The University
OF
British Columbia

CALENDAR

TENTH SESSION

1924 - 1925

VANCOUVER, BRITISH COLUMBIA
1924

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CONTENTS

FACULTY OF AGRICULTURE

ACADEMIC YEAR 1924-1925

1924. Monday, September 8th.	Registration Day for First Year Applied Science.
	Summer School in Mechanical Engineering 2 opens.
Wednesday, September 10th.	Matriculation Supplemental Examinations begin.
	Supplemental Examinations in Arts begin.
Friday, September 19th.	Supplemental Examinations in Applied Science begin.
Friday, September 19th.	Last day for Registration for Arts and Science, Agriculture, and Second, Third, and Fourth Year Applied Science.
Tuesday, September 23rd.	Lectures begin.
Monday October 6th.	Last day for payment of First Term fees.
Saturday, October 11th	Last day for Change in Students' Courses.
Wednesday, October 15th.	Meeting of the Senate.
Friday, December 5th.	Last day of Lectures for Term.
Tuesday, December 9th.	Examinations begin.
Wednesday, December 17th.	Meeting of the Senate.
Thursday, December 18th.	Examinations end.

1925 Monday, January 5th	Second Term begins.
Monday January 19th.	Last day for payment of Second Term fees.
Wednesday, February 18th.	Meeting of the Senate.
Thursday, April 9th.	Last day of Lectures.
Tuesday April 14th.	Sessional Examinations begin.
	Field Work in Applied Science begins immediately at the close of the Examinations.
Thursday, April 23rd.	Last day for payment of Graduation fees.
Wednesday, May 6th.	Meeting of the Senate.
Thursday, May 7th.	Congregation.
Thursday, May 7th.	Meeting of Convocation.
Monday, June 22nd.	Junior and Senior Matriculation Examinations begin.

THE UNIVERSITY OF BRITISH COLUMBIA

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G. E. ROBINSON, ESQ., B.A., Vancouver, B. C.
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HAROLD WHITE, M.D., C.M. (McGill), Medical Examiner to Students.

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 540 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 of 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 1st, 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, and on April 12th, 1921, was re-elected for a second term. On the death of President Wesbrook, October 20th, 1918, L. S. Klinck, M.S.A., D.Sc., was appointed acting President, and on June 1st, 1919, President.

In the spring of 1923 construction work on the Science Building, which had been begun in 1914, but interrupted because of war conditions, was resumed, and in the autumn of the same year the contract was let for the Library. These buildings are to be of stone and fire-proof and conform closely to the original plans as prepared by the architects in 1914.

THE CONSTITUTION OF THE UNIVERSITY

The Constitution of the University is governed by the Act of 1908 and amending Acts, which provide

That the University shall consist of a Chancellor, Convocation, Board of Governors, Senate, 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 elected by the Provincial Teachers' Institute organized under subsection (*e*) of section 8 of the "Public Schools Act"; (*g*) one member to be elected by the governing body of every affiliated college or

school in this Province; (*h*) 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."

THE WORK OF THE UNIVERSITY

The University of British Columbia is an integral part of the public educational system of the Province, and its function is to complete the work begun in the public and high schools. It is the policy of the University to promote education in general, and in particular to serve its constituency through three channels—teaching, research, and extension work.

As regards teaching, the University furnishes instruction in the various branches of a liberal education and in those technical departments which are most directly related to the life and industries of the Province. The scope of the teaching activity of the University is fully described in Sec. 9 of the Act.

In order to make the teaching of the University more vital and for the advancement of knowledge, research is encouraged in every department.

The people of the Province are informed of the results of special work by the staff of the University through a system of extension lectures. The University sends lecturers to various parts of the Province during the examination weeks in December and April. In the case of places which can be visited without prejudice to the duties of the lecturer at the University, lectures are arranged to take place during the University term. A list of subjects and lecturers can be obtained on application to the

Secretary of the Extension Lecture Committee, through whom all arrangements are made.

ENDOWMENTS AND DONATIONS

However well supported by public funds, a University must depend to a great extent upon private benefactors. In anticipation of endowments the Act provides that:

> "Any person or corporation may, with the approval of the Senate, found one or more professorships, lectureships, fellowships, scholarships, exhibitions, prizes, or other awards in the University, by providing a sufficient endowment in land or other property, and conveying the same to the University for such purposes, and every such endowment of lands or other property shall be vested in the University for the purpose or purposes for which it is given."

Only a limited number are in a position to make endowments, but many—including alumni and friends of higher education—may add greatly to the usefulness of the University by making contributions that lie within their power. It is gratifying to note that the number of those who assist the University in this way is constantly increasing.

Among the most notable gifts received during the past year are the following:

Geo. Barnwell—Collection of ores, etc., from Joplin, Mo.

T. D. Guernsey—Collection of Yukon rocks.

H. C. Giegerich—Collection of ores from Surf Inlet.

S. Say—Collection of minerals and rocks from Mexico and the Grand Canyon, Col.

Dr. S. E. Porter—Collection of Vanadium ores from Minas Ragas, Peru.

T. S. Byne—Travertine from Roman wall, Monmouthshire, Wales.

D. C. McKechnie—Aragonite crystals, Sullivan Mine, Kimberley, B. C.

P. E. Crane—Native silver, Bellmine, Beverdell, B. C.

A. H. Lang—Chalcedony, Vernon, B. C.

R. R. Hedley—Argentite and native silver, Arlington Mine, Slocan, B. C.

Henry Meadows, M.D., Denman Island, B. C.—66 slides of Co. Antrim, Ireland.

J. Stanley—10 photographs (photomicrographs) and 9 microscopic slides of diatoms and foraminifera, also specimens of chalk from Ramsgate, England.

J. C. A. Jackson—A small collection of fossils from Nanaimo and vicinity.

E. W. Beltz—Foraminiferal sand and fossils from Trinidad.

T. B. Williams—Fossil root, ammonite, from Cumberland and vicinity.

S. W. N. Norman—Fossils from Windermere and vicinity.

R. Racey—Fossil leaves and fish from Mount Kennedy, B. C.

DEPARTMENT OF FORESTRY

R. D. Prettie, Superintendent Forest Branch, Department of Natural Resources, Canadian Pacific Railway—A set of back numbers of the Canadian Forestry Magazine.

Red River Lumber Co., Westwood, California—Samples of incense cedar.

Baker Lumber Co., Waldo, B. C.—Samples of western larch.

Abernethy, Lougheed Logging Co., Ltd., Haney, B. C.—Exhibition log for University site at Point Grey. The Dominion Forestry Branch selected this log and sent a section of it to London, England, for display in the British Empire Exhibition, 1924. It was through their courtesy that the opportunity arose to secure the balance of the log for the University.

Dominion Forestry Branch—Samples of tree seed. Also co-operation in securing exhibition log above.

British Columbia Forest Branch—Sample of yew wood.

Capilano Timber Co., Ltd.—Cross-sections of the principal species of coast timber trees.

University of Toronto, Faculty of Forestry—Herbarium and laboratory specimens of forest trees, including leaves, fruits and wood.

SUGGESTED LOCAL SCHOLARSHIPS

As the number of Matriculation Scholarships offered at present is quite inadequate to the needs of the Province, a scheme which has great possibilities both for the growth of the University and the prosperity of the Province is earnestly recommended to consideration.

In the large universities, both of Great Britain and the United States, local or district scholarships have proved a strong bond between the community and the University, have brought the University close to the life of the young, and opened up the prospect of a University education to many who would not otherwise have contemplated it.

Such local or district scholarships might be established as Matriculation Scholarships, by City or Municipal Councils or other public bodies, or by private benefactors. They would be awarded by a local authority, but the University would reserve the right of confirmation.

In awarding such scholarships, standing in the Matriculation Examination need not be the only consideration. It is

desirable that regard should be had also to financial circumstances, character, and intellectual promise. Scholarships may be offered for students taking a particular course, and in this way the study of such sciences and technical branches of knowledge as have special importance for the industries of the district may be encouraged. In short, local scholarships may be arranged to meet local needs and to prepare the native sons of the Province to play their part in the development of its resources.

THE LIBRARY

The University Library consists of 49,700 volumes and about 9,000 pamphlets. It includes representative works in all the courses offered by the University, and a growing collection of works on other subjects. It also receives regularly 450 magazines and periodical publications devoted to literature, the sciences, and the transactions of learned societies. The Library is classified throughout on the Congressional system.

In general one or two books may be borrowed by students for a period of seven days, or for a shorter time should the books be in general demand. Books to which the teaching staff have specially referred their students are placed in a "Reserve" class. These are put on special shelves in the Reading-room accessible to all students. Reserved books are lent only for periods during which the Library is closed. Unbound periodicals are not issued on loan. Books that are costly, rare, or unsuitable for general circulation, are lent only under special conditions.

While the Library is primarily for the use of the staff and students of the University, its privileges are available to those of the general public who are engaged in research or special study, and who make personal application to the Librarian for such privileges.

During the session the Library is open from 8.45 a.m. to 10 p.m.; in vacation from 9 a.m. to 4 p.m. except on Saturdays, when the hours are from 9 a.m. to noon.

The University is deeply indebted to all who have made gifts to the Library in the past year. These gifts have been both valuable and numerous. Their very number prevents a detailed acknowledgment.

FACILITIES FOR UNIVERSITY WORK

Location

From its location at Vancouver, the University enjoys many natural advantages. The coast climate is the most favorable for work, and even in winter field classes in science and open-air games are carried on.

The University site, on which University buildings are now being erected, is unexcelled from the standpoints of both suitability and beauty of surroundings. The immediate environs embracing sea and mountains, rivers and plains, furnish exceptional facilities for field work in the sciences pure and applied. Thus the flora and fauna of land, river and sea may be collected as required, while the mountains afford biological and climatic zones ranging from mild temperate to arctic. For practical geology conditions are equally favorable. Having Nature herself, the University does not require the extensive museums necessary in less favorable situations.

One of the largest metal mines and one of the largest ore-dressing plants in the British Empire, a large smelter, many coal mines, logging camps, saw mills, pulp and paper mills, power plants, including hydro-electric installations, undeveloped water-powers, all on a large scale, are within, at most, a few hours' journey.

Vancouver is the industrial and commercial centre of the Province, and half its population lives in the immediate vicinity of the University. It is the terminus of several transcontinental railways, and is a rapidly growing world port. Industrial plants of almost every description are within easy reach and are generously opened to students of engineering for demonstration and study.

Students of economics, sociology and health have, in addition to the usual materials available in a city, those that are peculiar to a Pacific port where the Occident and Orient meet.

For practical training in Nursing and Health there are good hospitals, including the largest hospital in the Dominion, and for field work numerous nursing and health agencies.

Laboratories

The University is supplied with laboratories, draughting rooms, workshops and the necessary equipment for a thorough training in the undergraduate courses offered. Many departments are equipped, further, for one year of post-graduate work and certain lines of research. In the present temporary quarters accommodation is inadequate, necessitating many subdivisions of classes with attendant time-table and other difficulties, but with the new buildings now planned and under construction at the permanent site such handicaps will be entirely removed.

Agricultural Laboratories

By the nature of things, laboratory work in Agriculture cannot be conducted inside to the same extent as in the case of other sciences. On this account, provisions have been made at the University site whereby students in Agriculture receive laboratory instruction in the Departments of Agronomy, Animal Husbandry, Dairying, Horticulture, and Poultry Husbandry.

Thus the Department of Agronomy on its experimental fields affords an opportunity for laboratory studies in the testing and breeding of various field crops. Experiments are conducted to ascertain the influence on yield and quality of different modes of cultivation and rotation, and of the application of natural and artificial fertilizers. The Department of Animal Husbandry possesses outstanding collections and breeds of draft horses, dairy and beef cattle, hogs and sheep, which are used for laboratory judging purposes as well as for experiments in breeding and feeding. Several of these animals have made Provincial and Dominion records. In a special experimental

Dairy equipped with pasteurizers, coolers, separators, churns, cheese vats, etc., students receive instruction in the art and science of making hard and soft cheeses, butter, Devonshire cream, and other dairy products. A study is made of the influence of variations in quality, temperature and bacterial content of milk upon the flavor, quality and usability of the product. The experimental grounds of the Department of Horticulture and a provisional greenhouse contain varieties of tree fruits, bush fruits, berries, table vegetables, and ornamental trees, shrubs and flowers. This extensive material affords an opportunity for practical and experimental studies in seeding, planting, pruning, yielding power and quality of various horticultural crops, whether intended for consumption or decoration. The Department of Poultry Husbandry has a number of breeds of poultry, both for egg and meat production. Experiments in breeding, feeding, incubation and brooding are carried out, and many valuable data as well as outstanding high records have been secured.

The Dairy, the experimental fields of the Agronomy and Horticultural Departments, the barns, pens and animals belonging to the Animal Husbandry and Poultry Departments are visited every year by an increasing number of farmers, who realise more and more the value of the work and the material in these outside laboratories.

Herbarium

The University possesses a Herbarium of over 15,000 sheets illustrating the Provincial flora, including algæ, fungi, mosses, ferns, flowering plants. This has been accomplished largely through the co-operation of residents in all parts of British Columbia, in return for assistance in identification, or information regarding the usefulness or otherwise of native species.

There are several sets of specimens illustrative of poisonous and medicinal species, plants used by Indians, weeds, native trees, shrubs, and other species of economic importance.

The value of the Herbarium has been greatly enhanced by several donations of private herbaria. These include (1) the

"Eli Wilson collection" of between 1,000 and 2,000 specimens; (2) the "A. J. Hill collection" of about 2,500 specimens, and 100 water-colour illustrations of fungi; and (3) the "A. E. Baggs collection" of nearly 1,000 specimens.

The Herbarium is at present located in the Arts Building, where fire-proof accommodation has been provided.

Botanical Gardens

The Botanical Gardens are situated on the University site, Point Grey, and occupy 5 acres on the west side of the Campus. Here may be seen over 1,000 different species of native plants collected from all parts of British Columbia, including dry-belt, alpine, and coast species. One part of the gardens is devoted to the herbaceous collection, where plants are systematically arranged according to their families; another part is reserved for a native arboretum to illustrate the British Columbia species of trees and shrubs; another constitutes the nursery where duplicates are raised and plants for systematic research are assembled.

The economic flora is represented by several beds of medicinal plants, the nucleus of a Salicetum containing some of the best species and varieties of willows for basketry and ornamental purposes, the latter a donation of about fifty species from E. Versin, France.

Through the co-operation of Provincial correspondents numerous donations of seeds and plants are annually received; such donations help to make the native collection more complete.

Seeds of several hundreds of species of plants—mostly Himalayan—have been donated by the Botanical Survey of India, and as a result the University has the nucleus of a collection of Indian plants which are being acclimatized in British Columbia; these include some beautiful and interesting species of value in connection with the University classes in Botany.

The University, through this Department, offers assistance in the identification of native species, and desires to secure the co-operation of all interested in the flora, in the hope that such assistance and co-operation will aid in filling existing gaps in the collections of the Herbarium and Botanical Gardens.

The University Forest

A great asset to the University site is the forest, a remnant of the luxuriant stand that once covered the whole peninsula. Not only does it add very much to the beauty of the surroundings, but it will serve as a convenient demonstration and field study area for the Department of Forestry.

The forest, containing over 200 acres, is in the form of a long, narrow belt on the western side of the site, flanking Marine Drive for nearly two miles. It is typical of the lowland stands of the southern coast, and all the principal species of trees and shrubs of the region are represented, including Douglas fir, Western red cedar, Western hemlock, Sitka spruce, Grand fir, Broad-leaf maple, Alder, and many others.

It was logged in the early days of Vancouver, and since has been culled more than once for shingle bolts, firewood and poles. Fortunately most of the logging was done by horse, so the remaining stand was little injured, and there are still left representatives of the old trees as well as a large amount of young growth of different ages.

GENERAL INFORMATION

The Session

The University Year or Session is divided into two terms. The first begins on Tuesday, September 23rd, 1924, and the second on Monday, January 5th, 1925.

Courses of Study

For the Session 1924-25 the University offers instruction in the four years of each of the three Faculties, Art and Science, Applied Science (including Nursing), and Agriculture, leading to the degrees of Bachelor of Arts, Bachelor of Applied Science and Bachelor of Science in Agriculture. It is also possible to proceed to a Master's degree in each Faculty (see "Regulations for Master's Degrees"). 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 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.

Physical Examination

In order to promote the physical welfare of the student body, every student, on entering the University, will be required to undergo a physical examination, to be 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 year.

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 approved boarding-houses which receive men or women students, but not both, may be obtained from the Registrar. 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. The cost of good board and lodging is from $35 per month upwards; of a room alone, $8 to $12 per month. A cafeteria is operated under the supervision of the Students' Council, and lunch and afternoon tea may be obtained there at very reasonable prices. Refreshments at social functions are also supplied.

ADMISSION TO THE UNIVERSITY

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

1. Except under special circumstances no student under the age of sixteen is admitted to the First Year Courses in the Faculty of Arts and Science, and no student under the age of seventeen to the Second Year Courses in the Faculty of Arts and Science nor to the First Year Courses in the Faculties of Agriculture and Applied Science.

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.

3. Candidates for admission to the work of the First Year in the Faculty of Applied Science (except Nursing) are required to have completed the First Year in the Faculty of Arts and Science or to have passed the Senior Matriculation Examination of the Province of British Columbia, or to submit certificates showing that they have passed an equivalent examination elsewhere.

4. Students who have passed the Senior Matriculation Examination are admitted to the courses of the Second Year in the Faculty of Arts and Science.

5. 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.

6. *Prospective candidates who wish to enter by certificates other than Matriculation certificates issued in British Columbia*

should under no circumstances come to the University without having first obtained from the Registrar a statement of the value of the certificates they hold, as many of 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 Educational Department or University issuing such diploma or certificate. The fee for examination of certificates is $2.00.

7. 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.

8. No candidate under 18 years of age will be admitted to the University without complete Junior Matriculation; and no candidate over 18 years of age who has deficient Matriculation standing will be admitted without the special permission of the Faculty concerned.

9. The Junior and Senior Matriculation Examinations of the Province of British Columbia are arranged by the High School and University Matriculation Board of the Province. This Board consists of members appointed by the Department of Education and by the University. The requirements for Matriculation may be obtained in the publication, "Requirements for Matriculation," issued by the University, or in the "Courses of Study," issued by the Department of Education.

REGISTRATION AND ATTENDANCE

Those who intend to register as students of the University for the session 1924-25 *are required to make application to the Registrar before Friday, September* 19*th, on forms to be obtained at the Registrar's office.*

1. There are four classes of students:—

(a) Graduate students—Students who are pursuing courses of study in a Faculty in which they hold a degree, whether they are proceeding to a Master's degree or not. (*See "Regulations as to Master's Degree."*)

(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 but who have incomplete entrance qualifications or who are required to pass supplemental examinations in a year previous to that in which they are registered.

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

2. All students other than graduate students are required to attend *in person* at the office of the Registrar before Friday, September 19th, to furnish the information necessary for the University records; to register 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. After the above date a fee of $2.00 will be charged for late registration.

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. Each student on registering will receive a class card for each class for which he has registered. Only students provided with such cards will be admitted to a class. Provisional cards will be given to any students whose status is subject to consideration.

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 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 study. 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 immediately on return to University work. In cases of deficient attendance students may (with the sanction of the Dean and the Head of the Department concerned) be excluded from the final examination in a course; but unless the unexcused absences exceed one-fourth of the total number of lectures in a course, such students may sit for supplemental examination.

FEES

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

1. The sessional fees are as follows:

FOR FULL AND CONDITIONED UNDERGRADUATES

In Arts and Science—
First Term, payable on or before Oct. 6th.....$40.00
Second Term, payable on or before Jan. 19th.. 35.00
———$ 75.00

In Applied Science—
First Term, payable on or before Oct. 6th.....$50.00
Second Term, payable on or before Jan. 19th.. 50.00
——— 100.00

In Agriculture—
First Term, payable on or before Oct. 6th.....$40.00
Second Term, payable on or before Jan. 19th.. 35.00
——— 75.00

In Nursing—
First Term, payable on or before Oct. 6th.....$40.00
Second Term, payable on or before Jan. 19th.. 35.00
——— 75.00

In Teacher Training Course—
First Term, payable on or before Oct. 6th.....$20.00
Second Term, payable on or before Jan. 19th.. 20.00
——— 40.00

Alma Mater Fee—Payable on or before Oct. 6th 7.00
Caution Money—Payable on or before Oct. 6th 5.00

FOR PARTIAL STUDENTS

Fees per "Unit"—Payable on or before Oct. 6th 7.00
Alma Mater Fee—Payable on or before Oct. 6th 7.00
Caution Money—Payable on or before Oct. 6th 5.00

FOR GRADUATES

Registration and Class Fees—Payable on or before Oct. 13th 10.00

After these dates 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, etc. If the balance to the credit of a student falls below $1.50, a further deposit of $5.00 may be required.

2. Immediately after October 18th and February 2nd, the Bursar will notify students who have not paid their fees that steps will be taken to ensure their exclusion from classes while the fees remain unpaid.

3. Students registering after October 6th shall pay their fees at the time of registration, failing which they become subject to the provisions of Regulation 2.

4. Special fees are:—

Regular supplemental examination, per paper	$ 5.00
Special examination, per paper	7.50
Graduation	20.00

Supplemental examination fees must be paid two weeks before the examination, special examination fees when application for examination is made, and graduation fees two weeks before Congregation.

MEDALS, SCHOLARSHIPS AND PRIZES

Medals for 1924-25

The Governor-General's 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 in the Faculty of Arts and Science. Honour and pass students may compete for this medal.

The Historical Society Gold Medal

A gold medal, donated by E. W. Keenleyside, Esq., and known as the Historical Society Gold Medal, will be open to the members of the graduating class. The award will be made by the Department of History, on the basis of the student's standing in the courses in History which he has taken during his undergraduate course, and the general interest he has shown in the subject.

The Historical Society Silver Medal

A silver medal, donated by Hugh Keenleyside, Esq., of the class of 1920, and known as the Historical Society Silver Medal, will be awarded in the Third Year on the same basis as the gold medal.

Scholarships for 1924-25

The Rhodes Scholarship

An annual scholarship at one of the colleges of Oxford is assigned by the trustees of the late Mr. Cecil J. Rhodes to the Province of British Columbia. Each scholarship is tenable for three years, and is of the value of £300 a year, supplemented until further notice by an annual bonus of £50.

In accordance with the wish of Mr. Rhodes, the election of candidates will depend upon: (1) Force of character, devotion to duty, courage, sympathy, capacity for leadership; (2) Ability and scholastic attainments; (3) Physical vigor, as shown by participation in games or in other ways.

A candidate must be a British subject, with at least five years' domicile in Canada, and unmarried. He must have passed his nineteenth but not his twenty-fifth birthday on October 1st of the year *for* which he is elected.

He must be at least in his Sophomore Year in some recognized degree-granting university or college of Canada, and (if elected) complete the work of that year before coming into residence at Oxford.

He may compete either in the province in which he has acquired any considerable part of his educational qualification, or in the province in which he has his ordinary private domicile, home, or residence.

Candidates for the 1925 scholarship must have their applications, with all the required material, in the hands of the Secretary of the Selection Committee not later than October 20th, 1924. The committee is at present constituted as follows:

Chief Justice Hunter (Chairman), Mr. Justice Gregory (Deputy-Chairman), Messrs. H. R. Bray, A. G. Cameron, H. T. Logan (Secretary), E. A. Munro.

The following have been awarded the Rhodes scholarships from the Province:

A. W. Donaldson	1904	E. V. Gordon	1915
I. I. Rubinowitz	1905	E. W. Berry	1916
H. R. Bray	1906	S. Lett	1919
T. Larsen	1907	J. H. Mennie	1919
H. T. Logan	1908	L. A. Mills	1920
A. Yates	1909	W. H. Coates	1920
S. C. Dyke	1910	R. L. Vollum	1921
J. B. Clearihue	1911	L. W. McLennan	1922
A. N. King	1912	N. A. Robertson	1923
G. L. Haggen	1913	G. S. Livingston	1924
B. E. Atkins	1914		

The 1851 Exhibition Scholarship

Under the revised conditions for the award of the 1851 Exhibition 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 are of the value of £250 per annum, tenable, ordinarily, for two years. They are granted only to British subjects under 26 years of age, who have been *bona fide* students of science of not less than three years' standing.

The University Women's Federation Scholarship

The scholarship of the Federation of University Women in Canada, of the value of $1,000, available for study or research, is open to any woman holding a degree from a Canadian university. In general, preference will be given to those candidates who have completed at least one year of graduate study and have some definite research in preparation. Any candidate must be recommended by her own university; if successful in her application, she may pursue her studies at any university satisfactory to the Committee of Selection. Applications and recommendations must be received not later than February 1st.

The W. C. Macdonald Scholarship

A scholarship in Agriculture of the value of $500 for one year's postgraduate study at Macdonald College, P.Q., has been put at the disposal of the University by W. C. Macdonald (Registered). The scholarship is primarily intended for graduates in Agriculture of The University of British Columbia, but, failing such, will be open to any resident of the Province who is a graduate of an agricultural college.

The Anne Wesbrook Scholarship

This scholarship, of the value of $100, given by the Faculty Women's Club of the University, will be open to both men and women graduates of this university who intend to pursue post-graduate study in this or any other approved university.

Applications for this scholarship should be made to the Registrar not later than the last day of the final examinations. Nomination for the award will be made by a joint meeting of the Committee on Scholarships and the Committee on Student Affairs of the Faculty Women's Club.

Graduate Scholarship in Applied Science

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

Applications should be made to the Registrar not later than the last day of the final examinations.

The Captain LeRoy Memorial Scholarship

This scholarship, of the value of $250, donated by the Universities Service Club, will be awarded for the academic year 1924-25 to a returned soldier student in attendance at The University of British Columbia. Applications for this Scholarship may be made by returned soldier students who intend doing Second, Third, or Fourth Year work at The University of British Columbia, or post-graduate work at any approved institution. Each application must contain a statement of the academic record, the war record, and the special claims of the applicant, with two supporting references, and must be in the hands of the Registrar not later than April 30th.

The award will be made by Senate, upon recommendation of Faculty acting in consultation with the Executive of the Universities Service Club.

ROYAL INSTITUTION SCHOLARSHIPS AND LOANS

(a) Matriculation Scholarships

1. Seven General Proficiency Scholarships will be awarded on the result of the Junior Matriculation Examinations.

A. One of $150 to be awarded to the candidate who obtains the highest standing in the Province.

B. Six of $100 each, one for each of the following districts, to be awarded to the candidate from each of such districts who obtains the highest standing among the candidates from the district:—

1. Victoria District.
2. Vancouver Island (exclusive of Victoria District) and Northern Mainland.

3. Vancouver District.
4. Fraser Delta (exclusive of Vancouver District, but including Agassiz).
5. Yale.
6. Kootenays.

NOTE.—*In the district from which the winner of A comes, B will be awarded to the candidate standing second.*

These scholarships can be enjoyed only by students in attendance at The University of British Columbia.

2. A student who wins a Junior Matriculation Scholarship and proceeds to Senior Matriculation in his own district high school may have the scholarship reserved for him for one year, to be awarded subject to his obtaining satisfactory standing in the Senior Matriculation Examination.

3. A student winning a Matriculation Scholarship and taking his first two years of the Arts course in an affiliated institution, may be allowed to enjoy the privilege of the scholarship if he attends the University during the Third Year.

4. Sums accruing from unawarded Matriculation Scholarships may be used in the form of bursaries or loans.

(b) First Year Scholarships

Four scholarships of $75 each (three in Arts and Science and one in Applied Science) will be awarded for general proficiency in the work of the First Year.

(c) Student Loans

A fund is provided from which a loan not to exceed $100 may be made to a deserving student who is in need of pecuniary assistance. Application for such a loan should be addressed to the President of the University.

UNIVERSITY SCHOLARSHIPS

1. A scholarship of the value of $200 may be awarded to a graduate student who shows special aptitude for post-graduate

studies. (Applications should be made to the Registrar not later than the last day of the final examinations.)

2. Two scholarships in Arts and Science of $75 each will be awarded to students proceeding to the Fourth Year, the award to be based on the work of the Third Year.

3. Three scholarships (two in Arts and Science and one in Applied Science) of $75 each will be awarded to students proceeding to the Third Year, the award to be based on the work of the Second Year.

4. A scholarship in Agriculture of $75 will be awarded to a student proceeding to the Second Year, the award to be based on the work of the First Year.

5. Two scholarships of $75 each may be awarded to returned soldiers taking the work of the First Year, the award to be based on the work of the year.

6. One scholarship of $75 will be awarded upon the results of the Senior Matriculation Examination.

The Shaw Memorial Scholarship

This scholarship of $137.50, founded by friends of the late James Curtis Shaw, Principal of Vancouver College, and afterwards of McGill University College, Vancouver, will be paid throughout his undergraduate course to any child of the late Principal Shaw who is in regular attendance at the University as a fully matriculated student; when there is no such candidate, it 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 the following three subjects, English, Latin, Greek, and proceeding to the work of the Third Year.

The McGill Graduates' Scholarship

This scholarship of $137.50, founded by the McGill Graduates' Society of British Columbia, will be awarded upon the results of the examinations of the Second Year in Arts and Science to the undergraduate student standing highest in

English and French, and proceeding to the work of the Third Year.

The Dunsmuir Scholarship

This scholarship of $165, founded by the Hon. James Dunsmuir, will be awarded upon the results of the examinations of the Third Year in Applied Science to the undergraduate student standing highest in the Mining Engineering Course, and proceeding to the work of the Fourth Year.

NOTE.—The above three scholarships were originally donated to the Royal Institution, and have, with the consent of the donors, been transferred by the Board of Governors of that institution to The University of British Columbia.

The Terminal City Club Memorial Scholarship

This scholarship, of the value of $110, 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 upon the results of the examinations of the Second Year in Arts and Science to the undergraduate student standing highest in English and Economics, and proceeding to the work of the Third Year.

The Arts '19 Scholarship

This scholarship, of the value of $150, given by the students of Arts '19, will be awarded on the recommendation of the Faculty Committee on Scholarships to a Third Year student in Arts and Science proceeding to the Fourth Year.

The award will be based on (1) literary and scholastic attainments, and (2) exhibition of moral force of character and instincts to lead and take an interest in fellow-students and in University activities.

This scholarship will be paid in full to the winner at the beginning of the session.

The Scott Memorial Scholarship

This scholarship, of the annual value of $110—the proceeds of an endowment of $2,000—founded by the Imperial

Order of the Daughters of the Empire of the City of Vancouver, in memory of Captain Robert Falcon Scott, 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.

The British Columbia Fruit Growers' Association Scholarship

This scholarship, of the annual value of $100, donated by **the British Columbia Fruit Growers' Association, will be awarded to a student taking the horticultural options of the** Third Year. To qualify for this scholarship candidates must attain scholarship standing, not only in horticultural subjects, **but also in the work of the year, and must be proceeding to the Horticultural Course of the Fourth Year—the year in which the** scholarship shall be enjoyed.

The United Farmers of British Columbia Scholarship

A scholarship of the value of $50, donated by the United Farmers of British Columbia, will be awarded to the candidate under nineteen years of age ranking highest in the competitive examinations conducted at the close of the extension schools in agriculture held under the auspices of the U. F. B. C. in co-operation with the Faculty of Agriculture of the University. This scholarship may be enjoyed by the winner either in the regular four years' course or in the series of short courses offered each year.

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

The sum of $12,000, given to the University by the Administrators of the Khaki University of Canada, provides a fund to assist returned soldiers who are in actual need of money to enable them to complete their courses, and to found scholarships, in the award of which preference should be given to the sons and daughters of soldiers of the Great War.

Prizes for 1924-25

The British Columbia Dairymen's Association Prizes

A sum of $100 is given annually by the British Columbia Dairymen's Association to encourage the judging of live stock among students in the Department of Animal Husbandry. It is awarded in three equal amounts to the students winning places on the team that represents the University in stock-judging at the Pacific International Exposition.

The Convocation Prize

This prize, of the value of $50, donated by Convocation of The University of British Columbia, will be awarded annually to the student obtaining first place in the Fourth Year of Applied Science.

The Gerald Myles Harvey Prize

A book prize of the value of $50, given by J. N. Harvey, Esq., in memory of his son, Gerald Myles Harvey, who died on active service, will be awarded to the student of the Third Year in Arts and Science who submits the best essay on a specified subject in Economics or Political Science. The subjects for the Session 1924-25 are as follows:

1. How far is Canada losing by emigration? Is this loss avoidable, and if so, by what means?

2. Compare, from the standpoint of British Columbia, the relative advantages of local banks without branches and the present branch-bank system.

3. Is it economically or socially advantageous to restrict the export of raw materials from Canada?

The Vancouver Women's Canadian Club Scholarship

This prize, of the value of $110, given by the Women's Canadian Club, will be awarded to the student obtaining first place in Canadian History.

The Historical Society Prize

Through the generosity of R. L. Reid, Esq., K.C., the Historical Society of the University has been able to offer, annually, a prize of $25, open to all students in Arts and Science, for the best essay on an assigned subject.

The University 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 Vancouver Women's Conservative Association Prize

This prize, of the value of $25, given by the Vancouver Women's Conservative Association, is open to students taking the Mathematics of the First Year in the Faculty of Arts and Science. In awarding the prize preference will be given to the son or daughter of a deceased soldier, provided satisfactory standing is secured in the subject.

Graduate Bursary in Mining and Metallurgy

Through the British Columbia Division of the Canadian Institute of Mining and Metallurgy, the Granby Consolidated Mining and Smelting Company, and the Crow's Nest Coal Company, each offer to give employment annually to two selected graduates of The University of British Columbia, to enable them, while earning a livelihood, to obtain practical experience and personal knowledge of the various phases of metal mining or smelting, and coal mining, respectively, under favorable conditions and in the minimum of time.

The Canadian Institute of Mining and Metallurgy Bursary

The British Columbia Division of the Canadian Institute of Mining and Metallurgy offers a bursary of $50 to be awarded on the recommendation of the Faculty of Applied Science to the student taking the courses in Mining, Metallurgy, or

Geological Engineering, who, in the judgment of the Faculty, will be most benefited thereby.

The Players' Club Prize

A prize of the value of $50, donated 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.

The Letters Club Prize

A prize of $25, presented by R. L. Reid, Esq., K.C., honorary member of the Letters Club, is offered annually for the best essay by an undergraduate student in Arts on an assigned subject in Canadian literature. The award will be made on the recommendation of the Department of English.

The Provincial Board of Health Prizes

The Provincial Board of Health of the Province of British Columbia offers two prizes of $60 and $40 for competition in the Short Course of Public Health Nursing.

P. E. O. Sisterhood Prizes

A prize of the value of $25, given by Chapter A of the P. E. O. Sisterhood, will be awarded to the woman student who attains the highest standing in the English of the First Year in Arts and Science and proceeds to the English of the Second Year.

A prize of the value of $25, given by Chapter C of the P. E. O. Sisterhood, will be awarded to the woman student of the First Year in Arts and Science who presents the best essay on an assigned topic, selected by the Department of English, subject to the approval of the donors. The essay must be handed to the Head of the English Department not later than January 15th.

GENERAL REGULATIONS

1. Scholarships, medals, and prizes will be awarded at the close of the session, and in case of Matriculation Examinations, after the June examination.

2. 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.

3. No candidate will be permitted to hold more than one scholarship, but anyone who would, but for this provision, have been entitled to a second scholarship will have his name published in the lists.

4. A scholarship which cannot be awarded because of Rule 3 will be granted to the candidate next in order of merit provided that he has obtained the marks required by Rule 2.

5. In the case of scholarships awarded to undergraduates, the successful candidate, in order to retain his scholarship, must proceed with his course to the satisfaction of the Faculty concerned, but the Faculty may, upon satisfactory reasons being shown, permit a scholar to postpone attendance for a year without forfeiting the scholarship, the payment of the scholarship being also postponed.

6. The scholarships will be paid in three instalments during the session following their award—on the 15th of November, the 15th of January, and the 15th of March.

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 or student loans.

THE

FACULTY

OF

ARTS AND SCIENCE

TIME TABLE

FACULTY OF ARTS

NOTE: Students will report to the Heads of the various Departments for

KEY TO THE ROOMS: X, Y and Z are in the Auditorium; Ch is the Baptist Lecture Room; G is Geology Lecture Room; 23, 31, 32, 33 and 34 are in the are in the Physics Building; CB is in the Commercial Building.

