1 Course Details

1.1 Calendar Description

This course involves independent literature research of a current topic in any of the biomedical sciences (such as anatomy, physiology, pharmacology, toxicology, genetics, biochemistry). Students will present critical appraisals of primary research literature and are required to submit an annotated bibliography and research proposal in addition to their publication-quality literature review paper. Students work under the supervision of individual faculty. Faculty consent must be obtained prior to being admitted into the course by the course coordinator.

Pre-Requisites: 12.00 credits
Restrictions: HK*4230. Instructor consent required. Enrolment restricted to BSC.BIOM majors or BSC.NEUR minors.

1.2 Timetable

There will be an optional introductory class held near the beginning of the semester, where the course coordinator will be available to answer questions about the course. Student oral presentations will take place near the end of the semester.

1.3 Final Exam

There will be no final examination for this course.

2 Instructional Support

2.1 Instructional Support Team

Course Co-ordinator: Jim Petrik
3 Learning Resources

4 Learning Outcomes

The review course is designed to expose students to biomedical research, and to teach effective skills for communicating scientific information orally and in writing. BIOM*4500 is designed to give the student a realistic view of research by providing an opportunity for critical review of the literature.

4.1 Course Learning Outcomes

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

1. Critically evaluate multiple perspectives, ideas and arguments related to neuroscience by gathering and integrating relevant information from the literature, assessing its credibility, and synthesizing evidence to draw conclusions.

2. Identify a problem and propose a biomedical related research question using creativity, interdisciplinary experiences, and a depth and breath of knowledge/expertise in biomedical science.

3. Accurately and effectively communicate ideas, arguments and analyses, to a range of audiences in graphic, oral and written form.

4. Apply scientific methods to construct an appropriate study design to investigate a research question in biomedical sciences.

5. Generate and interpret unbiased and sufficient data using quantitative, qualitative and analytical methodologies and techniques to draw conclusions and make scientifically based observations.

6. improve your written and oral communications skills

7. Reflect on the personal and professional development through the completion of a research project.
5 Teaching and Learning Activities

5.1
Near the beginning of the semester:
- there will be an optional introductory class held by the course coordinator.
- students will complete online CourseLink modules on (i) professionalism in the workplace,
  (ii) Principles of Belonging, (iii) laboratory safety and WHMIS, and (iv) project management.

2. Near the end of the semester:
- students will complete on-line CourseLink modules on (1) academic integrity and (ii) how to
  perform a reflection exercise.
- oral presentations are held the second last week of classes.
- the written report and reflective activity are due around the last day of classes.

5.2
1. When the semester begins students should contact their supervisor and begin working on
   their laboratory project according to his/her directions.
2. Maintain regular contact with your supervisor throughout the semester to discuss your
   progress. Many supervisors arrange a regularly weekly meeting with students.
3. You need to discuss with your supervisor the points raised in the Seminar Questionnaire.
   This form needs to be returned to Kim Best (rm 2633, OVC; kbestb@uoguelph.ca) before the
   deadline date to facilitate planning the seminar days. If this questionnaire is not received by
   the date in the deadline dates, 5 marks will be deducted from your final grade.
4. you will prepare your seminar slides/presentation using PowerPoint and upload this file to
   Sharepoint (information and link will be provided).
5. Preview and practice your presentation with your supervisor/lab group.
6. You are expected to participate in and critique your colleagues’ presentations by
   completing five peer evaluations during the seminar week. A Sharepoint link will be provided
   with an on-line evaluation form. Please make sure, when completed, your evaluation form has
   been successfully uploaded.
7. We ask that you complete an on-line course evaluation during the last 2 weeks of classes.
8. A preliminary draft of your written report should be submitted to your supervisor for
   general comments and feedback before the final copy is submitted. Allow time for this to
   occur in consultation with your supervisor. The date provided in the Semester Deadlines is to
   be used as a guideline. Consult with your supervisor when report is due.

6 Assessments

6.1 Assessment Details
**Formal Seminar Presentation (30%)**

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

- Introduction
- Objectives/Hypothesis
- Methodology/Experimental Design
- Summary of Literature
- Discussion of Literature
- Summary/Conclusions

**Seminar Preparation**

Supplemental audiovisual aids are not permitted and “presenter view” may not be available. The presentations will be timed.

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

**Seminar Presentation:**

A week near the end of classes will be designated for the seminar presentations (see Semester Deadlines). After soliciting student/supervisor input (Seminar Questionnaire), a schedule will be made up (please note that every attempt will be made to accommodate your first choice of requested timeslot). 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.

**Evaluation of your Colleagues’ Seminars (5 in total) (2.5%)**

Students are required to assist with the evaluation of their colleagues’ presentations and to participate in the question periods. Presentations can be attended throughout the week. Each student must submit a minimum 5 evaluations for their peer presentations to obtain full marks (5x0.5% = 2.5%). The presenter's mark will be calculated as the average of all faculty scores submitted, however presenters and supervisors will receive a copy of all faculty & peer evaluations in order to evaluate all feedback provided for the presentation. Students are encouraged to review this feedback with their supervisor.

**Final Written Report in the form of a literature review paper and research proposal (1 reviewer) (40%)**
The date given for the final written report on the literature review (Semester Deadlines) is to be used as a guideline. The report should be submitted for assessment by the supervisor. The literature review should be arranged in a logical manner which allows development of the topic. The format is flexible, and again this is a guideline, but there should be a Title Page, Abstract, Key Words, Introduction, appropriate sub-headings, Summary and Conclusions, and References. The references should be in the format of one of the principle journals consulted during your research project.

Assessment by the Supervisor (25%)

The supervisor’s assessment might include factors such as: interaction with others in the laboratory, organization of time, preparation for meetings, effort, participation, development of technical competence. The student should discuss the specific criteria for this assessment with the supervisor before the project begins.

Reflective Activity (1 page max) (2.5%)

Students will prepare a written reflection of their personal and professional development throughout this research project.

7 Course Statements

7.1 Faculty and Student Commitments

Accepting a student involves a commitment to 1 single course equivalent of research. The ‘0-6’ week on the course should be regarded as the minimum time commitment for students. Students can expect that they will have to work irregular hours to complete their research work. 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 Course Evaluation

Students will be asked to complete a course evaluation towards the end of the semester. 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.

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-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 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.

8.10 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).

8.11 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.