CALENDAR

The University
OF
British Columbia

EIGHTH SESSION
1922-1923

VANCOUVER, BRITISH COLUMBIA
1922

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THE UNIVERSITY OF BRITISH COLUMBIA

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The Principal of Victoria Normal School, D. L. MACLAURIN, ESQ., B.A.

(*e*) Representative of High School Principals and Assistants, G. A. FERGUSSON, ESQ., B.A.

(*f*) Representative of Provincial Teachers' Institute.

(*g*) Representatives of Affiliated Colleges:—
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Westminster Hall, Vancouver (Theological), REV. W. H. SMITH, M.A., Ph.D., D.D.
The Anglican Theological College of British Columbia, Vancouver, REV. W. H. VANCE, M.A.

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G. G. MOE, B.S.A. (Macdonald College), M. Sc. (McGill), Associate Professor of Agronomy.

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Department of Botany.

ANDREW H. HUTCHINSON, M.A. (McMaster), Ph.D. (Chicago), Professor of Botany and Head of the Department.

JOHN DAVIDSON, F.L.S., F.B.S.E., Assistant Professor of Botany.

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Department of Chemistry.

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K. B. GILLIE, B.Sc. (Brit. Col.), Assistant in Chemistry.

Department of Civil Engineering and Surveying.

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G. M. IRWIN, B.Sc. (McGill), Instructor in Civil Engineering.
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J. R. GRANT, B.Sc. (Queen's), Lecturer in Civil Engineering.

Department of Classics.

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H. T. LOGAN, B.A. (McGill and Oxon), M.A. (Oxon), Associate Professor of Classics.
A. N. ST. JOHN MILDMAY, M.A. (Oxon.), Assistant in Classics.

Department of Dairying.

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MISS MARION J. MOUNCE, B.A., B.S.A. (Brit. Col.), Extension Assistant under Burrell Grant.

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L. T. FOURNIER, B.A. (Brit. Col.), Assistant in Economics.

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MISS DOROTHY BLAKEY, B.A. (Brit. Col.), Assistant in English.

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H. R. CHRISTIE, F.E. (Toronto), Associate Professor of Forestry.

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R. W. BROCK, M.A., LL.D. (Queen's), F.G.S., F.R.S.C., Professor of Geology and Head of the Department.
S. J. SCHOFIELD, B.Sc. (Queen's), Ph.D. (Mass. Institute of Technology), F.R.S.C., Professor of Physical and Structural Geology.
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Department of Horticulture.

F. M. CLEMENT, B.S.A. (Guelph), Professor of Horticulture and Head of the Department.
A. F. BARSS, A.B. (Rochester), B.S. in Agriculture (Cornell), M.S. (Oregon Agricultural College), Associate Professor of Horticulture.
F. E. BUCK, B.S.A. (Macdonald), Assistant Professor of Horticulture.
W. A. MIDDLETON, B.S.A. (Macdonald College), Extension Assistant under Burrell Grant.

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P. D. I. HONEYMAN, B.Sc. (Brit. Col.), Assistant in Assaying.

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G. GROJEAN (Licencie es Lettres), Licencie en Droit (Toulouse), Assistant Professor of Modern Languages.

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Department of Nursing.

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Department of Philosophy.

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Department of Physics.

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Department of Poultry Husbandry.

E. A. LLOYD, B.S.A. (Sask.), Associate Professor of Poultry Husbandry.

V. S. ASMUNDSEN, B.S.A. (Sask.), M.S.A. (Cornell), Assistant Professor of Poultry Husbandry.

R. J. SKELTON, B.S.A. (Ont. Agric. Col.), Assistant (Field Enumerator) in Poultry Husbandry under Burrell Grant.

Department of Public Health.

R. H. MULLIN, B.A., M.B. (Toronto), Red Cross Professor of Public Health and Head of the Department.

MISS MARY ARD MACKENZIE, B.A. (Toronto), R.N., Red Cross Instructor in Public Health.

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NORMAN L. CUTLER, Assistant in Zoology.

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VICTORIA COLLEGE

(IN AFFILIATION WITH THE UNIVERSITY OF B. C.)

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PERCY H. ELLIOTT, M.Sc. (McGill), Associate Professor of Science.

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MME. E. SANDERSON-MONGIN, Diplômée, Paris, Assistant Professor of French.

ALEXANDER G. SMITH, M.A. (Aberdeen), Instructor in History.

For Courses in Victoria College see under "Victoria College" in this Calendar.

ACADEMIC YEAR 1922-1923.

1922. Monday, August 28th.	Registration Day for First Year Applied Science.
	Summer School in Mechanical Engineering 1 opens.
Wednesday, September 13th.	Matriculation Supplemental Examinations begin.
	Supplemental Examinations in Arts begin.
Friday, September 22nd.	Supplemental Examinations in Applied Science begin.
Friday, September 22nd.	Last day for Registration for Arts and Science, Agriculture, and Second, Third, and Fourth Year Applied Science.
Tuesday, September 26th.	Lectures begin.
Saturday, October 14th.	Last day for Change in Students' Courses.
Wednesday, October 18th.	Meeting of the Senate.
Friday, December 8th.	Last day of Lectures for Term.
Tuesday, December 12th.	Examinations begin.
Wednesday, December 20th.	Meeting of the Senate.
Thursday, December 21st.	Examinations end.
1923. Monday, January 8th.	Second Term begins.

Wednesday, February 21st.	Meeting of the Senate.
Thursday, April 12th.	Last day of Lectures.
Tuesday, April 17th.	Sessional Examinations begin.
	Field Work in Applied Science begins immediately at the close of the Examinations.
Wednesday, May 9th.	Meeting of the Senate.
Thursday, May 10th.	Congregation.
Monday, June 25th.	Junior and Senior Matriculation Examinations begin.

Junior and Senior Matriculation Supplemental Examinations.

SEPTEMBER, 1922.

Date	Hour	Junior Matriculation	Hour	Senior Matriculation
Wednesday, September 13th	9 A.M.	History	9 A.M.	History.
	1 P.M.	English Literature German Translation	1 P.M.	English Literature. German Translation.
Thursday, September 14th..	9 A.M.	Latin Authors and Sight.	9 A.M.	Latin Authors.
	1 P.M.	Latin Grammar and Composition Agriculture	1 P.M.	Latin Composition, Sight, and Roman History. Trigonometry.
Friday, September 15th....	9 A.M.	French Translation	9 A.M.	French Literature.
	1 P.M.	French Grammar	1 P.M.	French Language.
Saturday, September 16th..	9 A.M.	Physics	9 A.M.	Physics.
Monday, September 18th...	9 A.M.	Geometry	9 A.M.	Geometry. Greek Grammar and Composition.
	1 P.M.	Chemistry German Grammar	1 P.M.	Chemistry. German Grammar and Composition.
Tuesday, September 19th..	9 A.M.	Algebra	9 A.M.	Algebra.
	1 P.M.	English Composition Botany Greek	1 P.M.	English Composition. Greek Authors.

Faculty of Arts and Science Supplemental Examinations.

SEPTEMBER, 1922.

Date	Hour	First Year	Second Year	Third Year
Wednesday, September 13th	9 A.M.	History 1, 2, 3	History 1, 2, 3	To be arranged.
	1 P.M.	English Literature	English Literature	
Thursday, September 14th	9 A.M.	Latin Authors	Latin Authors	
	1 P.M.	Latin Composition, Sight, and History	Latin Composition, Sight, and History Calculus	
Friday, September 15th	9 A.M.	French Authors	French Authors	
	1 P.M.	French Grammar	French Grammar	
Saturday, September 16th	9 A.M.	Physics 1	Physics 1, 2 Philosophy 1	
Monday, September 18th	9 A.M.	Geometry Greek	Geometry Greek	
	1 P.M.	Chemistry 1 German	Chemistry 1, 2 German	
Tuesday, September 19th	9 A.M.	Algebra	Algebra	
	1 P.M.	English Composition	English Composition Geology 1, 2	
Wednesday, September 20th	9 A.M.	Economics 1	Economics 1, 2	
	1 P.M.	Biology 1 Spanish	Biology 1 Spanish	

THE UNIVERSITY OF BRITISH COLUMBIA

HISTORICAL SKETCH.

The establishment of a University in British Columbia was first advocated by Superintendent Jessop in 1877, when he called public attention to the urgent need for providing the youth of the Province with an education which would adequately equip them for their various activities in the life of the Province. It was several years, however, before active steps were taken in this direction.

In 1890 the Provincial Legislature passed an Act establishing a body politic and corporate named The University of British Columbia. The first Convocation was held in Victoria on August 26th, 1890, when the Hon. John Robson, Provincial Secretary, presided. There were present seventy certified members of Convocation, who elected three members of Senate.

In 1891 the Act was amended by the addition of a clause requiring a meeting of the Senate to be held within one month after the election of Senators by Convocation. The Senators having been elected on June 2nd, the Chancellor, Dr. I. W. Powell, of Victoria, called a meeting of Senate for July 2nd. A quorum failed to assemble, and the first attempt to establish a University proved futile.

There being no immediate prospect of a Provincial University, some friends of higher education conceived the idea of bringing a university education—at least in part—within the reach of the youth of the Province by establishing relations with some one of the existing Canadian universities.

Owing to their efforts, an Act was passed in 1894 which empowered the affiliation of high schools in the Province to recognized Canadian universities; and this was supplemented in 1896 by an Act providing for the incorporation of affiliated high schools as colleges of the universities to which they were affiliated.

Under these enactments, Vancouver High School was admitted to affiliation with McGill University for the first year in Arts, and began University work under the name of Vancouver College in the year 1899. (The man to whom more than any other the credit is due for the inauguration and successful organization of the scheme of affiliation was the late Mr. J. C. Shaw, M.A., formerly Principal of Vancouver High School, and later Principal of Vancouver College, and of McGill University College.)

In 1902 an extension of affiliation was granted to cover the second year in Arts, and in the same year Victoria High School also became affiliated to McGill University for the first year in Arts under the name of Victoria College.

As the work grew, still closer connection with McGill University became necessary, and in 1906 an Act was passed incorporating the Royal Institution for the Advancement of Learning of British Columbia. In the same year the Royal Institution established at Vancouver the McGill University College of British Columbia, taking over (by agreement with the Vancouver Board of School Trustees) the Arts work previously done by the Vancouver College, increasing the number of options allowed, and adding two years of Applied Science.

In 1908 the course was further extended to include the third year in Arts.

In 1907 Victoria College came also under the control of the Royal Institution as a part of the McGill University College of British Columbia, with power to give courses in the first two years in Arts.

The instruction given was similar to that of McGill University, the standards were identical, and the University examined and accepted the undergraduates *ad eundem statum.*

During the last year of its existence the McGill University College enrolled 292 students at Vancouver and 70 at Victoria.

These institutions were maintained mainly by grants from the School Boards of Vancouver and Victoria, supplemented in the earlier stages by contributions from Sir William Macdonald, of Montreal, and many public-spirited citizens of British

Columbia, and later by grants from the Provincial Government, the City of Vancouver, and The University of British Columbia.

When The University of British Columbia opened its doors in the fall of 1915 these colleges ceased to exist, and at the same time the connection of the Province with McGill University in higher education—a connection which had existed for a period of sixteen years and was alike creditable to McGill and advantageous to the Province—was also brought to a close.

Meanwhile efforts for the establishment of a Provincial University had been renewed, and in 1907 the Hon. Dr. H. E. Young, Minister of Education, took definite steps to establish a University by introducing a "University Endowment Act," which was passed by the Legislature. By this Act (slightly amended in 1911 and 1913) the setting apart of 2,000,000 acres of land, by way of University endowment, was authorized.

Constitution of Present University.

In 1908 an Act establishing and incorporating The University of British Columbia and repealing the old Act of 1890-1 was passed. The Act of 1908 provides:—

> 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;

That the University shall be non-sectarian;

That instruction in Arts shall be free to all regular students matriculated in the University;

That women students shall have equality of privilege with men students;

That no other university having corporate powers capable of being exercised within the Province shall be known by the same name, or have power to grant degrees.

Instruction.

The Act of 1908 (consolidated August 2nd, 1912) provides for:—

(*a*) Such instruction in all branches of a liberal education as may enable students to become proficient and qualify for degrees, diplomas, and certificates, in Science, Commerce, Arts, Literature, Law, Medicine, and all other branches of knowledge; (*b*) such instruction especially, whether theoretical, technical, artistic, or otherwise, as may be of service to persons engaged in the manufactures, or the mining, engineering, agricultural, and industrial pursuits of the Province; (*c*) facilities for the prosecution of original research in Science, Literature, Arts, Medicine, Law, and especially the applications of Science; (*d*) such fellowships, scholarships,

exhibitions, prizes, rewards, and pecuniary and other aids as shall facilitate or encourage proficiency in the subjects taught in the University, and also original research in every branch; (*e*) such extra-collegiate and extra-university instruction and teaching as may be recommended by the Senate.

Selection of a Site.

Under authority of an Act passed by the Legislature in 1910, the Lieutenant-Governor in Council appointed a Site Commission whose decision was to be final. The personnel of the Commission was as follows:—

Dr. R. C. Weldon, Dean of Law School, Dalhousie University, Chairman.
Rev. Canon G. Dauth, Vice-Rector, Laval University, Montreal.
Dr. Walter C. Murray, President, University of Saskatchewan.
Dr. Oscar D. Skelton, Professor of Economics, Queen's University.
Dr. Cecil C. Jones, Chancellor, University of New Brunswick.

The Commission held its first meeting on May 25th, 1910, in Victoria, and after an exhaustive examination of the Province presented the following unanimous report:—

Victoria, B. C., June 28th, 1910.

To His Honour the Lieutenant-Governor in Council:

Sir,—The University Site Commission begs to submit the following report:—

In accordance with the provisions of the "University Site Commission Act, 1910," your Commissioners have visited and made a careful examination of the several cities and rural districts in the Province suggested as suitable University sites, and have selected as the location for the University the vicinity of the City of Vancouver.

Accompanying the main report was the following supplementary report:—

The University Site Commission are strongly of the opinion that

the University should not be placed on a site which may in time be completely surrounded by a city. They respectfully suggest that not less than 250 acres be set apart for the University campus, and 700 acres for experimental purposes in agriculture and forestry. This is exclusive of a forest reserve for forestry operations on a large scale.

The Commission are of the opinion that the most suitable site is at Point Grey, unless the soils there and those of the delta land adjacent are found to be unsuitable for the experimental work of the College of Agriculture. Should Point Grey prove impossible, the Commissioners suggest: First, a site along the shore of North Vancouver, provided the tunnel and bridge are constructed; second, St. Mary's Hill, overlooking the Pitt, Fraser, and Coquitlam Rivers, provided residences are erected for the students. Central Park, though conveniently situated, will probably be surrounded by the Cities of Vancouver and New Westminster, and because of this and of the absence of outstanding scenic advantages is undesirable.

While the Commissioners are firmly convinced that it is of the highest importance to have all the Faculties of the University doing work of University grade located together, they believe that the diverse conditions of agriculture in this Province make it advisable to divide the work of agricultural education between the College of Agriculture and Schools of Agriculture of secondary grade located in different centres. The College of Agriculture should conduct researches, provide courses leading to a degree, and supervise the extension work and Schools of Agriculture. These schools should be established in conjunction with the Demonstration Farms in typical centres, and should provide short courses (extending over the winter months) of two or three years for the sons of farmers. Each school might specialize in one or more branches, such as horticulture, dairying, etc.

Similarly, Technical Evening Schools might be opened in the different coal-mining centres for the preparation of candidates for mining certificates, and in the metal-mining districts for the assistance of prospectors and others.

The Commissioners have been greatly impressed by the marvellous richness, variety, and extent of the natural resources of this Province, and by the very generous provision made for the endowment of the University; and they are of the opinion that, if the University adopts a policy of offering salaries ranging from $3,800 to $5,000 to its professors, it will attract men of the highest ability, who, by their scientific investigations and outstanding reputations, will not only materially aid in developing the resources of the Province, but will also place the University on an equality with the best universities of America.

In the autumn the Executive Council, after a careful survey of the sites proposed, decided to locate the University at Point Grey, the site which the Commission 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. In 1913 this grant was increased by a few acres.

The site at present consists of 250 acres lying upon the extremity of the headland of Point Grey at an elevation of approximately 300 feet above the sea. The waters of the Gulf of Georgia form more than half the boundary of the site, while the remaining sides are bounded by a tract of some 3,000 acres of Government land. It is accessible by water for passenger and freight service, and is within a mile and a half of the existing electric tram service, which will be extended to the grounds. The site has now been cleared and the main campus and some of the roads have been graded.

First Convocation.

Between May 1st and July 31st, 1912, 849 members of Convocation were registered, of whom twenty-five had been appointed by the Lieutenant-Governor in Council. The first Convocation, held August 21st of the same year, chose Mr. Francis Carter-Cotton as first Chancellor of the University and elected certain Senators.

Plans for Buildings.

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 exhibiting the completed buildings as a beautiful and harmonious scheme in keeping with the site, one of the finest in the world.

The first prize was $5,000 and the probability of being engaged as the University architect; the second, third, and fourth, $2,000, $2,000, and $1,000 respectively. The competition was closed in November, and the first prize awarded to Messrs. Sharp & Thompson, of Vancouver, by a Board of Assessors consisting of: Hon. H. E. Young, Minister of Education;

F. Carter-Cotton, Chancellor; A. Arthur Cox, Samuel Maclure, and W. Douglas Caroe.

The President and Governors.

In March, 1913, the Lieutenant-Governor in Council appointed the President, F. F. Wesbrook, M.A., M.D., C.M., LL.D., and shortly after the following Governors:—

George H. Barnard, Esq., K.C., M.P.
Robert F. Green, Esq., M.P.
Robert E. McKechnie, Esq., M.D., C.M.
Robert P. McLennan, Esq.
Lewis G. McPhillips, Esq., K.C.
Robie L. Reid, Esq., K.C.
S. Dunn Scott, Esq., M.A., LL.D.
Campbell Sweeny, Esq.
George I. Wilson, Esq.

Buildings and Grounds.

The University architects are Messrs. Sharp & Thompson, of Vancouver, B.C., who obtained the award in the competition held in 1912. In November, 1913, Dr. C. C. James, Commissioner of Dominion Agricultural Instruction, met with a Commission appointed to examine and report upon the general design for the University. A general plan was prepared by this Commission and approved by the Board of Governors.

The report accompanying the plan presented a statement of the problem to be solved and the solution proposed by the Commission, and pointed out the practical and artistic possibilities of the design. With it were submitted drawings showing the building areas for the various constituent portions of the University, and the location proposed for the buildings which are to be constructed at once. The design is a comprehensive one, and provides for the needs of an institution potentially great, the relatively small beginnings of which must be arranged with due regard for present economy and efficiency, yet in such a manner as to ensure co-ordination with a properly planned and steadily developing scheme.

The Commission consisted of:—

Dr. Thomas H. Mawson, City Planner and Landscape Artist, of London, England.

Mr. Warren Powers Laird, Professor and Head, School of Architecture, University of Pennsylvania, and Advisory Architect to the University of Wisconsin.

Mr. Richard J. Durley, late Professor and Head of the Department of Mechanical Engineering, McGill University.

Messrs. Sharp & Thompson, the University Architects.

In accordance with the recommendations of the Commission's report, detailed plans and specifications are being prepared for the various buildings, and the Science Building is under construction.

This building is planned for the temporary accommodation of Physics, Chemistry, Biology and certain other Sciences, but it is intended ultimately for the sole use of Chemistry. With its equipment it is expected to cost about $600,000.

Preparations for Work.

In 1914 the Legislature voted $500,000 and the Government promised $1,000,000 for the following year, thus enabling the Board to proceed with actual work on the University. The clearing of the site was completed and necessary grading done; the steel-concrete work of the Science Building was completed; the Deans of Agriculture and Applied Science and some professors were appointed, and in general the necessary preliminary preparations were made for beginning University work in the fall of 1915.

War Conditions.

Upon the outbreak of war in August, 1914, the Board of Governors, feeling that it would be shortsighted and unpatriotic to commit the public to a large capital expenditure and heavy fixed charges when every available dollar in the country might be required in the struggle to preserve the rights and liberties of free peoples, decided to withhold the contract for the com-

pletion of the Science Building, to make no further contracts or appointments to the staff, and to postpone large expenditures upon the library and grounds. By this action the grant for the year largely reverted to the Provincial Treasury, and the people were not committed to a heavy outlay in 1915.

In 1915 the Legislature voted sufficient funds to enable the University to take over and carry on the work of McGill University College, and to add a year's work to it, thus giving a complete Arts Course leading to a degree and the first three years in a course in Applied Science. Funds were also voted to enable Dean Klinck to prepare and put under cultivation a small portion of the campus to be ready for experimental work by the time agricultural classes can be undertaken.

Growth and Progress.

A detailed statement of the growth and progress of the University since its opening in the fall of 1915 will be found in the President's Report for 1921-22.

THE UNIVERSITY AND THE PROVINCE

The University of British Columbia is an integral part of the public educational system of the Province. As such it completes the work begun in the public and high schools.

By prescribing a number of studies during the first years of undergraduate work, and by giving to the student in his final years a wide choice under a definite system, the University is enabled to give direction without discouraging individual initiative.

In addition to fostering the general educational interests of the Province, it is the policy of the University to render service to its constituency through three generally recognized channels —viz., teaching, research, and extension. The University undertakes to furnish 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. That its teaching may be vitalized, and that it may do its share in contributing to the advancement of knowledge, the University aims to encourage research in all departments. When a sufficiently firm foundation was laid in these two departments of University activity, extension work was organized. Through this channel new truths discovered in this or in other institutions of learning are presented in popular form in many centres throughout the Province. By this means those whose circumstances deprive them of the opportunity of attendance at the University may avail themselves of the latest contributions to knowledge, as well as of the most recent lessons of practical experience.

UNIVERSITY EXTENSION.

The University sends lecturers in popular subjects to all parts of the Province. These lecturers will go out during the winter months under the auspices of organizations applying for them. The University may be able to contribute to the cost of travelling and hotel expenses, all local expense (hall, publicity, etc.) being borne by the local organization.

The University reserves the right to arrange dates so as to permit a lecturer to visit several places in the same district on succeeding days and thus to save time and travelling expenses. The number of lecturers sent to any one place will depend entirely upon the interest shown in that locality and upon the funds at the disposal of the Committee.

A list of subjects and lecturers can be obtained on application to the Secretary of the Extension Committee.

Illustrated pamphlets on the general work of the University are at the disposal of persons interested in educational progress in the Province. Applications for copies of these should be made to the Registrar.

ENDOWMENTS.

The "University Act" of 1908 (slightly amended in 1912) 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."

1. For Endowments in connection with:—
   Scholarships, Exhibitions and Prizes, see under "Prizes, Medals and Scholarships."

2. Red Cross Chair of Public Health. The British Columbia Branch of the Canadian Red Cross Society has undertaken to provide the sum of $5,600.00 annually, for three years, for the purpose of establishing a Red Cross Chair of Public Health in The University of British Columbia.

   For full information in reference to courses, see under "Public Health, Department of," in this Calendar.

THE LIBRARY.

Librarian: John Ridington.

Cataloguer: Dorothy M. Jefferd.
Stack Room and Documents: Lionel Haweis.
Reading Room Superintendent: Frances M. Woodworth.
Stenographer: Violet Anderson.

The University Library consists of 42,000 volumes and about 10,000 pamphlets. It includes representative works in all the courses offered, and a growing collection of works of General Reference. It also possesses a fair number of periodical publications devoted to literature and the sciences, and of the Transactions of learned societies.

The number of books added to the Library during 1921, exclusive of unbound periodicals, was 4,200. Four hundred and fifty magazines and periodical publications are regularly received.

The Library is classified throughout on the Congressional system. The classification is complete, except in Religion (BL-BD), the schedules for which have not yet been issued. In this section the books are at present grouped in main classes, and arranged in alphabetical order, by name of author.

The Main and Subordinate Catalogues, making available the resources of the Library, total over 250,000 cards. Of these 115,000 are in the Main Catalogue in the Reading Room, and make all classified portions of the Library referable by Author, Title and Subject, with necessary analyticals.

The Reading Room has accommodation for 102 readers. Additional facilities for 14 students, engaged in work requiring frequent shelf reference, are provided in the Stack Room. Stack Room privileges are granted for specified days to Post-Graduate, Fourth, and Third Year Students.

Books to which the Teaching Staff have specially referred their classes for consultation are placed in a "Reserved" class. These are separately shelved in the Reading Room, and to them open access is given all students. Reserved books may be loaned only for periods during which the Library is closed. Other works, to the number of two, may be borrowed by students for

a period of seven days, or for a shorter time should the volume be in general demand.

Unbound periodical publications are not loaned. Books that are costly, rare, or unsuitable for general circulation, are loaned only under special conditions.

While the Library is primarily for the use of Faculty and Students of the University, its privileges are available to those of the general public engaged in research or special study, in the prosecution of which it will be of value. On personal application to the Librarian, Extra-Mural Reader's Cards are issued to such persons, and the Library will give all facilities within its power to assist them in their work.

During the Session the Library is open from 8.45 a.m. to 10 p.m.; on Saturdays from 8.45 a.m. to 5 p.m.; in Vacation it is open from 9 a.m. to 5 p.m., except on Saturdays, when the hours are from 9 a.m. to noon.

A number of valuable contributions to the Library are made each year by Governments, institutions, corporations and private friends of the University. The practice hitherto has been to make public acknowledgement of the most important of these donations by printing a list of gifts in the Calendar. The generosity of the friends of the Library during 1921 and 1922 has greatly exceeded any previous year. Considerations of space necessarily prevent the publication of a list of such length. The warm thanks of the Chancellor and President, the Governors and Senate, and of the Library Committee and Staff, are given to all who have thus assisted in making the Library of greater value to the institution.

HERBARIUM AND BOTANICAL GARDENS.

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 Garden.

The Botanical Garden is situated on the University site, Point Grey, and occupies 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 garden 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.

GENERAL INFORMATION.

Degrees.

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. The Act reserves for the University the sole right in this Province to confer degrees, except in Theology.

Courses of Study.

For the Session 1922-23 the University offers instruction in the four years of the Arts Course, leading to the degree of Bachelor of Arts, which will be conferred upon those who successfully complete the course; in the four years of Courses in Applied Science, including Nursing, leading to the degree of Bachelor of Applied Science; and in the four years of the Course in Agriculture, leading to the degree of Bachelor of Science in Agriculture.

The Session.

The University year or session is divided into two terms, the first extending to the Christmas vacation, and the second from the end of the Christmas vacation to the end of the Sessional Examinations in April.

The Session of 1922-23 will begin on Tuesday, September 26th.

Two Matriculation Examinations will be held, one (Supplementals only) commencing on Wednesday, September 13th, 1922, and the other on Monday, June 25th, 1923.

Equipment.

Laboratories and equipment are available for courses in the work undertaken. Facilities for field-work in Physical Geography, Geology, and Mining exist in the immediate vicinity of Vancouver. Climatic conditions permit class excursions to be made throughout the session.

Church Attendance.

Students are requested to report to the Registrar, in writing, the churches which they intend to make their places of worship. The reports will be used for the information of the various churches.

It is desirable that all students attend a church of the denomination to which they adhere.

Physical Examination.

In order to promote as far as possible the physical welfare of the student body, every student, on entering the University, will be required to pass a physical examination, to be conducted by, or under the direction of, a specially qualified medical practitioner.

By such an examination physical defects and weaknesses, amenable to treatment, may be discovered. The student would then be expected to apply to his physician for such remedial measures as his case may require.

Board and Residence.

Good board and lodging can be obtained in the vicinity of the College buildings at a cost of from $35 per month upwards; or, separately, board at $30 to $40 per month; rooms at $8 to $12 per month.

Lists of approved boarding-houses, accessible to the University, may be obtained from the Registrar. Requests for these should state whether they are for men or women students.

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.

Dean of Women

Last year there was appointed to the Staff of the University a DEAN OF WOMEN, with whom parents and students may confer on matters not directly related to the curriculum.

During the Session the Dean of Women is frequently consulted about problems pertaining to living conditions, student employment, vocational guidance, and other questions that directly affect the social and intellectual life of the women students.

Academic Dress.

The Undergraduate's gown shall be black in colour and of the ordinary stuff material, of ankle length, and with long sleeves and the yoke edged with khaki cord. Graduate's gown the same, without cord.

Bachelor's hood shall be of the Cambridge pattern, black bordered with the distinctive colour of the particular Faculty; the Master's hood to be lined with the same colour. The colours are, for Arts, University blue; for Science, red; for Agriculture, maize.

ADMISSION TO THE UNIVERSITY

ADMISSION BY MATRICULATION EXAMINATION OR ITS EQUIVALENT.

REGULATIONS.

All inquiries relating to the examinations should be addressed to the Registrar.

1. The regular Matriculation Examination will be held beginning June 25th, 1923, at the following centres in British Columbia: Abbotsford, Agassiz, Armstrong, Bridgeport, Chilliwack, Courtenay, Cranbrook, Creston, Cumberland, Duncan, Enderby, Esquimalt, Fernie, Golden, Grand Forks, Greenwood, Hedley, Howe Sound, Kamloops, Kaslo, Kelowna, Ladner, Ladysmith, Langley, Maple Ridge, Matsqui, Merritt, Mission, Nanaimo, Nelson, New Westminster, Oak Bay, Peachland, Penticton, Point Grey (King George V., Prince of Wales), Port Alberni, Prince George, Prince Rupert, Princeton, Quesnel, Revelstoke, Rossland, Salmon Arm, Summerland, Surrey, Trail, Vancouver (Britannia, King Edward, King George, and Kitsilano), North Vancouver, South Vancouver, Vernon, and Victoria, and at any other centre at which a high school is established during the year.

2. A second examination will be held in September, but only for extra-provincial students, and such students resident in the Province as may have been granted the privilege of taking a supplemental examination by the Matriculation Board of Examiners. It will be held only at the University, Vancouver, and Victoria College, Victoria.

3. Every candidate for the examination in June is required to fill up an application form and return the same to the Registrar of the Department of Education, Victoria, with the necessary fee, one month before the examination begins. Blank forms may be obtained from the Education Office.

4. Every candidate for the examination in September is required to fill up an application form and return the same to the Registrar of the University, Vancouver, with the necessary fee, one month before the examination begins. Blank forms may be obtained from the Registrar.

5. Candidates will not be considered as having passed on the Matriculation Examination unless they obtain at least 50 per cent. on the aggregate and at least 40 per cent. on each paper.

Supplemental Examinations. — Supplementals granted on the examination of any year must be removed not later than September of the following year. A candidate may remove one or more supplementals at any examination during the period prescribed. If writing only one paper, he must obtain 50%. If writing more than one paper, he must obtain an average of 50% and not less than 40% on each paper.

6. Candidates for admission to the University who have failed, by a small margin, to complete the Matriculation requirements may be allowed to enter the first year as conditioned undergraduates on the recommendation of the Committee on Admission, Standing, and Courses.

This regulation applies also to candidates who seek to satisfy the Matriculation requirements by means of certificates granted by other recognized examining bodies.

7. Matriculation certificates will be issued to candidates who have passed the Matriculation Examination, but not to those who have qualified by means of other certificates, except when the greater part of the requirements have been satisfied by passing the British Columbia Matriculation examination.

8. Certificates and diplomas covering the Matriculation requirements of other universities will, if submitted to the Registrar, be accepted *pro tanto* in lieu of the Matriculation Examination; i.e., in so far as the subjects and standard of the examination taken to obtain them are, to the satisfaction of the Matriculation Board, equivalent to those required for the British

Columbia Matriculation Examination. Candidates offering certificates which are not a full equivalent will be required to pass the Matriculation Examination in such of the necessary subjects as are not covered thereby.

9. *Intending students 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.* (See *Regulation 5.*) *Moreover, it must be remembered that a certificate may admit to one Faculty and not to another. When an applicant's diploma or certificate does not show the marks obtained in the several subjects of the examination, he must arrange to have a statement of his marks sent to the Registrar by the Education Department or University issuing such diploma or certificate.*

MATRICULATION EXAMINATION FEES.

