

Neuroscience
Neuroscience 4000E Honours Thesis

Course Outline for 2022/2023



Western University is committed to a **thriving campus**; therefore, your health and wellness matter to us! The following link provides information about the resources available on and off campus to support students: <https://www.uwo.ca/health/> Your course coordinator can also **guide you** to resources and/or services should you need them.

1. Technical Requirements:



Stable internet connection



Laptop or computer



Working microphone



Working webcam

2. Important Dates:



Classes Begin	Reading Week	Classes End	Study day(s)	Exam Period
September 8	October 31– November 6	December 8	December 9	December 10–22

* November 30, 2022: Last day to drop a first-term full course without penalty

Classes Resume	Reading Week	Classes End	Study day(s)	Exam Period
January 9	February 18-26	April 10	April 11-12	April 13–30

3. Contact Information

Course Coordinator	Contact Information
Jessica Grahn	jgrahn@uwo.ca



Instructor(s) or Teaching Assistant(s)	Contact Information
Jessica Grahn (Course Instructor)	jgrahn@uwo.ca
Melvyn Maroon (Teaching Assistant)	mmaroon@uwo.ca
Neil Donison (Teaching Assistant)	ndonison@uwo.ca

4. Course Description and Design

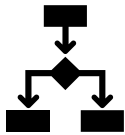
Delivery Mode: in-person (subject to change, thesis research may be in-person, blended, or virtual)

An independent laboratory project in Neuroscience emphasizing experimental design, instrumentation, data collection and analysis, and communication of experimental results by oral, poster and written presentations. Topics covered in seminar time include animal and human research ethics and institutional approval of animal and human experimentation, laboratory safety, and scientific communication skills.

Prerequisite(s): Neuroscience 3000F/G with a minimum mark of 75%; one of Biology 2244A/B, Statistical Sciences 2244A/B or Psychology 2810; Pharmacology 3620; Physiology 3140A; one of Medical Sciences 3900F/G/Z, Communication Sciences and Disorders 3317A/B, Psychology 3996F or Psychology 3997G; and registration in Year 4 of an Honours Specialization in Neuroscience.

Timetabled Sessions

Component	Date(s)	Time
Lecture	Friday	1:30pm-4:30pm



- Attendance at sessions is required
- A recording may be provided of the sessions
- Closed captioning will be provided on audio or video recordings

All course material will be posted to OWL: <http://owl.uwo.ca>. Any changes will be indicated on the OWL site and discussed with the class.

If students need assistance, they can seek support on the [OWL Help page](#). Alternatively, they can contact the [Western Technology Services Helpdesk](#). They can be contacted by phone at 519-661-3800 or ext. 83800.

[Google Chrome](#) or [Mozilla Firefox](#) are the preferred browsers to optimally use OWL; update your browsers frequently. Students interested in evaluating their internet speed, please click [here](#).

Extra Information: Minimum 15 hours per week, 1.5 credit course. Neuroscience 4000E is restricted to students in Year 4 of the Honors Specialization in Neuroscience.

5. Learning Outcomes

Upon successful completion of this course, students will be able to:

- Articulate the current state of knowledge, key concepts and main research themes and issues in the major content domain(s) relevant to your honors psychology thesis research project.
- Access, interpret and critically evaluate research resources relevant to your thesis project.
Formulate research hypotheses and/or questions to address the main topic of your honors thesis research and implement a research project to test
- Apply relevant statistical techniques and skills to the analysis and interpretation of the data for your honors thesis project.



- Evaluate the appropriateness of different methodological approaches to address the specific psychological questions and/or hypotheses that pertain to your honors thesis project
- Articulate how to deal with key ethical research principles and issues that are relevant to your honors psychology thesis research project
- Use evidence to support conclusions drawn from past research and thesis work
- Engage in scholarly discussion on topics relevant to your Honors thesis project
- Provide a creative/novel solution to the major research issues identified in your Honors thesis
- Communicate in writing accurately, clearly and logically, using the discourse of psychology
- Communicate orally accurately, clearly and logically, using the discourse of psychology
- Recognize the limits of your own knowledge regarding each aspect of your thesis project and how this might influence your analysis and interpretation of your findings in a broader context
- Work collaboratively with relevant others (e.g., thesis supervisor, other students and research personnel in supervisor's lab, thesis course coordinator and TAs) to complete your honors thesis project in an ethical and timely fashion that also demonstrates an appropriate level of effort and professionalism
- Show initiative and autonomy in executing each phase of your thesis project

