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## 1 The School

### 1.1 Location

School of Dietetics and Human Nutrition  
 Room MS2-039  
 Macdonald Stewart Building  
 Macdonald Campus  
 21,111 Lakeshore Road  
 Ste-Anne-de-Bellevue, QC H9X 3V9  
 Canada  
 Telephone: (514) 398-7842  
 E-mail: [dietstage@macdonald.mcgill.ca](mailto:dietstage@macdonald.mcgill.ca)  
 Web site: [www.mcgill.ca/dietetics](http://www.mcgill.ca/dietetics)

### 1.2 Administrative Officers

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

William H. Hendershot; B.Sc.(Tor.), M.Sc.(McG.),  
 Ph.D.(U.B.C.) **Associate Dean (Academic)**

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

Marcel J. Couture; B.Sc.(Agr.)(McG.), M.Sc.(Guelph)  
**Associate Dean (Community Relations)**

Diane E. Mather; B.Sc.(Agr.)(McG.), M.Sc., Ph.D.(Guelph)  
**Associate Dean (Research)**

Katherine Gray-Donald; B.Sc., Ph.D.(McG.) **Director, School  
 of Dietetics and Human Nutrition**

### 1.3 Academic Staff

#### Emeritus Professor

Helen R. Neilson; M.B.E., B.H.S., M.Sc.(McG.), P.Dt.

#### Professors

Timothy A. Johns; B.Sc.(McM.), M.Sc.(U.B.C.), Ph.D.(Mich.)  
 Peter J.H. Jones; B.Sc., M.Sc.(U.B.C.), Ph.D.(Tor.)  
 Harriet V. Kuhnlein; B.S.(Penn. St.), M.S.(Oregon),  
 Ph.D.(Calif. Berkeley)

#### Associate Professors

Laurie H.M. Chan; B.Sc., M.Phil.(Hong Kong), Ph.D.(London)  
*(NSERC Northern Research Chair)*  
 Grace M. Egeland; B.A.(Luther), Ph.D.(Pittsburg (Canada  
*Research Chair)*

Katherine Gray-Donald; B.Sc., Ph.D.(McG.)  
 Kristine G. Koski; B.S., M.S.(Wash) Ph.D.(Calif., Davis)  
 Stan Kubow; B.Sc.(McG.), M.Sc.(Tor.), Ph.D.(Guelph)  
 Louise Thibault; B.Sc., M.Sc., Ph.D.(Laval)  
 Linda Wykes; B.Sc., M.Sc., Ph.D.(Tor.) *(William Dawson  
 Scholar)*

#### Lecturers

Lynda Fraser; B.A., M.Ed.(Dal.) (part-time)  
 Linda Jacobs Starkey; B.Sc.(H.Ec.)(Mt.St.Vin.), M.Sc.,  
 Ph.D.(McG.), RD, FDC  
 Sandy Phillips; B.Sc.(F.Sc.)(McG.), B.A.(Queen's)  
 Hugues Plourde; B.Sc.(Nutr.Sc.)(McG.), M.Sc.(Nutri.)(Mtrl.)  
 Heidi Ritter; B.Sc.(Nutr.Sc.), M.Sc.(McG.)  
 Maureen Rose; B.Sc.(F.Sc.), M.Ed., Ph.D.(McG.)  
 Joane Routhier; B.Sc.(F.Sc.)(McG.)  
 Donna Schafer; B.Sc., M.Sc.(Nutr.Sc.)(McG.)

#### Cross-Appointed Staff

Louis Beaumier; M.D., FRCPC (*Medicine*)  
 Franco Carli; M.D., FRCA (*Medicine*)  
 Katherine Cianflone; Ph.D. (*Medicine*)  
 Rejeanne Gougeon; Ph.D. (*Medicine*)  
 L. John Hoffer; Ph.D. (*Medicine*)  
 Selim Kermasha; Ph.D. (*Food Science*)  
 Errol Marliss; M.D. (*Medicine*)  
 Marilyn Scott; Ph.D. (*Parasitology*)  
 Jean-François Yale; M.D. (*Medicine*)  
 Simon N. Young; Ph.D. (*Medicine*)

#### Adjunct Professors

Kevin A. Cockell; Jeffrey S. Cohn; Marie L'Abbeé

### 1.4 General Information

The School of Dietetics and Human Nutrition is part of the Faculty of Agricultural and Environmental Sciences which is located on the Macdonald Campus of McGill University. The Macdonald Campus is in Ste-Anne-de-Bellevue at the western end of the island of Montreal, 32 kilometres west of the city of Montreal and can be reached by city bus and train service.

The School offers a B.Sc.(Nutr.Sc.) through programs in dietetics and nutrition. Professional Practice experiences in the dietetics major are provided in the McGill teaching hospitals and in a wide variety of health, education, business, government and community agencies. The dietetics major leads to membership in professional dietetics associations and eligibility for professional registration.

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.

Laboratory and lecture rooms are well supplied with modern and efficient teaching facilities, while the reference section of the Macdonald Campus Library and the research laboratories are equipped to permit the vigorous investigation of problems at both the undergraduate and postgraduate level.

## 2 Programs and Admission Information

### 2.1 Degrees Offered

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

Two undergraduate degree programs are offered by the School. The Dietetics major leads to professional qualification. The Nutrition major offers three study options: Nutritional Biochemistry, Nutrition and Populations, or Nutrition of Food.

**M.Sc. and Ph.D.**

Graduate study is also offered at both the Master's and Doctoral levels. For further information, contact the School or refer to the *Graduate Studies Calendar*.

**2.2 Application**

The academic year at McGill is made up of two sessions, the fall/winter or regular session, and the summer session. These are subdivided into the fall term (September to December), the winter term (January to April) and the four months of the summer session (May, June, July, and August). While most students enter in September, it is possible to be considered for admission to most of the Agricultural and Environmental Studies undergraduate programs in January. Please note: entry at the Freshman Program level is **not** available in January.

The deadlines for submission of applications are: January 15 (applicants studying outside of Canada), February 1 (applicants from Canadian high schools outside of Quebec), March 1 (all other applicants). All applications must be accompanied by a \$60 non-refundable fee, in Canadian or U.S. funds only, payable by certified cheque, money order or credit card. McGill does not offer application fee waivers.