For the first Examination, Junior Matriculation	$5.00
For the first Examination, Senior Matriculation	5.00
For a subsequent Examination, Junior or Senior Matriculation, per paper	2.00
For examination of certificates, in respect of which candidates are exempted from the whole or part of the Junior or Senior Matriculation Examination	2.00

Fees for the Matriculation examination in June must be sent to the Education Office at the time of application for examination. Fees for the Matriculation examination in September must be sent to the University Registrar at the time of application for examination. No application will be accepted unless accompanied by the regular fee.

SUBJECTS OF EXAMINATION.

JUNIOR MATRICULATION.

The subjects for Junior Matriculation (that is, for entrance into the Faculties of Arts and Agriculture are as follows:—

1. **English.**
2. **History and Historical Geography.**
3. **Mathematics; Algebra and Arithmetic, Geometry.**
4. **French, or German, or Latin.**
5. (*a*) The two languages in 4 not already taken,

or (*b*) *One* of the languages in 4 not already taken and *one* of the following sciences: **Chemistry, Physics, Botany, Agriculture.**

or (*c*) Three of the following sciences: **Chemistry, Physics, Botany, Agriculture.**

NOTE.—**Greek** may be taken in place of *one* science, but only by students offering **Latin.**

REQUIREMENTS IN EACH SUBJECT.

English.

1. *Composition and Reading.*—The principles of English composition, as in *High School English Composition, Western Canada Series* (Copp, Clark Co. Ltd.), with short essays on a general subject and other subjects based on works prescribed for reading as follows: (*a.*) Prose (two books to be selected)—Washington Irving: *The Sketch Book* (Macmillan, Oxford); Scott: *Kenilworth*; George Eliot: *Silas Marner* (ed. Stevenson, Copp, Clark; or Macmillan or Dent); Southey: *Life of Nelson* (Everyman's Library). (*b.*) Poetry (one to be selected)—Shakespeare: *As You Like It* (ed. Stevenson, Copp, Clark; or Macmillan); Tennyson: *Gareth and Lynette* (Macmillan or Ginn).

The editions are merely recommended, not required.

The books to be selected should be read carefully, but the student's attention should not be so fixed upon details that he fails to appreciate the main purpose and beauty of the work.

Frequent practice in composition is essential.

2. *Literature* (for critical study).—Shakespeare: *Merchant of Venice* (ed. Stevenson, Copp, Clark) or *Henry V.* (Junior School ed., Blackie & Sons); *Poems of the Romantic Revival* (Copp, Clark Co.), omitting the selections from Coleridge and Byron.

Candidates will be expected to memorize some of the finest passages.

Two examination papers of two hours each; one on Composition, the other on Literature.

Spelling will be tested by the candidate's papers in English. Examiners in other subjects will also take note of misspelled words and will report flagrant cases to the Board.

History and Historical Geography.

The essentials of European history, ancient, mediæval, and modern (to the eighteenth century), as presented by Breasted & Robinson in their *Outlines of European History,* Part I. (Ginn & Company). The revised edition is entitled *History of Europe, Ancient and Mediaeval* (Ginn & Company, 1920). Either edition may be used for the school year 1922-23.

The geography required will be that relating to the history prescribed.

One paper of two hours.

Mathematics.

1. *Algebra and Arithmetic.*—Algebra: as in the first thirty-one chapters, and the graphical work of Articles 411 to 428, inclusive, Hall & Knight's *Elementary Algebra,* omitting the articles in Chapter 29 marked with an asterisk. Arithmetic: Vulgar and Decimal Fractions, Square and Cube Root, Commercial Arithmetic, Metric System.

2. *Geometry*—Parts I., II., III. (omitting pp. 212-218), and IV., of Hall & Stevens' *School Geometry,* London Edition.

Two papers of two hours each; one on Algebra and Arithmetic, the other on Geometry.

Chemistry.

As in Chemistry—Cornish: *A Text-Book for High Schools* (Macmillan), and Cornish and Smith: *A Laboratory Manual in Chemistry* (Macmillan).

One paper of two hours.

Physics.

The general principles of physics as given in any standard text-book of High School Physics. The examination will be based on the *Ontario High School Physics* (Merchant & Chant) and *The Ontario High School Laboratory Manual in Physics.*

Measurement—Chapter I.

Hydrostatics—Chapters X., XI., XII., XIII. and XIV.

Sound—Chapters XVIII., XIX. (omitting Sections 198 and 199), and Chapter XX. to the end of Section 206.

Heat—Chapters XXIV., XXV., XXVI., XXVII.,XXVIII., XXIX. and XXXI.

Light—Chapters XXXII., XXXIII., XXXV., XXXVI., XXXVII. and XXXVIII.

Magnetism and Electricity—Chapters XLI., XLII., XLIII., XLIV., XLV., XLVI., XLVII. and XLVIII. (omitting Section 529).

Exercises as in the Laboratory Manual (omitting numbers 6, 33, 34, 36, 37, 39, 51, 52, 58, 69, 77, 78, 83, 96, 97, 99 and 107).

Botany.

Upon application of schools giving a matriculation course in Botany, the following outline of the course will be supplemented by lists of British Columbia plants which may be used in illus-

tration and with specific references to sections in the books mentioned below.

Emphasis is placed upon comprehension of principles rather than mastery of detail, and upon observation rather than book knowledge.

A. *Plant Structures and the Part taken by each in carrying on Life Processes.*

1. *Root.*
   (*a.*) Absorption of food materials from the soil; root-hairs; osmosis experiment.
   (*b.*) Anchorage; forms of roots in relation to anchorage.
   (*c.*) Food storage; examples of food storage in roots.

2. *Stem* (Buds and Branches).
   (*a.*) Support of leaves and flowers; forms of stems considered in this relation.
   (*b.*) The conduction of food and food materials; the general structure of the stem and its relation to conduction.
   (*c.*) Storage of food; examples.
   (*d.*) Vegetative reproduction.

3. *Leaves.*
   (*a.*) Manufacture of food from raw food materials; experiments to illustrate; the importance of light; the light relation of leaves; leaf form and structure.
   (*b.*) Transpiration of water; experiments to illustrate.
   (*c.*) Food storage; examples.
   (*d.*) Vegetative reproduction.

4. *Flower.*—Reproduction; the parts of a flower; the structure and role of each; structures related to pollination.

5. *Seed.*
   (*a.*) Food storage; and
   (*b.*) Protection of young plant during its dormant period; the structure of the bean-seed and corn.
6. *Fruits.*
   (*a.*) Protection; and
   (*b.*) Dispersal of seeds; classification of fruits on these bases.

B. *Plants in Relation to their Environment.*
1. *Plant Associations.*—Based upon conditions of temperature, amount of available water, light, intensity, nature of soil.
2. *Modifications* in form and structure of roots, stems, and leaves in response to conditions.
3. *The Interrelation of Plants and Animals.*—Insect pollination; distribution of seeds.
4. *Movement responses;* growth movements; "day and night" movements; the sensitive plant.

C. *Classification of Plants based on Structure and Development; Reproduction and Life Histories.*
1. *Thallophytes.*—Recognition of algæ (green, red, brown), lichens, fungi.
2. *Bryophytes.*—Moss; description of plant.
3. *Pteridophytes.*—Recognition of Horsetails and Lycopods; description of a fern.
4. *Spermatophytes.*
   (*a.*) *Gymnosperms.*—Conifers; at least five examples. Study of leaves, cones, and general habit.
   (*b.*) *Angiosperms.*—Familiarity with the local flora; particularly examples of the following families: (*Monocotyledons*) Gramineæ, Cyperaceæ, Liliaceæ (*Dicotyledons*) Salicaceæ, Ranunculaceæ, Cruciferæ, Rosaceæ, Leguminosæ, Ericaceæ, Scrophulariaceæ, Labiatæ, Compositæ.

A collection is recommended.

D. *Economic Plants of British Columbia.*—Weeds, medicinal and poisonous plants.

Student's Reference Book.—Bergen & Caldwell: *Practical Botany* (Ginn & Co.). This book is recommended as most nearly fulfilling text-book requirements.

Teacher's Reference Books.

Coulter, Barns & Cowles: *Text Book of Botany,* Vols. I. & II. University of Chicago Press.

Ganong: *A Text Book of Botany.* (Macmillan, 1916.)

Curtis: *Nature and Development of Plants.* (H. Holt, 1915.)

Henry: *Flora of Southern British Columbia.* (Gage, 1915.)

One paper of two hours.

Agriculture.

Soil Studies.—Origin and classification; water, air, and bacteria in soil; drainage; drainage surveys; physical analysis; composition; plant-foods; humus and fertilizers.

Soil Management.—Tillage, manuring and rotation of crops; humid and dry farming.

Vegetable Gardening.—Hot beds and cold frames; their preparation and use; selection of garden seeds; choice of varieties; cultural methods.

Small Fruits.—Soil and cultural requirements; standard varieties; harvesting and marketing.

Landscape Gardening.—Plans for beautifying home and school grounds; making and care of lawns, walks, and flower beds; best adapted ornamental trees, shrubs, and flowering plants.

Orcharding.—Location, planting, and management; harvesting and marketing; standard varieties.

Insect Study.—Identification and life-history of field, garden, and orchard insects; remedial measures.

Field Crops.—Selection, cultivation, harvesting, and disposition.

Live Stock.—Necessity of live stock in good farming; history, adaptability, and management of the principal classes.

Poultry.—Breeds, housing, feeding, and management.

Rural Economics.—Agricultural organizations and co-operative associations.

Bee Keeping.—Life history, care and management; equipment; recognition and treatment of diseases.

One paper of two hours.

NOTE.—Fifty per cent. of the possible total in the final examination will be awarded on the written paper, and fifty per cent. on term work, including certified laboratory note-books.

Latin.

Texts:—

Caesar Book IV., Chapter 20 to the end.

Caesar Book V., Chapters 1 to 23, inclusive.

Virgil Aeneid II., Lines 1 to 505.

Grammar.—Knowledge of grammar will be tested by translation and composition, and by questions based on the specified texts.

Translation at sight from Latin to English.

Composition.—Translation into Latin of detached English sentences and easy narrative based on the prescribed texts, as in Henderson and Little's *Matriculation Caesar* (Copp, Clark Co. Ltd.).

Two papers of two hours each; one on composition and grammar, the other on prescribed texts and translation at sight.

NOTE.—The Roman method of pronouncing Latin is recommended.

Greek.

Lessons 1-48 of White's *First Greek Book* (Ginn & Co.).

One paper of two hours.

NOTE.—This course can be covered successfully in one year.

French.

Grammar.—Candidates will not be required to state grammatical rules, in writing, or to reproduce tables of verbs, regular or irregular. They will be expected to have a thorough *practical* knowledge of French accidence and of such points of syntax as are of frequent occurrence in ordinary prose style.

This knowledge will be tested by asking candidates to modify sentences given, to fill in words necessary to complete sentences, or to change infinitives to the tense required by the context. They may be asked to form sentences from elements given.

Translation at sight into English of a French passage of moderate difficulty, dealing with French life, trades, industries, history, travel. A knowledge of useful words is required.

Translation into French of detached sentences—chiefly common idioms (not rare idioms and little used proverbs) and an easy English passage. The latter may be a dialogue. It will be selected with a view to testing the candidate's knowledge of French, not of grammatical exceptions.

The text prescribed is Siepmann's *Primary French Course,* Part II. (Macmillan Co., Canada); the first twenty lessons only. For supplementary work, teachers are recommended to use Allen and Schœll, *French Life* (Henry Holt & Co.).

Two papers of two hours each.

German.

Reading and speaking.

Candidates will be expected to have a fair knowledge of German sounds and pronunciation. They must be able to read

with ease German prose or verse of ordinary difficulty and to answer correctly in German simple questions based on the reading prescribed.

Grammar.—They will be expected to have a thorough *practical* knowledge of German accidence and of such points of syntax as are of frequent occurrence in ordinary prose style.

This knowledge will be tested by asking them to modify sentences given, to fill in words necessary to complete sentences, or to change uninflected words to forms required by context, etc.

Translation at sight into English of a German passage of moderate difficulty, dealing with German life, ways, and customs. A knowledge of useful words will be required.

Translation into German of detached English sentences and of an easy English passage. A knowledge of simple idiomatic and colloquial German expressions will be required.

Books recommended: (*a.*) Zinnecker: *Deutsch fur Anfänger* (Exercises 1-32), (Heath); (*b.*) Goebel: *Rübezahl* (Macmillan).

N.B.—Teachers should insist upon correct pronunciation, and use the language as much as possible in class instruction.

Two papers of two hours each.

SENIOR MATRICULATION.

Candidates must furnish evidence of having passed Junior Matriculation, or its equivalent.

The subjects for Senior Matriculation are as follows:—

1. **English** and **History.**
2. **Mathematics (Algebra, Geometry** and **Trigonometry).**
3, 4, 5. Three of the following: **Chemistry, Physics, French, German, Greek, Latin.**

REQUIREMENTS IN EACH SUBJECT.

English.

1. *Composition*—Fundamental principles—words, sentences, paragraphs, the composition as a whole. Lomer & Ashmun:

The Study and Practice of Writing English (Houghton, Mifflin & Co.), indicates the ground covered. Regular practice in Composition is essential.

2. *Literature*—

1. Chaucer's *Prologue to the Canterbury Tales.*
2. Spenser's *Faerie Queene,* Book I.
3. Milton's *Comus.*

These can be obtained in Macmillan's Pocket Classics.

4. Halleck's *History of English Literature,* New Edition (American Book Co.), pages 1-261, with such illustrations as time may permit. Suitable illustrative material will be found in Chambers' *Cyclopedia of English Literature.*

History.

The evolution of modern European society as interpreted by Robinson & Beard in their *Outlines of European History,* Part 2 (Ginn & Co.). The revised edition is entitled *History of Europe, Our Own Times* (Ginn & Company, 1921). Either edition may be used for the school year 1922-23.

Mathematics.

Algebra.—Hall & Knight's *Elementary Algebra* (omitting Chapters 40, 41, 42), or the same subject-matter in similar textbooks.

Plane and Solid Geometry.—As in Hall & Stevens' *School Geometry.*

Trigonometry.—Hall & Knight's *Elementary Trigonometry* to page 210, and Chapter 19; nature and use of logarithms (Bottomley's four-figure tables).

Chemistry.

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.

Students must reach the required standard in both theoretical and practical work, and are required to submit a certified laboratory note-book.

Book recommended:—Alexander Smith: *General Chemistry for Colleges* (Century Co.).

Physics.

A general study of the principles of mechanics, properties of matter, heat, light, sound, and electricity. 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 Physics. Students must reach the required standard in both theoretical and practical work and are required to submit a certified laboratory note-book.

Text-books: *Ontario High School Physics,* and *Ontario High School Laboratory Manual in Physics.*

Latin.

Texts.—W. J. Woodhouse: *Cicero, Pro Lege Manilia* (Copp, Clark Co., Ltd.).
Page: *Virgil, Aeneid IV., Georgic IV.* (Macmillan).

Composition. — Mitchell: *Latin Composition* (Macmillan, Canadian School Series).

History.—Pelham: *Outlines of Roman History to* 133 *B.C.* (Rivingtons).

Two papers of three hours each.

Greek.

Texts.—Bond & Walpole: *Lucian, Extracts* (Macmillan); Blakeney: *Euripides, Alcestis* (Bell's Illustrated Classics).

Composition and Grammar. — White's *First Greek Book* (Copp, Clark Co.).

History. — Cox: *Athenian Empire* (Longman's Epoch Series).

French.

(*a.*) *Literature.* — Molière: *Le Bourgeois Gentilhomme;* Bazin: *Six Contes* (Oxford Press); Allen & Schoell: *French Life* (Henry Holt).

(*b.*) *Language.*—Revision of the essentials of French Grammar applied to the correct writing of French. Oral work from Weil: *Leçons de Français* (Delagrave).

German.

Language.—Completion and Revision of Zinnecker: *Deutsch fur Anfänger* (Heath).

Composition based on texts read.

Reading.—Moser: *Der Bibliothekar* (Ginn); Freytag: *Die Journalisten* (Ginn); Heine: *Die Harzreise* (Allyn and Bacon).

ADMISSION TO APPLIED SCIENCE.

The requirements for Matriculation in Applied Science are the same as for Senior Matriculation. Students who have passed the First Year in Arts are admitted to the First Year in Applied Science without further examination.

RETURNED SOLDIERS' APPLIED SCIENCE MATRICULATION.

1. English (as for Junior Matriculation).

2. History and Historical Geography (as for Junior Matriculation).

3. One of the following:—
French, German, Latin (as for Junior Matriculation).

4. Algebra and Arithmetic (as for Junior and Senior Matriculation). Two papers.

5. Geometry (as for Junior and Senior Matriculation). Two papers.
6. Trigonometry (as for Senior Matriculation).
7. One of the following:—
   Botany, Chemistry, Physics, a language not already chosen (as for Junior Matriculation).

ADMISSION TO ADVANCED STANDING.

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 therein in the several subjects. The Faculty will determine the standing of such a student in this University. The fee for examination of certificates, in respect of which candidates are granted exemptions, is $2.00.

AGE OF ADMISSION.

Except under special circumstances, no student under the age of sixteen is admitted to the First Year Courses in Arts, Applied Science or Agriculture, or under the age of seventeen to the Second Year.

REGISTRATION AND ATTENDANCE.

Registration.

APPLICATION FOR ADMISSION.

Those who intend to register as students of the University for the Session 1922-23 *are required to make application to the Registrar before the beginning of lectures, on forms to be obtained from the Registrar's office.*

Friday, September 22nd, will be the last day of registration for all students.

Lectures will commence on Tuesday, September 26th.

The complete regulations regarding registration follow:—

1. Candidates entering on a course of study in any Faculty, whether as undergraduates, conditioned students, or partial students, are required to attend *in person* at the office of the Registrar before the beginning of the session, 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."

2. Students who for any reason have failed to register by the date specified above, may be permitted to do so within a limited time thereafter, but only on payment of a fee of $2 for late registration.

3. The Registrar is empowered to register all students whose records show that they are entitled to attend the classes applied for. To enable him to determine this, new students must present certificates at time of registration. (*See* paragraphs 8 and 9, pages 36 and 37.) All doubtful cases will be dealt with by the Faculty.

4. Class Tickets will be issued to students when they register, and *only those for whom tickets have been received by an Instructor will be admitted to his class.* To students whose standing cannot be determined at the time of registration special tickets will be issued, which will give them the right of admission to classes until such time as their status is ascertained.

5. Students desiring to make a change in their choice of studies must make application to the Registrar, on standard form for "change of course." This application must be approved by the Committee on Courses, whereupon due notice will be sent by the Registrar to all parties concerned. *No change in registration will be allowed, except under special circumstances, after the fifteenth day of the session.*

6. Persons who wish to pursue courses in the University without a view to qualifying for a degree will be classified as *partial* students and shall not be admitted to any course until they have obtained the permission of the Dean and the Head of the Department concerned.

7. In the Faculty of Arts, where there is a choice of courses, students in attendance are requested to choose their electives for the next year before the close of the preceding session, or (in cases where this cannot be done) not later than one week before the opening of the session.

Attendance.

1. Students are required to attend at least seven-eighths of the total number of lectures in each course. Those whose unexcused absences exceed one-eighth of the total number of lectures in a course shall not be permitted to come up for the examination in that course, but may sit for supplemental examination; those, however, whose unexcused absences exceed one-fourth of the total number of lectures in any course must repeat the work in that course.

Excuses on the ground of illness or domestic affliction will be dealt with only by the Dean.

☞ *Medical certificates must be presented immediately on return to University work.*

2. A record will be kept by each professor or lecturer, in which the presence or absence of students will be carefully noted. This record will be submitted to the Faculty when required.

3. Credit for attendance at any lecture or class may be refused on the grounds of lateness, inattention, neglect of study, or disorderly conduct in the class-room or laboratory.

The following special regulations with regard to marking the attendance of students have been adopted:—

Lectures will commence on the hour, or at the conclusion of the roll-call. After the commencement of a lecture students are not allowed to enter, except with the permission of the Instructor. If permitted to enter, they will, on reporting themselves at the close of the lecture, be marked "late." Two "lates" will count as one absence. Lectures end at five minutes before the hour.

CLASSES OF STUDENTS.

There are three classes of students:—

(1.) Full undergraduates—students who have passed the Matriculation Examination and, in the case of Second, Third and Fourth Year students, all the examinations of their course in the years below that in which they are registered.

(2.) Conditioned undergraduates — those with defective entrance qualifications or those who have failed in one or more of the subjects of their course in the year previous to that in which they are registered.

(3.) Partial students—comprising all those who, not belonging to one of the above classes, are taking a partial course of study. Except as provided below, such students may (subject to the approval of the Dean and the Head of the Department) attend any class without previous examination.

FEES.

General Regulations.

1. Fees should be paid at the time of registration. The sessional fees are:—

Registration and Class Fees	$50 00
Alma Mater	7 00
Caution Money	5 00

For Partial Students

Fees, per "Unit"	$7 00
Alma Mater	7 00
Caution Money	5 00

For Graduates

Registration and Class Fees	$10 00

All cheques for fees must be made payable to "The University of British Columbia."

Alma Mater fees and Caution Money must be paid by October 7th. Registration and Class Fees may be paid in two equal instalments, the first not later than October 7th, and the second not later than January 20th. *After these dates an additional fee of* $2 *will be exacted of all students in default.*

At the request of the students themselves, and by the authority of the Board of Governors of the University, $7 additional will be exacted from all students for the Alma Mater Society.

A deposit of $5 as caution money is required from each student. The deposit is returned at the end of the session, after deductions have been made to cover breakages, wastage, and use of special materials in laboratories, etc. In case the balance of

the deposit remaining to the credit of a student falls below $1.50, a second deposit of $5.00 may be required.

2. Immediately after October 21st the Bursar shall send to the Instructors a list of the students applying for a course who have not paid their fees, on receipt of which their names shall be struck from the registers of attendance, and such students cannot be readmitted to any class except on presentation of a special ticket, signed by the Bursar, certifying to the payment of fees.

Students registering after October 7th shall pay their fees at the time of registration, failing which they become subject to the provisions of Regulation 2.

Special fees are:—

A regular supplemental examination in any course, or part of a course in which separate examinations are held	$5 00
A special examination in any subject	7 50
Graduation	20 00

Examination fees must be paid when application for examination is made, and Graduation fees two weeks before Congregation.

PRIZES, MEDALS, AND SCHOLARSHIPS

1. General Proficiency Scholarships are open to candidates in the Faculties of Arts and Science, Applied Science, and Agriculture.

2. No scholarship, medal, or prize will be awarded to any candidate who has failed to take 75 per cent. of the marks obtainable in the subject or subjects to which the award is attached.

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. When the scholarship cannot be awarded for this reason to the candidate obtaining the highest number of marks, it will be granted to the candidate ranking second, provided the requisite number of marks has been obtained.

5. A successful candidate, in order to retain his Scholarship, must proceed regularly with his College course to the satisfaction of the Faculty, but the Faculty may, upon satisfactory reasons being shown, permit a scholar to postpone attendance for a year. If at the end of a year a further postponement is necessary, special application must again be made. In every such case the payment of the Scholarship will be postponed in like manner.

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.

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

For 1922-23 the following scholarships, prizes, and medals will be offered:—

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.

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 British Columbia candidate for matriculation who obtains the highest standing.

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 shall be used, at the discretion of Faculty, in the form of bursaries or loans to assist returned soldiers.

(b) First Year Scholarships.

Four scholarships of $75 each (three in Arts 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 Chairman of the Committee on Scholarships, Bursaries, Prizes, and Student Loans.

UNIVERSITY SCHOLARSHIPS, ETC.

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 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 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.

7. The Scholarships mentioned in the above sections will be awarded for general proficiency in the work of the respective years.

8. 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.

DONATED SCHOLARSHIPS AND PRIZES.

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 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 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.

Convocation Scholarship.

This Scholarship, of the value of $50.00, 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 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 to the under-graduate student standing highest in English and Economics, and proceeding to the work of the Third Year.

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.

The Scholarship was awarded for the first time in May, 1921.

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

A Graduation Prize.

A prize of $50 was given by Mrs. F. F. Wesbrook to the student attaining second place in the Graduating Class in Arts 1921.

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 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 Vancouver Women's Canadian Club Scholarship.

This Scholarship, of the value of $75, given by the Women's Canadian Club, will be awarded to the student obtaining first place in Canadian History.

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 who submits the best essay on a specified subject in Economics or Political Science.

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, for the best essay on an assigned subject.

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.

Captain LeRoy Memorial Scholarship.

This Scholarship, of the value of $250.00, donated by the Universities Service Club, will be awarded for the academic year 1922-23 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 30, 1921.

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

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 awarding the prize preference will be given to the son or daughter of a deceased soldier, provided satisfactory standing is secured in the subject.

The Scott Memorial Scholarship.

This Scholarship, of the annual value of $110.00—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 who is proceeding in the Third Year to Honour work either in Biology or in a course including Biology.

The Vagabonds' Club Prize.

A prize of the value of $25.00, given by the Vancouver Vagabonds' Club, is offered for the best original short poem written by a student of the University. The award will be made on the recommendation of the Department of English.

The Players' Club Prize.

A prize of the value of $50.00, 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 British Columbia Dairymen's Association Prizes.

These prizes were given by the British Columbia Dairymen's Association in order to encourage students specializing in the department of Animal Husbandry in judging live stock.

Three prizes, of the value of $50, $30, and $20, were awarded on the results of the judging done by the team selected to represent the University in stock-judging at the Pacific International Exposition.

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.

Canadian Institute of Mining and Metallurgy Prizes. Undergraduate.

The British Columbia Division of the C. I. M. M. offers annually, to students of the University of British Columbia, three prizes of $10.00 each, to be awarded as follows:—

One for the best paper on a subject in Economic Geology.

One for the best paper on a subject in Mining.

One for the best paper on a subject in Metallurgy.

The papers submitted should be in the hands of the Secretary by June 1st. The authors of approved papers will give oral abstracts of their papers at the annual meeting of the Division.

The Red Cross Prize.

The British Columbia Division of the Canadian Red Cross Society gave a prize of $100.00 for competition, in the session 1921-22, in the Short Course in Public Health Nursing.

The Provincial Board of Health Prizes.

The Provincial Board of Health of the Province of British Columbia gave two prizes of $60.00 and $40.00 for competition, in the Session 1921-22, in the Short Course of Public Health Nursing.

The Rhodes Scholarship.

In addition to the above Scholarships, the Rhodes Scholarship assigned by the trustees of the late Mr. Cecil J. Rhodes to the Province of British Columbia will be awarded by the committee mentioned below.

The following are excerpts from the regulations laid down by the trustees:—

The election of scholars in Canada under the Rhodes bequest will take place each year during the month of January. The scholars will begin residence at Oxford in October of the year for which they are elected.

Each Scholarship is tenable for three years, and is of the value of £300 per annum.

Candidates shall be British subjects and unmarried. They must have passed their nineteenth but not their twenty-fifth birthday on October 1st of the year for which they are elected.

An elected scholar must have reached at least the end of his sophomore or second year's work at some recognized degree-granting university or college of Canada.

Candidates may elect whether they will apply for the Scholarship of the Province in which they have acquired any considerable part of their educational qualification, or that of the Province in which they have their ordinary domicile, home, or residence. They must be prepared to present themselves for examination or election in the Province they select. No candidate may compete in more than one Province, either in the same or in successive years.

Only candidates who have passed an equivalent to the Oxford Responsions Examination or those who are exempted from Responsions by the Colonial Universities' Statute are eligible for election.

In accordance with the wish of Mr. Rhodes, the trustees desire that "in the election of a student to a Scholarship regard shall be had to (i) his literary and scholastic attainments; (ii) his fondness for and success in manly outdoor sports, such as cricket, football, and the like; (iii) his qualities of manhood, truth, courage, devotion to duty, sympathy for and protection of the weak, kindliness, unselfishness, and fellowship; and (iv) his exhibition during school-days of moral force of character and of instincts to lead and to take an interest in his schoolmates." Mr. Rhodes suggested that (ii) and (iii) should be

decided in any school or college by the votes of fellow-students, and (iv) by the head of the school or college.

Additional information will be furnished to intending candidates on application to the President of the University.

The Committee by whom the Rhodes scholar is elected 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.

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.

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

The sum of $12,000.00, 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.

SUGGESTED LOCAL SCHOLARSHIPS.

The number of Junior Matriculation Scholarships offered at present is quite inadequate to the needs of the Province, and opportunity is here taken to recommend a scheme for adding to their number.

This scheme is the establishment of local or district University Entrance Scholarships by City or Municipal Councils or other public bodies, as well as by private benefactors. These Scholarships would be awarded by a local authority, the University reserving to itself the right of confirmation.

In the award of such Scholarships, standing in the Matriculation Examination, while important, need not be the only consideration; it is desirable that regard should be had also to financial circumstances, character, and intellectual promise.

In the large universities, both of Great Britain and the United States, such 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.

Scholarships may be offered to students taking a particular course; in this way the study of such sciences and technical branches of knowledge as have a bearing on the industries of the district will be encouraged and native sons prepared to assist in developing the resources of the Province.

The scheme has great possibilities both for the growth of the University and the prosperity of the Province, and it is earnestly recommended to consideration.

DONATIONS

However well supported by public funds, a University must depend to a great extent upon private benefactors. Only a limited number are in a position to grant endowments, but undergraduates, graduates and friends of higher education may add greatly to the efficiency of the University by contributions that lie within their power to make.

It is gratifying to note that this means of assisting the University is being utilized by increasing numbers.

Among the more notable donations received during the past year are the following:

Major-General J. W. Stewart—Large scale relief map, geologically coloured, of Loch Assynth, N. W. Highlands, Scotland.

H. S. Rolston—Native silver, Dolly Varden Mine, B. C.

P. W. Racey—Rocks and ores, Belmont, Surf Inlet.

C. N. Campbell—Phoenix rocks and ores.

Col. C. H. Pollen—Collection of Lower Cambrian Trilobites, Cranbrook.

C. H. Crickmay—Collection of fossils, Skidegate Inlet.

Gen. R. G. E. Leckie—Fossil leaves, Eocene.

J. Walker—Collection of Cambrian Fossils, Windermere.

D. L. Thompson and R. G. Anderson—Suite of ore specimens from Sullivan Mine, Kimberley, B. C.

J. R. Giegerich and H. C. Giegerich—Suite of ores from Slocan district, B. C.

J. M. Turnbull—Gold specimen from Engineer Mine, Atlin, B. C.

Norton Company—Suite of abrasives and educational lectures.

American Refractories Co.—Suite of refractory ores and products.

General Ceramics Co.—Suite of clays and clay products.

Canadian Johns-Manville Co.—Suite of asbestos and refractory products.

E. C. Harder—Suite of bauxite specimens from the Guianas.

American Bauxite Co.—Suites of bauxite specimens from Georgia, Arkansas.

Asbestos & Mineral Corporation—Suite of asbestos specimens from South Africa.

The Carborundum Co.—Suite of refractories and abrasives.

Magnesia Association of America—Specimens of basic carbonate of magnesia.

Denver Fire Clay Co.—Suite of clays and clay products.

Asbestos Corporation—Suite of asbestos specimens from Quebec.

D. M. Morrison—Suite of silver ores from Dolly Varden Mine, B. C.

A. L. Reeve—Silver and cobalt specimens, Gowganda, Ont.

W. L. Uglow—Suite of rocks and ores from Cerro de Pasco and Morococha, Peru.

R. W. Goranson—Suite of rocks and ores from Alice Arm district, B. C.

M. Wilcox—Fossil resin from Coalmont, B. C.

N. L. Bowen—Set of index of refraction liquids.

D. F. Stedman—Silver-lead minerals and ores from Kootenay district.

W. E. Zwickey—Argentite and native silver from Krao Mine, B. C.

R. D. Hearn—Argentite crystal and native silver from Krao Mine, B. C.

FACULTY OF ARTS AND SCIENCE

INFORMATION FOR STUDENTS.

COURSES LEADING TO THE DEGREE OF B.A.

The degree of B.A. is granted only after four sessions of class-room work from Junior Matriculation. Students who enter with Senior Matriculation may complete their course in three years.

A double course leading to the degrees of B.A. and B.A.Sc. (Applied Science) is offered. (*See* page 158.)

