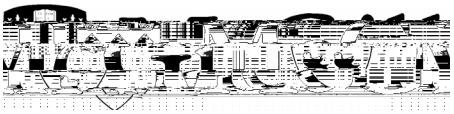

1 Agricultural and Environmental Sciences

1.1 Agricultural Economics Major – Natural Resource Economics Option

Core Required and Complementary Courses: 51 credits.
Option Required and Complementary Courses: 32 credits.

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

		CREDITS
Option Required Courses:		**12**
AEMA 306	Mathematical Methods in Ecology	3
NRSC 333	Physical and Biological Aspects of Pollution	3
NRSC 437	Assessing Environmental Impact	3
WILD 205	Principles of Ecology	3
Option Complementary Courses:		**9**
9 credits chosen from the following list:		9
AGEC 344 (3)	Entreprenurial Leadership	
AGRI 210 (3)	Agro-Ecological History	
ECON 405 (3)	Natural Resource Economics	
ENVR 203 (3)	Knowledge, Ethics and Environment	
NRSC 201 (3)	Introductory Meteorology	
NUTR 361 (3)	Environmental Toxicology	
WILD 415 (3)	Conservation Law	
WILD 421 (3)	Wildlife Conservation	

1.2 Agricultural Sciences Major – Ecological Agriculture Option

Required Courses: 61 credits.
Complementary Courses: 16 - 19 credits.
Electives: selected in consultation with Academic Adviser, to meet the minimum 90-credit requirement for the degree.

		CREDITS
Required Courses:		**61**
All of the required courses (52 credits) specified for the Agricultural Sciences Major – General Option, with the addition of:		
AGRI 340	Principles of Ecological Agriculture	3
AGRI 341	Ecological Agriculture Systems	3
WILD 205	Principles of Ecology	3
Complementary Courses:		**16 to 19**
at least one of:		
ANSC 323 (4)	Mammalian Physiology	
PLNT 353 (4)	Plant Structure and Function	
at least one production course in Agricultural Science:		
AGEC 331 (3)	Farm Business Management	
ANSC 450 (3)	Dairy Cattle Production	
ANSC 452 (3)	Beef Cattle and Sheep Production	
ANSC 454 (3)	Swine Production	
ANSC 456 (3)	Poultry Production	
PLNT 331 (3)	Field Crops	
at least 3 credits must be chosen from three of the four blocks below:		
AGRI 201D1 (3)	Agri-Environment Internship	

1.3 Agricultural Sciences Internship Major – Ecological Agriculture Option

Required Courses: 73 credits.
Complementary Courses: 13 credits.
Electives: selected in consultation with Academic Adviser, to meet the minimum 102-credit requirement for the degree.

1.4 Agricultural Sciences Major – Soil Science Option

Required Courses: 52 credits.
Complementary Courses: 25 credits.
Electives: selected in consultation with Academic Adviser, to meet the minimum 90-credit requirement for the degree.

PLNT 451 (3) Special Topics: Plant Science 2
SOIL 210 (3) Principles of Soil Science

1.10 Ecological Agriculture, Certificate in

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

		CREDITS
Required Courses:		**9**
AGRI 210	Agro-Ecological History	3
AGRI 340	Principles of Ecological Agriculture	3
AGRI 341	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:		3-9
SOIL 335 (3)	Soil Ecology and Management	
SOIL 490 (3)	Plan global de fertilisation intégrée	
SOIL 521 (3)	Soil Microbiology and Biochemistry	
and the remaining credits to be chosen from:		12-18
AGEC 333 (3)	Resource Economics	
AGRI 435 (3)	Soil and Water Quality Management	
AGRI 491D1 (1.5)	Co-op Experience	
AGRI 491D2 (1.5)	Co-op Experience	
ENTO 352 (3)	Control of Insect Pests	
MICR 331 (3)	Microbial Ecology	
NUTR 512 (3)	Herbs, Foods and Phytochemicals	
PLNT 300 (3)	C81.5)PLNTbe chos00	

1.11 Ecological Agriculture, Minor in

Required Courses: 9 credits.
Complementary Courses: 15 credits.

1.12 Environmental Biology Major

Required Courses: 27 credits.
Complementary Courses: 30 credits.
Electives: To meet the minimum requirements of 90 credits for the degree.

With the permission of the Academic Adviser and the Committee on Academic Standing, ecological or environmental courses offered on the Downtown Campus may be substituted for those appearing in the above list of Complementary Courses.

1.13 Microbiology Major

Required Courses: 60 credits.
Electives: to meet the minimum requirement of 90 credits for the degree; chosen in consultation with the Academic Adviser.

