

University of Guelph - Department of Molecular and Cellular Biology
MCB*6500 M.Sc. Research Topics in MCB [1.0] and
MCB*7500 Ph.D. Research Topics in MCB [1.0]

Course Outline – Fall 2018

Course Coordinator: Dr. John Vessey

The course will be taught by Drs. John Vessey, Joe Colasanti, Jaideep Mathur and Nina Jones

Welcome to the graduate program in Molecular and Cellular Biology! One of the degree requirements is completion of the two-semester course MCB*6500 (M.Sc.) or MCB*7500 (Ph.D.). In this course, you will prepare a written research proposal related to the development of your thesis project and present it to the department in a seminar. These tasks will help you to develop the writing and oral presentation skills upon which you will be relying, when you prepare and defend your thesis. This document serves as the Course Outline for both MCB*6500 and MCB*7500; the requirements are almost the same. Please read this outline carefully. If you have any questions, please ask the Course Coordinator.

Summary of your tasks:

In the first semester, you will write a **Research Proposal (RP)** describing your research plans. Students present their Research Proposals as departmental seminars at the Friday noon-hour “brown-bag” seminar series. In the first semester (Fall 2018), you will attend the seminar presentations given by the students who started their programs one semester before you (Summer 2018). In the second semester (Winter 2019), you will make your own oral presentation and you will attend the presentations given by your classmates.

The final grade for the course will be weighted as follows:

Research Proposal (RP)	50%
“Brown-bag” Seminar	50%
Total	100%

Grading rubrics:

The grading rubrics for all of the components of the course are posted at:

<https://www.uoguelph.ca/mcb/seminar-series-defences/brown-bag-seminars-mcb6500-and-mcb7500>

The faculty will use these rubrics to evaluate your performance. *You should review them; they provide a guide to the expectations for successful completion of each component of the course.*

Document Format:

RP documents should be prepared single-sided, double-spaced, using a standard 12-point font (e.g., Times New Roman) and 1" margins. Please do not use extra-wide margins and do not leave blank lines between paragraphs. Use a cover page (not numbered). Number the pages.

The Research Proposal (RP):

This component of the course provides you with an opportunity to develop and refine your skills in scientific communication. The emphasis is on writing skills in the context of developing a thesis proposal. You are not expected to present preliminary data from your thesis research.

The RP is prepared under the guidance of your Advisor and Advisory Committee members. The *literature review* section gives an introduction to your area of research, a detailed description of the significance of the research, and a discussion of relevant background literature, focused on the key experiments leading to your proposal. The *research proposal* section includes a clear, testable hypothesis; specific objectives; experimental approaches (including rationale for choice of the experimental systems and techniques); possible pitfalls or limitations (and how they might be circumvented); anticipated outcomes and how they will be interpreted.

For **MCB*6500**, the RP should be *15 pages* in length, consisting of ten pages of literature review and five pages of research proposal. For **MCB*7500**, the RP should be *25 pages* in length, consisting of 15 pages of literature review and ten pages of research proposal. (The title page, references, tables, and figures are not counted as part of the page-length.) Bibliography references must include article titles; please use the same format as the journal *Molecular and Cellular Biology*.

Reproducing some tables and figures from the literature is acceptable, as long as the sources are clearly indicated; however, preparing your own figures is preferable, since that will allow you to focus on the specific message that you want to convey.

RP Submission and Grading:

Submit a **printed** copy of your RP to **each member of your Advisory Committee + two printed copies to the Course Coordinator**. Also deposit an electronic copy (.pdf format) in the Courselink Dropbox. Each member of your Advisory Committee will evaluate your RP independently and submit a grade to the Course Coordinator. These grades will be averaged (grade a). Two members from the faculty panel will submit grades (grades b and c). The three grades (a, b, and c) will be averaged to give the final grade. The RP evaluations will be returned to you two weeks before your brown-bag seminar.