MORNINGS

	Monday	Room	Tuesday	Room	Wednesday	Room
9	Economics 3	Ch	Economics 2	23	Economics 3	Ch
	English 1 a	XYZ	English 1 b	XYZ	English 1 a	XYZ
	Secs. 1, 2, 3, 4, 5.	CP	Secs. 6, 7, 8, 9, 10, 11	C, Ch, M2	Secs. 1, 2, 3, 4, 5	CP
	English 13	23			English 13	23
	French 2	St 31,34	French 2	32,31,34	French 2	St,31,34
	Secs. a, b, c		Secs. d, e, f		Secs. a, b, c	
	Geology 3 and 4	G	Geology 5 and 12	G	Geology 3 and 4	G
	Greek 1	32	Latin 2	33	Greek 1	32
	Heredity	B	Latin 5	S3	Heredity	B
	Mathematics 10	CB	Plant Histology	B	Mathematics 10	CB
	Philosophy 1 a	33	Plant Physiology	B	Philosophy 1 a	33
	P. H. Nursing	.....	Zoology 2	B	P. H. Nursing	.....
			Zoology 3	B		
10	Chemistry 3	C	Economics 1 c	Ch	Chemistry 3	C
	Economics 1 a	Ch	English 17	34	Economics 1 a	Ch
	Economic Flora	B	French 4 a	33	English 9	Z
	English 9	Z	Geology 2	G	French 3 b	34
	French 3 b	34	Government 1	CB	French 4 b	31
	French 4 b	31	Greek 2	.....	Geology 1	G
	Geology 1	G	History 6	St	Geology 7	G Lab.
	German 1	32	Mathematics 1 b	XYZ	German 1	32
	History 5	St		C23	History 5	St
	Mathematics 1 a	X, Y, 23, 33, M2	P. H. Nursing	B	Mathematics 1 a	X, Y, M2 23, 33
	P. H. Nursing	B	Philosophy 2	31	P. H. Nursing	B
	Physics 1 b	P	Physics 1 a	P	Physics 1 b	P
	Physics 3	S3	Plant Pathology	B	Physics 3	S3
11	Biology 1	P	Botany 1	B	Biology 1	P
	Chemistry 7	C	Chemistry 4	C	Chemistry 7	C
	Economics 1 b	X	Economics 1 d	X	Economics 1 b	X
	Economics 7 (not given)	.....	French 1	33, M3,	Economics 7 (not given 1924-25)	.....
	English 14	CB	Secs. e, f, g, h	M2, G	English 14	CB
	French 1	33, Y,	French 3 a	23	French 1	33, Y
	Secs. a, b, c, d	Ch, M2	Geology 6	.....	Secs. a, b, c, d	Ch, M2
	French 4 d	31	German 2	34	French 4 d	31
	Geology 8	G. Lab.	Government 2	32	Geology 8	G Lab.
	German, Beginners	32	History 3	Y	German, Beginners	32
	Government 3	S4	History 9	St	Government 3	S4
	History 2	G	Latin 1 b	Z	History 2	G
	History 7	St	Philosophy 8	31	History 7	St
	Latin 1 a	Z	Physics 2 (not given 1924-25)	.....	Latin 1 a	Z
	Mathematics 2	23			Mathematics 2	23
	Zoology 1	B			Zoology 1	B

—1924-25

AND SCIENCE

arrangements for those subjects not in the Time Table.

Church; St is St. George's Church; C is Chemistry Lecture Room; P is Physics Arts Building; M1, M2 and M3 are in the Mining Building; S1, S2, S3 and S4

MORNINGS

THURSDAY	ROOM	FRIDAY	ROOM	SATURDAY	ROOM
Economics 2	23	Economics 3	Ch	Economics 2	23
English 1 b	XYZ	English 1 b	XYZ	English 1 a	XYZ
Secs. 6, 7, 8, 9, 10, 11	C, Ch, M2	Secs. 1, 2, 3, 4, 5	CP	Secs. 6, 7, 8, 9, 10, 11	C, Ch, M2
French 2	32	English 13	23	French 2	32
Secs. d, e, f	31, 34	French 2	St	Secs. d, e, f	31, 34
Geology 5 and 12	G	Secs. a, b, c	31, 34	Geology 10	.....
Latin 2	33	Geology 3 and 4	G	Latin 2	33
Latin 5	S3	Greek 1	32	Latin 5	S3
Plant Histology	B	Mathematics 10	CB		
Plant Physiology	B	Philosophy 1 a	33		
Zoology 2	B	P. H. Nursing	B		
Zoology 3	B				
Economics 1 c	Ch	Chemistry 2	C	Economics 1 c	Ch
English 17	34	Economics 1 a	Ch	English 17	34
French 4 a	33	Economic Flora	B	French 4 a	33
Geology 2	G	English 9	Z	Geology 10	.....
Government 1	CB	French 3 b	34	Government 1	CB
Greek 2	.....	French 4 b	31	Greek 2	.....
History 6	St	Geology 7	G	History 6	St
Mathematics 1 b	XYZ C23	German 1	32	Mathematics 1 b	XYZ C23
P. H. Nursing	B	History 5	St	Philosophy 2	31
Philosophy 2	31	Mathematics 1 a	X, Y, M2 23, 33	Physics 1 a	P
Physics 1 a	P	P. H. Nursing	B		
Plant Pathology	B	Physics 1 b	P		
Botany 1	B	Economics 1 b	X	Economics 1 d	X
Chemistry 4	C	Economics 7 (not given 1924-25)	.....	French 1	33, M3
Economics 1 d	X	English 14	CB	Secs. e, f, g, h	M2, G
French 1	33, M3	French 1	33, Y	French 3 a	23
Secs. e, f, g, h	M2, G	Secs. a, b, c, d	Ch, M2	Geology 10	.....
French 3a	23	French 4 d	31	German 2	34
Geology 6	.....	Geology 8	G Lab.	Government 2	32
German 2	34	German, Beginners	32	History 3	Y
Government 2	32	Government 3	S4	History 9	St
History 3	Y	History 2	G	Latin 1 b	Z
History 9	St	History 7	St	Philosophy 8	31
Latin 1 b	Z	Latin 1 a	Z	Physics 2 (not given 1924-25)	.....
Philosophy 8	31	Mathematics 2	23		
Physics 2 (not given 1924-25)	.....	Zoology 5 and 6	B		

AFTERNOONS TIME TABLE

	MONDAY	ROOM	TUESDAY	ROOM	WEDNESDAY	ROOM
1	Chemistry 1 a	C	Bacteriology 1	.....	Chemistry 1 a	C
	Economics 5	P	English 1 b	GPC	Economics 5	P
	Economic Flora Lab.	.....	Secs. 1, 2, 3, 4, 5.	B 33	English 2 a	XYZ
	English 2 b	XYZ	Geology 1 Lab.	.....	French 1	23
	French 1	23	Mathematics 1 B	X, Y, Z	Secs. i, j, k	CB, Ch
	Secs. i, j, k	CB, Ch		CB, 23	Geology 7 Lab.	.....
	Greek, Beginners	32	Physics 4	.....	Greek, Beginners	32
	History 4	St	Plant Histology Lab.	.....	History 4	St
	Latin 3	31	Zoology 2 Lab.	.....	Latin 3	31
	Philosophy 4	34	Zoology 3 Lab.	.....	Philosophy 4	34
	Sociology (not offered 1924-25)	.....			Sociology (not offered 1924-25)	.....
	Zoology 5 Lab.	.....			Plant Histology Lab.	.....
	Zoology 6 Lab.	.....			Plant Pathology Lab.	.....
					Plant Physiology Lab	.....
					Zoology 5 Lab.	.....
					Zoology 6 Lab.	.....
2	Chemistry 1 b	C	Bacteriology 1	.....	Chemistry 1 B	C
	Chemistry 7 Lab.	.....	Chemistry 1 Lab. 2.	.....	Economics 6	X
	Economics 6	X	English 2 c	Z	English 10	CB
	Economic Flora Lab.	.....	English 11	X	English 16	Y
	English 10	CB	Geology 1 Lab.	.....	French 1	23, M2
	English 16	Y	Greek, Beginners	32	Secs. l, m	
	French 1	23, M2	Mathematics 4	34	Geology 7 Lab.	.....
	Secs. l, m		P. H. Nursing	B	Geography 1	G
	Geography 1	G	Physics 1 Lab. 3	.....	History 1	Z
	History 1	Z	Physics 3 Lab.	.....	History 8	St
	History 8	St	Plant Histology Lab.	.....	P. H. Nursing	B
	P. H. Nursing	B	Zoology 2 Lab.	.....	Philosophy 1 B	33
	Philosophy 1 b	33	Zoology 3 Lab.	.....	Plant Histology Lab.	.....
	Physics 1 Lab. 1	.....			Plant Pathology Lab.	.....
	Plant Physiology Lab.	.....			Plant Physiology Lab	.....
	Zoology 5 Lab.	.....			Zoology 5 Lab.	.....
	Zoology 6 Lab.	.....			Zoology 6 Lab.	.....
3	Bacteriology 1	.....	Chemistry 1 Lab. 2.	.....		
	Chemistry 1 Lab. 1	.....	Chemistry 2 Lab. b	.....		
	Chemistry 2 Lab. a	.....	English 6	X		
	Chemistry 7 Lab.	.....	English 18 b	Z		
	Economic Flora Lab.	.....	P. H. Nursing	B		
	Geology 5	G	Physics 1 Lab. 3	.....		
	Latin 1	Z	Physics 3 Lab.	.....	P. H. Nursing	B
	P. H. Nursing	B	Zoology 2 Lab.	.....	Plant Pathology Lab.	.....
	Physics 1 Lab. 1	.....	Zoology 3 Lab.	.....		
	Physics 4 Lab.	.....				
	Plant Physiology Lab.	.....				
	Zoology 5 Lab.	.....				
	Zoology 6 Lab.	.....				
4	Bacteriology 1	B	Chem. 1 Lab. 2	.....		
	Chemistry 1 Lab. 1	.....	Chem. 2 Lab. b	.....		
	Chemistry 2 Lab. a	.....	Physics 1 Lab. 4	.....		
	Chemistry 7 Lab.	.....	Physics 3 Lab.	.....		
	Economic Flora Lab.	.....	Zoology 2 Lab.	.....	Plant Pathology Lab.	.....
	Physics 1 Lab. 2	.....	Zoology 3 Lab.	.....		
	Physics 4 Lab.	.....				
	Zoology 5 Lab.	.....				
	Zoology 6 Lab.	.....				
5	Bacteriology 1	.....	Chem. 2 Lab. b	.....		
	Chem. 1 Lab. 1	.....	Physics 1 Lab. 4	.....		
	Chem. 2 Lab. a	.....				
	Physics 1 Lab. 2	.....				
	Physics 4 Lab.	.....				

—Continued

AFTERNOONS

THURSDAY	ROOM	FRIDAY	ROOM	SATURDAY	ROOM
Bacteriology 1	.....	Chemistry 1 a	C		
Botany 1 Lab.	.....	Economics 5	P		
English 1 a	G, P, C	English 2 a	XYZ		
Secs. 6, 7, 8, 9, 10, 11	B, CB, M2	French 1	23		
		Secs. i, j, k	CB, Ch		
Geology 1 Lab.	.....	Geology 2 Lab.	.....		
Mathematics 1 B	XYZ 23, 33	Greek, Beginners	32		
		History 4	St		
Physics 4	.....	Latin 3	31		
Zoology 1 Lab.	.....	Philosophy 4	34		
		Sociology (not offered 1924-25)	.....		
Bacteriology 1	.....	Biology 1 Lab. 1	.....		
Botany 1 Lab.	.....	Chemistry 1 b	C		
English 11	X	Economics 6	X		
Geology 1 Lab.	.....	English 10	CB		
German, Beginners	33	English 16	Y		
Greek 1	32	French 1	23, M2		
Mathematics 4	34	Secs. l, m			
P. H. Nursing	B	Geography 1	G		
Physics 1 Lab 5	.....	Geology 2 Lab.	.....		
Zoology 1 Lab.	.....	History 1	Z		
		History 8	St		
		Philosophy 1 b	33		
		Physics 1 Lab. 7	.....		
Botany 1 Lab.	.....	Biology 1 Lab. 1	.....		
Chem. 1 Lab. 3	.....	Chemistry 1 Lab. 4	.....		
Chemistry 2 Lab. b	.....	Chemistry 2 Lab. a	.....		
Chemistry 3 Lab. b	.....	Chemistry 3 Lab. a	.....		
English 6	X	Physics 1 Lab. 7	.....		
English 18 b	Z	Physics 2 Lab. (not given 1924-25)	.....		
P. H. Nursing	B				
Physics 1 Lab. 5	.....				
Zoology 1 Lab.	.....				
Botany 1 Lab.	.....	Biology 1 Lab. 2	.....		
Chemistry 1 Lab. 3	.....	Chemistry 1 Lab. 4	.....		
Chemistry 2 Lab. b	.....	Chemistry 2 Lab. a	.....		
Chemistry 3 Lab. b	.....	Chemistry 3 Lab. a	.....		
Physics 1 Lab. 6	.....	Physics 1 Lab. 8	.....		
Zoology 1 Lab.	.....	Physics 2 Lab. (not given 1924-25)	.....		
Chemistry 1 Lab. 3	.....	Biology 1 Lab. 2	.....		
Chemistry 2 Lab. b	.....	Chemistry 1 Lab. 4	.....		
Chemistry 3 Lab. b	.....	Chemistry 2 Lab. a	.....		
Physics 1 Lab. 6	.....	Chemistry 3 Lab. a	.....		
		Physics 1 Lab. 8	.....		

Faculty of Arts and Science Supplemental Examinations

SEPTEMBER, 1924

Date	Hour	First Year	Second Year	Third Year
Wednesday, September 10th	9 A.M.	History 1, 2, 3	History 1, 2, 3	To be arranged
	1 P.M.	English Literature	English Literature	
Thursday, September 11th	9 A.M.	Latin Authors	Latin Authors	
	1 P.M.	Latin Composition, Sight, and History	Latin Composition, Sight, and History	
			Calculus	
Friday, September 12th	9 A.M.	French Authors	French Authors	
	1 P.M.	French Grammar	French Grammar	
Saturday, September 13th	9 A.M.	Physics 1	Physics 1, 2, 3	
			Philosophy 1	
Monday, September 15th	9 A.M.	Geometry	Geometry	
		Greek	Greek	
		Trigonometry	Botany 1	
			Zoology 1	
	1 P.M.	Chemistry 1	Chemistry 1, 2	
		German	German	
Tuesday, September 16th	9 A.M.	Algebra	Algebra	
	1 P.M.	English Composition	English Composition	
			Geology 1, 2	
Wednesday, September 17th	9 A.M.	Economics 1	Economics 1, 2	
	1 P.M.	Biology 1	Biology 1	
		Geography	Geography	

FACULTY OF ARTS AND SCIENCE

COURSES LEADING TO THE DEGREE OF B.A.

The degree of B.A. is granted with Honours or as a Pass degree. Four regular sessions of class-room work from Junior Matriculation or three from Senior Matriculation are required.

A double course in Arts and Science and Applied Science is offered, leading to the degrees of B.A. and B.A.Sc. (*See Page 144.*)

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.

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.

NOTE.—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.

FIRST AND SECOND YEARS

1. The work of the first two years consists of 30 units, 15 of which must be taken in each year. Details of the courses are given by the various departments and appear at pages 64 to 116.

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*) Economics 1, or History 1 or 2 or 3, or Philosophy 1..... 3

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

(*f*) Three courses—not already chosen—selected from the following:—
Biology 1, Botany 1, Chemistry 1, Chemistry 2, Economics 1, Economics 2, French 1, French 2, Geography 1, Geology 1, Geology 2, German 1, German 2, Greek 1, Greek 2, History 1, History 2, History 3, Latin 1, Latin 2, Mathematics 2, Mathematics 3, Mathematics 4, Philosophy 1, Physics 1, Physics 2, Physics 3, Zoology 1.... 9

NOTE.—Botany 1, Zoology 1, Geology 1 and 2 and History 3 are not open to First Year students. Economics 1, and Philosophy 1 are open only to First Year students if the permission of the Heads of these departments is obtained

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

3. A student taking three languages in the first two years may defer the course selected under *e* (above) to the Third or Fourth Year.

NOTE (for students intending to enter the Faculty of Applied Science)—Physics 1 must be taken in the First Year. Chemistry 1 or Biology 1 will be accepted in lieu of the corresponding course in First Year Applied Science. French is advisable for students intending to enter Geological Engineering.

On or before March 31st of each year, all students in their Second Year must submit to the Dean of the Faculty a scheme of the courses which they propose to take during their last two years.

THIRD AND FOURTH YEARS: PASS CURRICULUM

1. The work of the Third and Fourth Years consists of 30 units, of which students must take, in their Third Year, not less than 15 units or more than 18.

2. A minimum of 15 units must be taken in two Major subjects, at least 6 units in each, and a minimum of 6 units in some other subject or subjects. Work in the First or Second Year is required in each of the Major subjects, except in the case of Bacteriology. Both Major subjects must be chosen from one of the following groups:

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

(*b*) Chemistry, Physics, Mathematics.

(*c*) Economics, Philosophy, Mathematics.

(*d*) English, Greek, Latin, French, German, History, Economics, Philosophy.

3. Details of courses available in the Third and Fourth Years are furnished by the various departments, and appear at Pages 64 to 116.

Any course not taken in the First and Second Years may be taken in the Third or Fourth Years, except History 1, 2, 3, but 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.

4. During the Fourth Year one course of private reading, to count not more than 3 units, may be taken with the consent of the department concerned.

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. 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.

4. 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.

5. 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 ranking.

6. The following Honour courses are regularly offered, and other Honour courses may be arranged with the department or departments concerned.

HONOUR COURSES IN SINGLE DEPARTMENTS

Biology (Botany Option)

Prerequisites:—Biology 1, Chemistry 1, and Botany 1. Physics 1 and Zoology 1 are required before completion of the course and should be taken as early as possible.

Required Courses:—Botany 3, 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, Zoology 1, Chemistry 1.

Physics 1 and Botany 1 are required before completion of the course and should be taken as early as possible. Students are also advised to take Chemistry 2 and 3.

Required Courses:—Zoology 2, 3, 5, 6.

Optional Courses:—Zoology 4, 7, 8; 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 and 9.

Classics

Course:—Any three of Greek 3, 5, 6, 7, and any three of Latin 3, 4, 5, 6.

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.

Course:—Economics 2 if not already taken, any 15 further units in the department, and 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.

Work in this department should be supplemented by a course in Ethics, by the foundational courses in History and by Mathematics 3.

English Language and Literature

Prerequisites:—A reading knowledge of French or German.

Course:—English 19 (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.

Candidates will be required to take a final Honours examination, written or oral, or both, on the History of English Literature. In the award of Honours special importance will be attached to the graduating essay and to the final Honours Examination.

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 should be taken. Chemistry 1 and Physics 1 should be taken in the First Year. Zoology 1, to which Biology 1 is prerequisite, should be taken in the Third Year in preparation for Geology 6.

Course:—18 units to be chosen from Geology 3, 4, 5, 6, 7, 8, 10, 12.

History

Course:—Any 18 units, of which the graduating essay will count 3 units. The seminar (which carries no credit) must be attended in either the Third or the Fourth Year. 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.

Mathematics

Prerequisites:—Mathematics 2, Physics 1 or 2.

Course:—Any 18 units in Mathematics, and Physics 3 and 4. Mathematics 3 or 4, but not both, may be taken among the requisite 18 units. A final Honours Examination is required.

Physics

Prerequisites:—Mathematics 2, Physics 1 or 2.

Course:—Mathematics 10, 16, 17. Physics 3 and 4, and 12 additional units.

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, 3 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, 4, 7 or 9, and 8 or 10. 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) Mathematics and Physics

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

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

Physics, at least 12 units, including Physics 3 if not already taken, and Physics 4.

(g) Any two of:

Economics, English, French, History, Latin, Philosophy.

Economics

Prerequisite:—A reading knowledge of French or German.

Course:—Any 12 units, including Economics 2, if not already taken.

English

Prerequisite:—A reading knowledge of French or German.

Course:—English 20 and 24, and any three of the English courses of the first division. The seminar must be attended during both of the final years, but credits which count for the B.A. degree will be given only for the work of the Fourth Year. A final Honours Examination, written or oral, or both, is required on the History of English Literature since 1500.

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

Prerequisites:—A reading knowledge of French.

Course:—History 4 or 5 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 either the Third or Fourth Year.

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.

EXAMINATIONS AND ADVANCEMENT

1. Examinations in all subjects and obligatory for all students are held in December and in April. 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.

2. In the First and Second Years, candidates will not be considered as having passed unless they obtain at least 40 per cent. on each subject and 50 per cent. on the aggregate. In the case of Beginners' Greek and German, however, the passing mark is 50 per cent. In the Third and Fourth Years, candidates must obtain at least 50 per cent. on 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 and will not be granted at any other time, except by special permission of the Faculty, and on payment of a fee of $7.50 per paper.

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, may, *on application in writing,* be exempted by the Faculty from attending lectures and passing examinations in subjects in which he has already made at least Second Class standing. 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.

Department of Bacteriology

Professor: R. H. Mullin.
Instructor: Freda L. Wilson.
Assistant:

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-books: Percival, *Agricultural Bacteriology*. Park & Williams, *Pathogenic Bacteria*.

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 reaction of the animal body against invasion by these bacteria. The course will include studies in immunity and the various diagnostic methods in use in public health laboratories.

Text-book: Park & Williams, *Pathogenic Bacteria*.

Prerequisite: Bacteriology 1.

Seven hours a week. Second Term. 2 units.

3. As in Dairying 3 (under Faculty of Agriculture). 2 units.

4. As in Dairying 7 (under Faculty of Agriculture). 1½ units.

5. *Immunity*:—A reading course. Tutorial instruction of one hour a week is arranged in connection with this course.

Text-book: Kolmer, *Infection, Immunity and Specific Therapy.*

Prerequisites: Bacteriology 1 and 2. 3 units.

Department of Botany

Professor: A. H. Hutchinson.
Assistant Professor: John Davidson.
Assistant Professor: Frank Dickson.
Assistant: L. Bolton.
Assistant: G. V. Wilby.

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 courses in Botany and Zoology.

Text-book: Smallwood, *Text-book of Biology,* Lea & Febiger, 1920.

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

2. *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 per week. First Term.

1 unit.

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.

Text-book: Bayliss, *Principles of General Physiology*, Longmans, Green.

Two lectures and four hours laboratory per week. Second Term. 2 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 for this course (2 units) 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 per week. 3 units.

2. *Morphology*:—A comparative study of plant structures. The relationships 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 per week. First Term. 2 units.

3. *Plant Physiology.*

Text-book: V. I. Palladin, *Plant Physiology,* English Edition (Translation of 6th Russian Edition), 1918, Blakiston.

Prerequisite:—Botany 1.

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

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: Stevens, *Plant Anatomy,* Blakiston.

Prerequisite: Botany 1.

Seven hours per week. Second Term. 2 units.

5. *Systematic Flora.*

5 (*a*). *Economic Flora.*—A course in Systematic Botany, illustrated by native and introduced plants of economic importance.

The classification of injurious and useful algae, fungi, mosses, ferns and flowering plants. The identification of weeds, native trees, poisonous, medicinal, and fodder plants.

The course, while designed particularly to meet the needs of students of Agriculture or Forestry, is open to students of the Third and Fourth Years in Arts.

Text-books: Henry, *Flora of Southern British Columbia,* Gage; Leavitt, *Outlines of Botany with Flora,* American Book Co.

Prerequisite: Botany 1.

Two lectures and the equivalent of four hours practical work per week, including laboratory, excursions and the preparation of collections. Second Term. 2 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.

Text-books: Morton & Lewis, *Native Trees of Canada,* Dominion Forestry Branch, Ottawa. Sudworth, *Forest Trees of the Pacific Slope,* Superintendent of Documents, Washington, D. C.

Prerequisite:—Botany 1.

One lecture and two or three hours laboratory or field work per week. 2 units.

6 (*a*) *General Plant Pathology*:—Identification and life histories of pathogens causing diseases of some common economic plants; means of combating them.

Text-book: Duggar, *Fungus Diseases of Plants,* Ginn.

Prerequisite: Botany 1.

One lecture and two hours laboratory per week. Second Term. 1 unit.

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 two hours laboratory per week during one-half of the Second Term. ½ unit.

6 (*c*) *Plant Pathology* (*Elementary*)—A course similar to 6 (*a*), but including more details concerning the diseases studied.

Text-book: Duggar, *Fungus Diseases of Plants,* Ginn.

Prerequisite: Botany 1.

Two lectures and four hours laboratory per 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 (*a*) or 6 (*c*).

One lecture and four hours laboratory per 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-book: Stevens, *The Fungi which cause Plant Disease,* Macmillan.

Prerequisite: Botany 1.

Two lectures and four hours laboratory per week. 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 (*a*) or 6 (*c*).

One lecture per week. Second Term. ½ unit.

7. *Plant Ecology.*

7 (*a*). *Forest Ecology and Geography.*—The inter-relations of forest trees and their environment; the biological characteristics of important forest trees; forest associations; types and regions; physiography.

Text-book: M. E. Hardy, *The Geography of Plants,* Oxford University Press.

Prerequisite: Botany 1.

One lecture and one period of field and practical work per week. Second 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 (Sept.-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 (two units) for this course. Other students desiring to ascertain their standing in the class may apply for a written test.

A detailed statement of requirements, and work covered in this course, is issued as a separate circular. Copies may be had on request.

Department of Chemistry

Professor: E. H. Archibald.
Professor of Organic Chemistry: R. H. Clark.
Associate Professor: W. F. Seyer.
Assistant Professor: M. J. Marshall.
Instructor: John Allardyce.
Assistant: A. E. Boss.
Assistant: W. E. Graham.
Assistant: Duncan Fraser.
Assistant: G. A. Fleming.
Assistant: L. F. Hallett.

1. *General Chemistry.*—This course is arranged to give a full exposition of the general principles involved in modern Chemistry and comprises a systematic study of the properties of the more important metallic and non-metallic elements and their compounds, and the application of Chemistry in technology.

Text-book: Alexander Smith, *Inorganic Chemistry,* Century.

Three lectures and three hours laboratory per week 3 units.

2. ***Qualitative and Quantitative Analysis.***

(*a*) *Qualitative Analysis.* — One lecture and six hours laboratory per week throughout the First Term. (During the first six weeks of the term an additional lecture may be substituted for a part of the laboratory work.)

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

Text-books: A. A. Noyes, *Qualitative Analysis,* Macmillan; Cumming & Kay, *Quantitative Analysis,* Gurney & Jackson.

Prerequisite: Chemistry 1.

One lecture and six hours laboratory per 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 fatty 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, *The Practical Methods of Organic Chemistry,* Macmillan.

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

4. ***Theoretical Chemistry.***—An introductory course on the development of modern Chemistry, including osmotic phenomena, the ionization theory, the law of mass action, and the phase rule.

Text-book: James Walker, *Introduction to Physical Chemistry,* Macmillan.

Prerequisite: Chemistry 2.

Two lectures and one hour laboratory per week. Second Term. 1½ 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 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 six hours laboratory per 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 and 3.

Two lectures per week. 2 units.

7. *Physical Chemistry.*—The lectures, which are a continuation of those given in 4, include the kinetic theory of gases, thermo-chemistry, the application of the principles of thermodynamics to chemistry, osmotic phenomena, applications of the dissociation theory, colloidal solutions, and a study of the physical properties of gases, liquids, and solids and of their chemical constitutions.

Text-books: Findlay, *Physico-Chemical Measurements,* Longmans.

For reference: Ramsay's Series of Books on Physical Chemistry, Longmans. Getman, *Theoretical Chemistry,* Wiley.

Prerequisites: Chemistry 2, 3 and 4.

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

8. *Electro-Chemistry.*—Solutions are studied from the standpoint of the osmotic and the dissociation theories. The laws of electrolysis, electroplating, electromotive force, primary and secondary cells are considered in some detail.

For reference: Le Blanc, *Elements of Electro-Chemistry,* Macmillan; Allmand, *Applied Electro-Chemistry,* Longmans, Green; Thompson, *Applied Electro-Chemistry,* Macmillan.

Prerequisite: Chemistry 4.

Three lectures and one hour laboratory per week. First Term. 2 units.

9. *Advanced Organic Chemistry.*—Important Organic reactions will be discussed. The Carbohydrates, Proteins, Enzyme Action, Terpenes and Alkaloids will be studied in more or less detail. In the laboratory some complex compounds will be prepared and quantitative determinations of carbon, hydrogen, nitrogen, sulphur and the halogens made with the view of identifying organic compounds.

For reference: Cohen, *Organic Chemistry,* Arnold.

Prerequisites: Chemistry 2 and 3.

Two lectures and one hour laboratory per week. 3 units.

10. *History of Chemistry.*—Particular attention will be paid to the development of chemical theory.

For reference: Von Meyer-McGowan, *History of Chemistry,* Macmillan.

Prerequisites: Chemistry 2, 3, and 4.

Two hours a week. Second Term. 1 unit.

11. *Stereochemistry.*—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 lectures may be taken without the laboratory work.

Prerequisites: Chemistry 7 and 9.

Lectures: 2 units. Laboratory: 1 unit. 3 units.

12. *Colloid Chemistry.*—The Chemistry of colloids and the application of colloidal chemistry to industry.

For reference: Zsigmondy-Spear, *Chemistry of Colloids,* Wiley; Reports on Colloid Chemistry by British Association for Advancement of Science.

Prerequisites: Chemistry 3 and 4.

Two hours a week. First Term. 1 unit.

14. *Organic Agricultural Chemistry.*—An introduction to the compounds of carbon, with special applications to problems in agriculture. The laboratory work will be adapted to the needs of the individual student.

Prerequisite: Chemistry 2.

Two lectures and one hour laboratory per week. 3 units.

15. *Dairy Chemistry.*—The chemistry of the carbohydrates, fats, and proteins will be discussed in outline, and the chemical processes involved in enzyme action and fermentation will receive consideration.

Text-book: Chamberlain, *Agricultural Chemistry,* Macmillan.

Prerequisites: Chemistry 2 and 3.

One lecture and one hour laboratory per week. 2 units.

Department of Classics

Professor: Lemuel Robertson.
Professor of Greek: O. J. Todd.
Associate Professor: H. T. Logan.
Assistant: A. N. St. John Mildmay.

Greek

Beginners' Course.—White, *First Greek Book,* Chap. I.-XLVIII.; Copp, Clark.

Four hours a week. Mr. Todd. 3 units.

1. Lectures.—White, *First Greek Book,* Chap. XLIX.-LXXX. Xenophon, *Anabasis I. and IV.,* Goodwin and White, Ginn.

History.—Shuckburgh, *History of Greece,* Chap. I.-V.; Unwin.

Four hours a week. Mr. Logan. 3 units.

2. *Lectures.*—Plato, *Apology and Crito,* Dyer-Seymour, Ginn; Aeschylus, *Prometheus Bound,* Wecklein-Allen, Ginn.

Composition.—*Arnold's Greek Prose Composition, Abbott,* Longmans. Selected passages will occasionally be set for Unseen Translation.

History.—Shuckburgh, *History of Greece,* Chap. VI.-X., Unwin.

Four hours a week. Mr. Logan, Mr. Todd. 3 units.

3. *Lectures.*—Thucydides, *History, Book VII.,* Marchant, Macmillan; Sophocles, *Antigone,* Jebb and Shuckburgh, Cambridge; Euripides, *Heracles,* Byrde, Oxford.

Literature.—Wright, *A Short History of Greek Literature,* American Book Company.

Three hours a week. Mr. Todd, Mr. Logan. 3 units.

(Given in 1924-25 and alternate years.)

5. *Lectures.* — Demosthenes, *Third Olynthiac, First and Third Philippics,* Butcher, Oxford (Vol. I.); Homer, *Iliad* (Selections), Monro, Iliad, 2 Vols., Oxford.

Literature.—Wright, *A Short History of Greek Literature,* American Book Company.

Three hours a week. 3 units.

(Given in 1925-26 and alternate years.)

6. *Lectures.*—Herodotus, *History,* Hude, Oxford (the equivalent of one book will be read); Lysias, *Oration* (Selections), Hude, Oxford; 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. Mr. Robertson, Mr. Todd. 3 units.

(Given in 1924-25 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 1925-26 and alternate years.)

8. *Composition.*—Obligatory for Honour students; to be taken in the Third Year.

One hour a week. Mr. Todd. 1 unit.

Latin

1. *Lectures.*—Cicero, *Pro Lege Manilia,* Select Orations and Letters, Allen and Greenough, Ginn; Ovid, *Elegiac Selections,* Smith, Bell.

Composition.—Bradley, *Arnold's Latin Prose Composition,* Longmans, to exercise 19.

History.—Boak, *A History of Rome to 565 A.D.,* Macmillan, chapters 1 to 13.

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

A fourth hour a week will be devoted to lectures on the Roman History prescribed. Attendance at these lectures is voluntary and no formal credit is given.

2. *Lectures.*—Horace *Odes, Bks. I, II,* (Selections), Virgil, *Aeneid, Bk. VI,* Page, Macmillan.

Composition.—Bradley, *Arnold's Latin Prose Composition,* Longmans, to exercise 40.

History.—Boak, *A History of Rome to 565 A.D.,* Macmillan, chapters 14 to 20.

Three hours a week. Mr. Robertson, Mr. Logan, Mr. Todd. 3 units.

A fourth hour a week will be devoted to lectures on the Roman History prescribed. Attendance at these lectures is voluntary and no formal credit is given.

3. *Lectures.*—Terence, *Phormio,* Sloman, Oxford; Virgil, *Aeneid, Bks. VII-XII,* Page, Macmillan.

Literature: Mackail, *Latin Literature,* Murray.

Three hours a week. Mr. Todd, Mr. Robertson. 3 units.

(Given in 1924-25 and alternate years.)

4. *Lectures.*—Horace, *Epistles,* Wilkins, Macmillan; Cicero, *Pro Sestio,* Holden, Macmillan; Cicero, *Selected Letters,* Pritchard & Bernard, Oxford.

Literature: Mackail, *Latin Literature,* Murray.

Three hours a week. 3 units.

(Given in 1925-26 and alternate years.)

5. *Lectures.*—Juvenal, *Satires,* Duff, Cambridge; Seneca, *Select Letters,* Summers, Macmillan. (Open only to those who have taken, or are taking, Latin 3 or 4.)

Three hours a week. Mr. Logan, Mr. Robertson. 3 units.

(Given in 1924-25 and alternate years.)

6. *Lectures.*—Tacitus, *Histories I., II.,* Godley, Macmillan; Garrod, *Oxford Book of Latin Verse* (Selections), Oxford. (Open only to those who have taken, or are taking, Latin 3 or 4.)

Three hours a week. 3 units.

(Given in 1925-26 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 History of the Roman Empire,* Bury, Murray.

Three hours a week. Mr. Logan. **3 units.**

(Given in 1924-25 and alternate years.)

8. *Composition.*—Obligatory for Honour students; to be taken in the Third Year.

One hour a week. Mr. Todd. 1 unit.

Department of Economics, Sociology and Political Science

Professor: Theodore H. Boggs.
Associate Professor: H. F. Angus.
Assistant Professor: S. E. Beckett.
Assistant: Doris Lee.

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.

Ely, *Outlines of Economics,* Macmillan, 1923. Clay, *Economics for the General Reader,* Macmillan.

Economics 1 is the prerequisite for all other courses in the department, but may be taken concurrently with Economics 2, or Government 1. This rule may be waived in the case of students of the Department of Nursing who may find it impossible to take both Economics 1 and Sociology 1.

Three hours a week. 3 units.

2. *History of Economic Life and Economic Thought.*—A brief outline of Economic Thought, and of Economic and Social conditions in England previous to 1776. A survey of the more important phases of European Organization from the time of the Middle Ages, with special reference to the Industrial Revolution, the Progress of Agriculture, and resultant social conditions. The development of modern Economic Thought, with a study of the influence of Smith, Malthus, Ricardo, Mill and others, and the place of the Deductive and Historical Methods.

Toynbee, *The Industrial Revolution,* Longmans. Price, *Political Economy in England,* Methuen; and assigned readings.

Three hours a week. Mr. Beckett. 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.

Hoxie, *Trade Unionism in the United States,* Appleton. Cole, *Guild Socialism,* Stokes. Simkhovitch, *Marxism versus Socialism,* Williams & Norgate. Spargo and Arner, *Elements of Socialism,* Macmillan; and assigned readings.

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

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.

Robertson, *Money,* Nisbet. Holdsworth, *Money and Banking,* Appleton, 1922. Phillips, *Readings in Money and Banking,* Macmillan; and assigned readings.

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

(Given in 1925-26 and alternate years.)

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.

Seligman, *Essays in Taxation,* Macmillan, 1921; and assigned readings.

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

(Given in 1924-25 and alternate years.)

6. *International Trade and Tariff Policy.*—A survey of the theory of international trade and the foreign exchanges; and a study of the commercial policy of the leading countries, with considerable attention to the British Dominions.

Bastable, *The Theory of International Trade,* Macmillan, 1903. Taussig, *Selected Readings in International Trade and Tariff Problems,* Ginn; and assigned readings.

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

(Given in 1924-25 and alternate years.)

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.

Haney, *Business Organization and Combination,* Macmillan. Walker, *Corporation Finance,* Alexander Hamilton Institute; and assigned readings.

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

(Given in 1925-26 and alternate years.)

8. *Provincial and Local Finance.*—A brief summary of fundamental principles of taxation. Sources of revenue, and tax systems of federal, and provincial and municipal governments, especially of British Columbia. Problems of War Finance. Chief problems of provincial and municipal finance and administration. Separation of sources of provincial and municipal revenues. Methods of municipal supervision and control. Government debts.

Assigned readings.

