



COLLEGE of BIOLOGICAL SCIENCE

DEPARTMENT OF MOLECULAR
AND CELLULAR BIOLOGY

COURSE OUTLINE

MCB*6310: Advanced Topics in Molecular and Cellular Biology [0.5] Fall 2018

Course description

This course explores *recent advances in microbial genetics and biotechnology*, including an overview of useful genetic tools, resources, and applications. These advances have revolutionized microbial molecular biology and genetics, allowing for a systems level study of biological processes in microorganisms and the development of new diagnostics and therapeutics.

Instructors

Dr. Georgina Cox; SSC 4424; gcox@uoguelph.ca

Dr. Rebecca Shapiro; SSC 3248; shapiror@uoguelph.ca

Course format

This course will consist of a lecture from each of the faculty instructors followed by research presentations by the students. The faculty members will assign research papers that complement the course topic. Each student is required to read all of the assigned research papers and the presentations will be done individually. Each student is expected to participate in each of the student presentations by submitting two questions for every paper they are not presenting by noon of the day before class, a subset of these questions will then be selected by the instructors and the student presenting will be required to provide an answer. The format of the student presentations will be a description and critique of each of the papers followed by a group discussion. This course will also feature a guest lecture by Dr. Keith Pardee, University of Toronto. Each student will be required to ask a question to Dr. Pardee, based on his lecture, during a round table discussion (this will contribute toward class participation).

A second component of this course will involve exposure to the peer-review process, an important component of publishing scientific findings. A new avenue in communicating scientific research involves the posting of scientific papers online before peer review. BioRxiv is a preprint server for biology that is growing in popularity. The

instructors will provide the students with a paper each (that falls within the theme of this course) from BioRxiv. Each student will peer review and submit a 2-pg evaluation of their paper. Students will also be required to identify a suitable journal for the hypothetical publication of their paper. Each student will present their paper and peer review assessment to the class in a 15 minute presentation.

Course schedule – Thursday 2:30 pm – 5:30 pm

Date & Time	Location	Description
September 6 th 2:30 pm	SSC 1304	Introduction to the course and a lecture from Dr. Cox and Dr. Shapiro
September 13 th	NA	<i>No class</i>
September 20 th 2:30 pm	SSC 1304	Student presentation 1 and 2
September 27 th 2:30 pm	SSC 1304	Student presentation 3 and 4
October 4 th	NA	<i>No class</i>
October 11 th 2:30pm	SSC 1304	Student presentation 5 and 6
October 18 th 2:30pm	SSC 1304	Student presentation 7 and 8
October 25 th 2:30pm	SSC 1304	Student presentation 9 and 10
October 4 th 2:30pm	SSC 1304	Student presentation 11 and 12
November 1 st 2:30 pm	SSC 1304	Student presentation 13 and 14
November 8 th 1 pm – 4 pm* *NOTE time change	SSC 2315	Dr. Pardee guest lecture and round table discussion
November 15 th 2:30 pm	SSC 2315SSC 2315	15 min presentation (with 5 min for Q's) on BioRxiv review - <u>BioRxiv critical review due by 12 pm</u>
November 22 nd 2:30 pm	SSC 1304	15 min presentation (with 5 min for Q's) on BioRxiv review
November 29 th 2:30 pm	SSC 1304	15 min presentation (with 5 min for Q's) on BioRxiv review

Learning outcomes

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

1. Apply a comprehensive understanding of the major advances made in *microbial genetics and biotechnology*
2. Evaluate the different techniques and applications
3. Critically assess the methodology and feasibility
4. Describe and justify suitable experimental controls
5. Effectively peer-review research articles and gain a thorough understanding of the scope and appropriateness of different research journals

Course resources

Primary research articles for in-class presentations

Research papers will be provided in PDF format two weeks ahead of time on CourseLink. It will be each student's responsibility to locate these articles using online resources to access any Supplemental Information associated with the paper that may not be included in the PDF version.

Methods of Assessment

Assessment	% of final grade	Date	Activity	Learning outcomes assessed
Class presentations	30%	September 20 th – November 1 st	45 min research article presentation with 20 min for questions	1-4
Class participations	20%	September 20 th – November 8 th	Submitted questions and roundtable discussion	1-4
Written peer-review assessment	30%	Due November 15 th by 12 pm	Peer-review assessment and selection of journal	1-5
Oral presentation of peer-review assessment	20%	November 15 th – November 29 th	15 min presentation with 5 min for questions	1-5

Course and University Policies

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 in writing, with your name, id#, and e-mail contact, and be prepared to provide supporting documentation. See the undergraduate calendar for information on regulations and procedures for Academic Consideration:

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

The nature of the consideration will depend on the specific circumstances but a likely outcome would be to have the final exam reweighted to include the value of the missed assessment.

Accessibility

The University of Guelph is committed to creating a barrier-free environment. Providing services for students is a shared responsibility among students, faculty and administrators. This relationship is based on respect of individual rights, the dignity of the individual and the University community's shared commitment to an open and supportive learning environment. Students requiring service or accommodation, whether due to an identified, ongoing disability or a short-term disability should contact the Centre for Students with Disabilities (soon to be renamed Student Accessibility Services) as soon as possible.

For more information, contact CSD at 519-824-4120 ext. 56208 or email csd@uoguelph.ca or see the website: <http://www.csd.uoguelph.ca/csd/>.

Academic Misconduct

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 discourages misconduct. 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.

The Academic Misconduct Policy is detailed in the Undergraduate Calendar:

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

E-mail Communication

As per university regulations, all students are required to check their <mail.uoguelph.ca> e-mail account regularly: e-mail is the official route of communication between the University and its students. Course instructors are not obliged to answer course-related emails from students that do not originate from official university student email accounts.

Drop Date

The last date to drop one-semester courses this fall, without academic penalty, is November 2nd, 2018 (the 40th class day). For regulations and procedures for Dropping Courses, see the Undergraduate Calendar: <http://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-drop.shtml>

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.

Recording of Materials

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

Grading

Missed lecture or laboratory material as a result of absence is your responsibility. Grades will be assigned according to the standards outlined in the University of Guelph Undergraduate Calendar.

Campus Resources

The Academic Calendar is the source of information about the University of Guelph's procedures, policies and regulations which apply to undergraduate, graduate and diploma programs:

<http://www.uoguelph.ca/registrar/calendars/index.cfm?index>

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

make an appointment with a program counsellor in your degree program.

<http://www.bsc.uoguelph.ca/index.shtml> or <https://www.uoguelph.ca/uaic/programcounsellors>

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If you are struggling to succeed academically:

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/>

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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.uoguelph.ca/~ksomers/>

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If you have a documented disability or think you may have a disability:

The Centre for Students with Disabilities (CSD) can provide services and support for students with a documented learning or physical disability. They can also provide information about how to be tested for a learning disability. For more information, including how to register with the centre please see:

<https://www.uoguelph.ca/csd/>