6. Course Content and Schedule



Week	Dates	Topic	Instructor
1	Sept 9	Course Introductions, Health and Safety and Research Ethics – In-Class	Grahn
3	Sept 23	Basics of Presentations – In-Class	Grahn
4	Sept 30	Next steps: Graduate school and Industry	Grahn
6	Oct 14	Background Presentations – In-Class	
7	Oct 21	Background Presentations – In-Class	
8	Oct 28	Background Presentations – In-Class	
9	Oct 31–Nov 6	Reading Week	N/A
10	Nov 11	Basics of Thesis Writing – In-Class	Grahn
1	Jan 13	EDI-D in Research – In-Class	Grahn
5	Feb 3	Thesis Writing: Round 2 – In-Class	Grahn
7	Feb 19-26	Reading Week	N/A
9	Mar 10	Research Presentations – In-Class	
10	Mar 17	Research Presentations – In-Class	
11	Mar 24	Research Presentations – In-Class	

Obtaining a Supervisor

It is the student's responsibility to locate a qualified supervisor for their thesis project. Full-time faculty members in the Western neuroscience community may serve as supervisors including members of the Departments of Physiology & Pharmacology, Psychology, Anatomy & Cell Biology, Biochemistry, Biology, Communication Sciences & Disorders, Kinesiology, Psychiatry, the Roberts Research Institute and the Brain and Mind Institute. If you are unsure whether an individual can serve as a thesis supervisor, please check with the course coordinator.

NOTE: If a proposed project is unsuitable for the honors thesis, the Course Coordinator may require modifications or the development of an alternate project. Neuroscience 4000E can't be completed

without a supervisor and suitable research project. If either of these conditions is not met, you will be removed from the course.

To help you in your search for a supervisor, [faculty research interests](#) and [faculty that have participated](#) in the Neuroscience 4000E course are listed on the Neuroscience [website](#). The list includes many, but not all, Western neuroscience researchers. Similar lists with descriptions of faculty research interests can be found on the web pages of the departments and institutes. Prepare carefully before you meet with a potential supervisor. You should be able to provide a general idea of your neuroscience interests and background. Familiarity with the potential supervisor's research interests is highly recommended.

Meetings with your Supervisor (or Designate): It is also highly recommended that you schedule a regular meeting time with your supervisor. Regular meetings (i.e. twice a month) ensure timely completion of the major phases of your thesis. A suggested timeline is provided:

- Confirm Thesis Supervisor and Thesis Topic Early September
- Complete All Mandatory Training Mid-September
- Determine Specific Research Question Late September
- Determine Experimental Approach Late September
- Draft of Background Presentation Early October
- Begin Data Collection Mid-October
- Draft of Thesis Abstract and Introduction Early/Mid-October
- Second Draft of Preliminary Thesis Mid-January
- Data Collection Completed Mid-February
- Data Analysis End February
- Draft of Research Presentation Early March
- Draft of Final Thesis to Supervisor for Review Mid-March

NOTE. This schedule is a general guide for structuring your time. Your thesis project may vary somewhat. Establish with your supervisor a timetable for completing each major phase of your thesis (keeping in mind due dates for assignments). Some studies may require more time for research ethics approval.

Your supervisor (or designate) should be prepared to help you with most aspects of your thesis including scientific and ethical issues, research design, data analysis and interpretation, and thesis writing. During the initial phases of your project, your supervisor may also recommend readings on your thesis topic. Throughout the year, your supervisor should be prepared to provide you with feedback on written and oral assignments in the course.

As a student, you should recognize that there are many demands on your supervisor's time. You should therefore be well prepared for every meeting with your supervisor. As one specific example, you are expected to show initiative in searching for and being knowledgeable about the research literature in your thesis area. In order to receive feedback on written work, you should ensure that such work is submitted to your supervisor well in advance of the deadline for the assignment.

Safety and Ethics Training

Students **MUST** successfully complete all appropriate safety and ethical training courses as outlined in the first lecture **BEFORE** commencing research. The courses must be completed, and certificates uploaded to OWL Drop Box. Failure to comply with university safety and ethics regulations will result in immediate suspension of the research project, notification of the appropriate governing bodies at Western and possible removal from the course.

7. Participation and Engagement



- Students are expected to participate and engage with content as much as possible (posting on the OWL forum, attending in-class lecture, asking questions at presentations, etc.)

8. Evaluation

Below is the evaluation breakdown for the course. Any deviations will be communicated.

