

**Medical Biophysics**  
**MEDBIO 2500A: Introduction to Biophysics for Advancing Medicine**

**Draft** Course Syllabus for Fall 2022  
Dates subject to change



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

**2. Important Dates:**



Classes Begin	Classes End	
Wednesday, September 8, 2022	Thursday, December 8, 2022	
* November 12, 2022: Last day to drop a first-term half course without academic penalty		
Reading Week	Study day(s)	Exam Period
October 31 - November 6	December 9	December 10–22

**3. Contact Information**



Course Coordinator	Contact Information
Charles McKenzie	OWL messages
Instructor(s) or Teaching Assistant(s)	Contact Information
Donna Goldhawk (Instructor)	OWL messages
Geoffrey Ng (Instructor)	OWL messages
Craig Lewis (Instructor)	OWL messages
TBD (TA)	OWL messages

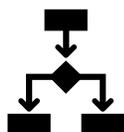
## 4. Course Description and Design

### Delivery Mode: blended

An introduction to the discipline of Medical Biophysics is developed through lectures on key introductory concepts and techniques used in Medical Biophysics research. Topics include magnetic resonance imaging, molecular imaging, the musculoskeletal system, and cancer radiation therapy.

### Timetabled Sessions

Component	Date(s)	Time	Room
Lecture	TBD	TBD	TBD



- Asynchronous pre-work must be completed prior to sessions
- Attendance at sessions is required
- 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](#).

## 5. Learning Outcomes

In this course, students will develop an understanding of the discipline of Medical Biophysics and the different kinds of research undertaken within Medical Biophysics. This understanding will be developed through a combination of lectures on key introductory concepts and techniques used in Medical Biophysics research. After the completion of this course, students will be able to:

1. Understand the different potential career paths in science and medicine stemming from undergraduate studies in Medical Biophysics.
2. Describe the steps involved in acquiring data for different types of Medical Biophysics research projects.
3. Compare different Medical Biophysics research techniques and tools, and determine which techniques are best in specified situations.
4. Implement simplified physical laws to solve problems in Medical Biophysics.

## 6. Course Content and Schedule



Week	Dates	Topic	Instructor
1	Sept 8–11	Course Introduction (Online)	McKenzie
2	Sept 12–18	Unit 1 - X-Ray/CT & Ultrasound	McKenzie
3	Sept 19–25	<b>Quiz 1(X-Ray/CT&amp;US)</b>	McKenzie
4	Sept 26–Oct 2	Unit 2 - MRI	McKenzie
5	Oct 3–9	<b>Quiz 2(MRI)</b>	McKenzie
6	Oct 10–16	Unit 3 - PET & Molecular Imaging	Goldhawk
7	Oct 17–23	Unit 3 - Molecular Imaging & PET	Goldhawk
8	Oct 24–Oct 30	<b>Quiz 3(MI &amp; PET)</b>	Goldhawk
9	Oct 31–Nov 6	Reading Week	N/A
10	Nov 7–13	Unit 4 - Cancer	Goldhawk
11	Nov 14–20	<b>Quiz 4 (Cancer)</b>	Goldhawk
12	Nov 21–27	Unit 5 – Medical Physics	Lewis
13	Nov 28–Dec 4	Unit 6 - Musculoskeletal	Ng
14	Dec 5–8	Make up Quiz (If necessary)	McKenzie/Goldhawk

\* DRAFT: There will be no in-person class in the first week (Sept 8-11). However, please review the course introduction video and the lectures for Unit 1(both on OWL) before the first in-person class on Sept 14.

## 7. Participation and Engagement



- Students are expected to participate and engage with content as much as possible
- Students can participate during in-class sessions and post on OWL forums after watching recorded lecture content
- Students can also participate by interacting in the forums with their peers and instructors

## 8. Evaluation

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

Assessment	Format	Weighting	Due Date
Unit 1	In Class Quiz	16.7%	Sept 21, 2022
Unit 2	In Class Quiz	16.7%	Oct 5, 2022
Unit 3	In Class Quiz	16.7%	Oct 26 2022
Unit 4	In Class Quiz	16.7%	Nov 16, 2022
Unit 5	Final Exam	16.7%	TBD
Unit 6	Final Exam	16.7%	TBD

- Evaluation will be through a series of Quizzes, one per unit.
  - Quizzes for the first 4 units will be written in class.
  - Units 5, and 6 will be evaluated during the final exam. The final exam will consist of two quizzes similar in format and length to the in-class quizzes for Units 1-4.
- Each unit will have a set of Practice Questions available through OWL. These assessments will consist of questions similar to those that will be contained in each Quiz. Therefore, students should complete these formative assessments when preparing for the Quizzes.



- 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
- Any grade appeals on assignments, quizzes, or midterms must be received within 3 weeks of the grade being posted.
- 15% of your course grade will be evaluated and returned 3 days prior to the drop deadline (statement in policies below).

