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1 The Faculty

1.1 Location

McGill University, Macdonald Campus
21,111 Lakeshore Road
Sainte-Anne-de-Bellevue, QC H9X 3V9
Canada

Telephone: (514) 398-7928

Website: <http://www.macdonald.mcgill.ca>

The Faculty of Agricultural and Environmental Sciences, and the School of Dietetics and Human Nutrition are located on the Macdonald Campus of McGill at Ste. Anne-de-Bellevue at the western end of Montreal Island. It is served by public transport (M.U.C.T.C. bus and train) and is easily reached from the McGill Downtown Campus and from Dorval International airport.

1.2 Administrative Officers

DEBORAH J.I. BUSZARD, B.Sc.(Bath), Ph.D.(Lond.) **Dean,
Faculty of Agricultural and Environmental Sciences,
and Associate Vice-Principal (Macdonald Campus)**

WILLIAM H. HENDERSHOT, B.Sc.(Tor.), M.Sc.(McG.),
Ph.D.(U.B.C.) **Associate Dean (Academic)**

ERIC R. NORRIS, B.S.A.(Tor.), M.Sc.(Guelph),
Ph.D.(Mich. St.) **Associate Dean (Student Affairs)**

MARCEL J. COUTURE, B.Sc.(Agr.)(McG.), M.Sc.(Guelph)
Associate Dean (Community Relations)

DIANE E. MATHER, B.Sc.(Agr.)(McG.), M.Sc.,
Ph.D.(Guelph) **Associate Dean (Research)**

GARY O'CONNELL, B.Comm.(C'dia) **Director of
Administrative Services**

WILLIAM R. ELLYETT, B.A.(Sir G. Wms.),
B.Ed.(Phys.Ed.)(McG.) **Director of Athletics**

LAURENCE BAKER, B.B., M.Sc.(Man.), Ph.D.(McG.)
Director of Macdonald Farm

GINETTE LEGAULT **Manager, Campus Housing**

SUZANNE HIGGINS, B.A.(McG.) **Manager,
Student Affairs Office**

PETER D.L. KNOX, B.Sc.(Agr.)(McG.) **Supervisor,
Property Maintenance**

1.3 Programs and Academic Units

The Faculty of Agricultural and Environmental Sciences and the School of Dietetics and Human Nutrition offer B.Sc., M.Sc. and Ph.D. programs in the areas of study of: Agricultural Sciences, Environmental Sciences, Biological Sciences, Food Science, Engineering and Nutritional Sciences. The Faculty of Agricultural and Environmental Sciences is also one of the three faculties in partnership with the McGill School of Environment.

The Faculty is comprised of eight academic units: the School of Dietetics and Human Nutrition; the departments of Agricultural and Biosystems Engineering, Agricultural Economics, Animal Science, Food Science and Agricultural Chemistry, Natural Resource Sciences, and Plant Science; and the Institute of Parasitology.

The School offers programs in dietetics and nutrition, the former leading to membership in various professional associations. Professional Practice experiences to complete the dietetics practicum are provided in the McGill teaching hospitals and in a wide variety of health, education, business, government and community agencies.

The Institute offers graduate programs leading to M.Sc. and Ph.D. degrees as well as a Certificate in Biotechnology. Major areas of research include the molecular biology, immunology, and population biology of parasites and their hosts and the biochemical pharmacology of antiparasite drugs. The underlying orientation of all research is to apply relevant modern biological techniques to reduce parasite transmission and

to improve methods of diagnosis and control. The research background and activities of the staff encompass many disciplines applied to the study of host-parasite interactions, ranging from research involving viruses and cancer cells to studies on protozoa and helminth parasites of humans, livestock, and other animals. The Institute has been designated by the Quebec Government as a Centre d'excellence for research on parasites.

Most undergraduate programs offered in the Faculty include the opportunity for a Co-op work experience.

1.3.1 Co-op Experience

Most undergraduate programs offered in the Faculty include the opportunity for a Co-op work experience.

Students are able to profit from a Co-op experience of approximately 12 weeks duration where they will be exposed to the main areas of operation of their employer. Each student registered in a Co-op work experience will benefit from a program developed by both the employer and the instructor exclusively for that individual student.

Students who register for a Co-op experience benefit from practical learning arising from work-term employment in a meaningful job situation. Students also benefit from the non-tangible learning experience arising from the increased responsibilities required to obtain and successfully complete the work term.

1.4 Macdonald Campus Facilities

The Macdonald Campus, established in 1907, consists of approximately 800 hectares on the shore of beautiful Lake St. Louis. It includes the Morgan Arboretum which has over 245 hectares of managed and natural woodlands and tree plantations used for environmental research and teaching in a wide range of courses. Groups of all the Canadian native trees and many useful and important exotics are also present. The Arboretum features three self-guided interpretation trails, a bird sanctuary, 20 kilometres of wooded trails, a variety of forest ecosystems, soil and water conservation projects, forest operations such as reforestation, plantation management, timber harvesting and maple syrup production, and related forestry-wildlife ecological activities. A volunteer-run nature interpretation program is offered.

Laboratory and lecture rooms are well supplied with modern and efficient teaching facilities, while the reference section of the Library and the research laboratories associated with the various science departments are well equipped to permit the vigorous investigation of problems at the post-graduate level.

Macdonald Campus Library

The Library is located in the Barton Building. The collection includes materials in the agricultural, biological, environmental, food and nutritional sciences. The Lyman Room houses a special collection on entomology. The Library is a depository for many government publications related to agriculture and the environment, with 17,000 volumes in a separate collection. The total collection numbers 95,750 volumes of books and journals, and the library receives about 730 current journal titles in print, as well as access to many others online. The online catalogue includes the holdings of all McGill libraries, and the automated circulation system controls the circulation of materials. Reference services include access to computerized databases on CD-ROM and the Internet as well as excellent interlibrary loan facilities. A library instruction program is available throughout the year.

Lyman Entomological Museum And Research Laboratory

Originally established in 1914 and formerly housed in the Redpath Museum, the Lyman Entomological Museum was moved to the Macdonald Campus in 1961. It houses the largest university collection of insects in Canada, second only in size to the National Collection. The Museum also has an active graduate research program in association with the Department of Natural Resource Sciences. Study facilities are available, on request from the Curator, to all bona fide students of entomology. Visits by other interested parties can also be arranged by calling (514) 398-7914.

Brace Centre for Water Resources Management

The Brace Centre for Water Resources Management is located on the Macdonald Campus. It is a multidisciplinary and advanced research and training centre of McGill University, dedicated to solving problems of water management related to food production, the environment, and rural development. It brings together staff from several McGill faculties, to undertake research, teaching, specialized training, and policy and strategic studies, both in Canada and internationally. The Centre draws on the wide range of facilities available within the University.