Application to the School of Dietetics and Human Nutrition can be made using the McGill on-line application available on the Web, [www.mcgill.ca/applying](http://www.mcgill.ca/applying). Those without access to the Web may obtain the application kit, by e-mailing, writing, or telephoning the Student Affairs Office, Macdonald Campus, 21,111 Lakeshore Road, Ste-Anne-de-Bellevue, QC, H9X 3V9. Telephone: (514) 398-7928. E-mail: [studentinfo@macdonald.mcgill.ca](mailto:studentinfo@macdonald.mcgill.ca).

Please note that the same application is used for all undergraduate programs at McGill and two program choices can be entered.

**2.3 Admission Requirements**

Applicants are not required to submit proof of proficiency in English if they meet **one** of the following conditions: their mother tongue/first language is English; they have completed both Secondary V and a Diploma of Collegial Studies in Quebec; they have completed the last five years of study in a French Baccalaurate International Option program, or in a French Lycée located in an English speaking country; they have completed A-Level English (other than English as a Second Language) with a final grade of C or better; their last five years of study (preceding application) have been at a learning institution where English is the main language of instruction (including applicants taught in English in Kenya, Liberia and Singapore).

**Quebec CEGEP Students**

Applicants must have completed a two-year Quebec post-secondary collegial program (CEGEP) in the Pure and Applied Sciences, Health Sciences, or Science de la nature. (Applicants who have completed the DEC en sciences, lettres et arts are also eligible for admission. Applicants who have completed a DEC in a technical area will be considered on an individual basis.)

McGill uses the *cote de rendement au collégial* (*cote r*) rather than CEGEP percentage grades for admission decisions. The *cote r* is a method of comparing and ranking students from CEGEP; it measures how far above or below the class average a student places, with adjustments based on the relative strength of the group.

The current CEGEP profile for the B.Sc.(Nutr.Sc.) is Biology (00UK, 00XU); Chemistry - NYA, NYB, Organic Chemistry I (00UL, 00UM, 00XV); Mathematics - NYA, NYB (00UN, 00UP); Physics - NYA, NYB, NYC (00UR, 00US, 00UT).

Based upon entry with the appropriate DEC, the B.Sc.(Nutr.Sc.) is offered as a 90-credit, three-year program for Nutrition and a 115-credit, three and one-half year program for Dietetics.

**Applicants from Other Canadian Provinces**

Applicants from provinces other than Quebec and Ontario must hold a high school diploma giving access to university education in their province/territory and have completed Grade 12 Mathematics

(pre-calculus); two of: Grade 12 Biology, Chemistry or Physics; Grade 12 English or French (see note below explaining when English or French is required). Consideration will be given to the results for Grade 11 and 12 level courses (regardless of the calendar year in which they were taken), with emphasis on grades obtained in courses most relevant to the intended program of study. Generally speaking, all marks are taken into consideration in determining admission, including those of failed or repeated courses.

If the applicant comes from a school where the language of instruction is English, then Grade 12 English must be included in the academic record. If the applicant comes from a school where the language of instruction is French, then Grade 12 French is required. English and French Second Language courses are not accepted as prerequisites.

**Applicants from Ontario**

Applicants from Ontario must have completed the Ontario Secondary School Diploma (OSSD), a minimum of six OAC, 4U and/or 4M courses combined. (At least one of: OAC Calculus, OAC Algebra and Geometry, MCB4U or MGA4U; Two different science subjects from the following list: OAC Biology or SBI4U, OAC Chemistry or SCH4U, OAC Physics or SPH4U, OAC or 4U English or French - see note below explaining when English or French is required.)

If the applicant comes from a school where the language of instruction is English, then OAC English or 4U level English or EAE4A must be included in the six courses. If the applicant comes from a school where the language of instruction is French, then OAC French (FRAOA or FLIOA) or 4U level French or English EALOA or EAL4U must be included in the six courses. Please note: English and French Second Language courses are not accepted as prerequisites.

At least four of the six required courses, as well as all prerequisite courses must be taken at the OAC or 4U level. Admissions criteria will focus primarily on the top six OAC, 4U and/or 4M courses (including specified prerequisite courses). Generally speaking, all marks are taken into consideration in determining admission, including those of failed or repeated courses.

Every attempt has been made to report accurately on admission requirements in effect at the time of printing. Given the recent Ontario curriculum reform and the resulting array of new courses, it should be noted that McGill reserves the right to revise its admission requirements without prior notice.

**Applicants from U.S. High School Programs**

Applicants who are applying on the basis of a high school diploma from a school in the United States must have completed a pre-calculus course in functions, and at least two of biology, chemistry, and physics. Applicants must write College Entrance Examination Board tests including the SAT I and three SAT IIs. SAT IIs must include mathematics and at least one science. ACTs are also acceptable.

Applicants who have completed Advanced Placement Examinations in appropriate subjects with a grade of 4 or better will be granted some advanced standing, up to a maximum of 30 credits.

Students who are accepted on the basis of a high school diploma enter a program which is extended by one year to include the 30 credits which comprise the Freshman Year.

**Applicants from Other Countries**

The normal basis for review of a file is completion of the credentials which lead to university admission in the applicant's country of study.

Students from the United Kingdom and Commonwealth countries may be admitted if they have completed Advanced Level examinations in chemistry, physics, and mathematics with two B's and one C or better in each, and five appropriate G.C.S.E. subjects at the Ordinary Level, including biology and English.

Advanced Level examination results which are appropriate to the intended program of studies will be assessed for advanced standing and credit when the results are received directly from the appropriate Examination Board. A maximum of 30 credits is granted for Advanced Level papers and a maximum of 10 credits for papers in Mathematics. Credit is normally granted only for grades of C or better.

Students who have a very good academic record in Lower Form VI and excellent results in at least five G.C.S.E. subjects at the Ordinary Level may be considered for admission to a program requiring the completion of a minimum of 120 credits.

For students applying on the basis of the French Baccalaureate, the minimum requirement is the Diploma in Series S in the "Première Group" with Mention "assez bien".

#### Applicants with the International Baccalaureate

Applicants should have completed Higher or Subsidiary Level mathematics and normally two of biology, chemistry, or physics. Ten advanced standing credits may be granted for mathematics and science Higher Level subjects completed within the IB Diploma, up to the maximum of 30 credits, while 6 credits will be given for non-science Higher Level examinations taken as part of the Diploma or for Higher Level Certificate subjects.

