6.4 School of Dietetics and Human Nutrition

Macdonald Stewart Building – Room MS2-039
Telephone: (514) 398-7842
Email: dietstage@agradm.lan.mcgill.ca
Website: http://dietetic.mcgill.ca

Director — Katherine Gray-Donald
Emeritus Professor — Helen R. Neilson

Professors — Peter J.H. Jones, Harriet V. Kuhnlein

Associate Professors — Laurie Chan, Katherine Gray-Donald, Timothy A. Johns, Kristine G. Koski, Stan Kubow, Louise Thibault

Assistant Professors — David Bissonnette, Linda Wykes

Lecturers — Lynda Fraser (PT), Linda Jacobs Starkey, Maureen Lucas, Joane Routhier Mayrand, Sandy Phillips, Hugues Plourde, Heidi Ritter, Donna Schaefer, Richard Stojak (PT)

Adjunct Professors — Kevin A. Cockell, Jeffrey S. Cohn

Cross-Appointed Staff —
Food Science and Agricultural Chemistry: Selim Kermasha
Medicine: Louis Beaumier, Franco Carli, Katherine Cianflone, Réjeanne Gougeon, L.John Hoffer, Errol Marliss, Shi-Hsiang Shen, Jean-François Yale
Parasitology: Marilyn E. Scott
Psychiatry: Simon Young

Health and well-being of individuals in relation to food choices and physiological status prevails as the unifying theme of the programs in the School of Dietetics and Human Nutrition. The availability of food, normal metabolism and clinical nutrition, community nutrition at the local and international level, the evaluation of nutritional products and their use in nutrition, and the communication of information about food and health form the core of academic programs.

Dietetics Major

Academic Advising Coordinator: Linda Jacobs Starkey

Graduates are qualified for challenging professional and leadership positions related to food and health, as dietitians, nutritionists and food administrators. The designations "Dietitian" and "Nutritionist" are reserved titles in the province of Quebec. As clinical nutritionists, dietitians may work in health and food service centres and hospitals, nutrition counselling centres, clinics and private practice. As community nutritionists, dietitians are involved in nutrition education programs through schools, sports centres and local and international health agencies. The dietitian in the food service sector participates in all aspects of management to assure quality food products. Postgraduate programs are available to qualified graduates. The duration of the program is three and one-half years. Successful graduates are qualified for membership in Dietitians of Canada and the Ordre professionnelle de diététistes du Québec. Forty weeks supervised professional experience in clinical and community nutrition and food service systems management are included.

Required Courses: 103 credits.
(Note: The School firmly applies prerequisite requirements (with C grade as pass) for registration in all required courses in the Nutrition and Dietetics Majors.)

Complementary Courses: 6 credits.

Electives: 6 credits, selected in consultation with an Academic Adviser, to meet the minimum 115-credit requirement for the degree.

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

CREDITS

<table>
<thead>
<tr>
<th>Term 1</th>
<th>17</th>
</tr>
</thead>
<tbody>
<tr>
<td>333-211A</td>
<td>Biochemistry I</td>
</tr>
<tr>
<td>333-212A</td>
<td>Biochemistry Laboratory</td>
</tr>
<tr>
<td>336-251A</td>
<td>Microcomputer Applications</td>
</tr>
<tr>
<td>382-214A</td>
<td>Food Fundamentals</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Term 2</th>
<th>19</th>
</tr>
</thead>
<tbody>
<tr>
<td>342-234B</td>
<td>Biochemistry II</td>
</tr>
<tr>
<td>362-230B</td>
<td>The Microbial World</td>
</tr>
<tr>
<td>382-217B</td>
<td>Application of Food Fundamentals</td>
</tr>
<tr>
<td>382-207A</td>
<td>Nutrition and Health</td>
</tr>
<tr>
<td>382-208J*</td>
<td>Professional Practice (Stage) in Dietetics Level I</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Term 3</th>
<th>20</th>
</tr>
</thead>
<tbody>
<tr>
<td>342-323A</td>
<td>Mammalian Physiology</td>
</tr>
<tr>
<td>342-330A</td>
<td>Fundamentals of Nutrition</td>
</tr>
<tr>
<td>360-310A,B</td>
<td>Statistical Methods I</td>
</tr>
<tr>
<td>382-345D</td>
<td>Food Service Systems Management</td>
</tr>
<tr>
<td>382-322A</td>
<td>Instructional Communications</td>
</tr>
<tr>
<td>One Elective or Complementary</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Term 4</th>
<th>18</th>
</tr>
</thead>
<tbody>
<tr>
<td>342-424B</td>
<td>Metabolic Endocrinology</td>
</tr>
<tr>
<td>334-343B</td>
<td>Accounting and Cost Control</td>
</tr>
<tr>
<td>382-337B</td>
<td>Nutrition Through Life</td>
</tr>
<tr>
<td>382-310B*</td>
<td>Professional Practice (Stage) in Dietetics Level II a</td>
</tr>
<tr>
<td>382-311C*</td>
<td>Professional Practice (Stage) in Dietetics Level II b</td>
</tr>
<tr>
<td>382-344B</td>
<td>Clinical Nutrition I</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Term 5</th>
<th>15</th>
</tr>
</thead>
<tbody>
<tr>
<td>382-436A</td>
<td>Nutritional Assessment</td>
</tr>
<tr>
<td>382-445A</td>
<td>Clinical Nutrition II</td>
</tr>
<tr>
<td>382-446A</td>
<td>Personnel Management</td>
</tr>
<tr>
<td>382-450A</td>
<td>Research Methods in Human Nutrition</td>
</tr>
<tr>
<td>One Elective or Complementary</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Term 6</th>
<th>12</th>
</tr>
</thead>
<tbody>
<tr>
<td>382-403B</td>
<td>Community Nutrition</td>
</tr>
<tr>
<td>382-409B*</td>
<td>Professional Practice (Stage) in Dietetics Level III</td>
</tr>
<tr>
<td>382-438B</td>
<td>Interviewing and Counselling</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Term 7</th>
<th>14</th>
</tr>
</thead>
<tbody>
<tr>
<td>382-410A*</td>
<td>Professional Practice (Stage) in Dietetics Level IV</td>
</tr>
</tbody>
</table>

Complementary Courses* (6 credits)

3 credits of Human Behavioural Science courses chosen from:

382-301A | (3) Psychology or equivalent course from another faculty.

3 credits from the social sciences:

170-201A | (3) Society and Environment
170-203A,B | (3) Knowledge, Ethics and Environment
260-270A | (3) Ethics and the Environment
334-200A | (3) Principles of Microeconomics
334-230B | (3) Economics of Marketing

* Revisions Awaiting University Approval

Electives (6 credits)

Elective courses should be chosen in consultation with the academic adviser. The following courses most often fit the timetable; elective choice is not limited to these courses.