2 Summary of Academic Programs

2.1 Outline of Academic Programs

Programs leading to five degrees are offered on the Macdonald Campus, with Majors associated with each degree. A Certificate in Ecological Agriculture is also offered. Detailed information about each Major and the Minors can be found in the section on the administering department which is indicated (in brackets) beside each program.

2.1.1 Major Programs

Bachelor of Science in Agriculture - B.Sc.(Agr.)

This is a three-year (90 credit) program following the Diploma of Collegial Studies and leading to professional qualification in Agricultural Science or in one of its related specialized branches in Biological Science, Environmental Science or Renewable Resources. (Graduates of programs marked with an asterisk * are eligible for membership in l'Ordre des agronomes du Québec.)

Agricultural Economics* (Agricultural Economics, [page 434](#))

Agribusiness Option

Agricultural Systems Option

Natural Resource Economics Option

Animal Biology (Animal Science, [page 436](#))

Animal Science* (Animal Science, [page 436](#))

Applied Zoology (Natural Resource Sciences, [page 441](#))

Botanical Science (Plant Science, [page 444](#))

Ecology Option

Molecular Option

Environmental Biology (Natural Resource Sciences, [page 441](#))

General Agricultural Sciences* (Plant Science, [page 440](#))

Microbiology (Natural Resource Sciences, [page 442](#))

Plant Science* (Plant Science, [page 445](#))

Resource Conservation (Natural Resource Sciences, [page 443](#))

Soil Science* (Natural Resource Sciences, [page 443](#))

Soils and Crops Option

Soil Conservation Option

Wildlife Biology (Natural Resource Sciences, [page 444](#))

Bachelor of Science in Agricultural Engineering - B.Sc.(Agr.Eng.)

This is normally a three and one-half year (106 credit) program following the Diploma of Collegial Studies in Pure and Applied Sciences and leading to professional qualification in both Agricultural Engineering and Agrology.

Agricultural Engineering (Agricultural and Biosystems Engineering, [page 433](#))

Bachelor of Science in Food Science - B.Sc.(F.Sc.)

This is a three-year (90 credit) program following the Diploma of Collegial Studies leading to professional qualification in Food Science.

Food Science (Food Science and Agricultural Chemistry, [page 439](#))

Bachelor of Science in Nutritional Sciences - B.Sc.(Nutr.Sc.)

Two programs are offered by the School of Dietetics and Human Nutrition, a three-year (90 credit) program for Nutrition and a three and one-half year (115 credit) program for Dietetics following the Diploma of Collegial Studies. Both the Nutrition and Dietetics programs lead to professional qualification.

Dietetics (School of Dietetics and Human Nutrition, [page 437](#))

Nutrition (School of Dietetics and Human Nutrition, [page 438](#))
 Nutritional Biochemistry Option
 Nutrition and Populations Option
 Nutrition of Food Option

Bachelor of Science - B.Sc.

This is a three-year (90 credit) program following the Diploma of Collegial Studies.

Environment (McGill School of Environment, [page 469](#))

2.1.2 Minor Programs

Agricultural Economics (Agricultural Economics, [page 435](#))

Agricultural Engineering (Agricultural and Biosystems Engineering, [page 434](#))

Agricultural Production (Plant Science, [page 446](#))

Ecological Agriculture (Interdisciplinary Studies, [page 439](#))

Environment (McGill School of Environment, [page 466](#))

Environmental Engineering (Agricultural and Biosystems Engineering, [page 434](#))

Environmental Forestry (Natural Resources Sciences, [page 442](#))

Human Nutrition (School of Dietetics and Human Nutrition, [page 438](#))

2.1.3 Certificate Program

Ecological Agriculture (Ecological Agriculture Program, [page 439](#))

2.1.4 Diploma Programs

Farm Management and Technology Program, [page 460](#)

Environment (McGill School of Environment, [page 477](#))

2.2 Environmental Sciences Programs**McGill School of Environment (MSE)**

The McGill School of Environment (MSE), a joint initiative of the Faculty of Agricultural and Environmental Sciences, the Faculty of Arts, and the Faculty of Science, offers a B.Sc. Major in Environment, a B.A. Faculty Program in Environment, a Minor in Environment and a Diploma in Environment. Many of the MSE programs allow students to choose to study exclusively on the Macdonald or downtown campuses, or to take advantage of both. For further information on these programs, please refer to the McGill School of Environment, [page 427](#).

Other Environmental Programs at Macdonald Campus

A number of other integrated environmental science programs are also offered on the Macdonald Campus. The objective of these interdepartmental programs is to provide the student with a well-rounded training in a specific interdisciplinary subject as well as the basis for managing the natural resource. The programs include:

Agricultural Economics Major, Natural Resource Economics Option, [page 435](#)

Applied Zoology Major, [page 441](#)

Botanical Science Major, [page 444](#)

Environmental Biology Major, [page 441](#)

Environmental Forestry Minor, [page 442](#)

Microbiology Major, [page 442](#)

Resource Conservation Major, [page 443](#)

Wildlife Biology Major, [page 444](#)

3 Application and Admission Requirements

The programs in the Faculty of Agricultural and Environmental Sciences, and the School of Dietetics and Human Nutrition, are normally of three years' duration following the completion of a two-year Quebec post-secondary Collegial program (CEGEP). Exceptions are the Agricultural Engineering program and the Dietetics program, both of which are normally three and one-half years.

Holders of the Diplôme d'études collégiales (DEC)/Diploma of Collegial Studies (DCS) are considered for admission to the first year of a program requiring the completion of a minimum of 90 credits – 106 credits for Agricultural Engineering and 115 credits for Dietetics. Students who complete the "DEC en sciences, lettres et arts" may be considered for any university program. Students who have completed a technical or professional DEC will be considered on an individual basis.

Based upon entry with the appropriate DEC, the B.Sc.(Agr.) and the B.Sc.(F.Sc.) are both three-year programs. The B.Sc.(Agr.Eng.) is normally a three and one-half year program. Two B.Sc.(Nutr.Sc.) programs are offered, a three-year program for Nutrition, and a three and one-half year program for Dietetics.

Students from outside Quebec who are admitted on the basis of a high school diploma enter a program which is extended by one year to include the 30 credits which comprise the Freshman Year (see [section 5.1](#)). Advanced standing of up to 30 credits may be granted to students who obtain satisfactory results in International Baccalaureate, French Baccalaureate, or Advanced Placement Tests.