Three hours a week. Mr. Beckett. 3 units.
(Not given in 1924-25.)

Agricultural Economics

1. (*a*) *Farmer Movements.*—A study of the Grange; the Patrons of Industry; the Farmers' Alliance; the American Society of Equity; the Non-partisan League; the Farm Bureau Federation; the United Farmers, and other farmer organizations.

(*b*) *Rural Life.*—The country life movement; the rural school; the country church; rural surveys, and a study of special topics, such as recreation in country life; the farmer's standard of living; the functions of a small town; rural migrations.

Gillette, *Constructive Rural Sociology,* Macmillan; and assigned readings. (Not given in 1924-25.)

Mr. Clement. 3 units.

2. (*a*) *Agricultural Economics.*—An application of the principles of Economics to the field of Agriculture.

Taylor, *Agricultural Economics,* Macmillan; and assigned readings.

(*b*) *The Marketing of Farm Products.*—An analysis of the marketing problem as it applies to Agriculture.

Macklin, *Efficient Marketing for Agriculture,* Macmillan; and assigned readings. 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.

Jenks, *A Short History of English Law,* Methuen, 1912. Salmond, *Jurisprudence, or Theory of the Law,* Sweet & Maxwell, 1919. Vinogradoff, *Common Sense in Law,* Home University Library; and assigned readings.

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

3. *Imperial Problems.*—A course on problems of government within the British Empire, to be given in alternate years with Economics 7.

Readings to be assigned.

Government 1 is a prerequisite of this course, but may be taken concurrently with it.

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

(Given in 1924-25 and alternate years.)

Sociology

1. *Principles of Sociology.*—An introductory study of early man and his relation to his environment; of races of men and their distribution; of the early forms and development of industrial organization, marriage and the family, arts and sciences, religious systems, government, classes, rights, etc. A review also of certain of the social problems of modern society growing out of destitution, crime, overcrowding, etc. A critical survey of schemes for betterment.

Blackmar & Gillin, *Outlines of Sociology,* Macmillan. Fairchild, *Applied Sociology,* Macmillan; and assigned readings.

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

(Given in 1925-26 and alternate years.)

Department of English

Professor: G. G. Sedgewick.
Associate Professor: W. L. MacDonald.
Associate Professor: F. G. C. Wood.
Assistant Professor: Thorleif Larsen.
Assistant Professor: F. C. Walker.
Assistant Professor: M. L. Bollert.
Assistant: Stella McGuire.
Assistant: Isobel Harvey.
Assistant: H. C. Lewis.

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 1924-25: Canby, *A Study of the Short Story,* Holt. Euripides, *Electra,* in Gilbert Murray's paraphrase. Shakespeare, *Julius Caesar.* Sheridan, *The School for Scandal,* Everyman. Ibsen, *The Doll's House,* Everyman. *An Anthology of Modern Verse,* Methuen.

Two hours a week.

(*b*) *Composition.*—Elementary forms and principles of composition; expository themes; study of models.

Two hours a week. 3 units.

Second Year

2. (*a*) *Literature.*—Studies in the history of English Literature.

Pass Course: Lectures and texts illustrative of the chief authors and movements from Tottel's Miscellany to Shelley. Halleck, *History of English Literature,* American Book Company, 1918. *Century Readings in English,* ed. Cunliffe, Century Publishing Co.

Two hours a week.

(*b*) *Composition.*—Narrative and descriptive themes; the writing of reports.

One hour a week. 3 units.

(*c*) *Literature.*—Readings from Nineteenth Century poetry since 1830.

For this course, which is intended for prospective Honour students in English and for others especially interested in the study of Literature, no formal credit is given.

One hour a week.

THIRD AND FOURTH YEARS

The curriculum in English for students of the Third and Fourth Years is arranged in three divisions. The first includes a central body of general courses which will be offered, as far as possible, every year, and to each of which are assigned 3 units of credit. In the second division are listed courses carrying 2 units of credit and usually given in alternate years. And the third consists of courses designed especially for Honour and Graduate students, and open to others only by special permission.

Candidates for honours are referred to Pages 88 and 89.

DIVISION I

9. *Shakespeare.*—This course may be taken for credit in two successive years. In 1924-25, 9 (*b*) will be given as follows:

i. A detailed study of the text of *Richard II.; A Midsummer Night's Dream; Hamlet; Antony and Cleopatra.*

ii. Lectures on Shakespeare's development, on his use of sources, and on his relation to the stage and the dramatic practice of his time.

Students will provide themselves with annotated editions of the four plays named above, and with *The Facts about Shakespeare,* by Neilson and Thorndyke, 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 1925-26 and alternate years.)

10. *The Drama to* 1642.—The rise, the development, and the decline of the Elizabethan drama. The course begins with a short study of one or two of the plays of Sophocles and an outline of Aristotle's dramatic criticism, but treats mainly the rise of the English drama in the Miracle and Morality Plays; the Interludes; the influence of the Roman stage; Shakespeare's predecessors—Lyly, Kyd, Greene, Peele, and Marlowe; its full development in Shakespeare, and, briefly, its decline.

Texts: Lewis Campbell, *Sophocles in English Verse. Everyman with other Interludes,* Everyman Library. *Chief Elizabethan Dramatists,* ed. Neilson. *Oxford Shakespeare,* ed. Craig; or *Cambridge Edition,* ed. Neilson.

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

(Not given in 1924-25.)

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, 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. From year to year various periods will be stressed and the work of various writers emphasized. Generally speaking, the course 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 *to* 1830.—Studies in the beginnings and progress of Romanticism, based chiefly on the work of Wordsworth, Coleridge, Byron, Keats, Shelley, Scott.

Texts: The Oxford editions of the first five poets named.

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 down to the work of Hardy.

Texts: Browning, *Complete Poetical Works,* Cambridge Edition. Arnold, *Poems,* Oxford Edition. Tennyson, *Poems,* Globe Edition.

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

Three hours a week. 3 units.

19. *Private Reading.*—Students of the Senior Year may pursue, with the consent and under the direction of the Department, a course of private reading. In such courses examinations will be set, but no class instruction will be given. 3 units.

DIVISION II

5. *The Elements of Poetics.*—Studies in the criticism and appreciation of poetry; the poetic frame of mind; the emotional element in poetry; poetic content and the nature of poetic truth; poetic form and its varieties; metrics; contemporary developments in poetry; literary criticism, its nature and function; and an outline of aesthetic theory from Aristotle to Croce. Exercises in criticism and metrical composition.

Winchester, *Principles of Literary Criticism.*

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

(Given in 1925-26 and alternate years.)

6. *Narrative Writing.*—A study of narrative composition: (*a*) critical reading of a considerable number of modern short stories and of two or three modern novels; (*b*) frequent critical and narrative themes.

Only a limited number of students will be admitted to this course.

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

(Given in 1924-25 and alternate years.)

7. *Technique of the Drama.*—A practical study of dramatic form and structure based on the analysis of modern plays, with special reference to the one-act play as an art form. *Playmaking,* by Wm. Archer, and *Representative One-act Plays by British and Irish Authors,* Little, Brown, are the texts used in this course.

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

(Given in 1925-26 and alternate years.)

8. *Elizabethan Poetry, exclusive of the Drama.*—(1) The Renaissance; (2) the social background of Elizabethan England; (3) John Skelton and the poets of the transition; (4) the Lyric from Tottel's Miscellany to the Caroline poets; (5) Spenser and the Spenserians; (6) the Sonneteers; (7) Verse Translation; (8) Verse Narrative.

Texts: Ward, *The English Poets,* Vol. I. *Spenser,* ed. Smith and de Sélincourt, Oxford.

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

(Not given in 1924-25.)

11. *English Drama since* 1600.—A survey of English drama from the time of Ben Jonson to the present. Later Elizabethan drama, representative plays of the Restoration, the works of Goldsmith, Sheridan, and of early Nineteenth Century writers will be considered. There will follow a study of some dramatists of recent years, including Wilde, Shaw, Galsworthy, Pinero, Jones, Stephen Phillips, Barrie, and the Irish School.

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

(Given in 1924-25 and alternate years.)

12. *Romance and Ballad.*—As far as possible the course will be continuous, an attempt being made to show the relation as

well as the difference between the two forms. There will be discussion of such topics as origins, types, relations with other literatures, etc.; the Arthurian Cycle; the Matter of England, France, the Orient; Metrical Romances 1200-1500; Malory's Morte d'Arthur; English and Scottish Popular Ballads, Political Ballads, American Ballads.

Modernised versions of a considerable body of Middle English Metrical Romances are to be found in *Chief Middle English Poets* by Weston.

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

(Given in 1925-26 and alternate years.)

15. *Prose of the Sixteenth and Seventeenth Centuries.*—The development of English prose from 1500 to 1700, considered with reference to such topics as (1) the English Bible; (2) Literary Criticism; (3) the Character; (4) the Essay; (5) Pamphlets; (6) Prose Fiction; (7) Milton, Bunyan, Browne, Dryden.

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

(Not given in 1924-25.)

18. *Nineteenth Century Prose,* studied in two divisions in alternate years:—

(*a*) Critical and Literary Prose of the early part of the century: Coleridge, Wordsworth, Lamb, Hazlitt, De Quincey, Jeffrey, Landor.

(Not given in 1924-25.)

(*b*) Social, literary, religious and scientific movements of the Victorian period: Carlyle, Ruskin, Macaulay, Newman, Darwin, Mill, Arnold, Butler, Stevenson.

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

(Given in 1924-25.)

DIVISION III

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

Texts: A Middle English reader and the Oxford Chaucer, ed. Skeat.

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

(Given in 1924-25 and alternate years.)

21a. *Anglo-Saxon.*—Bright, *Anglo-Saxon Reader.*

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

21b.—*Anglo-Saxon.*—Beowulf.

One hour a week. 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.

One hour a week. 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 1924-25 will probably be the work of Wordsworth.

Two hours a week. 2 units.

Department of Geology and Geography

Professor: R. W. Brock.
Professor of Physical and Structural Geology: S. J. Schofield.
Professor of Mineralogy and Petrography: W. L. Uglow.
Professor of Palaeontology and Stratigraphy: M. Y. Williams.
Lecturer: E. M. Burwash.

Geology

1. *General Geology.*—This course covers, in a general way, the whole field of geology. The following subjects are treated in the lectures:

(*a*) *Physical Geology,* including: weathering, the work of the wind, the work of ground water, the work of streams, the

work of 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 and two hours laboratory per week, First Term. Mr. Schofield.

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

Two lectures and two hours laboratory per week, Second Term. Mr. Williams.

The Laboratory Exercises in Physical Geology include the study and identification of the commonest minerals and rocks, the interpretation of topographical and geological maps, and the study of structures by the use of models.

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.

The 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 will be taken up and illustrated by the study of the palaeogeography of North America.

Text-book: Cleland, *Geology, Physical and Historical,* American Book Co.

Reference Books: Pirsson and Schuchert, *Text-book of Geology.* Geikie, *Text-book of Geology.* Merrill, *Rocks, Rock-weathering and Soils.* Coleman and Parks, *Elementary Geology. National Geographic Magazine.* Shimer, *Introduction to the Study of Fossils.* Davis, *Geographical Essays.* Hugh Miller's works. 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: Dana, *Manual of Mineralogy,* revised by Ford (new edition), Wiley. (For students taking only Geology 2(*a*).)

Dana, *Text-book of Mineralogy,* revised by Ford, Wiley. (For students who subsequently take Geology 2(*b*).)

Prerequisite: Chemistry 1.

Two lectures and two hours laboratory per week, First Term. Mr. Uglow. 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: Dana, *Text-book of Mineralogy,* revised by Ford, Wiley.

Prerequisite.—Geology 2(*a*).

Two lectures and two hours laboratory per week, Second Term. Mr. Uglow. 1½ units.

3. *Historical Geology.*—Continental evolution and development of life with special reference to North America.

Text-book: Schuchert, *Historical Geology* (2nd Edn.), Wiley.

Prerequisite: Geology 1.

Three hours per week, First Term. Mr. Williams. 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,* Holt.

Prerequisite: Geology 1.

Three hours per week, Second Term. Mr. Schofield.
1½ 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. 3 units.

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

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

Prerequisite: Geology 1.

Two lectures and one hour laboratory per week.
Mr. Williams. 3 units.

7. *Petrology.*—This course consists of systematic studies of the following: (*a*) Optical Mineralogy, (*b*) Lithology and Petrogeny, (*c*) Microscopical Petrography.

Lectures deal with the principles of crystal optics, and with the origin, occurrence, classification, metamorphism and decay of rocks.

Laboratory Work consists of the study, determination and classification of specimens, structures and textures of rocks contained in the departmental collections. Field and microscopical methods of determination are equally stressed.

Texts: Pirsson, *Rocks and Rock Minerals,* Wiley. Luquer, *Minerals in Rock Sections,* Van Nostrand. Dana, *Text-book of Mineralogy,* revised by Ford, Wiley.

Prerequisites: Geology 1 and 2.

Two lectures and two laboratory periods of 2 hours per week. Mr. Uglow. 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: Emmons, *General Economic Geology,* McGraw-Hill.

Reference books: Lindgren, *Mineral Deposits.* Ries, *Economic Geology.*

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

Four hours per week. Mr. Brock, Mr. Williams and Mr. Uglow. 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 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: Davy and Farnham, *Microscopic Examination of the Ore Minerals,* McGraw-Hill.

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

Two hours per week. Mr. Uglow. 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.

Reference 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 per week. Mr. Schofield. 1½ 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 per week. Second Term. Mr. Schofield. 1½ units.

Geography

1. *Principles of Geography.*—A general course dealing especially with the effects of the physical features of the earth upon life, and the ways in which various forms of life respond to their physical environment. The following topics are studied: earth relations; earth features; climate and climatic factors; oceans; materials of the land and their uses; changes of the earth's surface; coasts, plains, plateaus, mountains, inland waters, and their relations to life; distribution and development of industries; distribution of population.

Text-book: Salisbury, Barrows and Tower, *Elements of Geography,* Holt.

Three lectures per week. Mr. Brock and Mr. Schofield 3 units.

Department of History

Professor: Mack Eastman.
Associate Professor: W. N. Sage.
Instructor: F. H. Soward.

Students who intend to specialize in History are advised to associate with it from the first some allied subject, such as Economics. Economics 1, 2, 3, Government 1 and Sociology 1 will be found especially helpful.

A reading knowledge of French and German will be found extremely valuable in Third and Fourth Year courses, while in certain classes of more advanced work Latin is indispensable.

Hereafter, French at least will be required for Honour work.

A list of books for reading and reference may be obtained from the professor in charge of each course.

FIRST AND SECOND YEARS

1. *Modern European History.*—A general view of the development of modern Europe from the eve of the French Revolution to the present day. This course is designed for First Year students who wish to complete the survey of European and world history begun in the high schools.

Text-book: Robinson and Beard, *History of Europe, Our Own Times,* Ginn, 1921. (This is the sequel to the Breasted and Robinson *History of Europe, Ancient and Mediaeval,* used for Junior Matriculation.) Alternative text-book: West's *World Progress* (Canadian edition), Allyn and Bacon, 1924. Additional reading will be assigned in the lectures.

As the new high school text-book (*World Progress*) brings British and European history up to the present day, this course (History 1.) will not be offered after 1924-25.

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

2. *Canadian History.*—This course opens with a brief analysis of the reasons for European colonization of America and a sketch of the colonial effort of Spain, France and Great Britain. In the French régime, exploration, the development of

government, the conflict of church and state, and the struggle with Great Britain for the West are studied. In the British period, the relations of the French and English and the evolution of Canadian self-government are given special attention. Intended especially for Second Year, but open to First Year also.

Books especially recommended: Roberts, *History of Canada.* Lucas, *History of Canada, Vol. I, New France.* Kennedy, *Documents of the Canadian Constitution, 1759-1915.* Parkman, *Pioneers of France in the New World; The Jesuits in North America; Count Frontenac and New France; La Salle and the Discovery of the Great West; The Old Régime in Canada; A Half-century of Conflict; Montcalm and Wolfe.* Further reading will be assigned.

A preliminary essay counting 10 per cent. of the year's work must be handed in by October 15th. Subject: "The Influence of the Jesuits in New France." Material for this essay will be found in: Marquis, *The Jesuit Missions* (Chronicles of Canada); Parkman, *The Jesuits in North America;* Munro, *Crusaders of New France;* Eastman, *Church and State in Early Canada;* Thwaites, *The Jesuit Relations.*

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

3. *English History.* — The history of England from the Norman Conquest to the Revolution of 1688. This course is intended primarily for Second Year students who mean to specialize in history. It aims at interpreting the constitutional, political, economic, and religious development of England and Wales during the period prescribed. Attention will also be paid to the history of Scotland and Ireland and the origin of Overseas Britain. Intended for Second Year only. The sequel to this course is History 8.

Text-book: Muir, *A Short History of the British Commonwealth,* Vol. I., Philip, 1920.

A preliminary essay counting 10 per cent. of the year's work must be handed in as soon as possible after the opening of the autumn term. Subject: "The Effects of the Norman Conquest on Subsequent English History."

References: Haskins, *The Normans in European History.* Freeman, *The Norman Conquest.* Davis, *England under the Normans and Angevins.* Adams, *Political History of England,* Volume II., 1066-1216.

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

THIRD AND FOURTH YEARS

History 4, 5 and 6 are intended especially for Third Year students, History 7 and 8 for Fourth Year. History 4 (or 5) must be taken by all candidates for Honours.

All Honour students (whether in History alone or in a Combination Course) must take a History Seminar of one hour a week in either their Third or their Fourth Year. The Seminar is intended as training in intensive work and carries no credits. If the Graduating Essay be written in History, it will carry a value of 3 units.

4. *Mediaeval History.*—A sketch of Mediaeval History from the Council of Nicaea to the Fall of Constantinople, 325-1453 A.D. The following subjects will be treated: the triumph of Christianity; the breakdown 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 Mediaeval Towns; the later monastic movements; the rise of the universities; Frederick II.; the later Mediaeval Empire; the National Kingdoms in France, Spain, England and Scotland; the Turks and the collapse of the Byzantine Empire.

Text-book: Thorndike, *A History of Mediaeval Europe,* Houghton Mifflin.

Additional text-books for Honour students: Oman, *The Dark Ages.* Tout, *Empire and Papacy.* Lodge, *The Close of the Middle Ages.* Bryce, *The Holy Roman Empire.*

A preliminary essay, counting 10 per cent. of the year's work, must be handed in as soon as possible after the opening of

the autumn term. Subject: *The Causes of the Triumph of Christianity in the Later Roman Empire.*

References: Gibbon, *Decline and Fall of the Roman Empire.* Milman, *History of Christianity.* Glover, *The Conflict of Religions in the Roman Empire. Cambridge Mediaeval History, Volume I. Encyclopaedia Britannica*—articles on Roman, the later Roman Empire and Church History. Bury, *The Later Roman Empire.* Bigg, *The Church's Task.*

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

5. *Renaissance and Reformation.*—Mediaeval civilization in the time of Dante; the forerunners of the Renaissance; the Renaissance in Italy (illustrated with slides); the Protestant Reformation and the Catholic Reaction; in conclusion, a short account of the subsequent history of religious thought down to our own times.

An introductory essay, counting 10 per cent. of the year's work, must be handed in early in the autumn term. Subject: "The Significance of Dante." Reading recommended: Translations by Cary, Norton, etc. Christopher Hare, *Dante the Wayfarer.* Boynton, *The World's Leading Poets.* Mackail, *Lectures on Poetry.* Santayana, *Three Philosophical Poets.* Snell, *Handbook to the Works of Dante.* Caird, *Essays on Literature and Philosophy,* Vol. IV. Brooks, *Dante: How to Know Him.* Federn, *Dante and His Time.* Rossetti, *Dante at Verona.* James Russell Lowell, *Prose Works,* Vol. IV. Flamini, *History of Italian Literature.* Pollock, *History of the Science of Politics.* Charles Maurras, *Le Conseil de Dante. La Grande Encyclopedie.* Also, *The Contemporary Review, Atlantic Monthly,* etc., for 1921.

Text-books: Sichel, *The Renaissance.* Fisher, *The Reformation.* McGiffert, *Martin Luther, the Man and His Work.* Further reading: Taylor, *Some Aspects of the Renaissance.* Symonds, *A Short History of the Renaissance in Italy.* Burckhardt, *The Renaissance in Italy.* Symonds, *The Renaissance in Italy.* André Michel, *Histoire de l'Art* (III., IV.).

Christopher Hare, *Life and Letters in the Italian Renaissance.* Etc., etc.

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

6. *The Age of Louis XIV., the Pre-Revolution, the Revolution and Napoleon.*

An introductory essay, counting 10 per cent. of the year's work, must be handed in early in the autumn term. Subject: "Discipline as the Central Principle of the Reign of Louis XIV." Books recommended for reading and reference: Wakeman, *The Ascendancy of France.* Grant, *The French Monarchy,* Vol. II. Hassall, *France, Mediaeval and Modern. Cambridge Modern History,* Vol. V. Lavisse, *Histoire de France.* Lavisse et Rambaud, *Histoire Générale. La Grande Encyclopédie,* article on Louis XIV., etc.

Text-books: Lowell, *The Eve of the French Revolution;* Johnston, *A Short History of the French Revolution,* or Shailer Matthews, *The French Revolution,* Longmans, 1923; Johnston, *Napoleon,* or Fisher, *Napoleon.* (Home University).

Additional text-books for Honour students: Aulard, *The French Revolution,* or Morse Stephens, *A History of the French Revolution;* Rose, *Napoleon,* or Madelin, *Le Consulat et l'Empire,* or Lacour-Gayet, *Napoléon;* Fisher, *Bonapartism.*

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

7. *Europe, 1815-1923.* The political, social and religious history of the chief countries of continental Europe, with especial attention to international relations. Intended for Fourth Year students.

An introductory essay, counting 10 per cent. of the year's work, must be handed in early in the autumn term. Subject: "The Changes, Permanent and Ephemeral, Wrought in German Society by the French Revolution."

Text-books: Hazen, *Europe Since 1815,* 2 Vol. Holt, 1923. Shapiro, *Modern and Contemporary European History,*

Houghton Mifflin. Fueter, *World History, 1850-1920.* Ramsay Muir, *The Expansion of Europe.* Gooch, *History of Modern Europe, 1878-1919.*

Further reading required of Honour students, including Rambaud, *Histoire de la Russie.*

Works of reference: *Cambridge Modern History.* Lavisse, *Histoire de France Contemporaine.* Lavisse et Rambaud, *Histoire Générale.* Hanotaux, *Histoire de la Nation Française. Cambridge History of British Foreign Policy.*

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

8. *Great Britain Since 1688. The British Empire.*—This course aims at an interpretation of the constitutional, political, economic and religious development of the British Isles since the Revolution of 1688. Attention will also be paid to the growth of the British Empire during the eighteenth, nineteenth and twentieth centuries. This course is the sequel to History 3.

Text-book: Muir, *Short History of the British Commonwealth,* Vols. I. and II., Philip.

Additional text-books for Honour students: Robertson, *England under the Hanoverians.* Trevelyan, *British History in the Nineteenth Century.*

A preliminary essay, counting 10 per cent. of the year's work, must be handed in as soon as possible after the opening of the autumn term. Subject: *The Whig Ascendancy under George I. and George II.*

References: Macaulay, *History of England.* Sichel, *Bolingbroke and His Times.* Melville, *George I.* Robertson, *England under the Hanoverians.* Morley, *Walpole.* Williams, *Life of William Pitt, Earl of Chatham.* Ruville, *William Pitt, Earl of Chatham.* Leadam, *Political History,* Vol. IX. Beaconsfield, *Coningsby. Cambridge Modern History,* Vol. VI; chapters I, II, III, XIII.

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

9. *American History.*—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-book: Muzzey, *American History,* Ginn. Additional text-books for Honour students: Lecky, *The American Revolution.* Lingley, *Since the Civil War.*

An essay, counting 10 per cent. of the year's work, must be handed in early in the autumn. Subject: "The Loyalist Position in the American Revolution." Books recommended: Wallace, *The U. E. Loyalists (Chronicles of Canada Series).* Van Tyne, *The Loyalists in the American Revolution.* Tyler, *The Literary History of the American Revolution.* Lecky, *The American Revolution.*

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

Department of Mathematics

Professor: Daniel Buchanan.
Associate Professor: G. E. Robinson.
Assistant Professor: E. E. Jordan.
Assistant Professor: L. Richardson.
Assistant Professor: B. S. Hartley.
Assistant: John Henry.
Assistant: May L. Barclay.
Assistant: J. F. Brown.
Assistant: C. Islay Johnston.

Course 1 is required of all regular students in First Year Arts. Courses 2, 3, and 4 are open to students who have completed Course 1. Course 2 is required of those intending to proceed to Honours in Mathematics.

Courses 3, 13, 15 and 4, 12, 14 are given in alternate years, as indicated below.

A selection will be made from graduate courses at the beginning of each session to meet the needs and qualifications of students proceeding to the degree of M.A.

PASS COURSES

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

Hall and Knight, *Elementary Algebra,* Macmillan.

Three hours a week. First Term.

(*b*) *Geometry.*—An elementary course in synthetic and analytical geometry as outlined for Senior Matriculation. McDougall, *Advanced Geometry,* Copp Clark.

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, *Logarithmic Tables,* Ginn.

Six-Place Tables (McGraw-Hill)—For those intending to proceed to Applied Science.

One hour a week, First Term, and two hours a week, Second Term. 3 units.

2. (*a*) *Analytical Geometry.*—An introductory course with special emphasis upon the straight line and circle.

Fawdry, *Co-ordinate Geometry,* Bell.

Two hours a week. First Term. Mr. Buchanan.

(*b*) *Algebra.*—A continuation of the previous course in algebra involving exponential, logarithmic and other series, undetermined coefficients, partial and continued fractions.

Hall and Knight, *Higher Algebra,* Macmillan.

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

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

Woods and Bailey, *Elementary Calculus,* Ginn.

One hour a week. Mr. Buchanan. 3 units.

3. *The Mathematical Theory of Investments.*—This course deals with the theory of interest, annuities, debentures, valuation

of bonds, sinking funds, depreciation, probability and its application to life insurance.

Rietz, Crathorne and Rietz, *Mathematics of Finance,* Holt.

2 units.

(Given in 1925-26 and alternate years.)

4. *Descriptive Astronomy.*—The object of this course is to acquaint the student with the various heavenly bodies and their motions. It is intended primarily for Pass students, and only a knowledge of elementary mathematics is essential. The subject-matter treated includes: The shape and motions of the earth, systems of coordinates, the constellations, planetary motion, gravitation, tides, time, the stars and nebulae, theories of evolution of the solar system.

Moulton, *Introduction to Astronomy,* Macmillan.

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

(Given in 1924-25 and alternate years.)

HONOUR COURSES

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

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.

Dupuis and Matheson, *Spherical Trigonometry and Astronomy,* Uglow.

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

12. *Synthetic Plane and Solid Geometry.*—The course in plane geometry is intended to cover such topics as the principle

of duality, cross ratio geometry, etc. In solid geometry the principal properties of solid figures are studied, as well as the theory of projection in space, with various applications to the conic sections.

Dupuis, *Elementary Synthetic Geometry,* Macmillan.

Dupuis, *Elements of Synthetic Solid Geometry,* Macmillan.

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

(Given in 1924-25 and alternate years.)

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

Loney, *Coordinate Geometry.*

Two hours a week. 2 units.

(Given in 1925-26 and alternate years.)

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

Burnside and Panton, *Theory of Equations,* Vol. I, Dublin. Weld, *Theory of Determinants.*

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

(Given in 1924-25 and alternate years.)

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, *Text-book of Algebra,* Part II.

Two hours a week. 2 units.

(Given in 1925-26 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 formulae, successive integration, elliptic integrals, and Fourier series.

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

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

Two hours a week. Mr. Buchanan. 2 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.

Reference books: Webster, *Dynamics of Particles and of Rigid, Fluid and Elastic Bodies.* Smith and Langley, *Theoretical Mechanics.*

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

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.* Mr. Buchanan. 1 unit.

GRADUATE COURSES

20. *Analytical Solid Geometry.*—Snyder and Sisam, *Analytical Geometry of Space.*

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

22. *Theory of Functions of a Complex Variable.*—Pierpont, *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, *Periodic Orbits.*

Department of Modern Languages

Professor: H. Ashton.
Associate Professor: A. F. B. Clark.
Assistant Professor: Isabel MacInnes.
Instructor: Margaret Ross.
Instructor: Janet T. Greig.
Assistant: E. E. Delavault.
Assistant: G. Barry.
Assistant: Dorothy Dallas.
Assistant: Dorothy Somerset.

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*) or 4(*a*), may be given special permission by the Head of the Department to substitute other courses.

French

1. (*a*) Molière, *Les Précieuses Ridicules.* Massard, *A French Composition Book,* Rivington. Bazin, *Une Tache d'encre.* Berthon, *Grammaire Française.*

1. (*b*) Molière, *Les Précieuses Ridicules.* Massard, *A French Composition Book,* Rivington.

Revision of the essentials of French grammar and syntax applied to the correct writing of French. There will be an oral examination based on the texts read. 3 units.

NOTE:—Students who choose French will be informed which course 1(*a*) or 1(*b*) they must take. The decision will be made after a consideration of the marks in French obtained at the Matriculation examination. Students in 1(*b*) will normally take not more than two years French, as they will not be sufficiently prepared to profit by the Third and Fourth Year courses. If, however, they make rapid progress in the First Year they may be transferred to the higher course in the Second Year when they have satisfied the examiners of their fitness for more advanced work. Students who have not passed the Matriculation

examination in French (or its equivalent) are not allowed to choose either of the First Year courses in this subject.

2. (*a*) Hémon, *Maria Chapdelaine,* Macmillan. Augier et Sandeau, *Le Gendre de Monsieur Poirier,* American Book Company. Anatole France, *Le Crime de Sylvestre Bonnard,* Holt.

Conversation in French on the above. Written résumés.

Composition from Wilson and Jaccard, *A First French Prose Composition,* Bell; or from Jules Lazare, *Elementary French Composition,* Hachette, London.

There will be oral tests.

Students intending to take Second Year French will be required to read *Quelques Contes des Romanciers Naturalistes,* Heath, during the summer vacation of 1924, and an examination (to be written in French) will be held during the first week of the autumn term to test their knowledge of this text. 3 units.

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: Racine, *Phèdre,* Hachette, Paris. Molière, *Les Femmes Savantes,* Didier; *Le Tartuffe,* Heath. Schinz and King, *Seventeenth Century French Readings,* Holt.

Conversation and written résumés based on the above.

Weekley's *French Prose Composition* will be used for translation from English into French.

This course is obligatory for all students taking Third Year French. 3 units.

Students intending to take Third Year French will be required to submit during the first week of the Autumn Term an essay in French based on a course of reading approved by the Department in the preceding spring.

3. (*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: Schinz, *Eighteenth Century French Readings,* Holt. Diderot, *Extraits* (Fallex), Delagrave. Beaumarchais, *Le Barbier de Séville,* Macmillan.

3. (*c*) French Composition and translation from English into French. Weekley, *French Prose Composition,* Clive, London. 3 units.

4. (*a*) *The Romantic Drama.*—A. de Vigny, *Chatterton,* Oxford. Musset, *Quatre Comédies,* Oxford. Hugo, *Hernani,* Oxford. Rostand, *La Princesse Lointaine,* Fasquelle, Paris. Rostand, *Les Romanesques,* Fasquelle, Paris. 3 units.

4 (*b*) *The French Novel.*—Morillot, *Le Roman français,* Dent. Balzac, *Eugénie Grandet,* Oxford. Flaubert, *Salammbô,* Oxford. Sand, *François le Champi,* Oxford. A. de Chateaubriant, *Monsieur des Lourdines,* Grasset, Paris. 3 units.

4. (*c*) *Composition and Oral French.*—Book required: Ritchie and Moore, *A Manual of French Composition,* Cambridge. 3 units.

4. (*d*) *Bibliography and Methods of Research.*—For students preparing graduating essays in French. 3 units.

NOTE: Courses 3(*a*) (*b*) (*c*) and 4(*a*) (*b*) (*c*) call for much work out of class. They should be chosen only by students able and willing to work alone. Students intending to take 4(*a*) or 4(*b*) should apply to the Head of the Department before the end of the present academic year for instructions for summer reading.

While the Library provides copies of standard dictionaries for occasional reference, every student of the Second, Third, and Fourth Years should possess a small dictionary for use when preparing class work. Suitable dictionaries can be obtained at the Bookstore.

German

Beginners' Course. Composition, Grammar, Conversation. — Texts: (*a*) Zinnecker, *Deutsch fur Anfänger,* Heath. (*b*) Haertel, *German Reader for Beginners.* 3 units.

Beginners' Course, Scientific.—As Beginners' Course above, substituting for Text (*b*) Gore, *German Science Reader,* Heath. 3 units.

1. *Language.*—Completion and Revision of Zinnecker. Composition and conversation based on texts read. Hillern, *Hoher als die Kirche,* Scribner. Moser, *Der Bibliothekar,* Ginn. Bruns, *Book of German Lyrics,* Heath.

Four hours a week.

One hour a week alternate reading for Science students may be arranged. 3 units.

2. (*a*) *Language.*—Whitney and Stroebe, *Advanced German Composition,* Holt. Composition and conversation based on texts read.

Goethe, *Herman and Dorothea,* Scribner. Freytag, *Die Journalisten,* Ginn. Bruns, *Book of German Lyrics,* Heath.

Three hours a week. 3 units.

2. (*b*) A general survey of German literature.

For students who intend to take German in the Third and Fourth Years.

One hour a week. No formal credit is given for this course.

3. *The Classical Period.*

Texts: Lessing, *Minna von Barnhelm,* Macmillan. Goethe, *Faust,* Heath. Schiller, *Die Jungfrau von Orleans,* Holt.

Composition based on above texts and Whitney and Stroebe, *Advanced German Composition,* Holt. 3 units.

4. (*a*) Nineteenth Century Drama. 3 units.

4. (*b*) Nineteenth Century Fiction. 3 units.

These courses, which include reading of a number of standard works, will be given alternately.

5. A reading course in the short story. 3 units.

Department of Philosophy

Professor: H. T. J. Coleman.
Associate Professor: James Henderson.

Professor of Education: George M. Weir.

1. (*a*) *Elementary Psychology.*

Text-book: Woodworth, *Psychology, A Study of Mental Life,* Holt.

References: Stout, *A Manual of Psychology.* Titchener, *A Text-book in Psychology; A Beginner's Psychology.* James, *Psychology* (Briefer Course). Pillsbury, *Essentials of Psychology.*

Two hours a week.

(*b*) *Elementary Logic.*

Text-book: Mellone, *Introductory Text-book of Logic,* Blackwood (latest edition).

One hours a week.

(*c*) A fourth hour per week will be devoted to lectures introductory to the main problems of Philosophy, and a special study of Descartes' *Discourse on Method* and Berkeley's *Treatise Concerning the Principles of Human Knowledge.* Attendance at this hour is voluntary and no formal credit is given. Students contemplating Honours are, however, advised to take this course.

3 units.

2. *Ethics.*

Text-book: Everett, *Moral Values,* 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-book: Burnet, *Greek Philosophy* (Part I.), Macmillan. In connection with the course a special study will be made of Plato's *Republic, Phaedo,* and *Philebus.*

Three hours a week. 3 units.

(Given in 1924-25 and alternate years.)

4. *The History of Philosophy from the Renaissance to the Present time.*

Text-book: Alexander, *A Short History of Philosophy,* Macmillan.

Works of reference: Rand, *Modern Classical Philosophers,* and the various Histories of Philosophy.

Three hours a week. 3 units.

(Given in 1925-26 and alternate years.)

5. *The Philosophy of Kant,* with special study of the *Critique of Pure Reason.*

Two hours a week. 2 units.

(Given in 1925-26 and alternate years.)

6. *Philosophic Movements since the time of Kant.* Post-Kantian Idealism, Pragmatism, the New Realism, Bergson and others.

Two hours a week. 2 units.

(Given in 1924-25 and alternate years.)

7. *Introduction to 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.* Moore, *What is Education?* Adams (ed.), *The New Teaching.* Holmes, *What is and What might be.* Articles in Cyclopedia of Education, Macmillan.

Philosophy 1 is recommended as preparatory to this course.

Three hours a week. 3 units.

(Given in 1924-25 and alternate years.)

8. *Social Psychology.*—A study of those particular phases of mental life and development which are fundamental in social organization and activity.

Text: McDougall, *Social Psychology,* 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.* McDougall, *The Group Mind.*

Philosophy 1 is recommended as preparatory to this course.

Three hours a week. 3 units.

(Given in 1925-26 and alternate years.)

Students will note that Courses 3 and 4, Courses 5 and 6, and Courses 7 and 8 are given in alternate years. This arrangement is designed to meet the needs of students who desire to pursue the study of philosophy beyond the elementary stage.

Department of Physics

Professor: T. C. Hebb.
Associate Professor: A. E. Hennings.
Associate Professor: J. G. Davidson.
Assistant: Cyril Jones.

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 Agriculture, Chemistry, Engineering, and

Advanced Physics. Students must reach the required standard in both theoretical and practical work.

