Women's Club Bursary, $125.00.....Awarded in September
4. The David Thom Bursaries—
   (1) $100.00.....Awarded in September
   (Highest Matriculant registered in Agriculture)
   (2) $60.00..... No award
   (Satisfactory completion of the First Year proceeding to Second Year Agriculture)

AWARDS ANNOUNCED BY SENATE

The Rhodes Scholarship.....Laurence Jack
French Government Awards which are made through the University by the French Consul for Western Canada—
The French Government Bronze Medal (French).....Betty Doris Hammond
The French Government Scholarship (10,000 francs).....Grace Mary Parkinson
The French Government Book Prize (French).....Sheila Denise Tait

AWARDED AFTER THE MAY CONGREGATION

SENIOR MATRICULATION SCHOLARSHIPS

University Scholarship for General Proficiency, $150.00
Donald Campbell McPhail
Royal Institution, $150.00.....Dagmar Elisabeth Lieven
Royal Institution, $150.00.....Charles Henry Davenport

JUNIOR MATRICULATION SCHOLARSHIPS

Royal Institution, Provincial, $150.00.....Constance Mary Baird
Royal Institution, District 1, $150.00.....Hing Hope
Royal Institution, District 2, $150.00.....Ralph Francis Patterson

Royal Institution, District 3, $150.00 ..... Elizabeth Janet Houston
Royal Institution, District 4, $150.00 ..... William Finlayson, by reversion to William Noel English
Royal Institution, District 5, $150.00 ..... Pauline Patterson
Royal Institution, District 6, $150.00 ..... Mary Anita McCulloch, by reversion to Herbert Lewis Dodd
The American Women's Club Bursary, $125.00 ..... Marjorie Wilson
The David Thom Bursaries—
1. $100.00 ..... Dawson Moodie
2. $ 60.00 ..... Philip West
3. $ 75.00 (Special) ..... C. Duncan McKenzie
The Khaki University and Y.M.C.A. Memorial Fund Bursaries, $100.00— Violet M. Thomson
Royal Institution Scholarship, $150.00 ..... Charles William McLeish
(Re-awarded when relinquished by George Arthur Fallis)
University Scholarships—
1. $150.00 ..... Peter James Disney
2. $150.00 ..... William George Trapp
(Re-awarded when No. 1 relinquished by Charles William McLeish)
Special award, $50.00 ..... William M. Morris
Special award, $50.00 ..... M. Margaret Buchanan
University Scholarship in Nursing and Health, $150.00 ..... Lyle Creelman

THE UNIVERSITY OF BRITISH COLUMBIA

UNIVERSITY SUMMER SESSION, 1935

Seven Weeks—July 2nd to August 17th

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 12 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 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 57-129.)

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.

A student who has obtained credit for at least fifteen units of work in a Winter Session may not register for more than four and a half units of work in the Summer Session immediately following.

A student, however, who took less than fifteen units of work in the Winter Session immediately preceding, or who is repeating a course in which he has a failure or a supplemental, may register for six units.

4. Reading courses will be open to Summer Session students in the same way as to Winter Session students (see page 61), 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. 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) and who have the prerequisite standing.

6. The maximum credit for work other than that of the regular Summer and Winter Sessions may not exceed 15 units subsequent to Senior Matriculation or First Year Arts, nor 3 units in any one academic year.

7. Extra-mural work done at other universities prior to registration at this University may be accepted if approved by Faculty, but may not exceed the total number of units of credit obtainable at this University without attendance at either Winter or Summer Session.

8. If credit is granted for extra-mural work taken elsewhere, the total amount of work which the student concerned may take at this University without attendance at a Winter or Summer Session will be correspondingly reduced.

9. No credit will be granted for extra-mural work done at other universities in the same academic year in which any work has been attempted at this University, whether in the Summer Session or in the Winter Session or by Reading Courses or Extra-sessional Classes.

Courses which count towards an Honours B.A. 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 Junior Matriculation 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 Junior Matriculation 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 36.

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.

