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 Schafer, 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
Term 1		**17**
333-211A	Biochemistry I	3
333-212A	Biochemistry Laboratory	2
336-251A	Microcomputer Applications	3
382-214A	Food Fundamentals	3
334-242A	Management Theories and Practices	3
One Elective or Complementary		3
Term 2		**19**
342-234B	Biochemistry II	3
362-230B	The Microbial World	3
382-217B	Application of Food Fundamentals	3
382-207A,B	Nutrition and Health	3
382-208J*	Professional Practice (Stage) in Dietetics Level I	4
One Elective or Complementary		3
Term 3		**20**
342-323A	Mammalian Physiology	4
342-330A	Fundamentals of Nutrition	3
360-310A,B	Statistical Methods I	3
382-345D	Food Service Systems Management	5
382-322A	Instructional Communications	2
One Elective or Complementary		3
Term 4		**18**
342-424B	Metabolic Endocrinology	3
334-343B	Accounting and Cost Control	3
382-337B	Nutrition Through Life	3
382-310B*	Professional Practice (Stage) in Dietetics Level II a	1
382-311C*	Professional Practice (Stage) in Dietetics Level II b	5
382-344B	Clinical Nutrition I	3
Term 5		**15**
382-436A	Nutritional Assessment	2
382-445A	Clinical Nutrition II	4
382-446A	Personnel Management	3
382-450A	Research Methods in Human Nutrition	3
One Elective or Complementary		3
Term 6		**12**
382-403B	Community Nutrition	3
382-409B*	Professional Practice (Stage) in Dietetics Level III	8
382-438B	Interviewing and Counselling	1
Term 7		**14**
382-410A*	Professional Practice (Stage) in Dietetics Level IV	14

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 and Dietetics Majors.)
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.

		CREDITS
Term 1		**11**
333-211A	Biochemistry I	3
333-212A	Biochemistry Laboratory	2
336-251A	Microcomputer Applications	3
382-214A	Food Fundamentals	3
Term 2		**12**
342-234B	Biochemistry II	3
362-230B	The Microbial World	3
382-207A,B	Nutrition and Health	3
382-217B	Application of Food Fundamentals	3
Term 3		**12**
342-323A	Mammalian Physiology	4
342-330A	Fundamentals of Nutrition	3
360-310A,B	Statistical Methods I	3
382-322A	Instructional Communications	2
Term 4		**9**
342-424B	Metabolic Endocrinology	3
382-337B	Nutrition Through Life	3
382-344B	Clinical Nutrition I	3
Term 5		**8**
382-436A	Nutritional Assessment	2
382-450A	Research Methods in Human Nutrition	3
382-451A	Nutrition Research	3

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

			CREDITS
Nutritional Biochemistry Option:			**12**
Term 5	342-552A	Protein Metabolism in Animals	3
Term 6	342-551B	Carbohydrate and Lipid Metabolism	3
Term 3 or 5	338-303A	Advances in Atomic and Nuclear Science	3
	338-405B	Elementary Tracer Techniques	3
Nutrition and Populations Option:			**12**
Term 5	382-406A	Ecology of Human Nutrition	3
Term 6	382-403B	Community Nutrition	3
Select 6 credits from those listed below or any other social science courses:			6
382-301A (3) Psychology			
170-203A,B (3) Knowledge, Ethics and the Environment			
Nutrition of Food Option:			**12**
Term 2 or 4	333-334B	Analytical Chemistry II	3
Term 4	333-251B	Food Chemistry I	3
Term 5	333-300A	Food Analysis I	3
Term 6	333-315B	Food Analysis II	3

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

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

		CREDITS
Required Courses:		**6**
382-337B	Nutrition Through Life	3
382-450A	Research Methods in Human Nutrition	3
Complementary Courses:		**18 or 19**

3 credits in biochemistry, one of:
- 507-311A (3) Metabolic Biochemistry
- 342-234B (3) Biochemistry II

3 or 4 credits in physiology, one of:
- 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

382-430A,B or 382-431D,N	(3)	Directed Studies in Dietetics/Nutrition
528-314B or 391-438A	(3)	Immunology
526-300B	(3)	Human Disease

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.

6.5 Department of Food Science and Agricultural Chemistry

Macdonald Stewart Building – Room MS1-034
Telephone: (514) 398-7898
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.