Three lectures and two hours laboratory per week. 3 units.

2. *General Physics.*—Lectures and demonstrations. Especial attention is given to modern points of view.

Text-book: Kimball, *College Physics.*

Prerequisite: Physics 1.

An additional hour is offered for which no formal credit is given. Students proceeding to a Medical course are advised to take this additional hour.

Three lectures per week. 3 units.

(Not offered in 1924-25)

3. *Mechanics, Molecular Physics and Heat.*—A study of the statics and dynamics of both a particle and a rigid body, the laws of gases and vapors, temperature, hygrometry, capillarity, expansion, and calorimetry.

Text-book: Millikan, *Mechanics, Molecular Physics and Heat.*

Prerequisite: Physics 1.

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

4. *Electricity, Sound, and Light.*—A study of the fundamentals of magnetism, electricity, sound, and light.

Text-book: Millikan and Mills, *Electricity, Sound and Light.*

Prerequisite: Physics 1.

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

5. *Dynamics of a Particle and of a Rigid Body.*—A rigorous mathematical study of this subject.

Prerequisites: Physics 3 and Mathematics 10.

Two lectures per week. 2 units.

6. *Advanced 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 4 and Mathematics 10.

Two lectures per week. 2 units.

7. *Kinetic Theory of Gases and Introduction to Thermodynamics.*—A course of lectures elucidating the fundamentals of these subjects.

Books for reference: Poynting and Thomson, *Heat.* Boynton, *Kinetic Theory of Gases.* Preston, *Heat,* and Meyer, *Kinetic Theory of Gases.*

Prerequisites: Physics 3, and Mathematics 10.

Two lectures per week. 2 units.

8. *Theoretical and Experimental Optics.*—A course of lectures accompanied by laboratory work consisting of accurate measurements in diffraction, dispersion, interference, and polarization.

Books for reference: Houstoun, *Treatise on Light.* Mann, *Advanced Optics.* Wood, *Physical Optics.* Preston, *Theory of Light.* Drude, *Theory of Optics,* and Edser, *Light for Students.*

Prerequisites: Physics 3 and 4, and Mathematics 10.

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

9. *Recent Advances in Physics.*—A course of lectures dealing with the electrical properties of gases, the electron theory, and radioactivity.

Books for reference: Thomson, *Conduction of Electricity through Gases.* Rutherford, *Radio-active Substances and Their Radiations.* Millikan, *Electron.* Thomson, *Positive Rays.* Hughes, *Photo-electricity,* and Kaye, *X-Rays.*

Prerequisites: Courses 3 and 4, and Differential and Integral Calculus.

Two lectures per week. 2 units.

10. *Advanced Experimental Physics.*—In this course the candidate for Honours is expected to perform one or more classical experiments and to do some special work.

Carefully prepared reports, abstracts, and bibliographies will constitute an essential part of the course.

Six hours laboratory per week. 3 to 6 units.

Department of Zoology

Professor: C. McLean Fraser.
Instructor: H. A. Dunlop.
Assistant: C. P. Leckie.
Assistant: Lloyd Bolton.

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-books: Parker and Haswell, *Manual of Zoology,* Macmillan. (American Edition, 1916.)

This course is prerequisite to other courses in Zoology.

Pass Course: Two hours lecture and two hours laboratory per 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 per 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 per week. Second Term. 2 units.

4. *Morphology of Insects.* General Entomology.

One lecture and two hours laboratory per week. One Term. 1 unit.

5. *Histology.*—Study of the structure and development of animal tissues. Methods in histology.

Seven hours per week. Second Term. 2 units.

6. *Embryology.* A general survey of the principles of vertebrate embryology. Preparation and examination of embryological sections.

Seven hours per week. First Term. 2 units.

7. *Economic Entomology.*—A study of the insect pests of animals and plants; means of combating them.

Lecture and laboratory work, six hours per 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.

THE FACULTY OF APPLIED SCIENCE

FACULTY OF APPLIED SCIENCE

PURPOSE

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 is to turn out neither finished engineers nor 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 this goal.

The student is offered a full undergraduate course and an additional year of graduate courses of study. The preliminary year required in Arts 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 first two years in Applied Science proper are spent in a general course that includes Mathematics and all the basal sciences. This gives not only a broad training, but enables the student to discover the science or sciences for which he has special liking or aptitude. He is thus prepared to select more intelligently the particular branches of Applied Science in which to specialize during his two final years at college. During these years students acquire more detailed knowledge of the science or sciences selected and get practice in applying scientific knowledge, in solving problems, in doing things.

There is also training in Economics, Law and Industrial Management.

A broad general course is better suited to British Columbia conditions than a more specialized one would be, and the first

aim is to prepare men to develop its industries. Furthermore, experience has proved that narrow, highly specialized undergraduate courses do not produce as able specialists as do more general courses that furnish a more solid foundation, a better background, a broader outlook and a more stimulating atmosphere.

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.

FACILITIES FOR WORK IN APPLIED SCIENCE

For laboratory and other facilities see Pages 22-26.

ADMISSION

The general requirements for admission to the University are given on pages 29-30.

The regular requirements for admission to the Faculty of Applied Science are as follows:

1. Nursing and Health course, Junior Matriculation or equivalent.

2. All other courses, First Year Arts or equivalent.

In First Year Arts or Senior Matriculation, Physics is compulsory for all except Nursing and Health courses. Chemistry 1 and Biology 1, if completed in Arts, need not be taken in First Year Applied Science. French is advisable for students entering Geological Engineering.

DEGREES

The degrees offered students in this Faculty are:

Bachelor of Applied Science (B.A.Sc.). (See below.)

Bachelor of Arts and Applied Science (B.A. and B.A.Sc.) (See page 144.)

Master of Applied Science (M.A.Sc.) (See Page 215.)

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.

NOTE.—A series of noon-hour talks is given during the session by the Faculty and prominent outsiders on the subjects: choice of a profession; occupations for which an Applied Science course forms a suitable preparation; life and work in different enginering professions and industries. The purpose of these talks is to assist Freshmen and other Arts students considering an Applied Science course and to help Applied Science students to select the course to pursue in the two final years that is best suited to their tastes and aptitudes, and their probable life-work.

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

*The curriculum described in the following pages may be changed from time to time as deemed advisable by the Faculty.

to his chosen profession. Third and Fourth Year Essays (see page 124) should be based, as far as possible, upon the summer work.

Students engaged in summer work requiring them to enter the University after the specified date of admission will be allowed to register without penalty, provided that the Dean is satisfied that the work affords necessary experience in connection with their academic courses, as in the case of Geological survey parties; or that statements are received from their employers that circumstances prevented an earlier release.

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 accompanied by certificates indicating the character of the work done and the time devoted to it.

GENERAL OUTLINE OF UNIVERSITY COURSES

The work of the First and Second Years is the same in all courses, except those in Nursing and Health. It consists largely of mathematics and science, and provides a foundation for later specialization.

FIRST YEAR

Summer Work

All undergraduates entering the First Year (except in Nursing and Health) are required to register on or before Monday, September 8th, on which date classes in Mechanical Engineering 2 will commence.

Sessional Work

Subject.	For Details See Page:	First Term.		Second Term.	
		Lectures per Week.	Laboratory Hours per Week.	Lectures per Week.	Laboratory Hours per Week.
Mathematics 1	172	2	..	..	..
Mathematics 2	173	..	..	2	..
Mathematics 3	173	3	..	3	..
Mathematics 4	173	2	..	2	..
Civil 1	154	2	3	2	3
Mechanical Drawing 1	174	..	6	..	6
Physics 1	185	4	3	..	..
Physics 2	185	..	..	4	3
Chemistry 1*	151	3	3	3	3
Mechanical 2a	175	1	3	1	3
Biology 1*	147	1	2	1	2
Civil 2	154	Field Work			

*If Chemistry or Biology has been taken in Arts it will be accepted in lieu of the Science Course.

SECOND YEAR

Sessional Work

Subject.	For Details See Page:	First Term.		Second Term.	
		Lectures per Week.	Laboratory Hours per Week.	Lectures per Week.	Laboratory Hours per Week.
Mathematics 6	173	3	..	3	..
Mathematics 7	173	2	..	2	..
Chemistry 2	151	1	6	1	6
Civil 3	154	1	..	1	..
Civil 4	154	..	..	..	..
Mechanical 3	176	1	..	1	..
Physics 3	185	2	3	2	3
Physics 4	186	2	..	2	..
Civil 5	155	..	3	..	3
Civil 6	155	2	..	2	..
Geology 1	168	2	2	2	2
Civil 7*	155	Field Work			

***Students entering Civil, Forest, Geological, Metallurgical, and Mining Engineering are required to take Civil Engineering 7 (see Page 155) immediately after the spring examinations.**

THIRD AND FOURTH YEARS

Essays are required of all students entering the Third and Fourth 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 (8½x11 inches), on one side of the paper only, leaving a clear margin on top and left-hand side. Students are recommended to examine sample reports to be found in the library.

4. *All essays must be handed in to the Dean not later than November 15th.*

All essays, when handed in, will become the property of the Department concerned, and will be 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.

The value of an essay will be judged, not only by its substance, but also by the precision and quality of its English. A maximum of 100 marks is allowed for an essay, 50 being required for a pass. Essays will be considered as final Christmas examinations, and subject to the same regulations and fees as apply to supplemental examinations.

COURSES

I. Chemical Engineering

The course in Chemical Engineering should prepare the student for the duties of managing engineer in a chemical manufactory. 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. In the industrial life of British Columbia the chemical engineer may be more particularly concerned with the manufacture of acids and alkalies, the preparation from natural sources of various organic and inorganic compounds, the pulp and paper industry, and the utilization of the waste from a number of industrial plants indigenous to the Province. Accordingly, the course of study includes a number of courses in the older branches of engineering along with the maximum of chemical training allowed by the time at the disposal of the student.

THIRD YEAR

Sessional Work

Subject.	For Details See Page:	First Term.		Second Term.	
		Lectures per Week.	Laboratory Hours per Week.	Lectures per Week.	Laboratory Hours per Week.
Essay	124				
Economics 1	162	2	..	2	..
Metallurgy 1	182	2	..	2	..
Mechanical 6	177	2	3	2	3
Geology 2 (a)	169	2	2	..	..
Chemistry 3	151	2	3	2	3
Chemistry 4	152	..	..	2	3
Chemistry 5	152	1	9	1	6
Civil 10	156	2	..	2	..
Electrical 1	179	2	2	2	2
Physics 5	186	1	..	1	..

FOURTH YEAR

Sessional Work

Subject.	For Details See Page:	First Term.		Second Term.	
		Lectures per Week.	Laboratory Hours per Week.	Lectures per Week.	Laboratory Hours per Week.
Essay	124				
Geology 1 (a)	168	2	2	..	..
Civil 19	159	1	..	1	..
Civil 12	157	2	..	..	3
Chemistry 6	152	2	..	2	..
Chemistry 7	153	2	3	2	3
Chemistry 8	153	3	3	..	..
Chemistry 9	153	2	..	2	..
Chemistry 16	153	..	..	2	..
Metallurgy 2	183	2	..	2	..
Thesis	...	..	6	..	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 Third Year, Analytical, Organic, and Physical Chemistry are studied from the scientific side and in relation to technology; while in the Fourth Year a considerable amount of time is devoted to a short piece of original work.

THIRD YEAR

Sessional Work

Subject.	For Details See Page:	First Term.		Second Term.	
		Lectures per Week.	Laboratory Hours per Week.	Lectures per Week.	Laboratory Hours per Week.
Essay	124				
Economics 1	162	2	..	2	..
Chemistry 3	151	2	3	2	3
Chemistry 4	152	..	..	2	3
Chemistry 5	152	1	9	1	9
Metallurgy 1	182	2	..	2	..
Geology 2 (a)	169	2	2	..	..
Biology 1	147	1	2	1	2
Metallurgy 5	183	1	5	..	..
German (Arts) 1	...	3	..	3	..
Physics 5	186	1	..	1	..

FOURTH YEAR

Sessional Work

Subject.	For Details See Page:	First Term.		Second Term.	
		Lectures per Week.	Laboratory Hours per Week.	Lectures per Week.	Laboratory Hours per Week.
Essay	124				
Bacteriology 1 (Arts)	...	..	7	..	..
Physics 9	186	2	..	2	..
Chemistry 6	152	2	..	2	..
Chemistry 7	153	2	3	2	3
Chemistry 8	153	3	3	..	..
Chemistry 9	153	2	3	2	3
Metallurgy 2	183	2	..	2	..
Thesis	...	..	9	..	18

III. Civil Engineering

The broad field covered by Civil Engineering makes it a necessary adjunct of all the other branches of engineering. Over three-fourths of the subjects offered by the Department are included in one or more of the courses of study laid down for other engineers, and nearly one-half of the subjects are required of all engineers. Notwithstanding this fact, 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 interests and environment determine, without compelling too early specialization with its inevitable limitations. Training in pure and applied science, in the humanities, in economics and business engineering, 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 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 Fourth Year thesis an opportunity is given for special investigation and research under the supervision of experienced engineers. The contents and methods in all subjects in the course of study are being constantly revised, not merely to keep pace with current practice, but to supersede and improve that practice and to enable the graduates, as years ripen their judgment, to assume positions of leadership in their chosen professions or occupations.

THIRD YEAR

Sessional Work

Subject.	For Details See Page:	First Term.		Second Term.	
		Lectures per Week.	Laboratory Hours per Week.	Lectures per Week.	Laboratory Hours per Week.
Essay	124				
Civil 8	156	1	3	..	..
Civil 9	156	..	..	1	3
Civil 10	156	2	..	2	3
Civil 11	157	2	..	2	..
Civil 12	157	2	..	..	3
Civil 13	157	..	4	..	4
Civil 14	157	2	..	2	..
Civil 15	158	..	3	..	..
Mechanical 6	177	2	3	2	3
Electrical 1	179	2	2	2	2
Economics 1	162	2	..	2	..
Civil 16	158	Field Work			
Civil 21	159	1	..	2	..

FOURTH YEAR

Sessional Work

Subject.	For Details See Page:	First Term.		Second Term.	
		Lectures per Week.	Laboratory Hours per Week.	Lectures per Week.	Laboratory Hours per Week.
Essay	124				
Civil 17	158	2	6	2	6
Civil 18	158	2	..	2	..
Civil 19	159	1	..	1	..
Civil 20	159	1	..	1	..
Civil 22	160	2	2	2	2
Civil 23	161	2	..	..	..
Civil 24	161	1	3	2	..
Civil 25	161	1	6	1	6
Civil 26	162	Required Trips Sat. A.M.			
Civil 27*	162	Thesis			
Geology 1*	168	2	2	2	2
Civil 21†	159	1	..	2	..

*In the year 1924-25, students who have had Geology 1 are required to take Civil 27, engineering thesis. Students who have not had Geology 1 are required to take it, in which case the thesis may be elected.

†1924-25 only.

IV. Electrical Engineering

This course is designed for those students who desire a general training in the theory and practice of Electrical Engineering in addition to the basic principles of Mechanical Engineering. The Third Year of the course is devoted mainly to Mechanical Engineering, together with work which involves the broad principles which underlie all engineering work. The Fourth Year is devoted to Electrical Engineering, the fundamental principles of industrial economics, works organization, management, and financing.

Vancouver and the surrounding country afford excellent facilities for the study of engineering works under commercial conditions. The managing officials of these works are pleased to permit students, in charge of a member of the Faculty, to inspect and conduct tests at pre-arranged times. Organized visits to industrial plants constitute a regular part of the advanced work.

THIRD YEAR

Sessional Work

Subject.	For Details See Page:	First Term.		Second Term.	
		Lectures per Week.	Laboratory Hours per Week.	Lectures per Week.	Laboratory Hours per Week.
Essay	124				
Mechanical 4	176	2	..	2	..
Mechanical 5	176	2	3	2	3
Mechanical 7	177	3	3	3	3
Civil 9	156	..	..	1	3
Civil 10	156	2	..	2	..
Electrical 2	179	3	2	3	4
Civil 12	157	2	..	..	3
Mechanical 2b	176	..	6	..	3
Mathematics 8	174	1	..	1	..

FOURTH YEAR

Sessional Work

Subject.	For Details See Page:	First Term.		Second Term.	
		Lectures per Week.	Laboratory Hours per Week.	Lectures per Week.	Laboratory Hours per Week.
Essay	124				
Electrical 4	180	3	6	3	6
Electrical 5	180	1	..	1	..
Electrical 6	180	1	..	1	..
Electrical 7	180	1	3	1	3
Electrical 8	180	1	..	1	..
Mechanical 8	177	2	3	2	3
Mechanical 10	178	2	3	2	3
Mechanical 12	178	1	..	1	..
Mechanical 14	179	1	..	1	..
Mathematics 9	174	1	..	1	..
Economics 1	162	2	..	2	..
Civil 18	158	2	..	2	..
Civil 19	159	1	..	1	..

V. Forest Engineering

In British Columbia the forest industries, including logging and the manufacture of lumber, pulp and paper, now lead all others, and are rapidly expanding. 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. 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 in 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 this Laboratory and its activities is given in another part of this calendar. It affords opportunities for instruction in testing the mechanical properties of timber and other structural materials, and it is expected that facilities will be provided eventually for experimental and demonstration work in wood seasoning and preserving.

NOTE: Students who contemplate this course are advised to take Economics 1 and Botany 1 in First Year Arts, if possible.

THIRD 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	124				
Forestry 1	163	1	..	1	..
Forestry 2	163	1	4	1	4
Forestry 3	163	..	..	1	..
Forestry 4	164	..	..	2	..
Botany 1	148	2	2	2	2
Botany 5 (b)	150	1	3	1	3
Electrical 1	179	2	2	2	2
Civil 8	156	1	3	..	..
Civil 9	156	..	..	1	3
Civil 10	156	2	..	2	3
Civil 11	157	2	..	2	..
Civil 13	157	..	3	..	..
Civil 14	157	2	..	2	..
Civil 19	159	1	..	1	..

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	124				
Forestry 5	164	1	3	2	3
Forestry 6	164	1	..	1	..
Forestry 7	165	1	..	1	..
Forestry 8	165	2	..	2	3
Forestry 9	165	3	..	..	..
Forestry 10	165	1	4	1	4
Forestry 11	166	2		..	
Forestry 12	166	..		2	
Botany 6 (b)	150	..	..	1	2
Zoology 4 (Special)	.....				
Botany 7 (a)	150	..	..	1	2
Mechanical 6	177	2	3	2	3
Civil 12	157	2	..	..	3
Civil 17	158	2	6	..	..
Civil 18	158	2	..	2	..

VI. Geological Engineering

This course is designed to meet the requirements of students who intend to enter Geology as a profession.

It gives a broad training not only in Geology, but also in the sciences of Biology, Chemistry, Physics, and Mathematics, which are extensively applied in the solution of geological problems. The engineering subjects are useful not only to the Mining and Consulting Geologist and the Geological Surveyor, but to the Geologist engaged in original research in any branch of the science.

The course therefore furnishes a foundation for the professions of Mineralogist, Geological Surveyor, Mining Geologist, Consulting Geologist, Palaeontologist, Geographer, etc., and is useful for those who will be in any way connected with the discovery or development of the natural resources of the country.

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 vacations.

THIRD YEAR

Sessional Work

Subject.	For Details See Page:	First Term.		Second Term.	
		Lectures per Week.	Laboratory Hours per Week.	Lectures per Week.	Laboratory Hours per Week.
Essay	124				
Geology 2	169	2	2	2	2
Geology 3	170	3	..	..	..
Geology 4	170	..	..	3	..
Geology 5	170	3	1	3	1
Chemistry 4	152	..	..	2	..
Chemistry 5	152	1	6	1	6
Economics 1 (Arts)	—	3	..	3	..
Mining 1	181	2	..	2	..
Mining 5	182	..	..	1	..
Metallurgy 5	183	1	5	..	..
Metallurgy 1	182	2	..	2	..
Ore Dressing 1	184	2	..	2	..
Zoology 1	190	2	2	2	2
Civil 13	157	..	..	..	3

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	124				
Geology 6	170	2	2	2	2
Geology 7	171	2	4	2	4
Geology 8	171	3	1	3	1
Civil 18	158	2	..	2	..
Geology 9	171	..	..	2	2
Geology 10	172	..	3	..	3
Mining 2	181	2	..	2	..
Mining 3	181	2	..	2	..
Metallurgy 2	183	2	..	2	..
Ore Dressing 2	184	..	3	..	3
Civil 8	156	1	3	..	..
Geological Essay	...	..	..	..	5

VII. Mechanical Engineering

As this branch of Engineering forms an outstanding feature in all industrial development, the course of training is general

and basic in its character. Because of its general character it is not possible in the time available to give the student an intimate knowledge of the details of practice in any special line of work. The course is designed more particularly for those who are likely to take up the manufacture of machinery, power plant work (including design and construction of steam, gas, oil, or hydraulic plants), heating and ventilation of buildings, refrigeration, or industrial management.

Students in this course are given a systematic course in the fundamentals of Electrical Engineering.

Governed by the fact that values and costs are controlling factors in the practice of Engineering, the subjects of the final years are treated with a view of developing a business sense, an understanding of men, and the ability to report clearly on industrial problems. This demands the study of Economics, the use of good English, and the participation in outside industrial work during the vacation.

THIRD YEAR

As in Electrical Engineering. (See Page 130.)

FOURTH YEAR

Summer Work

Sessional Work

Subject.	For Details See Page:	First Term.		Second Term.	
		Lectures per Week.	Laboratory Hours per Week.	Lectures per Week.	Laboratory Hours per Week.
Essay	124				
Mechanical 9	178	2	6	2	6
Mechanical 10	178	2	5	2	5
Mechanical 11	178	1	..	1	..
Mechanical 12	178	1	..	1	..
Mechanical 13	179	1	3	1	3
Mechanical 14	179	1	..	1	..
Electrical 3	179	2	3	2	3
Civil 18	158	2	..	2	..
Civil 19	159	1	..	1	..
Economics 1	162	2	..	2	..
Mathematics 9	174	1	..	1	..

VIII.-IX. Metallurgical and Mining Engineering

Modern Metallurgical practice covers a wide and expanding field. The Metallurgical Engineer has to design and operate a great variety of plants and processes. He must be able to deal with furnace and solution processes, based on chemical principles, and mechanical crushing and separating processes, based on physical principles, together with an immense variety of principal and auxiliary machinery, from small to immense, used in the separation and refining of a great variety of ores, artificial mineral products and metals. The whole forms a great, keenly competitive and strictly commercial industry, based on, and closely limited by, the practical economic considerations of costs and profits. Rapid and continuous change and improvement is the rule. Methods and machines quickly become obsolete. The field for research and improvement in methods and machinery is ever widening, though the economic margin is ever narrowing.

To prepare the student to meet these conditions and to compete successfully after graduation, he requires a thorough grounding in the fundamentals of Physics and Chemistry, Mechanics and Economics, on which all successful operations and advances are based.

The Metallurgical course, in the Third and Fourth Years, based on the fundamental earlier years, is designed to give the student a broad general knowledge of standard metallurgical methods and machinery, with a fundamental grasp of the actual applications of the basic sciences in practical metallurgical operations, and sufficient laboratory practice to illustrate and fix these in his mind and train him for an actual junior position after graduation.

Modern mining operations cover a field which is notable for its breadth and variety. The discovery, steadily becoming more difficult, and the development, steadily becoming more scientific, of new mineral deposits are based largely on a knowledge of the laws and processes of Nature, ultimately

physical and chemical, but immediately, chiefly geological in kind. On the other hand, the operations of actual mining are largely mechanical in kind, and call for use and knowledge of a great variety of mechanical and electrical equipment, adapted to underground methods and conditions.

The conditions under which mining operations are carried on are often of great natural difficulty, and many of the factors to be dealt with are, to a large extent, obscure and indefinite oftener than measureable. The qualities of good judgment and decision are therefore of great importance in the application of technical knowledge to mining. As in metallurgy, economic considerations are paramount.

The Mining course is correspondingly broad in scope. In addition to the fundamental sciences, it includes fundamental subjects in Civil, Electrical and Mechanical Engineering, Economics and Economic Geology.

The special mining subjects cover the underlying principles and practice on which the discovery, development and economic operation of mines are based, the practical application of technical knowledge to actual operations, and the use of judgment and decision, by precept, example and illustration. Sufficient practical training and laboratory work is included to fit the student for an actual junior position after graduation. While not given as a separate subject, the social, administrative and ethical sides of the professions of Mining and Metallurgy are included in the general treatment of appropriate subjects.

In this University, emphasis is naturally placed on British Columbia conditions and its chief mineral products, namely: Gold, Silver, Lead, Zinc, Copper, Coal and Coke.

The University is conveniently located in proximity to coal and metal mining districts, large coal and metal mining operations being carried on within a few hours' journey, in connection with which there are large coal washing and ore concentration plants. There is a large metallurgical works at Tacoma, within an easy day's journey. Students have little

difficulty in obtaining positions in mines or smelters during their vacation, as several of the larger companies have established the practice of accepting student employees in reasonable numbers during the vacation months.

Students are recommended to spend their vacations at practical works, in connection with Metallurgy or Mining, and are required to do so between the Third and Fourth Years as an essential part of their course, without which a degree will not be granted. An essay covering this work is also required, as specified in the Fourth Year curriculum.

Students are advised to become student members of the Canadian Institute of Mining and Metallurgy.

VIII. Metallurgical Engineering

THIRD YEAR

Sessional Work

Subject.	For Details See Page:	First Term.		Second Term.	
		Lectures per Week.	Laboratory Hours per Week.	Lectures per Week.	Laboratory Hours per Week.
Essay	124				
Economics 1	162	2	..	2	..
Civil 9	156	..	..	1	3
Civil 10	156	2	..	2	3
Civil 12	157	2	..	..	3
Civil 13	157	..	3	..	..
Mechanical 6	177	2	3	2	3
Geology 2	169	2	2	2	2
Electrical 1	179	2	2	2	2
Mining 1	181	2	..	2	..
Ore Dressing 1	184	2	..	2	..
Metallurgy 1	182	2	..	2	..
Metallurgy 5	183	1	5	..	..
Metallurgy 6	184	..	3	..	3

FOURTH YEAR
Sessional Work

Subject.	For Details See Page:	First Term.		Second Term.	
		Lectures per Week.	Laboratory Hours per Week.	Lectures per Week.	Laboratory Hours per Week.
Essay	124				
Geology 9†	171	..	2	..	2
Geology 8	171	3	1	3	1
Civil 18	158	2	..	2	..
Chemistry 8	153	3	3	..	..
Ore Dressing 2	184	..	9	..	9
Mining 3	181	2	..	2	..
Metallurgy 2	183	2	..	2	..
Metallurgy 3	183	2	..	2	..
Metallurgy 4	183	..	6	..	12
Electrical 1*	179	2	2	2	2

*1924-5 Session only.
†1925-6 and after.

IX. Mining Engineering

THIRD YEAR

As in Metallurgical Engineering. (See Page 138.)

FOURTH YEAR
Sessional Work

Subject.	For Details See Page:	First Term.		Second Term.	
		Lectures per Week.	Laboratory Hours per Week.	Lectures per Week.	Laboratory Hours per Week.
Essay	124				
Geology 7	171	2	4	2	4
Geology 8	171	3	1	3	1
Civil 18	158	2	..	2	..
Civil 19†	159	1	..	1	..
Metallurgy 2	183	2	..	2	..
Ore Dressing 2	184	..	9	..	9
Mining 2	181	2	..	2	..
Mining 3	181	2	..	2	..
Mining 4	182	1	..	1	..
Mining 5	182	..	..	1	..
Mining 7	182	1	..	..	..
Mining 6	182	..	3	..	3
Electrical 1*	179	2	2	2	2

*1924-5 Session only.
†1925-6 and after.

Short Courses in Mining

The regular Short Courses in Mining for the Session of 1924-25 will commence the second Monday in January, 1925, and will continue for eight weeks. These courses include Mining, Smelting, Ore Concentration, Geology and Ore-deposits, Mineralogy and Rock Study, Fire Assaying, Chemistry, and Surveying.

The courses are thoroughly practical in nature. They are not primarily intended for those who have had a technical training, but rather for those who have had practical experience in mining and prospecting, or are connected with the business of mining in any way. The courses are designed to give practical and technical knowledge, helpful in practical mining work and mining business. While they are short they are complete in themselves, and require no other preparation than a common-school education or ability to read and write.

Experience has shown that they fill a real need in a practical way and they have proved very successful in the past.

As they do not form part of the regular University course, a special bulletin is issued, in which details of the courses and requirements for admission are given. Copies of this may be obtained on application to the Registrar of the University.

These courses will not be given unless at least ten students register for them.

X. Nursing and Health

Three courses are offered in the Departments of Nursing and Public Health, viz.:

NURSING AND HEALTH

A five-years course leading to the degree of B.A.Sc. (Nursing) and to the diploma in Nursing of the associated hospitals approved by the Senate.

The aim of this course is to afford to women capable of leadership a broader and more liberal education than can be given by the training school alone, and thus to prepare them for teaching and administration in schools of nursing and for public health nursing service.

The First and Second Years, which are academic, give students an introduction to general cultural subjects as well as a foundation in the sciences underlying the practice of nursing. The Third and Fourth Years are devoted to professional training in the hospital and are planned to afford experience and training in the care of the sick and to develop the skill, observation and judgment necessary to the efficient practice of the nursing profession. In the Fifth Year students may select as their major subject that particular phase of nursing in which they are most interested and for which, in the opinion of their advisers, they appear to be best qualified.

Until 1925, nurses who have graduated from a hospital in affiliation with the University or otherwise approved of by the Senate may be awarded the degree on complying with the following conditions:

1. They shall have matriculated.

2. They shall have taken the full academic training laid down for this course. At least one year of such training 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 date of graduation as a nurse.

FIRST YEAR (ACADEMIC)

English 1 (*a*) and (*b*). (Page 83.)

Mathematics 1 or Latin 1 or French 1 or History 1, 2 or 3. (Pages 102, 76, 106, 95, 96.)

Physics 1. (Page 112.)

Chemistry 1. (Page 70.)

Biology 1. (Page 65.)

Nursing 1. (Page 186.)

If they have not already done so, students should enter an approved Training School for Nurses in May at the close of their First Academic Year and take the prescribed four months' Preparatory course for Probationers. Subject to the

approval of the Head of the Department, students may be permitted to take this Preparatory course at the conclusion of their Second Academic Year instead of in the interval between the First and Second Years. During this period the student will undergo:

(*a*) Rigid physical examination.

(*b*) Examination as to fitness in temperament and character for the practice of nursing. Hospitals reserve the right to reject candidates who do not reach the required Training School standards.

SECOND YEAR (ACADEMIC)

English 2 (*a*) and (*b*). (Page 83.)
Zoology 1. (Page 115.)
Philosophy 1. (Page 110.)
Economics 1 or Sociology 1. (Pages 78, 82.)
Bacteriology 1 and 2. (Page 64.)
Nursing 2. (Page 187.)

THIRD AND FOURTH YEARS

The Third and Fourth Years will be spent in practical training in a hospital approved by the Senate. Students are required to register with the University even though during this portion of the course they are in residence at the hospital. They are subject to the authority and are under the direction of the officers of the Training School. The required period of hospital service is twenty-four months, in which is included the probationary period of four months. Full maintenance and such allowances as the hospital authorities may designate are accorded, and a yearly vacation of three weeks is granted at the convenience of the Director of the Training School.

(For description of hospital service see Page 187.)

At the close of the Fourth Year students are required to serve for a period of six weeks in the Social Service and Outpatient Department of the hospital. They receive neither maintenance nor allowances during this time.

FIFTH YEAR

A choice is offered of two major subjects, viz.:

A.—Teaching and Administration.
B.—Public Health Nursing.

Course A.—Teaching and Administration

History and Principles of Education. (Page 260.)
Educational Psychology. (Page 260.)
Teaching of Nursing Principles and Methods. (Page 189.)
Mental Hygiene. (Page 189.)
History of Nursing and Contemporary Problems. (Page 188.)

1. *Field Work.*—Students electing this major subject will be required to do practice teaching under supervision and will be afforded an opportunity of studying Training School Administration.

Course B.—Public Health Nursing

Students electing Public Health Nursing as their major subject will take the courses of lectures and the field work outlined under Public Health Nursing (see below). With the consent of the Head of the Department they may substitute one or more of these courses for one or more of those already outlined under Course A, Teaching and Administration.

PUBLIC HEALTH NURSING

A course of one academic year in the Principles and Practice of Public Health Nursing. This course, leading to a certificate, is open to nurses in good standing who have graduated from a recognized School of Nursing connected with a hospital of not less than fifty beds, and who are eligible for registration in British Columbia.

The aim of the course is to afford such instruction to graduate nurses entering the public health field as will assist them in dealing with those problems of public health, economics and education that are met in public health service, and to give them a broader understanding of present-day nursing conditions. Special emphasis will be placed upon the public health programme in this Province.

Candidates for this course should apply to the Department not later than September 19th, 1924. A certificate of good health and physical condition, signed by a regular practising physician, must be presented with the application. The registration and class fees for the course are $75.00. These may be paid in two equal instalments, the first not later than October 6th and the second not later than January 19th.

The course will consist of three months of academic work in the University. This will be followed by four months' field work in the various branches of public health in which services are available for teaching purposes. Upon the completion of the course an examination will be held, and to successful candidates a certificate will be issued.

(For description of Courses see Page 187.)

PUBLIC HEALTH

A series of lectures on Public Health, designed to supply general information concerning the principles of the science and the relationship it bears to the community at large. Open to all students in the University.

DOUBLE COURSE FOR THE DEGREES OF B.A. AND B.A.Sc.

The requirements are as follows:

FIRST AND SECOND YEARS

As set forth in the Calendar for the First and Second Years of Arts, except as follows:

Physics 1, Chemistry 1, and Mathematics 2 must be taken.

French should be selected by students intending to enter Geological Engineering.

A course in German is recommended for students intending to enter Chemical, Forest, Geological or Metallurgical Engineering.

The summer school in Mechanical Engineering 1 of the First Year of Applied Science must be taken before entering upon the Third Year of the Double Course.

THIRD YEAR

1. Three units in one of the following:

   A language;
   History;
   Economics;
   Philosophy.

2. Biology 1, Applied Science.

3. Mathematics 1, 2, 3, Applied Science.

4. Physics 1 and 2, Applied Science.

5. Mechanical Drawing 1, Mechanical Engineering 2, and Civil Engineering 1.

Civil Engineering 2 (Field Work) will be taken immediately after the spring examinations.

FOURTH YEAR

As for Second Year Applied Science.

FIFTH YEAR

As for Third Year Applied Science. The degree of B.A. to be conferred on completing the Fifth Year of this course.

SIXTH YEAR

As for Fourth Year Applied Science.

EXAMINATIONS AND ADVANCEMENT

1. Examinations are held in December and in April. December examinations will be held in all subjects of the First and Second Years, and are obligatory for all students of these years. December examinations in subjects of the Third and Fourth Years, excepting those subjects that are completed before Christmas, shall be optional with the Departments concerned. Applications for special consideration on account of illness or domestic affliction must be submitted to the Dean not later than two days after the close of the examination period.

2. Candidates in order to pass must obtain at least 50 per cent. in each subject, except that 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, namely, 50 per cent. of the examination as a whole, and not less than 40 per cent. 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 and will not be granted at any other time, except by special permission of the Faculty, and on payment of a fee of $7.50 per paper.

6. Applications for supplemental examinations, accompanied by the necessary fees (see Schedule of Fees), must be in the hands of the Registrar at last 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 4 units of the preceding year, or 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. No student will be allowed to take any subject unless he has previously passed, or secured exemption, in all prerequisite subjects. If any subject has another which is concurrent with it, both must be taken in the same session.

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 may, *on application in writing,* be exempted by the Faculty from attending lectures and passing examinations in subjects in which he has already made at least Second Class standing. 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.

DEPARTMENTS IN APPLIED SCIENCE

N.B.—The following subjects may be modified during the year as the Faculty may deem advisable.

Department of Botany

Professor: A. H. Hutchinson.
Assistant Professor: John Davidson.
Assistant Professor: Frank Dickson.
Assistant: L Bolton.
Assistant: G. V. Wilby.

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.

Text-book: Smallwood, *Text-book of Biology,* Lea & Febiger, 1920.

The course is prerequisite to all other courses in Biology.

Two lectures and two hours laboratory per week.

2. *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.

Two lectures per week. First Term.

3. *General Physiology* of animal and plant life processes. Open to students of Third and Fourth Years having prerequisite Chemistry and Physics.

Text-book: Bayliss, *Principles of General Physiology,* Longmans-Green.

Two lectures and four hours laboratory per week. Second Term.

Botany

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

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

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

Two lectures and two hours laboratory per week.

2. *Morphology.*

General Morphology of plants. A comparative study of plant structures. The relationships 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.

Two lectures and four hours laboratory per week. First Term.

3. *Plant Physiology.*

Text-book: Palladin, *Plant Physiology,* English Edition (Translation of 6th Russian Edition), 1918, P. Blakiston.

Two lectures and four hours laboratory per week. First Term.