333-200A | (3) Introduction to Food Science
348-330A | (3) Academic and Scientific Writing
382-406A | (3) Ecology of Human Nutrition
382-420A | (3) Food Toxicants and Health Risks
382-430A,B | (3) Directed Studies in Dietetics/Nutrition I
382-451A | (3) Nutrition Research
382-501A | (3) Nutrition in Developing Countries
382-511A | (3) Nutrition and Behaviour
382-512A,B | (3) Herbs, Foods and Phytochemicals

* Successful completion of all component parts of each level of Professional Practice (Stage) in Dietetics courses is a prerequisite.
for the next level and must be passed with a minimum grade of C. All required and complementary courses must be passed with a grade of C or better. Undergraduate registration is restricted to students in the Dietetics Major, CGPA greater than or equal to 2.50. Visiting students must contact the Academic Advising Coordinator (Dietetics) regarding course registration eligibility.

A compulsory immunization program exists at McGill which is required by the teaching hospitals before they will permit Dietetics students to practice. Students should complete their immunization before arriving at Macdonald. Medical/health documentation must be received prior to commencement of each level of Stage. There are no exceptions possible.

**NUTRITION MAJOR**

Academic Advising Coordinator: Kristine G. Koski

This Major covers the many aspects of human nutrition and food and gives first, an education in the scientific fundamentals of these disciplines and second, an opportunity to develop specialization in nutritional biochemistry, nutrition and populations or nutrition of food. Graduates normally will continue on to further studies preparing for careers in research, medicine or as specialists in nutrition. Research nutritionists, aside from working as university teachers and researchers, may be employed by government and health protection agencies, in world development programs, or by the food sector.

**Required Courses:** 52 credits.
(Note: The School firmly applies prerequisite requirements (with C grade as pass) for registration in all required courses in the Nutrition Major.)

**Option Required and Complementary Courses:** 12 credits.

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

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

**MINOR IN HUMAN NUTRITION**

Academic Adviser: Linda Wykes

The Minor in Human Nutrition is intended to complement a student’s primary field of study by providing a focused introduction to the metabolic aspects of human nutrition. It is particularly accessible to students in Biochemistry, Biology, Physiology, Anatomy and Cell Biology, Microbiology and Immunology, Animal Science or Food Science programs. The completion of 24 credits is required, of which at least 18 must not overlap with the primary program. All courses must be taken in the appropriate sequence and passed with a minimum grade of C. Students may declare their intent to follow the Minor program at the beginning of their U2 year. They must then consult with the Academic Advisor for the Human Nutrition Minor in the School of Dietetics and Human Nutrition to obtain approval for their course selection. Since not all courses are offered every year and many have prerequisites, students are cautioned to plan their program in advance.

The Minor program does not carry professional recognition, therefore, it is not suitable for students wishing to become nutritionists or dietitians. However, successful completion may enable students to qualify for many post-graduate nutrition programs.

**Required Courses:** 6 credits.

**Complementary Courses:** 18 or 19 credits

<table>
<thead>
<tr>
<th>Term</th>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>333-211A Biochemistry I</td>
<td>3</td>
</tr>
<tr>
<td>2</td>
<td>333-212A Biochemistry Laboratory</td>
<td>3</td>
</tr>
<tr>
<td>2</td>
<td>336-251A Microcomputer Applications</td>
<td>3</td>
</tr>
<tr>
<td>2</td>
<td>382-214A Food Fundamentals</td>
<td>3</td>
</tr>
<tr>
<td>2</td>
<td>342-234B Biochemistry II</td>
<td>3</td>
</tr>
<tr>
<td>2</td>
<td>362-230B The Microbial World</td>
<td>3</td>
</tr>
<tr>
<td>2</td>
<td>382-207A,B Nutrition and Health</td>
<td>3</td>
</tr>
<tr>
<td>2</td>
<td>382-217B Application of Food Fundamentals</td>
<td>3</td>
</tr>
<tr>
<td>3</td>
<td>342-323A Mammalian Physiology</td>
<td>4</td>
</tr>
<tr>
<td>3</td>
<td>342-330A Fundamentals of Nutrition</td>
<td>3</td>
</tr>
<tr>
<td>3</td>
<td>360-310A,B Statistical Methods I</td>
<td>3</td>
</tr>
<tr>
<td>3</td>
<td>382-322A Instructional Communications</td>
<td>2</td>
</tr>
<tr>
<td>4</td>
<td>342-424B Metabolic Endocrinology</td>
<td>3</td>
</tr>
<tr>
<td>4</td>
<td>382-337B Nutrition Through Life</td>
<td>3</td>
</tr>
<tr>
<td>4</td>
<td>382-344B Clinical Nutrition I</td>
<td>3</td>
</tr>
<tr>
<td>5</td>
<td>382-436A Nutritional Assessment</td>
<td>2</td>
</tr>
<tr>
<td>5</td>
<td>382-450A Research Methods in Human Nutrition</td>
<td>3</td>
</tr>
<tr>
<td>5</td>
<td>382-451A Nutrition Research</td>
<td>3</td>
</tr>
</tbody>
</table>

**Additional required and complementary courses, 12 credits.** Students must select one of the following three options as part of their program.

**Nutritional Biochemistry Option:**

<table>
<thead>
<tr>
<th>Term</th>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>342-552A Protein Metabolism in Animals</td>
<td>3</td>
</tr>
<tr>
<td>6</td>
<td>342-551B Carbohydrate and Lipid Metabolism</td>
<td>3</td>
</tr>
<tr>
<td>3 or 5</td>
<td>338-303A Advances in Atomic and Nuclear Science</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Term</th>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>342-405B Elementary Tracer Techniques</td>
<td>3</td>
</tr>
</tbody>
</table>

**Nutrition and Populations Option:**

<table>
<thead>
<tr>
<th>Term</th>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>382-406A Ecology of Human Nutrition</td>
<td>3</td>
</tr>
<tr>
<td>6</td>
<td>382-403B Community Nutrition</td>
<td>3</td>
</tr>
</tbody>
</table>

Select 6 credits from those listed below or any other social science courses:

- 382-301A (3) Psychology
- 170-203A,B (3) Knowledge, Ethics and the Environment

**Nutrition of Food Option:**

<table>
<thead>
<tr>
<th>Term</th>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 or 4</td>
<td>333-334B Analytical Chemistry II</td>
<td>3</td>
</tr>
<tr>
<td>4</td>
<td>333-251B Food Chemistry I</td>
<td>3</td>
</tr>
<tr>
<td>5</td>
<td>333-300A Food Analysis I</td>
<td>3</td>
</tr>
<tr>
<td>6</td>
<td>333-315B Food Analysis II</td>
<td>3</td>
</tr>
</tbody>
</table>

**Electives:** Selected in consultation with the academic adviser to meet the minimum 90 credits for the degree.

3 credits in biochemistry, one of:

- 507-311A (3) Metabolic Biochemistry
- 342-234B (3) Biochemistry II
- 342-323A (4) Mammalian Physiology
- 552-210B (3) Mammalian Physiology II
- 552-202B (3) Human Physiology: Body Functions

3 credits in nutrition, one of:

- 382-307A* (3) Human Nutrition
- 342-330A (3) Fundamentals of Nutrition

* students in Dietetics or Nutrition Majors may not substitute 382-307 for 343-330

8 or 9 credits from the following list:

- 342-552A (3) Protein Metabolism and Nutrition
- 382-451A (3) Analysis of Nutrition Data
- 382-436A (2) Nutritional Assessment
- 382-551B (3) Carbohydrate and Lipid Metabolism
- 382-420A (3) Food Toxicants and Health Risks
- 382-512A,B (3) Herbs, Foods and Phytochemicals
- 382-501A (3) Nutrition in Developing Countries
- 382-406A (3) Ecology of Human Nutrition
6.5 Department of Food Science and Agricultural Chemistry

Macdonald Stewart Building – Room MS1-034
Telephone: (514) 398-7989
Email: foodscience@macdonald.mcgill.ca
Website: http://agrenv.mcgill.ca/foodscience/

Chair — Inteaz Alli
Professors — Inteaz Alli, William D. Marshall, James P. Smith, Frederik R. Van De Voort
Associate Professors — Ashraf A. Ismail, Selim Kermasha, Hosahalli Ramaswamy, Benjamin K. Simpson, Varoujan Yaylayan
Adjunct Professors — Byong H. Lee, Yasuo Konishi, Andre Morin, J.R. Jocelyn Pare

MAJOR IN FOOD SCIENCE

This program is intended for those students interested in the multidisciplinary field of Food Science. The courses are integrated to acquaint the student with food processing, food chemistry, quality assurance, analytical procedures, food products, standards and regulations. The program prepares graduates for employment as scientists in industry or government, in regulatory, research, quality assurance, or product development capacities. Graduates have the academic qualifications for membership in the Canadian Institute of Food Science and Technology and the Institute of Food Technologists. Graduates can also qualify for admission to the Ordre des chimistes du Québec by careful selection of additional courses.

Required Courses: 66 credits.

Electives: selected in consultation with Academic Adviser, to meet the minimum 90-credit requirement for the degree. A portion of these credits should be in the humanities/social sciences.

Required Courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>333-200A</td>
<td>Introduction to Food Science</td>
<td>3</td>
</tr>
<tr>
<td>333-211A</td>
<td>Biochemistry I</td>
<td>3</td>
</tr>
<tr>
<td>333-213A</td>
<td>Analytical Chemistry I</td>
<td>3</td>
</tr>
<tr>
<td>333-233B</td>
<td>Physical Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>333-251B</td>
<td>Food Chemistry I</td>
<td>3</td>
</tr>
<tr>
<td>333-300A</td>
<td>Food Analysis I</td>
<td>3</td>
</tr>
<tr>
<td>333-305A</td>
<td>Food Chemistry II</td>
<td>3</td>
</tr>
<tr>
<td>333-310A</td>
<td>Post Harvest Fruit &amp; Vegetable Technology</td>
<td>3</td>
</tr>
<tr>
<td>333-315B</td>
<td>Food Analysis II</td>
<td>3</td>
</tr>
<tr>
<td>333-319B</td>
<td>Food Chemistry III</td>
<td>3</td>
</tr>
<tr>
<td>333-330B</td>
<td>Food Processing</td>
<td>3</td>
</tr>
<tr>
<td>333-334B</td>
<td>Analytical Chemistry II</td>
<td>3</td>
</tr>
<tr>
<td>333-400A</td>
<td>Food Packaging</td>
<td>3</td>
</tr>
<tr>
<td>333-410B</td>
<td>Flavour Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>333-425B</td>
<td>Principles of Quality Assurance</td>
<td>3</td>
</tr>
<tr>
<td>333-495D,N</td>
<td>Food Science Seminar</td>
<td>3</td>
</tr>
<tr>
<td>336-251A,B</td>
<td>Microcomputer Applications</td>
<td>3</td>
</tr>
<tr>
<td>336-324A</td>
<td>Elements of Food Engineering</td>
<td>3</td>
</tr>
<tr>
<td>360-310A,B</td>
<td>Statistical Methods I</td>
<td>3</td>
</tr>
<tr>
<td>362-230B</td>
<td>The Microbial World</td>
<td>3</td>
</tr>
<tr>
<td>362-442A</td>
<td>Food Microbiology and Sanitation</td>
<td>3</td>
</tr>
<tr>
<td>382-207A,B</td>
<td>Nutrition and Health</td>
<td>3</td>
</tr>
</tbody>
</table>

* Students who have not taken Chemistry 202 at CEGEP must take Organic Chemistry (333-230A) as a prerequisite for 333-211.

The following courses must be taken by students who wish to meet the course requirements for admission to the Ordre des chimistes du Québec.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>333-212A</td>
<td>Biochemistry Laboratory</td>
<td>2</td>
</tr>
<tr>
<td>333-230A</td>
<td>Organic Chemistry</td>
<td>4</td>
</tr>
<tr>
<td>333-491D,N</td>
<td>Research Project</td>
<td>4</td>
</tr>
<tr>
<td>333-510B</td>
<td>Food Hydrocolloid Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>338-301B</td>
<td>Biothermodynamics</td>
<td>3</td>
</tr>
<tr>
<td>338-303A</td>
<td>Advances in Atomic &amp; Nuclear Science</td>
<td>3</td>
</tr>
<tr>
<td>338-405B</td>
<td>Tracer Techniques</td>
<td>3</td>
</tr>
<tr>
<td>344-306B</td>
<td>Biological Instrumentation</td>
<td>3</td>
</tr>
</tbody>
</table>

6.6 Interdisciplinary Studies

Eccological Agriculture Program
Telephone: (514) 398-7928
Website: http://www.agrenv.mcgill.ca/agrecon/ecoagr

MINOR IN ECOLOGICAL AGRICULTURE

Academic Adviser: Professor J. Henning

This Minor program is designed to focus on the principles underlying the practice of ecological agriculture and is suitable for students wishing to farm, do extension and government work, and those intending to pursue post graduate studies in this field. The Minor can be associated with existing Major programs in the Faculty, but in some instances it may require more than 90 credits to meet the requirements of both the Major and the Minor.