For information, or to obtain an application package, contact:

Student Affairs Office
 Macdonald Campus of McGill University
 21,111 Lakeshore Road
 Sainte-Anne-de-Bellevue, Quebec, H9X 3V9
 Telephone: (514) 398-7928
 Email: studentinfo@macdonald.mcgill.ca
 Website: <http://www.macdonald.mcgill.ca>

Please note that the same application form is used to request admission to the Faculties of Arts, Education, Engineering, Management, and Science, and that a second choice of program may be entered on the form. The Electronic Application, which is available on the Web (<http://www.aro.mcgill.ca>) may also be used when applying for admission to Faculty of Agricultural and Environmental Sciences programs.

More specific information on application deadlines and admission requirements can be found in the Application Procedures and Admission Requirements section beginning on [page 11](#).

4 Student Information

The information provided below is specific to Macdonald Campus and should be considered as supplementary to that which is contained in the General University Information section. Students are also advised to consult that section for information regarding topics such as health insurance, immigration, etc. Information is also available on the McGill Student Services Website (<http://www.mcgill.ca/stuserv/>).

4.1 Student Services

The Student Service Centre is currently located in Rowles House, telephone (514) 398-7992. (Note: Student Services will be moving to the Centennial Centre in the summer of 2000.) Available at that location are offices of the Counselling Services, Health Services, Off-Campus Housing, Student Aid, and Career and Placement Services.

Counselling Services – A professional counsellor is available on campus twice a week offering counselling for personal, social and emotional concerns as well as for academic and vocational concerns. Appointments are required.

Health Service – McGill has two student health clinics, one on the Macdonald Campus and the other on the Downtown Campus. A referral service on the Macdonald Campus is available Monday through Friday. A nurse/health educator is on Campus twice a week and a physician may be seen by appointment on specified dates. All information is confidential and does not form any part of the student's University record. Students who wish to be followed by Student Health Service for particular health needs, should have their physician forward relevant information to Health Service.

Students in the Dietetics Major are encouraged to complete the Compulsory Immunization Program for Health Care students prior to registration. Participation in Professional Practices (Stages) in Dietetics will only be permitted for those students who have completed all immunization requirements.

Off-Campus Housing – The Macdonald Campus service is available from June 1 to August 31 each year.

Student Aid Office – Information about government loans, McGill loans and bursaries, and the Work Study Program can be obtained from the Coordinator at the Student Service Centre. During the academic year (September to April) a counsellor visits the campus twice monthly to help students with financial problems.

Career and Placement Service (CAPS) – Student Services, in cooperation with the Faculty, provides a Career and Placement Service on Campus to bring together potential employers and students seeking permanent, summer and part-time career-related work. CAPS also provides job search assistance individually and in groups, assists with Career Day and is aiming to enhance co-op opportunities for students. Services are available to currently registered students and those who have been away from the Campus for less than one year.

Athletics – Facilities available to Macdonald students are a gymnasium, pool, weight room, an indoor arena, tennis courts, lit playing fields and large expanses of green space.

The athletics program is designed to help students relax in their spare time. It also allows the students to learn, practise or use a skill which they have developed during one of the many programs offered. Four types of programs are offered: instructional, recreational, intramural and intercollegiate. There are over 60 programs in all. A handbook, with complete information on all programs, is available at the Athletics Office in the Stewart Athletic Complex west of the Centennial Centre, telephone (514) 398-7789. Information is also available on the Web at <http://www.agrenv.mcgill.ca/society/athletic>.

4.2 Macdonald Campus Residence

For more than 90 years, residence life has been an integral part of Macdonald Campus activities. Laird Hall, with a capacity of more than 210 students, is arranged on a co-educational basis and provides accommodation for both undergraduate and graduate students. Residents enjoy comfortable rooms, modern kitchens, cosy lounge facilities, and other amenities which help make their residence life a complete and meaningful part of their university experience.

The new EcoResidence, Canada's first ecologically-friendly student residence, accommodates 100 students. The EcoResidence is a unique initiative that recycled two buildings and incorporated the newest ecological construction technology. This type of accommodation will appeal to students who enjoy independent living in self-contained apartments of two or six single bedroom units. Each unit is built on a split-level concept with large, airy common living areas and fully equipped kitchens.

Applications for residence and inquiries concerning the residence should be addressed to the Campus Housing Office, P.O. Box 192, Macdonald Campus of McGill University, Sainte-Anne-de-Bellevue, QC, H9X 3V9. Telephone: (514) 398-7716, email: Residence@Macdonald.McGill.ca.

Residence Fees

Residence fees are paid separately from tuition in accordance with regulations of the Fee Payment Option selected at the time of signing a Residence Lease.

The residence fees for the 2000-01 session had not been set at the time this Calendar went to print. The 1999-2000 session rates for Laird Hall were (Double occupancy) \$1,872 and (Single occupancy) \$2,088. Rates for the EcoResidence are available upon request. An updated fee sheet will be available with the residence application forms when an offer of accommodation is made.

The Macdonald Campus Residence operation does not offer a Board Plan. Meals are on a cash basis and may be obtained from the Snack Bar facility of the Centennial Centre. The Snack Bar is open for breakfast and lunch only, 5 days per week, exclusive of Saturday, Sunday and holidays designated by the University. Students may buy individual meals on a cafeteria basis.

For budgeting purposes, the approximate cost of meals per person per session might be considered to be \$3,000.

Application for Residence Accommodation – New Students

The Campus Housing Office will send residence information and an application to those applicants who have indicated that they wished to be considered for residence accommodation on their McGill application form. The Residence application form should be completed and returned to the Campus Housing Office as soon as possible after receipt. Applicants should note that, if offered accommodation, it is not possible to alter the terms of the original application (lease) except under exceptional circumstances.

Applicants needing additional information about residence accommodation should contact the Campus Housing Office by email: Residence@Macdonald.McGill.ca; telephone: 514-398-7716; or fax: 514-398-7953.

Room Occupancy

Residence fees cover the period September 1 to April 30 and students must vacate their rooms at the end of the lease term. Only under exceptional circumstances will a student be granted permission to arrive prior to September 1 or remain in residence during the summer months. In these cases, students must apply to the Campus Housing Office and an additional fee will be charged if permission is granted.

Students may request permission to extend their stay in residence (at the normal weekly charge) if they are taking extended courses after the regular session, employed on the Campus, or registered for summer courses.

International students or those coming from a distance may be admitted early in exceptional circumstances. Permission from the Campus Housing Office must be obtained prior to the student leaving home. Student Officers may be admitted before the opening date of courses, if permission is granted by the Campus Housing Office.

Non-Resident Students

Non-resident students may not stay overnight in any residence without permission of the Campus Housing Office. Common rooms, for studying, are provided for non-resident students in the Centennial Centre.

Meals are available in the Centennial Centre for non-resident students.