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.

Seven hours per week. Second Term.

5 (*a*). *Economic Flora.*—A course in Systematic Botany, illustrated by native and introduced plants of economic importance.

The classification of injurious and useful algae, fungi, mosses, ferns and flowering plants. The identification of weeds, native trees, poisonous, medicinal, and fodder plants.

The course, while designed particularly to meet the needs of students of Agriculture or Forestry, is open to students of the Third and Fourth Years in Arts and Science.

Text-books: Henry, *Flora of Southern British Columbia,* Gage; Leavitt, *Outlines of Botany with Flora,* American Book Co.

Prerequisite: Botany 1.

Two lectures and the equivalent of four hours practical work per week, including laboratory, excursions and the preparation of collections. Second 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.

Text-books: Morton & Lewis, *Native Trees of Canada,* Dominion Forestry Branch, Ottawa. Sudworth, *Forest Trees of the Pacific Slope,* Superintendent of Documents, Washington, D. C.

One lecture and two or three hours laboratory or field work per week.

6 (*a*). *General Plant Pathology.*—Identification and life-histories of parasites causing plant-diseases; means of combating them.

Text-book: Duggar, *Fungus Diseases of Plants,* Ginn.

Prerequisite: Botany 1.

One lecture and two hours laboratory per week. Second Term.

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 two hours laboratory per week during one-half of one 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.

Text-book: Hardy, *The Geography of Plants,* Oxford University Press.

One lecture per week during one term. Field trips during the session amounting to thirty hours.

Department of Chemistry

Professor: E. H. Archibald.
Professor of Organic Chemistry: R. H. Clark.
Associate Professor: W. F. Seyer.
Assistant Professor: M. J. Marshall.
Instructor: John Allardyce.
Assistant: A. E. Boss.
Assistant: W. E. Graham.
Assistant: Duncan Fraser.
Assistant: G. A. Fleming.
Assistant: L. F. Hallett.

1. *General Chemistry.*—This course is arranged to give a full exposition of the general principles involved in modern Chemistry and comprises a systematic study of the properties of the more important metallic and non-metallic elements and their compounds, and the application of Chemistry in technology.

Text-book: Alexander Smith, *Inorganic Chemistry,* Century.

Three lectures and three hours laboratory per week.

2. *Qualitative and Quantitative Analysis.*

(*a*) *Qualitative Analysis.* — One lecture and six hours laboratory per week throughout the First Term. (During the first six weeks of the term an additional lecture may be substituted for a part of the laboratory work.)

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

Text-books: A. A. Noyes, *Qualitative Analysis,* Macmillan; Cumming & Kay, *Quantitative Analysis,* Gurney & Jackson.

Prerequisite: Chemistry 1.

One lecture and six hours laboratory per week. Second Term.

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 fatty 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, *The Practical Methods of Organic Chemistry,* Macmillan.

Two lectures and three hours laboratory per week.

4. *Theoretical Chemistry.*—An introductory course on the development of modern Chemistry, including osmotic phenomena, the ionization theory, the law of mass action, and the phase rule.

Text-book: James Walker, *Introduction to Physical Chemistry,* Macmillan.

Prerequisite: Chemistry 2.

Two lectures and one hour laboratory per week. Second Term.

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 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 six 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 neighbourhood, and it is hoped that some lectures will be given by specialists in their respective fields.

Prerequisites: Chemistry 2 and 3.

Two lectures per week.

7. *Physical Chemistry.*—The lectures, which are a continuation of those given in 4, include the kinetic theory of gases, thermo-chemistry, the application of the principles of thermodynamics to chemistry, osmotic phenomena, applications of the dissociation theory, colloidal solutions, and a study of the physical properties of gases, liquids, and solids and of their chemical constitutions.

Text-book: Findlay, *Physico-Chemical Measurements,* Longmans-Green.

For reference: Ramsay's Series of Books on Physical Chemistry, Longmans. Getman, *Theoretical Chemistry,* Wiley.

Prerequisites: Chemistry 2, 3 and 4.

Two lectures and three hours laboratory per week.

8. *Electro-Chemistry.*—As in Arts. (See Page 73.)

9. *Advanced Organic Chemistry.* — As in Arts. See Page 73.)

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.

Text-book: Walker, Lewis & McAdams, *Principles of Chemical Engineering,* McGraw-Hill.

Reference books: Liddell, *Handbook of Chemical Engineering.* Robinson, *Elements of Practical Distillation.*

Two lectures per week during second term of Fourth Year.

Department of Civil Engineering

Professor: Wm. E. Duckering.
Associate Professor: E. G. Matheson.
Lecturer: W. H. Powell.
Instructor: A. Lighthall.
Instructor: F. A. Wilkin.
Assistant: Cyril Jones.

1. *Descriptive Geometry.* — Geometrical drawing; orthographic, isometric and axometric projections; shades and shadows.

Text-book: Armstrong, *Descriptive Geometry,* Wiley.

Two lectures and one three-hour period per week.

Mr. Matheson, Mr. Wilkin, Mr. Lighthall, Mr. Jones.

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.

Mr. Duckering, Mr. Matheson, Mr. Powell, Mr. Wilkin, Mr. Lighthall, Mr. Jones.

3. *Materials of Engineering.*—Manufacture and properties of iron and steel; principal alloys; considerations governing selection of materials; manufacture and properties of cements; concrete; stone and brick masonry; principal kinds of commercial timber; treating and preservation of timber; discussion of standard specifications for engineering work.

Text-book: Moore, *Materials of Engineering,* McGraw-Hill.

References: Mills, *Materials of Engineering;* Johnson, *Materials of Construction;* Upton, *Materials of Engineering.*

One lecture per week. Mr. Matheson.

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; stresses 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.

Reference: Merriman and Jacoby, *Roofs and Bridges,* Vol. II.

Prerequisites: Physics 4 must either precede or accompany Civil 4.

One three-hour period. First Term.

Mr. Duckering, Mr. Lighthall.

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. Mine and land plans.

One three-hour period per week. Mr. Powell.

6. *Surveying 1.*—Chain and angular surveying; the construction, adjustment and use of the transit, level, compass, stadia, minor field instruments, planimeter, and pantograph; leveling; topography; contour surveying; stadia; railway curves; vertical curves; transition curves.

Text-book: Breed and Hosmer, *Elementary Surveying,* Vol. I., Wiley.

References: Gillespie, *Surveying,* Vol. I.; Nugent, *Plane Surveying;* Baker, Engineer's *Surveying Instruments;* Allen, *Curves and Earthwork;* Sullivan, *Spiral Tables.*

Two lectures per week. Mr. Powell.

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; stream-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; mine surveying.

Prerequisite: Civil 2.

Time same as for Civil 2. Mr. Wilkin, Mr. Lighthall.

8. *Foundations and Masonry.*—Borings; bearing power of soils; pile and other foundations; cofferdams; caissons; open dredging; pneumatic and freezing processes; estimates of quantities and costs.

Text-book: Jacoby and Davis, *Foundations of Bridges and Buildings,* McGraw-Hill.

One lecture and one three-hour period. First Term.

Mr. Matheson.

9. *Structural Design 1.*—Problems in draughting, illustrating designs in structural engineering; estimates of quantities and costs; preparation of plans.

Text-book: Conklin, *Structural Draughting and Elementary Design,* Wiley.

Prerequisite: First Term of Civil 10.

One lecture and one three-hour period. Second Term.

Mr. Matheson.

10. *Strength of Materials.*—A thorough introduction to the fundamental principles dealing with the strength of materials; stress, deformation, elasticity and resilience; the application of the first, second and third laws of derived curves to the construction of load, shear, moment, inclination and deflection diagrams; fibre stress and deflection of simple, cantilever, and continuous beams under any loading; riveted joints; torsion; columns; combined stresses; longitudinal shear; special beams.

The laboratory period includes the testing of cement, concrete, timber and steel specimens to determine the strength and elasticity of these materials. A portion of the time will be set aside for the solution of problems in investigation and design.

Text-book: Boyd, *Strength of Materials,* McGraw-Hill.

Reference: Morley, *Strength of Materials.*

Two lectures per week. First Term.

Two lectures and one three-hour period. Second Term.

Mr. Duckering, Mr. Lighthall.

Note: The laboratory testing is given in the Forest Products Laboratories, under the supervision of Superintendent McElhanney.

11. *Railway Engineering 1.*—The inception of railway projects; reconnaissance, preliminary and location; grade problems; grades, curvature and distance and their effects upon operating costs and revenue; assistant engines; adjustment of grades for unbalanced traffic; construction; railway economics, traffic, revenue, branch lines.

Text-book: Williams, *Design of Railway Location,* Wiley.

Reference: Allen, *Railroads, Curves and Earthwork.*

Two lectures per week. Mr. Wilkin.

12. *Hydraulic Engineering 1.*—(*a*) Hydrostatics; design of standpipes, reservoirs and dams.

(*b*) Hydrodynamics: fundamental principles and their application to problems on the discharge of orifices, notches and weirs; flow in pipes and open channels; practical field measurements; examination of hydraulic developments.

Text-book: Russell, *Hydraulics,* Holt.

Two lectures per week, First Term; three hours laboratory per week, Second Term. Mr. Powell, Mr. Wilkin.

13. *Mapping 2.*—Draughting from notes obtained in Civil 7; railway location and hydrographic surveys; map projections; topographic maps from photographic plates.

One four-hour period per week. Mr. Lighthall.

14. *Surveying 2.*—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; field astronomy.

Text-book: Breed and Hosmer, *Surveying,* Vol. II., Wiley.

References: Johnson and Smith, *Theory and Practice of Surveying;* Wilson, *Topographic, Trigonometric and Geodetic Surveying;* Green's *Practical and Spherical Astronomy; Manual of Surveys of Dominion Lands; Instructions for B. C. Land Surveyors.*

Prerequisite: Civil 6.

Two lectures per week. Mr. Lighthall.

15. *Perspective Drawing.*—Mathematical perspective; perspective drawings of buildings and structures.

Text-book: Crosskey, *Elementary Perspective,* Blackie & Son.

One three-hour period per week. First Term. 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 dead and live loadings; calculation of stresses; choice of cross-sectional forms and areas; design of connections; masonry structures, dams and retaining walls; complete drawings.

Text-book: Johnson, Bryan and Turneaure, *Modern Framed Structures,* Vol. III., Wiley.

Prerequisites: Civil 8, 9 and 10.

Two lectures and two three-hour periods per week.

Mr. Matheson.

18. *Engineering Economics.*—A general treatment of: sinking funds; first cost; cost analysis; salvage and scrap values; yearly cost of service; collecting data; estimating; economic selection.

General management; banking; partnerships and corporations; stocks; bonds; operating and fixed charges; business finance and organization; capital and interpretation of financial statements.

Text-book: Fish, *Engineering Economics,* McGraw-Hill.

References: Waddell and Wait, *Specifications and Contracts;* Anger, *Digest of Canadian Mercantile Law.*

Two lectures per week. Mr. Wilkin.

19. *Engineering Law.*—The engineer's status; fees; salary; as a witness; responsibility for negligence; engineering contracts generally; tenders; quantities; specifications; plans; drawings; designs; extras and alterations; time; payments and certificates; penalty bonus or liquidated damage clauses; maintenance and defect clauses; subcontractors; assistants and agents; arbitration and awards; specification and contract writing.

Text-book: Waddell and Wait, *Specifications and Contracts,* McGraw-Hill.

References: Anger, *Digest of Canadian Mercantile Law of Canada;* Ball, *Law Affecting Engineers.*

One lecture per week. Mr. Wilkin.

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;* Carey, *Geodetic Surveying;* Gillespie, *Higher Surveying.*

Prerequisite: Civil 14.

One lecture per week. Mr. Lighthall.

21. *Hydraulic Engineering 2.*—Waterpower engineering; 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, *Waterpower Engineering,* McGraw-Hill.

References: Gibson, *Hydroelectric Engineering.*

Prerequisites: Civil 12 must either precede or accompany Civil 21.

One lecture per week, First Term; two lectures per week, Second Term. Mr. Wilkin.

22. *Municipal Engineering.*—(1) *Water Supply,* Rainfall; evaporation; run-off; quantity, quality and pressure required; pumping machinery; storage; aqueducts, pipe lines and distribution systems; purification systems; valves, hydrants and fire service; materials, estimates and designs; construction methods and costs.

Text-book: Turneaure, *Public Water Supply,* Wiley.

Reference: Flinn, Westbrook, Bogart, *Waterworks Handbook.*

(2) *Sewerage and Sewage Disposal.* (*a*) General methods and economic considerations; quantity and run-off; design of sewers, manholes, flushtanks, etc.; construction methods, materials and costs; estimates, design, maintenance and management.

(*b*) Sewage Disposal: physical, chemical, biological and economical aspects of sewage treatment; dilution; screening, sedimentation, filtration; disinfection; maintenance and management costs.

Text-book: Metcalf and Eddy, *Sewerage and Sewage Disposal,* McGraw-Hill.

(3) *Roads, Streets and Pavements.* (*a*) Highway economics, surveys and locations; grades; cross-sections; paving materials; construction methods; designs and estimates.

(*b*) Maintenance and repairs; street cleaning and disposal of waste; composition and quantity of city wastes; collection, dumping and disposal; land treatment; incineration and reduction; costs and returns.

(c) Town planning; covering the economical and artistic development of a city.

Text-books: Agg, *Construction of Roads and Pavements,* McGraw-Hill; Lewis, *City Planning,* Wiley.

Reference: Harger and Bonney, *Highway Engineer's Handbook.*

Prerequisite: Civil 12.

Two lectures and one two-hour period per week.

Mr. Powell, Mr. Lighthall.

23. *Railway Engineering 2.*—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. Wilkin.

24. *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 of reinforced concrete beams, slabs and columns.

References: Ketchum, *Steel Mill Buildings;* Hool, *Reinforced Concrete,* Vol. I.; Hool and Johnson, *Concrete Engineer's Handbook.*

Prerequisite: Civil 10.

One lecture and one three-hour period per week, First Term; two lectures per week, Second Term. Mr. Duckering.

25. *Theory of Structures.*—The analysis of statically determinate framed structures under dead and live loads; distortion of framed structures; the use of influence lines for analysis of stresses and deflections; hinged and hingeless arches; reinforced concrete arch ribs; secondary stresses and redundant members.

References: Johnson, Bryan and Turneaure, *Modern Framed Structures,* Vols. I. and II.; Hool and Johnson, *Concrete Engineer's Handbook;* Malverd Howe, *Influence Lines;* Morley, *Theory of Structures.*

Prerequisite: Civil 10.

One lecture and two three-hour periods. Mr. Duckering.

26. *Class Excursions.*—Members of the Fourth 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 view of the engineering field.

27. *Civil Engineering Thesis.*—Original research on selected topics or engineering projects; experimental investigations. Topic may be selected from one of the major divisions of the Civil Engineering Course: Geodetic Surveying, Railway Engineering, Hydraulic Engineering, Municipal and Highway Engineering, Economic and Business Engineering, Structural Engineering.

Work extends throughout the year.

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 Dairying.

One lecture per week. Mr. Powell.

Department of Economics

Professor: T. H. Boggs.
Associate Professor: H. F. Angus.
Assistant Professor: S. E. Beckett.
Assistant: Doris Lee.

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: Clay, *Economics for the General Reader,* Macmillan. Ely, *Outlines of Economics,* Macmillan, 1923.

Two lectures per week.

Department of Forestry

Professor: H. R. Christie.
Assistant Professor: F. Malcolm Knapp.

1. *General Forestry.*—A general survey of the subject.

Text-book: Fernow, *Economics of Forestry,* Toronto University Press.

References: Whitford and Craig, *Forests of British Columbia.* Pinchot, *Primer of Forestry.* Moon and Brown, *Elements of Forestry.* Allen, *Practical Forestry in the Pacific Northwest.* Schlich, *Forest Policy in the British Empire.* Zon and Sparhawk, *Forest Resources of the World.* Various government publications.

One lecture per week.

2. *Forest Mensuration.*—Measurement of felled timber, of standing timber, and of growth of trees and forests. Includes scaling, timber estimating, and preparation of tables of volume, growth and yield.

Text-book: Chapman, *Forest Mensuration,* Wiley.

Reference books: Winkenwerder and Clark, *Problems in Forest Mensuration.* Graves, *Woodsman's Handbook.* Graves, *Forest Mensuration.* Carey, *Manual for Northern Woodsmen.*

One lecture and four hours' field or laboratory work per week.

3. *Forest Protection.*—The fire problem, legislation, organizations, prevention and control.

Text-book: *Western Fire Fighters' Manual,* Western Forestry and Conservation Association, Portland, Ore.

Reference books: Millar, *Methods of Communication Adapted to Forest Protection,* Dominion Forestry Branch, Ottawa. U. S. Forest Service, *Trail Building in the National Forests.*

One lecture per week. Second Term.

4. *Forest Finance.*—Forestry from the financial standpoint, including studies of compound interest, valuation, rotation, insurance and taxation.

Text-book: Roth, *Forest Valuation,* University of Michigan.

Reference books: Chapman, *Forest Valuation.* Woodward, *Valuation of North American Timber Lands.*

Two lectures per week. Second Term.

5. *Timber Physics and 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. Record, *Mechanical Properties of Wood,* Wiley.

Reference books: Weiss, *Preservation of Structural Timber.* Snow, *Wood and Other Organic Structural Materials.* Roth, *Timber,* U. S. Forest Service, Bul. 10. Tiemann, *The Kiln Drying of Lumber.*

One lecture per week First Term, two Second Term; three hours laboratory per week.

6. *Forest Organization.*—The principles and methods of organizing forest areas for business management. Normal forest, increment, rotation, felling budget, working plans.

Text-book: Roth, *Forest Regulation,* Roth, University of Michigan.

Reference books: Recknagel and Bentley, *Forest Management.* Recknagel, *Forest Working Plans.* Schlich, *Forest Management.* Woolsey, *American Forest Regulation.*

One lecture per week.

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.* Schlich, *Forest Policy in the British Empire.* Boerker, *Our National Forests.* Ise, *The United States Forest Policy.* Zon and Sparhawk, *Forest Resources of the World.* Various government publications.

One lecture per week.

8. *Silviculture.*—Principles and methods of caring for forests and growing timber crops.

Text-book: Hawley, *Practice of Silviculture,* Wiley.

Reference books: Graves, *Principles of Handling Woodlands.* Toumey, *Planting and Seeding.* Woolsey, *Studies in French Forestry.* Schlich, *Silviculture.* Various government publications.

Two lectures per week during the year, and 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.

Reference books: Gibbons, *Logging in the Douglas Fir Region,* U. S. D. A. Bul. 711. Berry, *Lumbering in the Sugar and Yellow Pine Region of California,* U. S. D. A. Bul. 440.

Three lectures per week. First Term.

10. *Logging.*—An intensive study of logging systems and operations in the forests of western North America.

Text-book: Gibbons, *Logging in the Douglas Fir Region,* U. S. D. A. Bul. 711, Superintendent of Documents, Washington, D. C.

Reference books: Various articles in the *Timberman, B. C. Lumberman* and other trade journals.

One lecture per week throughout the year; four hours laboratory or field work per week alternating with Forestry 11 and 12.

11. *Milling.*—A study of the sawmilling and allied wood-working industries of western North America.

Text-book: Bryant, *Lumber,* Wiley.

Reference books: Oakleaf, *Lumber Manufacture in the Douglas Fir Region.* Brown, *American Lumber Industry.* Berry, *Lumbering in the Sugar and Yellow Pine Region of California,* U. S. D. A. Bul. 440. Seeley, *Small Sawmills,* U. S. D. A. Bul. 718.

Two lectures per week; four hours laboratory or field work per week alternating with Forestry 10. First Term.

12. *Forest Products.*—A study of other forest industries, including paper and pulp, naval stores, and wood distillation.

Reference books: Whitham, *Modern Pulp and Paper Making.* Brown, *Forest Products, Their Manufacture and Use.* Various government publications.

Two lectures per week; four hours laboratory or field work per week, alternating with Forestry 10. Second Term.

Forest Products Laboratory

T. A. McElhanney, B.A.Sc. (Toronto), D.L.S., B.C.L.S., A.M.E.I.C., Acting Superintendent.

R. S. Perry, B.Sc. (McGill), A.M.E.I.C.
(To be appointed) } **Timber Tests Engineers.**

J. T. Lee
D. S. Wright } **Timber Testers.**

On account of the importance of the timber industry of British Columbia and its remoteness from the main laboratory at McGill University in Montreal, the Forestry Branch of the Department of the Interior in 1918 established this laboratory as a Branch of the Forest Products Laboratories of Canada.

The laboratory was equipped primarily for timber testing on account of the value of the timbers of the Province for

structural purposes, and its work has to a considerable extent centered around the determination of the mechanical and physical properties of woods grown in Western Canada in comparison with woods grown elsewhere, and tested in other laboratories under similar standard procedure. It has rendered advice and assistance to the industries in a variety of problems, such as wood preservation, kiln drying of wood, plywood, wood distillation, action of marine borers, pulp and paper, utilization of mill wastes, and foreign timbers. Where facilities do not exist for dealing with enquiries in the local laboratory, it acts as an outpost to the main laboratory in Montreal.

An increasingly valuable amount of material has been collected from the research work of other laboratories and catalogued for reference.

A mutually beneficial scheme of co-operation exists 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.

The main apparatus consists of two Olsen Universal Testing Machines of 200,000 lb. and 30,000 lb. capacity respectively, suitable for testing structural-sized timbers, as well as small ones; one Hatt-Turner Impact Machine, having three test weights of 50, 100 and 250 pounds, with a maximum drop of six feet; and the necessary electric drying ovens, extensometers, calibrating apparatus, micrometers, microscopes, tachometers, photographic equipment, etc., for research into the strength and characteristics of wood and wooden materials. The laboratory is also equipped with wood-working machinery, consisting of a saw table, buzz planer, thickness planer, borer, etc., for the preparation of test specimens. All wood-working machinery and testing machines are equipped with electric motors.

Department of Geology and Geography

Professor: R. W. Brock.
Professor of Physical and Structural Geology: S. J. Schofield.
Professor of Mineralogy and Petrography: W. L. Uglow.
Professor of Palaeontology and Stratigraphy: M. Y. Williams.
Lecturer: E. M. Burwash.

Geology

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

(*a*) *Physical Geology,* which includes the study of the following topics: Weathering, work of the wind, the work of ground water, the work of streams, the work of 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 and two hours laboratory per week. First Term. Mr. Schofield.

(*b*) *Historical Geology,* which includes a study of the following: The earth before the Cambrian, the Palaeozoic, the Mesozoic, the Cenozoic, and Quaternary eras.

Two lectures and two hours laboratory per week. Second Term. Mr. Williams.

The Laboratory Exercises in Physical Geology include the study and identification of the commonest minerals and rocks, the interpretation of topographical and geological maps, and the study of structures by the use of models.

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.

The 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 will be taken

up and illustrated by the study of the palaeogeography of North America.

Text-book: Cleland, *Geology, Physical and Historical,* American Book Co.

Reference books: Pirsson and Schuchert, *Text-book of Geology.* Geikie, *Text-book of Geology.* Merrill, *Rocks, Rock-weathering and Soils.* Coleman and Parks, *Elementary Geology. National Geographic Magazine.* Shimer, *Introduction to the Study of Fossils.* Davis, *Geographical Essays.* Hugh Miller's works.

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-books: Dana, *Manual of Mineralogy,* revised by Ford (new edition), Wiley. (For students taking only Geology 2 (*a*).) Dana, *Text-book of Mineralogy,* revised by Ford, Wiley. (For students who subsequently take Geology 2 (*b*).)

Prerequisite: Chemistry 1.

Two lectures and one laboratory period of two hours per week. First Term. Mr. Uglow.

2 (*b*). *Descriptive and Determinate 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 one laboratory period of two hours per week. Second Term. Mr. Uglow.

3. *Historical Geology.*—Continental evolution and development of life with special reference to North America.

Text-book: Schuchert, *Historical Geology,* 2nd Ed., Wiley.

Prerequisite: Geology 1.

Three hours per week. First Term. Mr. Williams.

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,* Holt.

Prerequisite: Geology 1.

Three hours per week. Second Term. Mr. Schofield.

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 laboratory period per week.

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 Paleontology.*

Prerequisite: Geology 1.

Two lectures and one laboratory period per week.

Mr. Williams.

7. *Petrology.*—This course consists of systematic studies of the following: (*a*) Optical Mineralogy, (*b*) Lithology and Petrogeny, (*c*) Microscopical Petrography.

Lectures deal with the principles of crystal optics, and with the origin, occurrence, classification, metamorphism and decay of rocks.

Laboratory Work consists of the study, determination and classification of specimens, structures and textures of rocks contained in the departmental collections. Field and microscopical methods of determination are equally stressed.

Text-books: Pirsson, *Rocks and Rock Minerals,* Wiley; Luquer, *Minerals in Rock Sections,* Van Nostrand; Dana, *Textbook of Mineralogy,* revised by Ford, Wiley.

Prerequisites: Geology 1 and 2.

Two lectures and two laboratory periods of 2 hours per week. Mr. Uglow.

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: Emmons, *General Economic Geology,* McGraw-Hill.

Reference book: Lindgren, *Mineral Deposits,* 2nd ed.

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

Four hours per week. Mr. Brock, Mr. Williams and Mr. Uglow.

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.

Two hours per week. Mr. Uglow.

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.

Reference 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 per week. Mr. Schofield.

Department of Mathematics

Professor: Daniel Buchanan.
Associate Professor: G. E. Robinson.
Assistant Professor: E. E. Jordan.
Assistant Professor: L. Richardson.
Assistant Professor: B. S. Hartley.

1. *Plane Trigonometry.*—An elementary course, including the solution of triangles and the use of logarithms, inverse and hyperbolic functions.

Text-books: Playne and Fawdry, *Practical Trigonometry,* Copp, Clark. *Six-Place Tables,* McGraw-Hill.

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: Hall and Stevens, *A School Geometry,* Macmillan.

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.

Text-book: Rietz and Crathorne, *College Algebra,* Holt.

Three lectures per week.

4. (*a*) *Analytical Geometry.*—The straight line and circle will be studied in detail, and some of the simple properties of the other conics will be discussed.

Text-book: Fawdry, *Co-ordinate Geometry,* Bell.

One lecture per week.

(*b*) *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.

One lecture per week.

6. *Calculus.*—Differential and integral calculus with various applications.

Three lectures per week.

7. (*a*) *Analytical Geometry.*—A continuation of Course 4, including a study of the curves occurring in engineering practice, and elementary work in three dimensions.

Text-book: Fawdry, *Co-ordinate Geometry,* Bell.

One lecture per week First Term, two lectures per week Second Term.

(*b*) *Spherical Trigonometry.*—Numerical work in spherical trigonometry covering the solution of triangles and various

applications to geodesy and astronomy. The method of least squares.

Text-book: Dupuis and Matheson, *Spherical Trigonometry and Astronomy,* Uglow.

One lecture per week. First Term.

8. *Applied Calculus.* — The applications of calculus to various problems in engineering.

One lecture per week.

9. *Differential Equations.*—A study of ordinary and partial differential equations and their applications.

One lecture per week.

Department of Mechanical and Electrical Engineering

Professor: Herbert Vickers.
Associate Professor: C. C. Ryan.
Assistant Professor: H. F. G. Letson.
Instructor in Mechanical Drawing and Shopwork: H. P. Archibald.
Instructor in Electrical Engineering: E. M. Coles.
Instructor in Electrical Engineering: W. A. Smelser.
Special Lecturer: George Walkem.
Instructor in Thermo Laboratory: E. G. Parsons.
Instructor in Machine Shop: H. Taylor.
Assistant in Steam Laboratory: H. Elliott.
Assistant in Workshop, Mechanical Engineering: C. H. Barker.
Assistant (Moulder): J. Crowley.
Assistant (Woodworker): S. Northrop.
Assistant in Mechanical Engineering (Blacksmith): John Hogarth.

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.

Six hours per week.

2. (*a*) 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 machine and structural parts.

Machine Shop Practice.—Summer School.

Practice in Smith-work.—Forging, welding, annealing, tempering, use and repairing of smith's tools.

Six hours per day during one week of summer course.

Practice in Foundry Work.—Bench and floor moulding, core making, casting in iron and brass.

Six hours per day during one week of summer course.

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.

One lecture per week.

Text-book: Colvin & Stanley, *American Machinists' Handbook,* McGraw-Hill.

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.

Three hours per week. (One term.)

Practice in Woodworking.—The use of the various hand tools and woodworking machines, making of various joints and small structures with finished surfaces, turning and boring.

Three hours per week. (One term.)

2. (*b*) *Machine Shop Practice.*—A continuation of Mechanical Engineering 2.

Six hours laboratory per week First Term, and three hours laboratory Second Term.

3. *Kinematics of Machines.*—Displacement, velocity and acceleration. Relative motions. Harmonic motions. Gear trains. Cams, ratchets, and escapements. Classification of mechanisms. Study of mechanisms in common use. Transmission of motion by belting. Design of outlines of gear teeth.

Text-book: Durley, *Kinematics of Machines,* Wiley.

One lecture per week.

4. *Dynamics of Machines.*—Friction and lubrication. Transmission of power by belts, ropes, gears and friction clutches. Function and dynamics of speed governors. Dynamics of the screw. Forces involved in linear and angular acceleration of moving parts, with special reference to engines, turbines, and pumps. Stresses due to centrifugal force. Balancing of moving parts. Dynamics of the gyroscope.

Reference books: Ewing, *The Steam Engine and Other Heat Engines.* Dent & Harper, *Kinematics and Kinetics of Machinery,* Wiley.

Two lectures per week.

5. *Machine Design.*—Strength of materials used in machine construction. Factors of safety and allowable stresses under various conditions of load. Design of: Valve mechanisms for steam engines; governors; thin cylinders and tanks; rivetted joints; fastenings, such as bolts, screws and cotters; levers and winch handles.

Reference books: Ewing, *Steam Engines and Other Heat Engines.* Spooner, *Machine Design, Construction and Drawing.* Halsley, *Handbook for Machine Designers.* Furman, *Valves and Valve Gears.*

Two lectures and three hours laboratory per week.

6. *Elementary Thermodynamics.* — 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.

Laboratory. Testing of boilers, steam engines and internal combustion engines. Analysis and calorimetry of fuels.

Text-book: To be announced.

Reference books: Simmons, *Compressed Air.* Marks and Davis, *Steam Tables and Diagrams.* Gebhardt, *Steam Power Plant Engineering.* Kent, *Mechanical Engineer's Pocket Book.* Fernald & Orrok, *Engineering of Power Plants.*

Two lectures and three hours laboratory per week.

7. *Thermodynamics.*—A more precise study of the performances and construction of various types of boilers, including furnaces and superheaters. Theoretical efficiency of different types of reciprocating engines working under various conditions. Influence on efficiency of size, speed and ratio of expansion with variations of load. Compound and triple expansion engines. Use of steam tables in reference to calculations on saturated and superheated steam. Flow of gases and vapours through orifices and nozzles.

Reference book: Lucke, *Thermodynamics,* and as under Mechanical 6.

Three lectures and three hours laboratory per week.

8. *Thermodynamics.* — Advanced theory relative to the transformation of heat into mechanical energy. Laws governing the flow of heat through various substances. More precise study of the theory and performance of all types of prime movers, including all types of reciprocating and rotary steam engines, steam turbines, and internal combustion engines.

Text-books: Emswiler, *Thermodynamics,* McGraw-Hill. Marks & Davis, *Steam Tables and Diagrams,* Longmans-Green.

Two lectures and three hours laboratory per week

9. *Thermodynamics.*—For Mechanical Engineering students only.

Reference book: Lucke, *Thermodynamics.* Gebhardt, *Steam Power Plant Engineering.* Current Engineering Publications.

Two lectures and six hours laboratory per week.

10. *Machine Design.*—The design of machine and structural parts, including parts of engines of all types; design of appliances for the transmission of power, including belts, rope, cable, friction and toothed gearing. The student is required to work out the complete design of some machine or appliance, and make the drawings and tracings requisite for its construction.

Text-books: Kent, *Mechanical Engineer's Pocket Book,* Wiley. Halsley, *Handbook for Machine Designers,* McGraw-Hill.

Two lectures and five hours laboratory per week for Mechanical Engineering, and two lectures and three hours laboratory for Electrical Engineering.

11. *Heating, Ventilation, and Refrigeration.* — 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).

One lecture per week.

12. *Plant Design.*—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). Fernald & Orrok, *Engineering of Power Plants.*

One lecture 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.

Text-book: Colvin & Juthe, *The Working of Steel,* McGraw-Hill.

One lecture and three hours laboratory per week.

14. *Industrial Management.* — Present-day tendencies in industry. Principles of organization, including cost-keeping, purchasing and storing of materials, and inspection. Problems of employment and systems of compensation for labor. Location and arrangement of industrial plants for maximum production.

Text-book: Kimball, *Principles of Industrial Organization,* McGraw-Hill.

One lecture per week.

Electrical Engineering

1. *Fundamentals of Electrical Engineering.*—General theory relating to the flow of continuous and alternating currents. Measurement of power. Elementary theory of alternating and direct current generators and motors. Commercial systems of transmission, transformation, and distribution of power.

Text-book: Gray, *Principles and Practice of Electrical Engineering,* McGraw-Hill.

Two lectures and two hours laboratory per week.

2. *Fundamentals of Electrical Engineering.*—More precise study of the laws governing the flow of continuous and alternating current. Meters and their applications. Transient phenomena. Use of charts and tables.

Three lectures and two hours laboratory per week, First Term. Three lectures and four hours laboratory, Second Term.

3. *Electrical Engineering Practice.* — For students in Mechanical Engineering only. A special course covering standard practice in generation, transmission, and application of electric power.

Text-book: *Standard Handbook for Electrical Engineers,* McGraw-Hill.

Two lectures and three hours laboratory per week.

4. *Electrical Machinery.*—Complete theory of direct and alternating current machines and appliances. Transmission lines and distribution systems. Use of hyperbolic functions in solution of problems.

Text-book: *Standard Handbook for Electrical Engineers,* McGraw-Hill.

Three lectures and six hours laboratory per week.

5. *Electric Traction.* — Advantages and disadvantages of electric traction. Characteristics of traction motors. Power requirements and motor ratings. Methods of braking. Comparison of steam and electric locomotives. Urban, interurban, and main line systems. Selection of equipment and methods of construction.

One lecture hour per week.

6. *Electric Power Plants and Transmission Lines.*—Selection of site and equipment. Switching and controlling devices. Metering of power. Location and design of transmission lines and sub-stations.

Text-book: Notice to be given.

One lecture hour per week.

7. *Electrical Design.*—Calculation of performance of standard types of transformers, generators, and motors. Design of simple apparatus and standard types of motors and generators.

Text-book: Gray, *Electrical Machine Design,* McGraw-Hill.

One lecture and three hours laboratory per week.

8. *Electric Cells.*—Theory and applications of storage batteries. Electrolytic cells. Electro-plating.

One lecture per week. First Term.

Electric Illumination. — Photometry. Types of electric lamps. Systems for interior and street lighting.

One lecture per week. Second Term.

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: Tarrant D. Guernsey.

Mining

1. A general course in metal mining, covering the following subjects:

Ores and economic minerals; economic basis of mining; ordinary prospecting; mineral belts; mineral acts and laws; conditions in British Columbia; preliminary development of mines; timbering and framing; tunnelling; shaft sinking; transportation and haulage; drainage; ventilation; ordinary mining methods

Two lectures per week. Mr. Turnbull.

2. A general course in coal and placer mining, covering the following subjects:

Coal Mining.—Classification of coals; prospecting; mine development; mining methods; ventilation; transportation and haulage; drainage; tipples; coal mines acts and laws.

Placer Mining.—Gravel deposits; nature and origin of pay-streaks; 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. An advanced course in metal mining, covering the following subjects:

Scientific prospecting; 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. 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.

One lecture per week. Mr. Gillies.

5. A practical course covering the work of the surveyor and staff in metal mines:

Methods and practice in mine surveying; ore sampling; geological work underground; maps, plans and models; notes and records.

Prerequisites: Civil Engineering 2 and 6.

One lecture per week. Second Term. Mr. Turnbull.

6. 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

Three hours per week. Mr. Gillies.

7. A special course covering the mining of large ore bodies by special mining methods.

Prerequisite: Mining 1.

Concurrent Courses: Mining 2, 3 and 4.

One lecture per week. First Term. Mr. Turnbull.

Metallurgy

1. 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. Roasting and fusing. Electrometallurgy. Slags. Matte. Bullion. Refractory materials. Fuels. Combustion. Furnaces.

Text-book: Fulton, *Principles of Metallurgy,* McGraw-Hill.

Reference books: Hofman, *General Metallurgy.* Current Mining and Metallurgical Journals. Trade Catalogues.

Prerequisites: Chemistry 1 and Physics 1 and 2.

Two lectures per week. Mr. Thomson.

2. 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. 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. 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.

Six hours laboratory per week, First Term. Twelve hours laboratory per week, Second Term. Mr. Thomson.

5. Quantitative determination of gold, silver, and other metals by fire-assay methods, with underlying principles.

Text-book: Fulton, *Manual of Fire Assaying,* McGraw-Hill.