[1] Downtown Campus

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

1.14 Resource Conservation Major

Required Courses: 26 credits
Complementary Courses: 33 credits.
Electives: to meet the minimum 90-credit requirement for the degree.

2 Arts

2.1 Computer Science

2.1.1 Computer Science, Minor Concentration

This Minor Concentration may be taken in conjunction with any program in the Faculty of Arts with the approval of the Adviser of the student's main program and the School of Computer Science.

Minor Concentration in Computer Science
(Non-expandable) (18 credits)

Required Courses (12 credits)
COMP 202 (3) Introduction to Computing 1
COMP 203 (3) Introduction to Computing 2
COMP 206 (3) Introduction to Software Systems
COMP 302 (3) Programming Languages and Paradigms

Complementary Courses (6 credits)
selected from:
COMP 273 (3) Introduction to Computer Systems
COMP 310 (3) Computer Systems and Organization
COMP 335 (3) Software Engineering Methods
COMP 350 (3) Numerical Computing
or MATH 317 (3) Numerical Analysis
COMP 360 (3) Algorithm Design Techniques
COMP 420 (3) Files and Databases
COMP 421 (3) Database Systems
COMP 424 (3) Topics: Artificial Intelligence 1
COMP 426 (3) Automated Reasoning
COMP 433 (3) Personal Software Engineering
COMP 435 (3) Basics of Computer Networks
COMP 505 (3) Advanced Computer Architecture
COMP 506 (3) Advanced Analysis of Algorithms
COMP 507 (3) Computational Geometry
COMP 520 (4) Compiler Design
COMP 524 (3) Theoretical Foundations of Programming Languages
COMP 534 (3) Team Software Engineering
COMP 535 (3) Computer Networks 1
COMP 537 (3) Internet Programming
COMP 538 (3) Person-Machine Communication
COMP 540 (3) Matrix Computations
COMP 547 (3) Cryptography and Data Security
COMP 557 (3) Computer Graphics
COMP 560 (3) Graph Algorithms and Applications
COMP 566 (3) Discrete Optimization 1
COMP 573 (3) Microcomputers
COMP 575 (3) Fundamentals of Distributed Algorithms
or courses outside of the School approved by the adviser.

2.1.2 Computer Systems, Minor Concentration

This Minor Concentration may be taken only by students registered in the Major Concentration in Foundations of Computing. Taken together, these constitute a program very close to the Major in Computer Science offered by the Faculty of Science.

Minor Concentration in Computer Systems
(Combinable) (18 credits)

Required Courses (9 credits)
COMP 206 (3) Introduction to Software Systems
COMP 273 (3) Introduction to Computer Systems
COMP 310 (3) Computer Systems and Organization

Complementary Courses (9 credits)
selected from:
COMP 335 (3) Software Engineering Methods
COMP 420 (3) Files and Databases
COMP 421 (3) Database Systems
COMP 424 (3) Topics: Artificial Intelligence 1
COMP 433 (3) Personal Software Engineering
COMP 435 (3) Basics of Computer Networks
COMP 505 (3) Advanced Computer Architecture
COMP 506 (3) Advanced Analysis of Algorithms
COMP 507 (3) Computational Geometry
COMP 520 (4) Compiler Design
COMP 524 (3) Theoretical Foundations of Programming Languages
COMP 531 (3) Theory of Computation
COMP 534 (3) Team Software Engineering
COMP 535 (3) Computer Networks 1
COMP 537 (3) Internet Programming
COMP 547 (3) Cryptography and Data Security
COMP 557 (3) Computer Graphics
COMP 573 (3) Microcomputers
COMP 575 (3) Fundamentals of Distributed Algorithms

2.2 Education for Arts Students Minor Concentration

Program Director — Professor Jon Bradley
Department of Integrated Studies in Education
Faculty of Education, 3700 McTavish Street
e-mail: jon.bradley@mcgill.ca
Website: www.mcgill.ca/edu-integrated/

This Minor Concentration allows Arts students to develop and explore an interest in education. It will give students a solid footing in the basics of pedagogy and may provide a starting point towards a B.Ed. degree.

Completion of the Minor Concentration **does not** qualify a student for certification to teach in the province of Quebec. Students interested in a teaching career should consult the Faculty of Education, "Faculty Programs" on page 139 of the Undergraduate Programs Calendar.

