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Make sure you have completed these steps and satisfied these requirements. See your SOUSA advisor if you have questions or have troublu2 (l)0.7 (u-.7 ( )0.6 (h)99eenS /28(o)0.7 (912.3 ( )-8.5a(s)5.5 c(s)5.5h(o)0.7a(e)-3 (

SCOPE OF MICROBIOLOGY AND IMMUNOLOGY

Microbiology is the study of the microorganisms such as bacteria, viruses, unicellular eukaryotes and parasites. Microorganisms play an important role in human and animal disease, food production (bread, cheese, wine), decay and spoilage, contamination and purification of water and soil, production and the recycling of food in lakes and oceans.

Microbiologists study these tiny, self-replicating machines in an attempt to understand the basic principles of life: growth, metabolism, cell division, control of gene expression, response to environmental stimuli. Microbiologists are also concerned with controlling or harnessing microorganisms for the benefit of people, by isolating antibiotics or producing vaccines toe

What A Degree in Microbiology & Immunology Prepares You For

Many opportunities exist for careers in basic, medical microbiology, environmental microbiology, and biotechnology. They include positions in industry (pharmaceutical and biotechnology), hospitals, universities, and government agencies (environment, public health

and medical microbiology. There are research laboratory facilities for fourteen full-time staff members in the Duff Medical Building. Affiliated staff are in nearby research institutes or teaching hospitals.

The Department currently occupies four floors in the Duff Medical Building and includes research laboratories, major equipment rooms including flow cytometry and phosphorimager suites, media and glassware facilities, animal care facility, seminar rooms and an administrative office. The Sheldon Biotechnology Centrelabodiulabtre en99 Tw 0.29 0 Td14 (e) Tc PbTd14 uic 0 Tw nodff6 (f)-8te

Student Health & Wellness Hub

One-stop shop for all things health and wellness: appointments with a professional, local wellness advisors, self-help resources, workshops and groups https://mcgill.ca/wellness-hub/

Hours

The Hub is **open** from 8:30 a.m. - 4:30 p.m., Monday to Friday. **Drop-ins** begin being processed at 9 a.m. Please note that **lab hours** differ.

Brown Student Services Building
3600 McTavish Street, 3rd floor
Montreal, Quebec H3A 0G3
Tel: 514-398-6017
Fax: 514-398-2559

Faculty of

Student Affairs Officer

The Office of the Student Affairs Officer is located in Room 511 of the Duff Medical Building. If you wish to enquire about or discuss any aspect of the undergraduate courses or programs offered by

- first year of study by four-year students (120 credits) is: U0
- second year of study is: U1
- third year of study is: U2
- fourth year of is: U3

  Quebec students who enter from CEGEP begin their studies in the U1 year and progress to U2 and U3 (90 credits).

Courses

A complete online list of the courses available in Microbiology & Immunology.

Registration: General Information

Students register and make course changes via Minerva **http://www.mcgill.ca/minerva-students/.** Students also use Minerva to update their personal information, such as address and

Elective Courses:

Electives are courses taken for academic credit but which are not required for your degree. In this regard they differ from required or complementary courses.

Electives allow you to explore interests outside your core program, gain exposure to a wider world, and take advantage of the vast scope of opportunities at a large, comprehensive university like McGill. From astronomy to philosophy, from sociology to zoology, electives round out your education.

- Courses in Earth and Planetary Sciences would be electives for a Psychology Major because they are not required for your program.
- Music courses, for example, could be electives, depending on how they are listed on the webpage "Restricted courses outside the Faculty of Science"
- Courses not on the approved list (please refer again to "Restricted courses outside the Faculty of Science") do not count either towards your program (major, honours, liberal) or degree requirements.
- The **number of electives that you may take** during your degree varies depending on how much room you have left after completing program requirements and prerequisites for your programs.

Please check the university calendar and carefully review course restrictions to determine whether you have permission to take a specific course. If you have any questions, please check with the SOUSA, the Science Office for Undergraduate Student Advising.

Credit Load

The normal course load is 4-5 courses (12-15 credits) per term; a full year is normally 30 credits. If you are not sure how many credits to register for each term or for the academic year, keep the following regulations in mind:

• 12 credits per term to maintain full-time status, eligibility for student visas, loans and bursaries;l coons inID -(d)-4 3 0.005 Tc -0.0Utim•ueec1715 Tc n5 Tc -0. 13.68 0 Ts,ns i i0mx22 (d [(ti

Any courses dropped during this period will be deleted from your record and will not appear on

- Students in the faculties of Dentistry and Medicine, or the School of Physical and Occupational Therapy.
-

U2 Required Courses (16 credits)

