



MCB*6310 Advanced Topics in Molecular and Cellular Biology

Fall 2023
Section(s): C01

Department of Molecular and Cellular Biology

Credit Weight: 0.50

Version 1.00 - September 07, 2023

1 Course Details

1.1 Calendar Description

This course will consider fundamental cellular processes from multiple perspectives: biochemistry, cell biology, microbiology, molecular biology and genetics, and plant biology. Topics will vary from semester to semester but a multi-disciplinary approach to advanced concepts and experimental strategies will be a common theme.

1.2 Course Description

Description:

With its incredible cellular and functional complexity, the brain has been almost impossible to study with rigor for generations of thinkers and researchers. However, with the invention of more sophisticated staining and microscopy techniques at the turn of the 19th century, modern neuroscience was finally launched and the course set towards some of the most fascinating discoveries in science history. In this graduate level course, we will focus on multiple parts of modern neuroscience to learn about key concepts and the scientists that proposed them. As we progress with this historical approach, our real objective will be to stimulate discussions about the scientific method and how unconventional ideas or strategies often stimulated progress. Furthermore, with many other major discoveries to surely come in future years about the brain in health and disease—like the development of effective treatments against neurodegenerative disorders or the ability to increase sensorimotor and cognitive performance artificially—we will aim to stimulate reflections on how those advances could impact our life and society.

Most importantly, although we will discuss a wide range of topics related to neuron biology and the nervous systems, this course is intended for any graduate trainee in the department that is curious about biological sciences in general. Ultimately, we hope to attract as many students as possible from all disciplines across MCB in order to provide a multitude of viewpoints during discussions.

1.3 Timetable

Classes are Mondays (starting September 11), 2:30 - 5:20 pm in SSC 3317.

1.4 Final Exam

There is no final exam for this course.

2 Instructional Support

2.1 Instructional Support Team

Instructor:	Jasmin Lalonde
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3 Learning Resources

3.1 Recommended Resources

CourseLink (Website)

<https://courselink.uoguelph.ca>

Course material, news, announcements, and grades will be regularly posted to the MCB*6310 CourseLink site. You are responsible for checking the site regularly.

NCBI Pubmed (Website)

<https://pubmed.ncbi.nlm.nih.gov/>

This site will be the primary resource for the preparation of your lecture and essay.

Society for Neuroscience – The History of Neuroscience (Website)

<https://www.sfn.org/about/history>

This site is an additional resource for the preparation of your lecture assignment

3.2 Additional Resources

Writing Resources (Other)

<https://www.lib.uoguelph.ca/writing-studying/writing-resources-workshops>

The University of Guelph Library provides an array of writing resources and workshops. Participants are encouraged to consult these resources when preparing the grant review document for this class.

4 Learning Outcomes

4.1 Course Learning Outcomes

By the end of this course, you should be able to:

1. Understand the importance of specific conceptual and methodological scientific discoveries on the advancement of neuroscience and closely related fields (e.g., cell biology, biochemistry, pharmacology, etc).
 2. Gain an appreciation of emerging methods and their application to related fields.
 3. Reflect and articulate a personal opinion, supported by facts and evidence, about how rapid progress in basic neurosciences and/or treatment of brain disorders could offer inestimable promises or deceiving challenges to our lives and society.
 4.
 - Improve presentation skills
 - learn how to structure a lecture
 - Gain comfort asking questions during group discussions
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5 Teaching and Learning Activities

5.1 Schedule of Activities

Draft schedule - subject to change

September 11

Introduction & Topic Selection

September 18

Demo lecture

Topic: Interaction of neurons and glial cells in the nervous system; the tripartite synapse.
Suggested key researchers: Ben Barres, Phillip Haydon

Journal club presentation 1

September 25

Journal club presentation 2

Journal club presentation 3

Student lecture 1

October 2

Journal club presentation 4

Student lecture 2

Student lecture 3

October 9

Thanksgiving weekend (no class)