CANADIAN OFFICERS' TRAINING CORPS

The University has a contingent of the Canadian Officers' Training Corps. Membership is voluntary and is open to male students who are British subjects. Here they have an opportunity to secure a training in discipline and organization or to qualify for commissions in the country's auxiliary forces and render personal service with the least possible interference with their civil careers or to enter certain careers for which membership in the Canadian Officers' Training Corps is obligatory or advantageous. Among such careers are the Permanent Active Militia, including Cavalry, Artillery, Engineers, Corps of Signals, Infantry, the Royal Canadian Air Force, Commercial Flying in Canada, the British Colonial Service.

The contingent is a unit of the Active Militia, but is governed by special regulations under which it cannot be called out as a unit for active service.

General Supervision over the activities of the corps is exercised by a Committee of Military Education appointed by the Senate of the University. This Committee consists of the President and the Commanding Officer, ex officio, together with the Chancellor, the President of the Alma Mater Society and the Deans of Arts and Applied Science. The Commanding Officer and officers of the corps are selected from the teaching staff and students of the Uni-

versity. Assistance in the work of the corps is given by members of the Permanent Militia of Canada.

The Cadets are prepared for the examinations for Certificates "A" and "B" set by the British War Office for all contingents of the Officers' Training Corps throughout the Empire. Certificate A qualifies its holder for the rank of Lieutenant, Certificate B for the rank of Captain, not only in the non-permanent Active Militia of Canada, but in the volunteer forces anywhere within the Empire.

Lectures are given at the University throughout the session, and drill and range practices are carried out. Hours for this work convenient to the members of the Corps are arranged so as not to interfere with the academic work of the University, and as little as possible with student activities.

The District Military authorities provide an annual camp, when possible, during either the summer or the winter vacation.

Members of the Corps who are pursuing a course in Applied Science are eligible for Provisional Pilot Officer Training held annually at Camp Borden, and for training with the Royal Canadian Corps of Signals.

Cadets are also eligible for the Small Arms School, both "A" and "B" Wings.

All the above-mentioned courses are held during the summer vacation.

The following officers are on the strength of the contingent:

Commanding Officer, Lieut.-Col. H. F. G. Letson, M.C., Associate Professor of Mechanical Engineering.

Medical Officer, Major G. A. Lamont, C.A.M.C.

O.C. "A" Company, Major W. A. Carrothers, D.F.C., Professor of Economics.

O.C. "B" Company, Capt. G. M. Shrum, M.M., Associate Professor of Physics.

Lieut. G. J. Spencer, Assistant Professor of Zoology.

Lieut. C. R. de Lotbinier-Harwood.

Second Lieut. R. B. Leeson, Second Lieut. D. M. Smith, Second Lieut. F. H. Dawe, Second Lieut. J. S. Beeman, Second Lieut. E. D. James, Second Lieut. E. S. Allen.

Capt. E. M. MacBrayne, M.C., and Q.M.S.I. A. A. Smith (I.C.) are attached to the unit for instructional and other duties. They are both members of the Princess Patricia's Canadian Light Infantry Regiment of the Permanent Force.

Students who wish to make further enquiries about the work of the Corps may obtain additional information from any of the above-named officers, or by application at the C.O.T.C. Orderly Room, in the basement of Arts Building.

The miniature range is situated in the basement of the Arts Building.

Summary

1. *Object.*—To qualify members for commissioned rank in the Canadian Militia or similar force within the Empire.

2. *Expense.*—No expense of any kind is involved. All activities are financed by Corps Funds.

3. *Equipment.*—All arms, ammunition, text-books and clothing are furnished without charge.

4. *Time Required.*—The average time required by members is 15 nights per year, from 7:45 p.m. to 10 p.m., Wednesdays. All Corps activities are arranged so that there is no interference with ordinary academic work of the University.

5. *Advantages.*—(*a*) Rifle shooting, both miniature and service rifle, with prizes and eligibility to compete for places on the following teams—Provincial Matches at Victoria, B. C., Dominion Matches at Ottawa, Ont., and National Rifle Association Matches at Bisley, England. (*b*) Physical Training under specially qualified instructors. (c) One-week trip to Victoria during Christmas vacation. (*d*) Annual C.O.T.C. Dance. (*e*) Summer courses *with pay* at Victoria and Calgary. (*f*) Flying instruction *with pay* at Camp Borden during summer. (*g*) Signal instruction *with pay* during summer. (*h*) Eligibility for appointments in Permanent Force, British Army, and British Colonial Service. (*i*) *Cash* bonuses for passing qualification examinations.