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

The Courses in Arts and Science are arranged on the unit system.

Definition of a Unit.—A unit is one lecture hour per week, or one continuous laboratory period of not less than two or more than three hours per week, throughout the College year.

Students in any affiliated Theological College 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 University 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 in Arts and Science is treated as a whole, according to the following scheme involving ten courses (30 units):

	Units.
1, 2.—English 1 (*a* and *b*), 2 (*a* and *b*), one course in each year	6

3, 4.—The first two courses in a language offered for Matriculation, one course in each year	6
5.—Mathematics 1, to be taken in the First Year	3
6.—Economics 1, or History 1 or 2 or 3, or Philosophy 1	3
7.—Biology 1, or Chemistry 1, or Geology 1, or Physics 1	3
8, 10.—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.—Geology 1 and 2 are not open to First Year students.

2. No student may take less than 15 units of work in either his First or Second Year.

3. 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.

4. A student taking three languages in the first two years may defer the course selected under 7 (above) to the Third or Fourth Year.

NOTE (for students in First Year Arts intending to enter the Faculty of Applied Science)—Physics must be taken in First

Year Arts, but Chemistry 1 should be left for the First Year in Applied Science. French and Biology should be taken by students intending to enter Geological Engineering, and Biology by those intending to enter Forestry.

THIRD AND FOURTH YEARS: PASS CURRICULUM.

1. The Curriculum of the Third and Fourth Years in Arts and Science includes at least 30 units of work, of which students must take, in their Third Year, not less than 15 units or more than 18.

2. In courses that involve laboratory work, one hour of lecture is regarded as the equivalent of two or three hours of attendance in the laboratory.

3. All students who are candidates for a Pass Degree must complete, during their Third and Fourth Years, at least 15 units of work in two Major subjects, in each of which, except in the case of Bacteriology, they must have done work in the first two years. A minimum of 6 units is required in each of the Major subjects. These Major subjects must be chosen from one of the following groups:

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

(*b*) Economics, Philosophy, Mathematics.

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

4. All students who are candidates for a Pass Degree must take at least 6 units of work in a subject or subjects other than their two Major subjects.

5. During the Senior Year, students may elect, with the consent of the department concerned, one course of private reading, to count not more than 3 units. In such courses examinations will be set, but no class instruction will be given.

* To be taken only with Chemistry or Physics.

6. 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.

Courses open to Third and Fourth Year Students Session 1922-23:

	Units
Agriculture	3
Bacteriology 1	2
" 2	2
" 3	2
" 4	1½
Biology 1	3
" 2	1
" 3	2
Botany 1	3
" 2	2
" 3	2
" 4	2
" 5 (*a*)	2
" 5 (*b*)	1
" 6 (*a*)	1
" 6 (*b*)	1
" 7 (*a*)	1
Chemistry 1	3
" 2	3
" 3	3
" 4	1½
" 5	3
" 6	2
" 7	3
" 8	1½
" 9	3
" 10	1
" 11	3
" 12	1
" 14	3
" 15	2

Economics 1	3
" 2	3
" 3	3
" 5	3
" 6	3
Government 1	3
" 2	3
English 6	2
" 8	2
" 9 (*b*)	3
" 10	3
" 11	2
" 12	2
" 13	3
" 14	3
" 16	3
" 17	3
" 18 (*b*)	2
" 19	3
" 20	3
" 21 (*a*)	2
" 21 (*b*)	1
" 22	1
" 24	2
French 3 (*a*)	3
" 3 (*b*)	3
" 3 (*c*)	3
" 4 (*a*)	3
" 4 (*b*)	3
" 4 (*c*)	3
" 4 (*d*)	3
Geography 1	3
Geology 1	3
" 2 (*a*)	1½
" 2 (*b*)	1½
" 3	1½
" 4	1½

	Units
Geology 5	3
" 6	3
" 7	4
" 8	4
" 10	1½
" 12	1½
German 2 (*a*)	3
" 3	3
Greek 2	3
" 3	3
" 4	3
" 6	3
" 8	1
History 4	3
" 5	3
" 6	3
" 7	3
" 8	3
" 9	3
" 10	3
Latin 3	3
" 5	3
" 8	1
Mathematics 2	3
" 4	3
" 10	3
" 11	2
" 12	2
" 14	2
" 16	2
" 17	2
" 18	1
Philosophy 1	3
" 2	3

	Units.
Philosophy 3	3
" 6	2
" 7	3
Physics 2	3
" 3	3
" 4	3
" 5	2
" 6	2
" 7	2
" 8	3
" 9	2
" 10	3 to 6
Sociology 1	3
Zoology 1	3
" 2	2
" 3	2
" 4	1
" 5	2
" 6	2
" 7	2
" 8	2

No credit will be given for a First Year Language taken in the Third Year unless it is continued in the Fourth Year.

HONOUR COURSES.

1. All the Departments in the Faculty of Arts and Science offer Honour Courses, either alone or in combination with certain other Departments.

General Regulations.

2. Honour Courses shall be begun at the close of the Second Year and continued until the end of the Fourth Year.

3. Students must obtain the consent of the departments concerned, and of the Dean, before they enter upon any Course in Honours; and, under normal conditions, consent will not be

granted unless they present, at the end of the Second Year, a clear academic record, and unless they have obtained 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.

4. A student electing Honours in one subject is required to take at least 18 units in that subject and at least 6 units outside it; a student electing a combination Honour Course is required to take at least 12 units in each subject. Credit for the graduating essay will be not less than 3 or more than 6 units.

5. 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.

6. 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.

7. 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.

SPECIAL REGULATIONS.

The following special regulations control the Honour Courses mentioned:

Biology (Botany and Zoology).

Prerequisites:—Students are advised to take Chemistry 1 and 2; Biology 1; Botany 1, or Zoology 1.

Course:—To be chosen from the following, in accordance with the general regulations and on approval of the departments:—

	Units.
Biology 2	1
" 3	2
Botany 1	3
" 3	2
" 4	2
" 5 (*a*)	2
" 6 (*a*)	1
Zoology 1	3
" 2	2
" 3	2
" 4	1
" 5	2
" 6	2
" 7	2
" 8	2

Chemistry.

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

Course:—Candidates are required to take the following classes: Chemistry 2, 3, 4, 5, 7 and 9, and are advised to take Physics 2, and Mathematics 10.

Geology.

Students intending to take Honour Geology are recommended to take Chemistry and Physics in the First Year, as some knowledge of these subjects is essential. Geology 1 should be taken in the Second Year, as it is a prerequisite for all Honour Geology, and Geology 2, if possible, as it supplements Geology 1, and is a prerequisite for Geology 7, 8 and 9.

Geology 3, 4, 5, 6, 7, 8, 10 and 12 may be taken as Honour subjects.

Biology (Botany and Zoology) and Bacteriology.

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

Course:—To be chosen in accordance with the general regulations and on the approval of the departments.

Biology (Botany and Zoology) and Geology.

Prerequisites:—Chemistry 1; Biology 1, and Geology 1.

Course:—To be chosen in accordance with general regulations and on approval of departments.

Chemistry and Biology (Botany and Zoology).

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

Course:—Candidates must complete the following courses: Chemistry 3, 4, 7 and 9; and Botany and Zoology as arranged with departments concerned.

Chemistry and Physics.

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

Course:—Candidates must complete Chemistry 2, 3, 4, 5 and 7, and Physics 3, 4, 7, or 9 and 8 or 10. They are advised to take Mathematics 10.

Chemistry and Geology.

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

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

Mathematics.

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

Course:

Third Year:—Mathematics 10, 11 and either 12 and 14 or 13 and 15; Physics 3.

Fourth Year:—Mathematics, the remaining two of 12 to 15, and 16, 17, 18; Physics 4.

Physics.

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

Required in Third and Fourth Years:—Mathematics 10, 11 and 16; Physics 3, 4, 7, 8, 9 and 10.

Mathematics and Physics.

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

Course:

Third Year:—Mathematics 10, 11 and one of 12 to 15; Physics 3 and 4.

Fourth Year:—Mathematics 16 and two of 12, 13, 14, 15 and 17; Physics 5 or 6 and 8 or 10.

English Language and Literature.

Candidates for Honours in English Language and Literature are subject to the following special regulations:

1. They shall take Courses 20, 21(*a*), 21(*b*), 22, 24. Attendance upon the seminar is required 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.

2. They shall pass examinations on the life, times, and complete works of some major English author (*see* English 19).

3. They shall take other courses covering at least 15 units of credit. One part of this work shall be a course in English History; or, lacking this, candidates must submit to an examination in that subject.

4. They shall submit to 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.

English and History.

Candidates for Honours must comply with the following regulations:

English:—1. They shall take Courses 20 and 24, and any three of the English Courses of the first division. Attendance upon the Seminar is required 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.

2. They shall submit to a final Honours Examination, written or oral, or both, on the History of English Literature since 1400.

History:—Candidates must take at least 12 units in History during their Third and Fourth Years.

The graduating essay will count 3 units.

English and French.

English:—As in English and History.

French:—See details under Modern Languages.

English and Latin.

English:—As in English and History.

Latin:—Candidates must in their Third and Fourth Years take at least 12 units in Latin. They will be expected to show special knowledge of some one major Latin author, and to pass an examination upon their general knowledge of Latin Literature, History, Antiquities, etc.

English and Philosophy.

English:—As in English and History.

Philosophy, Prerequisite:—Philosophy 1.

Course:—Totalling 12 units, 6 of which must be taken in the Third Year.

Economics, Political Science and Sociology.

A student seeking Honours in the Department of Economics, Political Science and Sociology must:

(1) During the first two years have satisfactorily passed in Economics 1;

(2) Obtain a satisfactory standing in Economics 2;

(3) During his Third and Fourth Years obtain a satisfactory standing in at least five additional courses in the Department of Economics, counting not less than 14 units;

(4) Obtain a satisfactory standing in a final General Honours Examination, written or oral, or both, to be taken at the end of the Fourth Year;

(5) Submit before the end of the Fourth Year a Graduation Essay, embodying the result of independent work. This essay may count for 3 to 6 units, at the discretion of the Department of Economics. Tutorial instruction amounting to one hour per week will be arranged in connection with this work.

(6) Deliver an address on some subject relative to his course of study before a general audience, to be designated by the Head of the Department.

ADVICE: Those seeking Honours in this Department are advised to take, if possible, a course in Ethics, the foundational courses in History, and Mathematics 3.

Economics and French.

Economics:—As in Economics and History.

French:—See details under Modern Languages.

History and Economics.

History:—As in English and History.

Economics:—Three courses in this Department other than Courses 1 and 2. For further regulations *see* Economics, Political Science and Sociology.

History and Philosophy.

History:—As in English and History.

Philosophy:—As in English and Philosophy.

History and French.

History:—As in English and History.
French:—See details under Modern Languages.

History and Latin.

History:—As in English and History.
Latin:—As in English and Latin.

French and Latin.

French:—See details under Modern Languages.
Latin:—As in English and Latin.

French and Philosophy.

French:—See details under Modern Languages.
Philosophy:—As in English and Philosophy.

Economics and Philosophy.

Economics:—As in History and Economics.
Philosophy:—As in English and Philosophy.

Philosophy and Latin.

Philosophy:—As in English and Philosophy.
Latin:—As in English and Latin.

EXAMINATIONS IN ARTS AND SCIENCE.

1. There are two examinations in each year — one at Christmas and the other at the end of the session. Successful students are arranged in three classes, as follows: First class, those who obtain 80 per cent. or more; Second class, 65 to 80 per cent.; Passed, 50 to 65 per cent.

In the First and Second Years, in order to pass, Candidates must obtain 50% on the examinations as a whole and not less

than 40% on each subject. In the Third and Fourth Years, in order to pass, Candidates must obtain 50% on each subject of examination.

Christmas examinations will be held in all subjects, and are obligatory for all students.

Applications for Special Consideration on account of illness in the matter of examinations must be in the hands of the Dean not later than two days after the close of the examination period.

Any student whose academic record, as determined by the tests and examinations of the first term, is found to be unsatisfactory, may, upon the recommendation of the Faculty, be required by the Senate to discontinue attendance at the University for the remainder of the session.

2. The following are the regulations for advancement to the Second, Third and Fourth Years of the undergraduate course:—

Advancement to the Second Year.—In order that a student may proceed to the Second Year of his course, he must have completed his Matriculation, and have passed in all, or all but one, of the subjects of the preceding year, *but may not continue in the Second Year in the subject in which he has failed to make good his standing, except in the cases of compulsory subjects for the Second Year.*

Advancement to the Third Year.—In order that a student may proceed to the Third Year, he must have completed his First Year and have passed in all, or all but one, of the subjects of his Second Year, *but he may not continue the subject in which he has failed to make good his standing.*

Advancement to the Fourth Year.—In order that a student may proceed to the Fourth Year he must have completed his First and Second Years and have passed in all, or all but one, of the subjects of the Third Year.

A student who fails a second time to make his year may, upon the recommendation of the Faculty, be required by the Senate to withdraw from the University.

3. *Repeating Year.*—By special permission of the Faculty, a student who is required to repeat his year may, *on application in writing,*—

(*a*) Be exempted from attending lectures and passing examinations in the subjects in which he has already passed, provided he has made therein a standing of 60 per cent. or over.

(*b*) And if so exempted, be permitted to take, in addition to the subjects in which he has failed, such subjects of the following year of his course as the Faculty may deem advisable.

SUPPLEMENTAL EXAMINATIONS.

4. Notice will be sent to all students to whom the Faculty has granted supplemental examinations.

5. Examinations supplemental to the sessional examinations will be held in September, simultaneously with the matriculation examinations. The time for each supplemental examination will be fixed by the Faculty; the examination will not be granted at any other time, except by special permission of the Faculty, and on payment of a fee of $7.50.

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.

COURSES IN ARTS

Department of Agriculture.

Professor: F. M. Clement.

The Scientific Basis of Agriculture.—This course is designed for students who desire to extend their knowledge of the application of the basic sciences to the principles underlying farm life and farm problems. The course outlined below should prove of value to teachers and others who are interested in Rural Science.

(*a*) Historical Background:—Roman Husbandry; English Husbandry; The Contributions of Britain to Canadian and American Agriculture; Canadian and American Agriculture of today.

(*b*) The Scientific Basis of: (1) The Maintenance of Soil Fertility and the Production of Farm Crops; (2) Plant and Animal Improvement; (3) Special Problems in Production.

(*c*) The Farm Organization and the Scientific Basis of the Marketing of Farm Crops.

(*d*) The Institutions growing out of the Problems developed in "b" and "c"; Agricultural Colleges; Experiment Stations; Farmer Movements; The Rural Problem and the Country Life Movement.

Three lectures per week throughout the year. 3 units.

Department of Bacteriology.

Professor: R. H. Mullin.
Lecturer: R. E. Coleman.
Assistant: Freda L. Wilson.

1. *A Course of General Bacteriology,* 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.

Chemistry 1, and Biology 1, are prerequisites.

Seven hours a week. First Term. 2 units.

2. *A Course of Special Bacteriology,* 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. Bacteriology 1 is a prerequisite.

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.

Department of Botany.

Professor: A. H. Hutchinson.
Assistant Professor: John Davidson.
Lecturer in Plant Pathology: J. W. Eastham.

Biology.

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

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

The course is prerequisite to all other courses in Biology.

Two lectures and two hours laboratory work per week, throughout the Session.

Text-book: W. M. Smallwood, *Text-book of Biology,* Lea & Febiger, 1920. 3 units.

2. *Principles of Heredity.*—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.

Two lectures per week. First Term.

Text-book: W. E. Castle, *Genetics and Eugenics,* Harvard Press. 1 unit.

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

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

Text-book: W. M. Bayliss, *Principles of General Physiology,* Longmans, Green & Co. 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.

Two lectures and two hours laboratory work per week, throughout the Session.

Text-book: Coulter, Barnes & Cowles, *Text-book of Botany,* Vol. I., University of Chicago Press. 3 units.

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.

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

Text-book: Coulter, Barnes & Cowles, *Text-book of Botany,* Vol. I., University of Chicago Press. 2 units.

3. *Plant Physiology.*

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

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

Seven hours per week. Second Term.

Prerequisite: Botany 1.

Text-book: W. C. Stevens, *Plant Anatomy,* P. Blakiston, Son & Co. 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.

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

Prerequisite: Botany 1.

Text-books: J. K. Henry, *Flora of Southern British Columbia,* W. J. Gage & Co.; R. G. Leavitt, *Outlines of Botany with Flora,* American Book Co. 2 units.

5 (*b*). *Dendrology.* As in Forestry. 1 unit.

6. *Plant Pathology.*

6 (*a*). *General Plant Pathology.*—Identification and life-

histories of parasites causing plant-diseases; means of combating them.

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

Prerequisite: Botany 1.

Text-book: B. M. Duggar, *Fungus Diseases of Plants*, Ginn & Co. 1 unit.

6 (*b*). *Forest Pathology.* As in Forestry. 1 unit.

7. *Plant Ecology.*

7 (*a*). *Forest Ecology.* As in Forestry. 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.; the first hour is devoted to elementary work; the second hour to more advanced botany. 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: Ruth Fulton.
Assistant: John Allardyce.
Assistant: A. E. Boss.
Assistant: Freda Handford.
Assistant: Violet E. Dunbar.
Assistant: K. B. Gillie.

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.

Books recommended: Alexander Smith, *Inorganic Chemistry,* Century Co.

Three lectures and one laboratory period of three hours a week. 3 units.

2. *Qualitative and Quantitative Analysis.*

(*a*) *Qualitative Analysis.*—A course consisting of one hour of lecture or recitation and six hours of laboratory work each week throughout the First Term. During the first six weeks of the term an additional lecture or recitation hour may be substituted for a part of the laboratory work.

(*b*) *Quantitative Analysis.*—A course consisting of one hour of lecture or recitation and six hours of laboratory work each week throughout the Second Term. The course embraces the more important methods of gravimetric and volumetric analysis.

Prerequisite: Chemistry 1.

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

Books recommended: A. A. Noyes, *Qualitative Analysis,* Macmillan Co.; Cumming & Kay, *Quantitative Analysis,* Gurney & Jackson. 3 units.

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. Two lectures and one laboratory period of three hours weekly.

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,* John Wiley & Sons; Gatterman, *The Practical Methods of Organic Chemistry,* Macmillan. 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.

Prerequisite: Chemistry 2.

Two lectures and one laboratory period a week during the Second Term.

Text-book: James Walker, *Introduction to Physical Chemistry,* Macmillan. 1½ units.

5. *Advanced Qualitative and Quantitative Analysis.*

(*a*) *Qualitative Analysis.*—One lecture and six hours in the laboratory throughout the First Term. 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.

(*b*) *Quantitative Analysis.*—One lecture and six hours laboratory work per week during the Second Term. 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. 3 units.

6. *Industrial Chemistry.*—Two hours of lectures per week throughout the year. 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. 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.

Two lectures and one laboratory period of three hours weekly throughout the year.

Prerequisites: Chemistry 2, 3, and 4.

Text-books: Bigelow, *Physical Chemistry,* Century Co; Findlay, *Physico-Chemical Measurements,* Longmans Green.

For reference: Ramsay's Series of Books on Physical Chemistry, Longmans Green. 3 units.

8. *Applied Electro-Chemistry.*—Solutions are studied from the standpoint of the osmotic and the dissociation theories. The laws of electrolysis, electroplating, primary and secondary batteries, and the preparation of the elements and compounds by electrolytic methods and in the electric furnace are studied.

Three lectures weekly during the First Term.

Prerequisite: Chemistry 4.

For reference: Le Blanc, *Elements of Electro-Chemistry,* Macmillan; Thompson, *Applied Electro-Chemistry,* Macmillan; and Stanfield, *The Electric Furnace.* 1½ 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.

Two lectures and one laboratory period weekly throughout the year.

Prerequisites: Chemistry 2 and 3.

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

3 units.

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

Two hours a week during the Second Term.

Prerequisites: Chemistry 2, 3, and 4.

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

Prerequisites: Chemistry 7 and 9. 3 units.

Lectures: 2 units. Laboratory: 1 unit.

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

Two hours a week during the First Term.

Prerequisites: Chemistry 7 and 9.

For reference: Zsigmondy-Spear, *Chemistry of Colloids,* John Wiley & Sons; Reports on Colloid Chemistry by British Association for Advancement of Science. 1 unit.

14. *Agricultural Chemistry.*—The chemical composition of the soil; fertilizers, fungicides and insecticides.

The Laboratory will be adapted to the needs of the individual student.

Two lectures and one laboratory period throughout the year.

Prerequisite: Chemistry 2. 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.

One lecture and one laboratory period throughout the year.

Prerequisites: Chemistry 2 and 3.

Text-book: Chamberlain, *Agricultural Chemistry,* Macmillan. 2 units.

Department of Classics.

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

Greek.

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

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

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

History.—Shuckburgh, *History of Greece,* Chap. I.-V.; Unwin. Four hours a week. Mr. Todd. 3 units.

2. Lectures.—Plato, *Apology,* Adam, Elementary Classics, Cambridge University Press; Aeschylus, *Prometheus Vinctus,* Rackham, Cambridge University Press.

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

History.—Shuckburgh, *History of Greece,* Chap. VI.-X., Unwin. Four hours a week. Mr. Logan. 3 units.

3. *Lectures.*—Thucydides, *History, Book VII.,* Marchant, Macmillan; Sophocles, *Antigone,* Jebb and Shuckburgh, Cambridge University Press; Homer, *Iliad XXII.,* Edwards, Pitt Press.

Literature.—Murray, *History of Greek Literature,* Heinemann. Three hours a week. Mr. Robertson, Mr. Todd, Mr. Mildmay. 3 units.

(Given in 1922-23 and alternate years.)

4. Greek Literature in English Translation.—A survey of Greek literary history from Homer to Lucian, with reading and interpretation of selected works from the most important authors.

Knowledge of Greek is not prerequisite.

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

(Given in 1923-24 and alternate years.)

5. *Lectures.* — Demosthenes, *Third Olynthiac, First and Third Philippics,* Butcher, Oxford University Press (Vol. I.); Sophocles, *Oedipus Tyrannus,* Jebb, Cambridge University Press; Homer, *Iliad VI.,* Edwards, Pitt Press, smaller edition.

Literature.—Murray, *History of Greek Literature,* Heinemann.

Three hours a week. 3 units.

(Given in 1923-24 and alternate years.)

6. *Lectures.*—Herodotus, *History,* Hude, Oxford University Press (the equivalent of one book will be read); Lysias, *Orations,* Hude, Oxford University Press; Aristophanes, *The Birds,* Hall and Geldart, Oxford University Press. (Open only to those who have taken or are taking Greek 3 or 5.)

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

(Given in 1922-23 and alternate years.)

7. *Lectures.*—Aristotle, *Ars Poetica,* Bywater, Oxford University Press; Plato, *The Republic* (selections), Burnet,

Oxford University Press. (Open only to those who have taken or are taking Greek 3 or 5.)

Three hours a week. 3 units.

(Given in 1923-24 and alternate years.)

8. Composition. — Sidgwick, *Greek Prose Composition,* Rivingtons. Obligatory for Honour Students.

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

Latin.

1. *Lectures.*—Cicero, *Pro Lege Manilia,* Select Orations and Letters, Allen and Greenough, Ginn & Co. Ovid, *Elegiac Selections,* Smith, Bell's Illustrated Classics.

Composition.—Bradley, *Arnold's Latin Prose Composition,* Longmans, Green & Co., 19 exercises.

History.—Pelham, *Outlines of Roman History* (to 133 B. C.), Rivingtons.

Three hours a week. Mr. Robertson, Mr. Mildmay.

A fourth hour a week will be devoted to lectures on:

(1) Roman History from the beginning to 27 B. C.

(2) Roman Literature.

Attendance at these lectures is voluntary and no formal credit is given. Mr. Logan.

2. *Lectures.*—Cicero, *Pro Archia,* Reid, Pitt Press. Livy, *Hannibal's First Campaign in Italy.* Trayes, *Bell's Illustrated Classics.* Virgil, *Aeneid, Bk. VI.,* Page, Macmillan.

Composition.—Bradley, *Arnold's Latin Prose Composition,* Longmans, Green & Co., 32 exercises.

History.—Pelham, *Outlines of Roman History* (from 133 B. C. to 69 A. D.), Rivingtons.

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

A fourth hour a week will be devoted to reading Horace, *Selected Odes,* Wickam, Clarendon Press. Attendance at this hour is voluntary and no formal credit is given. Students

contemplating Honours are, however, advised to take this course. Mr. Robertson.

3. *Lectures.*—Virgil.

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

(Given in 1922-23 and alternate years.)

4. *Lectures.*—Horace, *Odes,* Page, Macmillan's Classical Series. Horace, *Epistles,* Wilkins, Macmillan's Classical Series. Cicero, *Tusculan Disputations I.* and *Dream of Scipio,* Rockwood, Ginn & Co., College Series.

Three hours a week. 3 units.

(Given in 1923-24 and alternate years.)

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

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

(Given in 1922-23 and alternate years.)

6. Lectures.—Tacitus, *Histories I., II.,* Godley, Macmillan's Classical Series. Garrod, *Oxford Book of Latin Verse* (selections), Oxford Press.

Three hours a week. 3 units.

(Given in 1923-24 and alternate years.)

7. Lectures.—Roman History from 133 B.C. to 180 A.D.

Text-book: *Short History of Rome,* by Ferrero and Barbagallo, 2 vols., Putnam.

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

(Given in 1923-24 and alternate years.)

8. Composition.—Obligatory for Honour Students.

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

Department of Economics, Sociology and Political Science.

Professor: Theodore H. Boggs.
Associate Professor: H. F. Angus.
Assistant Professor: S. E. Beckett.
Assistant: L. T. Fournier.

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.

Taussig, *Principles of Economics,* Macmillan, 1921. 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.

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, Green & Co. Price, *Political Economy in England,* Methuen; and assigned readings in other texts.

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,* D. Appleton & Co. Cole, *Guild Socialism,* Stokes & Co. Skelton, *Socialism: A Critical Analysis,* Houghton, Mifflin Co. Spargo and Arner, *Elements of Socialism,* Macmillan.

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.

Phillips, *Readings in Money and Banking,* Macmillan. White, *Money and Banking,* Ginn & Co., 1914. Patterson, *Domestic and Foreign Exchange,* Alexander Hamilton Institute.

Three hours a week. 3 units.

(Given in 1923-24 and alternate years.)

5. *Public Finance.*—This course deals with public revenues and expenditures, and the administration of public funds. Some of the topics discussed are: Theories of Just Taxation, progressive taxation, the internal revenue system, tariffs on imports, the General Property Tax, Personal and Business Income Tax, Inheritance Tax, the Single Tax, Double Taxation, the Relation between Provincial and Local Taxation, the Shifting and Incidence of Taxation. Particular attention is devoted to the taxation systems (Federal, Provincial, and Local) of Canada.

Seligman, *Essays in Taxation,* Macmillan, 1921. Plehn, *Introduction to Public Finance,* Macmillan, 1920; and assigned readings in other texts.

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

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 being devoted to the British Dominions.

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

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

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

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

Three hours a week. 3 units.

(Given in 1923-24 and alternate years.)

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.

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 the industrial organization, marriage and the family, the 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 in other texts.

Three hours a week. 3 units.

(Given in 1923-24 and alternate years.)

Department of English.

Professor: G. G. Sedgewick.
Associate Professor: W. L. Macdonald.
Assistant Professor: F. G. C. Wood.
Assistant Professor: Thorleif Larsen.
Assistant Professor: F. C. Walker.
Assistant Professor: M. L. Bollert.
Assistant: Stella McGuire.
Assistant: Katherine McKay.
Assistant: Rena Grant.
Assistant: Dorothy Blakey.

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 1922-23: Canby, *A Study of the Short Story,* Holt. Euripides, *Bacchae,* in Gilbert Murray's paraphrase. Shakespeare, *Julius Caesar.* Sheridan, *The School for Scandal,* Everyman. Ibsen, *The Doll's House,* Everyman. *Poems of Today,* McClelland & Stewart.

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; Ward, *The English Poets, Vol. IV.*

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.

DIVISION I.

9. *Shakespeare.*—This course may be taken for credit in two successive years. In 1922-23, 9 (*b*) will be given as follows:

i. A detailed study of the text of *Twelfth Night, Othello, Coriolanus, 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 1923-24 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.

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. *From Milton to Burns.*—After a preliminary survey of the work of Milton and Bunyan, the course will follow the

development of English literature during the 18th century. Various special forms, such as the "Restoration" and "Sentimental" Drama, the Periodical Essay, etc., will be considered. Emphasis will be laid on the work of Dryden, Butler, Addison, Steele, Defoe, Pope, Swift, Thomson, Gray, Collins, Johnson, Goldsmith, Cowper, 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 of English, a course of private reading to which, if successfully completed, will be assigned 3 units of credit. 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 1923-24 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 1922-23 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 *Twenty-four Representative One-act Plays of America,* Little Brown & Co., are the texts used in this course.

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

(Given in 1923-24 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: T. H. Ward, *The English Poets,* Vol. I. *Spenser,* ed. Smith and de Sélincourt, Oxford.

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

(Given in 1922-23 and alternate years.)

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. This will be followed by 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 1922-23 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 J. Weston.

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

(Given in 1922-23 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.

(Given in 1923-24 and alternate years.)

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.

(Given in 1923-24 and alternate years.)

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

Two hours a week. 2 units.

(Given in 1922-23 and alternate years.)

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 1922-23 and alternate years.)

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

Two hours a week. 2 units.

21b.—*Anglo-Saxon.*—Beowulf.

One hour a week. 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 1922-23 will probably be some aspect of literary criticism.

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.
Assistant: L. V. Miller.

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 one laboratory period of two hours 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 one laboratory period of two hours 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,* Wiley. Geikie, *Text-book of Geology,* Macmillan. Merrill, *Rocks, Rock-weathering and Soils,* Macmillan. *National Geographic Magazine.* Shimer, *Introduction to the Study of Fossils,* Macmillan. Davis, *Geographical Essays,* Ginn & Co. Hugh Miller's works. 3 units.

2. (*a*) *General Mineralogy.*—This course is designed to give students a general survey of the field of mineralogy.

Lectures consist of a description of the crystallographical and physical properties of minerals in general, combined with a detailed study of about 50 of the common mineral species.

Laboratory Work consists of the practical study of these minerals, a demonstration of their chemical properties, and practise in the methods of their determination.

Text-book: Dana, *Manual of Mineralogy,* revised by Ford (new edition), Wiley.

Two lectures and one laboratory period of two hours per week. First Term. Mr. Uglow. 1½ units.

2. (*b*) *Descriptive and Determinative Mineralogy.*—This course supplements 2 (*a*), and consists of a critical study of about 50 of the less common mineral species, special emphasis being given to their crystallography, origin, association, and alteration.

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

Reference Books: Williams, *Elements of Crystallography,* Holt. Brush and Penfield, *Determinative Mineralogy and Blowpipe Analysis,* Wiley. J. Volney Lewis, *Manual of Determinative Mineralogy,* Wiley.

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

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

Three hours per week. First Term.

Text-book: Schuchert, *Historical Geology,* Wiley.

Prerequisite: Geology 1.

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.

Three hours per week. Second Term.

Prerequisite: Geology 1.

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 laboratory period per week. 3 units.

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

Two lectures and one laboratory period per week.

Mr. Williams. 3 units.

7. *Petrology—Lectures:* These consist of a discussion of the origin, occurrence, alteration, decomposition, and removal of rocks; a study of their chemical, mineralogical and physical characteristics; their mode of classification; and a presentation of the method of application of the polarizing microscope to the determination of rock types.

Laboratory Work.—The collections of the department are used by the students for practice in the application of the above principles to rock study, determination and classification. Field methods of determination are stressed; and the polarizing microscope is used to study the texture, structure and composition of the common rock types.

Text-books: Pirsson, *Rocks and Rock Minerals,* Wiley. Luquer, *Minerals in Rock Sections,* Van Nostrand.

Prerequisites: Geology 1 and 2.

Two lectures and two laboratory periods of two 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 ore-deposits with type illustrations; and a description of the ore-deposits of the British Empire, special stress being placed on those in Canada.