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 Ecological Agriculture. 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 Ecological Agriculture Minor. The Academic Adviser of the Ecological Agriculture 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 Ecological Agriculture, 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: 9 credits. These are the same as for the Certificate in Ecological Agriculture.

Complementary Courses: 15 credits. Courses are chosen from the same list as for the Certificate in Ecological Agriculture.

CERTIFICATE IN ECOLOGICAL AGRICULTURE

Academic Adviser: Professor J. Henning

This 30-credit Certificate Program is very similar to the Minor Program and is designed to focus on the principles underlying the practice of ecological agriculture. The Certificate may be of special interest to professional agrologists who wish further training, as well as formal recognition that they have completed a coherent program of courses beyond their B.Sc. studies.

Students holding a B.Sc. in agriculture or a related area are eligible to register for this program provided that they are otherwise acceptable for admission to the University. Students who have completed the Minor in Ecological Agriculture are not permitted to register for this program.
General Regulations
To obtain a Certificate in Ecological Agriculture, students must offer a minimum total of 30 credits from the courses as given below.

Required Courses: 9 credits.
Complementary Courses: 21 credits.

Complementary Courses: 21 credits.
21 credits chosen from the following, in consultation with the Academic Adviser for Ecological Agriculture with at least 3 credits chosen from:
- 373-521B (3) Soil Microbiology & Biochemistry
- 372-490J (3) Plan global de fertilisation

and the remaining credits to be chosen from:
- 260-270A (3) Ethics and the Environment
- 330-435A (3) Soil and Water Quality Management
- 330-491G (3) Co-op Experience
- 334-333A (3) Resource Economics
- 344-205B (3) Principles of Ecology
- 349-311B (3) Ethology
- 350-452B (3) Bioculture of Insect Pests
- 367-300B (3) Cropping Systems
- 367-361B (3) Pest Management & the Environment
- 367-434B (3) Weed Biology and Control
- 367-460A (3) Plant Ecology
- 373-331B (3) Microbial Ecology
- 374-410A (3) The Forest Ecosystem
- 375-375B (3) Issues in Environmental Sciences
- 382-512B (3) Herbs and Phytochemicals

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 to ensure that they have met all conditions.
2) Not all courses are available in any given year. Consult departmental listings for full course descriptions and offerings.
3) Students using 330-491G towards the requirements of the Certificate/Minor are limited to an experience on farms or other enterprises that are either organic, biodynamic, or practicing permaculture. The placement must be approved by the academic adviser for the Certificate/Minor.
4) 373-521B is an alternate year course.

GENERAL AGRICULTURAL SCIENCE MAJOR
Professor K.A. Stewart
Raymond Building Room R2-022A
Telephone: (514) 398-7851 ext. 7872

The General Agricultural Science program is designed to provide a general scientific and applied background for modern agriculture without the requirements for a specialized program and to develop an appreciation of applied agriculture in its on-farm environment. Graduates of the General Agricultural Science major may be employed in agri-business, agricultural extension and communications, sales and marketing, teaching or farm management. This program leads to accreditation from the Ordre des agronomes du Québec.

Required Courses: 39 credits.
Complementary Courses: 40 credits.
Electives: selected in consultation with Academic Adviser, to meet the minimum 90-credit requirement for the degree.

Required Courses: CREDITS
- 330-495D,N Seminar and Assignment 2
- 333-211A Biochemistry I 3
- 334-200A Principles of Microeconomics 3

Excluding, but not limited to:

Electives: CREDITS
- 342-250A Principles of Animal Science 3
- 344-202B Cellular Biology 3
- 352-300B Communications - Extension Methods 3
- 356-204A Genetics 4
- 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
- 373-330A Insect Biology 3
- 375-375B Issues in Environmental Sciences 3

Complementary Courses: 40 credits.

Required Courses:
- 342-323A (4) Mammalian Physiology
- 367-353B (4) Plant Structure and Function

Electives: selected in consultation with Academic Adviser from the following:
- 342-301A (3) Principles of Animal Breeding
- 342-312B (3) Animal Pathology
- 342-324A (3) Animal Reproduction
- 342-450A (3) Dairy Cattle Production
- 342-452B (3) Beef Cattle and Sheep Production
- 342-454B (3) Swine Production
- 342-456A (3) Poultry Production

Electives: selected in consultation with Academic Adviser from the following:
- 367-300B (3) Cropping Systems
- 367-305A (3) Plant Pathology
- 367-310B (3) Plant Propagation
- 367-322B (3) Greenhouse Cropping Systems
- 367-331A (3) Field Crops
- 367-341A,B (1) HorticultureThe Alliums
- 367-342A,B (1) Horticulture – Perennial Vegetable Crops
- 367-343A,B (1) Horticulture – Root Crops
- 367-344A,B (1) Horticulture – Salad Crops
- 367-345A,B (1) Horticulture – Solanaceous Crops
- 367-421A (3) Landscape Plant Materials
- 367-434B (3) Weed Biology and Control
- 367-525B (3) Advanced Micropropagation

Electives: selected in consultation with Academic Adviser from the following:
- 372-315B (3) Soil Fertility and Fertilizers
- 372-326A (3) Soil Genesis and Classification
- 372-331B (3) Soil Physics
- 373-410B (3) Soil Chemistry
- 372-490B (3) Plan global de fertilisation intégrée (Continuing Education)
- 372-521B (3) Soil Microbiology and Biochemistry

Electives: selected in consultation with Academic Adviser from the following:
- 336-200B (3) Elements of Agricultural Engineering
- 336-217B (3) Hydrology and Drainage
- 336-314B (3) Agricultural Structures
- 336-322A (3) Agro-Food Waste Management
- 336-412A (3) Agricultural Machinery
- 336-518A (3) Pollution Control for Agriculture

Electives: selected in consultation with Academic Adviser from the following:
- 334-230B (3) Economics of Marketing
- 334-231B (3) Economic Systems of Agriculture
- 334-320B (3) Economics of Agricultural Production
- 334-331A (3) Farm Business Management
- 334-350B (3) Agricultural Finance

plus a minimum of 21 credits chosen in consultation with the Academic Adviser from the 330, 334, 336, 338, 342, 350, 367, 372 and 374 Teaching Units (see section 7).
6.7 Department of Natural Resource Sciences