Lockers are available in the Macdonald Stewart Building for non-resident students. These may be rented at the Students' Society Office in Centennial Centre.

Student Parking

Students who hold parking permits will be allowed to park automobiles on the Campus provided they observe the parking regulations and other applicable rules. Permits must be obtained from the Campus Security Office (Laird Hall, Room 101) during regular office hours.

4.3 Extracurricular Activities

All undergraduate, postgraduate, and Farm Management and Technology students are members of the Macdonald Campus Students' Society. The MCSS, through the 19-member Students' Council, is involved in numerous campus activities such as social events, academic affairs, and the coordination of clubs and organ-

izations. Student life is informal and friendly and student groups range from the Outdoor Adventure Club to the Photography Society. Major social events include Orientation, the Halloween Party, Winter Carnival and International Night. The student-run bar, the Ceilidh, is open every Thursday night in the Centennial Centre (C.C.).

The Centennial Centre is the students' building and the centre of student life, offering facilities for student activities, such as meeting rooms, a Yearbook room, a pool table, a café, great places to relax, listen to music and meet friends. Also located in the C.C. are the Students' Council offices, an information desk, and the campus store, the Robber's Roost.

4.4 Student Conduct and Discipline

The Associate Vice-Principal (Macdonald Campus) and Dean of the Faculty of Agricultural and Environmental Sciences has jurisdiction over all offenses committed by students registered at Macdonald and over all offenses committed by students on or about the Macdonald Campus. Directors of residences have jurisdiction over all offenses committed in or about their respective residences.

Students found guilty of improper conduct, violation of rules or willful damage to persons or property, shall be liable to discipline as set forth in the Code of Student Conduct and Disciplinary Procedures as printed in the "Handbook of Student Rights and Responsibilities". A copy of the Handbook can be found on the Web (<http://www.mcgill.ca/Secretariat/Students/>) or obtained from the Student Affairs Office or the Macdonald Campus Student Services Office. The Code specifies that discipline may include: imposition of fines or assessments for damage caused by individuals or groups; posting of security for good behaviour; reprimand; imposition of conduct probation; suspension or expulsion from classes or residence; expulsion from the University.

Any student who is unwilling to submit to the demands of university life, or whose work is definitely unsatisfactory, may be placed on probation, or may be required to withdraw from the University.

All students are obliged to inform themselves of the current rules and regulations. A few of these are listed below but the main body of them will be found in other available documents.

Possession or consumption of liquor by students is forbidden on the Campus, except in authorized places and with special permission.

Initiation or hazing in any form is forbidden.

Unauthorized entrance to buildings is forbidden. Violation of this rule is sufficient reason for expulsion.

Gambling is not permitted on Campus.

Tampering with fire fighting equipment is forbidden.

Students are not permitted to bring firearms into a Residence nor is the use of firearms allowed on University property.

4.5 Fees

The University reserves the right to make changes without notice in its published scale of tuition, residence and other fees.

All cheques, money orders, etc., should be drawn to the order of McGill University, and made payable in Canadian funds. Payment of student fees can also be made through any Chartered Bank in Canada.

The University shall have no obligation to issue any transcript of record, award any diploma or re-register a student in case of non-payment of tuition fees, library fines, residence fees, or loans on their due date.

Tuition Fees

General information on Tuition and other fees will be found under Fees, [page 21](#).

Other Expenses

In addition to tuition fees and the cost of accommodation and meals, students should be prepared to spend a minimum of \$1000 (dependent on program) on prescribed textbooks and classroom

supplies. These may be purchased at the campus book store in Centennial Centre.

Uniforms are required for food laboratories. Students in the B.Sc.(Nutr.Sc.) program will be advised of the uniform requirements on acceptance or promotion.

4.6 Language Requirement for Professions

Quebec law requires that candidates seeking admission to provincially-recognized Quebec professional corporations or orders possess a working knowledge of the French language, i.e. be able to communicate verbally and in writing in that language. Agrolologists, Chemists, Dietitians, and Engineers are among those within this group.

For additional information see the General University Information section, [page 34](#).

5 Faculty Information and Regulations

Each student in the Faculty of Agricultural and Environmental Sciences must be aware of the Faculty Regulations as stated in this Calendar. While departmental and faculty advisers and staff are always available to give advice and guidance, the ultimate responsibility for completeness and correctness of course selection and registration, for compliance with, and completion of, program and degree requirements, and for the observance of regulations and deadlines *rests with the student*. It is the student's responsibility to seek guidance if in any doubt; misunderstanding or misapprehension will not be accepted as cause for dispensation from any regulation, deadline, program or degree requirement.

5.1 Freshman Entry Program

Given below is the Freshman Year program outline for recent high school graduates from Canada (except Quebec) and the United States. Individual course descriptions can be found at the end of this section of the Calendar.

		CREDITS
Fall		
344-120A	General Biology	3
333-110A	Inorganic Chemistry	4
360-101A	Calculus I	3
338-112A	Introductory Physics I	<u>4</u>
		14
Winter		
333-230B	Organic Chemistry	4
360-102B	Calculus II	3
338-114B	Introductory Physics II	4
	Electives*	<u>5</u>
Total Credits		30

* 344-202B Cellular Biology must be substituted for students in programs in the B.Sc.(Nutr.Sc.) degree and 336-103A,B Linear Algebra must be substituted for students in the B.Sc.(Agr.Eng) degree.

5.2 Academic Advisers

Before registration, all students entering the Faculty must select a Major program of study. They must consult with the Academic Adviser of their chosen program for the selection and timetabling of required, complementary, and elective courses. The Academic Adviser will continue to act in this capacity during the whole of the student's studies in the Faculty.

5.3 Minimum Credit Requirement

Each student's minimum credit requirement for the degree is determined at the time of acceptance and is specified in the letter of admission or its attached documentation.

Normally, Quebec students who have completed the Diplôme d'études collégiales (DEC) or equivalent diploma are admitted to the first year of a program requiring the completion of a mini-

mum of 90 credits – 106 credits for Agricultural Engineering and 115 credits for Dietetics.

Students from outside Quebec who are admitted on the basis of a high school diploma enter a program which is extended by one year to include the 30 credits which comprise the Freshman Year (see [section 5.1](#)). Advanced standing of up to 30 credits may be granted to students who obtain satisfactory results in International Baccalaureate, French Baccalaureate, or Advanced Placement Tests under certain conditions; refer to [section 3](#).

5.4 Categories of Students

Full-Time Students

Full-time students in satisfactory standing take a minimum of 12 credits per semester.

Full-time students in probationary standing are not normally permitted to take more than 12 credits per semester. In exceptional circumstances the Committee on Academic Standing may give permission to attempt more.