MIMM 301	Scientific Communication & Skills	1 Credit
MIMM 314	Intermediate Immunology	3 Credits
MIMM 323	Microbial Physiology	3 Credits
MIMM 324	Fundamental Virology	3 Credits
MIMM 384	Molecular Microbiology Lab	3 Credits
MIMM 385	Laboratory in Immunology	3 Credits

U3 Complementary Courses (6 credits)

6 credits selected from:

MIMM 387	The Business of Science	3 Credits
MIMM 413	Parasitology	3 Credits
MIMM 414	Advanced Immunology	3 Credits
MIMM 465	Bacterial Pathogenesis	3 Credits
MIMM 466	Viral Pathogenesis	3 Credits
MIMM 509	Inflammatory Processes	3 Credits

U1, U2 or U3 Complementary Courses (3 credits)

3 credits selected from:

* Students who have taken CHEM 212 or CHEM 222 in CEGEP must replace with another complementary course.

ANAT 261	Intro to Dynamic Histology	4 Credits
ANAT 262	Intro Molecular &Cell Biol	3 Credits
ANAT 365	Cellular Trafficking	3 Credits
ANAT 458		

*** Students who have taken CHEM 212 in CEGEP are exempt and must replace these credits with an elective course(s).**

**** Students who have taken CHEM 222 in CEGEP are exempt and must replace these credits with an elective course(s).**

BIOL 200	Molecular Biology	3 Credits
BIOL 202	Basic Genetics	3 Credits
CHEM 212	Intro Organic Chemistry 1	4 Credits*
CHEM 222	Intro Organic Chemistry 2	4 Credits**
MIMM 211	Introductory Microbiology	3 Credits
MIMM 212	Laboratory in Microbiology	3 Credits
MIMM 214	Intro Immun: Elem of Immunity	3 Credits

One of:

BIOC 212	Molec Mechanisms of Cell Funct	3 Credits
BIOL 201	Cell Biology & Metabolism	3 Credits

U1, U2, or U3 Required Course (3 credits)

One of:

BIOL 373	Biometry	3 Credits
MATH 203	Principles of Statistics 1	3 Credits
PSYC 204	Intro to Psychological Stats	3 Credits

U2 Required Courses (19 credits)

BIOC 311	Metabolic Biochemistry	3 Credits
MIMM 301	ScientificCommunication & Skills	1 Credit
MIMM 314	Intermediate Immunology	3 Credits
MIMM 323	Microbial Physiology	3 Credits
MIMM 324	Fundamental Virology	3 Credits
MIMM 384	Molecular Microbiology Lab	3 Credits
MIMM 385	Laboratory in Immunology	3 Credits

U3 Required Courses (3 credits)
3 credits selected from:

HONOURS PROGRAM (72 REQUIRED CREDITS)

The Honours program in Microbiology and Immunology combines the substantial background given by the Major program with a challenging opportunity to carry out a laboratory research project in the U-3 year. The required courses that are part of the Honours program offer broad exposure to different areas important to the biomedical sciences, as well as a high degree of specialization in these disciplines. These courses prepare students for a significant research experience under the direct supervision of a professor in the Department. Those who are considering careers in research in the biological sciences or in medicine, or employment in the biotechnology field, are encouraged to take advantage of the special opportunities offered by this Honours program.

Students intending to apply to the Honours program must complete the Major program in U-1 and U-2. A CGPA of at least 3.5 must be obtained by the end of the U-2 year in order to enter the Honours in U-3.

For graduation in Honours, students must pass all required courses with a C or better and achieve a sessional GPA of at least 3.30 in the U3 year.
The Honours research project course, Independent Studies in Microbiology and Immunology (MIMM 502 D1, D2), is a unique opportunity to gain first-hand re6r4/MCID ty t tp10 T.Br(n f)-10 (-10 (S (o)1

MIMM 211	Introductory Microbiology	3 Credits
MIMM 212	Laboratory in Microbiology	3 Credits
MIMM 214	Intro Immun: Elem of Immunity	3 Credits

One of:

BIOC 212	Molec Mechanisms of Cell Funct	3 Credits
BIOL 201	Cell Biology & Metabolism	3 Credits

U1, U2, or U3 Required Course (3 credits)

One of:

BIOL 373	Biometry	3 Credits
MATH 203	Principles of Statistics 1	3 Credits
PSYC 204	Intro to Psychological Stats	3 Credits

U2 Required Courses (19 credits)

BIOC 311	Metabolic Biochemistry	3 Credits
MIMM 301	Scientific Communication & Skills	1 Credit
MIMM 314	Intermediate Immunology	3 Credits
MIMM 323	Microbial Physiology	3 Credits
MIMM 324	Fundamental Virology	3 Credits
MIMM 384	Molecular Microbiology Lab	3 Credits
MIMM 385	Laboratory in Immunology	3 Credits

U3 Required Courses (15 credits)

MIMM 413	Parasitology	3 Credits
MIMM 501(D1)	Hons Research Proj-Immunol	6 Credits*
MIMM 501(D2)	Hons Research Proj-Immunol	6 Credits*
MIMM 502(D1)	Hons Research Proj-Microbiol	6 Credits*
MIMM 502(D2)	Hons Research Proj-Microbiol	6 Credits*

* Students take either MIMM 501D1 and MIMM 501D2 OR MIMM 502D1 and MIMM 502D2.