#### Transfer Students

Students wishing to transfer from other universities and colleges are considered for admission on the basis of both their university work and previous studies. A minimum of 60 credits of work must be completed at McGill if a degree is to be granted. Students must also fulfil the requirements of a degree program. Credits are determined only once a formal application and all the necessary supporting documents are received.

Basic science requirements are: two semesters of biology; two semesters of general chemistry, with labs; one semester of organic chemistry; two semesters of physics (including mechanics, electricity and magnetism, and waves and optics), with labs, and one semester in each of differential and integral calculus. A grade of B or better is expected in prerequisite mathematics and science courses.

This same policy is applicable to holders of undergraduate degrees.

#### Transfer Students – Inter-Faculty

Students wishing to transfer from one faculty to another must complete an inter-faculty transfer form. The deadline for submitting a transfer form for admission to the School is June 1 for admission in September and November 1 for admission in January.

#### Mature Student Admission

Residents of Canada who will be 23 years of age or older by September 1 (for admission for the fall session) or January 1 (for admission for the winter session) and who lack the academic background normally required for admission may apply for entrance as mature students. Individuals interested in being considered for entrance under this policy should contact the Student Affairs Office for complete details.

## 3 Academic Information and Regulations

Students in the B.Sc.(Nutr.Sc.) program are governed by the rules and regulations of the Faculty of Agricultural and Environmental Sciences, excerpts of which are given below. Additional information regarding the credit and grading system, examination regulations, withdrawal policies, etc. is contained in the Faculty and General University Information sections of the *Undergraduate Programs Calendar* which is sent to accepted applicants with their offer of admission.

### 3.1 Academic Credit Transfer

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

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

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

Full-time students may, with the written permission of the Associate Dean (Student Affairs) of the Faculty, register for 3 credits, or exceptionally 6 credits, in each semester at any university in the province of Quebec. These courses successfully completed with a minimum grade of C (according to the standards of the university giving the course), will be recognized for the purpose of the degree but the grades obtained will not enter into calculations of GPA in this Faculty.

### 3.2 Standing

The program for the degree with a Major in Nutrition will normally be completed in three academic years or six semesters (following the Freshman Year, if one is required). The degree with a Major in Dietetics will normally be completed in three and one-half academic years or seven semesters. For the purpose of student classification, the years will be termed U1, U2 and U3.

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

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

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

#### Academic Advisers

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

### 3.3 Degree Requirements

To be eligible for a degree, students must have passed all required and complementary courses and also any specified electives recommended by their adviser. They must have accumulated at least 90 credits for the Nutrition Major and at least 115 credits for the Dietetics Major including four levels of professional formation. At least 60 credits must be taken at McGill. A CGPA of at least 2.00 is required for graduation.

## 4 Academic Programs

### 4.1 Freshman Major

Students entering university for the first time from schools other than the Quebec CEGEP level will be required to complete the 30 credits listed below before selecting a subject Major.

	CREDITS
<b>Required Courses - Fall</b>	<b>14.5</b>
AEBI 120 General Biology	3.0
AEMA 101 Calculus 1	3.0
AEPH 112 Introductory Physics 1	4.0
AGRI 195* Freshman Seminar 1	0.5
FDSC 230 Organic Chemistry	4.0
<b>Required Courses - Winter</b>	<b>12.5</b>
AEMA 102 Calculus 2	4.0
AEPH 114 Introductory Physics 2	4.0
AGRI 196* Freshman Seminar 2	0.5
FDSC 110 Inorganic Chemistry	4.0

<b>Elective - Winter</b>	<b>3.0</b>
Elective	3.0
AEBI 202 Cellular Biology must be substituted for students in programs in the B.Sc.(Nutr.Sc.) degree.	
ABEN 103 Linear Algebra must be substituted for students in the B.Sc.(Agr.Eng.) degree.	
<b>Total Credits</b>	<b>30.0</b>
* AGRI 195 and AGRI 196 are required for all freshmen excluding Dietetics and Nutrition students.	

## 4.2 Major in Dietetics

Academic Advising Coordinator:  
Linda Jacobs Starkey, Ph.D., RD, FDC

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-care settings and food service centres, nutrition counselling centres, clinics and private practice. As community nutritionists, dietitians are involved in nutrition education programs through school boards, 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 for registration in all required courses in the Dietetics Major. All required and complementary courses must be passed with a minimum grade of C.

**Complementary Courses:** 6 credits.

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

	<b>CREDITS</b>
<b>Term 1</b>	<b>15</b>
AGEC 242 Management Theories and Practices	3
FDSC 211 Biochemistry 1	3
NUTR 207 Nutrition and Health	3
NUTR 214 Food Fundamentals	3
One Elective or Complementary (see list below)	3
<b>Term 2</b>	<b>16</b>
ABEN 251 Microcomputer Applications	3
ANSC 234 Biochemistry 2	3
MICR 230 Microbial World	3
NUTR 208* Stage in Dietetics 1	1
NUTR 217 Application: Food Fundamentals	3
One Elective or Complementary (see list below)	3
<b>Summer</b>	<b>3</b>
NUTR 209* Professional Practice Stage 1B	3
<b>Term 3</b>	<b>17</b>
AEMA 310 Statistical Methods 1	3
AGEC 343 Accounting and Cost Control	3
ANSC 323 Mammalian Physiology	4
ANSC 330 Fundamentals of Nutrition	3
NUTR 322 Applied Sciences Communications	2
NUTR 345 Food Service Systems Management	2
<b>Term 4</b>	<b>16</b>
ANSC 424 Metabolic Endocrinology	3
NUTR 310* Stage in Dietetics 2A	1
NUTR 337 Nutrition Through Life	3

NUTR 344 Clinical Nutrition 1	4
NUTR 346 Quantity Food Production	2
One Elective or Complementary (see list below)	3
<b>Summer</b>	<b>5</b>
NUTR 311* Stage in Dietetics 2B	5
<b>Term 5</b>	<b>17</b>
NUTR 403 Nutrition in Society	3
NUTR 445 Clinical Nutrition 2	5
NUTR 446 Applied Human Resources	3
NUTR 450 Research Methods: Human Nutrition	3
One Elective or Complementary (see list below)	3
<b>Term 6</b>	<b>12</b>
NUTR 409* Stage in Dietetics 3	8
NUTR 436 Nutritional Assessment	2
NUTR 438 Interviewing and Counselling	2
<b>Term 7</b>	<b>14</b>
NUTR 510* Professional Practice - Stage 4	14

### Two Complementary Courses are to be selected from the following, as specified

3 credits of Human Behavioural Science courses chosen from:

NUTR 301 (3) Psychology  
or equivalent course from another faculty.

