

# BIO9600 – Seminar in Physiology and Biochemistry

## Winter 2025

### 1. Course Information

*Class Composition and Size: 12 per section, 1 or 2 sections. A co-instructor will be added if a second section is required. We welcome students from all Biology streams, but those in Physiology and Biochemistry will have enrollment priority.*

#### *Meeting Time/Place:*

Classes (3 hours total, 1 hour and 2 hour class) will be held weekly during the winter 2025 term. The precise dates and timings of the class are TBD. An organizational meeting will be held in early January (date and location TBD). Classes will follow a flipped classroom approach, and will consist of student-led presentations and discussion.

### 2. Instructor Information (individual meetings by appointment only)

For the first section, Dr. Natasha Mhatre, Professor, Biology, [nmhatre@uwo.ca](mailto:nmhatre@uwo.ca) (include “Bio 9600” in subject). BGS3023.

### 3. Course Description

Physiology and biochemistry have a long history and encompass a wide range of approaches to doing scientific research. Both fields fold into them a variety of laboratory and field based science and also include theoretical and modelling based approaches. In this course, students will visit some landmark papers in P&B and use these as a basis for discussing how scientific concepts change and the challenges in doing science.

### 4. Course Materials

Relevant materials will be posted to OWL/Brightspace in due course. This is the primary method by which information will be disseminated. Students are responsible for checking OWL/Brightspace regularly. Landmark papers in the following topics will be made available for students to choose from.

#### **Physiology**

Water and Ion balance  
Energetics & metabolism  
Thermal physiology  
Sensory & Neurophysiology  
Movement and muscle  
Endocrine physiology  
Respiratory physiology  
Biotic and abiotic stress physiology

#### **Biochemistry**

Metabolic pathways  
Biomolecular structure and function  
Biochemistry of inheritance  
Cellular compartmentalization  
Signal transduction  
Techniques for pathway discovery  
Enzymology  
Membranes and transport physiology

## 5. Methods of Evaluation

### *Assignments:*

Scene-setting seminar: 30%

Landmark paper seminar: 30%

Written perspectives on landmark paper seminar: 30%

Engagement, contribution and participation: 10%

According to SGPS regulations, “Students must maintain a cumulative average of at least 70% calculated each term over all courses taken for credit, with no grade less than 60%.”

Each student will select a topic and a landmark paper. Specifically, the instructor will use a ranked choice system to assign these to students. Using this choice

Each student will present two seminars (worth 30% each). The first seminar will be a scene-setting seminar in which the student will prepare the class with all the background information that is required to understand the landmark paper. The first seminar will resemble an upper-level undergraduate class. Students will prepare a 2-page handout (‘cheat sheet’) with a list of key papers, select 2-3 key papers for class reading, and run a class with a combination of lecture and discussion.

The second seminar will be based on only the landmark paper, will target a purely graduate audience but will retain the lecture and discussion model of presentation. In the last part of the seminar, the student should point out any important developments that followed this paper and sketch out any future directions they think will be important.

The students who are not presenting, will share their written perspectives about other student’s landmark paper in advance of the second seminar (30%). Specifically, students will answer two questions about the readings (150-200 words for each question):

1. What do you think is the main insight of the paper?
2. How did the paper change the field that it was part of?

The instructor will provide guidance on the topic and format of the seminars. Weekly participation goes beyond mere attendance, and will be determined by a student’s level of engagement and contribution to discussion throughout the semester (10%).

## 6. Course and University Policies

### *Student Absences:*

Notify the instructor as soon as possible if you are unable to attend a class. Regardless of the reason for the absence, the student remains responsible for the material covered.

### *Late assignments:*

If you are unable to complete an assignment by the due date, please notify the instructor as soon as is possible. A penalty of 5% of the assignment total/day will be assessed for late assignments without accommodation.

### *Accommodation Policies:*

Students with disabilities are encouraged to contact Accessible Education, which provides recommendations for accommodation based on medical documentation or psychological and cognitive testing. The policy on Academic Accommodation for Students with Disabilities can be found at: [https://www.uwo.ca/univsec/pdf/academic\\_policies/appeals/Academic%20Accommodation\\_disabilities.pdf](https://www.uwo.ca/univsec/pdf/academic_policies/appeals/Academic%20Accommodation_disabilities.pdf).

### *Scholastic 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](#).

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>).

### *Support Services:*

Students who are in emotional/mental distress should refer to Mental Health@Western (<https://uwo.ca/health/>) for a complete list of options about how to obtain help.

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](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](mailto:support@uwo.ca). Learning-skills counsellors at the Student Development Centre (<https://learning.uwo.ca>) are ready to help you improve your learning skills. They offer presentations on strategies for improving time management, multiple-choice exam preparation/writing, textbook reading, and more. Individual support is offered throughout the Fall/Winter terms in the drop-in Learning Help Centre, and year-round through individual counselling.

## **9. Land Acknowledgment**

We acknowledge that Western University is located on the traditional lands of the Anishinaabek, Haudenosaunee, Lūnaapéewak and Attawandaron peoples, on lands connected with the London Township and Sombra Treaties of 1796 and the Dish with One Spoon Covenant Wampum. This land continues to be home to diverse Indigenous peoples (e.g. First Nations, Métis and Inuit) whom we recognize as contemporary stewards of the land and vital contributors of our society.