McGill University, Undergraduate Programs 2000-2001 441

Adjunct Professors — Robert Anderson, Frederick S. Archibald,
Associate Members — Laurie Chan, William D. Marshall,
Assistant Professors — Dominique Berteaux, Brian T. Driscoll,
Associate Professors — Benoit Côté, Mark A. Curtis,
Professors — Nayana N. Barthakur, David M. Bird, Peter Brown
Emeritus Professors — A. Clark Blackwood, Roger Knowles,
Website: http://www.nrs.mcgill.ca
Email: info@nrs.mcgill.ca
Telephone: (514) 398-7890
Macdonald Stewart Building – Room MS3-040
6.7 Department of Natural Resource Sciences

Electives:

Complementary Courses:

Required Courses:

CREDITS

APPLIED ZOOLOGY MAJOR

Academic Adviser: Professor T. A. Wheeler

The great diversity of animals form the focus of this Major, from the invertebrates, with their many beneficial and pest insects, to vertebrates, including fish and wildlife. The interaction of animals with each other and with human populations is stressed. By careful course selection students may emphasize life in soils or water, entomology, physiology, parasitology or vertebrate biology and ecology. Career opportunities exist in both the public and private sectors in research, program development and implementation, pest control, wildlife management, etc.

Required Courses: 24 credits.

Complementary Courses: 28 or 29 credits.

Electives: to meet the minimum requirement of 90 credits; chosen in consultation with the Academic Adviser.

CREDITS

333-211A Biochemistry I 3
333-212A Biochemistry Laboratory 2
344-200A Biology of Organisms 3
344-202B Cellular Biology 3
344-205B Principles of Ecology 3
356-204A Genetics 4
360-310A,B Statistical Methods I 3
367-201B Comparative Plant Biology 3

Complementary Courses:

An appropriate Seminar Course 2 or 3
plus a minimum of 26 credits from the following: 26

342-323A (4) Mammalian Physiology
349-307A (3) Natural History of the Vertebrates
349-308B (3) Comparative Morphology of the Vertebrates
349-311B (3) Ethology
349-312A (3) Zoological Systematics and Evolution
349-313B (3) Zoogeography
349-424B (3) Parasitology
350-335A (3) Soil Ecology and Management
373-330A (3) Insect Biology
373-496D,N (3) Project I
or 373-497D,N (5) Project II
375-401A (3) Fisheries and Wildlife Management
375-410B (3) Wildlife Ecology
375-420A (3) Topics in Ornithology
375-475B (3) Desert Ecology

The following Zoology courses from the Downtown Campus may be substituted for those in the above list of Macdonald Campus Complementary Courses with the prior permission of the Academic Adviser and the Macdonald Committee on Academic Standing. When selecting electives, students are encouraged to consult with their Academic Adviser.

Department of Biology (Downtown Campus) Courses:

177-307B (3) Behavioural Ecology and Sociobiology
177-327A (3) Herpetology
177-331A (3) Ecology and Behaviour Field Course
177-334E (3) Field Course, Applied Tropical Ecology
177-335T (3) Marine Mammals
177-336C (3) Marine Aquaculture
177-337C (3) Ecology and Behaviour of Fishes
177-351B (3) The Biology of Invertebrates
177-352B (3) Vertebrate Evolution
177-437A (3) Advanced Invertebrate Zoology
177-442B (3) Marine Biology

MACDONALD SUMMER FIELD SEMESTER: HUMAN IMPACTS ON THE ENVIRONMENT

Four courses are available during Summer Session that provide students the opportunity to participate in supervised field research concerning flora and fauna not easily studied at other times of the year, and to apply knowledge from the classroom to environmental issues in the field.

Common thematic elements include: the linkages between physical, biological and human systems, field research, and human impacts on the environment. Students learn and apply research techniques and analytical skills within a multi-disciplinary, holistic approach.

Summer Session Courses: (May 25 - July 31)
373-381C (3) Field Research Methods
373-382L (3) Ecological Monitoring & Analysis
373-383L (3) Land Use: Redesign & Planning
373-384L (3) Field Research Project

For more information, please consult the McGill Summer Studies Calendar, the Summer Studies Website (http://www.mcgill.ca/Summer/), or the Faculty Website (http://www.agrenv.mcgill.ca/).

ENVIRONMENTAL BIOLOGY MAJOR

Academic Advisers: Professors J. Fyles (U1), M.E. Rau (U2), D.J. Lewis (U3)

This program provides scientists with basic knowledge in Biology and strong emphasis in Ecology. As ecologists they will be equipped to investigate the scientific aspects of the relationships between organisms and their environment.

Required Courses: 29 credits.

Electives: To meet the minimum requirements of 90 credits for the degree.

CREDITS

333-211A Biochemistry I 3
333-212A Biochemistry Laboratory 2
344-200A Biology of Organisms 3
344-202B Cellular Biology 3
344-205B Principles of Ecology 3
344-495D,N Environmental Biology Seminar 2
356-210A,B Statistical Methods I 3
375-475B (3) Desert Ecology

373-496D,N (3) Project I
or 373-497D,N (5) Project II

373-475B (3) Desert Ecology

375-301A (3) Ecology and Behaviour Field Course
375-334E (3) Field Course, Applied Tropical Ecology
375-335T (3) Marine Mammals
375-336C (3) Marine Aquaculture
375-337C (3) Ecology and Behaviour of Fishes
375-351B (3) The Biology of Invertebrates
375-352B (3) Vertebrate Evolution
375-437A (3) Advanced Invertebrate Zoology
375-442B (3) Marine Biology
With the permission of the Academic Adviser, ecological or environmental courses offered on the Downtown Campus may be substituted for those appearing in the above list of Complementary Courses.

ENVIRONMENTAL FORESTRY MINOR

Academic Adviser: Professor B. Côté

The Minor allows students to specialize in the environmental aspects of forests and forestry. The program will be of particular interest to students in environmental science disciplines wishing to pursue careers in the forest industry; with government organizations regulating forest-based activities such as fibre production, recreation, wildlife management, and conservation; in private consultancy relating to the environmental aspects of forest management; or those wishing to undertake graduate degrees in fields relating to forest ecology. The Minor can be associated with any of the Majors in the Faculty but more than 90 credits may be necessary to meet the course requirements for both the Major and Minor.

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 Environmental Forestry. 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 Environmental Forestry Minor. The Academic Adviser of the Environmental Forestry 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 Environmental Forestry, 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 23 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: 14 credits.

Complementary Courses: 9 credits.

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.