3 credits from the social sciences:

AGEC 200 (3) Principles of Microeconomics  
AGEC 230 (3) Agricultural and Food Marketing  
ENVR 201 (3) Society and Environment  
ENVR 203 (3) Knowledge, Ethics and Environment  
RELG 270 (3) Religious Ethics and the Environment

### Elective Courses:

Two 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.

FDSC 200 (3) Introduction to Food Science  
FDSC 212 (3) Biochemistry Laboratory  
FDSC 251 (3) Food Chemistry 1  
FDSC 425 (3) Principles of Quality Assurance  
NUTR 420 (3) Toxicology and Health Risks  
NUTR 430 (3) Directed Studies: Dietetics and Nutrition 1  
NUTR 501 (3) Nutrition in Developing Countries  
NUTR 511 (3) Nutrition and Behaviour  
NUTR 512 (3) Herbs, Foods and Phytochemicals

\* Successful completion of all component parts of each level of Stage (Professional Practice) in Dietetics courses is a prerequisite for the next level and must be passed with a minimum grade of C. 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.

Students are reminded that ethical conduct on Professional Practice (Stage) rotations is required. The Faculty reserves the right to require the withdrawal of any student at any time if it (Faculty) feels the student has displayed unprofessional conduct or demonstrates incompetence.

**A compulsory immunization program** exists at McGill which is required for Dietetics students to practice. Students should complete their immunization before arriving at Macdonald Campus; medical/health documentation must be received prior to commencement of Stage.

**4.3 Major in Nutrition**

**Program revisions are in progress. Consult the Academic Advising Coordinator for details.**

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.

Aside from working as university teachers and researchers, graduates with advanced degrees 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 for registration in all required courses in the Nutrition Major. All required courses must be passed with a minimum grade of C.

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

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

	<b>CREDITS</b>	
<b>Term 1</b>	<b>11</b>	
FDSC 211 Biochemistry 1	3	
FDSC 212 Biochemistry Laboratory	2	
NUTR 207 Nutrition and Health	3	
NUTR 214 Food Fundamentals	3	
<b>Term 2</b>	<b>12</b>	
ABEN 251 Microcomputer Applications	3	
ANSC 234 Biochemistry 2	3	
MICR 230 Microbial World	3	
NUTR 217 Application: Food Fundamentals	3	
<b>Term 3</b>	<b>12</b>	
AEMA 310 Statistical Methods 1	3	
ANSC 323 Mammalian Physiology	4	
ANSC 330 Fundamentals of Nutrition	3	
NUTR 322 Applied Sciences Communication	2	
<b>Term 4</b>	<b>9</b>	
ANSC 424 Metabolic Endocrinology	3	
NUTR 337 Nutrition Through Life	3	
NUTR 344 Clinical Nutrition 1	3	
<b>Term 5</b>	<b>6</b>	
NUTR 450 Research Methods: Human Nutrition	3	
NUTR 451 Analysis of Nutritional Data	3	
<b>Term 6</b>	<b>2</b>	
NUTR 436 Nutritional Assessment	2	

**Additional required and complementary courses, 12 credits.**

Students must select one of the following three options as part of their program.

	<b>CREDITS</b>	
<b>Nutritional Biochemistry Option:</b>	<b>12</b>	
Term 5 ANSC 552 Protein Metabolism and Nutrition	3	
Term 5 ANSC 551 Carbohydrate and Lipid Metabolism	3	
Term 3 or 5 AEPH 303 Advances in Atomic and Nuclear Science	3	
AEPH 405 Tracer Techniques	3	
<b>Nutrition and Populations Option:</b>	<b>12</b>	
Term 5 NUTR 406 Ecology of Human Nutrition	3	
Term 6 NUTR 403 Nutrition in Society	3	
Select 6 credits from those listed below or any other social science courses:	6	
NUTR 301 (3) Psychology		
ENVR 203 (3) Knowledge, Ethics and Environment		

**Nutrition of Food Option:****12**

Term 2 or 4	FDSC 334 Analytical Chemistry 2	3
Term 4	FDSC 251 Food Chemistry 1	3
Term 5	FDSC 300 Food Analysis 1	3
Term 6	FDSC 315 Food Analysis 2	3

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

**4.4 Minor in Human Nutrition**

Academic Adviser: Linda Wykes

A Minor in Human Nutrition is available for students in other programs within the Faculty of Agricultural and Environmental Sciences, or in other faculties at McGill. It cannot be taken by students in the B.Sc.(Nutr.Sc.) program.

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 Adviser 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

	<b>CREDITS</b>	
<b>Required Courses:</b>	<b>6</b>	
NUTR 337 Nutrition Through Life	3	
NUTR 450 Research Methods: Human Nutrition	3	
<b>Complementary Courses:</b>	<b>18 or 19</b>	

3 credits in biochemistry, one of:

ANSC 234 (3) Biochemistry 2  
BIOC 311 (3) Metabolic Biochemistry

3 or 4 credits in physiology, one of:

ANSC 323 (4) Mammalian Physiology  
PHGY 202 (3) Human Physiology: Body Functions  
PHGY 210 (3) Mammalian Physiology 2

3 credits in nutrition, one of:

ANSC 330 (3) Fundamentals of Nutrition  
NUTR 307 (3) Human Nutrition

8 or 9 credits from the following list:

ANSC 551 (3) Carbohydrate and Lipid Metabolism  
ANSC 552 (3) Protein Metabolism and Nutrition  
IMED 300 (3) Human Disease  
MIMM 314 (3) Immunology  
or PARA 438(3) Immunology  
NUTR 406 (3) Ecology of Human Nutrition  
NUTR 420 (3) Toxicology and Health Risks  
NUTR 436 (2) Nutritional Assessment  
NUTR 451 (3) Analysis of Nutrition Data  
NUTR 501 (3) Nutrition in Developing Countries  
NUTR 512 (3) Herbs, Foods and Phytochemicals  
NUTR 430 (3) Directed Studies: Dietetics and Nutrition 1  
or NUTR 431(3) Directed Studies: Dietetics and Nutrition 2

**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 offered every year. For information on available courses, consult Class Schedule at [www.mcgill.ca/minerva](http://www.mcgill.ca/minerva).

