MCB*4600 Topics in Molecular and Cellular Biology

Summer 2023
Section(s): 01

Department of Molecular and Cellular Biology
Credit Weight: 0.50
Version 1.00 - May 18, 2023

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1 Course Details

1.1 Calendar Description

This course involves the independent study of a current topic in Molecular and Cellular Biology, selected from the recent research literature and involving a review and critical appraisal of the area. The course comprises independent library research, participation in weekly meetings, and written and oral presentations. Students should make arrangements with both faculty advisor and the course coordinator in a prior course selection period.

Pre-Requisites:	MBG*3350 or equivalent laboratory experience at the discretion of the student's faculty advisor. Normally, students must have a minimum of 3.00 credits in 3000 or 4000 level BIOC, MBG, MCB OR MICR courses
Restrictions:	Students in programs offering topics courses cannot enroll in MCB*4600. Coordinator consent required.

1.2 Course Description

Independent study of a current topic in Molecular and Cellular Biology, selected from the recent research literature and involving a review and critical appraisal of the area. The course comprises independent library research, participation in weekly meetings, and written and oral presentations. Students should make arrangements with both faculty supervisor and the course coordinator in a prior course selection period. Open to students in semesters 6, 7, and 8 of the B.Sc. Majors in the molecular biosciences, Department of Molecular and Cellular Biology.

1.3 Timetable

Each student must meet with their advisor at least once per week to discuss their progress in reviewing the literature, writing the report and preparing for the oral presentation. Over the semester students are expected to demonstrate appropriate understanding of the relevant literature and develop new levels of understanding by identifying specific areas of knowledge that need research. The student is expected to formulate new research questions, and

propose research plans (including experimental design, and data analysis) to address their questions.

1.4 Final Exam

There is no final exam for this course.

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2 Instructional Support

2.1 Instructional Support Team

Course Co-ordinator:	Andrew Bendall
Email:	abendall@uoguelph.ca
Office:	SSC 3459
Office Hours:	Please contact me by email for any course-related issues.

- Students are expected to complete all arrangements with a faculty supervisor and submit a signed Research Agreement to the Coordinator before the first week of classes.
- Your Faculty Advisor is the most important member of your Teaching team. Students should be sure that they know how to contact them for guidance and advice.

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3 Learning Resources

3.1 Required Resources

Courselink (Website)

https://courselink.uoguelph.ca

There is a Courselink site for this course. Information on the Courselink site include:

- Deadlines for all assignments in the Courselink Calendar
- Assignment outlines, grading sheets, announcements

3.2 Recommended Resources

High speed internet connection (Equipment)

Although high speed connection to the internet is not required, it is highly recommended so that a better online experience with the tools, videos, and other materials used in the course can be achieved.

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4 Learning Outcomes

An independent study of a selected topic in biochemistry, molecular biology, genetics, or microbiology, involving a review, critical appraisal of the current literature and **proposals for future research**. These courses are intended to develop the student's ability to independently read and critically assess the current scientific literature. Students will be expected to integrate knowledge gained from previous courses in examining a topic of interest. Students will present their analysis orally and in writing. The production of a well-written research review article and a public oral presentation are the focus of this course.

4.1 Course Learning Outcomes

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

1. **Problem Solving and Critical Thinking:** Gather and critically assess the primary scientific literature in order to complete a literature review and research proposal in their chosen research field.
2. **Communication:** Compose a written literature review and research proposal. Communicate their findings in an oral presentation and answer questions from an audience of peers and faculty.
3. **Professional and Ethical Behaviour:** Work independently under the supervision of a faculty advisor, taking responsibility for their own research. Demonstrate good work ethic by setting goals and meeting deadlines.
4. **Scientific Method**: Interpret published scientific data, identify gaps in knowledge, generate hypotheses and research questions, and identify experimental strategies for advancing a field of study.
5. **Breadth and Depth of Understanding in a Particular Discipline**: Demonstrate advanced and contemporary knowledge in the research area of their choice through written and oral communication.
6. **Scientific Technology and Techniques in a Scientific Discipline**: Design experiments using contemporary techniques and technologies as reported through a research proposal and oral presentation.

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5 Teaching and Learning Activities

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6 Assessments

Students can find additional guidelines and rubrics for Assessments on CourseLink.

6.1 Assessment Details

Outline of Research Topics and Plan (5%)
Due: Fri, Jun 2, 4:00 PM, Dropbox
Grader: Coordinator

Synopsis of Research Progress (5%)
Due: Fri, Jun 30, 4:00 PM, Dropbox
Grader: Coordinator

Final Oral Presentation (30%)
Due: TBD, Dropbox
Seminars will be scheduled for a mutually convenient time but tentatively on July 31 or August 1

Graders: Faculty Advisor + one other faculty member

Project Report (30%)
Due: Fri, Aug 4, 4:00 PM, Dropbox
Graders: Faculty advisor + one other faculty member

Semester Performance (30%)
Date: Fri, Aug 4
Grader: Faculty Advisor

6.2 Outline of Research Topics and Plan

- Topic Selection-Outline: Students will discuss the choice of topic with their course advisor. Start with a clear idea of the questions you are trying to answer in your topic (Usually a more specific idea is easier to research and to write about than a general topic). The student must write an outline (about 1-2 pages) of the proposed independent study topic. When completed, the outline with title and the advisor must be submitted to the course coordinator.
- Some suggestions for the research outline: The outline is meant to be viewed only as a proposed Topics Research plan. Students should clearly identify the planned focus of the research topic and its context. Make sure to include your references. Include the following as appropriate:
    State the research focus as questions or hypotheses you would like to try to answer in the research.
    What are the subtopics within your main topic?
    Identify important authors and relevant articles you expect to examine, who are the leaders in the area? Are there experts (other than your advisor) with whom you might consult?
- If you cannot meet the posted deadline, please email the coordinator **ahead of time** to make a plan for submission.