MICROBIOLOGY MAJOR

Academic Advisers: Profs. D. Niven (U1), B.T. Driscoll (U2), E. Idziak (U3)

Students receive training in fundamental principles and applied aspects of Microbiology. Successful graduates are competent to work in university, government and industrial research laboratories and in the pharmaceutical, fermentation and food industries.

Required Courses: 60 credits.

Electives: to meet the minimum requirement of 90 credits for the degree; chosen in consultation with the Academic Adviser.

Required Courses: 60

CREDITS

333-211A Biochemistry I 3
333-212A Biochemistry laboratory 2
344-200A Biology of Organisms 3
344-202B Cellular Biology 3
344-205B Principles of Ecology 3
349-424B Parasitology 3
356-204A Genetics 4
360-310A.B Statistical Methods I 3
362-200A Laboratory Methods in Microbiology 3
362-230B The Microbial World 3
362-337D.N Frontiers in Microbiology 1
362-341A Mechanisms of Pathogenicity 3
362-492D.N Project 5
362-495D Seminar 3
367-201B Comparative Plant Biology 3
373-331B Microbial Ecology 3
373-338A Molecular Biology of Microorganisms 3
373-442A Food Microbiology and Sanitation 3
391-400B Eukaryotic Cells and Viruses 3
391-438A Immunology 3

CREDITS
RESOURCES CONSERVATION MAJOR

Academic Adviser: Professor B. Côté

The Major prepares students to deal with problems in integrated resource management and environmental protection with the objective of making optimal use of natural resources under any given set of economic, social and ecological conditions. Students follow a series of required courses and select complementary courses on physical, biological, soil and aquatic resources from approved lists on each of these themes.

Required Courses: 25 credits

Complementary Courses: 33 credits.

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

Required Courses: CREDITS
333-211A Biochemistry I 3
334-200A Principles of Microeconomics 3
334-333A Resource Economics 3
344-205B Principles of Ecology 3
349-315A Science of Inland Waters 3
372-200B Introduction to Earth Science 3
372-210A Principles of Soil Science 3
375-437B Assessing Environmental Impact 2
375-491D,N Seminar 2

Complementary Courses: min. 33
367-201B (3) Comparative Plant Biology 3
or 367-211A (3) Principles of Plant Science 3
360-310A,B (3) Statistical Methods I 3
or 189-203A (3) Principles of Statistics I 3
At least two of the following: 6
336-214A (3) Surveying
336-217B (3) Hydrology and Drainage
or 183-322A (3) Hydrology
336-416A (3) Engineering for Land Development
338-201A (3) Introductory Meteorology
375-335A (3) Physical and Biological Aspects of Pollution

At least three of the following: 9 or 10
177-365A (3) Conservation Biology
350-335A (3) Soil Ecology and Management
360-306A (3) Mathematical Methods in Ecology
367-358A (3) Flowering Plant Diversity
373-331B (3) Microbial Ecology
374-410A (3) The Forest Ecosystem
375-401A (4) Fisheries and Wildlife Management

At least three of the following: 9
330-435A (3) Soil and Water Quality Management
372-315B (3) Soil Fertility and Fertilizers
372-326A (3) Soil Genesis and Classification
372-331B (3) Soil Physics
372-410B (3) Soil Chemistry
373-521B (3) Soil Microbiology and Biochemistry

At least one of the following: 3
183-210B1 (3) Geographical Information Systems
336-350B (3) GIS & Biosystems
375-310B (3) Air Photo and Imagery Interpretation

1 Downtown Campus

Note: Other courses on the Downtown Campus may be equivalent to some required courses; consult the Academic Adviser.

SOIL SCIENCE MAJOR

Academic Adviser: Professor Mehuys

Students Majoring in Soil Science gain an understanding of the nature of soils, in terms of their physical, biological, biochemical, and chemical properties, and of survey and management techniques which promote their sustained fertility, productivity, and conservation. Students may choose to take a specialized orientation related to either soils and crops, or soil and water conservation. The first option is more biologically oriented, while the second is concerned more with resource management and environmental protection. The Soil Science Major qualifies the graduate for membership in l'Ordre des agronomes du Québec and professional agrologist organizations in the other provinces.

Required Courses, 41 credits.

Complementary Courses: 21 - 23 credits, selected from an approved list in consultation with the Academic Adviser –
Soils and Crops Option: 21 credits
Soil Conservation Option: 21 - 23 credits

Electives: to meet the minimum requirement of 90 credits for the degree.

Required Courses: CREDITS
334-200A Principles of Microeconomics 3
334-231B Economic Systems of Agriculture 3
338-201A Introductory Meteorology 3
342-250A Principles of Animal Science 3
360-310A,B Statistical Methods I 3
362-230B The Microbial World 3
367-211A Principles of Plant Science 3
372-200B Introduction to Earth Science 3
372-210A Principles of Soil Science 3
372-315B Soil Fertility and Fertilizers 3
372-326A Soil Genesis and Classification 3
372-331B Soil Physics 3
372-410B Soil Chemistry 3
375-491D,N Seminar 2

Complementary Courses: 21 - 23 credits

Either the Soils and Crops Option or the Soil Conservation Option

Soils and Crops Option: 21-23 credits

Nine credits from the following courses:

330-430A (3) Ecological Agriculture Systems
367-300B (3) Cropping Systems
367-322B (3) Greenhouse Management
367-331A (3) Field Crops
367-341A,B (1) Horticulture - The Alliums
367-342A,B (1) Horticulture - Perennial Vegetable Crops
367-343A,B (1) Horticulture - Root Crops
367-344A,B (1) Horticulture - Salad Crops
367-345A,B (1) Horticulture - Solanaceous Crops
367-346A,B (1) Horticulture - Temperate Tree Fruits
367-347A,B (1) Horticulture - Small Fruits
367-434B (3) Weed Biology and Control

Four of the following courses:

260-270A (3) Ethics and the Environment
330-435A (3) Soil and Water Quality Management
333-211A (3) Biochemistry I
336-251A,B (3) Microcomputer Applications
344-202B (3) Cellular Biology
350-452B (3) Biological Insect Pests
356-204A (4) Genetics
367-305A (3) Plant Pathology
367-353B (4) Plant Structure and Function
367-358A (3) Flowering Plant Diversity
367-460A (3) Plant Ecology
373-331B (3) Microbial Ecology
373-521B (3) Soil Microbiology and Biochemistry
374-441B (3) Integrated Forest Management
Soil Conservation Option
Three of the following courses:

330-250B (3) Principles of Ecological Agriculture
330-430A (3) Ecological Agriculture Systems
330-435A (3) Soil and Water Quality Management
336-217B (3) Hydrology and Drainage
336-416A (3) Engineering for Land Development
373-521B (3) Soil Microbiology and Biochemistry