The “Brown-bag” Seminar:

In the second semester, you will make your oral presentation (“brown-bag” seminar, based on your Research Proposal), providing you with the opportunity to develop your skills in scientific communication. You will prepare the seminar under the guidance and direction of your thesis advisor. Your seminar should be 30 min. long; **presentations which deviate more than 5 min from this timing will be penalized 5%.**

Prior to the start of the Winter 2019 semester, you must sign up for a seminar slot: The Graduate Program Assistant, Bertilla Moroni, will send an announcement by email when the sign-up period begins. Students should ensure that their Advisors and Advisory Committee members are available to attend, before confirming their seminar dates.

You must submit (electronically) your seminar title and an abstract (maximum, 250 words) to the Graduate Program Assistant by noon, Wednesday of the week before your seminar. A 5% penalty will be applied for late submissions.

Each member of your Advisory Committee will evaluate the seminar independently and submit a grade to the Course Coordinator. These grades will be averaged (grade a). Two members from the faculty

panel will each submit a grade (grades b and c). The three grades (a, b, and c) will be averaged to give the final grade.

The Roche Award (Roche Molecular Biochemical Award of Excellence)

This award is presented to the graduate student registered in the Department of Molecular and Cellular Biology who has presented the best graduate seminar during the academic year (S/F/W). The results of the student ballot will determine the winner of the Roche prize. Try to give written feedback to the presenters in the student ballot form. Students will appreciate constructive feedback so that they can improve their seminar presentations in the future.

Appendices.

1. Schedule and Checklist
2. Learning Outcomes
3. Policies

Appendix 1. Schedule and Checklist

When?	What?	✓
Friday, Sept. 7, 2018 @12:00 noon SSC 1511	First class meeting. Room: SCIE 1511. All new graduate students are required to attend. <i>Advisors and second-semester graduate students are also welcome to attend.</i>	
Fridays, noon: SSC 1511	Attend the Friday noon “brown-bag” seminar presentations by the (number) Summer 2018-cohort students. The seminar notices will be distributed to MCB department members one week in advance. <u>All</u> students are required to attend <u>all</u> of these seminar presentations. Attendance will be recorded. Any absenteeism should be reported to the course coordinator prior to the date, providing an appropriate reason. An incomplete grade will be assigned for undocumented absenteeism.	
Later in the semester	The Graduate Program Assistant will contact students in the first semester to organize and schedule your seminar slot for next semester. Remember to register again for the second semester of the course.	
Wed. Dec. 12, 2018 Noon	Submit two <u>printed</u> copies of your RP to the Coordinator. Deposit an electronic copy in the Courselink Dropbox. You are also responsible for delivering a copy of your RP to each member of your Advisory Committee. The graded RPs will normally be returned to you two weeks before your “brown-bag” seminar. A penalty of 10% will be applied for any late submission.	

Appendix 2. Learning Outcomes for MCB*6500 and MCB*7500

We are confident that you can already read and learn science; otherwise, you would not be in graduate school! Now, you are moving from passive to *active* involvement in your field. Instead of just learning what other scientists have done, you are now going to be creating new knowledge and putting your own ideas forward.

These courses are focused on the development of your *intellectual independence*. You will be learning how to study the literature: identifying important papers, reading them critically, summarizing them, and thinking about their significance. You will be learning how to *synthesize* what you have read: that is, rather than just reading specific papers or reviews one at a time, and repeating their conclusions, you will be trying to *integrate them into a coherent whole*, making a "mental map" of how they fit together. Perhaps you read a 1996 paper which hypothesized that one particular gene is regulated by another; and a 1999 paper that proved that this hypothesis is correct; but then a 2002 paper said, "No, it's not so". Finally, a 2005 paper resolved the apparent contradiction, by showing that the hypothesis is correct in yeast, but is incorrect in mammals. What you have now assembled is a *narrative*: a sequence of contributions that fit together to make a story, advancing our knowledge of the subject. Making coherent sense out of these distinct facts is *integration*, and learning to do this is an important part of your maturation as a student. Based on your understanding of the state of the field, you will then explain the contribution that you hope to make. Finally, in the seminar, you will convey all these ideas to your audience.

Reading the scientific literature: A naive reader will take everything he or she reads "for granted", as the plain truth. A sophisticated reader recognizes that each writer - even a scrupulously honest author - has a particular point of view, with biases, preconceptions, or misunderstandings that colour his or her work. Sorting out the true from the false, the brilliant from the mediocre, the innovative from the mundane - these are aspects of critical analysis. They are examples of the most general question that we all must grapple with: what is the nature of the "good"?