STUDENT ORGANIZATION

In order that the activities of the student body may be effectively carried on, the Alma Mater Society has been organized, with a governing executive called the Students' Council. It is the duty of the Students' Council to control all the activities of the societies subsidiary to the Alma Mater Society.

Each student on admittance to the University automatically becomes a member of the Alma Mater Society. All student activities are regulated and questions of student discipline are controlled by the Students' Council. It consists of nine members, chosen from Junior and Senior Years. The members are elected by ballot at the close of the session preceding their term of office.

In order that the work may be carried on to the best advantage, considerable funds are necessary, and the Alma Mater fee of $7.00, compulsory for all students, is designed to cover the expenses incurred. Added to this is a compulsory levy of $3.00 to go towards the Gymnasium Fund.

Students upon entering the University have an opportunity to take part in practically all lines of sport, as well as to participate

in debating and public speaking, and various other activities which are more clearly indicated below.

Publications Board

The Publications Board is best known from the "Handbook," the "Ubyssey" and the "Annual." In the first of these an attempt is made to compile information valuable to the undergraduate. The "Ubyssey," the College paper, is published twice a week. The members of the Staff are students selected as a result of voluntary competition. The "Annual," which is published at the end of the spring term, summarizes the activities of the various classes and societies.

Literary and Scientific Executive

The Literary and Scientific Executive co-ordinates the workings of its constituent Societies, which are indicated below.

In the Players' Club, those whose talents lie in the direction of the drama may find medium of expression.

The Musical Society, membership in which is granted as a result of competitive try-outs, consists of an orchestra and mixed chorus comprising about seventy students under professional leadership.

For those interested in public speaking and debating there is the University Parliamentary Forum.

The following societies and clubs offer a field for discussion of engineering, scientific and social problems: The Letters Club, the International Relations Club, the French Clubs, the German Club, the Historical Society, the Varsity Christian Union, the Philosophy Club, the Guide Club, the Student Christian Movement, the Biological Discussion Club, the Art Club, the Menorah Society, the Engineering Institute of Canada, the Radio Club, the Social Science Club, the G. M. Dawson Geological Discussion Club, the Household Science Club, the Chemistry Society, the Forest Club, the Agriculture Club, the Classics Club, the Mathematics Club, the Law Club, the Society of Thoth, the Chess Club, the Physics Club, Agriculture Discussion Club, and Women's Literary Forum.

Women's Athletics

The Women's Athletic Association comprises all the women's athletic clubs of the University, the chief of which are herewith briefly described:

The Women's Basketball Club enters teams in the City League, and also competes for Dominion championships.

The Women's Swimming Club competes in a City League, and also against Victoria and sometimes sends a team to Banff.

The Grass Hockey Club enters two teams in the Lower Mainland League and also plays challenge games against the High Schools, New Westminster, Victoria or Duncan.

The women may join the Badminton, Tennis, Golf, Ice-skating and Outdoor Clubs, which are under the Men's Athletic Association.

The Track Club holds, with the Men's Track Club, a joint meet which takes place annually at the Varsity Oval, one of the women's events being the relay for the Arts '25 Cup.

The Women's Gymnasium Club meets once or twice a week, under a physical instructor.

Inter-class matches are arranged in basketball, badminton, swimming, track, etc., for which points are awarded, the winning class being the holders of the Chris. Spencer Cup for the ensuing year.

The Women's Big Block Club was organized to maintain a high standard of awards, and to act as an advisory board to incoming women students in relation to sport.

Men's Athletics

It is the endeavour of the Men's Athletic Association to foster student participation in some sport and to control athletic activities on the Campus to the best interest of the students and the University as a whole.

Sports are classified as Major, Sub-major, Minor, Sub-minor, and Unclassified. Major sports are: English Rugby, Basketball, Track, and Canadian Rugby. Sub-major sports are: Soccer and Swimming. Minor sports are: Golf, Grass Hockey, Badminton, Ice Hockey, and Rowing. Sub-minor sports are: Boxing, Gymnasium, and Outdoors. Unclassified sports are: Skating and Fencing.