Part-time students

Part-time students carry fewer than 12 credits per semester. New students apply through the Student Affairs Office of the Faculty and the applicant must have the qualifications to enter a full-time program. Full-time students who wish to become part-time must consult the Office of the Associate Dean (Student Affairs). Certain programs must be completed within a specified number of years; such information is available from the Associate Dean.

5.5 Academic Standing

All students are required to give satisfactory evidence of mastery of the material of lectures and laboratories. Examinations are normally held at the end of each course but other methods of evaluation may also be used. The grade assigned for a course represents the standing of the student in all the work of the course.

Every student has a right to write term papers, examinations and theses in English or in French except in courses where knowledge of a language is one of the objectives of the course. Oral presentations made as part of course requirements shall be in English.

Upon payment of a fee a student may apply to the office of the Associate Dean of the Faculty to have an examination re-read.

Credit System

Please refer to General University Information [section 4.6](#).

5.6 Academic Credit Transfer

Transfer of credits (maximum of 30) based on courses taken at other institutions before entrance to this Faculty is made by the Admissions Committee prior to entrance.

Transfer of credits may be made for work at other educational institutions during a student's attendance at McGill University. Permission to apply such credits to a McGill program must be secured by the student from the Academic Adviser of their program before the work is undertaken. Forms are available in the Student Affairs Office of the Faculty. Grades obtained in such courses do not enter into calculations of grade point averages (GPA) in this Faculty.

Exemption from a required or complementary course on the basis of work completed at another institution must be approved by both the Academic Adviser and the instructor of the appropriate McGill course.

Full-time students may, with the written permission of the Associate Dean of the Faculty, register for 3 credits, or exceptionally 6 credits, in each semester at any university in the province of Quebec. These courses successfully completed with a minimum grade of C (according to the standards of the university giving the course), will be recognized for the purpose of the degree but the grades obtained will not enter into calculations of GPA in this Faculty. Further details on the Quebec Inter-University Transfer Agreement are found in the General University Information [section 6.5](#).

5.7 Standing

The program for the degree will normally be completed in three academic years or six semesters; three and one half years for Agricultural and Biosystems Engineering, and Dietetics. For the purpose of student classification, the years will be termed U1, U2 and U3.

U1 to be used during the first 12 months following each admission to a degree program in which the student is required to complete 72 or more credits at the time of admission.

U2 to be used for all students who are not U1 or U3.

U3 to be used during the session in which it is expected the student will qualify to graduate.

Students' academic standing is based on the CGPA which is calculated on the courses taken while registered as a full-time or part-time undergraduate in a degree program. If the CGPA drops below 2.00, the student is in academic difficulty.

5.8 Students in Academic Difficulty

1. When a student's CGPA (or SGPA in the first semester of the program) drops below 2.00, withdrawal is advised. Students who choose to reregister are on probation until the CGPA is raised to 2.00.
2. Students on probation are normally permitted (see the section on classes of students) to register for not more than 12 credits per semester. They are not permitted to be on probation for more than one semester unless they obtain a SGPA of 2.50 or higher.
3. Students who do not raise their CGPA to 2.00 (or obtain a SGPA of 2.50) while on probation are not permitted to register. They are required to withdraw from the Faculty for at least one semester. Application for readmission after this period must be made in writing to the Committee on Academic Standing, observing the published application deadlines.

5.9 Course Change Information

1. Courses: please refer to the General Information and Regulations [section 3.7 "Change of Course \(Drop/Add\)"](#) and the Calendar of Dates.
2. Course withdrawal (Transcript notation of "W"): please refer to the General Information and Regulations [section 3.8 "Regulations Concerning Withdrawal"](#) and the Calendar of Dates.
3. Other changes: Information about changes may be obtained from the Student Affairs Office of the Faculty. Application for changes must be made to the Committee on Academic Standing.

5.10 Graduate Courses Available to Undergraduates

Undergraduates wishing to take such courses must have a cumulative grade point average (CGPA) of at least 3.20.

5.11 Attendance and Conduct in Class

Matters of discipline connected with, or arising from, the general arrangement for teaching are under the jurisdiction of the Dean of the Faculty or Director of the School concerned.

Students may be admonished by a professor or instructor for dishonest or improper conduct or may be reported to the Dean or Director concerned for disciplinary action.

Punctual attendance at all classes, laboratory periods, tests, etc., is expected of all students. Absences can only be excused on the grounds of necessity or illness, of which proof may be required. Special attention is called to the fact that the completion of all laboratory work is obligatory and the opportunity to make up work missed can only be provided in the case of properly excused absences.

The Faculty has the power to refuse examination to those students who persist in absenting themselves from classes without permission.

Students are requested not to make application for additional leave either before or after holiday periods, as such leaves can be granted only in case of illness or other exceptional circumstances.

5.12 Degree Requirements

To be eligible for a B.Sc.(Agr.), B.Sc.(Agr.Eng.), B.Sc.(F.Sc.), or B.Sc.(Nutr.Sc.) degree, students must have passed all required and complementary courses of the program. They must have a CGPA of at least 2.00.

They must have completed the minimum credit requirement for the degree as specified in their letter of admission or its attached documentation, see [section 5.3](#). At least 60 of these credits must have been taken at McGill.

In addition, students in the Dietetics program must have completed the stages of professional formation.

Students majoring in Agricultural Engineering are also required to have at least 650 hours experience in some phase of agricultural engineering work approved by the Agricultural and Biosystems Engineering Department.

the penultimate year taking courses in the Faculty of Engineering. Furthermore, students in Agricultural Engineering may wish to increase their competence in specialized fields by pursuing one of the Minors offered by the Faculty of Engineering. **Minors** which would be of particular interest include: **Biotechnology, Computer Science, Construction Engineering and Management, and Environmental Engineering**. Details of these Minors can be found in the Faculty of Engineering [section 5](#). In order to complete a Minor, students will need to spend at least one extra semester beyond the requirements of the B.Sc.(Agr.Eng.) program.

All required courses must be passed with a minimum grade of C.

Required Courses: 80 credits.

Complementary Courses: 24 credits.

Electives: Other University courses to round out the student's program and meet the requirement of a minimum of 106 credits for the degree.

NOTE: this program is under revision. Please contact the Academic Adviser for the most up-to-date information.