MINOR CONCENTRATION IN EDUCATION FOR ARTS STUDENTS (18 credits)

Required Courses (12 credits)
EDEC 402 (3) Media,Technology and Education
EDEM 405 (3) Policy Issues in Quebec Education
EDPE 300 (3) Educational Psychology
EDPI 309 (3) Exceptional Students

Complementary Courses (6 credits)
3 credits, one of:
EDER 398 (3) Philosophy of Catholic Education
EDER 400 (3) Philosophical Foundations of Education

3 credits, one of:
EDEC 410 (3) Multi-Cultured/Multi-Racial Class
EDEE 441 (3) First Nations and Inuit Education
EDER 464 (3) Intercultural Education

2.3 German Studies

2.3.1 German Studies, Honours

HONOURS PROGRAM IN GERMAN STUDIES (60 credits)

Required Courses (42 credits)
GERM 200 (6) German Language, Intensive Beginners'
GERM 300 (6) German Language Intensive Intermediate
GERM 325 (6) German Language - Intensive Advanced
GERM 352 (3) German Literature - 19th Century 3
GERM 360 (3) German Literature 1890 to 1918
GERM 363 (3) German Postwar Literature
GERM 450 (3) Classical Period in German Literature
GERM 451 (3) German Romanticism
GERM 511 (3) Middle High German Literature
GERM 575 (6) Honours Thesis
With permission of the adviser, students with advanced standing in German language will replace language courses for more advanced courses in language, culture or literature.

Complementary Courses (18 credits)
12 credits selected from:
GERM 331 (3) Germany after Reunification
GERM 353 (3) 19th Century Literary Topics
GERM 361 (3) German Literature 1918 to 1945
GERM 362 (3) 20th Century Literature Topics
GERM 365 (3) Media Studies in German
GERM 380 (3) 18th Century German Literature
GERM 400 (3) Interdisciplinary Seminar: Contemporary German Studies
Note: In the event that there are not enough courses offered in German, substitution with courses from the list below is allowed only with permission of the adviser.

6 credits selected from:
GERM 259 (3) Individual and Society in German Literature 1
GERM 260 (3) Individual and Society in German Literature 2
GERM 336 (3) German Grammar Review
GERM 354 *3) Literary Approach to Song
GERM 355 (3) Nietzsche and Wagner
GERM 358 (3) Franz Kafka
GERM 359 (3) Bertolt Brecht
GERM 364 (3) German Culture: Gender and Society
GERM 367 (3) Topics in German Thought
GERM 371 (3) Cultural Change and Evolution of German
GERM 382 (3) Faust in European Literature
GERM 397 (3) Individual Reading Course
GERM 398 (3) Individual Reading Course
GERM 561 (3) German Literature: Baroque
or other suitable courses in the Department or in other related disciplines and departmens with the approval of adviser.

2.4 International Development Studies

2.4.1 IDS, Minor Concentration

MINOR CONCENTRATION IN INTERNATIONAL DEVELOPMENT STUDIES (18 credits) (Expandable)

Required Courses (6 credits)
ECON 208 (3) Microeconomic Analysis and Applications
ECON 313 (3) Economic Development 1

Complementary Courses (12 credits)
a minimum of 3 credits selected from the IDS Complementary Course list Group A. Only one course from each discipline can be counted.

the remaining credits to be selected from the IDS Complementary Course list Group B, with the addition of ECON 314 Economic Development 2 to the category “Development Policies and Practices”.

At least 9 of the 18 credits must be at the 300 level or above.

2.4.2 IDS, Major Concentration

MAJOR CONCENTRATION IN INTERNATIONAL DEVELOPMENT STUDIES (36 credits)

Required Courses (12 credits)
ECON 208 (3) Microeconomic Analysis and Applications
ECON 313 (3) Economic Development 1
ECON 314 (3) Economic Development 2
INTD 497 (3) Research Seminar on International Development

Complementary Courses (24 credits)
a minimum of 3 credits selected from the IDS Complementary Course list Group A. Only one course from each discipline can be counted.the remainind.2(d)-0remai-0.0008 Tc-0.003 Tw[(Development 2)-7.5(to)-7.5(

2.4.3 IDS, Honours

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HONOURS PROGRAM IN INTERNATIONAL DEVELOPMENT STUDIES (57 credits)

Honours students must maintain a program GPA of 3.00 and an overall CGPA of 3.00.

Required Courses (12 credits)

Complementary Courses (45 credits)

2.4.4 IDS, Joint Honours

JOINT HONOURS PROGRAM – INTERNATIONAL DEVELOPMENT STUDIES COMPONENT (36 credits)

Joint Honours students must maintain a program GPA of 3.00 and an overall CGPA of 3.00.

Joint Honours students should consult an adviser in each department to discuss their course selection and their interdisicplinary research project (if applicable).