6.3 Synopsis of Research Progress

- Topic Progress Synopsis: A researcher should always review the progress of a project from time to time. The actual research readings may suggest new directions not anticipated at the outset. A mid-semester synopsis of this progress review is required. Students should use their original Topic Outline and report to the Coordinator on the questions/hypotheses, subtopics and authors/experts that have been reviewed. Provide information on any new research planned by you. Make sure to include all your references.
- If you cannot meet the posted deadline, please email the coordinator **ahead of time** to make a plan for submission.

6.4 Review Article

- The Review Article: The article should clearly identify the focus of study, critically review and evaluate the relevant literature. The article should be written in concise and sufficiently nontechnical language to be intelligible both to general biologists and to specialists in other fields. The article should have no more than 20 pages of manuscript text.
- Extra pages are allowed for the title page, list of references, figures and tables. The article must contain an abstract, of less than 100 words, summarizing the contents of the paper. Text is to be double-spaced with 2.5 cm margins on all sides. The text font should be similar to the font used in this sentence. Review articles in the journal *Cell* may be used as a model for style with respect to (1) section headings in the text, (2) literature citations in the text, and (3) list of references. Consult the journal “Instructions to Authors” for details.
- The written paper must be submitted to your Dropbox on Courselink as a PDF file on or before the deadline. If you cannot meet the posted deadline, please email the coordinator **ahead of time** to make a plan for submission.

6.5 Oral Presentation

- The oral presentation should highlight the main features of the topic chosen for independent study including any new research plans described in the review article. The oral presentation will be given in a colloquium arranged for this purpose before interested members of the Department of Molecular and Cellular Biology. The course coordinator will schedule the time and location of the seminars. Upload your presentations to your Dropbox on Courselink at the time to be announced by the Coordinator. Microsoft PowerPoint is the recommended software.
- The oral presentation is to be 20 minutes in length, followed by a 10-minute question

period. Marks are deducted if a seminar deviates significantly from the time allowed. Students must attend all of the oral presentations in their chosen session of the MCB Projects/Topics colloquium.

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7 Course Statements

7.1 Resolving Conflict

Working in teams can involve differences of opinions or personalities. If you experience a conflict with your faculty advisor that you are not able to resolve on your own, contact the Chair of the Department of Molecular and Cellular Biology for advice and assistance.

7.2 Turnitin

- In this course, we will be using Turnitin, integrated with the CourseLink Dropbox tool, to detect possible plagiarism, unauthorized collaboration or copying as part of the ongoing efforts to maintain academic integrity at the University of Guelph.
- All submitted assignments will be included as source documents in the Turnitin.com reference database solely for the purpose of detecting plagiarism of such papers. Use of the Turnitin.com service is subject to the Usage Policy posted on the Turnitin.com site.
- A major benefit of using Turnitin is that students can educate and empower themselves in preventing academic misconduct. In this course, you may screen your own assignments through Turnitin as many times as you wish before the due date. You will be able to see and print reports that show you exactly where you have properly and improperly referenced the outside sources and materials in your assignment.

7.3 Submission of Assessments to Dropbox

Assessments for this course should be submitted electronically via the online Dropbox tool. When submitting your file using the Dropbox tool, do not leave the page until your file has successfully uploaded. To verify that your submission was complete, you can view the submission history immediately after the upload to see which files uploaded successfully. The system will also email you a receipt. Save this email receipt as proof of submission.
Be sure to keep a back-up copy of all of your files in the event that they are lost in transition. In order to avoid any last-minute computer problems, your instructor strongly recommends you save your files to a cloud-based file storage (e.g., Google Docs), or send to your email account, so that should something happen to your computer, the file could still be submitted on time or re-submitted.
It is your responsibility to submit your documents on time as specified on the Schedule. Be sure to check the technical requirements and make sure you have the proper computer, that you have a supported browser, and that you have reliable Internet access. Remember that

technical difficulty is not an excuse not to turn in your assignment on time. Don't wait until the last minute as you may get behind in your work.

8 Department of Molecular and Cellular Biology Statements

8.1 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

8.2 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

8.3 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/

8.4 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)

8.5 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.

9 University Statements

9.1 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.

9.2 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

9.3 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

9.4 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.

9.5 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

9.6 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

9.7 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.

9.8 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

9.9 Disclaimer

Please note that the ongoing COVID-19 pandemic may necessitate a revision of the format of course offerings, changes in classroom protocols, and academic schedules. Any such changes will be announced via CourseLink and/or class email.

This includes on-campus scheduling during the semester, mid-terms and final examination schedules. All University-wide decisions will be posted on the COVID-19 website (https://news.uoguelph.ca/2019-novel-coronavirus-information/) and circulated by email.

9.10 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).

9.11 Covid-19 Safety Protocols

For information on current safety protocols, follow these links:

- https://news.uoguelph.ca/return-to-campuses/how-u-of-g-is-preparing-for-your-safe-return/
- https://news.uoguelph.ca/return-to-campuses/spaces/#ClassroomSpaces

Please note, these guidelines may be updated as required in response to evolving University, Public Health or government directives.