Text-book: Ries, *Economic Geology,* Wiley, 4th ed.

Reference Book: Lindgren, *Mineral Deposits,* McGraw-Hill, 2nd ed.

Prerequisite: Geology 7 must precede or accompany this course; Geology 1 must have been taken.

Three hours of lectures and one of laboratory work per week. Mr. Brock and Mr. Williams. 4 units.

9. *Mineralography.*—A study of opaque minerals by means of the reflecting microscope.

Two hours per week. Mr. Uglow. 2 units.

(Given in 1923-24 and alternate years.)

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,* McGraw-Hill. Hayes, *Handbook for Field Geologists,* Wiley. Spurr, *Geology Applied to Mining,* Hill Pub. Co.

Three hours per week.

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

Mr. Schofield. 1½ units.

12. *Meteorology and Climatology.*—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.

This subject is useful in Geology, Botany, Zoology, History, Political Economy, Engineering, etc.

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.

FIRST AND SECOND YEARS.

Students who intend to specialize in History are advised to associate with it from the first some allied subject, such as Economics. A reading knowledge of French and German will be found extremely valuable in senior courses, while in certain classes of more advanced work Latin is indispensable.

1. *Modern European History.* — A general view of the development of modern Europe, from the eve of the French Revolution to present day. This course is designed more especially for First Year students who do not expect to take senior classes in modern European History, but who wish to complete the survey of world history begun in the high schools.

Text-book: Robinson and Beard, *History of Europe, Our Own Times,* Ginn & Co., 1921.

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

2. *Canadian History.*—A comparison of Spanish, English, and French colonial effort in the New World serves as an introduction to this course in Canadian history. Church and State during the French régime, the relations between French and English since the British Conquest, Canadian constitutional development, and present-day problems will receive special attention.

Books recommended: Parkman, *Pioneers of France in the New World; The Jesuits in North America; Count Frontenac and New France; The Old Régime; La Salle and the Discovery of the Great West;* Little, Brown & Co., Boston. G. M. Wrong, *Conquest of New France* (in *Chronicles of America*), or Parkman, *Montcalm and Wolfe.* These books may be purchased from the University Bookstore.

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 Work of Champlain and of Frontenac in New France: a Comparison and a Contrast."

Three hours a week. 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. The sequel to this course is History 8.

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

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 4 should be taken by all candidates for Honours.

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 Roman Empire; the Barbarian Invasions; the Franks; Charlemagne; the rise of the Papacy; the struggle between the Empire and the Papacy; the Crusades; Frederick II.; the later Middle Ages.

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

A preliminary essay, counting 10 per cent. of the year's work, must be handed in as early as possible in the autumn term. Subject: "The Conflict of Religions in the Roman Empire."

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

5. *Renaissance and Reformation.*—A brief outline of the rise of the Christian Church; a closer study of the Renaissance, the

Reformation and the Counter-Reformation, and, in conclusion, a short account of the subsequent history of religious thought down to our own times, with special reference to the English Deists, the French Philosophes, Wesleyanism, Pietism, Catholic Modernism and the Higher Criticism.

Text-books: Symonds, *Short History of the Renaissance in Italy,* Henry Holt. Sichel, *The Renaissance,* Home University Library. Lindsay, *A History of the Reformation,* 2 vols., Scribners; or Fisher, *The Reformation,* Scribners.

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 Significance of Dante."

Books recommended for reading and reference: Christopher Hare, *Dante the Wayfarer.* H. W. 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. V.* Translations by Cary, Norton, etc.

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

6. *The Revolutionary and Napoleonic Era.*—A preliminary essay, counting 10 per cent. of the year's work, must be handed in as early as possible in the autumn term. Subject: "The Age of Voltaire."

Books recommended for reading and reference: Wadia, *The Philosophers and the French Revolution,* Sonnenschein. Lowell, *The Eve of the French Revolution,* Houghton Mifflin. De Tocqueville, *The State of Society in France before the Revolution.* Taine, *L'Ancien Régime* (abridged by W. F. Giese), Heath & Co.—or Taine, *The Ancient Regime.* Arthur Young, *Travels in France,* John's Popular Library. S. G. Tallentyre, *The Friends of Voltaire,* Putnam's Sons. John Morley, *Voltaire* (1 vol.); *Diderot and the Encyclopedists* (2 vols.); *Rousseau* (2 vols.), The Eversley Series, Macmillan. *Cambridge Modern History,* Vols. VI., VIII. Lavisse, *Histoire de France,* Vol. 8, p. 289; Vol. 9. Lavisse et Rambaud, *Histoire Générale,* Vol. 7. These and other

books may be borrowed during the summer from the University Library.

Text-books: Shailer Matthews, *The French Revolution,* Longmans. Johnston, *Napoleon,* Henry Holt. For further reading: Aulard, *The French Revolution,* Fisher Unwin. J. H. Rose, *The Life of Napoleon I.,* Macmillan.

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

History 6 should, if possible, precede History 7.

7. *Europe Since* 1815.—The political, industrial, religious, and military history of continental Europe from the close of the Napoleonic era to the present day, with especial attention to the origins of the Great War and the problems of the peace settlement.

A preparatory essay, counting 10 per cent. of the year's work, must be handed in not later than the beginning of the autumn term. Subject: The Industrial Revolution in England during the Revolutionary and Napoleonic Period.

Books recommended for reading and reference: *Cambridge Modern History,* Vol. X, Chap. 23. Slater, *The Making of Modern England,* Houghton Mifflin. Gibbins, *Industry in England,* Scribners. Perris, *The Industrial History of Modern England,* Henry Holt. Cunningham, *Western Civilization,* Vol. 2, Cambridge Historical Series. Usher, *Introduction to the Industrial History of England,* Houghton Mifflin.

Text-books: Hazen, *Europe since* 1815, Henry Holt. Shapiro, *Modern and Contemporary European History,* Houghton Mifflin.

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

History 7 should be preceded, if possible, by History 6.

(Given in 1923-24.)

8. *Great Britain Since* 1688.—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: Cross, *A History of England and Greater Britain,* Macmillan.

Reference should also be made to the following books: *Political History of England,* Vols. VIII.-XII. Trevelyan, *England under the Stuarts.* Robertson, *England under the Hanoverians.* Marriott, *England since Waterloo.* Lecky, *England in the Eighteenth Century.* Morley, *Life of Gladstone. Cambridge Modern History* (chapters dealing with English History). Traill, *Social England.*

An 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 development of Political Parties during the reign of William III. and Anne.

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

(Given in 1923-24.)

9. *American History.*—A sketch of the political, constitutional and economic development of the United States of America from the beginning of the War of Independence to the close of the World War.

Text-book: Muzzey, *American History,* Ginn.

Summer reading: The colonial period of American history up to the passage of the Stamp Act. A preliminary essay will be required. Books recommended for reading and reference: Curry, *A Short History of British Colonial Policy,* Oxford University Press. Channing, *The Student's History of the United States,* Macmillan. *Chronicles of America, Cambridge Modern History,* Vol. VII.

A preliminary essay, counting 10 per cent. of the year's work, must be handed in as early as possible in the autumn term. Subject: "The Old Colonial System."

Three hours a week. 3 units.

10. *Great Britain and Europe Since* 1815.—The economic, political, and cultural history of Great Britain and Europe from the close of the Napoleonic era to the present day, with

especial attention to international relations, the origins of the World War, and the problems of reconstruction.

A preparatory essay, counting 10 per cent. of the year's work, must be handed in as early as possible in the autumn term. Subject: "Robert Owen and the Industrial Revolution in England."

Books recommended for reading and reference: As in History 8, and also: Podmore, *Robert Owen* (Appleton, 1907). Sargant, *Robert Owen.* Joseph Clayton, *Robert Owen* (Martin Secker). *Dictionary of National Biography,* etc.

Text-books: Cross, *A History of England and Greater Britain,* Macmillan, *or,* Ramsay Muir, *A Short History of the British Commonwealth, Vol. II.,* G. Philip & Son. Hazen, *Europe Since* 1815, Henry Holt. Shapiro, *Modern and Contemporary European History,* Houghton, Mifflin.

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

(Given only in 1922-23.)

Department of Mathematics.

Professor: Daniel Buchanan.
Associate Professor: G. E. Robinson.
Assistant Professor: E. E. Jordan.
Assistant Professor: L. Richardson.
Lecturer: B. S. Hartley.
Assistant: John Henry.
Assistant: F. J. Studer.
Assistant: Mae L. Barclay.
Assistant: L. W. Heaslip.
Assistant: M. Home.
Assistant: C. A. Woodworth.

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. Those intending to proceed to Honours in Mathematics are required to take Course 2, and are advised to take Course 4. Course 3 is intended primarily for those looking forward to business and public service.

Courses numbered 10 and over are Honour Courses.

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

Courses 20 to 25 are graduate courses of two units each. A selection will be made from these 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.*

Three hours a week. First Term.

(*b*) *Geometry.*—This course covers the work in Hall and Steven's *School Geometry,* Parts V. and VI.

Two hours a week. Second Term.

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

Playne and Fawdry, *Practical Trigonometry.*

Wentworth and Hill, *Logarithmetic Tables.*

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.

Tanner and Allen, *Brief Course in Analytical Geometry.*

Three hours a week. First Term.

(*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.*

Three hours a week. Second Term.

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

Attendance at this course is voluntary and no formal credit is given. Those intending to take Honours in Mathematics are advised to attend this course.

One hour a week. 3 units.

3. *The Mathematical Theory of Investments and Statistics.*—This course deals with the theory of interest, annuities, debentures, valuation of bonds, sinking funds, depreciation, probability and its application to life insurance, the mathematical theory of statistics.

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

West, *Mathematical Theory of Statistics.*

Three hours a week. 3 units.

(Given in 1923-24 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.*

Three hours a week. 3 units.

(Given in 1922-23 and alternate years.)

HONOUR COURSES.

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

Three hours a week. 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 func-

tions. 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.*

Two hours a week. 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.* Dupuis, *Elements of Synthetic Solid Geometry.*

Two hours a week. 2 units.

(Given in 1922-23 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.* Tanner and Allen, *Brief Course in Analytical Geometry.*

Two hours a week. 2 units.

(Given in 1923-24 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. Weld, *Theory of Determinants.*

Two hours a week. 2 units.

(Given in 1922-23 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.* Chrystal, *Text-book of Algebra,* Part II.

Two hours a week. 2 units.

(Given in 1923-24 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.* Murray, *Differential Equations.*

Two hours a week. 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;* Moulton, *An Introduction to Celestial Mechanics.*

Two hours a week. 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.* 1 unit.

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.*

Department of Modern Languages.

Professor: H. Ashton.
Associate Professor: A. F. B. Clark.
Assistant Professor: Isabel MacInnes.
Assistant Professor: G. Grojean.
Instructor: Margaret Ross.
Instructor: Janet Greig.
Assistant: Kathleen Peck.
Assistant: Hazel McConnell.

French.

1. (*a*) Molière, *Le Bourgeois Gentilhomme,* Ginn. Bazin, *Six Contes,* Oxford Press. Allen and Schoell, *French Life,* Henry Holt. Weil, *Leçons de Français,* Delagrave, Paris.

Revision of the essentials of French grammar and syntax applied to the correct writing of French.

Oral work from Weil, *Leçons de Français.*

There will be an oral examination based on this book.

Course 1 (*a*) is for students who intend to stay more than one year in the Faculty of Arts and Science. 3 units.

1. (*b*) Labiche et Martin, *Le Voyage de Monsieur Perrichon,* Allyn and Bacon. Allen and Schoell, *French Life,* Holt.

Course 1 (*b*) is for students of the Faculty of Agriculture or Applied Science and for those who intend to leave the University at the end of the First Year. *It does not entitle students to enter the Second Year classes in French in the Faculty of Arts and Science, and must not be taken by students who intend to graduate in the Faculty of Arts and Science.* 3 units.

1. (*c*) A course of Lectures on France, French Life and Institutions. Open to all students without obligation to take the examination. Students intending to take French throughout their course are advised to attend these lectures. Future Honours students in French should take the course and the examination. No formal credit is given for this course.

2. (*a*) La Fontaine, *One Hundred Fables* (Super), Ginn. Augier et Sandeau, *Le Genre de Monsieur Poirier* (Roedder),

Am. Book Co. France, *Le Crime de Sylvestre Bonnard* (Wright), Holt & Co.

Conversation in French on the above. Written résumés.

Composition from Wilson and Jaccard, *A First French Prose Composition,* Bell & Sons, London. 3 units.

2. (*b*) Modern Methods applied to the study of French Authors. Reading and commentary in French. Book required: Faguet, *Ce que disent les livres,* Cambridge Press.

For students who intend to continue French in the Third and Fourth Years. No formal credit is given for this course.

3. (*a*) Marivaux, *Le Jeu de l'Amour et du Hasard,* Macmillan. Montesquieu, *Lettres Persanes,* Macmillan. Voltaire, *Contes* (Preston), Oxford University Press. Beaumarchais, *Le Barbier de Séville,* Macmillan.

Conversation and résumés based on the above.

For Pass and Honours students. 3 units.

3. (*b*) *Voltaire's Prose* (Cohn and Woodward), Heath. Schinz, *La vie et les oeuvres de J. J. Rousseau,* Heath.

For Honours students. 3 units.

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

Obligatory for Honours students. 3 units.

4. (*a*) Rostand, *L'Aiglon,* Fasquelle, Paris. Rostand, *Cyrano de Bergerac,* Fasquelle, Paris.

For Pass and Honours students. The classes will be conducted in French, and will include Composition and Conversation based on the above. 3 units.

4. (b) La Bruyère, *Les Caractères* (Radouant), Hatier, Paris.

Mme. de La Fayette, *La Princesse de Clèves,* Paris, Crès (Collection Gallia).

For Honours students. 3 units.

4. (*c*) Composition and Oral French.

Book required: Ritchie and Moore, *A Manual of French Composition,* Cambridge Press.

For Honours students. 3 units.

4. (*d*) Methods of Modern Language Teaching.

For Honours students and all who intend to teach French. 3 units.

N. B.—All Honours students should procure G. L. Strachey, *Landmarks in French Literature,* Holt. Courses 3 (*a*), (*b*), (*c*), and 4 (*a*), (*b*), (*c*), (*d*), call for much work out of class. They should be chosen only by students able and willing to work alone.

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.

Beginner's Course. Composition, Grammar, Conversation. —Text, Zinnecker, *Deutsch fur Anfänger,* Heath. 3 units.

Beginner's Course, Scientific. — As Beginner's Course above, together with Scientific Reading, Gore, *German Science Reader,* Heath. 3 units.

1. *Language.*—Completion and Revision of Zinnecker. Composition based on texts read. Moser, *Der Bibliothekar,* Ginn. Heine, *Die Harzreise,* Allyn and Bacon. F. Bruns, *Book of German Lyrics,* Heath.

Four hours a week. 3 units.

2. (*a*) *Language.*—Pope, *Writing and Speaking German,* Holt. Composition based on texts read.

Lessing, *Minna von Barnhelm,* Macmillan. Schiller, *Die Jungfrau von Orleans,* Holt. Goethe, *Egmont,* Ginn.

Three hours a week. 3 units.

2. (*b*) A general survey of German Literature. Stroebe and Whitney, *Geschichte der deutschen Literatur,* Holt.

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. A course in nineteenth century literature, including the reading of a number of standard works.

Three hours a week. 3 units.

Department of Philosophy.

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

1. (*a*) *A Course in Elementary Psychology.*

Text-book: Pillsbury, *The Essentials of Psychology,* Macmillan.

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

Two hours a week throughout the year.

(*b*) *A Course in Elementary Logic, Deductive and Inductive.*

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

One hour a week throughout the year.

(*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 honors are, however, advised to take this course. 3 units.

2. *A general course in 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 1922-23 and alternate years.)

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

Text-book: Calkins, *Persistent Problems of Philosophy,* Macmillan.

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

Three hours a week. 3 units.

(Given in 1923-24 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 1923-24 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 1922-23 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 1922-23 and alternate years.)

8. (*a*) *Social Psychology.*—First Term. 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: Cooley, *Human Nature and the Social Order.* Wallas, *Human Nature in Politics; The Great Society.* Ross, *Social Psychology.*

(*b*) *Educational Psychology.*—Second Term. A study of the psychological basis of teaching, with particular attention to newer methods of class organization and instruction, and the problem of the measurement of mental traits.

Text: Colvin, *The Learning Process,* Macmillan.

References: Thorndike, *Educational Psychology.* Judd, *Psychology of High School Subjects.* Terman, *The Measurement of Intelligence.* Starch, *Educational Psychology.*

Philosophy 1 is recommended as preparatory to this course. Three hours a week. 3 units.

(Given in 1923-24 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.

1. *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 hours of lectures and one period of two hours of laboratory work per week.

Note: Separate lectures and laboratory periods will be provided for those students who have matriculated in Physics.

3 units.

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

Three lectures per week for the pass course and one extra lecture hour, or one laboratory period of two hours per week, for distinction students.

Students who intend to proceed to a Medical Course should take the laboratory work.

Prerequisite: Course 1, or its equivalent.

Text-book: Kimball, *College Physics.* 3 units.

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.

Two hours of lectures and three hours of laboratory per week.

Prerequisite: Course 1, or its equivalent.

Text-book: Millikan, *Mechanics, Molecular Physics and Heat.* 3 units.

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

Two hours of lectures and three hours of laboratory per week.

Prerequisite: Course 1, or its equivalent.

Text-book: Millikan and Mills, *Electricity, Sound and Light.* 3 units.

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

Two hours of lectures per week.

Prerequisites: Course 3, and Differential and Integral Calculus. 2 units.

6. *Advanced Electricity and Magnetism.*—In this course, especial attention is given to the theoretical phases of Electricity and Magnetism.

Two hours of lectures per week.

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

Text-book: Starling, *Electricity and Magnetism.* 2 units.

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

Two hours of lectures per week.

Prerequisites: Course 3, and Differential and Integral Calculus.

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

Two hours of lectures and three hours of laboratory per week.

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

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.* 3 units.

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

Two hours of lectures per week.

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

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.* 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 of laboratory work per week. 3 to 6 units.

Department of Zoology.

Professor: C. McLean Fraser.
Lecturer in Entomology: R. C. Treherne.
Instructor: H. A. Dunlop.
Assistant: Norman L. Cutler.

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.

Pass Course: Two hours lecture and two hours laboratory work per week throughout the year. 3 units.

Text-books: T. J. Parker and W. A. Haswell, *Manual of Zoology,* Macmillan & Co. (American Edition, 1916).

2. *Comparative Anatomy of Vertebrates.*—A detailed comparative study of a member of each of the classes of Vertebrates.

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

4. *Morphology of Insects.* General Entomology: A collection is required.

One lecture and two hours laboratory work 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.

FACULTY OF APPLIED SCIENCE

INFORMATION FOR STUDENTS IN APPLIED SCIENCE

ADMISSION.

The general regulations as to admission to the University are to be found on page 35 and following.

Students entering the Faculty of Applied Science are required to have completed one year in Arts. A Senior Matriculation certificate may be accepted provided at least 50 per cent. has been obtained on the aggregate and 40 per cent. on each paper, or in the case of students entering the Department of Nursing, Junior Matriculation.

In First Year Arts or Senior Matriculation, Mathematics and Physics must both be taken.

Students intending to enter Forestry should take Biology in their First Year Arts, and those intending to enter Geological Engineering, French and Biology.

English, Mathematics and Physics are prerequisite subjects, and students must have passed the examinations in them to be admitted to First Year Applied Science.

For returned soldiers the requirements for entrance to the Faculty of Applied Science are those of the Applied Science Matriculation of 1915. (See pages 49 and 50.)

COURSES LEADING TO THE DEGREE OF M.A.Sc.

(See page 220.)

COURSES LEADING TO THE DEGREE OF B.A.Sc.

The degree of B.A.Sc. is granted on the satisfactory completion of four sessions of class-room work in the Applied Science Faculty.

A double course leading to the degree of B.A. and B.A.Sc. is also offered.

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

Courses leading to the degree of B.A.Sc. are offered in the following:

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
XI. Public Health.

GENERAL OUTLINE OF COURSES

Except in the Department of Nursing, which is treated separately (pages 155, 193), the work of the first two years is largely in Mathematics and pure science, giving a foundation for specialization in the various branches of Engineering in the Third and Fourth Years of a B.A.Sc. Course.

Vacation Work

Students are expected to spend their summer vacations in some employment that will furnish practical experience helpful in their professional studies, or in their future professional work. It is of prime importance for the mastery of the professional subjects that the theoretical work of the classroom and the practical work of the laboratory should be supplemented by experience in field or industrial work.

* Fourth Year not given in 1922-23. See page 148.
† Third and Fourth Years not given in 1922-23. See footnotes, pages 143, 144.

Before applying for a degree, a candidate is required to furnish certificates of having had at least four months' employment of a nature that, in the opinion of the Department concerned, shall have afforded suitable experience in the practice of his profession.

Students engaged in summer work that, in the opinion of the Head of the Department and the Dean, affords necessary practical experience in connection with their academic courses, such as Geological students on geological survey field parties, and who cannot, by reason of such work, enter college at the specified time, may be allowed to register and enter classes, without penalty, after the time specified in the calendar, on presentation of statements from their employers that circumstances rendered it impossible for them to report at college earlier.

Summer work and sessional work are required.

The summer work in Mechanical Engineering 1, required of all students entering First Year Applied Science except Nursing, will begin on Monday, August 28th.

Field work will begin at the close of the sessional examination.

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 certificate indicating the character of the work done and the time devoted to it.

FIRST YEAR.

The work of the First Year is the same in all courses in Applied Science except Nursing.

Summer Work.

All undergraduates entering the First Year of Applied Science (except in Nursing) are required to register on or before, and to be in attendance at the University, on Monday, August 28th, when the classes in Mechanical Engineering 1 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	179	2	..	..	..
Mathematics 2	179	..	..	2	..
Mathematics 3	179	3	..	3	..
Mathematics 4	179	2	..	2	..
Mathematics 5	180	1	..	1	..
Civil Engineering 1	163	2	4	2	4
Mechanical Drawing 1	180	..	6	..	6
Physics 1	194	4	3	..	..
Physics 2	194	..	..	4	3
Chemistry 1*	162	3	3	3	3
Mechanical Engineering 1	181	1	3	1	3

* Students who have already taken Chemistry 1 will substitute an Arts subject approved by the Dean of Applied Science.

Field Work.

(See page 162.)

All undergraduates completing the First Year—except those taking the Chemistry (Course II) and Nursing Courses — are required to take Civil Engineering 2 immediately after the spring examination.

SECOND YEAR.

The work of the Second Year is the same in all courses except Chemistry, Forest and Geological Engineering, and Nursing.

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	180	3	..	3	..
Mathematics 7	180	2	..	1	..
Chemistry 2	162	1	6	1	6
Civil Engineering 3	165	1	..	1	..
Civil Engineering 4	165	..	..	..	3
Mechanical Engineering 3	183	1	..	1	..
Physics 4	195	2	..	2	..
Physics 3	195	2	3	2	3
Mechanical Engineering 2	182	1	3	1	3
Civil Engineering 5	165	..	3	..	3
Civil Engineering 6	166	2	..	2	..

Field Work.

Civil Engineering 7 (see page 166) will commence immediately after the spring examination for students in Civil, Forest, Geological, Metallurgical, and Mining Engineering.

THIRD AND FOURTH YEARS.

Information regarding Third and Fourth Year work will be found under the various courses on succeeding pages.

Third and Fourth Year Essays.

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 or study of the work on which the student was engaged during the summer, or of any scientific, engineering or industrial 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.

I. Chemical Engineering.

This course is arranged to prepare the student for the duties of managing engineer in a chemical manufactory. As such he must be not only conversant 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. Accordingly, the course of study combines a considerable amount of engineering with the maximum of chemical training allowed by the time at his disposal.

FIRST AND SECOND YEARS.

As in other Engineering courses. (See pages 136 and 137.)

THIRD YEAR.

Summer Work.

Essay. (See page 137.)

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.
Economics 1	174	2	..	2	..
Metallurgy 1	190	2	..	2	..
Mechanical Engineering 6	184	2	3	2	3
Geology 2 (a)	178	2	2	..	..
Chemistry 3	163	2	3	2	3
Chemistry 4	163	..	..	2	..
Chemistry 5	163	1	9	1	6
Civil Engineering 10	167	2	..	2	..
Civil Engineering 9	167	..	..	1	3
Electrical Engineering 1	186	2	2	2	2

FOURTH YEAR.

Summer Work.

Essay. (See page 137.)

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.
Geology 1 (a)	178	2	2	..	..
Civil Engineering 19	171	1	..	1	..
Civil Engineering 12	168	1	..	1	3
Chemistry 6	163	2	..	2	..
Chemistry 8	163	3	..	..	..
Chemistry 7	163	2	3	2	3
Metallurgy 2	191	2	..	2	..
Thesis	...	..	6	..	14

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.

FIRST YEAR.

As in other Engineering courses. (See page 136.)

SECOND YEAR.

Subject.	For Details See Page:	First Term.		Second Term.	
		Lectures per Week.	Laboratory Hours per Week.	Lectures per Week.	Laboratory Hours per Week.
Mathematics 6	180	3	..	3	..
Mathematics 7	180	2	..	1	..
Chemistry 2	162	1	9	1	9
Chemistry 3	163	2	3	2	3
Chemistry 4	163	..	..	2	..
Physics 4	195	2	..	2	..
Physics 3	195	2	3	2	3
German (Arts) 1	125	3	..	3	..

THIRD YEAR.

Summer Work.

Essay. (See page 137.)

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.
Economics 1	174	2	..	2	..
Geology 1	178	2	2	2	2
Chemistry 5	163	1	9	1	9
Metallurgy 1	190	2	..	2	..
Geology 2 (a)	178	2	2	..	..
Chemistry 7	163	2	3	2	3
Bacteriology 1 (Arts)	85	..	..	..	7
Metallurgy 5	191	1	5	..	..

FOURTH YEAR.

Summer Work.

Essay. (See page 137.)

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.
Physics 9	195	2	..	2	..
Chemistry 6	163	2	..	2	..
Chemistry 8	163	3	..	..	..
Chemistry 9	163	2	3	2	3
Metallurgy 2	191	2	..	2	..
Thesis	...	..	18	..	18

III. Civil Engineering.

The aim of this course is to give the student a sound training in the fundamental scientific principles on which the practice of the profession is based, and in the various branches of general engineering which are most called for in the practice of the profession in this Province. Experience shows that graduates do not usually follow any narrow differentiation that they may make in their course, but are governed by many other factors which affect them after leaving college. In practice in British Columbia, in particular, the engineer is called upon to undertake work in various branches of the profession. The course is therefore adapted to the needs of the engineer who expects to enter the profession in this Province in general practice, or the student who wishes to take up a special branch of engineering in a post-graduate course. The instruction is given by means of lectures and practical work in the field, the draughting-room, and the laboratory, and by visits to works in regularly conducted class excursions.

During the earlier years of the course the training is along engineering lines in Mathematics, Physics, Mechanics, and allied subjects which are essential to the proper education of the

engineer who in practice is applying the principles of these sciences.

In the Third and Fourth Years, while the student's attention is devoted especially to the study of the courses in Civil Engineering, his outlook is broadened by courses in General Economics, General Geology, Engineering Law and Economics, as well as a brief introduction to the business side of the profession.

The subjects covered in each year follow in tabulated form:

FIRST AND SECOND YEARS.

As in other Engineering courses. (See pages 136 and 137.)

THIRD YEAR.

Summer Essay. (See page 137.)

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.
Geology 1	178	2	2	2	2
Civil Engineering 8	167	1	3	..	..
Civil Engineering 9	167	..	..	1	3
Civil Engineering 10	167	2	..	2	3
Civil Engineering 11	168	2	..	2	..
Civil Engineering 12	168	1	..	1	3
Mechanical Engineering 6	184	2	3	2	3
Electrical Engineering 1	186	2	2	2	2
Economics 1	174	2	..	2	..
Civil Engineering 13	168	..	6	..	4
Civil Engineering 14	169	2	..	2	..
Civil Engineering 15	169	1	3	..	..

Field Work.

Civil Engineering 16 (see page 169) will commence immediately after the spring examination.

FOURTH YEAR.*

Summer Essay. (See page 137.)

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.
Civil Engineering 17	170	2	6	2	6
Civil Engineering 18	170	2	..	2	..
Civil Engineering 19	171	1	..	1	..
Civil Engineering 20	171	1	..	1	..
Civil Engineering 21	172	2	..	1	..
Civil Engineering 22	172	2	3	2	..
Civil Engineering 23	173	..	..	2	..
Civil Engineering 24	173	2	..	1	3
Civil Engineering 25	173	1	3	2	6
Civil Engineering 26	174	Sat. mornings 20 weeks			

* Fourth Year not given in 1922-23, Courses 20, 21, 25, 26 being cancelled.

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. No attempt is made to give the student that intimate knowledge of the details of Electrical Engineering practice which practical experience alone can supply.

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.

† Note—The Third and Fourth Years in Electrical Engineering have been withdrawn and will not be given in 1922-23.

FIRST AND SECOND YEARS.

As in other Engineering courses. (See pages 136, 137.)

THIRD YEAR.*

Summer Work.

Essay. (See page 137.)

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.
Mechanical Engineering 4	183	2	..	2	..
Mechanical Engineering 5	183	1	3	1	3
Mechanical Engineering 6	184	2	3	2	3
Mechanical Engineering 7	184	1	6	1	6
Civil Engineering 9	167	..	..	1	3
Civil Engineering 10	167	2	..	2	..
Electrical Engineering 1	186	2	2	2	2
Electrical Engineering 2	187	2	2	2	..
Civil Engineering 12	168	1	..	1	3
Economics 1	174	2	..	2	..

FOURTH YEAR.†

Summer Work.

Essay. (See page 137.)

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.
Electrical Engineering 4	187	3	9	3	9
Electrical Engineering 5	187	1	..	1	..
Electrical Engineering 6	187	1	..	1	..
Electrical Engineering 7	188	1	3	1	3
Electrical Engineering 8	188	1	..	1	..
Mechanical Engineering 8	185	2	3	2	3
Mechanical Engineering 10	185	2	3	2	3
Mechanical Engineering 12	186	1	..	1	..
Civil Engineering 18	170	2	..	2	..
Civil Engineering 19	171	1	..	1	..

* Given as Third Year in Mechanical Engineering only, in 1922-23.
† Not given in 1922-23. Subject to change or cancellation.

V. Forest Engineering.

This course is intended primarily for students who wish to enter the lumbering industry in this Province. The course, therefore, is designed to give a thorough training in branches of engineering that are applied in the industry. At the same time a sufficient training is afforded in the sciences fundamental to forestry to enable a student to enter professional forestry, especially in this Province, where a knowledge of the special problems connected with the industry greatly increases the usefulness of the forester.

Vancouver contains large saw-mills, 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.

As in the Engineering courses, students are expected to obtain practical experience in their work during the summer vacations, as this is an essential supplement to the theoretical and practical work of the Session. (See pages 134, 135.)

The requirements for admission to this course are those set forth for admission to Applied Science. (See page 133.)

Students intending to enter this course are strongly urged to take the Biology option in their First Year Arts course.

FIRST YEAR.

As in other Engineering courses. (See page 136.)

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	180	3	..	3	..
Mathematics 7	180	2	..	1	..
Civil Engineering 3	165	1	..	1	..
Civil Engineering 4	165	..	..	..	3
Mechanical Engineering 3	183	1	..	1	..
Physics 4	195	2	..	2	..
Physics 3	195	2	3	2	3
Mechanical Engineering 2	182	1	3	1	3
Civil Engineering 5	165	..	3	..	3
Civil Engineering 6	166	2	..	2	..
Botany 1 †	162	2	2	..	..
Biology 1 †	162	2	2	2	2
Forestry 1	174	1	4	1	4
Forestry 2	175	1	..	1	..
Forestry 3	175	..	..	2	..

† If not already taken in Arts.

Field Work.

Civil Engineering 7 (see page 166) will commence immediately after the spring examination.

THIRD YEAR.

Essay. (See page 137.)