One lecture and five hours laboratory work. First Term.

Mr. Thomson.

6. 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.

Three hours laboratory per week. Mr. Thomson.

Ore Dressing

1. 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 lay-out 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.

Text-books: Richards, *Text-book of Ore Dressing,* McGraw-Hill. F. Taggart, *A Manual of Flotation Processes,* Wiley.

Two lectures per week. Mr. Gillies.

2. 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 working 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.
Associate Professor: A. E. Hennings.
Associate Professor: J. G. Davidson.
Assistant: Cyril Jones.

The instruction includes a fully illustrated course of experimental lectures on the general principles of Physics, accompanied by courses of practical work in the laboratory, in which students will perform for themselves experiments, chiefly quantitative, illustrating the subjects treated in the lectures. Opportunity will be given to acquire experience with all the principal instruments used in exact physical and practical measurements.

1. *Mechanics 1.*—An elementary treatment of the subject of statics, dynamics, and hydrostatics, with particular emphasis on the working of problems. In the laboratory the fundamental principles of statics and dynamics are established. The course is given in the first half of the First Year of Applied Science.

Text-books: Loney, *Mechanics and Hydrostatics,* Cambridge University Press. Millikan, *Mechanics, Molecular Physics and Heat,* Ginn.

Four lectures and three hours laboratory per week.

2. *Advanced Heat.*—This course is begun when Mechanics 1 is finished, and the seven 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-books: Edser, *Heat for Advanced Students,* Macmillan. Millikan, *Mechanics, Molecular Physics and Heat,* Ginn.

3. *Electricity and Magnetism.*—A quantitative study of the fundamental principles of electricity and magnetism, with a 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-books: Millikan and Mills, *Electricity, Sound and Light* (first part), Ginn. Smith, *Electrical Measurements,* McGraw-Hill.

Two lectures and three hours laboratory per week.

4. *Mechanics 2.*—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: Mechanics 1.

Text-book: Poorman, *Applied Mechanics,* McGraw-Hill.

Two lectures per week.

5. *Light.*—A short lecture course on light for students taking Chemical Engineering. The time will be devoted to a study of refraction, dispersion, interference, diffraction, double-refraction, polarization and spectroscopy.

One hour per week.

9. *Recent Advances in Physics.*—A course of lectures dealing with the electrical properties of gases, the electron theory, and radioactivity.

Prerequisites: Physics 3 and 4, and Mathematics 10.

Reference books: Thomson, *Conduction of Electricity Through Gases.* Rutherford, *Radio-active Substances and Their Radiations.* Millikan, *Electron.* Thomson, *Positive Rays.* Hughes, *Photo-electricity,* and Kaye, *X-Rays.*

Two lectures per week.

Department of Nursing

Assistant Professor: Ethel I. Johns.

1. *Introduction to Nursing.*—A series of lectures dealing with the nature of hospital service and discipline, designed to prepare students for entering the School of Nursing.

One hour per week throughout the First Year. Miss Johns.

No formal credit is given for this course.

2. *History of Nursing.*—A series of lectures dealing with the history and origin of Nursing.

One hour per week throughout the Second Year. Miss Johns.

No formal credit is given for this course.

THIRD AND FOURTH YEARS

Instruction in the following Nursing subjects is given by members of the medical staff of the hospital and by qualified nurse instructors: Introductory Ethics of Nursing, Practical Nursing Procedure, Anatomy and Physiology, 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 Anæsthesia, Introduction to Physiotherapy and X-Ray.

The above schedule is open to change at any time.

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.	Infectious.
Observation and Neurological.	Tuberculosis.
Infants.	Diet Kitchen.

Department of Public Health

Professor: R. H. Mullin.

Note—Where the name of the instructor is omitted, the lectures are not given by a member of the University staff, but by a special lecturer in the subject.

1. *Public Health Nursing (Urban).*—A study of the principles and practice of public health nursing in urban communities.

One hour per week. First Term.

2. *Public Health Nursing (Rural).*—A study of the principles and practice of public health nursing in rural communities.

One hour per week. First Term. Lecturer to be appointed.

3. *School Nursing.*—A series of 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.

One hour per week. First Term.

4. *Preventive Medicine.*—(*a*) Sanitation and Hygiene. A series of lectures dealing with the sanitation of food, water, milk, disposal of waste, housing, ventilation, heating, etc.

One hour per week. First Term. Dr. Mullin.

(*b*) Communicable Diseases. A series of lectures dealing with the principles of communicable diseases, their origin, spread and prevention. Opportunities are given for studying in detail the prevalent infectious diseases.

One hour per week. First Term. Dr. Mullin.

5. *History of Nursing and Contemporary Nursing Problems.*—A study of the origin and history of nursing, followed by the consideration of recent developments in the nursing field.

One hour per week. First Term. Miss Johns.

6. *Economics and Social Legislation.*—(*a*) An introduction to the study of economic problems as they affect health, including immigration and unemployment.

Dr. Boggs and Mr. Beckett.

(*b*) A study of the health and social legislation of this Province.

Dr. Henry Esson Young, Provincial Officer of Health, Dr. F. T. Underhill, Medical Officer of Health, Vancouver, and other lecturers.

One hour per week. First Term.

7. *Mental Hygiene.*—An introduction, with clinical demonstration, to the study of mental illness, its cure and prevention.

One hour per week. First Term.

8. *Infant Welfare.*—A series of lectures and clinics dealing with the disorders of infancy, their prevention and cure.

One hour per week. First Term. Clinics as arranged.

9. *Tuberculosis.*—A study of tuberculosis from the preventive standpoint.

One hour per week. First Term.

10. *Crippled and Deformed Children.*—A series of lectures dealing with the problem of children handicapped by deformities.

One hour per week for six weeks during the First Term.

11. *Nutrition.*—This course deals with the consideration of food values and costs and the application of this knowledge to the nutrition of family groups.

One hour per week. First Term.

12. *Practical Sociology.*—A series of twelve lectures given by the directing officers of various agencies engaged in social work in the Province of British Columbia, planned to give the student such information as will enable her to realize their functions and scope with a view to future co-operation.

One hour per week. First Term.

13. *Psychology.*—A series of twelve lectures in Elementary Psychology and Principles of Teaching.

One hour per week. First Term. Dr. Weir.

14. *Teaching of Nursing Principles and Methods.*—A series of twelve lectures dealing with modern methods of instruction in elementary hygiene and nursing procedure.

One hour per week. First Term. Miss Johns.

Observation and practice as arranged.

15. *Motor Mechanics.*—Practical instruction in the structure and operation of automobiles, including practice driving.

One hour per week. First Term. Arranged by the Department of Mechanical Engineering.

FIELD WORK

Through the courtesy and co-operation of the following agencies, arrangements have been made during the Second Term for practical experience in the field for all students taking the full course:

The Victorian Order of Nurses.

The Medical Department of the Vancouver Public Schools.

The Rotary Clinic for Diseases of the Chest.

The Department of Child Hygiene, City of Vancouver.

The Rural Health Centres of the Provincial Department of Health.

The Social Service Department of the Vancouver General Hospital.

A bulletin concerning rules and regulations concerning field work and other information may be obtained on application to the department.

Department of Zoology

Professor: C. McLean Fraser.
Instructor: H. A. Dunlop.
Assistant: C. P. Leckie.
Assistant: Lloyd Bolton.

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.

This course is prerequisite to other courses in Zoology.

Text-books: T. J. Parker and W. A. Haswell, *Manual of Zoology,* Macmillan (American Edition, 1916).

Two lectures and two hours laboratory per week.

THE FACULTY OF AGRICULTURE

FACULTY OF AGRICULTURE

INFORMATION FOR STUDENTS IN AGRICULTURE

Courses of Study

Three distinct lines of study are offered, as follows:

(1.) A Four-year Course leading to the Degree of Bachelor of Science in Agriculture (B.S.A.).
(2.) A Winter Course at the University.
(3.) Extension Courses at different points in the Province.

Course Leading to the Degree of B.S.A.

Students in Agriculture are required to have Junior Matriculation or its equivalent before entering upon this course (see "Matriculation Requirements"). The degree of B.S.A. is granted only after the successful completion of four years of lecture and laboratory work. The course is planned for students who wish to obtain a practical and scientific knowledge of Agriculture, either as a basis for demonstration and teaching, or as an aid to success in farm management.

Winter Course

This course is planned for those men and women who are unable to take advantage of the longer course, 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 strong features of the course. No entrance examination is required, nor are students asked to write an examination at the conclusion of the course.

Extension Courses

In order to reach those engaged in Agriculture who are not able to avail themselves of the Winter Course 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 of the University.

(Not offered in 1924-25.)

GRADUATE WORK

Students proceeding to the Master's degree in Agriculture must elect an approved Major and an approved Minor, the latter of which may be selected within another Faculty.

For general regulations see page 215.

Examinations and Advancement

1. Examinations in all subjects and obligatory for all students are held in December and in April. 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.

2. In the First and Second Years candidates will not be considered as having passed unless they obtain at least 40 per cent. on each subject and 50 per cent. on the aggregate. In the Third and Fourth Years candidates must obtain at least 50 per cent. on 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 and will not be granted at any other time, except by special

permission of the Faculty, and on payment of a fee of $7.50 per paper.

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 may, *on application in writing,* be exempted by the Faculty from attending lectures and passing examinations in subjects in which he has already made at least Second Class standing. 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.

CURRICULUM

The first two years of work leading to the degree in Agriculture are devoted to acquiring a knowledge of the basic sciences upon which Agriculture rests, in adding to the student's knowledge of language, and in laying a foundation for more advanced studies in practical and scientific Agriculture. The Third Year is devoted largely, and the Fourth Year almost wholly, to courses in Applied Agriculture.

Except under special circumstances, students under the age of seventeen will not be eligible for registration. Specialization will begin at the commencement of the Third Year. Students who have not had at least one full season's practical farm experience will be required to obtain this preliminary training before registering for the Third Year.

FIRST YEAR

	Units.
Agronomy 1	1
Animal Husbandry 1	1½
Horticulture A.	1
Biology 1	3
Chemistry 1	3
English 1(*a*) and 1(*b*)	3
French 1, or Beginners' German	3
Botany 1	3
Total required	18½

SECOND YEAR

	Units.
Agronomy 2	2
Animal Husbandry 4	1½
Dairying 1	1½
Horticulture B.	1
Poultry Husbandry 1	1½
Zoology 1	3
Chemistry 2	3
English 2(*b*)	1
French Special, or German 1	2
Bacteriology 1	2
Total required	18½

THIRD AND FOURTH YEARS

On account of the specialized types of farming which must necessarily be followed in many parts of British Columbia, the work in the Third and Fourth Years leading to the degree of B.S.A. has been arranged in major courses so as to admit of a measure of specialization in one of the several recognized branches of Agriculture. At the same time all courses have been so arranged that every student will get the basic work in all lines no matter what option is chosen.

Prior to the beginning of the Third Year every student must indicate in which one of the major options he wishes to continue his study, and shall arrange his elective courses with the approval of the Head of the Department in which he is majoring, and in consultation with the Heads of other Departments directly concerned.

Agricultural students are required to take a total of 35 units, thesis included, in their Third and Fourth Years.

THIRD YEAR

(Required subjects.)

	Units.
Economics 1	3
Chemistry (Special Course)	3
Principles of Heredity—Biology 2	1
Total required	7

FOURTH YEAR

(Required subjects.)

	Units.
Agricultural Economics—2 (*a*) or 2 (*b*)	1½
Thesis	3
Total required	4½

Agronomy Major

THIRD YEAR

	Units.
Required subjects, as above	7
Plant Physiology—Botany 3	2
Zoology 4	1
*Total	10

FOURTH YEAR

	Units.
Required subjects, as above	4½
Systematic and Economic Botany—5 (*a*)	2
Economic Entomology—Zoology 7	2
Animal Husbandry 9	1½
*Total	10

*Students are required, with the advice and consent of the Head of the Department, to elect up to a total of from 15 to 18 units.

Animal Husbandry Major

THIRD YEAR

	Units.
Required subjects, as above	7
Animal Husbandry 2	1
" " 3	1
*Total	9

FOURTH YEAR

	Units.
Required subjects, as above	4½
Agronomy 7	1½
*Total	6

Dairying Major

THIRD YEAR

	Units.
Required subjects, as above	7
Dairying 3	2
*Total	9

FOURTH YEAR

	Units.
Required subjects, as above	4½
Civil Engineering (Special)	1
Plant Physiology—Botany 3	2
Dairy Chemistry	2
*Total	9½

***Students are required, with the advice and consent of the Head of the Department, to elect up to a total of from 15 to 18 units.**

Horticulture Major

THIRD YEAR

	Units.
Required subjects, as above	7
Plant Physiology—Botany 3	2
Systematic Entomology—Zoology 4	1
*Total	10

FOURTH YEAR

	Units.
Required subjects, as above	4½
Plant Pathology—Botany 6 (*a*)	1
Economic Entomology—Zoology 7	2
Systematic and Economic Botany 5(*a*)	2
*Total	9½

Poultry Husbandry Major

THIRD YEAR

	Units.
Required subjects, as above	7
Embryology—Zoology 6	2
*Total	9

FOURTH YEAR

	Units.
Required subjects, as above	4½
Poultry Husbandry 8	4
*Total	8½

*Students are required, with the advice and consent of the Head of the Department, to elect up to a total of from 15 to 18 units.

COURSES IN AGRICULTURE

Department of Agronomy

Professor: P. A. Boving.
Associate Professor: G. G. Moe.
Assistant Professor: D. G. Laird.
Assistant: G. B. Boving.
Assistant: R. A. Derick.

1. *Soil and Soil Fertility.*—An examination will be made of the more important soil types; cultivation, manuring, and rotation of crops will be studied in their relation to soil productivity; methods of treatment will be observed, and the principles underlying soil management and improvement will constitute the basis for subsequent courses in Agronomy.

Two lectures per week. First Term, First Year. 1 unit.

2. *Field Crops.*—This course embraces a study of the most important grain, corn, forage, and root crops. A detailed study of the crops, in the field and in the laboratory, will supplement the lecture work in order to give the student a comprehensive idea, not only of the different phases of crop production, but also of the relative value of separate specimens and samples.

Two lectures and two laboratories per week. First Term, Second Year. 2 units.

3. *Seed Growing.*—This course deals with the production and marketing of vegetable, root, clover, and grass seeds.

Two lectures and one laboratory per week. First Term, Third Year. 1½ units.

(Not offered in 1924-25.)

4. *Field Crops (Advanced.)*—Course 4 constitutes a more detailed study of field crops than was possible in Course 2. It also embraces special lecture and laboratory work on the harvesting, threshing, cleaning, storing, and marketing of our ordinary field crops. The two courses combined will give the student a more complete understanding of the various factors bearing upon the production of a first-class article, whether intended for sale or for feeding.

Two lectures and two laboratories per week. Second Term, Third Year. 2 units.

(Not offered in 1924-25.)

5. *Farm Management.*—This course embraces a study of the selecting, planning, and operating of a farm. Various conditions, systems and practices prevailing on the American Continent and in Europe will be discussed and compared.

Two lectures and one laboratory per week. First Term, Fourth Year. 1½ units.

(Open to Third Year Students in 1924-25.)

6. *Field-crop Judging.*—The judging and handling of grains, grasses, forage and root crops will be taken up in the field as well as in the laboratory.

One lecture and two laboratories per week. First Term, Fourth Year. 1½ units.

(Open to Third Year Students in 1924-25.)

7. *Soil Management.*—Different systems of cultivation, rotation, manuring and irrigation, as practised in Canada and elsewhere, will be discussed, and the influence of these factors on the maintenance or exhaustion of soil fertility will be studied.

Two lectures per week and six half-days during term. Second Term, Third Year. 1½ units.

8. *Plant-breeding.*—This course is planned to follow Biology 2. With this as a basis the course is designed to illustrate and explain the breeding of field crops.

Two lectures and one laboratory per week. Second Term, Fourth Year. 1½ units.

9. *Field Experiments.*—The scope, the methods and the interpretation of field experiments will be discussed, and a study will be made of the more important results obtained in different parts of the world.

Two lectures per week. Second Term, Fourth Year. 1 unit.

(Open to Third Year Students in 1924-25.)

10. *Thesis.*—Subject to be selected with the approval of the Head of the Department before the end of the Third Year; the written thesis to be handed in before the 1st of April in the Graduating Year. 3 units.

11. *Crop Adaptation and Distribution.*—The relation of field crops to elevation, climate and soils will be studied in order to give the student a comprehensive idea of the distribution of crops and the adaptation of various types to different parts of the world.

One lecture per week. First Term, Fourth Year. ½ unit.

Students majoring in Agronomy are required to work one year under the direction of the Department.

Department of Animal Husbandry

Professor: H. M. King.
Assistant Professor: R. L. Davis.
Assistant Professor: W. N. Jones.
Assistant: H. R. Hare.
Lecturer in Veterinary Science: J. G. Jervis.

1. *Market Classes and Grades of Live Stock.*—A study of the characteristics and requirements of the various market classes and grades of beef cattle, dairy cattle, horses, sheep, swine and goats.

Texts: Plumb, *Judging Farm Animals.* Vaughan, *Types and Market Classes of Live Stock.*

Three two-hour laboratories per week. Second Term, First Year. 1½ units.

2. *Breeds of Cattle.*—A study of the origin, history of development, characteristics, and adaptations of the breeds of cattle. Students will be required to make several trips to leading herds in the Province.

Text: Plumb, *Types and Breeds of Farm Animals.*

Prerequisites: Animal Husbandry 1 and 4.

Two three-hour laboratories per week. First Term, Third Year. 1 unit.

3. *Breeds of Horses, Sheep, Swine and Goats.*—A study of the origin, history of development, characteristics, and adaptations of the breeds of horses, sheep, swine and goats.

Text: Plumb, *Types and Breeds of Farm Animals.*

Prerequisites: Animal Husbandry 1 and 4.

Two three-hour laboratories per week. Second Term, Third Year. 1 unit..

4. *Live-stock Feeding and Management.*—The feeding, care, and management from birth to maturity of the various types of live stock.

Text: Henry and Morrison, *Feeds and Feeding,* abridged edition.

Prerequisite: Animal Husbandry 1.

Three lectures per week. First Term, Second Year.

1½ units.

5. *Advanced Judging.*—A continuation of the type of work represented in the laboratory of Animal Husbandry 2 and 3. Designed to strengthen Animal Husbandry students in the selection of herd sires, foundation breeding herds, and in the building-up of superior flocks and herds. Students will be required to make several trips to leading herds in the Province.

Prerequisites: Animal Husbandry 2 and 3.

Two two-hour laboratories per week. First Term, Fourth Year. 1 unit.

One three-hour laboratory per week in the fitting and handling of live stock is required of Animal Husbandry major students. ½ additional unit.

6. *Live-stock Breeding.*—A study of the principles of breeding in their application to live-stock development and improvement.

Prerequisites: Animal Husbandry 2 and 3 and Biology 2.

Two lectures per week. Second Term, Third Year.

1 unit.

(Not offered in 1924-25.)

7. *Herd, Flock and Stud-book Study.*—An advanced course in the study of the principal breeds of live stock, familiarizing the student with the leading sires, dams, families, and herds of the various breeds, and the blood lines entering into their formation. Emphasis will be placed upon a study of pedigrees.

Prerequisites: Animal Husbandry 2 and 3.

Two lectures and one three-hour laboratory per week. Second Term, Third Year. 1½ units.

(Not offered in 1924-25.)

8. *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 feedstuffs.

Texts: Henry and Morrison, *Feeds and Feeding.* Armsby, *Animal Nutrition.*

Two lectures per week. First Term, Fourth Year. 1 unit.

(Open to Third Year students in 1924-25.)

9. *Animal Feeding.*—The feeding of all classes of live stock, having distinct regard to the economic problems confronting the breeder and the producer.

Text: Henry and Morrison, *Feeds and Feeding.*

Three lectures per week. Second Term, Fourth Year. 1½ units.

(Open to Third Year students in 1924-25.)

10. *Markets and Marketing.*—A careful study of the markets with their requirements for live stock and live-stock products, and the relation which these bear to production. Marketing of breeding stock.

Prerequisite: Animal Husbandry 7.

Two lectures per week. First Term, Fourth Year. 1 unit.

(Open to Third Year students in 1924-25.)

11. *Thesis and Seminar.*—Students majoring in Animal Husbandry are required to write a thesis on some live-stock

subject, the selection being made by the student with the approval of the Head of the Department. The subject of this thesis shall be chosen not later than the end of the Third Year. 3 units.

A seminar of one hour per week for the special study of current problems and literature shall be held. 1 unit.

12. *Live-stock Practice.*—Every Animal Husbandry student is required to spend the summer months between the Third and Fourth Years on an approved live-stock farm and to present a written report upon his summer's work before entering upon the Second Term of the Fourth Year.

Open only to students majoring in Animal Husbandry. 1 unit.

13. *Farm and Ranch Management.*—The management of the range, ranch, and farm for the production of live stock.

Texts: Potter, *Western Live Stock Management.* Sampson, *Farm and Range Management.*

Prerequisite: Animal Husbandry 12.

Two lectures and one three-hour laboratory per week. Second Term, Fourth Year. 1½ units.

14. *Veterinary Science.*—A study of the common diseases of horses, cattle, sheep, swine and goats; their causes, prevention, and treatment.

Prerequisites: Animal Husbandry 1 and 4.

Three lectures per week. First Term, Third Year. 1½ units.

Department of Dairying

Professor: Wilfrid Sadler.
Associate Professor: N. S. Golding.
Assistant: C. D. Kelly.

1. *Elementary Dairying.*—An elementary course of lectures on milk, cream, and the principles and practices of butter-making. Laboratory work in cream-raising, separators,

preparation of cream for butter-making, butter-making on the farm, preparation of Devonshire clotted cream.

Two lectures and three hours laboratory per week. Second Term, Second Year. 1½ units.

2. *Farm Cheese-making.*—Principles and practices of cheese-making, hard-pressed, blue-veined, and soft; the making of cheese on the farm; a general knowledge required of the principal varieties of each class of cheese, and laboratory practice in the making of standard varieties.

This course is offered in the Third Year or Fourth Year to students other than those who propose to major in Dairying.

One lecture and six hours laboratory per week for one term. 1½ units.

(Not offered in 1924-25.)

3. *Dairy Bacteriology.*—The bacteriology of milk, and milk products; sources of bacteria in milk, number and varieties; influence of time, temperature, etc., on these; methods of culture and isolation; fermentation of milk, lactic, butyric, peptonizing, gaseous, ropy, etc.; relation of milk to spread of tuberculosis, typhoid fever, and other diseases; pasteurization and sterilization of milk; certified milk and bacterial standards applied to milk; relation of bacteria to cream, butter-making and butter; control of bacteria in relation to milk and milk products.

Two lectures and six hours laboratory per week. First Term, Third Year. 2 units.

4. *Creamery Butter-making.* — Creamery butter-making; grading of cream; treatment and preparation of cream for butter-making; pasteurization; manufacture of creamery butter; judging, grading, and marketing of butter.

Prerequisite: Dairying 3.

One lecture and six hours laboratory per week. Second Term, Third Year. 1½ units.

(Not offered in 1924-25.)

5. *Market Milk.*—The hygienic aspect of milk production; the bacterial quality of machine-drawn *versus* hand-drawn milk;

certified milk; handling and management of milk for city consumption; grading of milk on bacterial standards; pasteurization; transportation and distribution of milk; ordinances and regulations concerning the sale of milk. This course will include laboratory work in dairy bacteriology, practice in the dairy, and visits to selected farms and milk distributing depots.

One lecture and six hours laboratory per week. Second Term, Third Year. 1½ units.

6. *Cheese and Cheese-making.*—This course deals with the principles and practices of cheese-making—hard-pressed, blue-veined, and soft.

Offered to those majoring in Dairying.

Two lectures and six hours laboratory per week. Fourth Year. 4 units.

(Open to Third Year students in 1924-25.)

7. *Dairy Bacteriology.*—Qualitative and quantitative bacteriological analysis of market milk, condensed milk, milk powder, cream, butter, and cheese; bacterial changes in storage butter; ripening of cheese. Opportunities are presented for exercising bacterial control of the various processes carried out in the dairy laboratory.

Offered to those majoring in Dairying.

One lecture and six hours laboratory per week. First Term, Fourth Year. 1½ units.

(Open to Third Year students in 1924-25.)

8. *Testing of Milk and Dairy Products.*—The testing of milk, cream, butter, and cheese; the selling of milk and cream on the butter-fat basis; causes of variation in butter-fat content.

One lecture-laboratory per week. First Term, Fourth Year. ½ unit.

(Open to Third Year students in 1924-25.)

9. *Dairy Buildings and Equipment.*—Buildings suitable for handling of milk and manufacturing of dairy products; their situation, construction, arrangement; equipment of farm dairies,

creameries, and cheese-factories. This course includes detailed studies of selected buildings.

One lecture and one laboratory per week. Second Term, Fourth Year. 1 unit.

(Not offered in 1924-25.)

10. *The Judging and Grading of Milk and Milk Products.*—Offered to students of the Senior Year. 1½ units.

(Open to Third Year students in 1924-25.)

11. *Thesis.* 3 units.

Department of Horticulture

Professor: F. M. Clement.
Associate Professor: A. F. Barss.
Assistant Professor: F. E. Buck.
Assistant: W. A. Middleton.

A. *Principles of Fruit Growing.*—The aim in this course is to give the student sufficient instruction in the fundamental steps in the growing of tree fruits and small fruits, to enable him to care for the home plantings.

Two lectures per week. First Term, First Year. 1 unit.

B. *Principles of Gardening.*—A study of the principles involved in the planting and growing of the more important vegetables, flowers, and ornamental trees and shrubs for the farm home and garden.

Two lectures per week. Second Term, Second Year. 1 unit.

Courses A and B are designed to meet the needs of all students in Agriculture, giving them a general knowledge of the care of Horticultural crops. At the same time these courses are fundamental for students who are planning to take further courses in Horticulture.

3. *Practical Pomology.*—A detailed study of the best methods in Orchard Management with field practice in various

orchard operations, such as planting, pruning, and spraying. The course also deals with the culture of small fruits.

Two lectures and two laboratories per week. Second Term, Third Year. **2 units.**

(Not offered in 1924-25.)

4. *Plant Propagation and Nursery Practice.*—This course deals with the methods used in propagating plants, including budding and grafting; and with Commercial Nursery practices.

One lecture and one laboratory per week. First Term, Third Year. **1 unit.**

(Not offered in 1924-25.)

5. *Commercial Pomology.*—A study of the problems connected with the handling of fruits and vegetables—harvesting, grading, packing, shipping, storing, marketing; packing and storage houses; marketing associations; costs of production and marketing.

Two lectures and one laboratory per week. First Term, Fourth Year. **1½ units.**

(Open to Third Year students in 1924-25.)

6. *Systematic Pomology.*—A course in description, identification, classification, displaying, and judging of fruits. The course also includes a certain amount of work in Systematic Olericulture.

One lecture and two laboratories per week. First Term, Fourth Year. **1½ units.**

(Open to Third Year students in 1924-25.)

7. *Practical 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 construction of hot-beds, cold-frames, greenhouses, and their management in the forcing of vegetable crops.

Two lectures and one laboratory per week. Second Term, Fourth Year. **1½ units.**

(Open to Third Year students in 1924-25.)

8. *Special Horticulture.*—A course for the study of special branches of Commercial Horticulture, including the manufacture of horticultural products, such as canned foods, dried products, jams, jellies, and fruit juices.

Two lectures per week. Second Term, Fourth Year.

1 unit.

9. *Horticultural Problems.*—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 per week. Second Term, Fourth Year.

1 unit.

10. *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, Fourth Year. 1½ units.

11. *Thesis.* 3 units.

Department of Poultry Husbandry

Professor: E. A. Lloyd.
Assistant Professor: V. S. Asmundson.
Assistant: R. J. Skelton.

1. *General.*—Includes a study of the fundamentals of poultry-keeping, such as: Breeds, breeding, and judging; feeds and feeding; locating and constructing poultry-houses; equipment; incubation and brooding; markets and marketing. The

class-room lectures and recitations are supplemented with practice work in the laboratory.

Two lectures and one two-hour laboratory per week. Second Term, Second Year. 1½ units.

2. *Markets and Marketing.*—An advanced course in the preparation and marketing of poultry products. Students taking this course are required to prepare products for market, and, when possible, to do the actual marketing.

One lecture and one two-hour laboratory per week. First Term. 1 unit.

3. *Incubation and Brooding.*—A study of the problems concerned in hatching and rearing poultry. Practice is given in the operation of different types of incubators and brooders.

One lecture and two two-hour laboratories per week. Second Term. 1½ units.

4. *Breeds and Breeding.*—Arranged to give the student a general understanding of the principles of breeding as applied to Poultry Husbandry. Emphasis is laid upon breeding for egg and meat production.

Prerequisite: Biology 4.

One lecture and two two-hour laboratories per week. Second Term. 1½ units.

(Not offered in 1924-25.)

5. *Poultry Management.*—A study of systems of extensive and intensive poultry-farming. Capital, labour, and economic methods of flock management are studied.

Required of Seniors in Poultry Husbandry. First Term.

One lecture and four hours laboratory per week. 1½ units.

6. *Advanced Poultry Husbandry.*—Arranged to give the student an opportunity for special and original problems.

Required of Seniors in Poultry Husbandry. Second Term.

Hours by arrangement. 4 units.

7. *Feeds and Feeding.*—Consists of a study of the various feedstuffs used for poultry, and their value; the balancing of rations; a study of experimental data and practice in feeding.

Required of Seniors in Poultry Husbandry. First Term.

Prerequisites: Poultry Husbandry 1; Animal Husbandry 8.

One lecture and three hours laboratory and practice per week. 1 unit.

8. *Poultry Literature.*—A study of scientific literature published on poultry problems, and the gathering of reports, data, and information.

One lecture per week. Six hours practice work. 1½ units.
(Not offered in 1924-25.)

9. *Judging and Selection.*—Judging according to standard and selection for egg production.

One lecture and one three-hour laboratory per week. 1½ units.
(Open to Third Year students in 1924-25.)

10. *Thesis.* 3 units.

AGRICULTURAL ECONOMICS

Dean Clement.

1. (*a*) *Farmer Movements.*—A study of the Grange; the Patrons of Industry; the Farmers' Alliance; the American Society of Equity; the Non-partisan League; the Farm Bureau Federation; the United Farmers, and other farmer organizations.

(*b*) *Rural Life.*—The country life movement; the rural school; the country church; rural surveys, and a study of special topics, such as, recreation in country life; the farmer's standard of living; the functions of a small town; rural migrations.

Lectures and assigned readings. 3 units.
(Not offered in 1924-25.)

2. (*a*) *Agricultural Economics.*—An application of the principles of Economics to the field of Agriculture.

Taylor, *Agricultural Economics,* Macmillan.

(*b*) *The Marketing of Farm Products.*—An analysis of the marketing problem as it applies to Agriculture.

Macklin, *Efficient Marketing for Agriculture,* Macmillan.

Lectures and assigned readings. 3 units.

Note: Where courses other than those listed under Agronomy, Animal Husbandry, Dairying, Horticulture, Poultry Husbandry and Agricultural Economics are mentioned, the student will please refer to outlines of courses in Arts and Science or Applied Science.

REGULATIONS AS TO M.A., M.A.Sc., AND M.S.A. COURSES

1. Candidates for the M.A., M.A.Sc., or M.S.A. degree must hold a bachelor's degree from this University, or its equivalent. The B.A. is prerequisite for the M.A., the B.A.Sc. for the M.A.Sc., and the B.S.A. for the M.S.A.

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 concerned 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.

5. (*a.*) A thesis must be prepared on some approved topic in the major subject.

(*b.*) Examinations, written or oral, or both, shall be required.

6. 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.")