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## 5 Courses

**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.**

‡ **Successful completion of all components parts of each level of Professional Practice (Stage) in Dietetics is a prerequisite for the next level. All required and complementary courses listed in semesters prior to or with a Stage are prerequisites for that level.**

**Undergraduate registration is restricted to students in the Dietetics Major, CGPA greater than or equal to 2.50. Visiting students contact the Advising Coordinator regarding eligibility for specific courses.**

The course credit weight is given in parentheses after the title. Term(s) offered (Fall, Winter, Summer) may appear after the credit weight to indicate when a course would normally be taught. Please check the Class Schedule to confirm this information.

- Denotes courses not offered in 2003-04.
- ★ Denotes courses taught only in alternate years.

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### 5.1 Nutrition and Dietetics

**NUTR 200 CONTEMPORARY NUTRITION.** (3) (Summer) (Not open for credit to students with a biology or chemistry course in their program, or to students registered in the School of Dietetics and Human Nutrition, or to students who take NUTR 207) Provides students without a biology/chemistry background with the fundamental tools to critically assess nutrition related information, to evaluate their own diets, and to implement healthy changes. Emphasis is on current issues and maximizing health and disease prevention at different stages of the lifecycle.

**NUTR 207 NUTRITION AND HEALTH.** (3) (Fall) (3 lectures) (Corequisites: BIOL 401 or FDSC 230) (Not open to students who take NUTR 200 or NUTR 307 or who have taken PHGY 311 or BIOC 311) (Science students in physical science and psychology programs who wish to take this course should see the Arts and Science Student Affairs Office for permission to register.) Provides students who have a basic biology/chemistry background with the fundamental information on how macronutrients, vitamins and minerals are metabolized in the body, followed by application to evaluate current issues of maximizing health and disease prevention at different stages of the lifecycle.

‡ **NUTR 208 STAGE IN DIETETICS 1.** (1) (Winter) (Prerequisites: all Required courses in Term 1 of the Dietetics Major. Corequisites: All Required courses in Term 2 of the Dietetics Major) (Restricted to Dietetics Major or Special Students (professional credentialing)) Introduction to the dietetics profession; principles and policies in food and nutrition essential to entry-level dietetics experiences; practice in dietary interviewing, problem solving and report writing related to Level 1 Professional Practice placements.

‡ **NUTR 209D1 PROFESSIONAL PRACTICE STAGE 1B.** (1.5) (Summer: 4 weeks) (Prerequisites: all Required courses in Terms 1 and 2 of the Dietetics Major) (Restricted to Dietetics Major or Special Students (professional credentialing) (Students must also register for NUTR 209D2) (No credit will be given for this course unless both NUTR 209D1 and NUTR 209D2 are successfully completed in consecutive terms) Directed, supervised experiences in

nutrition services and food service operations management; integration into the professional team.

**NUTR 209D2 PROFESSIONAL PRACTICE STAGE 1B.** (1.5) (Fall: 1 - 6 hours) (Prerequisite: NUTR 209D1) (No credit will be given for this course unless both NUTR 209D1 and NUTR 209D2 are successfully completed in consecutive terms) See NUTR 209D1 for course description.

**NUTR 214 FOOD FUNDAMENTALS.** (3) (Fall) (2 lectures and one 4-hour lab) (Prerequisite: FDSC 230 or corequisite with instructor's permission. Corequisite FDSC 211.) Study of composition, structure and chemical and physical properties of foods. To understand the scientific principals underlying chemical and physical phenomena that occur during the preparation of food. Laboratory emphasis on developing skills in handling and preparing food, and food assessment by sensory evaluation.

**NUTR 217 APPLICATION: FOOD FUNDAMENTALS.** (3) (Winter) (2 lectures and one 4-hour lab) (Prerequisite: NUTR 214) A more intensive study of food and complex food mixtures, including their chemical and physical properties. Learning how to control the changes that take place during the preparation of food to obtain palatable, nutritious and safe food. An introduction to culturally determined food habits. Laboratory emphasis on acquiring new knowledge and application to basic food preparation and cooking principles.

**NUTR 301 PSYCHOLOGY.** (3) (Fall) (2 lectures and 1 conference) A study of the general characteristics of physical, social, emotional and intellectual development, the psychology of learning, and the growth and development of personality.

**NUTR 307 HUMAN NUTRITION.** (3) (Fall) (Prerequisites: BIOL 201 or AEBI 202, CHEM 212 or FDSC 230 or permission of the instructor.) (Not open to students who have taken ANSC 330) (3 lecture hours) Cellular and organismal aspects of nutrition with emphases on biochemical and physiological roles of carbohydrates, lipids, proteins, minerals and vitamins in disease prevention and promotion of optimal health.

‡ **NUTR 310 STAGE IN DIETETICS 2A.** (1) (Winter) (One 2-hour conference/week) Human food intake assessment and evaluation will be practiced including modules on dietary interviewing, nutrition education teaching plans and documentation for the medical record. Practical aspects of health and food service administration will be addressed.

‡ **NUTR 311 STAGE IN DIETETICS 2B.** (5) (Summer: 7 weeks) Two interrelated modules of directed experience in normal and clinical nutrition and foodservice management, in health care settings and the private sector.

**NUTR 322 APPLIED SCIENCES COMMUNICATION.** (2) (Fall) (2 lectures, 1 lab) (Prerequisite: Completion of 15 credits in a B.Sc. program) The principles and techniques of communicating applied sciences to individuals and groups in both the professional and public milieu. Effective public speaking and group interaction techniques. Communication materials selection, development, use, and evaluation. Writing for the media. Balancing risk and reason in communicating scientific findings.