Complementary Course (6 credits)

6 Tf 0.00sc12 7211ts C 5.1ts Tfm12 7:J 0 Tc 0 Tw 14.9.>>Bd ( )Tj EMC /P <</MCID 58 6>BDC /CS-

MIMM 465	Bacterial Pathogenesis	3 Credits
MIMM 466	Viral Pathogenesis	3 Credits

Credit Hours	***296 Cos1 Cstal***	***Pathogenesis***	***29.96***	***3***	

3 credits selected from:

BIOC 503	Immunochemistry	3 credits
MIMM 509	Inflammatory Processes	3 credits
PHGY 531	Topics in Applied Immunology	3 credits

plus 6 credits selected from:

* Students take either ANAT 458 or BIOC 458, but not both.

ANAT 458	Membranes and Cellular Signaling	3 credits *
BIOC 404	Biophysical Methods in Biochemistry	3 credits
BIOC 450	Protein Structure and Function	3 credits
BIOC 454	Nucleic Acids	3 credits
BIOC 458	Membranes and Cellular Signaling	3 credits *
BIOC 503	Immunochemistry	3 credits
BIOL 520	Gene Activity in Development	3 credits
MIMM 413	Parasitology	3 credits
MIMM 465	Bacterial Pathogenesis	3 credits
MIMM 466	Viral Pathogenesis	3 credits
MIMM 509	Inflammatory Processes	3 credits
PHAR 503	Drug Discovery and Development 1	3 credits
PHAR 504	Drug Discovery and Development 2	3 credits
PHGY 531	Topics in Applied Immunology	3 credits
PHGY 552	Cellular and Molecular Physiology	3 credits

B.Sc. / M.Sc. Track - Integrated Program

About the Program

The Department of Microbiology & Immunology is pleased to introduce the new B.Sc. / M.Sc. track program. The program is offered to strong undergraduate students who are interested in research and would like to pursue their M.Sc. degree at McGill. The purpose of this program is to define a path where these students can leverage their undergraduate training and enter a streamlined M.Sc. program. Students will receive guidance, mentoring and research experience during their final undergraduate years which will allow them to complete a M.Sc. degree within four terms. Students will apply in January of their U2 year of undergraduate studies and will start the M.Sc. program in the summer term following their U3 year of undergraduate studies.

If you have questions regarding this program, please contact Ms. Jennifer DiMassimo

For printable version click here

Requirements for admission

- Minimum CGPA 3.5
- Must be a U2 student registered in Biological, Biomedical & Life Sciences (BBL).
- Must have completed a 396 or 397 course in U2 for 3 credits (Note: MIMM Honours students are exempt from taking a 396 or 397 course).
- Must complete MIMM 498 or MIMM 499 (library research project in U3 for 1 credit (Note: MIMM Honours students are exempt from taking MIMM 498 or MIMM 499).
- Has secured a summer research position with a faculty member in the Department of Microbiology and Immunology for 10 to 12 consecutive weeks (Note: This will be paid at $350/wk either from the Faculty of Medicine or from a summer NSERC award).
- Summer research supervisor must indicate conditional acceptance of the student for a MSc degree.

Application documents required

Students must submit all of the following documents through a single PDF file saved as ***MIMMbsc-msc_lastname.firstname.pdf*** to undergrad.microimm@mcgill.ca

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(Government of Canada)	
HOSPITALS (Royal Victoria Hospital)	Diagnostic, Research
LABORATORIES (Bioresearch)	Product Testing
MEDICAL LABORATORIES (Provincial Health Labs)	Vaccination, Pathogen Analysis
MEDICAL & SCIENCE SUPPLY COMPANIES (Fisher Scientific)	Marketing, Product Support
MUNICIPAL LABORATORIES (Sewage Management)	Waste Management
PHARMACEUTICAL COMPANIES (Merck Frosst Canada Inc.)	Research, Marketing
PULP AND PAPER INDUSTRIES (Paprican)	Waste Management, Fermentation
UNIVERSITIES (McGill University)	Teaching, Research
WATER RESOURCES (Provincial Water Resources)	Water Contamination Analysis

The following are partial lists of mostly Quebec-based employers, divided by category, who offer employment opportunities in the biomedical, biotechnological and microbiological fields.