7. Application for admission as a graduate student shall be made to the Registrar by October 15th. For fees see Page 33.

LIST OF STUDENTS IN ATTENDANCE, SESSION 1923-24

FACULTY OF ARTS AND SCIENCE

First Year

Full Undergraduates

Name.	*Home Address.*
Adams, Charles	Vancouver
Adams, Dorothy	Vancouver
Adams, Robert W.	New Westminster
Addinall, B. Leonard	Vancouver
Allan, Dalton D.	Vancouver
Allan, D. Kathleen	Vancouver
Allen, J. Stanley	Naramata
Almond, Blanche	Vancouver
Andruss, G. Lena	Vancouver
Arkle, Hazel D.	New Westminster
Arnold, Jack R.	Vancouver
Ash, G. Ruth	Cloverdale
Astell, Joseph J.	Vancouver
Atkins, Nancy E.	Vancouver
Bailey, Charles F.	Vancouver
Baillie, Allan D.	Port Hammond
Baird, H. Percy	Vancouver
Balge, Rosemary	Vancouver
Ballard, Ernest R.	Vancouver
Ballentine, C. Gordon	Vancouver
Barnes, Rex I. P.	Summerland
Barons, Dorothy K.	Vancouver
Barrett, Robert A.	Vancouver
Barron, Philip L.	Vancouver
Basiren, George	Vancouver
Bell, Douglas E.	Vancouver
Benedict, Olive P.	Burnaby
Bennett, Gordon J.	North Vancouver
Berlet, Roy F.	Vancouver
Black, Albert F.	Vancouver
Black, R. May	Vancouver
Bloomfield, Marion E.	Vancouver
Bow, Margaret	North Vancouver
Boyes, Winifred E.	Vancouver
Brayne, L. Gertrude	Vancouver
Brooks, Leslie D. G.	Vancouver
Brown, Dorothy E.	Vancouver
Brown, Emma I.	Kamloops

Name.	*Home Address.*
Brown, Norman	Vancouver
Buchanan, Harry A.	Vancouver
Buckingham, William N.	Vancouver
Bumstead, V. Grace	Vancouver
Burton, Helen J. M.	Vancouver
Bushnell, C. Susan	Vancouver
Butler, Francis A.	New Westminster
Calder, Jean E.	Vancouver
Caldicott, Mary	Trail
Calland, Barbara J.	Vancouver
Callander, Glenn G.	Vancouver
Cameron, M. Estelle	Vancouver
Cameron, Marion M.	Vancouver
Cameron, W. Murray	Vancouver
Campbell, Henry N.	Vancouver
Carmichael, Eva E.	Revelstoke
Carnwath, Irene H.	Vancouver
Carpenter, R. Burton	Vancouver
Casselman, Ralph	Vancouver
Cattell, F. Muriel	Vancouver
Chadbourne, Bessie S.	Vancouver
Chappell, Grace M.	Vancouver
Chisholm, Beatrice M.	Vancouver
Chisholm, Loretta A.	Vancouver
Chislett, Charlotte	Vancouver
Clancy, A. Ford	Woodfibre
Clark, Wm. Thomson	Middlesboro
Clyne, Nora K.	Vancouver
Coade, Lillian M.	Vancouver
Coatham, Viola I.	New Westminster
Code, Evelyn A.	Vancouver
Cohen, G. George	Vancouver
Cole, Mary J.	Vancouver
Coles, Hilda	Vancouver
Coombe, Dorothy L.	Vancouver
Cottingham, Mollie E.	Vancouver
Crawford, Alan M.	Vancouver
Crawford, Lionel G.	Middlesboro
Crosby, Harry A.	Vancouver
Curtis, James D.	North Vancouver
Dale, Claude C.	Vancouver
Dalyrymple, Thomas	Vancouver
Davidson, Elsie A.	Vancouver
Davis, Harry V.	Revelstoke

Name.	*Home Address.*
Davis, Lucille M.	Vancouver
De Cew, Wm. Howard	Vancouver
Denman, Ester O.	Vancouver
Dick, R. Norman	Britannia Mines
Dimmick, Fred W.	Burnaby
Dinsmore, Evelyn M.	Vancouver
Dobbins, Elizabeth G.	Vancouver
Douglas, Isobel M.	New Westminster
Dowsley, Gertrude O.	Vancouver
Duncan, James W. D.	Vancouver
Duncan, John D.	Vancouver
Dwinnell, Edith L.	Vancouver
Edwards, Edith I.	Vancouver
Edwards, Harold H.	Vancouver
Elliott, E. Nelles	Sardis
Elliott, Frank W.	Vancouver
Ellis, Ormonde B.	Vancouver
Esler, Nancy	Vancouver
Estey, Alice L.	Vancouver
Farrington, John L.	Kerrisdale
Farris, Katherine H.	Vancouver
Fawcett, Mary A.	Vancouver
Fewster, Phyllis C.	Vancouver
Fletcher, Ralph R.	Merritt
Fowler, Helen A. W.	Vancouver
Fraser, Ella M.	Huntingdon
Fraser, Jean H.	Vancouver
Freeland, Gertrude L.	Vancouver
Freeman, Kathleen S.	Cranbrook
Frost, G. Herbert	Vancouver
Fry, Vera S.	Vancouver
Fugler, M. Ethel	Vancouver
Fullerton, William E.	Vancouver
Gillespie, Robert M.	Vancouver
Gilley, Jean R. D.	New Westminster
Goldsworthy, Robert T.	Vancouver
Gordon, Ronald E. K.	New Westminster
Graham, Leslie W.	Vancouver
Grant, James V.	Vancouver
Grant, Ruby R.	Vancouver
Grant, Vivian J.	Vancouver
Green, Lillooet K.	New Westminster
Gretton, Ronald H.	Vancouver
Grimmett, Jack A.	Vancouver

Name.	*Home Address.*
Gross, Aubrey W.	Vancouver
Groves, Kenneth P.	Vancouver
Guernsey, Mary E.	Vancouver
Gustafson, Carl E.	Vancouver
Gustafson, Homer T.	Vancouver
Hadgkiss, Annie L.	Vancouver
Haight, Lillian	Vancouver
Hall, Harold	Vancouver
Handley, M. Dorothy	Port Coquitlam
Hannah, Anita M.	Vancouver
Harcus, Helen S.	North Vancouver
Harding, Cora L.	Vancouver
Hards, Albert A.	Vancouver
Hardwick, Muriel C.	Vancouver
Harris, Gordon G.	Gibson's Landing
Harrison, F. Margaret	Langley Prairie
Hart, Edwyna D.	Vancouver
Harvey, Gladys S.	Vancouver
Harvey, James T.	Vancouver
Harvie, Ralph A.	Vancouver
Hatfield, Harley R.	Penticton
Hedley, Elsie	Vernon
Hedley, Mathew S.	Vancouver
Hemsworth, Phyllis M.	Vancouver
Henderson, Aileen V. C.	Vancouver
Henderson, Arnold E.	Vancouver
Henderson, Elinor J.	Vancouver
Hermon, Katherine H.	Vancouver
Hicks, Ruby F.	Vancouver
Hill, Evelyn M.	Vancouver
Hill, R. Arthur	West Vancouver
Hilton, Grace I.	Vancouver
Hitchin, Edward	Mission
Hockin, John M.	Vancouver
Holland, F. Jean	Vancouver
Honeyford, O. Keith	Vancouver
Hood, Thomas E.	Vancouver
Hooson, Katherine	Chilliwack
Hornbrook, Ethel E.	Vancouver
Horwood, Hereward C.	Vancouver
How, H. Jessie	Chilliwack
Howard, Hedley V.	Vancouver
Howay, Undine L.	New Westminster
Hulbert, Audrey M. E.	Sardis

Name.	*Home Address.*
Hume, C. Bruce	Revelstoke
Hunter, Helen M.	Silverton
Hurry, Margaret I.	Vancouver
Hyndman, Ray J.	Vancouver
Ingledew, William E.	Vancouver
Irwin, Everett J.	Vancouver
Irwin, Ronald E.	North Vancouver
Jacques, Lola B.	Vancouver
Jagger, Albert E.	New Westminster
Jay, Harry V.	Cumberland
Jeffers, Rhoda M.	Vancouver
Jenks, Robert	Eburne
Jenkins, Anne S.	Notch Hill
Johnson, Andrew S.	Burnaby
Johnston, Albert D.	Vancouver
Johnston, Frederick B.	Vancouver
Johnston, Mary H.	Vancouver
Jolliff, E. Loraine	Vancouver
Jones, Allan J.	Nanaimo
Jones, Gomer	Hedley
Jones, Katherine E.	Vancouver
Jones, Lucius D.	North Vancouver
Keillor, Margaret G.	Vancouver
Keith, Dorothy F.	Enderby
Kelly, F. Harold	Vancouver
Kennedy, Edna L.	Capilano
Kennedy, Evelyn A.	New Westminster
Kennedy, Mamie M.	Vancouver
Kerr, Ida M.	Vancouver
Kilpatrick, M. Elspeth	Vancouver
King, Hubert B.	Vancouver
King, Lillian E.	Burnaby
King, Roy	North Vancouver
Kirk, Dan W.	Vancouver
Kirk, J. Olag	Vancouver
Kirk, Jean S.	Vancouver
Lade, Helen C.	Vancouver
Lam, George	Vancouver
Lamb, Kaye	Cloverdale
Lambert, Phyllis M.	North Vancouver
Lamont, Donald M.	Vancouver
Lamont, K. Mary	Vancouver
Lane, Mary E.	New Westminster
Langstaff, Dorothy M.	Merritt

Name.	*Home Address.*
Lasser, Freda	Vancouver
Laverock, Doris L.	Vancouver
Lazarus, Minnie R.	Vancouver
Lazorek, William	Anyox
Leek, Walter E.	Vancouver
Legg, John H.	New Westminster
Leigh, Digby M.	Revelstoke
Leith, Bessie	Prince George
Leith, Edward I.	Prince George
Leyland, Constance M.	Vancouver
Liddell, Elsie A.	Vancouver
Liddell, Mary	Vancouver
Litch, Edith S.	Vancouver
Logie, Russell M.	Vancouver
Lyons, Phyllis M.	Vancouver
Manning, Cyril M.	Vancouver
Manson, Nicol B.	Cortez Island
Marrion, Oscar G.	Vancouver
Martin, Harry K.	South Wellington
Masters, George E.	Vancouver
Mattice, Clarence R.	Keremeos
Maxwell, J. Allison	New Westminster
Mercer, Elsie	New Westminster
Metz, Alice W.	Vancouver
Millener, Violet M.	Vancouver
Milley, Elva M.	Vancouver
Mills, Elsie D.	Vancouver
Millward, Louis G.	Vancouver
Mitton, J. Raymond	Vancouver
Moffatt, Arnold V.	Vancouver
Moffatt, Kenneth F.	Vernon
Moody, Elise	Vancouver
Moody, Frederick J.	Vancouver
Moore, Kathleen M.	Vancouver
Mooyboor, Abram P.	Grand Forks
Morden, Fred	Kelowna
Morell, A. Ernest	Vancouver
Morfitt, Wilson G.	Vancouver
Morley, Alan P.	Penticton
Morrison, Edmund	Vancouver
Mottley, Charles M.	Kamloops
Munro, Hector G.	Vancouver
Muylaert, Stanley F.	South Wellington
McBain, Wilberta J.	Vancouver

Name.	*Home Address.*
McBeath, Hazel M.	Vancouver
McCutcheon, W. Lipton	Sardis
McDevitt, Elizabeth	Vancouver
McDiarmid, Margaret A.	Ladner
Macdonald, John E.	Vancouver
McFadyen, Genevieve	Cumberland
McGilvray, J. Charles	Vancouver
McGuffin, Thelma P.	New Westminster
McGugan, Donald M.	Vancouver
MacInnes, W. Edmund	Vancouver
McIntosh, Josephine H.	Vancouver
McIntosh, Mary H.	Vancouver
McIntyre, Marjorie C.	Vancouver
McKay, Dorothy C.	New Westminster
McKechnie, Neil D.	New Westminster
McKechnie, Robert E.	Vancouver
MacKenzie, Donald	Vancouver
MacKenzie, Henriette D.	Vancouver
McKie, Archibald	Vancouver
MacKinnon, John M.	Fraser Mills
MacKinnon, N. D. Clyde	Cranbrook
MacKnight, Mary L. E.	Anyox
McLaren, Mary M.	Vancouver
McLaughlin, Cecil E.	Vancouver
MacLean, Courtney F.	Vancouver
McLean, James B.	Vancouver
McLean, John A.	Vancouver
McLean, J. Donald	Vancouver
McLuckie, Alan J.	Vancouver
MacNeill, Lorne C.	Vancouver
Macpherson, W. Garfield	Vancouver
McQuarrie, Clare N.	Vancouver
McQuarrie, George R.	New Westminster
McQuarrie, Hector N.	North Vancouver
McRae, Margaret S.	Agassiz
McSweyn, Maxine M. M.	Vancouver
MacTavish, Isabelle G.	Vancouver
McWilliams, Harold G.	Vancouver
Nation, Dorothy J.	Vancouver
Nelson, Emma	New Westminster
Newby, D. Cecil	Sardis
Nixon, Evelyne	Vancouver
Noble, Kenneth F.	Vancouver
Northey, Helen G.	Vancouver

Name.	*Home Address.*
Odams, Winnifred D.	Kamloops
Page, Elizabeth M.	Cascade
Page, Miriam H.	Clinton
Parker, A. Gray	Vancouver
Parkin, Leona A.	North Vancouver
Parmley, Robert J.	Penticton
Partington, Dorothy L. R.	West Vancouver
Partridge, E. Douglas	Cumberland
Paterson, Kathleen D.	Ladner
Peck, Helen T.	Vancouver
Pettapiece, Edna L.	Vancouver
Phillips, G. Lindsay	Vancouver
Phillips, R. Goundry	Vancouver
Piggott, Eleanora	Armstrong
Pound, Marion A.	New Westminster
Pumphrey, K. Avis	Vancouver
Quigley, Arthur K.	Vancouver
Rae, Charlotte, C.	North Vancouver
Rae, Z. Margaret	North Vancouver
Ralph, Isobel	Vancouver
Ralph, Kathleen M.	Vancouver
Ramsay, Amelia S. A.	Vancouver
Reid, Elsie M.	Vancouver
Reid, Katherine O. M.	New Westminster
Reid, Mary A.	Salmon Arm
Reynolds, H. Elizabeth	Vernon
Reynolds, C. Murray	Nanaimo
Riddell, J. Marie	Vancouver
Ridington, Bernard C.	Vancouver
Ridley, H. McDonell	Vancouver
Ripstein, Horace R.	Vancouver
Rive, Gertrude	Vancouver
Robertson, Mary S.	Vancouver
Robinson, Audrey F.	Vancouver
Robinson E. Patricia	Victoria
Robinson, George R.	Vancouver
Robinson, Lillian A.	Vancouver
Roblin, Mable E.	Vancouver
Robson, Annie O.	Vancouver
Rogers, William W.	Vancouver
Ross, Gladys W.	Vancouver
Ross, Lucy K.	Vancouver
Ryan, Margaret I. E. J.	New Westminster
Sanford, Aubrey C.	New Westminster

Name.	*Home Address.*
Schultz, Charles D.	North Vancouver
Scott, Elizabeth L.	Vancouver
Scott, Norman T.	Kamloops
Scouse, A. H.	Steveston
Selman, W. Russell	Vancouver
Seymour, Wallace W.	Vancouver
Shakespeare, Jack S.	North Vancouver
Sharpham, Arthur L.	Vancouver
Shaw, Annie M.	Eburne
Sherbert, Ethel M.	Vancouver
Shields, Gordon J.	Vancouver
Shoove, May O.	Vancouver
Sills, John S.	Vancouver
Silver, Ethel M.	Vancouver
Simpson, Evelyn K.	McKay
Sinclair, James	Vancouver
Sinclair, Mary R.	Vancouver
Smith, Harold D.	Vancouver
Smith, Harry	Vancouver
Smythe, Enid G.	New Westminster
Snell, Charles O.	Vancouver
Somerton, Thomas W.	Fort George
Stapleton, Ralph W.	North Vancouver
Stevens, Francis H.	Vancouver
Stevenson, M. Ian	Vancouver
Stewart, C. Jean	New Westminster
Stewart, Jean E.	Vancouver
Stewart, Maxwell M.	Vancouver
Stocks, Freda	Vancouver
Straus, A. Donalda	Vancouver
Streight, H. R. Lyle	New Westminster
Stringer, Lillian E.	Vancouver
Sutherland, James B.	Vancouver
Swanson, J. Alexander	Vancouver
Swanson, Violet M.	Vancouver
Taylor, Daisy	Vancouver
Taylor, Reginald M.	Vancouver
Tennant, Jean E. S.	Vancouver
Terhune, Stuart J.	Rossland
Thompson, George	Vancouver
Thompson, Henrietta B.	Vancouver
Thompson, Lloyd B.	Vancouver
Thompson, Mary	Vancouver
Thomson, Charles M.	Vancouver

Name.	*Home Address.*
Thomson, William E.	Vancouver
Thorsteinsson, Lily	Vancouver
Tippett, Mary E.	Nanaimo
Todd, Duncan K.	Vancouver
Tomlin, Dorothy R.	Summerland
Tupper, Bertram R.	Vancouver
Turley, Edith F.	Vancouver
Turner, Agnes J.	Vancouver
Turpin, William H.	Vancouver
Underhill, H. Margaretta	Edmonds
Vance, Thelma H.	North Vancouver
Vosper, V. Lorine	Vancouver
Waddicor, Renee S.	Vancouver
Wagg, E. Blanche	Vancouver
Walker, Day	North Vancouver
Walmsley, Sheridan E.	New Westminster
Warden, David C.	Vancouver
Warne, John F.	Vancouver
Watson, Neil M.	Vancouver
Webb, Beatrix M.	Vancouver
Welch, Constance M.	Vancouver
Wellington, Beatrice M.	Vancouver
Wells, Harry N.	Vancouver
Whelan, Eileen	Vancouver
Whiles, Dorothy E.	Vancouver
White, Cecil B.	Vancouver
Whittaker, Constance A.	Vancouver
Whitworth, Lola M.	Vancouver
Wilde, Elsie	Vancouver
Wilkinson, Margery H.	Vancouver
Williams, V. Benjamin	Vancouver
Wilson, Carl A.	Sardis
Wilson, Gerald D.	Vancouver
Wilson, Isabel A.	Vancouver
Wilson, Jean K.	Cranbrook
Wilson, Kenneth E.	Kamloops
Winn, Herbert C.	Vancouver
Winter, Edythe W.	Vancouver
Wong, Margaret	Vancouver
Wood, Margaret V.	Vancouver
Woodworth, Charles A.	Vancouver
Woodworth, Hugh McC.	Vancouver
Worthington, Nellie	Vancouver
Wright, Henry C.	North Vancouver

Name.	*Home Address.*
Wright, Laurence O.	Vancouver
Wright, Noel N.	Summerland
Yingling, Elizabeth M.	Revelstoke
Young, Elizabeth G.	Vancouver

Conditioned

Anthony, Arthur T.	Vancouver
Barton, Lennox J.	New Westminster
Brown, William C.	Hammond
Clegg, E. Beatrix	Vancouver
Cooper, Robert K.	Vernon
Cornwall, May V. A.	Vancouver
Crickmay, Alfred E.	North Vancouver
Cunningham, Frederick H.	Burnaby
Elliott, Flora M.	Vancouver
Ewing, Lorna J.	North Vancouver
Forsyth, Winnifred F.	Vancouver
Freeborn, Grace M.	Vancouver
Galloway, Walter F.	Vancouver
Greenwood, Evelyn	Vancouver
Gurd, Jack W. M.	Vancouver
Hearle, Arthur	Osoyoos
Hume, Robert C.	Revelstoke
Johnston, Trevor D.	Vancouver
Lambert, L. Godfrey	Vancouver
Lockerbie, David S.	Sullivan
Massey, Ruth E.	Vancouver
Morrison, Laurance R.	Kelvington, Sask.
Mulhern, Edmond F.	Vancouver
Newby, Raymond C.	Sardis
Pretious, Edward S.	Hollyburn
Richmond, Hector A.	Vernon
Robinson, Eleanor G.	Vancouver
Smith, John H.	Vancouver
Smith, Virginia L.	Sardis
Sparks, Wilburg H.	Vancouver
Stables, K. Jean	Vancouver
Wales, Mona M.	Vancouver
Wonder, C. E. Ruel	Vancouver
Wood, Ronald W. E.	Salmon Arm

Partial

Bain, Hilda A.	Vancouver
Brynildsen, Robert K.	Bella Coola

Name.	*Home Address.*
Corry, Jack R.	Vancouver
Cottrell, Muriel E.	Vancouver
Davies, Dermot A.	Vancouver
Eason, Josephine B.	New Westminster
Evans, Alexander M.	Vancouver
Gillen, James L.	Abbotsford
Halperin, Myer	Vancouver
Hillis, Babs N.	Vancouver
Hockin, M. Jean	Vancouver
Huestis, Eric S.	Red Deer, Alberta
Johnston, W. James	Vancouver
MacKay, John R.	Sask. Landing, Sask.
Mackenzie, Anne C.	Vancouver
Morris, Mary R.	Vancouver
Raby, Laura A.	Salmon Arm
Scott, John J.	Vancouver
Singh, Ajaib (Sangha)	Punjab, India
Singh, Bhagat	Dhudike, Moga, India
Stinson, Rena C.	Vancouver
Takagaki, Shinzo	Vancouver
Underwood, Thomas J. W.	Lynn Creek
Washington, Laurence A.	Vancouver
Wasson, Keith C.	Cranbrook
Wasson, Norman S.	Cranbrook
Wilson, Janet	Vancouver
Wong, Violet	Vancouver

SECOND YEAR

Full Undergraduates

Allen, A. Stewart	Naramata
Armour, J. Arnold K.	New Westminster
Armstrong, Helen J.	Penticton
Atkins, Orville S.	Vancouver
Baillie, Oenone G.	Vancouver
Ball, Ralph H.	Kelowna
Balmer, Ian A.	Tuxford, Sask.
Barton, Bernice E.	Vancouver
Barton, Isobel W.	Vancouver
Barton, Lorna D.	Vancouver
Baynes, Doris L.	Vancouver
Bell, Wm. John	Vancouver
Berkeley, Alfreda A.	Nanaimo
Birney, A. Earle	Banff, Alberta

Name.	*Home Address.*
Bolt, Sybil	Vancouver
Bonsall, Henry B.	Vancouver
Boyles, Sadie M.	Vancouver
Bridge, John W.	Vancouver
Bridgman, Clara M.	Vancouver
Brown, Florence V.	Vancouver
Bullock-Webster, Marion I.	Victoria
Burnett, Lila W.	Vancouver
Byrne, Thomas S.	Vancouver
Campbell, Mildred H.	Vancouver
Catterall, John L.	Vancouver
Chalmers, William	Vancouver
Chamberlain, Edward R.	Vancouver
Clark, H. Eustace F.	Vancouver
Clark, Kathleen L.	Vancouver
Conrad, Elsie	Vancouver
Cooper, Ursula H.	Vancouver
Cranston, R. Roberta	Vancouver
Crees, N. Jack	Vancouver
Davidson, Allen E.	New Westminster
Davies, Edward	Vancouver
Dickman, Esther E.	New Westminster
Dimock, Marjorie C.	Armstrong
Dobie, M. Helen	New Westminster
Eaton, Virginia	Vancouver
Edwards, T. Bentley	Eburne
Farrand, Charles J. S.	Vancouver
Faulkner, Jean C.	Vancouver
Fowler, Horace W.	Vancouver
Fraser, Ruth	Vancouver
Freeman, Maurice	Vancouver
Gadd, Gwendolyn M.	Vancouver
Galbraith, Gladys E.	Vancouver
Gallaugher, Arthur F.	Vancouver
Garner, Edna B.	Vancouver
Gartshore, Hendrie L.	Vancouver
Gauthier, Cairns A.	Vancouver
Gibbard, Charles A.	Mission
Gould, Clara W. H.	Vancouver
Grace, John	New Westminster
Grantham, Herbert H.	Vancouver
Griffith, Braham G.	Grand Forks
Gruchy, Allan G.	Vancouver
Heelas, John C.	Armstrong

Name.	*Home Address.*
Henderson, Annie A.	Vancouver
Henderson, Robert A.	Vancouver
Hill, Mark R.	Vancouver
Hodgins, Lillian L.	Nanaimo
How, Margaret I.	Chilliwack
Hunter, H. Murray	Vancouver
Irwin, M. Lenora	Vancouver
Jones, Margaret E.	Vancouver
Kidd, Honor M.	New Westminster
King, Esther E.	Vancouver
King, G. Agnes	Vancouver
Kobe, Susumu	Vancouver
Lade, Mary E.	Vancouver
Langridge, Gertrude A.	Vancouver
Leach, F. Wanetta	Vancouver
Lindsay (Blackwood) Isabelle	Vancouver
Lockard, Edith F.	Vancouver
Logie, W. James	Vancouver
Lyttleton, Helen M.	Vancouver
Marin, Rosa A. M.	Vancouver
Mellish, A. Preston	Vancouver
Menten, Marjorie E.	New Westminster
Mercer, W. E. Arthur	New Westminster
Meredith, Joan O. F.	North Vancouver
Minaty, William	Vancouver
Mitchell, Marion	Vancouver
Moffatt, Alda C.	Vancouver
Moore, Hilton M.	Vancouver
Morrison, Louise D.	Vancouver
Morrison, Margaret G.	Vancouver
Murphy, William	Vancouver
Myers, Alice	Naramata
McCulloch, Walter F.	Kamloops
MacDonald, Eileen	Vernon
MacDonald, Kenna C.	Vernon
McDougall, Edith E.	Vancouver
McGregor, Mary C.	Vancouver
McIntosh, Margaret H.	Vancouver
McIntyre, Charles M.	Vancouver
McKay, Doris G.	Vancouver
MacKay, Mary A.	Vancouver
MacKenzie, L. Margaret	New Westminster
McLean, Cecilia M.	Vancouver
McLennan, Alan B.	Vancouver

Name.	*Home Address.*
Nakano, Noboru A.	Cumberland
Nixon, Myrtle	Vancouver
Norman, Ralph O.	Vancouver
Ogawa, Kiyo	Vancouver
Osborne, Donald J. F.	Vancouver
Palmer, Russell A.	Vancouver
Phipps, E. Sheila M.	Vancouver
Pillsbury, Richard W.	Prince Rupert
Piters, Jack	Vancouver
Porter, Ida S.	Hollyburn
Potter, Frank	Cumberland
Pradolini, Mario	Revelstoke
Price, Anna E.	Vernon
Raby, Ila G.	Salmon Arm
Reid, Mary F.	Vancouver
Russell, Dorothy B.	Vancouver
Selwood, Pierce W.	Dundarave
Shiels, Georgina P.	Vancouver
Smith, Louis F.	West Summerland
Smith, Marion R.	Vancouver
Stirling, Barbara G.	Kelowna
Stirling, Gwendolen G.	Kelowna
Story, Jean M.	Vancouver
Straight, Winona T.	Vancouver
Stuart, Ronald J.	Vancouver
Sutherland, John H.	Vancouver
Swanson, Margaret	Vancouver
Taylor, David	South Wellington
Taylor, Thomas M. C.	Kelowna
Telford, Gordon D.	Vancouver
Thompson, Bertha H.	Vancouver
Thompson, Harold	Vancouver
Thompson, William G.	Vancouver
Thurston, Roberta	Port Moody
Tighe, Elsie M.	Calgary, Alberta
Turnbull, Walter R.	Vancouver
Usher, Katherine H.	Vancouver
Verchere, David R.	Ladysmith
Wales, Bertram E.	Vancouver
Wiedrick, Vernon A.	Vancouver
Woodrow, Jean	Vancouver
Conditioned	
Arkwright, Dorothy	Vancouver

Name.	*Home Address.*
Ashworth, George W.	Vancouver
Blatchford, Annie	Vancouver
Bride, Gordon McK.	Vancouver
Coghlan, Basil S.	Vancouver
Crickmay, Geoffrey W.	Vancouver
Crickmay, James L.	North Vancouver
Cull, J. Simpson	Vancouver
Edgett, Freda B.	Vancouver
Esler, Mary R.	Vancouver
Gilley, Hazel L.	New Westminster
Godfrey, Arthur T.	Nelson
Handford, Cecile	Vancouver
Herd, Agnes B. G.	Vancouver
Ladner, Edward M.	Vancouver
Ledingham, George M.	Vancouver
Lynn, Mildred	Vancouver
MacArthur, Freida C.	Vancouver
Macdonald, Alexander B.	Vancouver
McIntosh, Mary C. E.	Vancouver
McMeans, Beatrice K.	Vancouver
Pedlow, Beulah W.	Vancouver
Purdy, Harry L.	Vancouver
Sutherland, John B.	Vancouver
Swencisky, Grace H. A.	New Westminster
Teeple, Ruth E.	Vancouver
Washington, Dorothy M.	Vancouver
Williams, Dorothy E.	Vancouver

Partial

Aitken, James	Vancouver
Domoney, Clarence	Vancouver
Dougan, Clarence A.	Vancouver
Dyble, Richard H.	Ioco
Eades, James E.	North Vancouver
Godson, Joy A.	Vancouver
Ledingham, Mary P.	Vancouver
MacInnes, Gertrude E.	Vancouver
MacKinnon, Ronald L.	Vancouver
Rickard, Dorothy G.	Vancouver
Tennant, Margaret M.	Vancouver
Thorpe, Milton	Vancouver

THIRD YEAR

Full Undergraduates

Allen, George A.	Vancouver

Name.	*Home Address.*
Anderson, Gwladys M.	Vancouver
Angell, Eloise	Vancouver
Anthony, Ed. Joseph	Nakusp
Arkley, H. Osborne	Vancouver
Auden, Kenneth F.	Vancouver
Ball, Robt. Wm.	Sandwick
Bell, Ella W.	Vancouver
Bell, Marjorie A.	Vancouver
Brown, Thos. Wilfrid	Vancouver
Bull, Armour McK.	Vancouver
Burns, Nettie	Vancouver
Carpenter, Gilbert B.	Vancouver
Chapman, Edward F.	New Westminster
Charlton, David B.	Port Haney
Clarke, M. Kathleen	Vancouver
Cowx, Joseph G.	Vancouver
Craig, J. Hannington	Vancouver
Crich, Evelyn P.	Vancouver
Davidson, Jean E.	Vancouver
Dobbin, Mary H.	Vancouver
Dodds, Kathleen	Vancouver
Dowling, Clifford H.	Vancouver
Duncan, Cedric J.	Vancouver
Dunn, Eric J.	Vancouver
Edwards, Lucy L.	Vancouver
Farrand, Zoe E.	Vancouver
Farrington, Eileen G.	Vancouver
Fee, Archie R.	W. Burnaby
Fee, Doris L.	Kamloops
Fisher, Jessie L.	Vancouver
Ford, Doris M.	Vancouver
Forster, Eric	Capilano
Gaddes, Leonard	Vancouver
Gage, Walter H.	New Westminster
Gillanders, Earle B.	Chilliwack
Graham, Etta L.	Vancouver
Grauer, Albert E.	Vancouver
Gregory, Phyllis M.	Rossland
Griffith, Wm. Ivor	Grand Forks
Groves, Dorothy	Vancouver
Hagelstein, Geo. Frederick	Langley Prairie
Hall, Winnifred M.	Vancouver
Hallamore, Gertrude	Vancouver
Hankinson, Bessie	Vancouver

Name.	*Home Address.*
Hardie, Wm. Leslie	Vancouver
Harvey, Mary	Vancouver
Hemingway, Allan	Victoria
Henderson, Harold R.	Vancouver
Inglis, Kathleen M.	Gibson's Landing
Ingram, Sydney B.	Vancouver
Keay, Norah A.	Victoria
Keenan, T. James	Vancouver
Kelly, Wilfred	Vancouver
Lambert, Walter H.	Victoria
Lanning, Walter S. W.	Vancouver
Lucas, Edith E.	Victoria
Lyness, Dora I.	Vancouver
Martin, Edith I.	New Westminster
Masaziro Miyazaki	Vancouver
Mather, Vera G.	North Vancouver
Mathews, Ralph B.	Victoria
Mills, Reginald C.	Vancouver
Mowatt, Laura S.	Vancouver
Murray, Dorothy A.	Vancouver
MacDonald, Janet R.	New Westminster
MacDonald, Marguerite	Armstrong
MacGill, Helen G.	Vancouver
McKillop, Lex Leslie	Vancouver
McLarty, Elsie I.	Vancouver
McLeod, Florence A.	Vancouver
McLeod, R. Leighton	North Vancouver
McMeans, Jean R.	Vancouver
Nelson, Clarence	Vancouver
Newcombe, Gwendolyn	Vancouver
Painter, Francis M.	Vancouver
Palmer, Peter F.	Vancouver
Pattullo, L. Doris	Victoria
Pattullo, Mary E.	Vancouver
Railtron, Joan M.	Vancouver
Rilance, Elsie G. L.	Vancouver
Russell, Isabel M.	Vancouver
Sharpe, Vera M.	Enderby
Sheppard, Lucy A.	New Westminster
Sheridan, Richard H.	Vancouver
Shore, J. Wallace B.	Vancouver
Shorney, Kathlyn D.	Vancouver
Sing, H. Carman	Cobble Hill
Smith, Grace E. M.	Vancouver

Name.	*Home Address.*
Smith, H. Bertram	Victoria
Smith, James	Vancouver
Stevens, Ernest G. B.	Vancouver
Stuart, Lillian B.	Vancouver
Sutherland, Marion G.	New Westminster
Taylor, Dorothy G.	New Westminster
Taylor, Elsie G.	Victoria
Thompson, Homer A.	Rosedale
Thomson, Jean	Vancouver
Thrupp, Sylvia L.	Kamloops
Tipping, Wessie M. M.	Vancouver
Wasson, Evans E.	Nelson
Watney, Douglas P.	Burnaby
Welch, Beatrice R.	Vancouver
Whiteside, Helen R.	New Westminster
Whittaker, Norah M.	Vancouver
Wilcox, Laura	Vancouver
Wilkinson, Nelly	Vancouver
Williamson, Cecilia	Vancouver
Winter, A. Greta	Vancouver
Woolliams, G. Ewart	Keremeos
Woodard, Lawrence H.	Vancouver
Wright, Stanley V.	Vancouver

Conditioned

Arkley, Adalene	Vancouver
Arkley, Stanley T.	Vancouver
Baker, Lorimer	Vancouver
Cant, Hector R.	New Westminster
Deans, William	Vancouver
Greggor, Clara F.	Vancouver
Jackson, Mary I.	Vancouver
Kelly, Clive A.	Vancouver
McGugan, E. Muriel	Vancouver
McIntyre, Margary	Vancouver
McKee, Mary M.	Vancouver
McLennan, Percy G.	Vancouver
Schell, Kenneth A.	Vancouver
Shaw, John C.	Vancouver

Partial

Beltz, Edward W.	Vancouver
Blackburn, Malcolm S.	Vancouver

Name.	*Home Address.*
Doidge, Gilbert	North Vancouver
Gignac, Frances V.	Vancouver
Goult, Barrington	Vancouver
Harper, H. Neville	Durban, Natal, S. Africa
Keir, George	Vancouver
Ledingham, Jack P.	Vancouver
Miller, Kenneth L.	Vancouver
McLean, Leslie M.	Vancouver
Rae, Hugh McC.	New Westminster
Rosborough, Hugh C.	Londonderry, Ireland
Simpson, N. Vernon	Penticton
Sparks, Fred P.	Vancouver
Tiffin, L. Oakley McC.	Vancouver
Weinberg, Jeanette	Vancouver

FOURTH YEAR

Full Undergraduates

Albo, Joseph	Rossland
Archibald, Laura M.	Victoria
Aske, Magdalene	Vancouver
Astell, Mary C. L.	Vancouver
Bell, F. Heward	Vancouver
Brand, Frederick J.	Victoria
Brink, R. Murray	Vancouver
Bruun, A. Geoffrey	Vancouver
Buchanan, Allen	Vancouver
Burton, Erling W.	Vancouver
Burton, Jean	Vancouver
Burton, John S.	Vancouver
Cantelon, Harold B.	Vancouver
Cawthorne, Winifred B.	Victoria
Chapin, F. Marie	Kelowna
Coates, Bertha W.	Vancouver
Cope, Mary C. L.	Vancouver
Cowdell, Lillian F.	Vancouver
Creelman, Helen	Vancouver
Cross, Henry N.	Seattle, Wash.
Crozier, Robert N.	Vancouver
Curtis, Philip S.	Vancouver
Davidson, J. Ross	Vancouver
Edgell, Phyllis M.	Vancouver
Edgett, Lloyd W.	Vancouver
Elliott, M. Louise	Vancouver

Name.	*Home Address.*
Elsey, Charles R.	W. Summerland
Evans, Muriel M.	Vancouver
Fawcett, Marie L.	Vancouver
Forward, J. Margaret	Ladysmith
Gibbard, John E.	Mission City
Gill, Alan F.	North Vancouver
Gillen, Agnes S.	Abbotsford
Goodchild, Margaret E.	Matsqui
Goodwin, T. Howard	Vancouver
Grant, John A.	Vancouver
Green, Rowland T.	Kaslo
Harman, Eileen B.	Vancouver
Hart, Ellen	Victoria
Higginbotham, Frances I.	Vancouver
Hodgson, C. Walter	Vancouver
Holmes, Dorothy M.	Victoria
Hyland, H. Ivadele	Vancouver
Ingram, Lucy	Vancouver
James, Fern D. G.	Vancouver
Johnson, Henry W.	Hope
Johnston, Florence E.	Vancouver
Jones, F. Nellie A.	Kelowna
Jones, J. Denzil	Cloverdale
Kievell, Myrtle L.	Vancouver
Knowling, Edith L.	Vancouver
Langdale, Ada G.	Vancouver
Lewis, Gordon A.	New Westminster
Lillico, Annie B.	Vancouver
Limpus, George H.	Vancouver
Livingston, Garrett S.	Vancouver
Mangat, Nahar Singh	Kulee, Punjab, India
Mather, Greta E.	North Vancouver
Meadows, Lyman	Vancouver
Miller, G. Stanley	Vancouver
Mitchell, John H.	Vancouver
Morgan, Lorne T.	Vancouver
Munn, Lyle E.	Vancouver
McDonald, Gertrude	Nelson
MacKinnon, Isabel M.	Vancouver
McLane, Paul V.	Ocean Falls
Maclean, Ethel M.	Vancouver
McMorris, Frances E.	Vancouver
Macnaghten, Kathleen E.	North Vancouver
McRae, Rena V.	Vancouver

Name.	*Home Address.*
MacWilliam, Ruth A.	South Vancouver
Notzel, Clifford A.	Vancouver
Offord, Harold R.	Vancouver
Ormrod, Eleanor O.	North Vancouver
Palmer, Sarah	Vancouver
Paradis, Josephine A.	Enderby
Peck, Dorothy C.	Vancouver
Pittendrigh, Mary A.	Vancouver
Reilly, Ruby R.	Vancouver
Reith, Helen W.	Penticton
Riddehough, Geoffrey B.	Penticton
Simpson, Wm. Wesley	Burnaby
Smith, Donald B.	Vancouver
Smith, J. A. Campbell	Vancouver
Somerset, Ventris Ann	Vancouver
Swanson, Mary K.	Vancouver
Teeple, Mildred G.	Vancouver
Telfer, Jean	Vancouver
Tolman, Carl	Vancouver
Topper, Robert	Mission City
Turner, A. Verna	Vancouver
Turpin, Helen M.	Vancouver
Wheeler, A. Lloyd	Victoria
Williams, Florence I.	Vancouver
Yonemura, Hozumi	Vancouver

Conditioned

Colton, L. Conroy	Fernie
McKee, William H.	Vancouver
Smith, A. Christina	Kamloops

Partial

Baird, J. Douglas	Vancouver
Hislop, Gordon B.	Moose Jaw
Jackson, Eric W.	North Vancouver
Lundie, James A.	Vancouver
Mackay, Donald C.	Vancouver
Schmidt, Walter E.	Vancouver
Wootten, Cora L.	Vancouver

FACULTY OF APPLIED SCIENCE

FIRST YEAR

Full Undergraduates

Arland, Andrew J.	Cloverdale
Arnold, Theodore E.	Kerrisdale

Name.	*Home Address.*
Barnsley, Frank R.	Vancouver
Bell, Alexander	Victoria
Bishop, Charles B.	Vancouver
Bloom, Jason	Vancouver
Boyce, George I.	Kelowna
Brown, Rex L.	Vancouver
Canfield, Orra W.	New Westminster
Challenger, John W.	Vancouver
Clement, Bruce D.	Vancouver
D'Aoust, J. Gilbert	Vancouver
Des Brisay, Maurice P.	Rock Bay
Elley, Frederick W.	Fernie
Fanning, Oscar	Vancouver
Fitchett, John N.	Sardis
Fletcher, Frank	Vancouver
Fraser, James A.	Vancouver
Gagnon, James H.	Nelson
Gibson, Swanston	Vancouver
Gill, Otto H.	Cranbrook
Goranson, Edwin A.	New Westminster
Gordon, Arthur I. E.	Skidegate
Groves, Tom D.	Westholme
Gwyther, Harold Wm.	Vancouver
Hartley, James D.	Victoria
Hubner, Rudolph	Trail
Kennedy, Mervyn E.	Vancouver
Kerslake, Ben	Vancouver
Kidd, Desmond F.	Vancouver
Leek, Charles W.	Vancouver
Lees, Everett J.	Vancouver
Manson, Harold E.	Hatzic
Marin, Joseph	Vancouver
Mathewson, Philip L.	Essondale
Millar, James W.	Revelstoke
Miller, George W.	Vancouver
Mounce, Lewis S.	Vancouver
McDiarmid, Ralph G.	North Vancouver
MacKinnon, C. Eric	Cranbrook
Newmarch, Gerald	Vancouver
North, J. Terry	Vancouver
Nunn, Edward H.	Vancouver
Owen, F. James	Trail
Porter, Basil W.	New Westminster
Pottinger, Alexander	Vancouver