Required Courses (12 credits)

RELG 326 (3) Ancient Christian Church AD54- AD604
RELG 334 (3) The Christian Faith
RELG 336 (3) Contemporary Theological Issues
RELG 381 (3) Advanced New Testament Greek
RELG 399 (3) Christian Spirituality
RELG 423 (3) Reformation Thought
RELG 438 (3) Topics in Jewish Theology
RELG 482 (3) Exegesis of Greek New Testament

2.7.2 Scriptural Languages, Minor Concentration (Stream II, Indo-Tibetan Languages)

MINOR CONCENTRATION IN SCRIPTURAL LANGUAGES (18 credits) (Non-expandable)

Students will chose from one of two streams:
Stream I: Biblical Languages
Stream II: Sanskrit.

Minor Concentration in Scriptural Languages
Stream II: Indo-Tibetan Languages

Sanskrit is the language of classical Indian civilization and is recommended for students interested in gaining access to religious texts, philosophical works, academic treatises on all subjects and poetry written in classical and medieval India.

Classical Tibetan is one of the main scriptural languages of Buddhism. Many texts originally composed in Sanskrit are only extant in their Tibetan translations, and a vast body of philosophical, devotional, poetic and academic works composed in Classical Tibetan are only accessible to one who has a firm grasp of the language.

Complementary Courses (18 credits)

2.7.3 Scriptures and Interpretations, Major Concentration

MAJOR CONCENTRATION IN SCRIPTURES AND INTERPRETATIONS (36 credits)

Required Courses (6 credits)

Complementary Courses (30 credits)

RELG 357D1 (3) Sanskrit 2
RELG 357D2 (3) Sanskrit 2
RELG 364 (3) Intermediate Tibetan 1
RELG 365 (3) Intermediate Tibetan 2
RELG 442 (3) Pure Land Buddhism
RELG 443 (3) Japanese Esoteric Buddhism
RELG 451 (3) Zen: Maxims and Methods
RELG 452 (3) East Asian Buddhism
RELG 454 (3) Modern Hindu Thought
RELG 457D1 (3) Advanced Sanskrit
RELG 457D2 (3) Advanced Sanskrit
RELG 464 (3) Advanced Tibetan 1
RELG 465 (3) Advanced Tibetan 2
RELG 546 (3) Indian Philosophy
RELG 548 (3) Indian Buddhist Philosophy
RELG 552 (3) Advaita Vedanta
RELG 553 (3) Religions of South India 1
RELG 554 (3) Religions of South India 2

2.7.4 World Religions, Minor Concentration

MINOR CONCENTRATION IN WORLD RELIGIONS (18 credits)
(Expandable to Major Concentration in World Religions)

Complementary Courses (18 credits*)
12 credits in Religious Traditions, chosen from the following:
Judaism and Christianity:
RELG 201 Md C4 bG6e(M)2LG

2.7.5 World Religions, Major Concentration

MAJOR CONCENTRATION IN WORLD RELIGIONS
(36 credits)

Required Course (3 credits)

Complementary Courses (33 credits)

RELG 442 (3) Pure Land Buddhism
RELG 451 (3) Zen: Maxims and Methods
RELG 452 (3) East Asian Buddhism
RELG 454 (3) Modern Hindu Thought
RELG 546 (3) Indian Philosophy
RELG 548 (3) Indian Buddhist Philosophy
RELG 549 (3) East Asian Buddhist W o0J2.9139 -1.1126 TD0.0012 Tc-0.0009 Tw1hi-0.1.112009 Tw09 Tw1hi-0.1.11/si25.003 Twp4(44)6Tw1hi-0.1e0.003

3 Education

3.1 Bachelor of Education Kindergarten and Elementary Program

The four-year program begins with the foundation courses in the first term and has a higher concentration of academic courses in the first two years. The professional courses and practicum have a heavier weight in the final two years. The practicum consists of school-based experiences and a series of professional seminars that provide an opportunity for students to reflect on that experience in a systematic way and with the guidance of a tutor.

3.1.1 Jewish Studies Option

This option, Jewish Studies, is offered within the Bachelor of Education in Kindergarten and Elementary Education.