Four of the following courses:

260-270A (3) Ethics and the Environment
336-214A (3) Surveying
336-251A,B (3) Microcomputer Applications
336-330B (3) GIS for Biosystems Management
344-205B (3) Principles of Ecology
373-331B (3) Microbial Ecology
374-410A (3) The Forest Ecosystem
374-411B (3) Integrated Forest Management
375-310B (3) Air Photo and Imagery Interpretation
375-333A (3) Physical & Biological Aspects of Pollution
375-415A (3) Conservation Law
375-437B (3) Assessing Environmental Impact

WILDLIFE BIOLOGY MAJOR
R. Titman (U3) Jan. - August 2001

This program emphasizes understanding the ecology of vertebrate animals, their biological and physical environment and the interactions which are important in the management of ecological communities and wildlife species. Employment opportunities exist in resource planning, nature interpretation, wildlife management and environmental impact assessment. By careful course selection students may meet requirements for certification by the Wildlife Society.

Required Courses: 34 credits.

Complementary Courses: 26 credits.

Electives: to meet the requirement of 90 credits for the degree.

WILDLIFE BIOLOGY MAJOR

6.8 Department of Plant Science

Raymond Building – Room R2-019
Telephone: (514) 398-7851
Email: info@mcgill.ca
Website: http://www.agr.mcgill.ca/plant

Chair — Marc Fortin
Emeritus Professors — Ralph H. Estey, William F. Grant, W.E. Sackston, Howard A. Steppler
Professors — Deborah J. Buszard, Donald L. Smith, Alan K. Watson
Associate Professors — Danielle J. Donnelly, Pierre Dutilleul, Marc Fortin, Suha J-Hare, Ajiamada C. Kushalappa, Diane E. Mather, Timothy C. Paulitz, Salvatore A. Sparace, Katrine A. Stewart, Marcia J. Waterway
Lecturers — Serge Cussler, Patrick Nantel, David D. Wees
Associate Member — Timothy A. Johns
Adjunct Professors — Miles R. Bullen, Odile Carisse, Daniel Cloutier, Warren K. Coleman, Bruce E. Coulman, Sylvie Jenni, Shahrokh Khanizadeh, Jean-François Laliberté, Cindy Morris, Louise O’Donoughue, Thérèse Ouellet

The Department of Plant Science administers Majors in Botanical Science and Plant Science. (Full descriptions of these Majors are available at http://www.agr.mcgill.ca/plant/undergrad.htm.) A minimum of 90 credits is needed to complete each Major. It is recommended that students take organic chemistry prior to entering these Majors.

BOTANICAL SCIENCE MAJOR

Academic Adviser: Professor D.J. Donnelly

The Botanical Science Major offers two options for those interested in working with plants, one emphasizing the ecology of plants and their environment and the other emphasizing the physiology and molecular biology of plants. The Ecology Option emphasizes ecology, conservation, and environmental sciences. The Molecular Option emphasizes molecular genetics, plant improvement, and biotechnology. These two options form bota-
nists prepared for exciting careers in the knowledge economy. Graduates are finding employment within private industries, government services, consulting, teaching, and many have gone on to do postgraduate research. These programs can be completed entirely on the Macdonald Campus or one semester can be spent taking courses on the Downtown Campus during the final year.

**Required Courses:** 42 credits.

**Complementary Courses:** 18 credits, selected from an approved list in consultation with the Academic Adviser; taken in either the Ecology or the Molecular Option.

**Electives:** to meet the minimum requirement of 90 credits for the degree.

**Note:** courses marked with an asterisk (*) are offered on the Downtown Campus.

**Required Courses:**

- **333-211A** Biochemistry I 3
- **344-200A** Biology of Organisms 3
- **344-202B** Cellular Biology 3
- **344-205B** Principles of Ecology 3
- **356-204A** Genetics 4
- **360-310B** Statistical Methods I 3
- **367-201B** Comparative Plant Biology 3
- **367-220A** Introduction to Vascular Plants 1
- **367-221A** Introduction to Fungi 1
- **367-353B** Plant Structure and Function 4
- **367-358A** Flowering Plant Diversity 3
- **367-458A** Flowering Plant Systematics 3
- **367-460A** Plant Ecology 3
- **367-490D,N** Project 3
- **367-495D,N** Seminar 2

**Complementary Courses:** 21 credits.

- Either the Ecology Option or the Molecular Option.

**Ecology Option:** 18 credits, selected from an approved list in consultation with the Academic Adviser; taken in either the Ecology or the Molecular Option.

- **177-331A** (3) Field Crops
- **177-332A** (3) Principles of Ecological Agriculture
- **349-315A** (3) Science of Inland Waters
- **360-306A** (3) Mathematical Methods in Ecology
- **373-331B** (3) Microbial Ecology
- **374-410A** (3) The Forest Ecosystem
- **374-420B** (3) Environmental Issues in Forestry
- **375-415A** (2) Conservation Law
- **375-437B** (3) Assessing Environmental Impact
- **177-324A** (3) Ecological Genetics
- **177-331A** (3) Ecology and Behaviour Field Course
- **177-334E** (3) Field course in Applied Tropical Ecology
- **177-365A** (3) Conservation Biology
- **177-483B** (3) Stat. Approaches in Ecology and Evolution
- **183-350A** (3) Ecological Biogeography

- the remaining credits, if any, to be chosen from Molecular Option Complementary Course list or from the General Complementary Course list given below.

**Molecular Option:** 18 credits, selected from the following:

- **333-212A** (2) Biochemistry Laboratory
- **344-306B** (3) Biological Instrumentation
- **356-500A,B** (3) Plant Molecular Genetics
- **356-501B** (3) Plant Molecular Biology and Genetics
- **362-200A** (3) Laboratory Methods in Microbiology
- **362-230B** (3) Microbial World
- **367-525B** (3) Advanced Micropropagation
- **367-535B** (3) Plant Breeding
- **373-338A** (3) Bacterial Molecular Genetics
- **391-400B** (3) Eukaryotic Cells and Viruses
- **391-501A,B** (3) Bioinformatics
- **177-301A,B,3** (3) Laboratory in Molecular and Cellular Biology
- **177-303B** (3) Developmental Biology
- **177-333B** (3) Plant Biotechnology

the remaining credits, if any, to be chosen from Ecology Option Complementary Course list or from the General Complementary Course list given below.