Name.	*Home Address.*
Rees, Arthur F.	New Westminster
Robson, R. Christopher	North Vancouver
Sanders, Frederick H.	Victoria
Scott, J. Cosmo W.	Vancouver
Shannon, Jack D.	Vancouver
Spencer, Brian R.	Alberni
Stanley, John	New Westminster
Stewardson, Alan	New Westminster
Todd, Robert L.	Vancouver
Tokunaga, Tadashi	Vancouver
Touzeau, Ernest G.	Vancouver
Wainman, Philip R.	Vernon
Williams, John V. L.	Vancouver
Woodman, Owen O. M.	Hong Kong

Conditioned

Cornish, Charles R.	North Vancouver
Emery, Geoffrey B.	Edmonds
Hunter, George G.	Cranbrook
Lang, Arthur H.	Vernon
Mathews, J. T.	Vancouver
Waldie, Frederick M.	Nelson
Welch, W. Hamlyn	Vancouver

SECOND YEAR

Full Undergraduates

Abernethy, Gordon M.	Vancouver
Bain, Wm. A.	Vancouver
Barton, Carl F.	Vancouver
Bassett, Edward W.	Victoria
Baylis, Robert H.	Vancouver
Brock, Byron B.	Vancouver
Buchanan, Thomas G.	Vancouver
Gale, Stanley C.	Vancouver
Gibbs, Thomas C.	Vancouver
Guernsey, Frederick W.	Vancouver
Hale, Frederick M.	Vancouver
Jones, William A.	Vancouver
Kania, Joseph E. A.	Vancouver
Kidd, George S.	Vancouver
Larson, Arthur G. A.	Vancouver
Louden, Thomas N.	Vancouver

Name.	*Home Address.*
Nikiel, Charles V.	Vancouver
Norman, George W. H.	North Vancouver
Oliver, John C.	Vancouver
Parsons, Harold E.	Vancouver
Pearcey, John G.	Vancouver
Pollock, James R.	Vancouver
Robinson, George R.	Vancouver
Rothwell, James M.	Vancouver
Stevenson, C. Douglas	Victoria
Tamura, Morikiyo	Port Haney
Timleck, C. James	New Westminster
Warren, Harry V.	Vancouver

Conditioned

Hatch, David A.	Vancouver
Liersch, John E.	North Vancouver
Phillips, Wilfrid J.	Southend-on-Sea, Essex, Eng.
Tarr, Francis G. A.	North Vancouver

Partial

Falconer, Joseph G.	Bindloss, Alta.
MacLean, Hugh A.	Victoria

THIRD YEAR

Full Undergraduates

Arnott, Clarence	Vancouver
Callander, M. Bruce	Vancouver
Campbell, John M.	Vancouver
Carter, M. Neal	Vancouver
Demidoff, Peter H.	Trail
Evjen, Ralph W.	Vancouver
Ferguson, Royden H.	Vancouver
Greggor, Robert D.	Vancouver
Groves, Godfrey F. C.	Kelowna
Hicks, Kenneth	Vancouver
Hincks, Drennan	Victoria
Israeli, Moshe	Vancouver
Jackson, Robert M.	Vancouver
Morgan, F. Stewart	Vancouver
Morton, Ralph McK.	Vancouver
McDonald, Malcolm	Vancouver

Name.	*Home Address.*
Price, Peter	Vancouver
Ramsell, John L.	Vancouver
Steede, John H.	Port Alberni
Sutherland, Brian P.	Vancouver
Walsh, Harold E.	Vancouver

Conditioned

Bennett, James L.	North Vancouver
Cameron, George S.	Vancouver
Cox, Charles R.	Kamloops
Disney, Charles N.	Edmonds
Gibson, Ernest S.	Vancouver
Harkness, John A. C.	Burnaby
Lambert, Arthur A.	Nelson
Lucas, Colin C.	Vancouver
Mosher, H.	Vancouver
Niederman, Otto	Trail
McPherson, John W.	Vancouver

Partial

Black, Thomas B.	Prince Rupert
Lazenby, Frederic A.	Port Hammond
Stoodley, George E.	Armstrong
Woodhouse, Arthur R.	Fernie

FOURTH YEAR

Full Undergraduates

Barr, Percy M.	Vancouver
Bickell, Leslie K.	Victoria
Bramston-Cook, Harold E.	Vancouver
Campbell, Douglas S.	Vancouver
Carlisle, Kenneth W.	Vancouver
Charnley, Frank	Barnston Island
Coffin, Frederick W.	Vancouver
Corfield, Guy	Victoria
Elliott, Frederick G.	Victoria
Evans, Charles S.	Vancouver
Falconer, Stuart A.	Los Angeles, Calif.
Finlay, Allan H.	Vancouver
Giegerich, Henry C.	Kaslo
Graham, Roland C.	Vancouver
Gwyther, Valentine M. W.	Vancouver

Name.	*Home Address.*
Heaslip, Wilbur J.	Vancouver
Hedley, Robert H.	Vancouver
Huggett, Jack L.	Vancouver
Jackson, Gerald C. A.	Mission City
Jure, Albert E.	Vancouver
Letson, Gordon McI.	Vancouver
Lipsey, George C.	Vancouver
McCutcheon, James C.	Greenwood
McKee, Robert G.	Vancouver
McLachlan, C. Gordon	Vancouver
Norman, George H. C.	Mirror Lake
Osborne, Freleigh F.	Vancouver
Peele, J. Percy F.	New Westminster
Smitheringale, W. Vickers	Vancouver
Stacey, Leonard B.	Chilliwack
Stockwell, Clifford H.	Vancouver
Stroyan, Philip B.	Vancouver
Underhill, John E.	Vancouver
Wallis, Hubert D.	Courtenay
Wolverton, Jasper M.	Nelson

Partial

Bell, John G.	Vancouver
Hardie, Dudley B.	Esquimalt
Ternan, Clifford C.	Vancouver

NURSING

FIRST YEAR

Full Undergraduates

Boulton, Josephine E.	Vancouver
Burd, Doris	Vancouver
Griggs, H. Rebecca	Tacoma, Wash.
Hand, Florence E. M.	Vancouver
Johnston, Mabel G. J.	North Vancouver
Macdonald, Ruth E.	Vancouver
Nelson, Evelyn	Abbotsford
Swerdfager, Myrtle E.	Kamloops
Wight, Winona F.	Napinka, Man.
Wilkie, Dora W.	Victoria
Yates, Annie T.	Vancouver

Conditioned

Tisdall, Edith W.	Vancouver

SECOND YEAR

Full Undergraduates

Name.	*Home Address.*
Lyne, Frances	Creston
Olmstead, Dorothy G.	Vancouver
Stoddart, Elizabeth	Clinton

Conditioned

Brandon, Helen I.	Vancouver
Higgs, Nora L.	Albert Head
Swencisky, Victoria M.	New Westminster

THIRD YEAR

Full Undergraduate

Innes, Florence A. I.	Vancouver

Conditioned

Armstrong, Norah	Fort a La Corne
Creelman, Florence M. L.	Vancouver
Kerr, Margaret E.	New Westminster

Partial

Wood, Olive	Ewing's Landing

FOURTH YEAR

Full Undergraduates

Bennet, Helen M.	Victoria
Carson, Leila A.	Victoria
Hedley, Anne	Vancouver
Rogers, Dorothy M.	Seattle, Wash.

FIFTH YEAR

Full Undergraduates

Cook, Louise C.	Chemainus
Gill, Bonnie H.	North Vancouver
Naden, Esther S.	Victoria
Pearce, Beatrice A.	Victoria
Wilson, Everilda	New Westminster

FACULTY OF AGRICULTURE

FIRST YEAR

Full Undergraduates

Asher, C. Richard	Kelowna
Berry, Jack C.	Langley Prairie
Brooke, Ralph E.	Salmon Arm
Eden, A. Harold	Vancouver
Milne, Helen I.	Vancouver

Name.	*Home Address.*
McIntyre, Douglas C.	Vancouver
McKee, John R.	Vancouver
Noble, Grace I.	Hatzic
Reid, Edgar C.	Haney
Ross, Herbert H.	Vancouver

Conditioned

Bowman, Sydney J.	Vancouver
Luyat, Gabriel A.	Agassiz

Partial

Haywood, Harold D.	Vancouver
Matthews, Willoughby W.	Westholme
Tuckey, Francis E.	Vancouver

SECOND YEAR

Full Undergraduates

Allen, Maude A.	Vancouver
Biely, Jacob	Chita, Siberia
Gough, Wm. Frederick	Hull, England
Mallory, Lester D.	Vancouver
Mutrie, Fergus	Vernon
McCurrach, John B.	New Westminster
Newcombe, Frederick E.	Vancouver
Rayment, Arthur B.	Sooke
Tarr, Hugh L. A.	North Vancouver

Conditioned

Dynes, George M.	New Westminster
Wilkinson, G. Thomas	Vancouver
Verchere, Frank G.	Mission City
Vroom, Paul N.	St. Stephen, N. B.

Partial

Blair, Robert G.	Milner
McKay, Leslie W.	Agassiz

THIRD YEAR

Full Undergraduates

Argue, Charles W.	Vancouver
Atkinson, Lyle A.	New Westminster
Aylard, Arthur W.	Victoria

Name.	*Home Address.*
Buckley, Hubert L.	North Vancouver
Cameron, Wm. Craig	Chilliwack
Challenger, George W.	Vancouver
Fraser, Edward B.	Nanaimo
Gutteridge, Harry S.	Vancouver
Keenan, David P.	Vancouver
Laing, Arthur	Eburne
Murphy, Laurence A.	New Westminster
Nelson, John C.	Vancouver

Conditioned

Baxendale, Robert D.	Trail
Caple, Kenneth P.	Vancouver
Goldie, J. Alexander	Vancouver

Partial

Hay, Kenneth A.	Lachute, Que.
Thompson, David W.	Eburne

FOURTH YEAR

Full Undergraduates

Barton, Charles M.	Chilliwack
Chester, Herbert	Cranbrook
Etter, Harold C.	Penticton
Hope, Ernest C.	Langley Fort
Martin, George R.	Vancouver
Ogilvie, Alvin E.	Agassiz
Plummer, A. Howard	Vancouver
Russell, Hugh M.	Vancouver
Steves, Harold L.	Steveston
Townsend, Charles T.	London, Eng.
Wilcox, John C.	Salmon Arm
Wilcox, Ralph V.	Salmon Arm
Zoond, Alexander	London, Eng.

Partial

Eby, Victor J.	Abbotsford
MacCallum, Hugh C.	Agassiz

GRADUATES

FACULTY OF ARTS AND SCIENCE

Bain, J. Burnett	Vancouver
Beddome, James B.	Fernie

Name.	*Home Address.*
Beech, William K.	Vancouver
Bolton, Lloyd L.	Vancouver
Boss, A. Evan	Vancouver
Brown, Joseph F.	Hammond
Chapman, Mary I.	New Westminster
Clark, Charles A. F.	Vancouver
Crummy, Richard B.	Vancouver
Cumming, Alison	Vancouver
Dallas, Dorothy F.	Vancouver
Duffy, James	Ireland
Dunlop, Henry A.	Vancouver
Godsmark, James E.	Derby, Eng.
Grieg, Janet T.	Brysonville, P. Q.
Hallett, Lawrence T.	Steveston
Heaslip, Leonard W.	Vancouver
Johnston, C. Islay	North Vancouver
Kerr, Donna E.	Duncan
Kerr, Gerald C. G.	Vancouver
Kirkpatrick, Gladys	Vancouver
Lee, Doris E.	E. Bonnington Falls
Le Neveu, Allan H.	Vancouver
Lewis, Hunter C.	Vancouver
Lock, Ernest H.	New Westminster
Moodie, Stanley F. M.	Vancouver
Morgan, William	Vancouver
Morrison, Margaret	Vancouver
Macdougall, Alice P.	New Westminster
MacNaughton, Jean L. M.	Chilliwack
Nuttall, Thomas H.	New Westminster
Osterhout, M. Mildred	New Westminster
Reid, Mary L.	Vancouver
Smith, William R.	Vancouver
Southon, Henry S. A.	Vancouver
Stewart, William	Victoria
Tees, Percy C.	Vancouver
Thompson, Willard A.	Vancouver
Wallace, Bryce H.	Duncan
Weld, C. Beecher	Vancouver
Wilby, G. Van	Vancouver

FACULTY OF APPLIED SCIENCE

Brown, Leo B.	Vancouver
Fraser, Duncan	Vancouver
Graham, William E.	Vancouver

Name.	*Home Address.*
Guernsey, Tarrant D.	Vancouver
Jones, Cyril	North Vancouver
McDougall, Stewart R.	New Westminster
Ure, William	Vancouver

FACULTY OF AGRICULTURE

Clarke, G. Ernest W.	Vancouver
Fleming, William N.	Duncan
Kelly, Clifford D.	Vancouver
Leckie, Claude P.	Vancouver
Munro, John	Victoria
Robertson, William H.	Victoria
White, Edward W.	Victoria

TEACHER TRAINING COURSE

Abel, Ilva Isabella Jean	Vancouver
Baynes, Lloyd Lester	Vancouver
Benedict, Frances Ellen	Vancouver
Buck, Dorothea May	Kelowna
Burke, Beatrice Mary	Vancouver
Campbell, Claude Lane	Victoria
Carrie, Janet B.	Nelson
Caspell, Jessie Marguerite	Vancouver
Casselman, Jessie Elizabeth	Vancouver
Clandinin, Gladys Margaret	Vancouver
Cock, Cecil James	Vancouver
Crandlemire, Vera Kate	New Westminster
Crawford, Helen Couper	Vancouver
Crozier, Isabella Elliott	Vancouver
Eveleigh, Evelyn M. Southcott	Vancouver
Fisher, Lacey Julian	New Westminster
Fitch, Beatrice Constance	Vancouver
Fleming, George Herbert	Vancouver
Gibbon, Marion Evelyn	Vancouver
Gilbert, Evelyn Maude	Vancouver
Green, Lucy Ethel	Vancouver
Griffiths, Mary Gertrude Elaine	Vancouver
Gross, Rowena Pauline	Vancouver
Hallett, Lawrence Trenery	Lulu Island
Henderson, Jean	Vancouver
Jack, Gladys Gordon	Vancouver
Jardine, Agnes Alexandra	Vancouver
Johnston, Verda Irene	Vancouver

Name.	*Home Address.*
Kerr, Gerald Clifford Graham	Vancouver
Kerr, Margaret Isobel	Vancouver
Kidd, Dorothy Elizabeth	New Westminster
Kloepfer, Helen Patricia	Vancouver
Lett, Jessie Katrina	Vancouver
Leveson, Mary Kirsteen	Vancouver
Lindsay, Margaret Patterson	Vancouver
Lister, Fraser	Nanaimo
Lloyd, Digby Sheffield	Vernon
Marett, Leila Margaret	Vancouver
Mathews, Helen Mary	Vancouver
Miller, Selwyn Archibald	Vancouver
Mortimer, Helen	Vancouver
McIntyre, Donald Manning	West Summerland
MacKenzie, Mary Isobel	New Westminster
MacNeill, Alan Roy	Vancouver
Pound, Allen N. C.	Vernon
Rees, Catherine Bertha	New Westminster
Sanford, Osbert McLean	Vancouver
Sangster, Norman	Vancouver
Shaw, Lee Donald	Vancouver
Southon, Henry Stewart Atkin	Vancouver
Stewart, William	Vancouver
Thompson, Mona	Vancouver
Tupper, Mary Emily	Vancouver
Wallace, Fraser Melvin	Vancouver
Wallis, Clinton G.	Victoria

REGISTRATION FOR 1923-24

Faculty of Arts and Science

	Women	Men	Total
First Year	254	245	499
Second Year	85	98	183
Third Year	69	73	142
Fourth Year	51	54	105
			929

Faculty of Applied Science

	Women	Men	Total
First Year	0	68	68
Second Year	0	34	34
Third Year	0	36	36
Fourth Year	0	38	38
			176

Nursing

	Women	Men	Total
First Year	12	0	12
Second Year	6	0	6
Third Year	5	0	5
Fourth Year	4	0	4
Fifth Year	5	0	5
			32

Faculty of Agriculture

	Women	Men	Total
First Year	2	13	15
Second Year	1	14	15
Third Year	0	17	17
Fourth Year	0	15	15
			62

Graduates

	Women	Men	Total	
Arts and Science	12	28	40	
Applied Science	0	7	7	
Agriculture	0	7	7	
				54
Teacher Training Course	35	20	55	
				55
		Total		1308

Short Courses (Session 1923-24)

Summer School	292	
Agriculture	61	
Public Health Nursing	6	
Botany	85	
		444

EXAMINATION RESULTS (Session 1922-23)
DEGREES CONFERRED

Faculty of Arts and Science

CONFERRING THE DEGREE OF MASTER OF ARTS

(Names in alphabetical order)

Battle, Sarah Josephine, B.A.	Major:	German
	Minor:	English
Boss, Arthur Evan, B.A.	Major:	Chemistry
	Minor:	Physics
Dauphinee, James Arnold, B.A.	Major:	Chemistry
	Minor:	Biology
Fournier, Leslie Thomas, B.A.	Major:	Economics
	Minor:	Government
Harris, Joseph Allen, B.A.	Major:	Chemistry
	Minor:	Physics
Kilpatrick, Myrtle Esther, B.A.	Major:	Bacteriology
	Minor:	Zoology
King, Herbert Baxter, B.A.	Major:	Philosophy
	Minor:	Greek
Moodie, Stanley Fyfe Middleton, B.A.	Major:	Philosophy
	Minor:	English
McConnell, Hazel Erma, B.A.	Major:	French
	Minor:	English
McDougall, Alice Pearce, B.A.	Major:	Botany
	Minor:	Zoology
Mackay, Katherine, B.A.	Major:	English
	Minor:	History
Reid, Mary Lillian, B.A.	Major:	Economics
	Minor:	Government
Wilson, Freda Lenore, B.A.	Major:	Bacteriology
	Minor:	Chemistry
Wilson, Grace Agnes, B.A.	Major:	Bacteriology
	Minor:	Zoology

CONFERRING THE DEGREE OF BACHELOR OF ARTS

With Honours

(Names in alphabetical order)

Anderson, Annie Margaret	(1st class honours in English language and literature)
Bell, Marjorie Emma	(1st class honours in French and Latin).
Brown, Joseph Frederick	(1st class honours in Mathematics)

Cassidy, Harry Morris .....(1st class honours in Economics and History)
Clandinin, Gladys Margaret .....(1st class honours in Biology)
Dallas, Dorothy Frances .....(1st class honours in French)
Griffiths, Mary Elaine .....(1st class honours in History)
Home, Maurice .....(1st class honours in Mathematics and Physics)
Kidd, Dorothy Elizabeth .....(2nd class honours in History)
Lee, Doris Elizabeth .....(2nd class honours in History and Economics)
Lewis, Hunter Campbell .....(1st class honours in English Language and Literature)
Murphy, Kathleen Sallee .....(1st class honours in English and History)
Mackay, Phyllis Isabel .....(1st class honours in French)
McLennan, Beth Dawson .....(2nd class honours in French)
Portsmouth, Kathleen Madge ...(1st class honours in French)
Rees, Catherine Bertha .....(1st class honours in French and Latin)
Roy, Jessie .....(1st class honours in French)
Shier, John William .....(2nd class honours in Biology and Chemistry)
Smith, Gertrude May .....(1st class honours in Biology)
Strauss, Jean Lillian .....(2nd class honours in History)
Walsh, Dorothy Howard .....(1st class honours in Philosophy)
Wilcox, Marion .....(2nd class honours in Geology)

In Pass Course

(Names in order of merit)

Class I

Chapman, Mary Isbell
Robertson, Norman Alexander
Jack, Gladys Gordon
Carrie, Janet Thomson
Wallace, Fraser Melvin
Buck, Dorothea May

Class II

Thompson, Willard Allen
Green, Lucy Ethel
LeNeveu, Allan Henry
Upshall, William Charles Cecil
Gilbert, Evelyn Maude
Tupper, Mary Emily
Smith, Grace Purvis
Switzer, Gerald Breen
Aylard, Clara Muriel
Benedict, Frances Ellen
Clyne, John Valentine
Eveleigh, Evelyn Mary Southcott
Fleming, George Herbert
Henderson, Jean
Sangster, Norman
Shaw, Keith Duncan
Allen, Harold Tuttle
Bulmer, Mary Lucinda
Hallett, Lawrence Trenery
Johnston, Charlotte Islay
Kerr, Gerald Clifford Graham
Campbell, Claude Lane

Pedlow, Gladys Lillian Joyce
Baynes, Lloyd Lester
Casselman, Jessie Elizabeth
Drennan, Albert Alexander
Ellis, Edgar Harrison
Kirkpatrick, Gordon MacKay
Lister, Fraser
Southon, Henry Stewart Atkin
Dickson, Malcolm James Cruickshank
Robson, Charles Young
Miller, Selwyn Archibald
Kerr, Margaret Isobel
Stewart, William
Turnbull, Frank Alexander
Fitch, Beatrice Constance
Higginbotham, Margaret Webster
Mathews, Helen Mary
McIntyre, Donald Manning
Quainton, Eric Hugh

Passed

Crawford, Helen Couper
Marett, Leila Margaret
McKee, John Rogers
Ray, Arthur Hugo
Wood, Elsie Doris
Abel, Ilva Isabella Jean
Gross, Rowena Pauline
Sanford, Osbert McLean
Lindsay, Margaret Patterson
Mackechnie, Hugh Alexander
MacNeill, Allan Roy
Osterhout, Minnie Mildred
Walker, Robert Edward
Crandlemire, Vera Kate
Fleming, Everitt Samuel James
Lapsley, Marie Letitia
Leveson, Mary Kirsteen
McLoughry, Vivian Helen
Burke, Beatrice Mary
Partridge, Phyllis
Kloepfer, Helen Patricia
Morden, Wilma Margaret
Hunter, Alan Duffil
Gibbon, Marion Evelyn
Locklin, Lillian Rolston
Weld, Gladys Noyes
Peter, Constance Eleanor
Yonemoto, Haruo
Bickell, Gertrude Elizabeth

Unranked

Arkley, Jack MacDougall
Brown, Margaret Ada
Dowling, Doris Ada
Edwards, Isaac John
McKenzie, Mary Isobel
Pumphrey, Lionel Francis
Wells, Lewis Edelbert

Faculty of Applied Science

CONFERRING THE DEGREE OF MASTER OF APPLIED SCIENCE

Banfield, William Orson, B.A.Sc. ..... Major: Chemistry
Minor: Physics
Gale, William Alexander, B.A.Sc. ..... Major: Chemistry
Minor: Mining
Gillie, Kenneth Beresford, B.A.Sc. ..... Major: Chemistry
Minor: Mining
Melville, John, B.A.Sc. ..... Major: Chemistry
Minor: Physics

McDougall, Stewart Robertson, B.A.Sc. ....Major: Chemistry
Minor: Physics
Scott, William Orville Craig, B.A.Sc. .....Major: Mechanical Engineering
Minor: Civil Engineering

CONFERRING THE DEGREE OF BACHELOR OF SCIENCE

(Names in order of merit)

Chemical Engineering

Class I

Ure, William
Loveridge, Gilbert Thomas
Hooper, Cleeve Woodward
Sivertz, Christian
Graham, William Ernest

Class II

Laird, Frederick William, B.A.
Pearce, Hubert Arnold
Anderson, Allan Jardine
Fraser, Duncan
Wilkinson, Elmo Clifford
Dean, Curtis Milford
Cameron, Ralph King

Passed

Cock, Cecil James
Davidson, John Randolph
Hanna, William Scott
McCallum, Neil Mitchell

Civil Engineering

Class I

Stewart, Frederick Choate
Jones, Cyril
Berry, Theodore Victor

Forestry Engineering

Class I

Jenkins, John Henry
Gregg, Elwyn Emerson

Geological Engineering

Class II

Say, Stanley Rhys
Gunning, Henry Cecil

Mechanical Engineering

Class II

Somerville, Archibald Laurence Harold
Mathers, Cliffe St. John
Lidgey, Ralph Christian Graham

Metallurgical Engineering

Class I

McVittie, Charles Archibald

Class II

Guernsey, Tarrant Dickie

Mining Engineering

Class I

Burton, William Donald

Class II

Jones, Russell Heber Blayde
Giegerich, Joseph Rhinehardt
Gross, George Clarence
Rice, Harrington Molesworth Anthony

Passed

Rae, Douglas Henderson

CONFERRING THE DEGREE OF BACHELOR OF APPLIED SCIENCE IN NURSING

(*Names in order of merit.*)

Class I

Fisher, Anna Marion
Johnson, Beatrice Fordham

Class II

Healey, Margaret Louise

Faculty of Agriculture

CONFERRING THE DEGREE OF MASTER OF SCIENCE IN AGRICULTURE

Palmer, Richard Claxton, B.S.A. — Major: Horticulture; Minor: Plant Physiology

CONFERRING THE DEGREE OF BACHELOR OF SCIENCE IN AGRICULTURE

(*Names in order of merit*)

Class I

Cavers, Raymond Vere
Richards, Albert Edward
Welland, Frederick James
Landon, Gordon Lorne

Class II

Barry, Sydney Clifford
Bennett, Leslie
Blair, Archibald
Mathers, William Graham
Woods, John Jex

Passed

(*Names in alphabetical order.*)

Fulton, Harry Graham
Phillips, Sperry Shea
Pye, William John Serson

MEDALS, SCHOLARSHIPS, AND PRIZES

AWARDED MAY, 1928

For Post-Graduate Studies

1. University Scholarship, $200.00 ..... Maurice Home
2. The Anne Wesbrook Scholarship, $100.00 .... Joseph Brown

Faculty of Arts and Science

Fourth Year

1. The Governor-General's Gold Medal ..... Maurice Home
2. The Historical Society Gold Medal ..... Elaine Griffiths
3. Alliance Francaise Gold Medal in French—
   Kathleen Madge Portsmouth
4. Medal for Second Place in French ..... Marjory E. Bell

Third Year

1. University Scholarship, $75.00 .... Geoffrey B. Riddehough
   by reversion to
   Lucy Ingram
2. University Scholarship, $75.00 ..... Lucy Ingram
   by reversion to
   Joseph Albo
3. The Arts '19 Scholarship, $150.00 .. Geoffrey B. Riddehough
4. The Gerald Myles Harvey Prize, $50.00 (Books)...No award
5. The Historical Society Silver Medal ..... J. E. Gibbard

Second Year

1. The McGill Graduates' Scholarship, $137.50...Kathleen Dodds
2. University Scholarship, $75.00 ..... Kathleen Dodds
   by reversion to
   Homer A. Thompson,
   by reversion to
   Gertrude J. Hallamore
3. University Scholarship, $75.00 ..... Homer A. Thompson
   by reversion to
   Gertrude J. Hallamore
   by reversion to
   Roy Gray
4. The Terminal City Club Memorial Scholarship, $110.00—
   Half to Sylvia Thrupp, half to Roy Gray (tied) by reversion to Cedric J. Duncan.
5. The Scott Memorial Scholarship, $110.00 .. Archibald R. Fee

First Year

1. Royal Institution Scholarship, $75.00 ..... Sadie M. Boyles
2. Royal Institution Scholarship, $75.00 .... William Chalmers

3. Royal Institution Scholarship, $75.00 ... Barbara K. Mandell
4. The Vancouver Women's Conservative Association Prize $25.00 ..... A. Evelyn Price
5. The P. E. O. Sisterhood Prize, $25.00 ..... Doris McKay
6. The P. E. O. Sisterhood Prize, $25.00 ..... No award

Faculty of Applied Science

Post Graduate Scholarship

1. The Dean Brock Scholarship, $100.00 ..... William Ure

Fourth Year

1. The Convocation Scholarship, $50.00 ..... William Ure

Third Year

1. The Dunsmuir Scholarship, $165.00 ..... George C. Lipsey

Second Year

1. University Scholarship, $75.00 ..... Brian P. Sutherland

First Year

1. Royal Institution Scholarship, $75.00 ..... G. W. H. Norman

Nursing—Public Health

1. Provincial Board of Health Prize, $60.00 .... F. M. Elcoate
2. Provincial Board of Health Prize, $40.00 .... W. V. Godard

Faculty of Agriculture

Third Year

1. The B. C. Fruit Growers' Association Scholarship, $100.00— John C. Wilcox
2. The B. C. Dairymen's Association Prizes. Three equal prizes amounting to $100.00—
   Charles M. Barton Archibald Blair Harold L. Steves

First Year

1. University Scholarship, $75.00 ..... Maude A. Allen

General (Open)

1. University Book Prize, $25.00 ..... Geoffrey B. Riddehough
2. University Book Prize, $25.00 ..... No award
3. The Women's Canadian Club Scholarship, $75.00— Janet T. Carrie
4. The Historical Society Prize, $25.00 ..... F. M. Painter

5. The Captain LeRoy Memorial Scholarship, $250.00—
C. G. McLachlan
6. The Players' Club Prize, $50.00 ..... Annie M. Anderson
7. The Shaw Memorial Scholarship, $137.50. Homer A. Thompson
8. University Scholarship for Returned Soldiers, $75.00—
Charles A. Gibbard
9. University Scholarship for Returned Soldiers, $75.00—
John N. Burnett
10 Alliance Francaise Silver Medal (Matriculation)—
John Leslie Catterall

THE UNIVERSITY OF BRITISH COLUMBIA

TEACHER TRAINING COURSE

1. Explanatory Statement

At the request of the Provincial Department of Education, the University undertook, in September, 1923, the direction of the professional training of candidates for the Academic Certificate.

Courses in elementary methods and in the special subjects of the elementary school curriculum were provided in the Provincial Normal School, and facilities for practice teaching were furnished through the kindness of the Vancouver School Board and the Principal and Staff of the King Edward High School. These courses were open only to University graduates, and the original registration was 55.

The Dean of Arts and Science acted as provisional director and lecturer in the History and Principles of Education and in Educational Psychology. In November, 1923, Dr. George M. Weir, Principal of the Provincial Normal School, Saskatoon, Sask., was appointed Professor of Education and Director of Teacher Training, and assumed the duties of the office January 1, 1924.

Lecturers on Methods in high school subjects were appointed from the University staff.

2. The Course

(*a*) *First Term*—Concurrent with the First Term of the University year.

During this term the Methods courses in elementary school subjects will be given under the supervision of the University. Observation assignments and practice teaching in the elementary school are required.

Texts and references will be announced at the beginning of the term.

(*b*) *Second Term*—Concurrent with the Second Term of the University year.

The Methods courses given during this term by members of the University staff are confined to the high school subjects. Candidates will be permitted to register for professional instruction (including observation assignments and practice teaching in the high school) only in those subjects which they are qualified to teach by reason of their previous academic preparation. Methods courses in three subjects are obligatory.

Texts and references will be announced at the beginning of the term.

(*c*) *Obligatory Subjects*—Required of all candidates for the Academic Certificate.

(1) Educational Psychology—2 hours a week. Both terms.

(2) History and Principles of Education—2 hours a week. Both terms.

(3) School Administration and Law—1 hour a week. Both terms.

Texts and references in the above courses will be announced at the beginning of the First Term.

(*d*) *Observation Assignments and Practice Teaching*—Approximately 100 hours: 40 hours in the elementary school and 60 hours in the high school.

3. Registration and Fee

Documentary evidence of graduation in Arts or Science from a recognized university must be submitted to the University 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 University Registrar, from whom registration cards may be procured.

The fee for the course is forty dollars, payable in two instalments of twenty dollars each, at the Office of the Bursar, The University of British Columbia.

4. University Privileges and Discipline

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.

5. Certificate and Diploma

At the close of the session, successful candidates will be recommended to the Provincial Department of Education for the Academic Certificate and to the Faculty of Arts and Science for the granting of the University Diploma in Education.

UNIVERSITY SUMMER SESSION, 1924

Six Weeks—July 7th to August 16th

With the Session of 1922 the University Summer School for Teachers became the University Summer Session. Teachers and others who possess full Matriculation standing may now pursue University courses and receive credit therefor towards the B.A. degree.

The University Summer Session will, in co-operation with the Provincial Department of Education, continue to provide special courses for teachers of high school subjects, and also courses in Educational Theory and Method of a similar character to those which have been given during the past four years.

Summer session students wishing to transfer to the regular session should make application upon a form which will be supplied upon request by the Registrar.

Inquiries and applications should be addressed to the DIRECTOR OF THE SUMMER SESSION, The University of British Columbia, Vancouver, B. C.

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 twelve members, chosen from the Third and Fourth Years. With the exception of the Editor-in-chief of the "Ubyssey," 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.

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 weekly. 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 Department

The Literary and Scientific Department 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 includes the Men's Glee Club, the Women's Glee Club, and the University Orchestra.

For those interested in public speaking and debating there are the Men's Literary Society and the Women's Literary Society, the Agriculture Discussion Club, and Sigma Delta Kappa Society.

The Chemistry Society, the Engineering Discussion Club, the Social Science Club, the Live-stock Club and the G. M. Dawson Discussion Club offer a field for discussion of Scientific and Social problems.

Women's Athletics

The Women's Athletic Association comprises all the Women's Athletic Clubs of the University. Prominent among them are the Women's Basketball Club, the Women's Gymnasium Club, the Women's Grass Hockey Club, and the Women's Swimming Club.

Men's Athletics

The Men's Athletic Association endeavors to foster all branches of clean and manly sport.

The Rugby season opens at the beginning of the Fall Term. Practices are held once a week, and three teams are entered by the Rugby Club as follows: The First Team plays in the McKechnie Cup League for the provincial championship, and in the Miller Cup League for the city championship. The Second and Freshman teams, the latter comprised entirely of Freshmen, play in the Intermediate League of the city for the Province Cup.

The Basketball season follows that of Rugby. Three teams are chosen and entered in the various city leagues.

The Soccer Club enters two teams in the city leagues. The teams are chosen early in the fall.

The Track Club takes charge of all field events, its big features being the Annual Track Meet and the Arts' 20 relay race.

The Rowing Club is affiliated with the Vancouver Rowing Club, and retains its identity as a University Club.

The Ice Hockey Club enters a team each year in the city series.

The Outdoors Club takes charge of all picnics, hikes, mountain climbing, excursions, and outdoor parties.

The Tennis Tournament takes place after the opening of the Fall Term, and the championship games are played in men's and women's singles and doubles, and also mixed doubles.

The Badminton Club holds practices and games in the evenings throughout the winter.

The Boxing and the Swimming Clubs meet once a week during the winter, under capable instructors.

This year a Men's Grass Hockey Club was formed, and has been entered in the city league.

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 $2.00 for town members, $1.00 for out-of-town members. 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 every two months 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.

VICTORIA COLLEGE

(IN AFFILIATION WITH THE UNIVERSITY OF B. C.)

STAFF

EDWARD B. PAUL, M.A., LL.D. (Aberdeen), Principal, Associate Professor of Classics.

E. HOWARD RUSSELL, B.A. (Queen's), Registrar, Associate Professor of Mathematics.

PERCY H. ELLIOTT, M.Sc. (McGill), Associate Professor of Science.

MISS JEANETTE A. CANN, B.L. (Dalhousie), Assistant Professor of English and Philosophy.

MME. E. SANDERSON-MONGIN, Assistant Professor of French.

IRA DILWORTH, M.A. (McGill), Instructor in English.

T. W. CORNETT, B.A. (Toronto), Instructor in History.

The College at Victoria, B. C., gives instruction in the first two years of the course in Arts and Science. 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 or 2 or 3, or Philosophy 1 or Economics 1 (if possible)	3
(*e*) Chemistry 1 or Physics 1	3
(*f*) Three courses — not already chosen — selected from the following:— Chemistry 1, Economics 1 (if possible), French 1, French 2, Greek 1, Greek 2, History 1, History 2, Latin 1, Latin 2, Mathematics 2, Mathematics 3, Mathematics 4, Philosophy 1, Physics 1, Physics 2	9

The rules and regulations governing the College are the same as those in force in the University.

WESTMINSTER HALL

(Presbyterian)

VANCOUVER, B. C.

(In affiliation with The University of British Columbia)

Principal

REV. W. H. SMITH, M.A., Ph.D., D.D.

Registrar and Secretary

REV. J. A. LOGAN, D.D.

Westminster Hall offers courses in Theology, and, under the general regulations of the University in reference to affiliated Theological Colleges, provides classes for which credit is given in the Arts Course for the B. A. degree. (See Page 53.)

For further information in reference to Faculty, Courses of Study, etc., see calendar of Westminster Hall.

THE ANGLICAN THEOLOGICAL COLLEGE OF BRITISH COLUMBIA

VANCOUVER, B. C.

(In affiliation with The University of British Columbia)

Principal

REV. W. H. VANCE, M.A.

Registrar

REV. C. H. SHORTT, M.A.

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 53.)

For further information in reference to Faculty, Courses of Study, etc., see calendar of the College.

RYERSON COLLEGE

(Methodist)

VANCOUVER, B. C.

(In affiliation with The University of British Columbia)

Principal

REV. J. G. BROWN, M.A.

Ryerson College offers courses of instruction in Theology leading to the degree of B.D. and for ordination to the Christian Ministry, and, under the general regulations of the University with reference to affiliated Theological Colleges, provides Religious Knowledge options for which credit is given in the course leading to the B.A. degree. (See Page 53.)

For further information in reference to Faculty, Courses of Study, etc., see calendar of Ryerson College.

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