**NUTR 337 NUTRITION THROUGH LIFE.** (3) (Winter) (3 lectures, 1 conference) (Prerequisite: ANSC 330 or NUTR 307) Emphasis on applied quantitative aspects of human nutrition. Nutrient utilization, evaluation and requirements, as related to dietary standards.

**NUTR 344 CLINICAL NUTRITION 1.** (4) (Winter) (Two 2-hour lectures) (Pre-requisite: ANSC 323. Co-requisite: NUTR 337) Clinical nutrition assessment and dietary modification of pathological conditions including hypertension, lipid disorders and cardiovascular disease, obesity, diverticulosis, cancer, COPD, anorexia nervosa and bulimia.

**NUTR 345 FOOD SERVICE SYSTEMS MANAGEMENT.** (2) (Fall) An introductory course applying the principles of organizational management within the healthcare foodservice industry. Emphasis on understanding standards of quality control, customer relations and sanitation. Budget preparation, scheduling and cost control as well as menu preparation, recipe standardization and costing.

**NUTR 346 QUANTITY FOOD PRODUCTION.** (2) (Winter) (Prerequisite: NUTR 345) Quantity food planning, costing, and evaluation. Laboratory experience with quantity food production following principles of food sanitation and safety, food quality and cost-evaluation.

**NUTR 403 NUTRITION IN SOCIETY.** (3) (Fall) (3 hour conference) (Prerequisite: NUTR 337) Sociocultural and economic influences on food choice and behaviour; health promotion and disease prevention through nutrition, particularly in high risk populations; the interaction of changing environment, food availability and quality as they affect health.

‡ **NUTR 409 STAGE IN DIETETICS 3.** (8) (Winter: 10 weeks) Four interrelated modules of directed experience in clinical nutrition, foodservice management, normal nutrition education and community nutrition, in health care settings and the private sector.

**NUTR 420 TOXICOLOGY AND HEALTH RISKS.** (3) (Fall) (3 lectures) (Prerequisite: FDSC 211, BIOL 201 or BIOC 212) (This course is not open to students who have taken NUTR 361) Basic principles of toxicology, health effects of exposure to environmental contaminants such as heavy metals, pesticides and radionuclides and ingestion of food toxicants such as food additives and preservatives; natural toxins in plants and marine foods, human health, ecosystem health, safety evaluation, risk assessment, and current Canadian regulations.

**NUTR 430 DIRECTED STUDIES: DIETETICS AND NUTRITION 1.** (3) (Fall and Winter) An individualized course of study in dietetics/human nutrition under the supervision of a staff member with expertise on a topic not otherwise available in a formal course. A written agreement between student and staff member must be made before registration and filed with the Program Coordinator.

**NUTR 431 DIRECTED STUDIES: DIETETICS AND NUTRITION 2.** (3) An individualized course of study in dietetics/human nutrition under the supervision of a staff member with expertise on a topic not otherwise available in a formal course. A written agreement between student and staff member must be made before registration and filed with the Program Coordinator.

● **NUTR 432 DIRECTED STUDIES: DIETETICS AND NUTRITION 3.** (3) (Fall and Winter)

**NUTR 433 DIRECTED STUDIES: DIETETICS AND NUTRITION 4.** (5) (Fall and Winter and Summer) (Limited enrolment) (Prerequisite: registration in NUTR 409 or equivalent. Restricted to students in the Dietetics Major or documentation of requirement for professional registration) An individualized course of study in dietetics and human nutrition not available through other courses in the School. Emphasis will be placed on application of foods and nutrition knowledge, analytic and synthesis skills, and time management. A written agreement between student and instructor must be made before registration. A "C" grade is required to pass the course.

**NUTR 436 NUTRITIONAL ASSESSMENT.** (2) (Winter) (Prerequisite: NUTR 337) (2 lectures) An intense 4-week course focused on resolving clinically based case studies. The objectives: to develop skills in clinical problem solving, learn principles and methods for assessing the nutritional status of patients and to become skilled at interpreting clinical data relevant to assessing nutritional status and prognosis of hospitalized patients.

**NUTR 438 INTERVIEWING AND COUNSELLING.** (2) (Winter) (One 2-hour conference) (Prerequisite: NUTR 344 and NUTR 311) Theories of behaviour change. Techniques and skills as applicable to the dietician's role as communicator, interviewer, counsellor, educator, motivator and nutrition behaviour change specialist.

**NUTR 445 CLINICAL NUTRITION 2.** (5) (Fall) (Two 2.5-hour lectures) (Prerequisite: NUTR 344 and ANSC 424) Clinical nutrition intervention for gastrointestinal and liver disease, hypermetabolic states, diabetes mellitus, renal disease and inborn errors of metabolism, enteral/parenteral nutrition management.

**NUTR 446 APPLIED HUMAN RESOURCES.** (3) (Fall) (3 lectures, 1 conference) (Prerequisite: AGECE 242) The management of people at work. Employee development and the leadership role. The

nature of collective bargaining, the role of unions and management.

**NUTR 450 RESEARCH METHODS: HUMAN NUTRITION.** (3) (Fall) (2 lectures, 3 hours research, 4 hours other) (Prerequisite: NUTR 337, AEMA 310 or BIOL 373) Introduction to methods of clinical, community, international, and laboratory-based nutrition research. Lectures, readings and assignments will cover basic research concepts. Students undertake a computer directed literature search and analysis.

**NUTR 451 ANALYSIS OF NUTRITION DATA.** (3) (Fall) (Prerequisite: NUTR 337. Corequisite: NUTR 450) An applied course in analysis and interpretation of nutrition data sets. Introduction to specialized dietary and anthropometric computer programs. Written and oral presentation of results.

**Graduate courses available to undergraduate students at the U3 level, with permission of instructor. Note: not all graduate courses are offered each year.**

**NUTR 501 NUTRITION IN DEVELOPING COUNTRIES.** (3) (Fall) (2 lectures and one seminar) (Prerequisite: For undergraduate students, consent of instructor required) This course will cover the major nutritional problems in developing countries. The focus will be on nutrition and health and emphasize young children and other vulnerable groups. The role of diet and disease for each major nutritional problem will be discussed.