Assessment	Format	Weighting	Due Date
Background Presentation	In-Class	10%	Oct 14 th , 21 st , and 28 th
Laboratory Mark I	Supervisor	10%	Nov 25 th
Thesis Paper 1— Abstract and Intro.	Owl Assignment/Turnitin	10%	Nov 25 th
Complete EDI-D module on OWL	Owl	Part of participation	Before class Jan 13 th
Thesis Paper 2 — Abstract, Intro, M&M and Preliminary Results.	Owl Assignment/Turnitin	10%	Feb 27 th [Mon after Reading Week]
Research Presentation	In-Class	15%	Mar 10 th , 17 th , 24 th
Final Thesis	Owl Assignment/Turnitin	25%	Apr 7 th
Laboratory Mark II	Supervisor	15%	Apr 7 th
Attendance and Participation	Instructors	5%	



- All assignments are due at 11:55 PM EST unless otherwise specified
- Written assignments will be submitted to Turnitin (statement in policies below)
- Students will have unlimited submissions to Turnitin
- Rubrics will be used to evaluate assessments and will be posted with the instructions
- After an assessment is returned, students should wait 24 hours to digest feedback before contacting their evaluator; to ensure a timely response, reach out within 7 days

Presentations: Each student will deliver two 10-12 minute talks describing their research project using Zoom. The first presentation is a background talk and will focus on the introduction, hypothesis and rationale of the project (**October Background Presentation**). This presentation is worth 10% of the final course grade and will be marked by the course coordinator and teaching assistants. The second talk is a research presentation and will describe the completed thesis work (**March Research Presentation**). The Research Presentation is worth 15% of the final grade and will be marked by the course coordinator and teaching assistants. A primer outlining key considerations for developing and delivering a good scientific presentation will be provided as a lecture (Week 3 lecture). Students are strongly encouraged to seek feedback on their presentations from their supervisor/laboratory members prior to delivering the talk to the class.

Written Work: The format and type of material that should be included in the written papers will be discussed (Week 10 lecture). A preliminary written version of your thesis introduction and (mock) abstract is due **Nov 25th** and will be graded by the course coordinator and teaching assistants. This paper is worth 10% of your final grade in the course. A second

preliminary version of your thesis including abstract, introduction, materials and methods and (partial) results is due **Feb 27th**. At a minimum, it needs at least one results figure (even if only predicted or preliminary data) and one paragraph of results. This paper is worth 10% of your final grade in the course. The completed final thesis is due on **Apr. 7th** and is worth 25% of the final mark. Two neuroscience supervisors that have participated in the course will determine the grade for the final thesis.

NOTE: Written assignments uploaded through the OWL assignment tab will automatically be submitted to **Turnitin** to generate a similarity report. Students can view the Turnitin report and resubmit their assignments an unlimited number of times prior to the deadline.

Thesis Format: Latest version of any well-respected neuroscience journal, typically a preferred journal of the supervisor. Detailed formatting instructions, including citation format, can be found on the journal/publisher's website.

Laboratory Marks: Laboratory grades will be provided by the supervisor and based on the student's level of enthusiasm and professionalism, active engagement and time spent on the project, maintaining proper laboratory records, learning the relevant literature for the research area, engaging in laboratory meetings etc.

A poor laboratory mark (<70%) and/or concerns about performance expressed by the supervisor will initiate one or more meetings with the course coordinator and/or others (i.e. thesis supervisor, academic counselling) at the discretion of the course coordinator. Failure to devote the minimum 15 hours/week to the research project may result in an 'F' in the course.

Attendance and Participation: Students are required to attend the 1st lecture, provide training certificates in a timely fashion and participate in one assigned Background Presentation and one assigned Research Presentation session (attend, listen and ask questions).

Information about late or missed evaluations

Course assignments are sequential and build on each other. Accordingly, it is expected that students will complete every oral and written assignment on time and in the proper sequence unless accommodation is obtained (Self-reported absence or accommodation through the Academic Counselling Office).

Unaccommodated missed presentations (original due date or makeup) will receive a grade of zero. If accommodation for a missed presentation is obtained, an alternative presentation date will be arranged. If the alternate presentation date is also missed but accommodation is received, an INC may be recorded for the course with no additional opportunities to complete the presentation until the next time the course is offered.

Unaccommodated late written thesis assignments (original due date or makeup) will be penalized at a rate of 20%/day. If accommodation is provided, the deadline for the thesis assignment will be extended. However, repeated extension of the deadline through accommodation may result in an INC and no additional opportunity to submit the written assignment until the next time the course is offered.