Students who wish to follow this option should contact:
Professor Eric Caplan
Department of Integrated Studies in Education
Faculty of Education
Telephone: (514) 398-6544
e-mail: eric.caplan@mcgill.ca

		CREDITS
ACADEMIC COMPONENT		**42**
This component provides background in the subject areas of the elementary school curriculum. During their four years of study, students will take:		
Required Courses		**12**
EDEC 203	Communication in Education	3
EDEE 230	Elementary School Mathematics	3
EDEE 270	Elementary School Science	3
JWST 211	Jewish Studies 1: Biblical Period	3
Complementary Courses		**30**
12 credits in Jewish Studies chosen from:		12
JWST 345	Introduction to Rabbinic Literature	
or RELG 306	Rabbinic Judaism	
JWST 314	Denominations in North American Judaism	
or SOCI 327	Jews in North America	
JWST 206	Introduction to Yiddish Literature	
or JWST 325	Israeli Literature in Translation	
JWST 365	Modern Jewish Ideologies	
or JWST 366	History of Zionism	
POLI 347	Arab-Israel Conflict, Crisis, Peace	
or POLI 437	Politics in Israel	
HIST 207	Jewish History:400 BCE to 1000	
or JWST 216	Jewish Studies 2: 400 BCE-1000	
HIST 219	Jewish History: 1000-2000	
or JWST 217	Jewish Studies 3: 1000 to 2000	
JWST 367	Studies in Hebrew Language and Literature	
JWST 368	Studies in Hebrew Language and Literature	
JWST 369	Studies in Hebrew Language and Literature	
JWST 370	Studies in Hebrew Language and Literature	
6 credits in Jewish Studies chosen from:		6
JWST 327	A Book of the Bible	
JWST 328	A Book of the Bible	
JWST 329	A Book of the Bible	
JWST 330	A Book of the Bible	
JWST 331	Bible Interpretation/Medieval Ashkenaz	
or JWST 332	Bible Interpretation/Sefardic Tradition	
or JWST 510	Jewish Bible Interpretation 1	
12 credits, 3 credits from each of any four other subject areas: English, Mathematics, Natural Sciences, Social Sciences, The Arts, Physical Education, Moral and Religious Education, French.		12
PROFESSIONAL COMPONENT		**81**
This component includes the practicum, theoretical aspects of pedagogy, the pedagogical support for the practicum and foundation courses, divided as follows:		
PRACTICUM		**24**
Required Courses		
Field Experiences		
EDFE 200	First Year Field Experience	2
EDFE 253	Second Field Experience (K/Elem)	4
EDFE 303	Third Field Experience (K/Elem)	7
EDFE 406	Fourth Field Experience (K/Elem)	7
PROFESSIONAL SEMINARS		
EDEC 201	First Year Professional Seminar	1
EDEC 405	Fourth Year Professional Seminar (K/Elem)	3
FOUNDATIONS		**15**
Required Courses		
EDEM 405	Policy Issues in Quebec Education	3
EDER 320	Visions and Realities of Jewish Education	3
EDPI 309	Exceptional Students	3
EDPI 341	Instruction in Inclusive Schools	3
EDPE 300	Educational Psychology	3
PEDAGOGY		**31**
Required Courses		
EDEE 223	Language Arts Part 1	3
EDEE 250	The Kindergarten Classroom	2
EDEE 275	Science Teaching	2
EDEE 282	Teaching Social Sciences	2
EDEE 332	Teaching Mathematics 1	3
EDEE 350	Integrating the Curriculum	2
EDER 252	Understanding and Teaching Jewish Life	3
EDER 401	Teaching Biblical Literature - Jewish School 1	3
EDER 407	Teaching the Jewish Liturgy	3
EDER 421	Teaching the Holocaust	3
Complementary Courses		**5**
one of:		2
EDER 375	Catholic Religious Education (K/Elem)	
EDER 360	MRE in the K/Elem. Curriculum	
one of:		3
EDEA 332	Art Curriculum and Instruction - Elementary	
EDEA 342	Curriculum and Instruction in Drama Education	
EDEA 345	Music Curriculum and Instruction for Generalists	
PEDAGOGICAL SUPPORT		**11**
Required Courses		
EDEE 352	Classroom Practices	2
EDEE 355	Classroom-based Evaluation	3
Complementary Courses		
EDEC 402	Media, Technology and Education	3
or, for students with a background in computers or other media applications in education, one of the following 3-credit courses may substitute for the above:		
EDPT 341	Instructional Programming 1	
EDPT 420	Media Literacy for Education	
one 3-credit course in Multicultural Education from the following list:		3
EDER 464	Intercultural Education	
EDEE 441	First Nations and Inuit Education	
EDEC 410	Multi-cultured/Multi-racial Class	
ELECTIVE COURSES		**3**
TOTAL CREDITS		**126**