HUMAN AND VETERINARY HEALTH CARE

NAME	PROJECT AREAS
BIO-MÉGA INC. Laval	Pharmaceutical test kits
BIO-RESEARCH LABORATORIES LTD. Senneville	Various

BRISTOL MYERS SQUIBB CANADA Saint-Laurent	Pharmaceuticals
ROCHE DIAGNOSTIC (INRC FRAPPIER) 201 Boul Armand-Frappier, Laval	Diagnostic kits, cell cultures
BIOCHEM IMMUNOSYSTEMS INC. 10900 Rue Hamon, Montreal	Chemical products, veterinary and diagnostic products
JOHNSON & JOHNSON INC. Mtl	Absorption products

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AGRI-FOOD

NAME

PULP AND PAPER RESEARCH INSTITUTE OF CANADA (PAPRICAN) Pointe-Claire	Pulp and paper, effluent treatment
JARDIN DION INC.	In vitro culture of ornamental plants, vegetables Boisbriand and trees

ENVIRONMENT

NAME	PROJECT AREAS
AIR LIQUIDE CANADA LTD. Montreal	Assisted oil recovery, pulp and paper, waste water treatment
DEGRÉMONT INFILCO LTD. Mtl.	Water treatment equipment
VEOLIA INC. Mtl.	Effluent treatment
SANIVAN INC. Montreal	Environmental protection, treatment of toxic industrial wastes

CONSULTING AND ENGINEERING SERVICES

NAME	PROJECT AREAS
MONENCO LTD. Mtl.	Process engineering
RECBIOMINE INC. Mtl.	Metal biolixiviation
ROCHE LTD. Saint-Foy	Environmental engineering
SNC LAVALIN GROUP Mtl.	Process and environmental engineering

MAJOR CANADIAN BIOTECHNOLOGY EMPLOYERS

NAME	PROJECT AREAS
ALLELIX INC. Mississauga, Toronto, Ontario	Diagnostic, Growth Factors
ONCOTHYREON INC. University of Alberta Edmonton, Alberta	Immunodiagnostics Immunotherapeutics

NYMOX
PERKIN ELMER CANADA
PFIZER
PHOENIX INTERNATIONAL
POLYMER SOURCE INC
QUANTUM BIOTECHNOLOGIES INC.
RHONE-POULENC RORER
ROUGIER INC.
RTP PHARMA INC.
SABEX INC.
SARSTEDT W CANADA
SCHERING CANADA INC.
SODEXEN INC.
SPINEX MEDICAL TECHNOLOGIES INC.
THERALIPIDS INC.
THERAPEX
UPJOHN CANADA
VWR CANADA
WELLCOME INC.
WYETH AYERST LTD.

GOVERNMENT RESEARCH CENTRES

BIOTECHNOLOGY RESEARCH INSTITUTE (NRC - BRI) Montreal
AGRICULTURE CANADA
SAINT-HYACINTHE FOOD RESEARCH CENTRE Saint-Hyacinthe
LAURENTIAN FORESTRY CENTRE Sainte-Foy
ANIMAL PATHOLOGY LABORATORY Montreal
LENNOXVILLE RESEARCH STATION Lennoxville
SAINT-JEAN-SUR -RICHELIEU RESEARCH STATION Saint-Jean-sur-Richelieu
SAINTE-FOY RESEARCH STATION Sainte-Foy
CENTRE QUÉBÉCOIS DE VALORISATION DE LA BIOMASSE Sainte-Foy
INSTITUT DE TECHNOLOGIE AGRO-ALIMENTAIRE Saint-Hyacinthe (La Pocatière)
CENTRE DE RECHERCHE INDUSTRIELLE DU QUÉBEC Sainte-Foy
MONTREAL BOTANICAL GARDEN Montreal

QUÉBEC UNIVERSITIES

MCGILL UNIVERSITY
Montreal

- Sheldon Biotechnology Centre
- Office of Industrial Research
- Macdonald College, Ste-Anne-de-Bellevue

UNIVERSITÉ DE QUÉBEC

Abitibi-Témiscamingue
Chicoutimi
Hull
Montréal
- Armand-Frappier Institute, Laval
- Institut National de la Recherche Scientifique (INRS)

Rimouski
Trois-Rivières

UNIVERSITÉ DE MONTRÉAL

Montréal
- Clinical Research Institute of Montréal (IRCM)
- Montréal Cancer Institute
- Ecole Polytechnique de Montréal/Technology Development Centre
- Veterinary School of Medicine, Saint-Hyacinthe

UNIVERSITY OF SHERBROOKE

Sherbrooke

LAVAL UNIVERSITY

Sainte-Foy
- Industrial Liaison Office
- Centre Hospitalier de l'Université de Laval (CHUL)

CONCORDIA UNIVERSITY

Montreal

BISHOP'S UNIVERSITY

Lennoxville