6 Academic Programs

6.1 Department of Agricultural and Biosystems Engineering

Macdonald Stewart Building – Room MS1-027
Telephone: (514) 398-7773
Fax: (514) 398-8387
Email: Raghavan@macdonald.mcgill.ca
Website: <http://macdonald.mcgill.ca/agreng>

Chair — Vijaya Raghavan

Emeritus Professor — Robert S. Broughton

Professors — Suzelle Barrington, Robert Kok, Chandra Madramootoo, Edward McKyes, Shiv O. Prasher, Vijaya Raghavan

Associate Professors — Eric R. Norris, John D.J. Sheppard

Assistant Professors — Robert B. Bonnell (*Brace Centre for Water Resources Management*), Jacques-André Landry, Michael O. Ngadi

Assistant Professor (Special Category) — Sofia Babarutsi (PT)

Adjunct Professors — Darakhshan Ahmad, Geoffrey I. Sunahara, Clement Vigneault

AGRICULTURAL ENGINEERING MAJOR

The Department of Agricultural and Biosystems Engineering collaborates with other departments and the Faculty of Engineering, in providing courses of instruction for a curriculum in Agricultural and Biosystems Engineering. Graduates qualify for registration as professional engineers in any province of Canada. The curriculum integrates engineering fundamentals and branch specialties with the agricultural, biological and environmental sciences. The program is oriented to the design, construction and management of the agro-ecosystem; various facets of any or several of these areas may be emphasized by the student via the appropriate choice of elective course sets. Academic advisers can aid the student to structure her or his studies along any of the following main streams: Agro-Environmental; Irrigation and Drainage; Agricultural Machinery and Buildings; Food and Bio-Processing; and Information and Computing Technologies. For all streams, a typical engineering approach is followed; the relationship is stressed between decision-making/option-evaluation during the design stage and the resultant performance of the unit once implemented. This approach is applicable to practically any case, be it a simple cultivation tool, a harvesting machine, a post-harvest conditioning process or an entire ecosystem.

In order to learn some of the fundamentals of engineering design, and appreciate and understand other branches of engineering, students are required to spend the second semester of

Required Courses:	CREDITS
	80
336-210A Mechanics I	4
336-211B Mechanics II	4
336-214A Surveying	3
336-216B Materials Science	3
336-217B Hydrology and Drainage	3
336-252A Structured Computer Programming	3
336-305A Fluid Mechanics	4
336-312B Circuit Analysis	3
336-314B Agricultural Structures	3
336-315A Design of Machine Elements	4
336-319A Applied Mathematics	3
336-325A Food Engineering	3
336-341B Strength of Materials	4
336-412A Agricultural Machinery	3
336-418B Soil Mechanics and Foundations	3
336-490D,N Project	3
305-346B Heat Transfer	3
305-362B Mechanical Laboratory I	2
306-310A,B Engineering Economy	3
342-250A Principles of Animal Science	3
367-211A Principles of Plant Science	3
372-210A Principles of Soil Science	3
360-202A Calculus	3
360-205B Differential Equations	4
360-310A,B Statistical Methods I	3

Complementary Courses, selected in consultation with Academic Adviser	24
336-212A (3) Graphics	3
or 305-291B (3) Graphics	
336-301A (3) Biothermodynamics	3
or 305-240B (3) Thermodynamics I	
Advanced Agricultural and Biosystems Engineering – 9 or more credits from:	9
With the permission of the instructor, graduate level courses may be taken:	
330-435A (3) Soil and Water Quality Management	
336-322A (3) Agro-Food Waste Management	
336-323A (3) Physical Properties of Biological Materials	
336-330B (3) GIS for Biosystems Management	
336-411A (3) Off-Road Power Machinery	
336-416A (3) Engineering for Land Development	
336-419A (3) Structural Design	
336-500B (3) Artificial Intelligence for Biosystems	
336-504B (3) Instrumentation and Control	
336-506C (3) Advances in Drainage and Water Management	
336-509A,B (3) Hydrologic Systems and Modelling	

336-512B	(3)	Soil Cutting and Tillage	
336-514B	(3)	Drain Pipe and Envelope Materials	
336-515B	(3)	Computer Models in Drainage Engineering	
336-516A	(3)	Preparation and Appraisal of Drainage Projects	
336-517A	(3)	Drainage Project Contracts, Installation and Management	
336-518A	(3)	Pollution Control for Agriculture	
336-525B	(3)	Ventilation of Agr. Structures	
336-530B	(3)	Advanced Food & Fermentation Engineering	
336-605B	(3)	Functional Analysis of Agricultural Machines	
336-607B	(3)	Engineering Aspects of Plant Environment	
336-612A	(3)	Simulation and Modelling in Agricultural Engineering	
336-616A,B	(3)	Advanced Soil & Water Engineering	
Social Science, Humanities and Administrative Study	9	courses which contribute to the awareness of the professional engineer in society and the impact of engineering work on the economic, environmental and cultural aspirations of society - 9 credits or more.	

ENVIRONMENTAL ENGINEERING MINOR

The Minor program consists of 27 credits in courses environment related. By a judicious choice of complementary and elective courses, Agricultural and Biosystems Engineering students may obtain this Minor with a minimum of 12 additional credits. The Environmental Engineering Minor Program is administered by the Department of Civil Engineering and Applied Mechanics, see page 268 in the Faculty of Engineering section.

Courses available in the Faculty of Agricultural and Environmental Sciences: (partial listing)

362-331B	Microbial Ecology
375-333A	Physical and Biological Aspects of Pollution
336-322A	Agro-food Waste Management
336-416A	Engineering for Land Development
336-518A	Pollution Control in Agriculture

MINOR IN AGRICULTURAL ENGINEERING

Academic Adviser: Professor R.B. Bonnell

Engineering systems are now being emphasized in animal and crop production, management and utilization of waste products, production of value-added materials and by-products, protection of natural resources, conservation and management of ecosystems, soil and water decontamination, and the development of new food, fibre and pharmaceutical products. Computer-based systems play a major role in the management of information, and process control in many of the above technologies. A non-professional Minor in Agricultural Engineering, consisting of 24 credits of Agricultural and Biosystems Engineering courses is available for students registered in the B.Sc.(Agr.) and B.Sc.(F.Sc.) programs. A total of 18 credits of required Agricultural and Biosystems Engineering courses will demonstrate basic engineering applications. Selection of 6 complementary credits from a wide range of Agricultural and Biosystems Engineering courses will allow more focused study in one of the 6 streams of Agricultural Engineering, viz. Agro-Environmental; Irrigation and Drainage; Agricultural Machinery and Buildings; Food and Bio-Processing; and Information and Computing Technologies.

Students are advised to consult their Major Program adviser and the Academic Adviser of the Minor in their first year. At the time of registration for their penultimate year, students must declare their intent to obtain a Minor in Agricultural Engineering. With the agreement of their Major Program adviser they must submit their program of courses already taken, and to be taken in their final year, to the Academic Adviser of the Agricultural Engineering Minor. The Academic Adviser of the Agricultural Engineering Minor will then certify which courses the student will apply toward the

Minor and that the student's program conforms with the requirements of the Minor.

