

**McGill University**  
**Department of Microbiology & Immunology**  
**Course Outline – MIMM 387 Business of Science**

**GENERAL INFORMATION**

<b>Course #</b>	MIMM 387
<b>Term</b>	Winter
<b>Year</b>	2023
<b>Course Pre-requisite(s)</b>	At least one 200-level biological/ biomedical discipline
<b>Course Schedule</b>	Tuesdays and Fridays   1:05 pm - 2:25 pm
<b>Location</b>	Lyman Duff Amphitheatre 1
<b>Number of credits</b>	3
<b>Course Coordinator</b>	Samantha Gruenheid ( <a href="mailto:samantha.gruenheid@mcgill.ca">samantha.gruenheid@mcgill.ca</a> )
<b>Course co-designer</b>	Jasmin Chahal
<b>Teaching Assistant</b>	Evelyne Côté ( <a href="mailto:evelyne.cote@mail.mcgill.ca">evelyne.cote@mail.mcgill.ca</a> ) – For questions, please contact through MyCourses.
<b>Office hours</b>	By email, Zoom, or in-person meeting (appointment needed)

**COURSE DESCRIPTION**

Over the past three decades, science and business have united to give rise to innovative start-up biotech companies, which have since become the driving force behind scientific innovation. It has become evident that many pioneering scientific institutions are strengthened by a productive interaction between academia and industry or with other actors of the private sector. This course will present the business side of science, with an emphasis on the beneficial relationships between academia and industry, and the process and challenges of moving new therapeutics from bench to bedside. This course is designed to encourage dialogue between speakers and students, as well as teach students how to make quality decisions based on critical thinking when forming opinions on topics in science and business.

**LEARNING OUTCOMES**

This course offers students a rare opportunity to interact, question, and network with experts from various public and private disciplines to understand the business aspects of the health and biomedical sectors. By the end of the course, students should be able to:

- Understand the stages of advancement of basic scientific discoveries toward successful marketable products.
- Explore the regulatory and financial challenges faced by the scientific world.
- Appreciate career paths beyond academia in the scientific field.
- Recall prior scientific knowledge to critically analyze controversial scientific issues.
- Develop a balanced viewpoint and an educated opinion on subjects when a correct response may lie in the grey area.
- Communicate an educated opinion about various policies.
- Participate in conversations about various scientific issues in the business of science.

### **INSTRUCTIONAL METHOD**

Lectures will be delivered in person or, when necessary, via Zoom. Each lecture will consist of a presentation (approximately 1 hr), followed by a discussion/Q&A period with the lecturer.

### **COURSE MATERIAL**

No textbook is required for this course. Readings and PowerPoint/PDF slides from individual lectures will be posted on myCourses. It's important to note that students are expected to **attend and participate** in all lectures. Expressing your opinion in class throughout the semester is **strongly encouraged** as it creates a dynamic class environment.

### **COURSE EVALUATION**

**Group presentation:** 15% of course grade

**Feedback on five other group presentations:** 5% of course grade (1% each)

**3-2-1 Assignments:** 10% of course grade (1% each for 10 lectures of your choice)

**Midterm exam:** (Lectures 1-5 and 7-12): Multiple choice questions, 35% of course grade

**Final exam:** (lectures 16-19 and 23-25): Multiple choice questions, 35% of course grade

### **MIMM DEPARTMENT MISSED- MID TERM POLICY**

Students unable to attend the mid-term exam due to medical or non-medical reasons must submit a request for missing the exam WITHIN 1 week of the scheduled mid-term. Students who fail to do so will receive a grade of ZERO for the mid-term. Students must make the request by completing the missed mid-term exam webform available on the MIMM Department [website](#). The Department will evaluate any medical and non-medical situations and reserves the right to make any final decisions regarding what accommodations are reasonable and appropriate in the circumstances.

The following reasons are generally accepted, provided proper documentation:

- Religious conflict
- Health/medical - **medical note must be dated along with the date of the midterm exam**

- Death in the family
- Serious illness/accident in the family
- Intercollegiate event
- Job interview
- Faculty-sponsored events held outside of Montreal

The following reasons are generally **not accepted**:

- Travel not related to above issues, such as family birthdays, reunions, vacations.
- Two exams on the same day.
- Misreading of the course outline.
- Having many other exams / assignments in the same week.
- Obligations to student clubs or sports teams other than intercollegiate events discussed above.
- Employment obligations.

For more information on submitting a request, please go to the Department website at [www.mcgill.ca/microimm/undergraduate-studies](http://www.mcgill.ca/microimm/undergraduate-studies).

### **AVAILABLE RESOURCES**

- **Health and wellness.** Student wellbeing is a priority for the University. To help students find the support they need as quickly as possible, all of McGill's health and wellness resources have been integrated into a single **Student Wellness Hub**, a one-stop shop for everything related to physical and mental health. If you need access to services or would like more information, you are strongly encouraged to visit the Virtual Hub: <https://www.mcgill.ca/wellness-hub/>.
- **McGill library.** Discover the McGill Library's rich array of resources. Watch a short welcome video in English, French, Arabic, Chinese, Hindi, Persian, Spanish, or Urdu: <https://www.mcgill.ca/library/orientation>

### **MCGILL POLICY STATEMENTS**

1. ***McGill University values academic integrity. Therefore, all students must understand the meaning and consequences of cheating, plagiarism and other academic offences under the Code of Student Conduct and Disciplinary Procedures (see [www.mcgill.ca/students/srr/honest/](http://www.mcgill.ca/students/srr/honest/) for more information).*** (approved by Senate on 29 January 2003)  
*"L'université McGill attache une haute importance à l'honnêteté académique. Il incombe par conséquent à tous les étudiants de comprendre ce que l'on entend par tricherie, plagiat et autres infractions académiques, ainsi que les conséquences que peuvent avoir de telles actions, selon le Code de conduite de l'étudiant et des procédures disciplinaires (pour de plus amples renseignements, veuillez consulter le site [www.mcgill.ca/students/srr/honest/](http://www.mcgill.ca/students/srr/honest/))."*
2. ***In accord with McGill University's Charter of Students' Rights, students in this course have the right to submit in English or in French any written work that is to be graded.*** (approved