		CREDITS
Required Courses:		**66**
333-200A	Introduction to Food Science	3
333-211A,*	Biochemistry I	3
333-213A	Analytical Chemistry I	3
333-233B	Physical Chemistry	3
333-251B	Food Chemistry I	3
333-300A	Food Analysis I	3
333-305A	Food Chemistry II	3
333-310A	Post Harvest Fruit & Vegetable Technology	3
333-315B	Food Analysis II	3
333-319B	Food Chemistry III	3
333-330B	Food Processing	3
333-334B	Analytical Chemistry II	3
333-400A	Food Packaging	3
333-410B	Flavour Chemistry	3
333-425B	Principles of Quality Assurance	3
333-495D,N	Food Science Seminar	3
336-251A,B	Microcomputer Applications	3
336-324A	Elements of Food Engineering	3
360-310A,B	Statistical Methods I	3
362-230B	The Microbial World	3
362-442A	Food Microbiology and Sanitation	3
382-207A,B	Nutrition and Health	3

* 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.

333-212A	(2)	Biochemistry Laboratory
333-230A	(4)	Organic Chemistry
333-491D,N	(4)	Research Project
333-510B	(3)	Food Hydrocolloid Chemistry
338-301B	(3)	Biothermodynamics
or 338-303A	(3)	Advances in Atomic & Nuclear Science
338-405B	(3)	Tracer Techniques
344-306B	(3)	Biological Instrumentation

6.6 Interdisciplinary Studies

Ecological 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.

		CREDITS
Required Courses:		**9**
330-210B	Agro-Ecological History	3
330-250B	Principles of Ecological Agriculture	3
330-430A	Ecological Agriculture Systems	3
Complementary Courses:		**21**
21 credits chosen from the following, in consultation with the Academic Adviser for Ecological Agriculture		
with at least 3 credits chosen from:		3-6
373-521B (3)	Soil Microbiology & Biochemstry	
372-490J (3)	Plan global de fertilisation	
and the remaining credits to be chosen from:		15-18
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)	Biocontrol 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 acreditation 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.

		CREDITS
Required Courses:		**39**
330-495D,N	Seminar and Assignment	2
333-211A	Biochemistry I	3
334-200A	Principles of Microeconomics	3
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**
at least one of one of:		
342-323A (4)	Mammalian Physiology	
367-353B (4)	Plant Structure and Function	
a minimum of 3 credits, one Animal Production course 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	
a minimum of 3 credits, one Plant Production course 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	
367-346A,B (1)	Horticulture – Temperate Tree Fruits	
367-347A,B (1)	Horticulture – Small Fruits	
367-421A (3)	Landscape Plant Materials	
367-434B (3)	Weed Biology and Control	
367-525B (3)	Advanced Micropropagation	
a minimum of 3 credits, one Soil Science course 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	
a minimum of 3 credits, one Agricultural Engineering course 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	
One additional course in Agricultural Economics		
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

Macdonald Stewart Building – Room MS3-040
Telephone: (514) 398-7890
Fax: (514) 398-7990
Email: info@nrs.mcgill.ca
Website: http://www.nrs.mcgill.ca

Chair — William H. Hendershot

Emeritus Professors — A. Clark Blackwood, Roger Knowles, Angus F. Mackenzie, Robert A. MacLeod, Peter H. Schuepp, Robin K. Stewart

Professors — Nayana N. Barthakur, David M. Bird, Peter Brown *(joint appt. with Geography and McGill School of Environment),* William H. Hendershot, Edmund S. Idziak

Associate Professors — Benoit Côté, Mark A. Curtis, Gary B. Dunphy, James W. Fyles, David J. Lewis, Guy R. Mehuys, Donald F. Niven, Manfred E. Rau, Rodger D. Titman

Assistant Professors — Dominique Berteaux, Brian T. Driscoll, Chantal Hamel, Terry A. Wheeler

Associate Members — Laurie Chan, William D. Marshall, Greg T. Matlashewski, Donald L. Smith

Adjunct Professors — Robert Anderson, Frederick S. Archibald, Gilles Boiteau, Guy Boivin, Trevor C. Charles, Helene Chiasson, Jeffrey Cumming, Charles W. Greer, Thomas Herman, Henry R. Murkin, Marc St-Arnaud, Jean-Pierre Savard, Anton Scheuhammer, David Sergeant, Norman R. Seymour, Regis Simard, Thomas G. Smith, Ian Thompson, Charles Vincent, Frederick G. Whoriskey

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
Required Courses:		**24**
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:			**28 or 29**
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.
Complementary Courses: 30 credits.
Electives: To meet the minimum requirements of 90 credits for the degree.