4 Engineering

4.1 Electrical and Computer Engineering

4.1.1 B.Eng. Degree in Computer Engineering

		COURSE CREDIT
REQUIRED COURSES		
Non-Departmental Courses		
MATH 260	Intermediate Calculus	3
MATH 261	Differential Equations	3
or MATH 325	Ordinary Differential Equations (3)	
MATH 265	Advanced Calculus	3
or MATH 248*	Advanced Calculus 1 (3)	
MATH 270	Applied Linear Algebra	3
or MATH 247*	Linear Algebra (3)	
MATH 363	Discrete Mathematics	3
MATH 381	Complex Variables and Transforms	3
CIVE 281	Analytical Mechanics	3
or PHYS 251	Classical Mechanics 1 (3)	
MIME 221	Engineering Professional Practice	2
MIME 310	Engineering Economy	3
COMP 202	Introduction to Computing 1	3
COMP 250	Introduction to Computer Science	3

or COMP 573	Microcomputers	
ECSE 504	Computer Control	
ECSE 522	Asynchronous Circuits and Systems	
ECSE 526	Artificial Intelligence	
ECSE 529	Image Processing and Communication	
ECSE 530	Logic Synthesis	
ECSE 531	Real Time Systems	
ECSE 532	Computer Graphics	
or COMP 557	Computer Graphics	
COMP 410	Mobile Computing	
COMP 412	Software for E-commerce	
COMP 505	Advanced Computer Architecture	
COMP 520	Compiler Design	
COMP 566	Discrete Optimization 1	

General Complementaries **6**

Two courses (6 credits), selected from an approved list: one course on the impact of technology on society and one in the humanities and social sciences, administrative studies and law. See section 3.4 "Complementary Studies", under the Faculty of Engineering in the Undergraduate Programs Calendar, for further information.

TOTAL CREDITS **108/109**

4.2 Mechanical Engineering

4.2.1 B.Eng. Degree in Mechanical Engineering (Regular)

REQUIRED COURSES		COURSE CREDIT	
Non-Departmental Subjects			
CIVE 207	Solid Mechanics	4	
COMP 208	Computers in Engineering	3	
ECSE 461	Electric Machinery	3	
EDEC 206	Communication in Engineering	3	
MATH 260	Intermediate Calculus	3	
MATH 261	Differential Equations	3	
MATH 265	Advanced Calculus	3	
MATH 266	Linear Algebra and Boundary Value Problems	4	
MIME 221	Engineering Professional Practice	2	
MIME 260	Materials Science and Engineering	3	
MIME 310	Engineering Economy	3	**34**
Departmental Courses			
MECH 201	Introduction to Mechanical Engineering	2	
MECH 210	Mechanics 1	2	
MECH 220	Mechanics 2	4	

4.2.2 B.Eng. Degree in Mechanical Engineering (Honours)

MECH 362	Mechanical Laboratory 1	2	
MECH 383	Applied Electronics and Instrumentation	3	
MECH 403D1	Thesis (Honours)	3	
MECH 403D2	Thesis (Honours)	3	
MECH 404	Honours Thesis 2	3	
MECH 419	Advanced Mechanics of Systems	3	
MECH 430	Fluid Mechanics 2	3	
MECH 452	Mathematical Methods in Engineering 1	3	
MECH 494	Honours Design Project	3	**63**

COMPLEMENTARY COURSES **21**

2 of the following three courses (6 credits):

MECH 545	Advanced Stress Analysis
MECH 562	Advanced Fluid Mechanics
MECH 578	Advanced Thermodynamics

2 courses (6 credits) at the 300 level or higher to be selected from Mechanical Engineering. For students who entered in September 2000 or later, one of these two courses must be chosen from the following list:

MECH 343	Energy Conversion
MECH 413	Control Systems
MECH 432	Aircraft Structures
MECH 471	Industrial Engineering
MECH 472	Case Inst(j5)-1911.2(3)]TJ511.3(T)2.6(hesiTc06.3(u)-0.-178w7l)Ti5i(Case 04 Tc49(54d i 21)l*11 Tc0 0047 T278 l)6.3(i) 1.2(st:)4970 -1.185Va

All courses must be passed at a level C or better.

Students should also discuss the matter with their advisor and complete a special form indicating their intention to take this Concentration.

4.3 Mining, Metals and Materials Engineering

4.3.1 B.Eng. Degree in Materials Engineering – Co-op Program

Change of program name from B.Eng. Degree in Materials Engineering – Co-op Program; program requirements remain the same.

4.4 Environmental Engineering Minor

The Environmental Engineering Minor is offered for students of Engineering and the Department of Bioresource Engineering (formerly Agricultural and Biosystems Engineering) wishing to pursue studies in this area.

The Minor program consists of 21 credits in courses. Up to a maximum of 12 credits of coursework in the student's B.Eng. program may double-count with the Minor.