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.

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

### Information about late or missed evaluations:

- A missed quiz will be made up on December 7 with an in-class quiz on the missed unit. A student that misses more than one Quiz should contact the course Coordinator (Prof McKenzie) as soon as possible to make arrangements to make up the missed quiz(es).

**INC (Incomplete Standing):** If a student has been approved by the Academic Counselling Office (in consultation with the instructor/department) to complete term work at a later date, an INC will be assigned. Students with INC will have their course load in subsequent terms reduced to allow them to complete outstanding course work. Students may request permission from Academic Counselling to carry a full course load for the term the incomplete course work is scheduled.

**SPC (Special examination):** If a student has been approved by the Academic Counselling Office to write a Special Examination and the final exam is the only outstanding course component, an SPC will be assigned. If the class has a makeup exam, the student is expected to write the makeup exam. If the class doesn't have a makeup exam or the student misses the makeup exam for reasons approved

by the Academic Counselling Office, the student will write the exam the next time the course is offered. Outstanding SPCs will reduce the course load for the term the exam is deferred as outlined in [Types of Examinations](#) policy.

## 9. Communication:



- Students should check the OWL site every 24 – 48 hours
- Students should contact their instructor(s) and teaching assistant(s) using OWL messages
- OWL messages and forums will be monitored daily; students will receive a response in 24 – 48 hours
- This course will use OWL forums 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 held remotely using Zoom.
- Office hours will be held from 2:30-3:30 PM on Tuesdays by the TA, and Thursdays by the Instructor responsible for the current Unit (Profs McKenzie, Goldhawk, Lewis, or Ng)
- Office hours will be booked. Please contact the TA or Professor via OWL message before the scheduled office hour if you wish to speak to them. They will provide you with a Zoom link for your meeting.
- 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
- Students will be expected to take an academic integrity pledge before some assessments

Western is committed to providing a learning and working environment that is free of harassment and discrimination. All **students**, staff, and faculty have a role in this commitment and have a responsibility to ensure and promote a safe and respectful learning and working environment. Relevant policies include Western's [Non-Discrimination/Harassment Policy](#) (M.A.P.P. 1.35) and [Non-Discrimination/Harassment Policy – Administrative Procedures](#) (M.A.P.P. 1.35).

Any **student**, staff, or faculty member who experiences or witnesses' behaviour that may be harassment or discrimination **must report the behaviour** to the Western's [Human Rights Office](#). Harassment and discrimination can be human rights-based, which is also known as EDI-based, (sexism, racism, transphobia, homophobia, islamophobia, xenophobia, antisemitism, and ableism) or non-human rights-based (personal harassment or workplace harassment).

### 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

##### A. Absence for medical illness:

Students must familiarize themselves with the [Accommodation for Illness Policy](#).

A student seeking academic accommodation for any **work worth less than 10%** must contact the instructor or follow the appropriate Department or course specific instructions provided on the course outline. Instructors will use good judgment and ensure fair treatment for all students when considering these requests. You are not required to disclose details about your situation to your instructor; documentation is not required in this situation, and you should not send any pictures to your instructor.

If you are unable to meet a course requirement for any **work worth 10% or greater** due to illness or other serious circumstances, you must provide valid medical or other supporting documentation to the Academic Counselling as soon as possible and contact your instructor immediately. It is the student's responsibility to make alternative arrangements with their instructor once the accommodation has been approved and the instructor has been informed. Please note that the format of a make-up test, exam, or assignment is at the discretion of the course coordinator.

A student requiring academic accommodation due to illness should use the Student Medical Certificate when visiting an off-campus medical facility or request a Record's Release Form (located in the Dean's Office) for visits to Student Health Services. The form can be found at: [http://www.uwo.ca/univsec/pdf/academic\\_policies/appeals/medicalform.pdf](http://www.uwo.ca/univsec/pdf/academic_policies/appeals/medicalform.pdf)

##### B. Absence for non-medical reasons:

Student absences might also be approved for non-medical reasons such as religious holidays and compassionate situations. Please review the policy on [Accommodation for Religious Holidays](#). All non-medical requests must be processed by Academic Counselling. Not all absences will be approved; pay attention to the academic calendar and final exam period when booking any trips.

## C. 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](#).

### **15% Rule**

According to the [Evaluation of Academic Performance](#) policy, at least three days prior to the deadline for withdrawal from a 1000- or 2000-level course without academic penalty, students will receive assessment of work accounting for at least 15% of their final grade. Generally, students can expect some form of feedback on their performance in a course before the drop date. In rare instances, at the Dean's discretion, an exemption can be issued, which also must be noted in the course syllabus. Deans should review exemptions on a course-by-course basis each time an exempted course is offered.

## **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.

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

[Appeal Procedures](#)

[Registrarial Services](#)

[Student Development Services](#)

[Student Health Services](#)