The understanding and wisdom you are developing as a graduate student will bring little reward unless you can express them in words that others can follow and understand. So, another key aspect of the course is development of your writing skills. Scientific writing is a specialized art: you need to learn the rules and practices of good general writing, and you also need to learn the disciplinary conventions. The skills you develop now will serve you throughout your career - when you write manuscripts, prepare your thesis, and, later, when you write grant applications, contract proposals, technical reports, and so on.

Originality: Your written and oral presentations for this course are understood to be *your own original creative work*. Putting your name on your presentations is a type of warranty, certifying that you are the author of the work and are responsible for its content. Scientists are deeply aware of the problem of plagiarism. This is because our most important outputs are our words, data, and drawings. Baseball players can point to their home runs; contractors can show off the houses they have built; but most scientists can only list their publications - their *ideas*. If someone else takes credit for those ideas, the real author feels violated. A person who advances his or her career by presenting other peoples' ideas as his own is cheating - gaining an undeserved advantage over his or her peers.

Plagiarism can be defined as “using others’ work and misrepresenting that work as your own”. The strategy for steering clear of accusations of plagiarism is the same as the strategy for productive studying. If you have studied a paper carefully and achieved a deep understanding of what you have read, then you should be able to put the paper away, go to bed, and get up the next morning and write down, in your own words, the key ideas of the paper, without having to look at it again. If you can’t do that, then you did not read the paper thoroughly enough. Anybody can copy out passages of a published paper; that does not make you a scientist, any more than copying out a Shakespeare sonnet makes you a poet.

From time to time, you may wish to quote from another’s work. Perhaps you have read a statement or definition that was so apposite that you want to “show it off” to the reader. If so, put it in quotation marks. But this will be an occasional luxury, not a consistent pattern. *Even a single word* should be placed in quotation marks, *if it is a word that you would not normally have used yourself*, or if you wish to indicate a “coinage” - the introduction of a new expression into the language:

The philosophical theory known as “utilitarianism” was developed by John Stuart Mill.

In 1987, the Brundtland Commission of the United Nations put forward the concept of “sustainable development”.

The same considerations apply to visual material as apply to writing. You should avoid reproducing figures from other sources, and never do so without acknowledging the source. Almost always, you will find that the published figure is not exactly what you need for your presentation, in any case. If you draw your own figure, then you will draw *exactly what you want to show*, and you will not need to “mold” your presentation to fit someone else’s vision. In particular, if you take figures or slides from your advisor or your lab colleagues, this must be explicitly acknowledged.

When you discuss and analyze published work, you may need to reproduce figures from other sources. You could put a slide on the screen and say, for example, “Here is the dose-response curve measured by Higgins and colleagues in 1995. You can see that it is linear at low doses, and then drops off above 10 μmol .” This is simply an appropriate analysis of previous work. In contrast, if you show a slide illustrating the structure of the plant cell wall, and use it to illustrate your ideas, *without acknowledging that the slide was taken from a textbook*, then you are plagiarizing, just as if you had used someone else’s words.

The instructors 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.

If you have any questions or concerns about the topics discussed here, please feel free to discuss them with the course instructors.

Appendix 3. Policies:

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

When You Cannot Meet a Course Requirement: If you are unable to meet an in-course requirement because of illness or compassionate reasons, please advise the Coordinator in writing, as soon as possible, giving your name, id#, and e-mail contact. See the Graduate Calendar for information on regulations and procedures for Academic Consideration.

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. The Academic Misconduct Policy is detailed in the Graduate Calendar.

Recording: Presentations cannot be recorded without the prior written permission of the presenter (whether instructor, student, or guest lecturer.)

Resources: The University Graduate Calendar is the source of information about the University of Guelph's procedures, policies, and regulations, which apply to graduate programs.

Health and Wellness: The University has resources available to students who may experience personal problems, mental health issues, or the need to talk. The Graduate Student Association website has nicely outlined these resources here. <https://www.uoguelph.ca/gsa/resources/health-and-wellness>