*by Senate on 21 January 2009 - see also the section in this document on Assignments and evaluation.)*

*"Conformément à la Charte des droits de l'étudiant de l'Université McGill, chaque étudiant a le droit de soumettre en français ou en anglais tout travail écrit devant être noté (sauf dans le cas des cours dont l'un des objets est la maîtrise d'une langue)."*

3. In the event of extraordinary circumstances beyond the University's control, the content and/or the evaluation scheme in this course is subject to change.
4. McGill has policies on sustainability, paper use, and other initiatives to promote a culture of sustainability at McGill.
5. Students with disabilities should contact the Office for Student Accessibility and Achievement (SAA) (514-398-6009 or [access.achieve@mcgill.ca](mailto:access.achieve@mcgill.ca)). These students should also contact the instructor to arrange a time to discuss their situation.
6. © Instructor generated course materials (e.g. handouts, notes, summaries, exam questions, etc.) are protected by law and may not be copied or distributed in any form of medium without explicit permission of the instructor. Note that infringements of copyright can be subjected to follow up by the University under the Code of Student Conduct and Disciplinary Procedures.
7. End-of-course evaluations are one of the ways that McGill works toward maintaining and improving the quality of courses and the student's learning experience. You will be notified by email when the evaluations are available on Mercury, the online course evaluation system. Please note that a minimum number of responses must be received for results to be available to students.
8. Additional policies governing academic issues which affect students can be found in the McGill Charter of Students' Rights and Responsibilities:  
<https://www.mcgill.ca/students/srr/policies-student-rights-and-responsibilities>

**COURSE CONTENT AND CALENDAR**

DATE		TOPIC	LECTURER
1	F Jan 6	Introduction and Overview	<b>Dr. Samantha Gruenheid</b> Professor & Chair, Department of Microbiology and Immunology, McGill
2	T Jan 10	Clinical Research in Drug Development	<b>Dr. Angela Genge, MD</b> Executive Director of the Clinical Research Unit, MNI
3	F Jan 13	Separating Sense from Nonsense in Science	<b>Dr. Joe Schwarcz</b> Professor, Department of Chemistry, McGill
4	T Jan 17	The Business of an Academic Career	<b>Dr. Samantha Gruenheid</b> Professor & Chair, Department of Microbiology and Immunology
5	F Jan 20	Should I protect my innovations? Who to consult?	<b>Mr. Christian Cawthorn</b> Partner, Patent Agent, Norton Rose Fulbright Law Firm
6	T Jan 24	TBD	<b>Dr. Samantha Gruenheid</b> Professor & Chair, Department of Microbiology and Immunology
7	F Jan 27	Ethical Issues in Vaccine Programs	<b>Dr. Brian Ward, MDCM, DMT&amp;H</b> Research Institute – McGill University Health Centre
8	T Jan 31	How Science Gave Us the Tools to Eliminate a Human Cancer	<b>Dr. Eduardo Franco</b> Chair, Department of Oncology, McGill
9	F Feb 3	The Business of Scientific Publishing	<b>Dr. Eduardo Franco</b> Chair, Department of Oncology, McGill
10	T Feb 7	Biotechnology Patents and Open Science (Lecture will be Online)	<b>Mr. Richard Gold</b> Professor, Faculty of Law, McGill
11	F Feb 10	Discovery to Cure: The Science of Antiviral Therapy	<b>Dr. George Kukolj</b> Head of Infectious Diseases Discovery, Janssen Biopharma Inc
12	T Feb 14	Academic-Industry Collaborations	<b>Dr. Brian Ward, MDCM, DMT&amp;H</b> Research Institute – McGill University Health Centre
13	F Feb 17	Special Topics	<b>Group Presentations</b>
14	T Feb 21	Special Topics	<b>Group Presentations</b>
15	F Feb 24	<b>Midterm Exam on Lectures 1-13</b>	
	Feb 27-Mar 3	<b>READING WEEK</b>	<b>NO CLASSES</b>
16	T Mar 7	Placebo Effect	<b>Dr. Jay Olson</b> Psychology, Harvard University
17	F Mar 10	AI in Healthcare	<b>Dr. Alexandre Le Bouthillier</b> Co-founder & partner, Linearis
18	T Mar 14	TBD	<b>Dr. Michael Cordingley</b> CSO, Transposon Therapeutics Inc.
19	F Mar 17	The Business of Science: A Generics Perspective	<b>Ms. Leonor Ferreira</b> President, Leonor Ferreira Consulting Inc.
20	T Mar 21	Special Topics	<b>Group Presentations</b>
21	F Mar 24	Special Topics	<b>Group Presentations</b>
22	T Mar 28	Special Topics	<b>Group Presentations</b>
23	F Mar 31	New Drugs in MS	<b>Dr. Jack Antel, MD</b> Former Chairman, Neurology and Neurosurgery, MNI
24	T Apr 4	Transitioning from Academia to Industry	<b>Dr. Kelly Pike</b> Adjunct Professor, MIMM, McGill & Associate Director, Biology, Ventus Therapeutics
	F Apr 7	<b>GOOD FRIDAY</b>	<b>NO CLASSES</b>
25	T Apr 11	TBD	TBD
	Apr 14-30	<b>Final Exam</b>	