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.
Geology 1 (a)	178	2	2	..	..
Civil Engineering 8	167	1	3	..	..
Civil Engineering 9	167	..	..	1	3
Civil Engineering 10	167	2	..	2	3
Civil Engineering 11	168	2	..	2	..
Mechanical Engineering 6	184	2	3	2	3
Electrical Engineering 1	186	2	2	2	2
Economics 1	174	2	..	2	..
Civil Engineering 13	168	..	3	..	..
Civil Engineering 14	169	2	..	..	..
Forestry 4	175	..	..	2	..
Forestry 5	175	1	3	1	3
Forestry 6	176	..	..	2	..
Forestry 9	177	2	3	2	3

Field Work.

Civil Engineering 16 (see page 169) will commence immediately after the spring examination.

FOURTH YEAR.

Essay. (See page 137.)

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.
Forestry 7 and 8	176	..	..	1	2
Forestry 10	177	1	..	1	..
Forestry 11	177	1	..	1	..
Forestry 12	178	2	..	2	3
Forestry 13	178	4	4	4	4
Civil Engineering 12	168	1	..	1	3
Civil Engineering 17	170	2	6	..	..
Civil Engineering 18	170	2	..	2	..
Civil Engineering 19	171	1	..	1	..
Civil Engineering 22†	172	2	2	1	..
Civil Engineering 23	173	..	..	2	..
Civil Engineering 24	173	2	..	1	3

† Part of regular course omitted.

DEPARTMENT OF THE INTERIOR.

FOREST PRODUCTS LABORATORIES OF CANADA. VANCOUVER LABORATORY.

The above Laboratory was established in 1918 by the Forestry Branch of the Department of the Interior, as a permanent branch of the Forest Products Laboratories of Canada, McGill University, Montreal.

The purpose of the Laboratories is the testing of Western Canadian woods to establish their correct mechanical and physical properties.

A scheme of co-operation exists between the Laboratory and University by which students of the University have access to the Laboratory to watch the work being carried on, and by which

the apparatus may be used at times in testing the strength of materials.

The main apparatus consists of two Olsen Universal Testing Machines of 200,000-lb. and 30,000-lb. capacity, respectively, and one Hat-Turner Impact Machine, having three test weights of 50, 100, and 250-lb., respectively, and a drop of 6 feet. Woodworking machinery, consisting of saw-table, buzz planer, thickness planer, borer, etc., is also installed in connection with the Laboratory for the preparation of test specimens.

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.

FIRST YEAR.

As in other Engineering courses. (See page 136.)

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	180	3	..	3	..
Mathematics 7	180	2	..	1	..
Geology 1	178	2	2	2	2
Chemistry 2	163	1	6	1	6
Civil Engineering 3	165	1	..	1	..
Physics 4	195	2	..	2	..
Physics 3	195	2	3	2	3
Civil Engineering 5	165	..	3	..	3
Civil Engineering 6	166	2	..	2	..
Civil Engineering 15	169	1	3	..	..

Field Work.

Civil Engineering 7 (see page 166) will commence immediately after the spring examination.

THIRD YEAR.

Summer Work.

Essay. (See page 137.)

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.
Geology 2	178	2	2	2	2
Geology 3	178	3	..	..	..
Geology 4	178	..	..	3	..
Geology 5	178	3	1	3	1
Chemistry 4	163	..	..	2	..
Chemistry 5	163	1	6	1	6
Economics 1	174	2	..	2	..
Mining 1	188	1	..	2	..
Mining 5	190	..	..	1	..
Metallurgy 5	191	1	5	..	..
Metallurgy 1	190	2	..	2	..
Ore Dressing 1	192	2	..	2	..
Zoology 3	197	2	2	..	..
Civil Engineering 13	168	..	..	..	3

FOURTH YEAR.

Summer Work.

Essay. (See page 137.)

Subject.	For Details See Page:	First Term.		Second Term.	
		Lectures per Week.	Laboratory Hours per Week.	Lectures per Week.	Laboratory Hours per Week.
Geology 6	178	2	2	2	2
Geology 7	178	2	4	2	4
Geology 8	178	3	1	3	1
Civil Engineering 18	170	2	..	2	..
Geology 10	178	..	3	..	3
Mining 2	189	2	..	2	..
Mining 3	189	2	..	2	..
Metallurgy 2	191	2	..	2	..
Ore Dressing 2	192	..	9	..	3
Civil Engineering 8	167	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.

The courses of the First and Second Years are the same as in other branches of Engineering. (See pages 136 and 137.)

THIRD YEAR.

As in Electrical Engineering. (See page 144.)

FOURTH YEAR.

Summer Work.

Essay. (See page 137.)

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.
Mechanical Engineering 8..	185	2	3	2	3
Mechanical Engineering 9..	185	1	6	..	6
Mechanical Engineering 10.	185	2	5	2	5
Mechanical Engineering 11.	185	1	..	1	..
Mechanical Engineering 12.	186	1	..	2	..
Mechanical Engineering 13.	186	..	..	1	3
Mechanical Engineering 14.	186	1	..	1	..
Electrical Engineering 3...	187	2	3	2	3
Civil Engineering 18	170	2	..	2	..
Civil Engineering 19	171	1	..	1	..

VIII.-IX. Metallurgical and Mining Engineering.

These courses are intended to give a broad foundation in Mining or Metallurgical Engineering that will form a suitable introduction to any branch of the work that aptitude or circumstances may lead the student to enter after graduation.

Special attention is therefore given to the fundamental sciences upon which the practice of the profession is based. As the usual avenues toward professional work are through draughting, surveying, and assaying, special attention will be given to training in these branches of the work.

Specialization does not begin until the Third Year, when courses in Mining, Metallurgy, Ore-dressing, Assaying, and Mine Surveying are commenced, but the chief work of the Third Year is still in such fundamental subjects as Applied Mechanics, Mechanical Engineering, Chemistry, Geology, and Mineralogy.

Instruction is given by means of lectures and practical work in the field, draughting-room, and laboratory, and by visits to mines and works. Students are recommended to spend their vacations at practical works in connection with Mining or Metallurgy, and are required to do so between the Third and Fourth Years.

Vancouver 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 of the city, while a number of mining companies have offices in the city itself. Students have little difficulty in obtaining positions in mines or in smelters during vacations, as several of the larger companies have established the practice of accepting student employees in reasonable numbers during the vacation months.

Special attention is paid to British Columbia conditions, fitting students to practise their profession to special advantage in this Province after graduation either in Mining or Metallurgy.

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

VIII. Metallurgical Engineering.

FIRST AND SECOND YEAR.

As in other Engineering courses. (See pages 136 and 137.)

THIRD YEAR.

Summer Work.

Essay. (See page 137.)

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.
Economics 1	174	2	..	2	..
Civil Engineering 10	167	2	..	2	..
Civil Engineering 13	168	..	3	..	..
Civil Engineering 9	167	..	..	1	3
Mechanical Engineering 6	184	2	3	2	3
Geology 1	178	2	2	2	2
Geology 2	178	2	2	2	2
Chemistry 5m	163	1	3	1	3
Mining 1	188	1	..	2	..
Mining 5	190	..	..	1	..
Metallurgy 5	191	1	5	..	..
Metallurgy 1	190	2	..	2	..
Ore Dressing 1	192	2	..	2	..
Civil Engineering 12	168	1	..	1	3

FOURTH YEAR.

Summer Work.

Essay. (See page 137.)

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.
Geology 8	178	3	1	3	1
Electrical Engineering 1	186	2	2	2	2
Ore Dressing 2	192	..	9	..	9
Civil Engineering 18	170	2	..	2	..
Mining 3	189	2	..	2	..
Metallurgy 2	191	2	..	2	..
Metallurgy 3	191	2	..	2	..
Metallurgy 4	191	..	9	..	9
Chemistry 8	163	3	..	..	..

IX. Mining Engineering.

FIRST AND SECOND YEARS.

As in other Engineering courses. (See pages 136 and 137.)

THIRD YEAR.

As in Metallurgical Engineering. (See page 153.)

FOURTH YEAR.

Summer Work.

Essay. (See page 137.)

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.
Geology 7	178	2	4	2	4
Geology 8	178	3	1	3	1
Electrical Engineering 1	186	2	2	2	2
Mining 6	190	..	3	..	3
Ore Dressing 2	192	..	9	..	9
Civil Engineering 18	170	2	..	2	..
Mining 2	189	2	..	2	..
Mining 3	189	2	..	2	..
Mining 4	189	1	..	1	..
Metallurgy 2	191	2	..	2	..

Short Course in Mining.

The regular Short Courses in Mining for the Session of 1922-23 will commence the second Monday in January, 1923, 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 designed 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.

This course will not be given unless at least ten students register for it.

X. Nursing.

The University of British Columbia, in conjunction with approved training schools for nurses in this Province, offers a five years' course in Nursing, leading to the degree of B.A.Sc. (Nursing). 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 public health nursing service.

The requirements for admission for this course are those set forth for Junior Matriculation. (See page 38.)

The degree will be granted upon the successful completion of a five years' course, consisting of University work and Hospital training.

The latter may be taken in any institution that is of the standard set by the University, and that has made application and submitted evidence of fitness to the University, and has been approved of by the University.

Until 1925, nurses who have graduated from a hospital that is in affiliation with this 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 take, or shall have taken, the full academic training laid down for this course. At least one year of such training shall be, or shall have been, taken in the University of British Columbia.
3. Except under special circumstances the course shall be entered upon within two years of the time of graduating as a nurse.

The curriculum, as outlined below, is subject to alteration at any time.

FIRST YEAR.

1. English 1 (a) and (b).
2. Mathematics 1 *or* Latin 1 *or* French 1 *or* History 1, 2, or 3.
3. Physics 1.
4. Chemistry 1.
5. Biology 1.

If she has not already done so, the student must enter an approved Training School for Nurses in May at the close of the First Year, and take the ordinary four months' Preparatory Course for Probationers. During this period the student will undergo (*a*) rigid physical examination, (*b*) examination as to fitness in temperament and character for nursing.

SECOND YEAR.

1. English 2 (a) and (b).
2. Chemistry 2.
3. Philosophy 1.
4. Economics 1.
5. Bacteriology 1 and 2.

THIRD AND FOURTH YEAR.

The Third and Fourth Years will be spent in practical training in an approved Hospital, but students must register with the University. (For registration see page 51.)

During this portion of the course the pupil, though registered at the University, resides at the Hospital, and while there is subject to the authority and is under the direction of the Officers of the Training School. She receives full maintenance and such allowances as the Hospital authorities may designate. For information regarding courses of instruction given during the Hospital portion of the course, see page 193.

FIFTH YEAR.

In the Fifth Year the student will attend the Session of the University. Two major subjects are offered, of which the student, with the consent of her advisers, may elect either (*a*) Teaching and Administration in Schools of Nursing, or (*b*) Public Health Nursing.

Course A.—*Teaching and Administration in Schools of Nursing.*

Academic Work.—A course of lectures in each of the following:—

(*a*) Introduction to Education.
(*b*) Teaching of Nursing principles and methods.
(*c*) History of Nursing and contemporary problems.
(*d*) Nutrition.
(*e*) Sanitation and Hygiene.
(*f*) Economics and Social Legislation.
(*g*) Mental Hygiene.

Field Work.—Students electing this option 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.*

Academic Work.—A course of lectures in each of the following:—

(*a*) Motor mechanics. (*b*) Nutrition. (*c*) Communicable diseases. (*d*) Sanitation and Hygiene. (*e*) Tuberculosis. (*f*) Child Welfare. (*g*) Public Health Nursing. (*h*) School

Nursing. (*i*) Social Service. (*j*) History of Nursing. (*k*) Psychology and Teaching Principles. (*l*) Economics and Social Legislation. (*m*) Mental Hygiene. (*n*) Health Legislation.

Students electing Public Health Nursing as their major subject will have suitable field work arranged for them in conjunction with the Department of Public Health, and in selected cases, with the consent of the Department, may specialize in some one branch of Public Health Nursing.

XI. Public Health.

Through the generosity of the Provincial Branch of the Canadian Red Cross Society in providing the salaries of the staff, a Department of Public Health has been established. The regular course leading to the degree of B.A.Sc. is the same as in Nursing Course X, excepting that in the fifth year Course B, Public Health Nursing, must be taken.

The short course for Graduate Nurses is outlined on pages 195-197.

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 and Mathematics 2 must be taken.

Civil Engineering 1 will be taken as an additional subject in the Second Year.

Chemistry 1 must not be taken, as it is a Third Year subject.

French and Biology should be selected by students intending to enter Geological Engineering, and Biology by those intending to enter Forest 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 foreign language;

   History;

   Economics;

   Philosophy;

   Biology;

2. Chemistry.

3. Mathematics 1, 2, 3, 4, 5, Applied Science.

4. Physics 1 and 2 Applied Science.

5. Mechanical Drawing 1 Applied Science.

Civil Engineering 2 (Field Work) will be taken immediately after the spring examination by all except those intending to enter Chemistry (Course II).

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 IN APPLIED SCIENCE.

1. There are two examinations in each year—one at Christmas and the other at the end of the session. Successful students are arranged in three classes, as follows: First class, those who obtain 80 per cent. or more; Second class, 65 to 80 per cent.; Passed, 50 to 65 per cent.

Christmas examinations will be held in all subjects of the First and Second Years, and are obligatory for all students of these years. Christmas 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 in the matter of examinations on account of illness must be in the hands of the Dean not later than two days after the close of the examination period.

Any student whose academic record, as determined by the tests and examinations of the first term, is found to be unsatisfactory, may, upon the recommendation of the Faculty, be required by the Senate to discontinue attendance at the University for the remainder of the session.

A student who fails to pass in the final examinations of his year, may, upon the recommendation of the Faculty, be required by the Senate either to repeat his year, or to withdraw from the Faculty.

For Classes of Students, see page 53.

2. Except in special cases as provided below, no undergraduate or conditioned undergraduate shall be permitted to take any second-year subjects until he has passed or secured exemption in all Matriculation and First Year Arts requirements; and, similarly, no third-year work may be undertaken until all first-year subjects shall have been passed or exemption granted. No fourth-year work may be undertaken until all second-year subjects shall have been passed or exemption granted.

3. No student proceeding to a degree 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.

SUPPLEMENTAL EXAMINATIONS.

4. Notice will be sent to all students to whom Faculty has granted supplemental examinations.

5. Examinations supplemental to the sessional examinations will be held in September, simultaneously with the matriculation examinations. The time for each supplemental examination will be fixed by the Faculty; the examination will not be granted at any other time, except by special permission of the Faculty, and on payment of a fee of $7.50.

6. *Applications for supplemental examinations,* accompanied by the necessary fees (see page 55), must be in the hands of the Registrar at least two weeks before the date set for the examinations.

7. *Repeating Year.*—By special permission of the Faculty, a student who is required to repeat his year may, *on application in writing,*—

(*a*) Be exempted from attending lectures and passing examinations in the subjects in which he has already passed, provided he has made therein a standing of 60 per cent. or over.

(*b*) And if so exempted, be permitted to take, in addition to the subjects in which he has failed, such subjects of the following year of his course as the Faculty may deem expedient.

COURSES OF INSTRUCTION, APPLIED SCIENCE.

N.B.—The following courses are subject to such modifications during the year as the Faculty may deem advisable.

Department of Botany.

Professor: A. H. Hutchinson.
Assistant Professor: John Davidson.
Lecturer in Plant Pathology: J. W. Eastham.

Biology.

Biology 1.—*General Biology.*—As in Arts.
" 2.—*Principles of Heredity.*—As in Arts.
" 3.—*General Physiology.*—As in Arts.

Botany.

Botany 1. —*General Botany.*—As in Arts.
" 2. —*Morphology.*—As in Arts.
" 3. —*Physiology.*—As in Arts.
" 4. —*Histology.*—As in Arts.
" 5(*a*).—*Economic Flora.*—As in Arts.
" 5(*b*).—*Dendrology.*—As in Forestry 5.
" 6(*a*).—*General Plant Pathology.*—As in Arts.
" 6(*b*).—*Forest Pathology.*—As in Forestry 7.
" 7(*a*).—*Forest Ecology.*—As in Forestry 6.

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: Ruth Fulton.
Assistant: J. Allardyce.
Assistant: A. E. Boss.
Assistant: Freda Handford.
Assistant: Violet E. Dunbar.
Assistant: K. B. Gillie.

1. *General Chemistry.*—As in Arts.
2. *Qualitative and Quantitative Analysis.*—As in Arts.

3. *Organic Chemistry.*—As in Arts.

4. *Theoretical Chemistry.*—As in Arts.

5. *Advanced Qualitative and Quantitative Analysis.*—As in Arts.

5 *m.*—For mining students, one hour lecture and three hours' laboratory.

6. *Industrial Chemistry.*—As in Arts.

7. *Physical Chemistry.*—As in Arts.

8. *Applied Electro-Chemistry.*—As in Arts.

9. *Advanced Organic Chemistry.*—As in Arts.

Department of Civil Engineering and Surveying.

Professor:
Associate Professor: E. G. Matheson.
Lecturer: W. H. Powell.
Instructor: A. Lighthall.
Instructor: G. M. Irwin.
Lecturer: F. A. Wilkin.
Lecturer: J. R. Grant.

First Year.

CIVIL ENGINEERING 1.

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

Two lectures and four hours' laboratory per week.
Text-book: Armstrong, *Descriptive Geometry,* Wiley.

Second Year.

CIVIL ENGINEERING 2.

Field Work.—

(1) *Telemeter and Compass.*—A closed circuit following Marine Drive and the road boundary of The University site at Point Grey.
Closing Error, 1 in 100. Time, 1 day.

(2) *Chain and Compass.*—Traverse of the newly cleared portion of The University site. Calculation of Area. Established Stations to be occupied by each party. Latitudes and Departures to be calculated when work is being done.

Closing Error, 1 in 500. Time, 2 days.

(3) *Chain and Transit.*—Traverse of the cultivated portion of The University site (except the area occupied by the Horticultural Department). All Buildings, Roads, Fences, etc., to be noted for mapping purposes. Angles to be measured, using both Deflection and Plate Azimuth methods. The lines to be calculated and run directly across the farm from West to East. Obstacles to be passed by right-angled offsets.
Closing Error, 1 in 5000. Time, 8 days.

(4) *Establishment of Bench Marks* at beach by comparison with tide tables. Connection of same with Bench Marks established by the Geodetic Survey (one on the Dairy Barn, one on Monument P). Profile of Main Roadway. Marine Drive to Dairy Barn. Macadam Road. Dairy Barn to Marine Drive. Contour carefully a given section of the Farm, using different methods of location. Hand level practice.
Time, 5 days.

(5) *Detail Survey.*—Oak Street to Heather, Tenth Avenue to Twelfth. This will form the basis for one of the maps to be plotted during the College year, and accurate notes must be taken by each and every student.
Time, 3 days.

Extra days may be utilized for special problems.

All calculations to be made as the field work progresses. Sufficient notes to be copied that there shall be no confusion in the draughting room.

All undergraduates completing the First Year—except those taking the Chemistry Course 2 and Nursing.

CIVIL ENGINEERING 3.

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

Second Year Students. One hour per week.

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

Reference Books: Mills, *Materials of Engineering.* Johnson, *Materials of Construction.* Upton, *Materials of Engineering.*

CIVIL ENGINEERING 4.

Graphical Statics.—Composition of forces; general methods involving the use of funicular and force polygons; determination of reactions, centres of gravity, bending moments and moments of resistance; stresses in cranes, braced towers, roof-trusses, and bridge-trusses. The stresses shall be found also by the Algebraic method.

Laboratory period of three hours during the Second Term.

Required of all Engineering students.

Text-book: Johnson, Bryan and Turneaure, *Modern Framed Structures,* Vol. 1 to end of Section III, page 156, Wiley.

Prerequisites: Mathematics 1, Mechanics 1 and 2.

CIVIL ENGINEERING 5.

Mapping 1. — Draughting from notes obtained in Field Work 1.

1. *Telemeter Survey.*—Angles to be plotted by protractor method. Scale, 1 inch=200 feet.

2. *Compass Survey.*—To be plotted by Latitudes and Departure method. Scale, 1 inch=3 chains.

3. *Transit Survey.*—Angles to be plotted by Tangents and Chords. Scale, 1 inch=200 feet.

4. *Contours.*

5. *Detail Survey.*—Scale, 1 inch = 50 feet. This map may be tinted in water colors.

6. Mine plan from notes furnished.

7. Land plan from notes furnished.

All undergraduates in Second Year except those taking Chemistry Courses.

Three hours per week.

CIVIL ENGINEERING 6.

Surveying I.—Lectures. Chain and angular surveying. The construction, adjustment and use of the transit, level, compass, stadia, and minor field instruments; topography; levelling; contour surveying; stadia surveying; railway circular curves; vertical curves; transition curves; planimeter; pantograph.

Second Year students. Two hours per week.

Text-book: Breed and Hosmer, *Elementary Surveying,* Vol. I., Wiley.

Reference Books: Gillespie, *Surveying,* Vol. I. Nugent, *Plane Surveying.* Baker, *Engineers' Surveying Instruments.* Allen, *Curves and Earthwork.* Sullivan, *Spiral Tables,* McGraw-Hill.

Third Year.

CIVIL ENGINEERING 7.

Field Work 2.—(*a*) Railway surveys, including reconnaissance, preliminary and location surveys, illustrating the methods of taking topography; of cross-sectioning; of estimating quantities of earth, and of running in easement and vertical curves, etc. The notes secured will be used in class work during term for mapping and for estimating quantities and costs.

(*b*) *Hydrographic Surveys.*—This will include the topography of the bed of a section of a river by sounding and fixing positions by transits and by sextants, illustrating the three-point problem; the gauging the stream-flow by surface and deep floats and by the current meter.

(*c*) *Mine Surveys.*—Carrying lines down shafts and producing the same.

(*d*) Astronomical observations with sextant and transit to determine Latitude and Azimuths.

(*e*) The use of the transit, plane table, sextant, barometer, current meter, etc.

CIVIL ENGINEERING 8.

Foundations and Masonry.—Borings; bearing power of soils; pile and other foundations; coffer-dams; caissons; open dredging; pneumatic and freezing processes; estimates of quantities and costs.

One hour lecture and three hours' laboratory during First Term.

Text-book: Howe, *Foundations,* Wiley.

Reference Books: Baker, *Treatise on Masonry Construction,* Wiley. Jacoby and Davis, *Foundations of Bridges and Buildings,* McGraw-Hill, New York.

CIVIL ENGINEERING 9.

Building Design.—Problems in draughting, illustrating designs in structural engineering; estimates of quantities and costs; preparation of plans.

One hour lecture and three hours' laboratory during Second Term.

Text-book: Conklin, *Structural Draughting and Elementary Design,* Wiley.

Prerequisites: Structural Engineering 1; General Engineering 2. First Term.

CIVIL ENGINEERING 10.

Strength of Materials.—Lectures dealing with the fundamental principles of the strength of materials. The subject includes stress, strain, resilience; bending moment and shearing force diagrams; simple, continuous, and cantilever beams; strength of shafting; spiral springs; elementary consideration of compound stresses and shearing in different sections.

Strength of Materials in Laboratory.—Testing of concrete, timber, steel, and other materials to illustrate the theories and factors considered in the lectures.

Text-book: Boyd, *Strength of Materials,* McGraw-Hill.

Third Year students. Two hours a week, with one laboratory period per week offered during the Second Term.

Prerequisite: Mathematics and Mechanics of the First and Second Years.

CIVIL ENGINEERING 11.

Railway Engineering 1.—The inception of railway projects; reconnaissance, preliminary and location; grade problems, grades, curvature and distance, and their effects on operating costs; assistant engines; adjustment of grades for unbalanced traffic; construction; improvement of old lines; railway economics, traffic, revenue, branch lines, yards and terminals.

Two lectures per week.

Text-books: Allen, *Railroads, Curves and Earthwork,* McGraw-Hill. Williams, *Design of Railway Location,* Wiley.

CIVIL ENGINEERING 12.

Hydraulic Engineering and Laboratory.—

Hydrostatics.—Design of Standpipes, Reservoirs and Dams.

Hydrodynamics.—Fundamental principles and application of same to problems on the discharge of orifices, notches and weirs; flow in pipes and in open channels, such as ditches and flumes; practical field measurements of above. Examination of hydraulic developments.

Third Year students in Civil Engineering.

Fourth Year students in Chemical Engineering.

One hour per week First Term; four hours per week Second Term.

Text-book: Russell, *Hydraulics,* Holt.

Prerequisites: Mechanics and Mathematics of First and Second Years.

CIVIL ENGINEERING 13.

Mapping 2 and Map Projections.—

Draughting from notes obtained on Field Work of railway location and hydrographic survey.

Theory of, and practical work in Map Projections.

Location and design of pipe line for hydraulic development from notes of survey furnished; estimate of cost, etc.

Third Year students Metallurgical and Mining Engineering. Three hours per week. First Term.

Third Year students Civil Engineering. Six hours per week First Term, four hours per week Second Term.

CIVIL ENGINEERING 14.

Surveying 2.—A continuation of Surveying 1.

Theory and use of instruments, Aneroid, Sextant, Plane Table Surveying, Mine Surveying, Hydrographic Surveying, Phototopographic Surveying, Dominion and Provincial Surveys, Field Astronomy.

Third Year students in Civil Engineering.

Two hours per week.

Text-book: Breed and Hosmer, *Surveying*, Vol. II., Wiley.

Reference Books: 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.*

CIVIL ENGINEERING 15.

Perspective Drawing.—Mathematical perspective; perspective of shadows.

One lecture and three hours' laboratory. First Term.

Text-book: Crosskey, *Elementary Perspective,* Blackie & Son, London.

CIVIL ENGINEERING 16.

Field Work 3.—The following work shall be performed by each student or group of students:—

1. Determination of latitude—
   (*a*) By transit and sextant observations of polaris.
   (*b*) Noon observations with transit and sextant.

2. Determination of azimuth—
   (*a*) By equal altitude observations of the sun.
   (*b*) By observation of elongation of polaris.
   (*c*) By observation of circumpolar star and also of polaris.
   (*d*) By means of solar attachments and solar compass.
3. Determination of time—
   (*a*) By equal altitude observations of the sun with the sextant and transit.
   (*b*) By observation of meridian passage of stars with transit.
4. Baseline measurements.
5. Precision levelling.
6. Measurements of angles by geodetic methods.
7. Plane table surveys.

Fourth Year.

CIVIL ENGINEERING 17.

Bridge Design.—In this subject the factors governing the selection of the most suitable type of bridge will be considered; the loads to which structures may be subjected will be discussed; the stresses in the several members calculated; the cross-sectional forms and areas chosen; the connections designed and complete drawings made.

Two lectures and six hours' laboratory.

Text-book: Johnson, Bryan & Turneaure, *Modern Framed Structures,* Vol. III., Wiley.

CIVIL ENGINEERING 18.

Engineering Economics.—Students must understand simple and compound interest and all the elements of the latter as a prerequisite.

The subject shall include the consideration of: Sinking funds; first-cost; cost analysis; salvage and scrap values; yearly cost of service; collecting data; estimating; economic selection.

Specification and contract writing; general management; banking; partnerships and corporations; stocks; bonds; operating and fixed charges; business finance and organization; capital; interpretation of financial statements.

Text-books: Fish, *Engineering Economics,* McGraw-Hill. Waddell and Wait, *Specifications and Contracts,* McGraw-Hill. Anger, *Digest of Canadian Mercantile Law,* chapters on banking; contracts; partnerships; joint stock companies.

Two hours per week.

CIVIL ENGINEERING 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 damages clauses; maintenance and defect clauses; subcontractors; engineer's assistant or agent; arbitration and awards, etc.

Students must read: Anger, *Digest of Canadian Mercantile Law of Canada;* chapters on Banks and Banking; Chattel Mortgages; Mortgages; Contracts; Joint Stock Companies; Landlord and Tenant; Master and Servant; Mechanics' Lien Act; Negotiable Paper; Partnership; Principal and Agent; Statute of Limitations; also notes on Law of Contracts in *Specifications and Contracts,* by Waddell and Wait; also the *Law Affecting Engineers,* by Ball. All are in Library.

One hour per week.

CIVIL ENGINEERING 20.*

Geodesy.—

The lectures in this subject shall cover the determinations of azimuth, longitude, latitude, time, the figure of the earth, measurements of base lines, triangulation systems, adjustments and reductions of observations, and precision levelling.

One hour per week.

* Not given in 1922-23.

CIVIL ENGINEERING 21.*

Hydraulic Machines.—

The design of turbines and centrifugal pumps shall be determined by the application of the principles of hydraulics. The leading dimensions of different machines will be ascertained. The several forms of machines and the methods of their control or operation will be carefully considered, as well as the transmission of hydraulic power.

Two hours per week First Term, one hour per week Second Term.

CIVIL ENGINEERING 22.

Municipal Engineering.—

1. *Water Supply.*—Rainfall; evaporation; run-off; quantity, quality and pressure required; pumping machinery; storage; aqueducts, pipe lines and distribution systems; valves; hydrants; purification systems; fire service; construction methods; materials, estimates and designs; costs.

2. *Sewerage*—

(*a*) General methods and economic considerations; quantity of sewage; storm water run-off; design of sewers; manholes; flush tanks; catch basins, overflows, outlets, siphons, etc.; construction methods, materials, 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.

3. *Roads, Streets and Pavements*—

(*a*) Highway economics, surveys and locations; grades; cross-sections; paving materials—bituminous, stone, brick, wood, concrete, etc.; construction methods; street cleaning and repairs; designing and estimating.

(*b*) Disposal of waste, etc.: Composition and quantity of city wastes, ashes, garbage, rubbish, etc.; collection, disposal,

* Not given in 1922-23.

dumping, land treatment; incineration; reduction; feeding to swine; costs and returns.

(c) Town planning: Covering the economical and artistic development of a city.

Two hours' lectures per week throughout the year.

Three hours' laboratory period per week, First Term.

CIVIL ENGINEERING 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.

Two hours' lectures per week, Second Term.

CIVIL ENGINEERING 24.

Mechanics of Materials.—

The bending and deflection of beams loaded in any manner; continuous beams over several supports; distribution of shear; deflection due to shear; principle of work applied to deflection of beams; trussed beams; bending of unsymmetrical sections; elastic strains; strength of thick shells; earthwork theories, retaining walls, reinforced concrete and other; design of floor and column systems for reinforced concrete buildings; study of standard specifications.

Two hours' lectures per week First Term, and one hour Second Term. Three hours' laboratory per week Second Term.

CIVIL ENGINEERING 25.*

Theory of Structures.—

The analysis of statically determinate framed structures under dead and live loads; distortion of framed structures; swing spans; braced arches; hinged arched ribs; hingeless reinforced concrete arches.

* Not given in 1922-23.

One lecture and three hours' laboratory per week, First Term. Two lectures and six hours' laboratory per week, Second Term.

CIVIL ENGINEERING 26.*

Class Excursions.—

The class, under the guidance of a professor, will visit such factories, industrial developments, public works, docks, shipyards, etc., as are calculated to best assist the student to grasp fully the application and scope of the studies he has pursued in his college career.

Department of Economics.

Professor: T. H. Boggs.
Associate Professor: H. F. Angus.
Assistant Professor: S. E. Beckett.
Assistant: L. T. Fournier.

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, 1915.

Two lectures per week. **2 units.**

Department of Forestry.

Associate Professor of Forestry: H. R. Christie.
Professor of Botany: A. H. Hutchinson.
Assistant Professor of Botany: John Davidson.

Introductory Biology and General Economic Botany 1.—As under Botany in Arts.

FORESTRY 1.

Forest Mensuration.—Log scaling, timber cruising, volume tables, growth studies, yield tables.

One lecture and four hours' field or laboratory work per week.

Text-book: Chapman, *Forest Mensuration,* Wiley.

* Not given in 1922-23.

FORESTRY 2.

General Forestry.—A general survey of the subject.

One lecture per week.

Text-book: Fernow, *Economics of Forestry,* Toronto University Press.

References: Whitford and Craig, *Forests of British Columbia,* Commission of Conservation, Ottawa. Pinchot, *Primer of Forestry,* Superintendent of Documents, Washington. Moon and Brown, *Elementary Forestry,* Wiley.

FORESTRY 3.

Forest Protection.—The fire problem, legislation, organizations, prevention and control.