General Regulations

To obtain a Minor in Agricultural Engineering, students must:

- a) ensure that their academic record at the University includes a C grade or higher in the courses as specified in the course requirements given below.
- b) offer a minimum total of 24 credits from the courses as given below, of which not more than 6 credits may be counted for both the Major and the Minor programs. This restriction does not apply to elective courses in the Major program.

Required Courses: 18 credits.

Complementary Courses: 6 credits.

	CREDITS
Required Courses:	18
336-252A Structured Computer Programming	3
336-314B Agricultural Structures	3
336-324A Elements of Food Engineering	3
336-412A Agricultural Machinery	3

Complementary Courses:

6
6 credits chosen from the following list in consultation with the Academic Adviser for the Minor:

336-411A	(3)	Off-Road Power Machinery
336-413A	(3)	Materials Handling Systems
336-416A	(3)	Engineering for Land Development
336-418B	(3)	Soil Mechanics and Foundations
336-500B	(3)	Artificial Intelligence for Biosystems
336-512B	(3)	Soil Cutting, Tillage and Trenching
336-514B	(3)	Drain Pipe and Envelope Materials
336-515A	(3)	Computer Models in Drainage Engineering
336-516A	(3)	Preparation and Appraisal of Drainage Projects
336-517A	(3)	Drainage Project Contracts, Installation and Management
336-518A	(3)	Pollution Control for Agriculture
336-525B	(3)	Ventilation of Agricultural Structures
336-530B	(3)	Advanced Food and Fermentation Engineering

Notes:

- 1) Most courses listed at the 300 level and higher have prerequisites. Although instructors may waive prerequisite(s) in some cases, students are urged to prepare their program of study well before their final year.
- 2) Not all courses are available in any given year. Consult departmental listings for full course descriptions and offerings.

6.2 Department of Agricultural Economics

Raymond Building – Room R3-019

Telephone: (514) 398-7820

Website: <http://www.agrenv.mcgill.ca/agrecon/>

Chair — Paul Thomassin

Associate Professors — Kisan R. Gunjal, John C. Henning, Paul Thomassin

Assistant Professors — Laurence Baker, Mark Brown (*joint appt. with Geography*)

Lecturer — Marcel J. Couture

Adjunct Professors — Joan Marshall, Peter Goldsmith

AGRICULTURAL ECONOMICS MAJOR

Increasingly complex economic problems facing the agriculture and food system and our natural environment have intensified the need for specialized knowledge and training in the field of agricultural economics. The curriculum is designed to provide students with the knowledge, analytical and decision making skills required in a career in agribusiness, resource management, international development, and research. The selection of courses from the

agribusiness, agricultural system or natural resource economics options permits a degree of specialization along those lines, in conjunction with the core courses listed below. Graduates are eligible to apply for membership in l'Ordre des agronomes du Québec (OAQ).

Core Required Courses: 15 credits.

Core Complementary Courses: 22 credits.

	CREDITS
Required Courses:	15
334-200A Principles of Microeconomics	3
334-201B Principles of Macroeconomics	3
334-230B Economics of Marketing	3
334-320B Economics of Agriculture Production	3
334-425A Agricultural Econometrics	3

Complementary Courses:

A microcomputer applications course (approved by adviser)	3
A statistical methods course (approved by adviser)	3
plus 6 credits chosen from the following three courses	6
367-211A (3) Principles of Plant Science	
342-250A (3) Principles of Animal Science	
372-210A (3) Principles of Soil Science	

AGRIBUSINESS OPTION

Whether one has interests in agricultural supply, production, marketing, finance, food processing or retailing, professional management skills are the key to success. The agribusiness option prepares students for managerial responsibility by drawing on the resources of both the Faculty of Management and the Faculty of Agricultural and Environmental Sciences. This special partnership provides students with not only a first-class business training but also a specialization in the field of agriculture.

Core Required and Complementary Courses: 27 credits.

Option Required Courses: 33 credits.

Electives: to meet the minimum 90-credit requirement for the degree.

	CREDITS
Option Required Courses:	33
271-313 Managerial Accounting I	3
278-382 Introduction to International Business	3
280-211 Accounting I	3
280-341 Finance I	3
334-231B Economic Systems of Agriculture	3
334-242A Management Theories and Practices	3
334-331A Farm Business Management	3
334-450B Agribusiness Management	3
334-452B Studies in Agribusiness	3
382-446A Personnel Management	3
425-201 Effective Written Communication	3

AGRICULTURAL SYSTEMS OPTION

The smooth functioning of the agriculture and food system requires good market analysis and appropriate policy and program development and management in the public sector. Agricultural economists are called upon to perform these tasks, utilizing their knowledge of the economic forces that affect the industry and the methods of analysis to predict the outcome of the numerous changes that occur. The agricultural systems orientation is intended to provide students with a broad understanding of the many dimensions of agriculture and food systems, including economic development, international agriculture, and food and agricultural policy.

Core Required and Complementary Courses: 27 credits.

Option Required Courses: 21 credits.

Electives: to meet the minimum 90-credit requirement for the degree.

	CREDITS
Option Required Courses:	21
334-231B Economic systems of Agriculture	3

334-333A Resource Economics	3
334-350B Agricultural Finance	3
334-430B Agriculture, Food, and Resource Policy	3
334-440A Advanced Agriculture & Food Marketing	3
334-442B Economics of International Agricultural Development	3
334-491A Research Seminar in Agricultural Economics	3

NATURAL RESOURCE ECONOMICS OPTION

This option integrates biological sciences and environmental decision making with the economics of natural resource use and development. The natural resource economics option is intended to prepare students for careers in the management of natural resources and the analysis of natural resource problems and policies.

Core Required and Complementary Courses: 27 credits.

Option Required Courses: 32 credits.

Electives: to meet the minimum 90-credit requirement for the degree.

	CREDITS
Option Required Courses:	32
154-405B Natural Resource Economics	3
334-333A Resource Economics	3
334-343B Accounting and Cost Control	3
334-491A Research Seminar in Agricultural Economics	3
344-205B Principles of Ecology	3
338-201A Introductory Meteorology	3
360-306A Mathematical Methods in Ecology	3
375-201B Renewable Resources	3
375-333A Physical and Biological Aspects of Pollution	3
375-415A Conservation Law	2
375-437B Assessing Environmental Impacts	3

MINOR IN AGRICULTURAL ECONOMICS

A Minor in Agricultural Economics will complement a student's education in four ways. First, as a social science, Economics will provide an alternative perspective for students in the Faculty. Second, the Minor will provide an excellent foundation of the workings of the economy at large. Third, it will aid students to understand the business environment surrounding the agri-food industry. Finally, it will challenge students to analyze the interaction between the agricultural economy and the natural resource base.

