1 Course Details

1.1 Calendar Description
This is the second part of the two-semester course BIOM*4521/2. Refer to BIOM*4521/2 for the complete course description.

Pre-Requisite(s): BIOM*4521

1.2 Timetable
Timetable is subject to change. Please see WebAdvisor for the latest information.

1.3 Final Exam
Exam time and location is subject to change. Please see WebAdvisor for the latest information.

2 Instructional Support

2.1 Instructional Support Team

Course Co-ordinator: James Petrik
Email: jpetrik@uoguelph.ca
Telephone: +1-519-824-4120 x54921
Office: OVC 3627

Program Advisor: Kimberly Best
Email: kbestb@uoguelph.ca
Telephone: +1-519-824-4120 x54918
Office: OVCE 2633

3 Learning Resources

4 Learning Outcomes
These research courses are designed to expose students to biomedical research where information is created, interpreted and integrated with current knowledge, and to teach effective skills for communicating scientific information orally and in writing.

The courses are designed to give the student a realistic view of biomedical research by providing an opportunity for 'hands-on' discovery.

It is important to realize that these courses are at the undergraduate level where the emphasis should be on a small well-defined problem, with a reasonably likelihood of success. Students will not be penalized when a project fails due to circumstances beyond their control.

4.1 Course Learning Outcomes

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

1. develop an appreciation for research
2. improve library skills by researching the literature on a specific topic
3. develop awareness of current research techniques
4. develop the techniques and attitudes of critical thinking through evaluation of research data
5. teach problem solving and troubleshooting in an experimental setting
6. improve written and oral communication skills

5 Teaching and Learning Activities

6 Assessments

6.1 Assessment Details

**Formal Seminar Presentation on the entire project (35%)**

All students are required to give an oral presentation. This formal seminar in BIOM*4510 and BIOM*4521 will be presented using the 10/5 format commonly used in scientific meetings - a 10 minute presentation and a 5 minute question period.

The formal seminar in BIOM*4522 will be 15 minutes in length with 5 minutes for questions. In all cases the emphasis in the presentation, and in the evaluation, should be on development of logical ideas and on effective communication.

Ideally, the seminar should include the following components (headings are not necessary):

- an Introduction - general terms to orient the audience and provide background information.
- Objectives/Hypothesis - definition of the scope of the experimental
• Methodology/Experimental Design - this will provide an overview of the methods
• Experimental Results
• Discussion of Results
• Summary/Conclusions - review of the main points and concise

Seminar Preparation:

Supplemental audiovisual aids are not permitted and “presenter view” will not be available. The presenter must keep in mind the time restrictions for the seminar. The presentations will be timed.

Specific rehearsal times will be provided in the week before the seminars. A sign-up sheet will be set up the week before rehearsals begin, and you will be notified when this is available.

Students are required to submit their presentation for uploading, with the deadline being 8a the day of the presentation. If not received by 8a, 5% will be deducted from your final grade.

Students are strongly encouraged to verify the performance of their presentation on the classroom computer during rehearsal time

Seminar Presentation:

Specific days have been designated for the seminar presentations. After soliciting student/supervisor input (Seminar Questionnaire), a program will be scheduled for a specific timeslot of these days. Every attempt will be made to accommodate your first choice of day/time (am/pm). It is important that your presentation be thoroughly rehearsed to ensure that it meets the time restrictions for the assignments. Presentations that significantly run overtime will be halted and marked accordingly.

Students are required to assist with the evaluation of their colleagues’ presentations and to participate in the question periods. Each students must submit, at least 5, evaluations for their peer presentations. These evaluations must have your name, and the presenter’s name, clearly printed to receive the five marks. All present in the audience will be asked to evaluate and grade each seminar. Only seminar scores provided by the faculty present will be used in determining the grade for the presentation. All evaluation forms will ultimately be returned to the student and his/her supervisor, and the supervisor will be expected to review these with the student as a means of providing feedback on the oral presentation.

Evaluation of your colleagues’ seminars (5 in total) (5%)

2nd Written Report in the form of a research project paper, on the entire project (2 reviewers)
The Final Written Report

The date given for the final written report (*Semester Deadlines*) is to be used as a guideline. The report should be submitted in duplicate for assessment by the supervisor and by a second senior reviewer not from their lab but delegated by the supervisor (electronic or paper submission? between supervisor and student).