One lecture per week.

Text-book: *Western Fire Fighters' Manual,* Western Forestry and Conservation Association, Portland, Ore. Millar, *Methods of Communication Adapted to Forest Protection,* Dominion Forestry Branch, Ottawa.

FORESTRY 4.

Forest Finance.—A study of the financial aspects of Forestry, compound interest, methods of determining costs and values, appraisal of damage, taxation, etc.

Two lectures per week. Second Term.

Text-book: Roth, *Forest Valuation,* University of Michigan.

Reference Books: Chapman, *Forest Valuation,* Wiley. Woodward, *Valuation of North American Timber Lands,* Wiley.

FORESTRY 5.

Botany 5 (*b*).—*Dendrology, or Forest Botany.*—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.

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

Text-books: Morton and Lewis, *Native Trees of Canada,* Dominion Forestry Branch, Ottawa. Sudworth, *Forest Trees of the Pacific Slope,* Superintendent of Documents, Washington, D. C. Henry, *Flora of Southern British Columbia,* Gage.

Reference Books: Sargent, *Manual of the Trees of North America,* Houghton Mifflin. Hough, *Handbook of the Trees of the Northern States and Canada,* Hough, Lowville, N.Y. Blakeslee and Jarvis, *Trees in Winter,* Macmillan. Gray, *New Manual of Botany,* American Book Co. Britton, *North American Trees,* Holt.

FORESTRY 6.

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

Two lectures per week. Second Term. Field trips during year amounting to thirty hours.

Reference Books: Schimper, *Plant Geography,* Clarendon Press. Warming, *Ecology of Plants,* Clarendon Press. Clements, *Plant Succession,* Carnegie Institution, Washington, D.C. Bowman, *Forest Physiography,* Wiley.

FORESTRY 7.

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

One lecture and two hours' laboratory work per week during one-half of one term.

Reference Books: Rankin, *Manual of Tree Diseases,* Macmillan. Various Government Bulletins, Canada and the United States.

FORESTRY 8.

Forest Entomology.—Nature, identification, and control of the more important insect enemies of the forest.

One lecture and two hours' laboratory work per week during one-half of one term.

Reference Books: Swaine, *Canadian Bark Beetles,* Dominion Entomological Branch, Ottawa. Various Government Bulletins, Canada and the United States.

FORESTRY 9.

Timber Physics and Wood Technology.—The structure of wood; the identification of different woods and their qualities and uses; wood preservation; emphasis on the Canadian woods of commercial importance.

Two lectures and three hours' laboratory work per week.

Text-books: Record, *Economic Woods of the United States,* Wiley. Record, *Mechanical Properties of Wood,* Wiley.

Reference Books: Weiss, *Preservation of Structural Timber,* McGraw-Hill. Snow, *Wood and Other Organic Structural Materials,* McGraw-Hill. Various Government Bulletins.

FORESTRY 10.

Forest Organization.—The principles and methods of organizing forest areas for business management. Normal forest, increment, rotation, felling budget, working plans.

One lecture per week.

Text-book: Roth, *Forest Regulation,* Roth, University of Michigan.

Reference Books: Recknagel and Bentley, *Forest Management,* Wiley. Recknagel, *Forest Working Plans,* Wiley.

FORESTRY 11.

History of Forestry and Forest Administration.—The development of Forestry in different parts of the world, with particular emphasis on Canada. Forestry policy, legislation, and education.

One lecture per week.

Text-book: Fernow, *History of Forestry,* University Press, Toronto.

Reference Books: Ise, *The United States Forest Policy,* Yale. Various Government publications.

FORESTRY 12.

Silviculture.—Principles and methods of caring for forests and growing timber crops.

Two lectures per week during the year, and three hours' field work during the Second Term.

Text-book: Hawley, *Practice of Silviculture,* Wiley.

Reference Books: Graves, *Principles of Handling Woodlands,* Wiley. Toumey, *Planting and Seeding,* Wiley. Wolsey, *Studies in French Forestry,* Wiley.

FORESTRY 13.

Forest Utilization.—A study of the principles and practice of logging, manufacturing, and marketing.

Four lectures and four hours' laboratory or field work per week.

Reference Books: Bryant, *Logging,* Wiley. Brown, *Forest Products, Their Manufacture and Use,* Wiley. Tiemann, *The Kiln Drying of Lumber,* Lippincott. Leete, *Lumbering and Woodworking Industries in the United States and Canada,* Government of India, Simla.

Department of Geology and Mineralogy.

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.
Assistant: L. V. Miller.

Geology 1. *General.*—As in Arts.
" 2. *Mineralogy.*—As in Arts.
" 3. *Historical.*—As in Arts.
" 4. *Structural.*—As in Arts.
" 5. *Regional.*—As in Arts.
" 6. *Palaeontology.*—As in Arts.
" 7. *Petrography.*—As in Arts.
" 8. *Economic.*—As in Arts.
" 10. *Field.*—As in Arts.

Department of Mathematics.

Professor: Daniel Buchanan.
Associate Professor: G. E. Robinson.
Assistant Professor: E. E. Jordan.
Assistant Professor: L. Richardson.
Instructor: B. S. Hartley.
Instructor: John Henry.

MATHEMATICS 1.

Plane Trigonometry.—An elementary course, including the solution of triangles and the use of logarithms, inverse and hyperbolic functions.

Text-book: Playne and Fawdry, *Practical Trigonometry.*

Two lectures per week. First Term.

MATHEMATICS 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.*

Two lectures per week. Second Term.

MATHEMATICS 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.*

Three lectures per week.

MATHEMATICS 4.

Analytical Geometry and Calculus.—The straight line and circle will be studied in detail, and some of the simple properties of the other conics will be discussed. An introductory study of the differential and integral calculus will be made, and some of the simpler applications considered. An introductory study of the calculus will be made.

Text-book: Tanner and Allen, *Brief Course in Analytical Geometry.*

Two lectures per week.

MATHEMATICS 5.

Astronomy.—Lectures on selected topics, including systems of co-ordinates, the constellations, parallax, aberration, the shape and motions of the earth, gravitation, planetary motion, time.

One lecture per week.

MATHEMATICS 6.

Calculus.—Differential and integral calculus with various applications.

Three lectures per week.

MATHEMATICS 7.

Analytical Geometry and Spherical Trigonometry.—A continuation of Course 4, including a study of the curves occurring in engineering practice, and elementary work in three dimensions. Numerical work in spherical trigonometry covering the solution of triangles and various applications to geodesy and astronomy. The method of least squares.

Text-books: Tanner and Allen, *Brief Course in Analytical Geometry.* Dupuis and Matheson, *Spherical Trigonometry and Astronomy.*

Two lectures per week, First Term, and one lecture per week, Second Term.

Department of Mechanical and Electrical Engineering.

Professor: L. W. Gill.
Associate Professor: C. C. Ryan.
Instructor in Mechanical Drawing and Shopwork: H. P. Archibald.
Assistant: E. M. Coles.
Instructor in Thermo Laboratory: E. G. Parsons.
Instructor in Machine Shop: H. Taylor.
Instructor in Steam Laboratory: J. W. Faulkner.
Assistant in Workshop, Mechanical Engineering: C. H. Barker.
Assistant (Moulder): J. Crowley.
Assistant (Draughtsman): F. McCrady.
Assistant (Woodworker): S. Northrop.

MECHANICAL DRAWING 1.

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 drawing from assembly drawings. Tracing and blueprinting.

Six hours per week. 2 units.

MECHANICAL ENGINEERING 1.

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.

After the session 1922-3 practice in shopwork will be discontinued as part of the university courses in applied science. Students applying for admission to any one of these courses (excepting the course in Nursing) in 1923 or thereafter will be required to present a certificate (or certificates) indicating that they have devoted at least 180 hours to practice in woodworking, including bench and lathe work. This work may be done in a high school, a technical school or an approved inudstrial establishment. Certificates will be accepted from principals of high and technical schools which are equipped with facilities for doing this work, and also from the official in charge of such industrial establishments as may be approved. Each certificate must indicate not only the amount of time spent on this work by the student, but also that he has satisfactorily performed the tasks assigned to him.

In addition to the above, all students proceeding to a degree in Mechanical or Electrical Engineering will be required to present certificates indicating that they have devoted to the other branches of shopwork the periods of time as specified below, and have satisfactorily executed the work assigned to them: Metal-working, including bench-work, lathe-work, shaping, planing, drilling, milling, gear-cutting, and tool-dressing—200 hours; smithwork—40 hours; foundry-work—80 hours. Cer-

tificates covering this work will be required before students are allowed to proceed to the work of the third year of their course.

Note. While machine-work, smith-work and foundry-work will be compulsory only for students in Mechanical and Electrical Engineering, the Faculty strongly advises all students to take this work.

Lectures. A course of instruction is given on: The use of the slide rule. Use of the polar planimeter. 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.

One lecture per week.

Machine Shop Practice. (For the session 1922-3 only.)

Practice in Smith-work. Forging, welding, annealing, tempering, use and repairing of smith's tools.

Three hours per day during two weeks of summer course.

Practice in Foundry-work. Bench and floor moulding, core making, casting in iron and brass.

Three hours per day during two weeks of summer course.

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 throughout the session.

Practice in Metal-working. Bench-work, including chipping, filing, scraping, tapping, marking-off and fitting. Lathe-work, including turning and boring, screw-cutting and finishing. Shaping, drilling, milling, gear-cutting and tool-dressing.

Three hours per day during four weeks of summer course.

3 units.

MECHANICAL ENGINEERING 2.

Machine Shop Processes and 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.

Practice in Metal-working. (For Session 1922-3 only.) 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. 2 units.

MECHANICAL ENGINEERING 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.

One lecture per week. 1 unit.

Text-book: Notice to be given at beginning of session.

MECHANICAL ENGINEERING 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.

Two lectures per week. 2 units.

Text-book: Notice to be given at beginning of session.

Reference Book: Ewing, *The Steam Engine and Other Heat Engines.*

MECHANICAL ENGINEERING 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.

One lecture and three laboratory hours per week. 2 units.

Reference Books: Ewing, *Steam Engines and Other Heat Engines.* Spooner, *Machine Design, Construction and Drawing.*

MECHANICAL ENGINEERING 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.

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

Text-book: Fernald and Orrock, *Engineering of Power Plants.*

Reference Books: Simmons, *Compressed Air.* Marks and Davis, *Steam Tables and Diagrams.* Gebhardt, *Steam Power Plant Engineering.* Kent, *Mechanical Engineer's Pocket Book.*

MECHANICAL ENGINEERING 7.

Thermodynamics.—Extension of Mechanical Engineering 6. A more rigorous treatment of the performance 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 engines, of size, speed and ratio of expansion. Variation of efficiency with load. Compound and triple expansion engines. Use of superheated steam. Flow of gases and vapours through orifices and nozzles.

One lecture and six laboratory hours per week. 3 units.

Reference Book: Lucke, *Thermodynamics.*

MECHANICAL ENGINEERING 8.

Thermodynamics.—Continuation of Mechanical Engineering 6 and 7. 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.

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

Text-book: Notice to be given at beginning of session.

MECHANICAL ENGINEERING 9.

Thermodynamics.—An extension of Mechanical Engineering 8, for Mechanical Engineering students only.

One lecture and six laboratory hours per week. 3 units.

MECHANICAL ENGINEERING 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.

Two lectures and four (average) laboratory hours per week. 2 units.

Text-book: Notice to be given at beginning of session.

MECHANICAL 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.

One lecture per week. 1 unit.

Text-book: Notice to be given at beginning of session.

MECHANICAL ENGINEERING 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.

One lecture per week during First Term, two lectures per week during Second Term. 1 unit.

Text-book: Notice to be given at beginning of session.

MECHANICAL ENGINEERING 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.

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

Text-book: Notice to be given at beginning of session.

MECHANICAL ENGINEERING 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.

One hour per week throughout session. 1 unit.

Text-book: Kimball, *Principles of Industrial Organization.*

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.

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

Text-book: Gray, *Principles and Practice of Electrical Engineering.*

ELECTRICAL ENGINEERING 2.

Fundamentals of Electrical Engineering.—An extension of the work taken up under Electrical Engineering 1. More precise study of the laws governing the flow of alternating current. Meters and their applications. Transient phenomena. Use of charts and tables.

One lecture and three laboratory hours per week. 2 units.

ELECTRICAL ENGINEERING 3.

Electrical Engineering Practice.—For students in Mechanical Engineering only. A special course covering standard practice in generation, transmission, and application of electric power.

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

ELECTRICAL ENGINEERING 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.

Three lectures and six laboratory hours per week. 6 units.

Text-book: Notice to be given at beginning of session.

ELECTRICAL ENGINEERING 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. 1 unit.

ELECTRICAL ENGINEERING 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 substations.

One lecture hour per week. 1 unit.

Text-book: Notice to be given at beginning of session.

* Not given in 1922-23.

ELECTRICAL ENGINEERING 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.

One lecture and three laboratory hours per week. 2 units.

Text-book: Gray, *Electrical Machine Design.*

ELECTRICAL ENGINEERING 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. 1 unit.

ELECTRICAL ENGINEERING 9.* (Optional.)

Communication by Electricity.—Various systems of telegraphy. Automatic and printing telegraph. Standard telephone systems. Wireless telegraphy and telephony. Simultaneous telegraphy and telephony.

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 Assaying:

MINING 1.

A general course in prospecting and metal mining covering the following subjects:

Ores and economic minerals; *Ordinary Prospecting*—Economic considerations; finding mineral deposits; float; deductions from outcrops and other indications; core and churn drilling; mineral belts; mineral fashions; conditions in British Columbia; legal considerations.

Preliminary development; timbering and framing; tunnelling; shaft sinking; ordinary mining methods; transportation and haulage; drainage; ventilation.

* Not given in 1922-23.

One hour per week in the First Term, and two hours per week in the Second Term.

MINING 2.

A general course in coal and placer mining, covering the following subjects:

Coal Mining.—Classification of coals; mining methods; ventilation; transportation and haulage; tipples; Western Canadian coal fields.

Placer and Hydraulic Mining.—Prospecting; examination and testing of deposits; hydraulics; flumes; ditches; mining methods.

Two hours per week.

MINING 3.

An advanced course in Mining Engineering covering the following subjects:

Scientific prospecting; mine development; special mining methods; blasting and explosives; sampling and estimation of ore; examination of mines and prospects; accounting and costs; mining laws; administration; welfare and safety work; economics; ethics; mine valuation.

Two hours per week.

Prerequisite: Mining 1.

MINING 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.

One hour per week throughout the Fourth Year for Mining Engineering students.

No text-book is required.

Prerequisites: Mining 1; Mechanical Engineering 3, 6; General Engineering 1 and 2.

MINING 5.

This course covers the application to mining problems of the general principles of surveying, under the following heads:

Instruments and accessory appliances used, their selection, care, and methods of use underground. Practical details of underground survey work and special difficulties. Surveying in shafts. Setting and lining-in of timbers. Stope surveys. General underground surveys. Co-operation with sampling and geological work. Different systems of taking notes and sketches. Mapping methods. Scale of maps. Uses of maps for various purposes. Records, and methods of keeping them. Estimating tonnages and volumes. Functions of the Mine Survey Department.

One lecture per week. Second Term.

Prerequisite: Surveying 1.

MINING 6.

A laboratory 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 throughout the Fourth Year.

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.

Two lectures per week.

Text-book: Fulton, *Principles of Metallurgy.*

Reference Books: Hofman, *General Metallurgy;* Current Mining and Metallurgical Journals. Trade Catalogues.

Prerequisites: Chemistry 1 and Physics 1 and 2.

METALLURGY 2.

A general course covering principles and practice of Pyrometallurgy and Hydrometallurgy as applied to gold, silver, copper, iron, lead and zinc.

Two hours per week.

Prerequisite: Metallurgy 1.

METALLURGY 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.

Text-book: Richards, *Metallurgical Calculations.*

Two hours per week.

Prerequisites: Metallurgy 1, Chemistry 1.

METALLURGY 4.

Laboratory 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.

Nine hours per week.

Prerequisites: Metallurgy 1, Chemistry 5m.

METALLURGY 5.

Quantitative determination of gold, silver, and other metals by fire-assay methods, with underlying principles.

One lecture and five hours' laboratory work. First Term.

Text-book: Fulton, *Manual of Fire Assaying.*

ORE DRESSING 1.

Owing to rapid and radical changes in the practice of ore dressing in recent years, and the great number and variety of machines in use, no attempt is made to describe all the machines. 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.

Two lectures per week.

Text-book: Richards, *Text-book of Ore Dressing.*

ORE DRESSING 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.

Nine hours per week.

Prerequisite: Ore Dressing 1.

Department of Nursing.

Assistant Professor: Ethel I. Johns.

In addition to the curriculum already outlined for the academic portion of the combined course in Nursing, courses in the following subjects are given during the two years of nursing service in an approved training school required from students in the Department of Nursing.

First Year of Hospital Service.—

Introductory History and Ethics of Nursing.
Primary Nursing Procedure.
Introductory Nutrition and Cookery.
Materia Medica.
Surgical Nursing.
Medical Nursing.

Second Year of Hospital Service.—

History of Nursing.
Obstetrical Nursing.
Nursing Communicable Diseases, including Tuberculosis.
Gynecological Nursing.
Pediatric Nursing.
Diet in Disease.
Nursing of Diseases of the Eye, Ear, Nose, and Throat.
Nursing in Mental Diseases.

Instruction in all of the above-mentioned subjects is given by members of the medical staff of the hospital and by qualified nurse instructors.

The following schedule outlines the period of hospital service, which is so arranged as to afford the student actual nursing experience in every department:

General Services.—

Medical Wards (Male and Female).
Surgical Wards (Male and Female).
Gynecological Wards.
Children's Ward (including Orthopaedics).
Private Wards.
Observation Wards.

Special Services.—

Operating Rooms.
Eye, Ear, Nose, and Throat Department.
Obstetrical Department.
Diet Kitchen.
Infectious Department.
Tuberculosis Department.
Infants' Department.

Experience in the Social Service and Outpatients' Departments will be given during the fifth year of the course.

Department of Physics and Mechanics.

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

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.

PHYSICS 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. The seven hours per week devoted to the course are divided into four hours of lectures and one laboratory period of three hours.

Text-books: Loney, *Mechanics and Hydrostatics.* Millikan, *Mechanics, Molecular Physics and Heat.*

PHYSICS 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.* Millikan, *Mechanics, Molecular Physics and Heat.*

PHYSICS 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.

Two lectures and three hours of laboratory work per week.

Text-books: Millikan and Mills, *Electricity, Sound and Light* (first part). Smith, *Electrical Measurements.*

PHYSICS 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.

Two lectures per week. Second Year of Applied Science.

Prerequisite: Mechanics 1.

Text-book: Poorman, *Applied Mechanics.*

PHYSICS 9.

As in Arts.

Department of Public Health.

Red Cross Professor: R. H. Mullin.
Red Cross Instructor: Mary Ard MacKenzie.

Public Health 1.—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.

One lecture per week. Second Term.

Public Health Nursing.—The course is open to nurses in good standing who have graduated from a recognized training

school connected with a hospital of not less than fifty beds, and who are eligible for registration in British Columbia. A certificate of good health and physical condition, signed by a regular physician, must be forwarded with application. A candidate for this course should apply to the Department not later than Friday, September 22nd, 1922. The registration and class fees for the course are $50.00. These fees may be paid in two equal instalments, the first not later than October 7th, and the second not later than January 20th.

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.

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.

The general scope of the course is outlined as follows:—

1. *Academic Work.*—
   (1) A course of lectures on each of the following:
      (*a*) Motor Mechanics.
      (*b*) Nutrition.
      (*c*) Communicable Diseases.
      (*d*) Sanitation and Hygiene.
      (*e*) Tuberculosis.
      (*f*) Child Welfare.
      (*g*) Public Health Nursing.
      (*h*) School Nursing.
      (*i*) Social Service.
      (*j*) History of Nursing.

(*k*) Psychology and Teaching Principles.

(*l*) Economics and Social Legislation.

(*m*) Mental Hygiene.

(*n*) Health Legislation.

(2) Occasional lectures on Provincial Legislation, Municipal Health Departments, Voluntary Organizations, Delinquent and Deserted Children, etc.

(3) Excursions to special health features in and around Vancouver.

2. *Field Work.*—

For field work the class will be divided into sections of appropriate size, each of which will receive instruction and experience under trained workers in the actual operation of each of the following services:

(*a*) General Visiting Nursing.

(*b*) Child Welfare.

(*c*) Urban School Nursing.

(*d*) Rural Nursing.

(*e*) Tuberculosis.

(*f*) Settlement and Social Service.

3. *Conferences.*—

Weekly conferences will be held throughout the year on selected topics. Opportunities will be afforded for practice in public speaking, etc.

Department of Zoology.

Professor: C. McLean Fraser.
Lecturer in Entomology: R. C. Treherne.
Assistant in Zoology and Botany: H. A. Dunlop.
Assistant in Zoology: N. L. Cutler.

ZOOLOGY 1.

As in Arts.

ZOOLOGY 3.

As in Arts.

FACULTY OF AGRICULTURE

INFORMATION FOR STUDENTS IN AGRICULTURE.

Courses of Study.

Two 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 series of Short Courses: (*a*) At the University; (*b*) 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.

Short Courses.

(*a.*) *At the University.*—These Short Courses are 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 courses. No entrance examination is required, nor are students asked to write an examination at the conclusion of the course.

(*b.*) *Extension Courses at Different Points in the Province.*—In order to reach those engaged in Agriculture who are not able to avail themselves of the Short Courses given at the

University, the Faculty of Agriculture offers extension short courses in various centres throughout the Province. These courses are of at least four days' duration, are proceeded with according to a definite time-table, and include lectures and demonstrations in connection with the work of each department of the Faculty. Detailed programmes are prepared to suit the specific centres, and requests for such courses may be addressed to the Registrar of the University.

EXAMINATIONS IN AGRICULTURE.

1. There are two examinations in each year—one at Christmas and the other at the end of the session. Successful students are arranged in three classes, as follows: First class, those who obtain 80 per cent. or more; Second class, 65 to 80 per cent.; Passed, 50 to 65 per cent.

In the First and Second Years, in order to pass, candidates must obtain 50% on the examination as a whole and not less than 40% on each subject. In the Third and Fourth Years, in order to pass, candidates must obtain 50% on each subject of examination.

A unit is one lecture hour per week or one continuous laboratory period of not less than two or more than three hours per week throughout the College Year. In the case of one-term courses, two lecture hours, or two laboratory periods, or one lecture hour and one laboratory period, constitute one unit.

Christmas examinations will be held in all subjects, and are obligatory for all students.

Applications for Special Consideration on account of illness in the matter of examinations must be in the hands of the Dean not later than two days after the close of the examination period.

Any student whose academic record, as determined by the tests and examinations of the first term, is found to be unsatisfactory, may, upon the recommendation of the Faculty, be required by the Senate to discontinue attendance at the University for the remainder of the session.

For Classes of Students, see page 53.

For Fees, see page 54.

2. *Repeating Year.*—By special permission of the Faculty, a student who is required to repeat his year may, *on application in writing,*—

(*a*) Be exempted from attending lectures and passing examinations in the subjects in which he has already passed, provided he has made therein a standing of 60 per cent. or over.

(*b*) And if so exempted, be permitted to take, in addition to the subjects in which he has failed, such subjects of the following year of his course as the Faculty may deem expedient.

A student who fails a second time to pass the final examination of his year, may, upon the recommendation of the Faculty, be required by the Senate to withdraw from the University.

SUPPLEMENTAL EXAMINATIONS.

3. Notice will be sent to all students to whom the Faculty has granted supplemental examinations.

4. Examinations supplemental to the sessional examinations will be held in September, simultaneously with the matriculation examinations. The time for each supplemental examination will be fixed by the Faculty; the examination will not be granted at any other time, except by special permission of the Faculty, and on payment of a fee of $7.50.

5. *Applications for supplemental examinations* must be accompanied by the necessary fees (see Schedule of Fees), and be in the hands of the Registrar at least two weeks before the date set for the examinations.

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 COURSE OF STUDY.

	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 COURSE OF STUDY.

	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 YEAR COURSES OF STUDY.

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 COURSE OF STUDY.

(Required subjects.)

	Units.
Economics 1	3
Agricultural Chemistry	3
Principles of Heredity—Biology 2	1
Total required	7

FOURTH YEAR COURSE OF STUDY.

(Required subjects.)

	Units.
Evolution of Agriculture	1½
Thesis	3
Total required	4½

Agronomy Major.

THIRD YEAR.

	Units.
Required subjects, as above	7
Agronomy 3	1½
" 4	2
" 7	1½
Plant Physiology—Botany 3	2
Zoology 4	1
Total required	15

FOURTH YEAR.

	Units.
Required subjects, as above	4½
Agronomy 5	1½
" 6	1½
" 8	1½
" 9	1
" 11	½
Systematic and Economic Botany—5 (*a*)	2
Economic Entomology—Zoology 7	2
Animal Husbandry 9	1½
Total required	16

Animal Husbandry Major.

THIRD YEAR.

	Units.
Required subjects, as above	7
Animal Husbandry 2	1½
" " 3	1½
" " 6	1
" " 7	1½
" " 14	1½
Agronomy 4	2
Total required	16

FOURTH YEAR.

	Units.
Required subjects, as above	4½
Animal Husbandry 5	1½
" " 8	1
" " 9	1½
" " 10	1
" " 11	1
" " 12	1
" " 13	1½
Agronomy 7	1½
Total required	14½

Dairying Major.

THIRD YEAR.

	Units.
Required subjects, as above	7
Dairying 3	2
Dairying 4, 1½ units) or Dairying 5, 1½ units)	1½
Total required	10½

FOURTH YEAR.

	Units.
Required subjects, as above	4½
Dairying 6	4
" 7	1½
" 8	½
" 9	1
Municipal Engineering 1	1
Plant Physiology—Botany 3	2
Dairy Chemistry	2
Total required	16½

Horticulture Major.

THIRD YEAR.

	Units.
Required subjects, as above	7
Horticulture 3	2
" 4	1
Plant Physiology—Botany 3	2
Systematic Entomology—Zoology 4	1
Total required	13

FOURTH YEAR.

	Units.
Required subjects, as above	4½
Horticulture 5	1½
" 6	1½
" 7	1½
" 8	1
" 9	1
" 10	1½
Plant Pathology—Botany 6(*a*)	1
Economic Entomology—Zoology 7	2
Systematic and Economic Botany 5(*a*)	2
Total required	17½

Poultry Husbandry Major.

THIRD YEAR.

	Units.
Required subjects, as above	7
Poultry Husbandry 2	1
" " 3	1½
" " 4	1½
Embryology—Zoology 6	2
Total required	13

FOURTH YEAR.

	Units.
Required subjects, as above	4½
Poultry Husbandry 7	1½
" " 8	4
" " 9	1
" " 10	1½
" " 11	1½
Total required	14

COURSES IN AGRICULTURE.

Department of Agronomy.

Professor: P. A. Boving.
Associate Professor: G. G. Moe.
Assistant: D. G. Laird.
Extension 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. 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. 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. First Term, Third Year. 1½ units.

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. Second Term, Third Year. 2 units.

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. First Term, Fourth Year. 1½ units.

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. First Term, Fourth Year. 1½ units.

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 and six half-days. 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. 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. Second Term, Fourth Year. 1 unit.

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. 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.

Associate Professor: H. M. King.
Assistant Professor: R. L. Davis.
Assistant Professor: Walter N. Jones.
Extension Assistant: H. R. Hare.
Lecturer in Veterinary Medicine: Thomas Jagger.

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, and swine.

Texts: Plumb, *Judging Farm Animals.* Vaughan, *Types and Market Classes of Live Stock.*

Three two-hour laboratory periods per week. Second Term, First Year.

1½ units.

2. *Breeds of Cattle and Swine.*—A study of the origin, history of development, characteristics, and adaptations of the breeds of beef cattle, dairy cattle, and swine.

Text: Plumb, *Types and Breeds of Farm Animals.*

One lecture and two three-hour laboratory periods per week. First Term, Third Year.

Prerequisites: Animal Husbandry 1 and 4. 1½ units.

3. *Breeds of Horses and Sheep.*—A study of the origin, history of development, characteristics, and adaptations of the breeds of horses and sheep.

Text: Plumb, *Types and Breeds of Farm Animals.*

One lecture and two three-hour laboratory periods per week. Second Term, Third Year.

Prerequisites: Animal Husbandry 1 and 4. 1½ units.

4. *Live-stock Feeding and Management.*—The feeding, care, and management from birth to maturity of the various types of live stock.

Text: Toole, *The Book of Live Stock.*

Three lectures per week. First Term, Second Year.

Prerequisite: Animal Husbandry 1 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.

Two two-hour laboratory periods per week. First Term, Fourth Year.

Prerequisites: Animal Husbandry 2 and 3. 1 unit.

One three-hour laboratory period 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.

Two lecture periods per week. Second Term, Third Year.

Prerequisites: Animal Husbandry 2 and 3 and Biology 2. 1 unit.

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.

Two lecture periods and one three-hour laboratory period per week. Second Term, Third Year.

Prerequisites: Animal Husbandry 2 and 3. 1½ units.

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.

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 lecture periods per week. Second Term, Fourth Year. 1½ units.

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.

Two lectures per week. First Term, Fourth Year.

Prerequisite: Animal Husbandry 7. 1 unit.

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.* Leitch, *The Dairy Farm.*

Two lectures and one three-hour laboratory period per week. Second Term, Fourth Year.

Prerequisite: Animal Husbandry 12. 1½ units.

14. *Veterinary Science.*—A study of the common diseases of horses, cattle, sheep, and swine; their causes, prevention, and treatment.

Three lecture periods per week. First Term, Third Year.

Prerequisites: Animal Husbandry 1 and 4. 1½ units.

Department of Dairying

Professor: Wilfrid Sadler.
Assistant Professor: N. S. Golding.
Extension Assistant: Marion J. Mounce.

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 prin-

cipal 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.

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 work 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.

One lecture and six hours' laboratory work per week. Second Term, Third Year.

Prerequisites: Dairying 3. 1½ units.

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 work 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.

Two lectures and six hours' laboratory work per week throughout the session. Fourth Year.

Offered to those majoring in Dairying. 4 units.

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.

One lecture and six hours' laboratory work per week. First Term, Fourth Year.

Offered to those majoring in Dairying. 1½ units.

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 period per week. First Term, Fourth Year. ½ unit.

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 period per week. Second Term, Fourth Year. 1 unit.

10. *The Judging and Grading of Milk and Milk Products.*—Offered to students of the Senior Year. 1½ units.

11. *Thesis.* 3 units.

Department of Horticulture

Professor: F. M. Clement.
Associate Professor: A. F. Barss.
Assistant Professor: F. E. Buck.
Extension 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 each 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 each 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 each week. Second Term, Third Year. 2 units.

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 each week. First Term, Third Year. 1 unit.

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 each week. First Term, Fourth Year. 1½ units.

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, two laboratories each week. First Term, Fourth Year. 1½ units.

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 each week. Second Term, Fourth Year. 1½ units.

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 each 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 each 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 each week. First Term, Fourth Year. 1½ units.

11. *Thesis.* 3 units.

Department of Poultry Husbandry

Associate Professor: E. A. Lloyd.
Assistant Professor: V. S. Asmundsen.
Field Enumerator: 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 period. 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 laboratory periods 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.

One lecture and two two-hour laboratory periods per week. Second Term.

Prerequisite: Biology 4. 1½ units.

5. *Poultry Management.*—A study of stystems 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.

One lecture and three hours' laboratory and practice per week.

Prerequisites: Poultry Husbandry 1; Animal Husbandry 8. 1 unit.

8. *Poultry Literature.*—A study of scientific literature published on poultry problems, and the gathering of reports, data, and information.

One lecture period per week. Six hours' practice work.
1½ units.

9. *Judging and Selection.*—Substituted for Poultry Husbandry 5 and 6.

One lecture and one three-hour laboratory period per week.
1½ units.

10. *Thesis.* 3 units.

The Evolution of Agriculture

Professor F. M. Clement.