In the case of Agricultural and Biosystems, Chemical, and Civil Engineering students, courses taken towards the Humanities and Impact course requirements for the Major cannot double-count as Minor program courses.

To complete the Minor in Environmental Engineering, students must obtain a grade of C or better in all approved courses in the Minor; and satisfy the requirements of the Minor and of their departmental program.

The Environmental Engineering Minor Program is administered by the Department of Civil Engineering and Applied Mechanics. Further information may be obtained from Professor S. Ghoshal, Room 475C, Macdonald Engineering Building.

Note: Not all courses listed are offered every year. Students should consult with the department concerned about the courses which are offered in a given year.

Complementary Courses (21 credits)

4.2.3 Aeronautical Engineering Concentration (for B.Eng. in Mechanical Engineering, Regular and Honours)

Required Courses (6 credits:

Engineering Course List
(Environmental Engineering Minor)

6.1.7 Materials Option, Chemistry Honours

HONOURS WITH MATERIALS OPTION (77 credits)
Required Courses (62 credits)
56 credits, all courses specified above for Honours Chemistry plus the following 6 credits:
CHEM 344 (3) Advanced Materials
CHEM 455 (3) Introductory Polymer Chemistry

Complementary Courses (15 credits)
6 credits of research*:
CHEM 470 (6) Research Project
or CHEM 480 (3) Research Project
and CHEM 490 (3) Research Project

6 credits, two of:
CHEM 531 (3) Chemistry of Inorganic Materials
CHEM 534 (3) Nanoscience and Nanotechnology
CHEM 543 (3) Chemistry of Pulp and Paper
CHEM 571 (3) Polymer Synthesis
CHEM 585 (3) Colloid Chemistry

3 credits, one of:
CHEE 481 (3) Polymer Engineering
MIME 260 (3) Materials Science and Engineering
MRKT 360 (3) Marketing of Technology

* Students may take up to 12 Research Project credits but **only** 6 of these may be used to fulfill the program requirement.

Attainment of the Honours degree requires a CGPA of at least 3.00.

6.2 Cognitive Science

MINOR PROGRAM IN COGNITIVE SCIENCE (27 credits)

Required Course (3 credits)
PSYC 532 (3) Cognitive Science

Complementary Courses (24 credits)
from outside of the student's home department, selected from the courses listed below.

Computer Science
COMP 424 (3) Topics: Artificial Intelligence 1
COMP 426 (3) Automated Reasoning
COMP 558 (3) Fundamentals of Computer Vision

Educational Psychology
EDPE 555 (3) Applied Cognitive Science

Linguistics
LING 331 (3) Phonology 1
LING 355 (3) Language Acquisition 1
LING 370 (3) Introduction to Semantics
LING 371 (3) Syntax 1
LING 419 (3) Linguistic Theory 1
LING 440 (3) Morphology
LING 531 (3) Phonology 2
LING 555 (3) Language Acquisition 2
LING 571 (3) Syntax 2
LING 590 (3) Introduction to Neurolinguistics

Mathematics
MATH 318 (3) Mathematical Logic
MATH 328 (3) Computability and Mathematical Linguistics

Philosophy
PHIL 210 (3) Introduction to Deductive Logic 1

6.3 Computer Science

6.3.1 Computational Molecular Biology, Minor

Note: Because a minimum of 18 new credits must be completed in a Minor in the Faculty of Science (see Section 3.5.3 of the Faculty of Science section of the *Undergraduate Programs Calendar*), students in Computer Science or Joint Computer Science programs cannot take the Minor Program in Computational Molecular Biology.

6.3.2 Computer Science, Minor

MINOR PROGRAM IN COMPUTER SCIENCE (24 credits)

Required Courses (12 credits)

Complementary Courses (12 credits)

Note: Courses at the 300 or higher level in other departments in the Faculties of Science and Engineering may also be used as complementary credits, with the permission of the Director of Undergraduate Studies.

6.4.3 Earth Sciences, Honours

HONOURS PROGRAM IN EARTH SCIENCES (75 credits)
(CGPA ≥ 3.20)

U1 Required Courses (27 credits)
EPSC 203 (3) Structural Geology 1
EPSC 210 (3) Introductory Mineralogy
EPSC 212 (4) Introductory Petrology
EPSC 220 (3) Principles of Geochemistry
EPSC 231 (2) Field School 1
EPSC 233 (3) Earth and Life History
EPSC 312 (3) Spectroscopy of Minerals
MATH 222 (3) Calculus 3
approved (3) statistics course

Note: Students who have not had the following course or its equivalent in CEGEP or the Freshman Program may be required to take MATH 133 Vectors, Matrices and Geometry.