NOTE: Neuroscience 4000E is an essay course. Students must receive a passing grade in both the overall course and the written thesis assignments. Failure to submit a thesis assignment may- or the final thesis will- result in 'F' for the course.

Click [here](#) for a detailed and comprehensive set of policies and regulations concerning examinations and grading. The table below outlines the University-wide grade descriptors.

90-100	One could scarcely expect better from a student at this level
80-89	Superior work which is clearly above average
70-79	Good work, meeting all requirements, and eminently satisfactory
60-69	Competent work, meeting requirements
50-59	Fair work, minimally acceptable

	below 50	Fail
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Information about late or missed evaluations:

- Unaccommodated late written thesis assessments without self-reported absences or accommodation will be subject to a late penalty 20%/day
- Late assessments with self-reported absences or accommodation should be submitted within 24 hours of the end of the self-report or accommodation (e.g., due Fri 11:55 pm; self-report covers Fri/Sat; new deadline is Sun by 11:55 pm OR 24 hours after the end of the accommodation period)
- Students must pass the written components of the course. See Essay Course Guidelines below.
- If a make-up assessment is missed with documentation, the student will receive an INC and complete the task the next time the course is offered

9. Communication:



- Students should check the OWL site every 24–48 hours
- Students should email their instructor(s) and teaching assistant(s) using [email, OWL, MS Teams, etc.]
- Emails will be monitored daily; students will receive a response in 48 hours
- This course will use [e.g., forum, MS Teams, etc.] for discussions
- Students should post all course-related queries on the discussion forum so that everyone can access the questions and responses

10. Office Hours:



- Office hours will be booked in-person or over zoom
- Office hours will be individual

11. Resources



- All resources will be posted in OWL

12. Professionalism & Privacy:



Western students are expected to follow the [Student Code of Conduct](#). Additionally, the following expectations and professional conduct apply to this course:

- All course materials created by the instructor(s) are copyrighted and cannot be sold/shared
- Recordings are not permitted (audio or video) without explicit permission
- Permitted recordings are not to be distributed

13. How to Be Successful in this Class:



Students enrolled in this class should understand the level of autonomy and self-discipline required to be successful.

1. Invest in a planner or application to keep track of your courses. Populate all your deadlines at the start of the term and schedule time at the start of each week to get organized and manage your time.
2. Make it a daily habit to log onto OWL to ensure you have seen everything posted to help you succeed in this class.
3. Follow weekly checklists created on OWL or create your own to help you stay on track.
4. Take notes as you go through the lesson material. Treat this course as you would a face-to-face course. Keeping handwritten notes or even notes on a regular Word document will help you learn more effectively than just reading or watching the videos.
5. Connect with others. Try forming an online study group and try meeting on a weekly basis for study and peer support.
6. Do not be afraid to ask questions. If you are struggling with a topic, check the online discussion boards or contact your instructor(s) and or teaching assistant(s).
7. Reward yourself for successes. It seems easier to motivate ourselves knowing that there is something waiting for us at the end of the task.

14. Western Academic Policies and Statements

Absence from Course Commitments

[Policy on Academic Consideration for Student Absences](#)

If you are unable to meet a course requirement due to illness or other serious circumstances, you must seek approval for the absence as soon as possible. Approval can be granted either through a **self-reported absence** or via the **Academic Counselling** unit. Students have two self-reports to use throughout the academic year; absence from course commitments including tests, quizzes, presentations, labs, and assignments that are worth 30% or less can be self-reported. Self-reported absences cover a student for 48 hours (yesterday + today or today + tomorrow). Your instructor will receive notification of your consideration; however, you should contact your instructor immediately regarding your absence. Students are expected to submit missed work within 24 hours of the end of the 48-hour period. Please review details of the [university's policy on academic consideration for student absences](#).

If you have used both their self-reported absences or will miss more than 48 hours of course requirements, a Student Medical Certificate (SMC) should be signed by a licensed medical or mental health practitioner and you should contact academic counselling. Science and BSc students can contact academic counselling through the Help Portal: <https://www.uwo.ca/sci/counselling/>

Accommodation for Religious Holidays

The policy on Accommodation for Religious Holidays can be viewed [here](#).

Special Examinations

A Special Examination is any examination other than the regular examination, and it may be offered only with the permission of the Dean of the Faculty in which the student is registered, in consultation with the instructor and Department Chair. Permission to write a Special Examination may be given on the basis of compassionate or medical grounds with appropriate supporting documents. To provide an opportunity for students to recover from the circumstances resulting in a Special Examination, the University has implemented Special Examinations dates. These dates as well as other important information about examinations and academic standing can be found [here](#).