**BOTANICAL SCIENCE MAJOR, GENERAL COMPLEMENTARY COURSES:**

- **367-215A** (1) Orientation in Plant Science
- **367-304B** (3) Biology of Fungi
- **367-305A** (3) Plant Pathology
- **367-310A,B** (3) Plant Propagation
- **367-434B** (3) Weed Biology and Control
- **367-450A,B** (2) Special Topics Plant Science
- **367-451A,B** (3) Special Topics Plant Science
- **372-210A** (3) Principles of Soil Science
- **382-512A** (3) Herbs, Food, and Phytochemicals
- **177-555L** (3) Functional Ecology of Trees

**PLANT SCIENCE MAJOR**

**Academic Adviser:** Professor K.A. Stewart

The Plant Science Major offers intensive training in agricultural plant science. Comprehensive studies are offered in all aspects of biology and production practices related to important crop plant species. Studies include laboratory, greenhouse, and field exposure relating to agronomic, horticultural, or field crop development, production and management. Graduates are eligible to apply for membership in l’Ordre des agronomes du Québec (OAQ) and the Agricultural Institute of Canada (AIC). Graduates rapidly find employment in agricultural industries, government services, extension, consulting, teaching, or go on to do postgraduate research.

**Required Courses:** 46 credits

**Complementary Courses:** 21 credits.

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

**Required Courses:**

- **333-211A** Biochemistry I 3
- **342-250A** Principles of Animal Science 3
- **356-204A** Genetics 4
- **360-310A** Statistical Methods I 3
- **362-230B** Microbial World 3
- **367-211A** Principles of Plant Science 3
- **367-300B** Cropping Systems 3
- **367-305A** Plant Pathology 3
- **367-310A** Plant Propagation 3
- **367-353B** Plant Structure and Function 4
- **367-358A** Flowering Plant Diversity 3
- **367-434B** Weed Biology and Control 3
- **367-495D,N** Seminar 2
- **372-210A** Principles of Soil Science 3
- **372-315B** Soil Fertility and Fertilizers 3

**Complementary Courses:**

- **350-452B** (3) Biocontrol of Insect Pests
- **373-330A** (3) Insect Biology

- 6 credits in economics, accounting or management 6

- plus a minimum of 12 credits selected from the course list given below.

- **333-310A** (3) Postharvest Fruit & Vegetable Technology
- **367-215A** (1) Orientation in Plant Sciences
- **367-220A** (1) Introduction to Vascular Plants
- **367-221A** (1) Introduction to Fungi
- **367-322B** (3) Greenhouse Management
- **367-331A** (3) Field Crops
- **367-341A,B** (1) Horticulture - the Alliums
- **367-342A,B** (1) Horticulture - Perennial Vegetables
- **367-343A,B** (1) Horticulture - Root Crops
- **367-344A,B** (1) Horticulture - Salad Crops

McGill University, Undergraduate Programs 2000-2001
MINOR IN AGRICULTURAL PRODUCTION

Academic Adviser: Professor K. A. Stewart

This Minor program is designed to allow students in non-agricultural production Majors to receive credit for courses in agricultural production and to stimulate "cross over" study. The Minor can be associated with existing Major programs in the Faculty, but in some instances it may require more than 90 credits to meet the requirements of both the Major and the Minor.

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 Production. 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 Production Minor. The Academic Adviser of the Agricultural Production 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 Production, 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: 12 credits

Complementary Courses: 12 credits.

Required Courses:

<table>
<thead>
<tr>
<th>CREDITS</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td></td>
</tr>
<tr>
<td>342-250A</td>
<td>Principles of Animal Science</td>
</tr>
<tr>
<td>367-211A</td>
<td>Principles of Plant Science</td>
</tr>
<tr>
<td>367-300B</td>
<td>Cropping Systems</td>
</tr>
<tr>
<td>372-210A</td>
<td>Principles of Soil Science</td>
</tr>
</tbody>
</table>

Complementary Courses:

<table>
<thead>
<tr>
<th>CREDITS</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td></td>
</tr>
<tr>
<td>342-450A</td>
<td>Dairy Cattle Production</td>
</tr>
<tr>
<td>342-452B</td>
<td>Beef and Sheep Production</td>
</tr>
<tr>
<td>342-454B</td>
<td>Swine Production</td>
</tr>
<tr>
<td>342-456A</td>
<td>Poultry Production</td>
</tr>
<tr>
<td>367-331A</td>
<td>Field Crops</td>
</tr>
<tr>
<td>367-341A,B</td>
<td>Horticulture - the Alliums</td>
</tr>
<tr>
<td>367-342A,B</td>
<td>Horticulture - Perennial Vegetable Crops</td>
</tr>
<tr>
<td>367-343A</td>
<td>Horticulture - Root Crops</td>
</tr>
<tr>
<td>367-344A,B</td>
<td>Horticulture - Salad Crops</td>
</tr>
<tr>
<td>367-345A,B</td>
<td>Horticulture - Solanaceous Crops</td>
</tr>
<tr>
<td>367-346A,B</td>
<td>Horticulture - Temperate Tree Fruits</td>
</tr>
<tr>
<td>367-347A,B</td>
<td>Horticulture - Small Fruits</td>
</tr>
<tr>
<td>367-348A,B</td>
<td>Horticulture - the Brassicas</td>
</tr>
</tbody>
</table>

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.

7. Course Descriptions

Courses are listed numerically by prefix. For courses in the following areas, consult listings with the appropriate prefix:

- Agricultural and Biosystems Engineering - 336 (page 450)
- Animal Science - 342 (page 449)
- Biology - 344 (page 453)
- Biotechnology - 394 (page 461)
- Economics - 334 (page 449)
- English - 348 (page 454)
- Entomology - 350 (page 454) and 373
- Ethics - 260 (page 448)
- Extension - 352 (page 454)
- Food Science and Agricultural Chemistry - 333 (page 448)
- Forest Resources - 374 (page 458)
- General Agriculture - 330 (page 448)
- Genetics - 356 (page 454)
- Mathematics - 360 (page 455)
- McGill School of Environment - 170 (page 446)
- Microbiology - 362 and 373 (page 455)
- Natural Resource Sciences - 373 (page 457)
- Nutrition and Dietetics - 382 (page 459)
- Parasitology - 391 (page 461)
- Physics - 338 (page 452)
- Plant Science - 367 (page 457)
- Renewable Resources - 375 (page 458)
- Soil Science - 372 and 373 (page 457)
- Zoology - 349 (page 454)

All pre- and co-requisites in a course sequence leading to a more advanced course must be successfully completed before registration will be permitted in the advanced course.

The course credit weight appears in parentheses (#) after the name.

- Denotes courses not offered in 2000-01.
- Denotes courses offered only in alternate years.
- Denotes limited enrolment.