U2 and/or U3 Required Courses (33 credits)
EPSC 320 (3) Elementary Earth Physics
EPSC 350 (3) Tectonics
EPSC 423 (3) Igneous Petrology
EPSC 445 (3) Metamorphic Petrology
EPSC 452 (3) Mineral Deposits 2
EPSC 455 (3) Sedimentary Geology
EPSC 480D1 (3) Honours Research Project
EPSC 480D2 (3) Honours Research Project
EPSC 519 (3) Isotope Geology
MATH 314 (3) Advanced Calculus
MATH 315 (3) Ordinary Differential Equations

Complementary Courses (15 credits)
3 credits, one of:
EPSC 331 (3) Field School 2
EPSC 341 (3) Field School 3

plus 12 credits (4 courses) chosen from the following:
EPSC 330 (3) Earthquakes and Earth Structure
EPSC 334 (3) Invertebrate Paleontology
EPSC 425 (3) Sediments to Sequences
EPSC 435 (3) Geophysical Applications
EPSC 451 (3) Hydrothermal Mineral Deposits
EPSC 501 (3) Crystal Chemistry
EPSC 530 (3) Volcanology
EPSC 542 (3) Chemical Oceanography
EPSC 547 (3) High Temperature Geochemistry
EPSC 548 (3) Processes of Igneous Petrology
EPSC 549 (3) Hydrogeology
EPSC 550 (3) Selected Topics 1
EPSC 551 (3) Selected Topics 2
EPSC 552 (3) Selected Topics 3
EPSC 561 (3) Ore-forming Processes 1
EPSC 562 (3) Ore-forming Processes 2
EPSC 570 (3) Cosmochemistry
EPSC 580 (3) Aqueous Geochemistry
EPSC 590 (3) Applied Geochemistry Seminar

Note: Courses at the 300 or higher level in other departments in the Faculties of Science and Engineering may also be used as complementary credits, with the permission of the Director of Undergraduate Studies.

6.4.4 Geochemistry, Minor

MINOR PROGRAM IN GEOCHEMISTRY (25 credits)

Required Courses (10 credits)
EPSC 201 (3) Understanding Planet Earth
EPSC 210 (3) Introductory Mineralogy
EPSC 212 (4) Introductory Petrology

Complementary Courses (15 credits)
15 credits selected from:
EPSC 220 (3) Principles of Geochemistry
EPSC 243 (3) Environmental Geology
EPSC 501 (3) Crystal Chemistry
EPSC 519 (3) Isotope Geology
EPSC 542 (3) Chemical Oceanography
EPSC 545 (3) Low-Temperature Geochemistry
EPSC 561 (3) Ore-forming Processes 1
EPSC 562 (3) Ore-forming Processes 2

6.4.5 Planetary Sciences, Honours

HONOURS PROGRAM IN PLANETARY SCIENCES (81 credits)
CGPA ≥ 3.20

U1 Required Courses (27 credits)
EPSC 203 (3) Structural Geology
EPSC 210 (3) Introductory Mineralogy
EPSC 212 (4) Introductory Petrology
EPSC 220 (3) Principles of Geochemistry
EPSC 231 (2) Field School 1
EPSC 233 (3) Earth and Life History
EPSC 312 (3) Spectroscopy of Minerals
MATH 222 (3) Calculus 3
MATH 223 (3) Linear Algebra

Note: Students who have not had the following course or its equivalent in CEGEP or the Freshman Program may be required to take MATH 133 Vectors, Matrices and Geometry.

U2 and/or U3 Required Courses (42 credits)
EPSC 320 (3) Elementary Earth Physics
EPSC 330 (3) Earthquakes and Earth Structure
EPSC 350 (3) Tectonics
EPSC 423 (3) Igneous Petrology
EPSC 480D1 (3) Honours Research Project
EPSC 480D2 (3) Honours Research Project

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6.5 Physics

6.5.1 Electrical Engineering, Minor Program

MINOR PROGRAM IN ELECTRICAL ENGINEERING
(23 or 25 credits)
[Program registration done by Student Affairs Office]

The Minor program does not carry professional recognition. Only students who satisfy the requirements of the Major in Physics are eligible for this Minor. Students registered for this option cannot count PHYS 241 towards the requirements of the Major in Physics, and should replace this course by another Physics or Mathematics course. Students who select ECSE 334 in the Minor cannot count PHYS 328 towards the requirements of the Major in Physics, and should replace this course by another Physics or Mathematics course.

Required Courses (17 or 19 credits)