The M. A. A. embraces a wide variety of athletic activities. It maintains them on a sound basis, as is evidenced by the interest shown on the part of the students.

The Executive of the Association is made up of the Presidents of the various sports, together with the President, Vice-President, Secretary and Treasurer of the Association.

The Association is also affiliated with the Western Canadian Intercollegiate Athletic Union. This Union is comprised of the Athletic Associations of the Universities of Manitoba, Saskatchewan, Alberta and British Columbia. Closer relationship among the Western Canadian Universities is established in this manner.

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 doing this, athletics at the University are maintained on a sound and healthy level.

No student is allowed to play for other than a University team during the University session.

Detailed information may be obtained from the Student Handbook and from any of the executive of the above sports or the Executive of the Association.

Fraternities

Fraternities have existed at the University of British Columbia for some years and 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. It is their endeavour both to benefit through friendship their individual members, and to work for the best interests of the University. 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

This organization was formed in May, 1917. It is composed of Honorary, Active, and Associate members. Honorary membership includes all members of the Faculty. Active membership includes all Associate members who have paid their annual fee of $1.00 or a life membership fee of $10.00. All graduates of the University automatically become Associate members on graduating.

The purpose of the Association is to further the interests of the University and the Alumni. To accomplish this purpose the Association aims to keep its members interested in the University and the Alma Mater, so that they may know their college, not only as it was, but as it is, and can be. To carry out these aims general meetings are held during the University term. In addition, a directory of our graduates is sent to all Active members, while news bulletins are sent to both Active and Associate members.

There are four standing committees in the Association which seek to foster interest in athletics, music, dramatics and publications among members of the Association, and throughout the Province in other organizations.

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 favored 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

PERCY H. ELLIOTT, M.Sc. (McGill), Principal, Associate Professor of Science.
E. STANLEY FARR, B.A., LL.B. (Toronto), Assistant to Principal, Assistant Professor of History and Economics.
J. A. CUNNINGHAM, B.A. (Queen's), Registrar, Assistant Professor of Biology.
MISS JEANETTE A. CANN, B.L. (Dalhousie), Assistant Professor of English and Philosophy.
H. RUTH HUMPHREY, B.A. (Mount Allison), M.A. (Oxon), Assistant Professor of English.
MME. E. SANDERSON-MONGIN, Officier d'Académie (France), Assistant Professor of French.
G. P. BLACK, M.A. (Man.), Assistant Professor of Classics.
E. J. SAVANNAH, A.B., S.B. (Calif.), Instructor in Chemistry.
ROBERT T. D. WALLACE, B.A. (Brit. Col.), Instructor in Mathematics.

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:

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 1 in the First Year and English 2 in the Second Year	6
(*b*) The first two courses in a language offered for Matriculation, one course in each year	6
(*c*) Mathematics 1 in the First Year	3
(*d*) History 1, 2 or 4, or Philosophy 1(*a*) or Economics 1	3
(*e*) Biology 1, Chemistry 1 or Physics 1 or 2	3
(*f*) Three courses—not already chosen—selected from the following: Biology 1, Chemistry 1, Chemistry 2, Economics 1, Economics 2, Economics 10, French 1, French 2, Greek A, Greek 2, History 1, History 2, History 4, Latin 1, Latin 2, Mathematics 2, Mathematics 3, Mathematics 4, Philosophy 1(*a*), Physics 1, Physics 2, Zoology 1	9

The rules and regulations governing the College are the same as those in force at the University.

Information and Calendars of Victoria 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

THE REV. J. G. BROWN, M.A., D.D.

Union College offers courses of instruction in Theology leading to the degrees 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 58.)

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.

(Affiliated with The University of British Columbia, 1922)

Principal

REV. W. H. VANCE, M.A., D.D.

Registrar

REV. D. P. WATNEY, B.A., B.D.

The Anglican Theological College offers courses in Theology leading to the Diploma of Licentiate 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 Theological options, for which credit is given in the course leading to the B.A. degree. (See Page 58.)

For further information in reference to Faculty, Courses of Study, etc., see calendar of the College.