Academic Offenses

“Scholastic offences are taken seriously, and students are directed [here](#) to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offence.

Accessibility Statement

Please contact the course instructor if you require material in an alternate format or if you require any other arrangements to make this course more accessible to you. You may also wish to contact Accessible Education (AE) at 661-2111 x 82147 for any specific question regarding an accommodation or review [The policy on Accommodation for Students with Disabilities](#).

Correspondence Statement

The centrally administered **e-mail account** provided to students will be considered the individual’s official university e-mail address. It is the responsibility of the account holder to ensure that e-mail received from the University at his/her official university address is attended to in a timely manner. You can read about the privacy and security of the UWO email accounts [here](#).

Discovery Credit Statement

Students are permitted to designate up to 1.0 Discovery Credit course (or equivalent) for pass/fail grading that can be counted toward the overall course credits required for their degree program. The details of this policy and the deadlines can be found [here](#).

Essay Course Guidelines

The guidelines for the minimum written assignments refer to the cumulative amount of written work in a course but excludes written work in examinations. You can read about essay course guidelines [here](#).

An essay course must normally involve total written assignments (essays or other appropriate prose composition, excluding examinations) as follows:

- Full course (1000 to 1999): at least 3000 words
- Half course (1000 to 1999): at least 1500 words
- Full course (2000 and above): at least 5000 words
- Half course (2000 and above): at least 2500 words

The structure of the essay course must be such that in order to pass the course, the student must exhibit some minimal level of competence in essay writing and the appropriate level of knowledge of the content of the course.

Turnitin and other similarity review software

All assignments will be subject to submission for textual similarity review to the commercial plagiarism detection software under license to the University for the detection of plagiarism. Students will be able to view their results before the final submission. All papers submitted for such checking will be included as source documents in the reference database for the purpose of detecting plagiarism of papers subsequently submitted to the system. Use of the service is subject to the licensing agreement, currently between Western University and [Turnitin.com](#).

15. BMSUE Academic Policies and Statements

Cell Phone and Electronic Device Policy (for in-person tests and exams)

The Schulich School of Medicine & Dentistry is committed to ensuring that testing and evaluation are undertaken fairly across all our departments and programs. For all tests and exams, it is the policy of the School that any electronic devices, i.e., cell phones, tablets, cameras, or iPod are strictly prohibited. These devices **MUST** be left either at home or with the student's bag/jacket at the front of the room and **MUST NOT** be at the test/exam desk or in the individual's pocket. Any student found with one of these prohibited devices will receive a grade of zero on the test or exam. Non-programmable calculators are only allowed when indicated by the instructor. The program is not responsible for stolen/lost or broken devices.

Copyright and Audio/Video Recording Statement

Course material produced by faculty is copyrighted and to reproduce this material for any purposes other than your own educational use contravenes Canadian Copyright Laws. You must always ask permission to record another individual and you should never share or distribute recordings.

Rounding of Marks Statement

Across the Basic Medical Sciences Undergraduate Education programs, we strive to maintain high standards that reflect the effort that both students and faculty put into the teaching and learning experience during this course. All students will be treated equally and evaluated based only on their actual achievement. **Final grades** on this course, irrespective of the number of decimal places used in marking individual assignments and tests, will be calculated to one decimal place and rounded to the nearest integer, e.g., 74.4 becomes 74, and 74.5 becomes 75. Marks **WILL NOT** be bumped to the next grade or GPA, e.g. a 79 will **NOT** be bumped up to an 80, an 84 **WILL NOT** be bumped up to an 85, etc. The mark attained is the mark you achieved, and the mark assigned; requests for mark "bumping" will be denied.

16. Support Services

The following links provide information about support services at Western University.

Western is committed to reducing incidents of gender-based and sexual violence and providing compassionate support to anyone who has gone through these traumatic events. If you have experienced sexual or gender-based violence (either recently or in the past), you will find information about support services for survivors, including emergency contacts at

https://www.uwo.ca/health/student_support/survivor_support/get-help.html.

To connect with a case manager or set up an appointment, please contact support@uwo.ca.

[Academic Counselling \(Science and Basic Medical Sciences\)](#)

[Appeal Procedures](#)

[Registrarial Services](#)

[Student Development Services](#)

[Student Health Services](#)