General Regulations:

To obtain a Minor in Agricultural Economics, students must:

- Ensure that their academic record at the University includes a C grade or higher in the courses specified in the course requirements below.
- Complete a minimum total of 24 credits from the courses given below, of which not more than 6 credits may be counted for both Major and Minor programs. This restriction does not apply to elective courses in the Major program.

Required Courses: 12 credits

Complementary Courses: 12 credits

	CREDITS
Required Courses	12
334-200A Principles of Microeconomics	3
334-201B Principles of Macroeconomics	3
334-230B Economics of Marketing	3
334-231B Economic Systems of Agriculture	3
Complementary Courses	12
Chosen in consultation with the academic adviser for the Minor from the offerings of the Department of Agricultural Economics.	
334-242A (3) Management Theories and Practices	
334-320B (3) Economics of Agriculture Production	
334-331A (3) Farm Business Management	

334-333A	(3)	Resource Economics
334-343B	(3)	Accounting and Cost Control
334-350B	(3)	Agricultural Finance
334-425A	(3)	Agricultural Econometrics
334-430B	(3)	Agriculture, Food, and Resource Policy
334-440A	(3)	Advanced Agricultural and Food Marketing
334-442B	(3)	Economics of International Development
334-450B	(3)	Agribusiness Management
334-452B	(3)	Studies in Agribusiness
334-491A	(3)	Research Seminar in Agricultural Economics
334-492A,B	(3)	Special Topics in Agricultural Economics

6.3 Department of Animal Science

Macdonald Stewart Building - Room MS1-084
 Telephone: (514) 398-7794
 Email: info@AnimSci.AgrEnv.McGill.CA
 Website: <http://www.animsci.agrenv.mcgill.ca>

Chair — Xin Zhao

Emeritus Professor — John E. Moxley

Professors — Roger B. Buckland, Eduardo R. Chavez, Bruce R. Downey, Kwet Fane Ng Kwai Hang, Flannan Hayes, Urs Kuhnlein

Associate Professors — Roger I. Cue, Paul C. Laguë, Humberto G. Monardes, Leroy E. Phillip, Kevin Wade, David Zadworny, Xin Zhao

Assistant Professor — Ri-Cheng Chian (PT), René Lacroix (PT)

Adjunct Professors — Michel Britten, Anthonoula Lazaris-Karatzas, Carol Keefer, Pierre Lacasse, Bruce Murphy, Denis Petitclerc, David Silversides, Jeffrey D. Turner

The Department of Animal Science offers Majors in Animal Science and Animal Biology.

ANIMAL SCIENCE MAJOR

Academic Advisers: U. Kuhnlein (U1), R.I. Cue (U2), D. Zadworny (U3)

The curriculum in Animal Science involves intensive training in both the basic and applied biological sciences as related to domestic animals and qualifies the graduate for membership in l'Ordre des agronomes du Québec and other professional organizations. Graduates generally enter agricultural industries, mainly sales and marketing, government service (Provincial or Federal), extension, teaching or post-graduate studies. Some students go on to study veterinary medicine. Students are strongly advised to obtain at least 3 months practical experience on a commercial live-stock farm before graduation.

Required Courses: 69 credits.

Complementary Courses: 6 credits.

Electives: selected in consultation with Academic Adviser, to meet the minimum 90-credit requirement for the degree.

		CREDITS
Required Courses:		69
330-430A	Ecological Agriculture Systems	3
333-211A	Biochemistry I	3
334-200A	Principles of Microeconomics	3
342-234B	Biochemistry II	3
336-322A	Agro-food Waste Management	3
342-250A	Principles of Animal Science	3
342-301B	Principles of Animal Breeding	3
342-312B	Animal Pathology	3
342-323A	Mammalian Physiology	4
342-324A	Animal Reproduction	3
342-330A	Fundamentals of Nutrition	3
342-433B	Animal Nutrition	3
342-450A	Dairy Cattle Production	3
342-452B	Beef Cattle and Sheep Production	3
342-454B	Swine Production	3
342-456A	Poultry Production	3

342-495D	Seminar	2
344-202B	Cellular Biology	3
360-310A,B	Statistical Methods I	3
362-230B	The Microbial World	3
367-211A	Principles of Plant Science	3
372-210A	Principles of Soil Science	3
375-375B	Issues in Environmental Sciences	3

Complementary Courses:

One Ethics course:	3
170-203A,B (3) Knowledge, Ethics and Environment	
or 260-270A (3) Ethics and the Environment	
One additional Economics course	3

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ANIMAL BIOLOGY MAJOR

Academic Adviser: P.C. Laguë

The Animal Biology Major is directed towards students who wish to further their studies in the basic biology of the larger mammals and birds. Successful completion of the program will enable students to qualify in applying to most professional schools in North America, to post-graduate schools in a variety of biological-oriented programs, and to work in most laboratory settings. The program is not intended for students wishing to become professional agrologists.

Required Courses: 34 credits

Complementary Courses: 24 credits, minimum

Electives: selected in consultation with Academic Adviser, to meet the minimum 90-credit requirement for the degree.

Required Courses:

333-211A	Biochemistry I	3
342-234B	Biochemistry II	3
342-250A	Principles of Animal Science	3
342-251B	Comparative Anatomy	3
342-323A	Mammalian Physiology	4
342-330A	Fundamentals of Nutrition	3
342-495D,N	Seminar	2
344-202B	Cellular Biology	3
356-204A	Genetics	4
360-310A,B	Statistical Methods I	3
362-230B	The Microbial World	3

CREDITS
34

Complementary Courses:

A minimum of 24 credits selected from the following list in consultation with the Academic Adviser:

342-312B	(3) Animal Pathology	
342-324A	(3) Animal Reproduction	
342-424B	(3) Metabolic Endocrinology	
342-433B	(3) Animal Nutrition	
342-460B	(3) Biology of Lactation	
349-307A	(3) Natural History of the Vertebrates	
or 349-308B	(3) Comparative Morphology of the Vertebrates	
349-311B	(3) Ethology	
349-424B	(3) Parasitology	
362-341A	(3) Mechanism of Pathogenicity	
391-400B	(3) Eukaryotic Cells and Viruses	
391-438A	(3) Immunology	
373-550B	(3) Veterinary & Medical Entomology	
375-410B	(3) Wildlife Ecology	

min. 24

The student may replace up to 12 credits of the complementary courses listed above by choosing, with the student advisor's approval, any course offerings (300 level or higher) in Anatomy and Cell Biology, Biochemistry, Biology, Microbiology and Immunology, Neurology and Neurosurgery, Pharmacology and Therapeutics, Physiology, and Psychology. Any prerequisites for these courses must be taken as electives.)