**NUTR 510 PROFESSIONAL PRACTICE - STAGE 4.** (14) (Fall) (Prerequisite: NUTR 409) (Restriction: Not open to students who have taken NUTR 410) (Restriction: Undergraduate registration is restricted to students in the Dietetics Major, CGPA greater than, or equal to 2.50) Interrelated modules of directed experience in clinical nutrition, foodservice management, nutrition education and community nutrition, in health care setting and in the private sector.

★ **NUTR 511 NUTRITION AND BEHAVIOUR.** (3) (2 lectures and one seminar) (Prerequisite: NUTR 445 for undergraduate students or consent of instructor) Discussion of knowledge in the area of nutrition and behaviour through lectures and critical review of recent literature; to discuss the theories and controversies associated with relevant topics; to understand the limitations of our knowledge. Topics such as diet and brain biochemistry, stress, feeding behaviour and affective disorders will be included.

**NUTR 512 HERBS, FOODS AND PHYTOCHEMICALS.** (3) (3 lectures and a project) (Undergraduate prerequisite: FDSC 211 or BIOL 201 or BIOC 212) An overview of the use of herbal medicines and food phytochemicals and the benefits and risks of their consumption. The physiological basis for activity and the assessment of toxicity will be presented. Current practices relating to the regulation, commercialization and promotion of herbs and phytochemicals will be considered.

## 5.2 Courses Offered by Other Units

Given below are descriptions of courses offered by other units within the Faculty which form part of the B.Sc.(Nutr.Sc.) as Required, Complementary or commonly used Elective Courses. For additional courses in Agricultural and Environmental Sciences, please see the *Undergraduate Programs Calendar*. McGill University Calendars are available on the Web ([www.mcgill.ca/courses](http://www.mcgill.ca/courses)).

**ABEN 251 MICROCOMPUTER APPLICATIONS.** (3) (3 lectures and one 2-hour lab) A user level computing course oriented toward the use of microcomputers rather than programming. Networks, Windows, FTP, web searching, e-mail, word processing, web pages, spreadsheets, slide shows, and other uses.

**AEMA 310 STATISTICAL METHODS 1.** (3) (Two 1.5-hour lectures and one 2-hour lab) Measures of central tendency and dispersion; binomial and Poisson distributions; normal, chi-square, Student's t and Fisher-Snedecor F distributions; estimation and hypothesis testing; simple linear regression and correlation; analysis of variance for simple experimental designs.

**AEPH 303 ADVANCES IN ATOMIC AND NUCLEAR SCIENCE.** (3) (3 lectures and 1 conference) Contributions of the 20th century physical sciences towards understanding and investigation of atoms, molecules and nuclei. Classical and quantum-mechanical models. Interaction of matter and radiation. Natural and artificial radioactivity.

**AEPH 405 TRACER TECHNIQUES.** (3) (3 lectures and one 3-hour lab) (Prerequisite: AEPH 303 or equivalent) Operation and theory of various radiation detectors; ionization chambers, G-M counter, proportional counter, solid and liquid scintillation counters, and autoradiography, counting statistics, measurements of environmental radioactivity; practice of radiological safety.

**AGEC 200 PRINCIPLES OF MICROECONOMICS.** (3) (Fall) (3 lectures) The field of economics as it relates to the activities of individual consumers, firms and organizations. Emphasis is on the application of economic principles and concepts to everyday decision making and to the analysis of current economic issues.

**AGEC 230 AGRICULTURAL AND FOOD MARKETING.** (3) (Winter) (3 lectures) (Prerequisite: AGEC 200 or equivalent) Marketing principles and practices, their relationship to the agriculture-food system, and the economic impact on all segments of this system. Emphasis on the application of marketing principles in problem-solving and in developing marketing and communication skills of the individual.

**AGEC 242 MANAGEMENT THEORIES AND PRACTICES.** (3) (Fall) (3 lectures) An introduction to contemporary management theories and practices in organizations of the food sector.

**AGEC 343 ACCOUNTING AND COST CONTROL.** (3) (Winter) (3 lectures) An introduction to the basic principles and concepts of responsibility accounting and cost control, analysis and utilization of financial statements and control system data for decision making.

**ANSC 234 BIOCHEMISTRY 2.** (3) (Winter) (3 lectures and one 3-hour lab) (Prerequisite: FDSC 211) Metabolism in humans and domestic animals. The chemistry of alimentary digestion, absorption, transport, intermediary metabolism and excretion.

**ANSC 323 MAMMALIAN PHYSIOLOGY.** (4) (Fall) (3 lectures and one 3-hour lab) (Prerequisite: FDSC 211 and one of the following; ANSC 250 or AEBI 202 or equivalent) A study of the organization, functions and regulation of various organ systems in mammals. The nervous, endocrine, muscular, cardiovascular, respiratory, urinary, digestive and reproductive systems are discussed.

**ANSC 330 FUNDAMENTALS OF NUTRITION.** (3) (Fall) (3 lectures) (Prerequisite: FDSC 211) A discussion of the nutrients; water, carbohydrates, lipids, proteins, minerals and vitamins, with particular emphasis on their functions in and essentially for the animal organism.

**ANSC 424 METABOLIC ENDOCRINOLOGY.** (3) (Winter) (3 lectures and one 3-hour lab) (Prerequisite: ANSC 323) A detailed study of the endocrine system and its role in the maintenance of homeostasis in higher vertebrates, including the endocrine regulation of energy balance.

**ANSC 551 CARBOHYDRATE AND LIPID METABOLISM.** (3) (Winter) (3 lectures) Comparative aspects of nutrition and metabolism of carbohydrate and lipid from the cellular level through the multi-organ of the whole organism. Main topics will include biothermodynamics, calorimetry, cellular metabolism and functions of carbohydrate and lipid, digestion, absorption and utilization of dietary carbohydrate and lipid.

**ANSC 552 PROTEIN METABOLISM AND NUTRITION.** (3) (Fall) (3 lectures) Comparative aspects of nutrition and metabolism of amino acids and proteins from the cellular level on through the multisystem operation of the whole organism. Main topics include cellular metabolism and functions of amino acids and proteins, digestion, absorption and utilization of dietary protein. Comparison between farm animals and humans.