		CREDITS
Required Courses:		**29**
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
356-204A	Genetics	4
360-310A,B	Statistical Methods I	3

367-201B	Comparative Plant Biology	3
375-375B	Issues in Environmental Sciences	3

Complementary Courses: **30**
a minimum of 30 credits selected from the following list in consultation with the Academic Adviser

338-201A	(3)	Introductory Meteorology
349-307A	(3)	Natural History of the Vertebrates
349-311B	(3)	Ethology
349-313B	(3)	Zoogeography
349-315A	(3)	Science of Inland Waters
360-306A	(3)	Mathematical Methods in Ecology
362-230B	(3)	The Microbial World
367-358A	(3)	Flowering Plant Diversity
367-460A	(3)	Plant Ecology
372-200B	(3)	Introduction to Earth Science
372-210A	(3)	Principles of Soil Science
373-331B	(3)	Microbial Ecology
373-496D,N	(3)	Project
374-410A	(3)	The Forest Ecosystem
374-420B	(3)	Environmental Issues in Forestry
375-333A	(3)	Physical and Biological Aspects of Pollution
375-401A	(4)	Fisheries and Wildlife Management
375-410B	(3)	Wildlife Ecology
375-437B	(3)	Assessing Environmental Impact
375-475B	(3)	Desert Ecology

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.

		CREDITS
Required Courses:		**14**
374-300A	Urban Forests and Trees	3
374-410A	The Forest Ecosystem	3
374-420B	Environmental Issues in Forestry	3
374-441B	Integrated Forest Management	3
375-415A	Conservation Law	2

Complementary Courses: **9**
9 credits chosen from the following list in consultation with the Academic Adviser for the Minor

260-270A	(3)	Ethics and the Environment
334-333A	(3)	Resource Economics
367-353B	(3)	Plant Structure and Function
367-358A	(3)	Flowering Plant Diversity
367-421A	(3)	Landscape Plant Materials
367-451A	(3)	Plant Ecology
372-326A	(3)	Soil Genesis and Classification
373-496D,N	(3)	Project I
375-310B	(3)	Air Photo and Imagery Interpretation
or 183-308B	(3)	Remote Sensing
336-330B	(3)	GIS for Biosystems Management
or 183-201B	(3)	GIS I
375-401A	4	Fisheries and Wildlife Management
375-437B	3	Assessing Environmental Impact
177-555L	3	Functional Ecology of Trees

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: Professors 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.

		CREDITS
Required Courses:		**60**
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,N	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

RESOURCE 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.

		CREDITS
Required Courses:		**25**
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	
360-310A,B (3)	Statistical Methods I	3
or 189-203A[1] (3)	Principles of Statistics I	
At least two of the following:		6
336-214A (3)	Surveying	
336-217B (3)	Hydrology and Drainage	
or 183-322A[1] (3)	Hydrology	
336-416A (3)	Engineering for Land Development	
338-201A (3)	Introductory Meteorology	
375-333A (3)	Physical and Biological Aspects of Pollution	
At least three of the following:		9 or 10
177-365A[1] (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
183-210B[1] (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.

		CREDITS
Required Courses:		**41**
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**
Either the Soils and Crops Option or the Soil Conservation Option		
Soils and Crops Option		**21-23**
Nine credits from the following courses:		9
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)	Biocontrol of 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 **21**

Three of the following courses: 9

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: 12

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
374-441B	(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

Academic Advisers: Professors D. Berteaux (U1), D. Bird (U2), M. Curtis (U3) Sept. - Dec. 2000
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 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.

		CREDITS
Required Courses:		**34**
333-211A	Biochemistry I	3
344-200A	Biology of Organisms	3
344-205B	Principles of Ecology	3
349-307A	Natural History of the Vertebrates	3
356-204A	Genetics	4
360-310A,B	Statistical Methods I	3
367-201B	Comparative Plant Biology	3
367-358A	Flowering Plant Diversity (Prereq: 344-201B)	3
375-401A	Fisheries and Wildlife Management (Prereq: 367-460A)	4
375-410B	Wildlife Ecology	3
375-491D,N	Seminar or appropriate substitute	2

Complementary Courses: **26**

a minimum of 26 credits , 20 of which shuld be at the 300 level or above, selected from the following list in consultation with the Academic Adviser