In this course a study will be made of the gradual evolution of those ideas and forces which have resulted in the approved agricultural practices of the present day. A knowledge of the development of these ideas is essential to an understanding of the present status of the farmer and of the farming industry, and will enable the student to forecast with greater accuracy the lines along which further progress may be expected.

First Term, Fourth Year. Three lectures per week.
1½ units.

French.

(Special course in French.)

2nd Year.—Prescribed text: Cunisset-Carnot, *Le livre d'Agriculture,* Paris, Larousse. 2 hours a week.
2 units.

Note: Where courses other than those listed under Agronomy, Animal Husbandry, Dairying, Horticulture, and Poultry 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. Candidates with approved degrees 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.

3. One major and one minor shall be required.

4. (*a.*) A thesis must be prepared on some approved topic in the major subject.

(*b.*) Examinations, written or oral, or both, will be required.

5. Candidates for the Master's degree, whether in residence or extra-mural, shall pay an annual registration fee of $10.00. Application for admission as a graduate student, accompanied by official credentials giving details of courses taken, shall be made to the Registrar by October 1st. Application to stand for an advanced degree shall be made by November 1st.

6. Three copies of each thesis (preferably typewritten), on standard-sized thesis paper, shall be filed with the Registrar on or before the last day of lectures. One of these copies will be deposited with the Librarian. (See special circular of "Instructions for the Preparation of Masters' Theses.")

LIST OF STUDENTS IN ATTENDANCE, SESSION 1921-22

FACULTY OF ARTS AND SCIENCE

FIRST YEAR.

Full Undergraduates.

Name.	*Home Address.*
Adams, Edgar B.	Vancouver.
Agar, James M.	New Westminster.
Allen, George A.	Vancouver.
Anderson, Gwladys M.	Vancouver.
Anthony, Edward J.	Nakusp.
Arkley, Adalene	Vancouver.
Arkley, Stanley T.	Vancouver.
Baillie, Oenone G.	Vancouver.
Baker, Lorimer G.	Vancouver.
Ball, Robert W.	Sandwick.
Barnsley, Frank R.	Vancouver.
Barton, Carl F.	Vancouver.
Baxendale, Robert D.	Trail.
Baylis, Robert H.	Marpole.
Bell, Ella W.	Vancouver.
Bell, Veronica J.	Vancouver.
Bely, Jacob J.	Chita, Siberia.
Boulton, Marguerite C. E.	Vancouver.
Bowser, Frank C.	Vancouver.
Brown, Kenneth S.	Regina, Sask.
Brown, Thomas W.	Grand Forks.
Buchanan, Thomas G.	Vancouver.
Byrne, Thomas S.	South Vancouver.
Campbell, C. Robert T.	South Vancouver.
Canfield, Orra W.	New Westminster.
Carpenter, Gilbert B.	Vancouver.
Carrico, Marguerite E.	Vancouver.
Carter, Dorothy G.	Vancouver.
Chapman, Edward F.	New Westminster.
Chell, Joseph	Mission City.
Christie, John A.	Victoria.
Clague, John E.	Vancouver.
Clark, Florence E.	Vancouver.
Clarke, Mary K.	Vancouver.
Coghlan, Basil S.	Vancouver.
Conlan, Kathleen L.	Vancouver.
Conlan, Margaret I.	Vancouver.

Name.	*Home Address.*
Cooper, Arthur J. O.	Vancouver.
Corry, Jack R.	Vancouver.
Coulter, Maynard E.	Chilliwack.
Cowx, Joseph G.	Vancouver.
Craig, James H.	Vancouver.
Cranston, Roxy R.	Vancouver.
Creighton, James H.	South Vancouver.
Cross, Earle S.	Lynn Creek.
Davidson, Jean E. W.	Vancouver.
Davies, Charles E.	Chilliwack.
DeWolfe, John E.	Vancouver.
Dobbin, Mary H.	Vancouver.
Dodds, Kathleen	Vancouver.
Dowling, Clifford H.	Vancouver.
Dudley, Stephen M.	Vancouver.
Duncan, Cedric J.	Prince Rupert.
Dunkley, Eugenie A.	Vancouver.
Dunn, Eric J.	Vancouver.
Eades, James E.	North Vancouver.
Eades, William J.	North Vancouver.
Ebert, John A. M.	New Westminster.
Eckert, Louis C.	Vancouver.
Edwards, Mamie	Vancouver.
Elliot, George F.	Vancouver.
Emery, Geoffrey B.	Edmonds.
Emery, Gertrude B.	New Westminster.
Evans, Walter F.	Vancouver.
Farrington, Eileen G.	Vancouver.
Fee, Archibald R.	Vancouver.
Fee, Doris L.	Kamloops.
Fennell, Joyce M.	Edmonds.
Fisher, Jessie L.	Vancouver.
Foran, Theresa C.	Vancouver.
Ford, M. Doris	Vancouver.
Forster, Eric	North Vancouver.
Fowler, Helen S.	Vancouver.
Fraser, Ruth A.	Vancouver.
Futcher, Frederick G.	Vancouver.
Gadd, Gwendolyn M.	Vancouver.
Gage, Walter H.	South Vancouver.
Gibson, Swanston	Vancouver.
Gignac, Frances V.	Vancouver.
Gillanders, Earle	Chilliwack.
Gillen, James L.	Abbotsford.

Name.	*Home Address.*
Gorringe, Marjorie E. K.	South Vancouver.
Graham, Etta L.	Vancouver.
Grauer, Albert E.	Vancouver.
Greggor, Clara F.	Vancouver.
Gregory, Phyllis M.	Rossland.
Griffith, William I.	Grand Forks.
Groves, Dorothy	Vancouver.
Gruchy, Earl S.	Vancouver.
Hale, Frederick M.	South Vancouver.
Hall, Winnifred M.	Vancouver.
Hallamore, Gertrude J.	New Westminster.
Hamilton, John A.	Vancouver.
Hankinson, Bessie	Vancouver.
Hansen, Ida L.	New Westminster.
Harvey, Mary	Vancouver.
Heywood, Alice	Vancouver.
Hopkins, Jean F. C.	South Vancouver.
Horne, Winifred	South Vancouver.
Hughes, Isobel	Vancouver.
Ing, Sun On	Vancouver.
Inglis, Kathleen M.	Gibson's Landing.
Ingram, Sydney B.	Vancouver.
Jackson, Susie C.	Vancouver.
Jenney, Evelynd R.	Vancouver.
Johnston, Harry S.	Vancouver.
Jones, David R.	Vancouver.
Jude, Hilda	Langley Prairie.
Kania, Joseph E. A.	Trail.
Kay, Edith W.	South Vancouver.
Keenan, Thomas J.	Vancouver.
Keir, George	South Vancouver.
Kelly, Clive A.	Vancouver.
Kelly, Wilfred C.	Vancouver.
Kempton, Ida M.	Vancouver.
Kerr, Margaret E.	New Westminster.
King, William C.	Vancouver.
Knowlton, Willson E.	Vancouver.
Ladner, Edward M.	Vancouver.
Lane, Edwin I.	South Wellington.
Larson, Arthur G. A.	Vancouver.
Law, Arthur C.	Vancouver.
Ledingham, Jack P.	South Vancouver.
Leek, Charles W.	Vancouver.

Name.	*Home Address.*
Leong, Kingfrankton	South Vancouver.
Leveson, Jean S. M.	Vancouver.
Liersch, John E.	North Vancouver.
Lindsay, Margaret E.	Prince Rupert.
Lockard, Edith F.	Vancouver.
Lofting, Queenie	Vancouver.
Louden, Thomas N.	Vancouver.
Lyne, Frances E.	Creston.
Malott, Nellie	Chilliwack.
Manuel, Jenny E. M.	Vancouver.
Martin, Clarence G.	Massett.
Martin, Edith I.	McKay.
Martin, George C.	Vancouver.
Mather, Vera G.	North Vancouver.
Meredith, Grace E.	Vancouver.
Millar, James W.	Revelstoke.
Mills, Reginald C.	Vancouver.
Milne, Eleanor E.	Vancouver.
Miyazaki, Masaziro	Japan.
Moe, Dorothy I.	Vancouver.
Moffatt, Muriel M.	Vancouver.
Montgomery, George R.	Vancouver.
Morrison, Hugh M.	Vancouver.
Morsh, Joseph E.	Peachland.
Mowatt, Laura S.	Vancouver.
Murray, Dorothy A.	Vancouver.
MacDonald, Catherine	South Vancouver.
MacDonald, Janet R.	New Westminster.
McDuffee, Russell S.	Vancouver.
MacGill, Elizabeth M. G.	Vancouver.
MacGill, Helen G.	Vancouver.
McGugan, Edna M.	Vancouver.
McGuire, Maude E. M.	Salmon Arm.
McIntosh, Mary C. E.	Greenwood.
McKee, Mary M.	Vancouver.
MacKenzie, Kelvin G.	Aldergrove.
McKillop, Lex L.	Vancouver.
MacKinnon, Findlay S.	Cumberland.
McLarty, Elsie I.	Vancouver.
McLean, Leslie M.	Vancouver.
McLennan, Alan B.	Vancouver.
McLennan, Percy G.	Vancouver.
McLeod, Florence A.	Vancouver.

Name.	*Home Address.*
McMeans, Jean R.	Vancouver.
McNicholl, Allan D.	Prince Rupert.
McRae, John H.	Vancouver.
Nelson, Clarence	Vancouver.
Newcombe, Gwendolyn	North Vancouver.
Nicol, Grace A. M.	Vancouver.
Nikiel, Charles	Vancouver.
North, John T.	Vancouver.
Nunn, Edward H.	Vancouver.
Oliver, John C.	Vancouver.
Owen, Francis J.	Trail.
Painter, Francis M.	Vancouver.
Paterson, Evelyn A.	Vancouver.
Payne, Irene	Marpole.
Perry, Dorothy A.	North Vancouver.
Pike, Anthony	Vancouver.
Pollock, Douglas B.	Vancouver.
Pryde, Walter	Nanaimo.
Railton, Joan M.	Vancouver.
Rankin, Elizabeth L.	Vancouver.
Reynolds, Kathleen M. W.	North Vancouver.
Rickard, Dorothy G.	Vancouver.
Rigby, Annie	New Westminster.
Rilance, Elsie G. S.	Vancouver.
Roberts, Marjorie A.	Smithers.
Roberts, Suzanna M.	Vancouver.
Robertson, Elizabeth M.	Vancouver.
Robinson, George R.	Vancouver.
Roe, Mary I.	Port Moody.
Rowan, Muriel M.	Vancouver.
Russell, Isabel M.	Marpole.
Sansum, Victor H.	Vancouver.
Schaffer, John J.	Vancouver.
Schell, Kenneth A.	Vancouver.
Scott, James C. W.	North Vancouver.
Shaw, Jack C.	Vancouver.
Shaw, Louisa W.	Vancouver.
Sheppard, Lucy A.	New Westminster.
Shiels, Georgina P.	Vancouver.
Shore, John W. B.	Vancouver.
Shorney, Kathlyn D.	Vancouver.
Shotton, John A.	Kamloops.
Sien, Foon	Cumberland.

Name.	*Home Address.*
Slingerland, Frank	South Vancouver.
Smith, Fred H.	Vancouver.
Smith, Grace E. M.	Vancouver.
Smith, James	Vancouver.
Spencer, Margaret J.	Victoria.
St. Denis, Frederic G.	Vancouver.
Stepler, Lillian M.	Vancouver.
Stevenson, Anna V.	Vancouver.
Stewart, Neil A.	Vancouver.
Stirling, Gwendolen G.	Kelowna.
Stroyan, Marjorie A.	Vancouver.
Stuart, Lillian B.	Vancouver.
Sutherland, Brookie E.	Vancouver.
Sutherland, Marion G.	New Westminster.
Swencisky, Victoria M.	New Westminster.
Tamura, Morikiyo	Port Haney.
Tapp, Ross S.	Eburne.
Tarr, Francis G. A.	North Vancouver.
Tatlow, Helen G.	Vancouver.
Taylor, Harold E.	Vancouver.
Thompson, Albert B.	Trail.
Thompson, Bertha H.	Vancouver.
Thompson, Homer A.	Rosedale.
Thomson, James A.	Vancouver.
Thomson, Jean	Vancouver.
Thomson, Mary M.	Chilliwack.
Thorburn, Marjorie M.	Vancouver.
Thrupp, Sylvia L.	Kamloops.
Tiffin, Leighton O. M.	Vancouver.
Timleck, Curtis J.	New Westminster.
Tipping, Wessie M. M.	Vancouver.
Topper, Mary E.	Mission City.
Turnbull, Thomas A.	Vancouver.
Wallis, John C.	Rossland.
Warren, Harry V.	Vancouver.
Watney, Douglas P.	New Westminster.
Welch, Beatrice R.	Vancouver.
Welch, William H.	Vancouver.
Westman, Marjorie	Marpole.
White, Ronald E.	Summerland.
Whiteside, Helen R.	New Westminster.
Whittaker, Norah M.	Vancouver.
Whitworth, Jack E.	Vancouver.

Name.	*Home Address.*
Wilander, William A.	Gibson's Landing.
Wilby, Eugene R.	Vancouver.
Wilcox, Laura	Vancouver.
Wilkinson, Jane H.	Vancouver.
Wilkinson, John H.	Vancouver.
Williamson, Cecilia	Vancouver.
Williamson, Marguerite M.	Vancouver.
Winter, Alice G.	Vancouver.
Woods, Mary K.	Vancouver.
Woodsworth, Winona G.	Vancouver.
Wright, Muriel E.	Vancouver.
Wright, Stanley V.	Vancouver.
Young, Minnie A.	New Westminster.
Zink, Charles W.	Vancouver.

Conditioned.

Adam, Dorothy M.	Vancouver.
Alexander, Beryl Clarke	Vancouver.
Baynes, Doris L.	Vancouver.
Blaney, Claire E.	Vancouver.
Crich, Evelyn P.	Vancouver.
Domoney, Clarence	Vancouver.
Fanning, Oscar	Vancouver.
Fraser, Frances M.	Vancouver.
Fraser, Marjorie A.	Vancouver.
Giberson, Gladys	Vancouver.
Gill, Otto H.	Cranbrook.
Griffith, Braham G.	Grand Forks.
Gustafson, Carl E.	Vancouver.
Hardie, William L.	Cloverdale.
Hatfield, Marjorie B.	Penticton.
James, Harriet C.	Vancouver.
Jones, Violet L.	Vancouver.
Kee, Josephine E.	Vancouver.
Kelman, Douglas S.	Vancouver.
Livingstone, Edward R.	Vancouver.
Logan, Kingsley S.	Central Park.
Lynn, Eileen M.	Vancouver.
May, Edna B. C.	North Vancouver.
Moore, Elizabeth G.	South Vancouver.
Morrison, Neil E.	Greenwood.
Mounce, Lewis S.	Vancouver.
MacBeth, Jean D.	Vancouver.
McClellan, Norma J.	Vancouver.

Name.	*Home Address.*
McCreery, Joseph R.	Vancouver.
McDonald, Marjorie A.	Vancouver.
McIntyre, Margary	Vancouver.
Owen, Gladys W.	Vancouver.
Ridley, Frank E.	New Westminster.
Ross, Jefferson C.	Vancouver.
Stuart, Margaret I. D.	Vancouver.
Sutherland, Bertha I.	New Westminster.
Swanson, Marion L.	Creston.
Weinberg, Jeanette	Vancouver.
Whaun, Moore	Vancouver.

Partial.

Anders, Charles H.	Vancouver.
Bell, Gertrude H. H.	Vancouver.
Blackburn, Malcolm S.	Beachburg, Ont.
Bloomfield, Edgar J.	Vancouver.
Bourgue, Theodore H.	Vancouver.
Effinger, Claude N.	Vancouver.
Eshoo, Kurish	Tabriz, Persia.
Gould, Clara W. D.	Vancouver.
Hamilton, George S.	Musselburgh, Scotland.
Hart, Donald B.	Jamaica.
Hennessy, Terence P.	Vancouver.
Hill-Tout, James E.	Abbotsford.
Ingledew, John R.	Vancouver.
Lawson, Dorothy M.	Vancouver.
Malcolm, Mabel M.	Vancouver.
Man, Dasaundha Singh	Kalan, India.
Morehouse, John W.	Vancouver.
McDougall, Murray J.	New Westminster.
MacFarlane, Robert T.	Hollyburn.
Nicholson, Louis F.	Vancouver.
Penwill, Frank H.	Vancouver.
Perkins, Merwyn G.	Vancouver.
Rigney, Clara M.	Vancouver.
Rosborough, Hugh C.	Claudy, Co. Derry, Ireland.
Scott, Gordon H.	Vancouver.
Shaw, Robert B.	Vancouver.
Smith, Henry B.	Victoria.
Stuart, Ernest S.	Vancouver.
Uchiyana, Yuiji E.	Vancouver.

SECOND YEAR.

Full Undergraduates.

Name.	*Home Address.*
Albo, Joseph	Rossland.
Aske, Flora M.	Vancouver.
Astell, Mary C. L.	Vancouver.
Berry, Annie B.	Langley Prairie.
Blair, Alice E.	Milner.
Breese, Ida J.	Vancouver.
Brink, Reginald M.	Vancouver.
Bruun, Arthur G.	Vancouver.
Buchanan, Allen	Vancouver.
Bull, Armour M.	Vancouver.
Burns, Nettie	Dundarave.
Burton, John Stuart	Vancouver.
Cameron, William C.	Chilliwack.
Cant, Hector R.	New Westminster.
Cantelon, Harold B.	Vancouver.
Cline, Catherine D.	Vancouver.
Coates, Bertha W.	Vancouver.
Cochrane, William Blair	Vancouver.
Cope, Mary C. L.	Vancouver.
Creelman, Helen	Vancouver.
Crozier, Robert N.	Vancouver.
Curtis, Philip S.	Vancouver.
Daly, James S.	Ladner.
Edgell, Phyllis M.	Vancouver.
Edgett, Lloyd W.	Vancouver.
Elliott, Marjorie L.	South Vancouver.
Elliott, Maxine P.	Vancouver.
Evans, Muriel M.	Vancouver.
Farrand, Zoe E.	Vancouver.
Fawcett, Marie L.	South Vancouver.
Forward, Jessie M.	Ladysmith.
Fraser, Ferguson R.	North Vancouver.
Gaddes, Leonard	Vancouver.
Gibbard, John E.	Mission City.
Gill, Alan F.	North Vancouver.
Gillen, Agnes S.	Abbotsford.
Goodchild, Margaret E.	Matsqui.
Goodwin, Theodore H.	Vancouver.
Grant, Archibald L.	Prince Rupert.
Grant, John A.	Vancouver.
Green, Rowland T.	Kaslo.

Name.	*Home Address.*
Hagelstein, George F.	Langley Prairie.
Harman, Eileen B.	Vancouver.
Haughton, Harry	Vancouver.
Henderson, Harold R.	Vancouver.
Higginbotham, Frances I.	Vancouver.
Hislop, Gordon B.	Moose Jaw, Sask.
Hobson, George	Vancouver.
Hodgson, Charles W.	South Vancouver.
Holmes, Dorothy M.	Victoria.
Hood, Helen R.	Vancouver.
Hyland, Ivadele H.	Vancouver.
Ingram, Lucy	Vancouver.
Jackson, Eric W.	Hammond.
Johnston, Florence E.	Vancouver.
Johnston, Ralph M.	Vancouver.
Jones, Florence N.	Kelowna.
Jones, John D.	Cloverdale.
Kerby, Kathleen B.	Grand Forks.
Kievell, Myrtle	Vancouver.
Knowling, Edith L.	Vancouver.
Langdale, Ada G.	Vancouver.
Lanning, Walter S. W.	Ladner.
Leask, John R.	Cranbrook.
Livingston, Garrett S.	Vancouver.
Lundie, James A.	Vancouver.
Marrion, Robert F. C.	Vancouver.
Mather, Greta E.	North Vancouver.
Meadows, Lyman	Vancouver.
Miller, George S.	Vancouver.
Moodie, Stephen T.	Burnaby.
Munn, Lyle E.	Vancouver.
Munn, W. H. Blanchard	Summerland.
McColl, Hugh A.	Vancouver.
McDiarmid, Dorothy K.	Vancouver.
McDonald, Gertrude E.	Nelson.
McGregor, Jessie M.	Kaslo.
MacKay, Donald C.	Vancouver.
McKee, William H.	Vancouver.
Mackinnon, Isabel M.	Vancouver.
McLane, Paul V.	Jubilee.
Maclean, Ethel M.	Vancouver.
McMorris, Frances E.	Vancouver.
Macnaghten, Kathleen E.	North Vancouver.
McRae, Rena V.	Vancouver.

Name.	*Home Address.*
McRae, Violet G.	Vancouver.
MacWilliam, Ruth A.	South Vancouver.
Notzeel, Clifford A.	Vancouver.
Palmer, Peter F.	Vancouver.
Palmer, Sarah	Vancouver.
Paradis, Josephine A.	Enderby.
Parmiter, Lois G.	New Westminster.
Peck, Dorothy C.	Vancouver.
Reilly, Ruby R.	Vancouver.
Reith, Helen W.	Penticton.
Riddehough, Geoffrey B.	Penticton.
Roberts, Marian O. R.	Vancouver.
Robinson, Kathleen G.	Vancouver.
Ross, Beulah W.	Vancouver.
Russell, George	Union Bay.
Simpson, William W.	McKay.
Sing, Marjorie B.	Cowichan Station.
Smith, Agnes C.	Kamloops.
Smith, Donald B.	Vancouver.
Smith, John A. C.	Vancouver.
Sparks, Frederick P.	Vancouver.
Stratton, Elaine G.	Vancouver.
Stringer, Harold C.	Vancouver.
Teeple, Mildred G.	Vancouver.
Tisdall, Margaret B.	Vancouver.
Tisdall, Mary R.	Vancouver.
Tolman, Carl	Vancouver.
Topper, Robert	Mission City.
Turnan, Alice V.	Vancouver.
Turpin, Helen M.	Vancouver.
Wheeler, Arthur L.	Victoria.
Williams, Florence I.	Vancouver.

Conditioned.

Adams, Jessie E. J.	Vancouver.
Angell, Eloise	Vancouver.
Bell, Frederick H.	Vancouver.
Burton, Erling W.	Vancouver.
Chapin, Florence M.	Kelowna.
Clever, Emily E.	New Denver.
Collier, Ivy	Vancouver.
Cowan, Frances K.	Vancouver.
Cross, Henry N.	Seattle, Wash.
Dalton, Jasper A. R.	North Vancouver.

Name.	*Home Address.*
Davidson, John R.	Vancouver.
Freeman, Ida D.	Vancouver.
Handy, Anna T.	Vancouver.
Kearns, Marcus A. R.	Vancouver.
Langtry, George N.	Vancouver.
Lawrence, Eva M.	Vancouver.
Lillico, Annie B.	Vancouver.
Ormrod, Eleanor O.	North Vancouver.
Robinson, Spencer George	South Vancouver.
Somerset, Ventris A.	Vancouver.
Sparks, Frederick Percival	Vancouver.
Stewart, Thomas A.	Vancouver.
Telfer, Jean	Vancouver.
Wilkinson, Nelly	Vancouver.
Williams, Laurence F. P.	Vancouver.
Woolliams, George E.	Keremeos.

Partial.

Anderson, Daniel J.	New Westminster.
Bell, John C.	Vancouver.
Binnie, Mary C.	Trail.
Burton, J. Stoneman	Vancouver.
Clark, Helen I.	Vancouver.
Colton, Leonard C.	Fernie.
Coombs, Marjorie L.	Vancouver.
Doidge, Gilbert	North Vancouver.
Edwards, Isaac J.	Vancouver.
Lewis, Gordon A.	New Westminster.
Mangat, Nahar S.	Punjab, India.
Manson, Ralf. S.	Hatzic.
Miller, Kenneth L.	Vancouver.
Morgan, Lorne T.	Vancouver.
Schmidt, Walter E.	Vancouver.
Taylor, Kenneth B.	Vancouver.
Yonemura, Hozumi	New Westminster.

THIRD YEAR.

Full Undergraduates.

Abel, Ilva Isabella Jean	Vancouver.
Allen, Harold Tuttle	Naramata.
Anderson, Annie Margaret	Vancouver.
Aylard, Clara Muriel	Victoria.
Baynes, Lloyd Lester	Vancouver.
Bell, Marjory Emma	Hollyburn.

Name.	*Home Address.*
Benedict, Frances Ellen	Arrowhead.
Bickell, Gertrude Elizabeth	Vancouver.
Brown, Joseph Frederick	Hammond.
Brown, Margaret Ada	Vancouver.
Buck, May Dorothea	Kelowna.
Bulmer, Mary Lucinda	Buena Vista.
Burke, Beatrice Mary	Vancouver.
Campbell, Claude Lane	Victoria.
Carrie, Janet Thompson	Nelson.
Caspell, Jessie Marguerite	Vancouver.
Casselman, Jessie Elizabeth	Vancouver.
Cassidy, Harry Morris	Murrayville.
Chapman, Mary Isbell	New Westminster.
Clandinin, Gladys Margaret	Vancouver.
Clyne, John Valentine	Vancouver.
Cornyn, Lillian Mary	Vancouver.
Crandall, Mary Gordon	Vancouver.
Crandlemire, Vera Kate	Grindrod.
Crawford, Helen Couper	Vancouver.
Dallas, Dorothy Frances	Vancouver.
Dawson, David Collins	Vancouver.
Dickson, Malcolm James Cruickshank	Victoria.
Eaglesham, Jean	Victoria.
Eveleigh, Evelyn Mary Southcott	Vancouver.
Fitch, Beatrice Constance	Vancouver.
Fleming, Everitt Samuel James	Kelowna.
Fleming, George Herbert	Vancouver.
Gibbon, Marion Evelyn	Vancouver.
Gilbert, Evelyn Maude	Vancouver.
Green, Lucy Ethel	Chilliwack.
Griffiths, Mary Gertrude Elaine	Grand Forks
Gross, Rowena Pauline	Vancouver.
Hallett, Lawrence Trenery	Steveston.
Harrison, William Elliott	Vancouver.
Henderson, Jean	Vancouver.
Higginbotham, Margaret Webster	Vancouver.
Home, Maurice	Vancouver.
Hunter, Alan D.	Vancouver.
Jack, Gladys Gordon	Marpole.
Johnson, Henry William	Hope.
Johnston, Charlotte Islay	North Vancouver.
Kerr, Gerald Clifford Graham	Vancouver.
Kidd, Dorothy Elizabeth	Vancouver.
Kirkpatrick, Gordon Mackay	Vancouver.

Name.	*Home Address.*
Kloepfer, Helen Patricia	Vancouver.
Lapsley, Marie Letticia	Vancouver.
Lee, Doris Elizabeth	Bonnington Falls.
LeNeveu, Allan Henry	Vancouver.
Leveson, Kirsteen Mary	Vancouver.
Lewis, Hunter Campbell	Ladner.
Lindsay, Margaret Patterson	Vancouver.
Lister, Fraser	Nanaimo.
Marett, Leila Margaret	Vancouver.
Mathews, Helen Mary	Vancouver.
Miller, Selwyn Archibald	Vancouver.
Morden, Wilma Margaret	North Vancouver.
Murphy, Kathleen Sallee	Vancouver.
McIntyre, Donald Manning	West Summerland.
Mackay, Phyllis Isabel	Vancouver.
Mackechnie, Hugh Alexander	Vancouver.
McLennan, Beth Dawson	Vancouver.
MacNeill, Alan Roy	Vancouver.
Offord, Harold Reginald	Vancouver.
Osterhout, Mildred	Jubilee.
Partridge, Phyllis	Cumberland.
Pedlow, Gladys Lillian	Vancouver.
Peter, Constance Eleanor	Vancouver.
Portsmouth, Kathleen Madge	Mission City.
Quainton, Eric Hugh	Victoria.
Ray, Arthur Hugo	Vancouver.
Rees, Catherine Bertha	New Westminster.
Robertson, Norman Alexander	Vancouver.
Robson, Charles Young	Vancouver.
Sanford, Osbert McLean	Vancouver.
Sangster, Norman	Vancouver.
Shaw, Keith Duncan	Vancouver.
Shier, John William	Vancouver.
Smith, Gertrude May	New Denver.
Smith, Grace Purvis	Vancouver.
Southon, Henry Stewart Atkin	Vancouver.
Steves, Jessie Lena	Steveston.
Stewart, William	Victoria.
Straus, Jean Lillian	Vancouver.
Switzer, Gerald Breen	New Westminster.
Taylor, Clifford Nesbitt	Vancouver.
Thompson, Willard Allen	Vancouver.
Tupper, Mary Emily	South Vancouver.
Turnbull, Frank Alexander	Vancouver.

Name.	*Home Address.*
Upshall, William Charles Cecil	Vancouver.
Walker, Robert Edward	Vancouver.
Wallace, Fraser Melvin	Vancouver.
Walsh, Dorothy Howard	Oak Bay.
Weld, Gladys Noyes	Vancouver.
Wilcox, Marion	Vancouver.
Wood, Elsie Doris	Nanaimo.
Yonemoto, Haruo	Steveston.

Conditioned.

Ellis, Edgar Harrison	Vancouver.
Hunter, Robert	Vancouver.
Jardine, Agnes Alexandra	Vancouver.
Kerr, Margaret Isobel	Vancouver.
MacKenzie, Mary Isobel	New Westminster.
Pittendrigh, Mary Aleda	Vancouver.
Rae, Violet Jean	Barnett.

Partial.

Baird, John Douglas	Vancouver.
Drennan, Albert Alexander	Vancouver.
Glenesk, Ernest John Jack	Vancouver.
Holt, Violet Alice	Vancouver.
Locklin, Lillian Ralston	Vancouver.
Meyer, Victor Louis	Vancouver.
McKee, John Rogers	Vancouver.
McLoughry, Helen Vivian	Vancouver.
Macpherson, Gordon Angus	Cape Breton, N. S.
Reeves, William John	Port Moody.
Thomson, Albert Otis	Mt. Lehman.

Fourth Year.

Full Undergraduates.

Aconley, Izeyle Vera	Vancouver.
Agnew, Marjorie	Vancouver.
Anders, Victor Llewellyn	Vancouver.
Argue, Ralph Starrat	Vancouver.
Arkley, Jack MacDougall	Vancouver.
Atherton, Marion Clara	Vancouver.
Ballard, Edna Florence	Vancouver.
Black, William Griffiths	Vancouver.
Bolton, Lloyd Lawrence	Vancouver.
Buell, Arthur Lightfoot	North Vancouver.
Bullock, Winifred Amy	Vancouver.

Name.	*Home Address.*
Buxton, Mary Isabel	Burnaby.
Campbell, Annie Louise	Vancouver.
Clark, Charles Augustus Fordyce	Vancouver.
Clark, George Savage	Vancouver.
Clarke, Margaret Isabella	Vancouver.
Collard, Carlton	Vancouver.
Coope, Geoffrey	Vancouver.
Cox, Stafford Albert	Vancouver.
Crickmay, Colin H.	North Vancouver.
Cutler, Norman Leon	Vancouver.
Cummings, Robert Edgar	Vancouver.
Dauphinee, James Arnold	New Westminster.
Dowling, Doris Ada	Vancouver.
Duffy, James	Co. Clare, Ire.
Eagles, Blythe Alfred	New Westminster.
English, Mary Helen	Kaslo.
Fingland, Dorothy Ellen	Trail.
Fraser, George Wallace Bruce	Vancouver.
Frith, Joscelyne Sylvia	Vancouver.
Fulton, Doris Jessie	Vancouver.
Gignac, Mary Etoile Patricia	Vancouver.
Gill, Dorothy Alexandra	Vancouver.
Gillis, Gwendolyn Christina Abercrombie	Victoria.
Harris, Joseph Allen	West Summerland.
Heaslip, Leonard William	Vancouver.
Herd, James Fenton	Vancouver.
Hopper, Dorothy Aileen	Vancouver.
Hurst, Allan McLean	Vancouver.
Imlah, James Albert Henry	New Westminster.
Johnston, Lyle Clinton	South Vancouver.
Keir, Helen	Nortn Vancouver.
Keir, Jeannie McRae	North Vancouver.
Kemp, Gwendolyn Muriel	Vancouver.
Lanning, Roland John	Ladner.
Lewis, Edward Dewart	Ladner.
Lipson, Barnett A.	Vancouver.
Lipson, Bertha	Vancouver.
Metz, Cora Irma	Vancouver.
Miles, Mona Collister	Santa Monica, Cal.
Miller, Isobel Selina	Victoria.
Monkman, Evelyne Ada	Ladner.
Mortimer, Helen	Vancouver.
Munro, Mary	Vancouver.
McAfee, Weldon Robert	Vancouver.