**BIOC 311 METABOLIC BIOCHEMISTRY.** (3) (Fall) (Prerequisites: BIOL 200, BIOL 201 or BIOC 212, CHEM 222) The generation of metabolic energy in higher organisms with an emphasis on its reg-

ulation at the molecular, cellular and organ level. Chemical concepts and mechanisms of enzymatic catalysis are also emphasized. Included: selected topics in carbohydrate, lipid and nitrogen metabolism; complex lipid and biological membranes; hormonal signal transduction.

**ENVR 201 SOCIETY AND ENVIRONMENT.** (3) (Fall) (Section 01: Downtown Campus) (Section 51: Macdonald campus) 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".

**ENVR 203 KNOWLEDGE, ETHICS AND ENVIRONMENT.** (3) (Fall - Macdonald Campus; Winter - Downtown) (Section 01: Downtown Campus) (Section 51: Macdonald Campus) 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, theories, cosmologies), ethics (moral values, frameworks, dilemmas), and law (formal and customary, rights and obligations) regarding political dimensions of critical environments, resource use, and technologies.

**FDSC 200 INTRODUCTION TO FOOD SCIENCE.** (3) (Fall) (3 lectures) This course enables one to gain an appreciation of the scope of food science as a discipline. Topics include introductions to chemistry, processing, packaging, analysis, microbiology, product development, sensory evaluation and quality control as they relate to food science.

**FDSC 211 BIOCHEMISTRY 1.** (3) (Fall) (3 lectures) (Corequisite: FDSC 230) Biochemistry of carbohydrates, lipids, proteins, nucleic acids; enzymes and coenzymes. Introduction to intermediary metabolism.

**FDSC 212 BIOCHEMISTRY LABORATORY.** (2) (Fall) (1 lecture, 1 lab) (Corequisite: FDSC 211) The laboratory use of ionic strength and pH; the chemical properties of carbohydrates, lipids, proteins and enzymes; the instruction of laboratory techniques such as titration, chromatography, the use of the analytical balance and the pH meter.

**FDSC 251 FOOD CHEMISTRY 1.** (3) (Winter) (3 lectures and one 3-hour lab) (Prerequisite: FDSC 211) A study of the chemistry and functionality of the major components comprising food systems, such as water, proteins, carbohydrates and lipids. The relationship of these components to food stability will be studied in terms of degradative reactions and processing.

**FDSC 300 FOOD ANALYSIS 1.** (3) (Fall) (3 lectures and one 3-hour lab) (Prerequisite: FDSC 251) The theory and methodologies for the analysis of food products for moisture, fat, protein, ash and fibre (proximate analysis). The quantitative aspects of colour measurement and infrared spectroscopy are also developed in relation to the analysis of food systems.

**FDSC 315 FOOD ANALYSIS 2.** (3) (Winter) (3 lectures and one 3-hour lab) (Prerequisite: FDSC 300) A more detailed treatment on the principal analytical techniques associated with the analysis of carbohydrates, lipids, proteins and vitamin constituents in food systems.

**FDSC 334 ANALYTICAL CHEMISTRY 2.** (3) (Winter) (3 lectures and one 3-hour lab) (Prerequisite: FDSC 213 or equivalent) Theoretical and practical aspects of potentiometric measurements (pH and other ion-selective electrodes), spectrophotometry, atomic absorption spectroscopy and automated chromatography.

**FDSC 425 PRINCIPLES OF QUALITY ASSURANCE.** (3) (Winter) (3 lectures) (Prerequisite: AEMA 310) The principles and practices required for the development, maintenance and monitoring of systems for food quality and food safety. The concepts and practices of Hazard Analysis Critical Control Point; ISO 9000; Total Quality Management; Statistical Sampling Plans, Statistical Process Control; Tools of Quality; Government Regulations.

**MICR 230 MICROBIAL WORLD.** (3) (Winter) (3 lectures and one 3-hour lab) The occurrence and importance of microorganisms (especially bacteria) in the biosphere. Principles governing growth, death and metabolic activities of microorganisms. An introduction to the microbiology of soil, water, plants, food, man and animals.

**MIMM 314 IMMUNOLOGY.** (3) (Winter) (3 hours of lecture) (Prerequisite: BIOL 200 and BIOL 201 or BIOC 212) An introduction to the immune system, antigens, antibodies and lymphocytes. The course will cover the cellular and molecular basis of lymphocyte development and mechanisms of lymphocyte activation in immune responses.

**PARA 438 IMMUNOLOGY.** (3) (2 lectures per week) (Prerequisite: AEBI 202 or permission of instructor) An in-depth analysis of the principles of cellular and molecular immunology. The emphasis of the course is on host defense against infection and on diseases caused by abnormal immune responses.

**PHGY 202 HUMAN PHYSIOLOGY: BODY FUNCTIONS.** (3) (Winter) (3 hours lecture weekly) (Prerequisites: collegial courses in biology or anatomy and in chemistry and physics; with CHEM 212 or equivalent, as a pre-/co-requisite) (For students in Physical and Occupational Therapy, Nursing, Education, and others with permission of the course coordinator) (Not open to students who took 552-201 in 1976-77 or earlier, or PHGY 210) Physiology of the cardiovascular, respiratory, excretory, endocrine, and digestive systems; organic and energy metabolism; nutrition; exercise and environmental stress.

**PHGY 210 MAMMALIAN PHYSIOLOGY 2.** (3) (Winter) (3 hours lectures weekly) (Prerequisites: as for PHGY 201 and PHGY 202. Pre-/co-requisite: BIOL 200, BIOL 201 or BIOC 212) (Not open to students who have taken PHGY 211 or PHGY 202) (For students in the Faculty of Science, and other students by permission of the instructor) (Although PHGY 210 may be taken without the prior passing of PHGY 209, students should note that they may have some initial difficulties because of lack of familiarity with some basic concepts introduced in PHGY 209) Physiology of the autonomic nervous system; cardiovascular, respiratory, digestive and renal systems; exercise physiology.

**RELG 270 RELIGIOUS ETHICS AND THE ENVIRONMENT.** (3) (Fall: Macdonald Campus. Winter: Downtown.) Survey of issues and debates in environmental ethics. The challenge posed to human and religious values by the present ecological crisis and some ethical and religious responses to this challenge, Native American spirituality, Eastern and African religions, ecofeminism and liberation theology will be discussed, as will recent environmental debates concerning technology and large scale development projects. Lectures supplemented by guest speakers and audiovisual presentations.