170-200A	(3)	The Global Environment
170-201A	(3)	Society and Environment
170-202B	(3)	The Evolving Earth
177-203A	(3)	Knowledge, Ethics and Environment
334-333A	(3)	Resource Economics
338-201A	(3)	Introductory Meteorology
342-323A	(4)	Mammalian Physiology
349-308B	(3)	Comparative Morphology of the Vertebrates
349-311B	(3)	Ethology
349-315A	(3)	Science of Inland Waters
349-424B	(3)	Parasitology
352-300B	(3)	Communication - Extension Methods
360-306A	(3)	Mathematical Methods in Ecology
367-460A	(3)	Plant Ecology
373-421B	(3)	Topics in Wildlife Conservation
373-496D,N	(3)	Project I
or 373-497D,N	(5)	Project II
374-420B	(3)	Environmental Issues in Forestry
374-441B	(3)	Integrated Forest Management
375-375B	(3)	Issues in Environmental Science
375-382A	(3)	Fish and Wildlife Propagation
375-415A	(2)	Conservation Law
375-420A	(3)	Topics in Ornithology
375-437B	(3)	Assessing Environmental Impact
375-475B	(3)	Desert Ecology
382-361B	(3)	Environmental Toxicology

Department of Biology (Downtown Campus) Courses:

177-305B	(3)	Biodiversity of Life
177-307B	(3)	Behavioural Ecology/Sociobiology
177-327A	(3)	Herpetology
177-331A	(3)	Ecology/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
177-352B	(3)	Vertebrate Evolution
177-354B	(3)	Biology of Birds
177-365A	(3)	Conservation Biology
177-442B	(3)	Marine Biology
177-470B	(3)	Lake Management

6.8 Department of Plant Science

Raymond Building – Room R2-019
Telephone: (514) 398-7851
Email: infoplsci@macdonald.mcgill.ca
Website: http://www.agrenv.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 Lussier, 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.agrenv.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.

		CREDITS
Required Courses:		**42**
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		**18**

Either the Ecology Option
or the Molecular Option

Ecology Option: **18**

at least 12 credits must be chosen from the following:

330-250B	(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**

at least 12 credits must be chosen 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)	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.

		CREDITS
Required Courses:		**46**
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:		**21**
one of:		3
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		12
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 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	(1)	Horticulture - Temperate Tree Fruits
367-347A	(1)	Horticulture - Small Fruits
367-348A,B	(1)	Horticulture - the Brassicas
367-421A	(3)	Landscape Plant Materials
367-460A	(3)	Plant Ecology
367-535B	(3)	Plant Breeding

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" studies. 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.

		CREDITS
Required Courses:		**12**
342-250A	Principles of Animal Science	3
367-211A	Principles of Plant Science	3
367-300B	Cropping Systems	3
372-210A	Principles of Soil Science	3

Complementary Courses: **12**
12 credits chosen from the following list in consultation with the Academic Adviser for the Minor:

342-450A	(3)	Dairy Cattle Production
342-452B	(3)	Beef and Sheep Production
342-454B	(3)	Swine Production
342-456A	(3)	Poultry Production
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
367-348A,B	(1)	Horticulture - the Brassicas

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:

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.

8.1 Environment

170-200A THE GLOBAL ENVIRONMENT. (3) A systems approach to study the different components of the environment involved in global climate change: the atmosphere, biosphere, hydrosphere, and lithosphere. The interactions among these components. Their role in global climate change. The human dimension to global change.
Section 01 - Downtown Campus
Section 51 - Macdonald Campus

170-201A,B SOCIETY AND ENVIRONMENT. (3) An introduction to human societies and their relations with the biophysical environment, focusing on how economy, technology, and institutions interact to give rise to environmental problems. Analytical treatment of key concepts from distinct disciplinary perspectives in the social and life sciences, including "carrying capacity", "renewable resources", "environmental equity", and "sustainability".
Section 01 - Downtown Campus
Section 51 - Macdonald Campus

170-202B THE EVOLVING EARTH. (3) Formation of the earth and the evolution of life. How geological and biological change are the consequence of history, chance, and necessity acting over different scales of space and time. General principles governing the formation of modern landscapes and biotas. Effects of human activities on natural systems.
Section 01 - Downtown Campus
Section 51 - Macdonald Campus

170-203A,B KNOWLEDGE, ETHICS AND ENVIRONMENT. (3) Introduction to cultural perspectives on the environment: the influence of culture and cognition on perceptions of the natural world; conflicts in orders of knowledge (models, taxonomies, paradigms, the-