Name.	*Home Address.*
MacKinnon, Georgina Emily	Vernon.
McLennan, Lester Winston	Vancouver.
MacLeod, John Phee Gordon	North Vancouver.
McLoughry, Muriel Alice	Vancouver.
Purslow, Norah Kathleen	Vancouver.
Pye, Dora Ellen Gertrude	Vancouver.
Rankin, Agnes Helen	Vancouver.
Reid, Mary Lillian	Vancouver.
Robson, Gwendolyn	Vancouver.
Rogers, Edna Jessie	Vancouver.
Stevenson, Arthur Lionel	Vancouver.
Urquhart, Christine Margaret	Eburne.
Verchere, Ruth Emilie	Ladysmith.
Vogee, Arthur Edward	Vancouver.
Watson, Annie Pirie	Vancouver.
Weinberg, Dena	Vancouver.
Weld, Charles Beecher	Vancouver.
Wells, Lewis Edelbert	Carnduff, Sask.
Whitley, Paul N.	Lytton.
Willis, Norah Evangeline	Vancouver.
Woodworth, Clifford Allen	Chilliwack.

Conditioned.

Munro, Robert James	Vancouver.
Stephens, Robert Noot	Vancouver.

FACULTY OF APPLIED SCIENCE.

FIRST YEAR.

Full Undergraduates.

Annand, Harold	Vancouver.
Arkley, Heileman Osborne	Vancouver.
Bain, William Alexander	Vancouver.
Bassett, Edward William	Victoria.
Bennett, James Lingard	North Vancouver.
Callander, Maitland Bruce	Vancouver.
Campbell, John Middleton	Vancouver.
Carter, Marshall Neal	Vancouver.
Charlton, David Berry	Port Haney.
Cooper, Edwin Secord	
Davison, Harold Clyde	Vancouver.
Demidoff, Peter Henry	Trail.
Evans, Lacey Heintzman	Vancouver.

Name.	*Home Address.*
Evjen, Ralph Walter	Vancouver.
Gale, Stanley	Vancouver.
Gibbs, Thomas Clifford	Vancouver.
Gibson, Ernest Sydney	Vancouver.
Gray, Roy	Vancouver.
Greggor, Robert Douglas	Vancouver.
Guernsey, Frederick William	Vancouver.
Hatch, David Alfred	Vancouver.
Herry, Herman A.	Vernon
Hicks, Kenneth Wade	Vancouver.
Hincks, Drennan	Victoria.
Israeli, Moshe	Vancouver.
Jenson, Ernest Albert	New Westminster.
Jones, Eric Greville	Vancouver.
Jones, William Alfred	Vancouver.
Lambert, George Gordon	Nelson.
Lazenby, Frederic Arthur	Port Hammond.
Lucas, Colen Cameron	Vancouver.
Manning, Samuel McIntyre	Vancouver.
Mordy, George	Cumberland.
Morgan, Frederick Stewart	Vancouver.
Morton, Ralph McKenzie	Vancouver.
Mosher, Harry E.	North Vancouver.
McDonald, Malcolm	Vancouver.
McPherson, John Wallace	Vancouver.
Niederman, Otto Emil	Trail.
Noble, John Stephen	Cranbrook.
Parsons, Harold Ernest	South Vancouver.
Peter, Eric Grant	Vancouver.
Pollock, James Robert	Vancouver.
Price, Peter	Parksville.
Ramsell, John Lawrence	Marpole.
Rees, Arthur Fred	New Westminster.
Richardson, Edward Roger Gibson	Penticton.
Richmond, Alexander Morton	Nanaimo.
Saunders, Arthur Jackson	Vancouver.
Steede, John Horsford	Port Alberni.
Stevens, Ernest George Barlow	South Vancouver.
Stevenson, Cecil Douglas	Victoria.
Tanner, Dallas O'Malley	South Vancouver.
Taylor, Ivan Marcus	Vancouver.
Walsh, Harold Edgar	Vancouver.
Woodhouse, Arthur Redvers	Fernie.

Conditioned.

Name.	*Home Address.*
Abernethy, Gordon McKellar	Vancouver.
Black, Thomas Bennet	Prince Rupert.
Demidoff, Joseph	Trail.
Groves, Godfrey Francis Charles	Kelowna.
Purdy, Harry Leslie	Vancouver.
Robson, William Marshall	Vancouver.
Woodard, Laurence H.	Vancouver.

Partial.

Bloomfield, Joan D'Ardry	Vancouver.
Broadfoot, Walter Lundy Craig	Vancouver.
Cox, George Charles Roland	Kamloops.
Lambert, Arthur Alexander	Nelson.
Weir, Carlton Morley	Vancouver.
Wood, William Gordon Oliver	Burnaby Lake.

Second Year.

Full Undergraduates

Albo, Frank John Paul	Rossland.
Arnott, Clarence	Vancouver.
Baker, Wallace Risser	Vancouver.
Barr, Percy Munson	Vancouver.
Bell, John Gordon	Vancouver.
Bickell, Leslie Keith	Victoria.
Bramston-Cook, Harold Edward	North Vancouver.
Cameron, George Stuart	Vancouver.
Cant, George Beattie	North Vancouver.
Carlisle, Kenneth Wilfred	Vancouver.
Charnley, Frank	Barnston Island.
Coffin, Frederick Winfield	Vancouver.
Disney, Charles Norman	Edmonds.
Elliott, Frederick George	Genoa Bay
Falconer, Stuart Alexander	Vancouver.
Ferguson, Royden Hamilton	Vancouver.
Finlay, Allan Hunter	Vancouver.
Foggo, Norman Oliphant Macaulay	Vancouver.
Giegerich, Henry Cleburne	Kaslo.
Graham, Roland Creelman	Vancouver.
Gwyther, Valentine Mackenzie William	Vancouver.
Hardie, Dudley Barrinton	Esquimalt.
Heaslip, Wilbur Jefferies	Vancouver.

Name.	*Home Address.*
Hedley, Robert Hale	Vancouver.
Huggett, Jack Leslie	North Vancouver.
Jackson, Gerald Christopher Arder	Aldergrove.
Jackson, Robert Miller	Vancouver.
Jure, Albert Edward	Vancouver.
Lipsey, George Cherry	Vancouver.
McCutcheon, James Creighton	Greenwood.
McLean, Robert Leslie	Vancouver.
Napier, Alan Jack	South Vancouver.
Norman, George Hugh Charles	Mirror Lake.
Osborne, Freligh Fitz	Vancouver.
Pearcey, John Guy	Vancouver.
Peele, Percy Frederick	New Westminster.
Rear, James Carlton	Vancouver.
Smitheringale, William Vickers	Vancouver.
Stacey, Leonard Brown	Chilliwack.
Stockwell, Clifford Howard	Vancouver.
Stroyan, Philip Bateman	Vancouver.
Sweny, George William	Victoria.
Underhill, John Edward	Vancouver.
Wallis, Hubert Douglas	Cobble Hill.
Wilson, Clarence Harrison	New Westminster.
Wolverton, Jasper Matthews	Nelson.

Conditioned

Emery, Donald Joseph	Edmonds.
Harkness John Alexander Charles	Lozells.
Kagnoff, Morris	Vancouver.
MacLaren, William James Roy	Vancouver.
Sutherland, George Fraser	Vancouver.
Trorey, Lyle Graeme	Vancouver.
Woodworth, George Elden	Chilliwack.

Partial

Braim, John Gordon	Dundarave.
Ebbutt, Frank	Creston.
Garman, Eric Heaton	Vancouver.
McLachlan, Charles Gordon	Vancouver.
McLachlan, Robert Angus	Vancouver.
Rushbury, Henry George Boswell	Vancouver.
Ternan, Chalmer Clifford	Vancouver.

THIRD YEAR.

Full Undergraduates

Name.	*Home Address.*
Anderson, Allan Jardine	Vancouver.
Berry, Theodore Victor	Vancouver.
Burton, William Donald	Vancouver.
Cameron, Ralph King	Vancouver.
Cock, Cecil James	Vancouver.
Davidson, John Randolph	Vancouver.
Dean, Curtis Milford	Victoria.
Evans, Charles Sparling	Vancouver.
Fraser, Duncan	Vancouver.
Giegerich, Joseph Rhinehardt	Kaslo.
Graham, William Ernest	Vancouver.
Gregg, Elwyn Emerson	Vancouver.
Gross, George Clarence	Vancouver.
Guernsey, Tarrant Dickie	Vancouver.
Gunning, Henry Cecil	Vancouver.
Hanna, William Scott	Vancouver.
Hodson, Reginald	Victoria.
Hooper, Cleeve Woodward	Vancouver.
Jenkins, John Henry	North Vancouver.
Jones, Russell Heber Blayde	Victoria.
Lidgey, Ralph Christian Graham	Vancouver.
Loveridge, Gilbert Thomas	Vernon.
Mathers, Cliffe St. John	Vancouver.
McCallum, Neil Mitchell	Vancouver.
McKee, Robert Gerald	Vancouver.
McVittie, Charles Archibald	Victoria.
Pearse, Hubert Arnold	Atlin.
Rae, Douglas Henderson	North Lonsdale P. O.
Rice, Harrington Molesworth Anthony	Duncan.
Say, Stanley Rhys	Fordingbridge, Eng.
Sivertz, Christian	Victoria.
Somerville, Archibald Laurence Harold	Vancouver.
Spargo, Thomas	South Vancouver.
Stewart, Fredrick Choate	Vancouver.
Ure, William	Vancouver.
Wilkinson, Elmo Clifford	White Rock.

Conditioned

Parker, Raymond Whitfield	Vancouver.

Partial.

Forrester, William Wallace	New Westminster.
Jones, Cyril	Vancouver.
Middleton, Campbell M.	Vancouver.

FOURTH YEAR.

Full Undergraduates.

Name.	*Home Address.*
Anderson, Sydney	Vancouver.
Banfield, William Orson	Vancouver.
Bickell, William Albert Bird	Vancouver.
Coates, Wells Wintemute	Vancouver.
Coles, Eric Morrell	Vancouver.
Fountain, George Frederick	Vancouver.
Fournier, John Raymond	Vancouver.
Gale, William Alexander	Victoria.
Gray, William Henry	Kamloops.
Hatch, William George	Vancouver.
Hatt, Rona Alexandra	Vancouver.
Jackson, Oscar Adalbert Edmund	Aldergrove.
Jane, Robert Stephen	Vancouver.
Meekison, Andrew Gordon	Vancouver.
McColl, Eli Stuart	Vancouver.
McDougall, Stewart Robertson	New Westminster.
McLellan, Norman Wellington	Vancouver.
McLuckie, Robert Macfarlane	Vancouver.
Peck, Wallace Swanzey	Vancouver.
Scott, William O. C.	Vancouver.
Shaw, Lee Donald	Vancouver.
Stedman, Donald Frank	Vancouver.
Todd, Arthur Alison	Vancouver.
Walker, John Fortune	Vancouver.
Watson, James	Vancouver.

Conditioned.

Doyle, Harold	Birkenhead, Eng.

Partial.

Emmons, Edward Frets	Vancouver.
Goranson, Roy Walter	New Westminster.

Double Course.

FIFTH YEAR

Laird, Frederick William	Vancouver.

NURSING.

FIRST YEAR.

Full Undergraduate.

Name.	*Home Address.*
Armstrong, Norah Eileen	Fort a la Corne, Sask.
Creelman, Florence Mary Leigh	Vancouver.
Creelman, Pauline Fingley	Vancouver.
Foerster, Marion Edith	Vancouver.
Innes, Florence Alfreda Irene	Vancouver.
Laffere, Olive May	South Vancouver.

Conditioned.

Smith, Ida Letitia	Vancouver.

Partial.

Hedley, Anne	Vancouver.
Taylor, Dorothy Gladys	New Westminster.

SECOND YEAR.

Full Undergraduate.

Bennet, Helen Margaret	Victoria.
Wilson, Everilda	New Westminster.

Conditioned.

Carson, Leila Audrey	Victoria.
Rogers, Dorothy Matilda	Seattle, Wash.

Partial.

Bulman, Kathryn Frances Beryl	Kelowna.
Cook, Louise	Chemainus.
Pearce, Beatrice A.	Victoria.

FACULTY OF AGRICULTURE.

FIRST YEAR.

Full Undergraduates.

Name.	*Home Address.*
Argue, Charles William	Vancouver.
Atkinson, Lyle Alexander	New Westminster.
Aylard, Arthur William	Victoria.
Buckley, Hubert Leslie	North Vancouver.
Caple, Kenneth Percival	Vancouver.
Challenger, George Woolner	Vancouver.
Fraser, Edward Bruce	Nanaimo.
Gutteridge, Harry Stoneman	Vancouver.
Hood-Barrs, Beatrice	South Vancouver.
Keenan, David Prosser	Vancouver.
Laing, Arthur	Eburne.
Murphy, Laurence Arthur	New Westminster.
McKay, Leslie Walton	Agassiz.
McKenzie, George Grant	Marpole.
Newcombe, Frederick Ellis	Vancouver.
Townsend, Charles Thorcan	London, Eng.
Wilkinson, Thomas George	Victoria.
Wolfe-Jones, Cecil	North Vancouver.
Zoond, Alexander	London, England.

Conditioned

MacIntyre, Hugh Campbell	West Summerland.
Thompson, David William	Eburne.

Partial

Calder, James Norman	Jamaica.
Carpenter, Kathleen	Point Grey.
Chester, Herbert	Cranbrook.
Darling, John W.	Vancouver.
DesBrisay, Eileen	Vancouver.
Godwin, Edward Charles	New Westminster.
Goldie, James Alexander	Vancouver.
Harper, Henry Neville	Durban, South Africa.
Hartley, Thomas Sutherland	Vancouver.
Lambly, Wilfred Thomas	Penticton.
Singleton, Lora Marinda	Vancouver.
Spicer, Erle Daniel	Vancouver.

SECOND YEAR.

Full Undergraduates.

Name.	*Home Address.*
Barton, Charles MacKenzie	Chilliwack.
Eby, Victor James	Abbotsford.
Hope, Ernest Charles	Langley Fort.
MacCallum, Hugh Crawford	Agassiz.
Russell, Hugh McLaren	Marpole.
Steves, Harold Leslie	Steveston.

Partial.

Etter, Harold Clinton	Penticton.
McKay, John Joseph	Kongmoon, S. China.
Ogilvie, Alvin Easton	Agassiz.
Philip, William Pearson	Kamloops.
Plummer, Arthur Howard	Vancouver.
Rowley, Gordon Wilford	Vancouver.
Wilcox, John Carman	Salmon Arm.
Wilcox, Ralph Victor	Salmon Arm.

THIRD YEAR.

Full Undergraduate.

Barry, Sidney Clifford	Vancouver.
Bennett, Leslie	North Vancouver.
Blair, Archibald	Steveston.
Cavers, Raymond Vere	Cloverdale.
Landon, Gordon Lorne	Armstrong.
Richards, Albert Edward	New Westminster.
Woods, John Jex	North Vancouver.

Conditioned.

Fulton, Harry Graham	Chilliwack.
Mathers, William Graham	Vancouver.
Pye, William John Serson	Vancouver.

Partial.

Phillips, Sperry Shea	Camp Lester.
Welland, Frederic James	South Galt, Ont.

FOURTH YEAR.

Full Undergraduates

Fisher, Raymond Anderson	Prince Rupert.
Greenwood, Harold Day	Vancouver.
Harris, George Howell	West Summerland.

Name.	*Home Address.*
Kelly, Clifford Darton	Vancouver.
Leavens, John Bruce	Vancouver.
McKechnie, Martha Stirling	Armstrong.
Riddell, William Hugh	Coleman, Alta.
Riley, William John	Celista.
Sweeting, Bertram Stanley	Vancouver.

Partial

Clarke, George Ernest Wesley	Vancouver.

GRADUATES

FACULTY OF ARTS AND SCIENCE.

Blakey, Dorothy	Vernon.
Boss, Arthur E.	Vancouver.
Clemens, Isabelle	Vancouver.
Crute, Ebenezer	Agassiz.
Dunbar, Violet E.	Vancouver.
Dunlop, Henry A.	Vancouver.
Fisher, Lacey J.	New Westminster.
Foerster, Russell E.	Vancouver.
Gill, Bonnie H.	North Vancouver.
Hamilton, George H.	Vancouver.
Handford, Freda M.	Vancouver.
Harris, Ethel	Vancouver.
Kerr, Donna E.	Duncan.
Kilpatrick, Myrtle E.	Victoria.
King, Herbert B.	Vancouver.
Morgan, William	North Vancouver.
Morrison, Loyle A.	Vancouver.
Morrison, Margaret R.	Vancouver.
McConnell, Hazel E.	Victoria.
McDongall, Helen	Vancouver.
McKay, Katharine	Cornwall, Ont.
MacKinnon, Flora G.	Calgary, Alta.
Peck, Kathleen M.	Vancouver.
Rogers, Wilbur S.	Vancouver.
Schell, Joseph McL.	Vancouver.
Shumizu, Kosaburo	Vancouver.
Stirk, Louie	Vancouver.
Studer, Frank J.	Vancouver.
Suttie, Ethel G.	Vancouver.
Wilson, Freda L.	Vancouver.
Wilson, Grace A.	Vancouver.

FACULTY OF APPLIED SCIENCE.

Name.	*Home Address.*
Gillie, Kenneth B.	Victoria.
Melville, John	Vancouver.
Swanson, Clarence O.	Vancouver.

FACULTY OF AGRICULTURE.

Lothian, David E.	Loanstone, Penicuik, Scotland.
Robinson, Victor B.	Vernon.
Palmer, Richard C.	Summerland.
Traves, Charles W.	Grand Forks.

REGISTRATION FOR 1921-22.

Faculty of Arts and Science.

	Women	Men	Total	
First Year	155	180	335	
Second Year	77	83	160	
Third Year	67	53	120	
Fourth Year	40	38	78	
				693

Faculty of Applied Science.

	Women	Men	Total	
First Year	1	68	69	
Second Year	0	60	60	
Third Year	0	40	40	
Fourth Year	1	27	28	
				197

Double Course.

	Women	Men	Total	
Fifth Year	0	1	1	
				1

Nursing.

	Women	Men	Total	
First Year	9	0	9	
Second Year	7	0	7	
				16

Faculty of Agriculture.

	Women	Men	Total	
First Year	4	29	33	
Second Year	0	14	14	
Third Year	0	12	12	
Fourth Year	1	9	10	
				69

Graduates.

	Women	Men	Total	
Arts and Science	18	13	31	
Applied Science	0	3	3	
Agriculture	0	4	4	
				38
				1014

Short Courses (Session 1921-22).

Summer School	134	
Public Health Nursing	14	
Botany	64	
Mining	5	
		217

EXAMINATION RESULTS (Session 1920-21).
DEGREES CONFERRED

Faculty of Arts and Science.

CONFERRING THE DEGREE OF MASTER OF ARTS

(Names in alphabetical order)

William John Allardyce, B.A.....Chemistry (major)
Biology (minor)

Olive Edmondson Maclean, B.A.....Bacteriology (major)
Chemistry (minor)

Roy Lars Vollum, B.A.....Bacteriology (major)
Chemistry (minor)

CONFERRING THE DEGREE OF BACHELOR OF ARTS.

With Honours.

(Names in alphabetical order)

Blakey, Dorothy .....(1st class honours in English)
Boss, Arthur Evan .....(2nd class honours in Chemistry)
Crozier, Isabella Elliott .....(1st class honours in English)
Dunbar, Violet Evelyn .....(2nd class honours in Biology and Chemistry)
Fournier, Leslie Thomas .....(2nd class honours in Economics)
Goldstein, Cyril Moss .....(2nd class honours in French)
Goldstein, Sylvia .....(2nd class honours in French)
Handford, Freda Mary .....(2nd class honours in Chemistry)
McConnell, Hazel Erma .....(2nd class honours in French)
Peardon, Thomas Preston .....(1st class honours in History and Latin)
Pratt, Bernard Dodge .....(2nd class honours in Economics)
Rive, Alfred .....(1st class honours in Economics and History)
Russell, Alan Macpherson .....(1st class honours in Economics)
Scott, Seaman Morley .....(1st class honours in Latin and History)
Solloway, Edgar Dunn .....(2nd class honours in Biology and Chemistry)
Studer, Frank John .....(1st class honours in Mathematics)

In Pass Course.

(Names in order of merit)

Class I.

Craig, Ruth Dyke
Coates, Lila F.
Cowling, Florence
Galbraith, Samuel Tait
Smith, Annie Marie

Class II.

MacKinnon, Flora Grace
Herman, Victoria
Munro, Muriel Rose
Ingledew, Harold Garfield
Matheson, Marjorie Crawford
Cribb, Reginald Edward
McKee, Enid Muriel
Bowes, Dorothy Margaret
Lawrence, Marion Evangeline
MacBeth, Jessie Alexandra
Lawrence, James Lyle
Rogers, Wilbur Stuart
Wilson, Freda Lenore
Adams, Dorothy Isobel
Barnwell, George Francis
Clarke, Margaret
McLean, Eleanor May
Harrison, Ruth
Kilpatrick, Myrtle Esther
Wilson, Grace Agnes
Cross, George Carmichael
Mathers, Nina Adell
Suttie, Ethel Gwendolyn
Carson, Miriam Barbara
Foerster, Russell Earl
Lord, Arthur Edward
McKee, Greta Hope
Ure, Agnes Margaret
Edwards, Sadie
Hobson, Lillian Belle
Lett, Jessie Katrina
McGregor, Norma Isabel
Schell, Joseph McClure
McAfee, Irene Davin
MacArthur, Donald Moulton
McArthur, Hattie May
Robson, Margaret Watt
Greenwood, Julia Elizabeth
Fisher, Lacey Julian
Healy, Agnes Coupland

Passed.

Jones, Norah Vivian
Lewis, Kathleen Gwynneth
Lyne, Dorothy Elizabeth
McLean, Harold William
Sauder, Marion Eleanor Martha
Usher, Alexander Murray
Wilks, Arthur Frederick
Crute, Ebenezer
Shannon, Myrtle Evelyn
Gill, Bonnie Helen
Milley, Chesley Ernest
Brenchley, Dorothy Ann Bennett
Lyness, Ruth Emily
Wilby, George Van
Kirby, Judson Orville Coates
McTavish, Janet Lu Edna
Kelman, Mildred Alice
Reid, Georgina Agnes
Munn, Nina Vivian
Wright, Thomas Hall

Passed with Supplementals.

Smith, Charles Duncan

Aegrotat.

Barlow, Edith Charlotte Irene
Osborne, Dwight Hillis
McDougall, Wilfrid Robinson

Faculty of Applied Science.

CONFERRING THE DEGREE OF BACHELOR OF SCIENCE.

(Names in order of merit)

Chemical Engineering.

Class I.

Douglas Archibald Wallace

Class II.

Clifford Ervin Stone
Donald McKay Morrison
John Melville
Kenneth Beresford Gillie
Edward Murdie White
Stephen Becher Plummer

Chemistry.

Class I.

Wilfrid Reid Payne

Mining Engineering.

Class I.

Clarence Otto Swanson (Aegrotat)

Class II.

Howard Turnbull James
Harold Glover Bell
Joshua Rowland Kingham
Robert Griffith Anderson

Passed.

Hedley Alexander Rose
Douglas Lionel Thompson
Roland McPhee
Bayard Marshal Carter

Metallurgical Engineering.

Class II.

Pharic Donald Innes Honeyman

Faculty of Agriculture.

CONFERRING THE DEGREE OF BACHELOR OF SCIENCE IN AGRICULTURE.

(Names in order of merit)

Class I.

Richard Claxton Palmer
Marion Jean Mounce, B.A.
Claude Perrin Leckie
Cecil Alexander Lamb (Aegrotat)

Class II.

George Stanley Coward, B.A.
Henry Roy L. Davis

Passed.

Frederick Francis McKenzie
Charles Wesley Traves

MEDALS, SCHOLARSHIPS, AND PRIZES.

AWARDED MAY, 1921.

Faculty of Arts and Science.

Fourth Year.

1. The Governor-General's Gold Medal.....Dorothy Blakey
2. The Historical Society Gold Medal.....Alfred Rive
3. The Wesbrook Prize, $50.00.....Ruth Dyke Craig

Third Year.

1. University Scholarship, $75.00.....Lester Winson McLennan
2. University Scholarship, $75.00—
   Charles Augustus Fordyce Clark
   Weldon Robert McAfee } Equal
   Awarded to Charles Augustus Fordyce Clark
3. The Arts '19 Scholarship, $150.00.....Weldon Robert McAfee
4. The Gerald Myles Harvey Prize, $50.00 Book Prize..
   .....Weldon Robert McAfee
5. The Historical Society Silver Medal.....Annie Pirie Watson

Second Year.

1. The McGill Graduates' Scholarship, $137.50.....
   .....Kathleen Madge Portsmouth
2. University Scholarship, $75.00....Kathleen Madge Portsmouth
   by reversion to
   Annie Margaret Anderson
   by reversion to
   Joseph Frederick Brown
3. University Scholarship, $75.00.....Joseph Frederick Brown
   by reversion to
   Marjory Emma Bell
4. The Terminal City Club Memorial Scholarship, $100.00—
   Divided between
   Harry Morris Cassidy
   and
   Frank John Cunningham
5. The Scott Memorial Scholarship, $110.00.....
   .....Gertrude May Smith
6. The Shaw Memorial Scholarship, $137.50.....
   .....Kathleen Madge Portsmouth
   by reversion to
   Annie Margaret Anderson

First Year.

1. Royal Institution Scholarship, $75.00.....Roy Gray
2. Royal Institution Scholarship, $75.00.....Lucy Ingram
3. Royal Institution Scholarship, $75.00...Flora Magdalene Aske
4. University Scholarship for Returned Soldiers, $75.00 .....Arthur Geoffrey Bruun
5. University Scholarship for Returned Soldiers, $75.00 ..... Robert Topper
6. The Women's Liberal Association Prize, $25.00..... .....Ruth Askew MacWilliam
7. The Women's Conservative Association Prize, $25.00 .....Edwin Secord Cooper

Post-Graduates.

1. University Scholarship, $200.00.....Dorothy Blakey
2. The Anne Wesbrook Scholarship, $100.00.....Alfred Rive

Faculty of Applied Science.

Post-Graduate Scholarship in Applied Science.

1. The Dean Brock Scholarship, $100.00...Clarence Otto Swanson

Fourth Year.

1. The Convocation Scholarship, $50.00...Clarence Otto Swanson

Third Year.

1. The Dunsmuir Scholarship, $165.00..... .....Oscar Adalbert Edmond Jackson

Second Year.

1. University Scholarship, $75.00.....William Ure

First Year.

1. University Scholarship, $75.00.....Cyril Jones

Nursing—Short Course of Public Health.

1. Red Cross Prize, $100.00.....Muriel Carolina Harman
2. Provincial Board of Health Prize, $60.00..... .....Helena Gladys Munslow
3. Provincial Board of Health Prize, $40.00..... .....Louise Marian Usher

Faculty of Agriculture.

Fourth Year.

1. The R. P. McLennan Gold Medal.....Richard Claxton Palmer

Third Year.

1. The R. P. McLennan Scholarship, $75.00.....
.....William John Riley
2. The B. C. Fruit Growers' Association Scholarship, $100.00
Not awarded

Special.

1. The B. C. Dairymen's Association Prizes:
First Prize, $50.00.....Bertram Stanley Sweeting
Second Prize, $30.00.....William Hugh Riddell
Third Prize, $20.00.....Marion Jean Mounce

Second Year.

1. The R. P. McLennan Scholarship, $75.00.....
.....Albert Edward Richards
by reversion to
Raymond Vere Cavers

First Year.

1. University Scholarship, $75.00.....Ernest Charles Hope
2. The R. P. McLennan Scholarship, $75.00...Herbert Edwin West

General (Open).

1. University Book Prize, $25.00.....No competition
2. University Book Prize, $25.00.....No competition
3. The Women's Canadian Club Scholarship, $75.00....
.....Weldon Robert McAfee
by reversion to
James Fenton Herd and Annie Pirie Watson } Equal
4. The Historical Society Prize, $25.00.....Ruth Emilie Verchere
5. The Captain LeRoy Memorial Scholarship, $300.00..
.....Albert Edward Richards
6. The Vagabonds' Club Prize, $25.00.....Arthur Geoffrey Bruun
7. The Applied Sociology Prize Essay, $25.00.....
.....Ethel Gwendolyn Suttie

Returned Soldier Scholarships.

S. T. Galbraith .....Arts '21
Alfred Rive .....Arts '21
S. M. Scott .....Arts '21
M. Home .....Arts '23
W. A. Gale .....Sc. '22
C. S. Evans .....Sc. '23
C. Sivertz .....Sc. '23
C. P. Leckie .....Agric. '21
R. C. Palmer .....Agric. '21

UNIVERSITY SUMMER SESSION, 1922.

Six Weeks—July 3rd to August 12th.

With the Session of 1922 The University Summer School for Teachers becomes The University Summer Session. Teachers and others who possess full Matriculation standing may pursue University courses and receive credit therefor towards the B.A. degree. During the forthcoming Session, however, no University courses will be offered beyond those of the first two years.

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 (including Commercial subjects), and also courses in Educational Theory and Method of a similar character to those which have been given during the past two years.

No student registered during the Winter Session of the University will be admitted to the ensuing Summer Session, except for purposes of general culture or for the purpose of preparation for the regular University supplemental examinations.

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.

The members of the Students' Council are Undergraduates of the Junior and Senior Years, and are elected 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, "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" is published at the close of the Spring Term. It is intended to epitomize the spirit of the year, in all its phases.

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, and the Social Science 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 is the Women's Basketball Club, the Women's Gymnasium Club, the Women's Grass Hockey Club, and the Women's Swimming Club. Last year the Ice Hockey Club was inactive owing to the impossibility of securing the Arena.

Men's Athletics.

The Men's Athletic Association endeavors to foster all branches of clean and manly sport.

The season for the Rugby Club begins with the opening of the Fall Term. Practices are held and three teams are chosen, one for the McKechnie Cup League, provincial; one for the Miller Cup League, city; and one for the Intermediate League, also of the city.

The Basketball season follows that of Rugby. Three teams are chosen and entered in the various city leagues.

The Soccer Club enters a team in one of the city leagues. The team is 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 selects teams each year and enters these 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.

The Lacrosse Club carries on throughout the summer, and is chiefly for those who are in the city during that time.

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. 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.

There are several subsidiary organizations within the Association, such as: "The Curtain Club," which offers a field to graduates who are interested in the drama; "The Alumni Employment Bureau," whose aim is to help provide employment for undergraduates and graduates; and "The Alumni Athletic Club," which aims to foster sport at The University, and to give the Alumni an opportunity of continuing in various sports after leaving The University.

VICTORIA COLLEGE

(In affiliation with the University of British Columbia)

Principal
EDWARD B. PAUL, M.A. (Aberdeen)

Registrar
E. HOWARD RUSSELL, B.A. (Queen's)

The College at Victoria, B. C., gives instruction in the first two years of the Arts Course. The courses offered are:

First and Second Years.

The work of the first two years in Arts and Science is arranged according to the following scheme, involving ten courses:

1, 2. English 1 (*a* and *b*), 2 (*a* and *b*), one course in each year. (6 units)

3, 4. The first two courses in a language offered for matriculation, one course in each year. (6 units)

5. The first course (3 units) in Mathematics. (To be taken in the First Year.)

6. A first course in Physics. (3 units)

7-10. Four courses (12 units) to be chosen from the following groups of studies:

1. Mathematics, Chemistry, Physics.
2. Latin, Greek, French.
3. Philosophy, History (Economics, if possible.)

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 69.)

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 69.)

For further information in reference to Faculty, Courses of Study, etc., see calendar of the College.

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