Reports should be written in the format of a journal paper of the supervisors choosing, with the following sections: Title Page, Abstract, Key Words, Introduction, Materials and Methods, Results, Discussion, Conclusions, and References. The emphasis for BIOM*4510 and BIOM*4521 will be on the presentation and discussion of the research data generated during the semester; the final report for BIOM*4522 will be on the entire 2 semester’s worth of work. The references for these reports should be in the format of the chosen journal. Although it is at the supervisor's discretion, typical lengths for the written report are 10-15 pages double-spaced.

It is appropriate for the supervisor to read a draft of the report once, and offer specific suggestions for improvement before the student submits the final version. This feedback is part of the learning process and students should schedule this preliminary reading with their supervisors well in advance of the due date of the report.

Assessment by the Supervisor of 2nd semester’s work* (20%)

* The supervisor’s assessment should include factors such as: interaction with others on the laboratory, organization of time, preparation for meetings, development of technical competence and quality of laboratory notes, etc. The student should discuss the specific criteria for this assessment with the supervisor before the project begins.

7 Course Statements

7.1 Faculty and Student Commitments

Bio-Medical Science Majors may require both the single (BIOM*4500) and one of the double-weighted courses (BIOM*4510 // BIOM*4521/2) for their programs. Thus, accepting a student may involve a commitment to 3 single course equivalents of research taken over 2 or 3 sequential semesters (depending on how the courses are arranged). The '0-6' and '0-12' h/week labels on the courses should be regarded as the minimum time commitment for students. In other courses, students are expected to work on course material after lectures and laboratories are finished. Research course students (particularly those doing 'hands-on' experimental projects) can expect that they will have to spent more like 12-20 h/wk and/or work irregular hours to complete their research work. Students may have to deliberately limit the time that they devote to these courses if they find the work particularly interesting or demanding. If a student feels that a problem is arising, he/she must talk to the supervisor about either becoming
more efficient, or limiting the workload. Students should also feel free to talk to the course coordinator.

7.2 Animal Utilization Protocol Approval

Some projects may require working with live animals. Faculty supervisors are responsible for obtaining the appropriate Animal Utilization Protocols to cover the work being done by Research project students under their supervision. Students should be aware of these protocols and understand their purpose. Discuss these with your supervisor.

7.3 Course Evaluation

Two weeks before the end of the semester, students will be asked to complete a course evaluation by going to the CCS evaluation web site and completing the evaluation for your particular course. https://courseeval.uoguelph.ca/CEVAL_LOGIN.php

Your feedback is vital for us to assess the impact of the research courses and to fine-tune the way these courses are run. All ratings and any comments will be anonymous unless you choose to identify yourself, and will not be provided to the course coordinator until after the end of each semester.

7.4 A CHECK-LIST FOR STUDENTS

1. Criteria for the supervisors assessment (the 20-30% component of the final grade) should be discussed and agreed upon at the first meeting with your

1. When the semester begins, YOU are responsible for contacting your supervisor and proceeding according to his/her directions.

1. It is a good idea to arrange a time each week to meet with your supervisor to discuss your

1. All final seminar presentations will be uploaded to V The deadline to submit your presentation, for uploading, is 8a the day of your presentation. (You will lose 5% off your final grade if past the deadline.)

1. Preview your completed computer-generated presentation with your Book a time(s) on the
‘sign-up sheet’ that will be posted on the seminar room several days before the practice times are scheduled.

1. You are expected to participate and to critique your colleagues’ presentations (5 in total). Evaluation forms will be Your name and the name of the presenter’s must be clearly marked.

1. Complete a course evaluation on line at:
   https://courseeval.uoguelph.ca/CEVAL_LOGIN.php

1. A preliminary draft of your report should be submitted to your supervisor for general comments and feedback before the final copy is due. Allow time for this to occur. Two copies of the final report are due to your supervisor on the specified day (see Semester Deadlines - use this date as a guideline).

1. Direct questions to the course coordinator, Dr Jim Petrik - ext 54921; Rm 3627, OVC; jpetrik@uoguelph.ca or Kim Best - ext 54918; Rm 2633, OVC; kbestb@uoguelph.ca.

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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 regulations and procedures for Academic Consideration are detailed in the Undergraduate Calendar.

8.3 Drop Date

Courses that are one semester long must be dropped by the end of the fortieth class day; two-semester courses must be dropped by the last day of the add period in the second semester. The regulations and procedures for Dropping Courses are available in the Undergraduate Calendar.
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 book their exams at least 7 days in advance, and not later than the 40th Class Day.

More information: www.uoguelph.ca/sas

8.6 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.

8.7 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.

8.8 Resources

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