

BIOPHYS 9674B: PEDAGOGY IN BIOPHYSICS

COURSE OUTLINE 2024

DESCRIPTION

In this course, students will develop a formal understanding of pedagogical concepts underlying high-quality science curriculum design and delivery at the university level. This understanding will be developed through in-class discussion-based coverage of canonical and current research articles in the pedagogy literature, and an application of the learned concepts to the development of a graduate-level course curriculum.

PREREQUISITES

None.

ENROLLMENT RESTRICTIONS

Enrollment in this course is restricted to graduate students in Medical Biophysics, as well as any student that has obtained special permission to enroll in this course from the course instructor as well as the Graduate Chair (or equivalent) from the student's home program. A maximum of six students will be enrolled.

INSTRUCTOR CONTACT INFORMATION

Course instructor:

Email address:

Office hours:

COURSE FORMAT

Face-to-face, discussion-based learning.

Lecture days/times/locations: One three-hour session/week TBD; day/time will be chosen to fit the schedules of the instructors and students.

Starting date:

TOPICS

1. Bloom's taxonomy of learning outcomes
2. Problem-based learning
3. Methods for evaluation and assessment
4. Learning styles
5. Visual resources in examination materials

6. Effect of preconceptions on learning efficacy
7. Metacognition and learning
8. Cognitive load theory
9. Effect of anxiety on learning

SPECIFIC LEARNING OUTCOMES

After the completion of this course, students will be able to:

1. Design a set of clear, comprehensive, and testable learning outcomes for each module of a course, and for a course as a whole.
2. Design and deliver a curriculum that is consistent with the stated learning outcomes, taking into account students' different learning styles.
3. Create assessment tools that measure the degree to which students are achieving the learning outcomes.
4. Assess and mitigate the effects of students' existing preconceptions on learning efficacy.
5. Design a curriculum and implement a delivery strategy that minimizes anxiety and cognitive load in the classroom.
6. Induce students to engage in metacognitive activities (i.e. being aware of the processes through which they learn and think) to enhance their potential for learning and self-teaching.

ASSESSMENTS

Assessment Type	Details	Tentative Due Date	Weight
Course project	Development of new course curriculum and all associated materials necessary to deploy a course.	End of April 2024	100%

Activities in which collaboration is permitted:

- Learning of concepts and skills in discussion format.
- Development of course project materials will be done collaboratively but students will identify their specific contributions and will be graded individually.

Activities in which students must work alone (collaboration is not permitted):

- Development of short lessons for micro-teaching practice.

REQUIRED TEXTBOOK

None.

OPTIONAL COURSE READINGS

Determined collaboratively as topics are identified for learning and discussion.

CHEATING, PLAGIARISM/ACADEMIC OFFENCES

Academic integrity is an essential component of learning activities. Students must have a clear understanding of the course activities in which they are expected to work alone (and what working alone implies) and the activities in which they can collaborate or seek help; see information above and ask instructor for clarification if needed. Any unauthorized forms of help-seeking or collaboration will be considered an academic offense. University policy states that cheating is an academic offence. If you are caught cheating, there will be no second warning. Students must write their essays and assignments in their own words. Whenever students take an idea or a passage of text from another author, they must acknowledge their debt both by using quotation marks where appropriate and by proper referencing such as footnotes or citations. Plagiarism is a major academic offence. Academic offences are taken seriously and attended by academic penalties which may include expulsion from the program. Students are directed to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offence at the following website: https://www.uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_discipline_grad.pdf

CONDUCT

Students are expected to follow proper etiquette to maintain an appropriate and respectful academic environment. Any student who, in the opinion of the instructor, is not appropriately participating in course activities and/or is not following the rules and responsibilities associated with the course activities, will be reported to the Associate Dean (Graduate) (after due warning has been given). On the recommendation of the Department concerned, and with the permission of the Associate Dean (Graduate), the student could be debarred from completing the assessment activities in the course as appropriate.

HEALTH/WELLNESS SERVICES

As part of a successful graduate student experience at Western, we encourage students to make their health and wellness a priority. Western provides several health and wellness related services to help you achieve optimum health and engage in healthy living while pursuing your graduate degree. Information regarding health- and wellness-related services available to students may be found at <http://www.health.uwo.ca/>.

Students seeking help regarding mental health concerns are advised to speak to someone they feel comfortable confiding in, such as their faculty supervisor, their program director (graduate chair), or other relevant administrators in their unit. Faculty of Engineering has a Student Wellness Counsellor. To schedule an appointment with the counsellor, contact Kristen Edwards (khunt29@uwo.ca) via confidential email and you will be contacted by our intake office within 48 hours to schedule an appointment.

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.

SICKNESS

Students should immediately consult with the Instructor (for a particular course) or Associate Chair (Graduate) (for a range of courses) if they have problems that could affect their performance. The student should seek advice from the Instructor or Associate Chair (Graduate) regarding how best to deal with the problem. Failure to notify the Instructor or the Associate Chair (Graduate) immediately (or as soon as possible thereafter) will have a negative effect on any appeal. Obtaining appropriate documentation (e.g., a note from the doctor) is valuable when asking for accommodation due to illness.

Students who are not able to meet certain academic responsibilities due to medical, compassionate or other legitimate reason(s), could request for academic consideration. The Graduate Academic Accommodation Policy and Procedure details are available at:

<https://www.eng.uwo.ca/graduate/current-students/academic-support-and-accommodations/index.html>

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): http://academicsupport.uwo.ca/accessible_education/index.html

AEW is 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.