October 16

Journal club presentation 5

Student lecture 4

Student lecture 5

October 23

Journal club presentation 6

Student lecture 6

Student lecture 7

October 30

Journal club presentation 7

Student lecture 8

Student lecture 9

November 6

Journal club presentation 8

Student lecture 10

Student lecture 11

November 13

Journal club presentation 9

Student lecture 12

Student lecture 13

November 20

Journal club presentation 10

Journal club presentation 11

Journal club presentation 12

November 27

Journal club presentation 13

Final assignment support

6 Assessments

6.1 Marking Schemes & Distributions

Tentative

1. Journal club presentation: 20%
2. Lecture presentation and leading of group discussion: 35%
3. Final assessment - Essay: 35%
4. Overall participation: 10%

6.2 Submitting Semester Assignment

You will have 1 marked assignment this semester worth 35% of your final grade. This assignment is to be submitted electronically on **December 4th** at noon (12:00PM). Beginning at 12:01PM (according to the time-stamp of submission), each 24-hr delay will result in 25% automatic deduction in the assignment grade. If the assignment is submitted 3 days and 1 minute past the due date, then it will not be graded. **IMPORTANT NOTE:** By registering for this course you are agreeing to the deadlines set out in the course outline. Also, it is the sole responsibility of the student to ensure the file they've uploaded is not corrupted and is accessible to the instructor and TAs. Any file found to be corrupted during the marking period will automatically receive a 0 for the assignment. The University is seeing increasing cases of students using online 'corruption services' to get an additional extension. These cases are being deemed fraud and are a form of academic misconduct.

7 Department of Molecular and Cellular Biology Statements

7.1 Academic Advisors

If you are concerned about any aspect of your academic program:

- Make an appointment with a program counsellor in your degree program. [B.Sc. Academic Advising](#) or [Program Counsellors](#)

7.2 Academic Support

If you are struggling to succeed academically:

- Learning Commons: There are numerous academic resources offered by the Learning Commons including, Supported Learning Groups for a variety of courses, workshops related to time management, taking multiple choice exams, and general study skills. You can also set up individualized appointments with a learning specialist.
<http://www.learningcommons.uoguelph.ca/>
- Science Commons: Located in the library, the Science Commons provides support for physics, mathematic/statistics, and chemistry. Details on their hours of operations can be found at: <http://www.lib.uoguelph.ca/get-assistance/studying/chemistry-physics-help> and <http://www.lib.uoguelph.ca/get-assistance/studying/math-stats-help>

7.3 Wellness

If you are struggling with personal or health issues:

- Counselling services offers individualized appointments to help students work through personal struggles that may be impacting their academic performance.
<https://www.uoguelph.ca/counselling/>
- Student Health Services is located on campus and is available to provide medical attention. <https://www.uoguelph.ca/studenthealthservices/clinic>
- For support related to stress and anxiety, besides Health Services and Counselling Services, Kathy Somers runs training workshops and one-on-one sessions related to stress management and high performance situations.
<http://www.selfregulationskills.ca/>

7.4 Personal information

Personal information is collected under the authority of the University of Guelph Act (1964), and in accordance with Ontario's Freedom of Information and Protection of Privacy Act (FIPPA) <http://www.e-laws.gov.on.ca/index.html>. This information is used by University officials in order to carry out their authorized academic and administrative responsibilities and also to establish a relationship for alumni and development purposes.

For more information regarding the Collection, Use and Disclosure of Personal Information policies please see the Undergraduate Calendar. (<https://www.uoguelph.ca/registrar/calendars/undergraduate/current/intro/index.shtml>)

7.5 Course Offering Information Disclaimer

Please note that course delivery format (face-to-face vs online) is subject to change up to the first-class day depending on requirements placed on the University and its employees by public health bodies, and local, provincial and federal governments. Any changes to course format prior to the first class will be posted on WebAdvisor/Student Planning as they become available.

8 University Statements

8.1 Email Communication

As per university regulations, all students are required to check their e-mail account regularly: e-mail is the official route of communication between the University and its students.

8.2 When You Cannot Meet a Course Requirement

When you find yourself unable to meet an in-course requirement because of illness or compassionate reasons please advise the course instructor (or designated person, such as a teaching assistant) in writing, with your name, id#, and e-mail contact. The grounds for Academic Consideration are detailed in the Undergraduate and Graduate Calendars.

