

Western University
Anatomy and Cell Biology
ANATCELL9555 & 9655
Advanced Topics in Cell Biology and Neurobiology
Fall/Winter 2023

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Enrollment Restrictions

Prerequisites: Students are expected to have undergraduate exposure to cell and neurobiology. In the event that a student has not taken an introductory cell biology course, the student's supervisory committee along with their supervisor will determine the best course of action, be it independent reading or an undergraduate course available at Western that can be taken concurrently. This course is a mandatory requirement of the ACB graduate program for students involved in cell biology research. It is complementary to ANATCELL 9550/9650 (Advanced Topics in Integrative Neuroscience) required for students in the field of neuroscience research. In the Fall term, the course will share lecture and activity offered as part of ANATCELL 9566. If an incoming PhD candidate has taken a similar course at the graduate level previously (i.e., during MSc studies), then they may seek an exemption from ANATCELL 9655. Special permission must be obtained from the Chair of the Graduate Affairs Committee.

Enrollment in this course is restricted to graduate students in MSc/ or PhD in Anatomy and Cell Biology

Course Description

In the fall term, the course offers an opportunity for learning critical professional development skills such as to develop literature search, archive, and citation skills, to develop online professional profile beyond the publication, to appraise and critically review scientific literature and to discover, enumerate and examine your personality traits

In the winter term, the course offers an opportunity for critical evaluation of current research in numerous areas of cell and neurobiology including cell interactions, development and differentiation, intracellular dynamics, and cell pathology including cancer biology. During each session, current articles and reviews are discussed in detail with emphasis on hypothesis development, experimental models and data acquisition and analyses in cell and neurobiology research. Students will learn important research skills on how to review, criticize, write, discuss and present experimental results.

Course Format

The course is delivered as weekly 2 hours lectures/workshop.

Course Learning Outcomes/Objectives

- For the fall term
 - o recognize research fidelity, dos and don'ts
 - o discuss the art of scientific writing, including abstracts
 - o discover, enumerate and examine your personality traits
 - o explore career options within and outside of academia
 - o reflecting on how to reflect deeply
 - o develop literature search, archive, and citation skills
 - o appraise and critical review of literature
 - o practice writing with purpose and influence
 - o explore careers beyond what you know
 - o develop online professional profile beyond the publication
 - o establish a comprehension of your personal strengths and challenges

For the winter term

- o Critically present and assess scientific literature
- o Develop grant writing skills

Methods of Evaluation

Paper Review Presentations (25% of final grade)

This component will be based on one oral presentation of recently published papers in areas covered by the course. Every student will give **one presentation** in the winter term. Graded evaluations on the paper review and presentation will be made by the course coordinator; additional feedback will be given by invited faculty (if in attendance) and fellow classmates (via Qualtrics).

Manuscript Critique (25% of the final grade)

This component will be based on a written critique of one recent publicly-available preprint on bioRxiv in a topic of their choice in cell biology or neurobiology. The requirements for the critique will be provided by the course coordinator during the course. This will be due near the end of Fall Term.

Grant Proposal (25% of the final grade)

This component will be based on a written grant proposal based upon the research area of the student's thesis. More information will be provided by the coordinator during the course. This will be due at the end of the Winter Term.

Participation (25% of the final grade)

Participation and critical discussion of the selected material in class, including professional development activities (10%).

It is expected that students will have read the papers and come prepared with critical reflections of the findings and methodology within the papers that they can share with their peers and faculty members.

Written comments on the provided research paper before each class (10%).

The purpose of the written comments will vary from week-to-week and may include summaries of the **rationale** of the study, the **hypothesis & main objective** of the paper, or **experimental plan**, the **conclusions**, or a personal opinion of the paper's **strengths and weaknesses**. Each written comment should be approximately ½ page, double-spaced and will be submitted via Dropbox on OWL.

Peer evaluations and feedback on presentations (5%).

An important objective of this course is to develop one's presentation skills. Receiving critical feedback, both strengths and limitations, is crucial to improve this skill. All students are required to submit comments on the paper presentations by their peers, which will be done via Qualtrics. Comments will be anonymized prior to forwarding the feedback to the presenting student.

Statement on Academic Offences

Scholastic offences are taken seriously and students are directed to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offence, at the following Web site:

http://www.uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_discipline_grad.pdf

All required papers may be subject to submission for textual similarity review to the commercial plagiarism-detection software under license to the University for the detection of plagiarism. 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 The University of Western Ontario and Turnitin.com (<http://www.turnitin.com>).

Computer-marked multiple-choice tests and/or exams may be subject to submission for similarity review by software that will check for unusual coincidences in answer patterns that may indicate cheating.

Health/Wellness Services

Students who are in emotional/mental distress should refer to Mental Health@Western

<http://www.uwo.ca/uwocom/mentalhealth/> for a complete list of options about how to obtain help.

Accessible Education Western (AEW)

Western is committed to achieving barrier-free accessibility for all its members, including graduate students. As part of this commitment, Western provides a variety of services devoted to promoting, advocating, and accommodating persons with disabilities in their respective graduate program.

Graduate students with disabilities (for example, chronic illnesses, mental health conditions, mobility impairments) are strongly encouraged to register with Accessible Education Western (AEW), a confidential service designed to support graduate and undergraduate students through their academic program. With the appropriate documentation, the student will work with both AEW and their graduate programs (normally their Graduate Chair and/or Course instructor) to ensure that appropriate academic accommodations to program requirements are arranged. These accommodations include individual counselling, alternative formatted literature, accessible campus transportation, learning strategy instruction, writing exams and assistive technology instruction.