1 Course Details

1.1 Calendar Description

In this course, students will conduct independent laboratory research on a current topic in any of the biomedical neurosciences (such as anatomy, physiology, pharmacology, toxicology, molecular biology, biochemistry). 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-Requisite(s): 14.00 credits
Restriction(s): BIOM*4510, BIOM*4521/2, NEUR*4401/2. Instructor consent required. Enrolment restricted to BSC.NEUR major and minor.

1.2 Course Description

Objectives: This research course is designed to expose students to neuroscience research where information is created, interpreted and integrated with current knowledge, and to teach effective skills for communicating scientific information orally and in writing.

It is important to realize that this course is at the undergraduate level. The research project should be well-defined and have a reasonable likelihood of success. This course is not mini-Masters and certainly should not involve a rigorous series of experiments.

1.3 Timetable

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

1.4 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: Craig Bailey Dr.
Email: baileyc@uoguelph.ca
3 Learning Resources

4 Learning Outcomes

This course is designed to give the student a realistic view of research by providing an opportunity for “hands-on” research.

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.
6. Improve written and oral communications skills.

5 Teaching and Learning Activities

A CHECK-LIST FOR STUDENTS

1. When the semester begins, students should contact their supervisor and begin working on their laboratory project according to his/her directions.
2. Arrange a time each week to meet with your supervisor to discuss your progress.
3. You need to discuss 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. Students taking NEUR*4401 should indicate that this will be the interim report. If this questionnaire is not received by the date in the deadline dates, 5 marks will be deducted from your seminar.
4. All final seminar presentations will be uploaded to V drive. The deadline to submit your presentation, for uploading, is 8 am the day of your presentation (saved in PowerPoint). (You will lose 5% off your final grade if past the deadline.)
5. Preview your completed computer-generated presentation with your supervisor. A sign-up sheet will be posted on the seminar room door several days before the practice times are scheduled.
6. You are expected to participate and critique your colleagues’ presentations. Evaluation forms for everyone in your group must be completed and submitted. These evaluations must have the students name clearly printed on the bottom to get the full marks.
7. Complete a course evaluation on-line during the last 2 weeks of classes.
8. A preliminary draft of your experimental project report should be submitted to your
supervisor for general comments and feedback before the final copy is submitted. Allow
time for this to occur. The final research project report is due to your supervisor on the
specified day indicated in semester deadlines (see Semester Deadlines – use date as a
guideline).

6 Assessments

Students will not be penalized when a project fails due to circumstances beyond their control. In
such cases however, students should give a critical appraisal of the problem(s) encountered,
and the emphasis of the project may be re-directed to improving the methodology.

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. (NEUR*4401 – 5 minute presentation and 5 minute questions
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:

1. An Introduction - general terms to orient the audience and provide background
   information.
2. Objectives/Hypothesis - definition of the scope of the experimental project.
3. Methodology/Experimental Design - this will provide an overview of the methods used.
4. Experimental Results.
5. Discussion of Results.
6. Summary/Conclusions - review of the main points and concise conclusions.

Seminar Preparation

Practice rehearsal times will be available the week before the seminars, and a sign-up sheet
will be placed on the door a day or two before rehearsals begin. An e-mail will be sent out
indicating when this is available.

Students are required to submit their presentation for uploading, with the deadline being 8am
the day of the presentation. If not received by 8am, 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. 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.

Seminar Presentation

Specific days have been designated for the seminar presentations. After soliciting
student/supervisor input (*Seminar Questionnaire*), a presentation scheduled for a specific morning(s) and/or afternoon(s) will be provided. Interim Seminars will be scheduled at 10 minute intervals and Final Formal Seminars will be scheduled every 15 minutes, with every attempt being 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 these time restriction. Presentations will not be allowed to run overtime.

**Evaluation of your colleagues’ seminars (5 in total) (5%)**  
Students are required to assist with the evaluation of their colleagues’ presentations and to participate in the question periods. Each student must submit a minimum of 5 evaluations for their peer presentations each semester. These evaluations must have the evaluator’s name clearly printed on the bottom of the page to receive the full marks assigned for peer review. 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 their supervisor, and the supervisor will be expected to review these with the student as a means of providing feedback on the oral presentation.

**Final Written Report in the form of a research project paper (35%) (2 reviewers)**

The date given for the final written report on the experimental project is given as a guideline (*Semester Deadlines*). The report can be submitted electronically or in paper format (depending on the supervisor’s preference) for assessment by the supervisor and by a second senior reviewer not from their laboratory - chosen by the supervisor. **An alternate due-date can be agreed upon by the student and supervisor - as long as both evaluators have sufficient time to grade the paper. Marks MUST be submitted to the course coordinator no later than the date indicated on the *Current Semester Deadlines* page.**

Reports should be written in the format of a Neuroscience journal of the supervisors choosing, with the following sections: Title Page, Abstract, Key Words, Introduction, Materials and Methods, Results, Discussion, Conclusions, and References. The emphasis will be on the presentation and discussion of the research data generated during the semester. The references for this report should be in the format of the chosen journal.

It is appropriate for the supervisor to read a draft of the project final report once, and offer specific suggestions for improvement before the student submits the final version (faculty supervisors provide advice and feedback to their graduate students when the latter are drafting MSc or PhD thesis). This feedback is part of the learning process and should be part of the research project course experience as well. Students should schedule this preliminary reading with their supervisors well in advance of the due date of the report.

**Assessment by the Supervisor (30%)**  
The supervisor’s assessment might include factors such as: interaction with others in 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.

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**7 Course Statements**
7.1 Faculty and Student Commitments

Neuroscience minors may require one of the double-weighted courses for their programs. The '0-6' and '0-12' hr/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 can expect that they will have to spend more than the listed time/week 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.

If a student wishes to perform their research off-campus, they must secure a co-supervisor who is a faculty member at the University of Guelph.

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

Course evaluations will be turned on the last 2 weeks of classes -
https://courseeval.uoguelph.ca/CEVAL_LOGIN.php

If you see ways that the course could be improved, please say so on the evaluation form. Your feedback is vital for us to assess the impact of the research courses and to fine tune the way we operate. This feedback will be provided to the course coordinator ONLY after the final grades have been submitted to the Registrar’s Office and will be used to make improvements to the course.

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](http://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.