Undergraduate Calendar - Academic Consideration and Appeals

<https://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-ac.shtml>

Graduate Calendar - Grounds for Academic Consideration

<https://www.uoguelph.ca/registrar/calendars/graduate/current/genreg/index.shtml>

Associate Diploma Calendar - Academic Consideration, Appeals and Petitions

<https://www.uoguelph.ca/registrar/calendars/diploma/current/index.shtml>

8.3 Drop Date

Students will have until the last day of classes to drop courses without academic penalty. The deadline to drop two-semester courses will be the last day of classes in the second semester. This applies to all students (undergraduate, graduate and diploma) except for Doctor of Veterinary Medicine and Associate Diploma in Veterinary Technology (conventional and alternative delivery) students. The regulations and procedures for course registration are available in their respective Academic Calendars.

Undergraduate Calendar - Dropping Courses

<https://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-drop.shtml>

Graduate Calendar - Registration Changes

<https://www.uoguelph.ca/registrar/calendars/graduate/current/genreg/genreg-reg-regchg.shtml>

Associate Diploma Calendar - Dropping Courses

<https://www.uoguelph.ca/registrar/calendars/diploma/current/c08/c08-drop.shtml>

8.4 Copies of Out-of-class Assignments

Keep paper and/or other reliable back-up copies of all out-of-class assignments: you may be asked to resubmit work at any time.

8.5 Accessibility

The University promotes the full participation of students who experience disabilities in their academic programs. To that end, the provision of academic accommodation is a shared responsibility between the University and the student.

When accommodations are needed, the student is required to first register with Student Accessibility Services (SAS). Documentation to substantiate the existence of a disability is required; however, interim accommodations may be possible while that process is underway.

Accommodations are available for both permanent and temporary disabilities. It should be noted that common illnesses such as a cold or the flu do not constitute a disability.

Use of the SAS Exam Centre requires students to make a booking at least 14 days in advance, and no later than November 1 (fall), March 1 (winter) or July 1 (summer). Similarly, new or changed accommodations for online quizzes, tests and exams must be approved at least a week ahead of time.

For Guelph students, information can be found on the SAS website
<https://www.uoguelph.ca/sas>

For Ridgetown students, information can be found on the Ridgetown SAS website
<https://www.ridgetownc.com/services/accessibilityservices.cfm>

8.6 Academic Integrity

The University of Guelph is committed to upholding the highest standards of academic integrity, and it is the responsibility of all members of the University community—faculty, staff, and students—to be aware of what constitutes academic misconduct and to do as much as possible to prevent academic offences from occurring. University of Guelph students have the responsibility of abiding by the University's policy on academic misconduct regardless of their location of study; faculty, staff, and students have the responsibility of supporting an environment that encourages academic integrity. Students need to remain aware that instructors have access to and the right to use electronic and other means of detection.

Please note: Whether or not a student intended to commit academic misconduct is not relevant for a finding of guilt. Hurried or careless submission of assignments does not excuse students from responsibility for verifying the academic integrity of their work before submitting it. Students who are in any doubt as to whether an action on their part could be construed as an academic offence should consult with a faculty member or faculty advisor.

Undergraduate Calendar - Academic Misconduct

<https://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-amisconduct.shtml>

Graduate Calendar - Academic Misconduct

<https://www.uoguelph.ca/registrar/calendars/graduate/current/genreg/index.shtml>

8.7 Recording of Materials

Presentations that are made in relation to course work - including lectures - cannot be recorded or copied without the permission of the presenter, whether the instructor, a student, or guest lecturer. Material recorded with permission is restricted to use for that course unless further permission is granted.

8.8 Resources

The Academic Calendars are the source of information about the University of Guelph's procedures, policies, and regulations that apply to undergraduate, graduate, and diploma programs.

Academic Calendars

<https://www.uoguelph.ca/academics/calendars>

8.9 Illness

Medical notes will not normally be required for singular instances of academic consideration, although students may be required to provide supporting documentation for multiple missed assessments or when involving a large part of a course (e.g.. final exam or major assignment).
