

Department of Physiology and Pharmacology
PHYSPHARM 4530B Skeletal Health and Disease

Course outline for Winter 2022



Although this academic year might be different, Western University is committed to a **thriving campus**. We encourage you to check out the [Digital Student Experience](https://www.uwo.ca/dse/) website to manage your academics and well-being. Additionally, the following link provides available resources to support students on and off campus: <https://www.uwo.ca/health/>.

1. Technical Requirements:



Stable internet connection



Laptop or computer



Working microphone



Working webcam

2. Important Dates:



Classes Resume	Reading Week	Classes End	Study day	Exam Period
January 10	February 19–27	April 8	April 9	April 10–30

* March 14, 2022: Last day to drop a second-term half course or a second-term full course without penalty

3. Contact Information



Course Coordinator	Contact Information
Cheryle Séguin	Use OWL message or email cheryle.seguin@schulich.uwo.ca

Instructor(s)	Contact Information
Tom Appleton	Tom.Appleton@sjhc.london.on.ca
Frank Beier	fbeier@uwo.ca
Matthew Grol	mgrol2@uwo.ca
Teaching Assistant	Contact Information
Jeff Hutchinson	jhutch48@uwo.ca

4. Course Description and Design

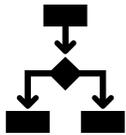
Musculoskeletal disorders such as osteoarthritis, osteoporosis and disc degeneration have huge impact on individuals' quality of life and the healthcare system, especially as our population ages. Recent evidence shows that events that are physiologically linked to the skeleton can drive pathology in other tissues, such as the mineralization of blood vessels in atherosclerosis. This course will provide an overview of the development and biology of skeletal tissues, introduce current techniques used to study skeletal physiology and examine the biological bases of musculoskeletal diseases and their treatments.

Requisites: Phys3120 (Human Physiology); Phys 3140A (Cellular Physiology)

Delivery Mode: online synchronous + asynchronous / in-person

Timetabled Sessions

Component	Date(s)	Time
Lecture & Student debate presentations	Wednesdays	9:30-11:20 am



Although the intent is for this course to be delivered in-person, the changing COVID-19 landscape may necessitate some or all of the course to be delivered online, either synchronously (i.e., at the times indicated in the timetable) or asynchronously (e.g., posted on OWL for students to view at their convenience). The grading scheme will not change. Any assessments affected will be conducted online as determined by the course instructor.

- Asynchronous pre-work must be completed prior to sessions
- Attendance at sessions is required
- When possible, a recording will be provided of the sessions

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

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

- Understand the structure and function of the musculoskeletal system and its contributions to systemic health
- Understand the pathophysiology of common musculoskeletal disorders
- Understand basic research methods in this area
- Interpret and design experiments basic science experiments in musculoskeletal health
- Critically assess basic research publications relevant to musculoskeletal health



6. Course Content and Schedule

WEEK	DATE	TOPIC	INSTRUCTOR
1	Jan 12	Introduction to the skeleton and skeletal development	Beier
2	Jan 19	Cartilage Biology and Pathology of osteoarthritis	Appleton
3	Jan 26	Bone Biology and metabolic bone diseases	Grol
4	Feb 2	Disorders of Ectopic ossification (FOP, DISH, HO) Student debate #1 (cartilage OA)	Séguin Beier
5	Feb 9	Skeletal Regeneration and Tissue Engineering	Séguin
6	Feb 16	Student Debate #2 (Bone Biology) Student Debate #3 (Ectopic bone formation)	Séguin / Grol
7	Feb 23	No Class, Reading Week	
8	Mar 2	MIDTERM – In class	
9	Mar 9	Quiz / Midterm review Q&A Student Debates #4 (Tissue Engineering)	Séguin
10	Mar 16	Spine Biology and Common Spine Disorders	Séguin
11	Mar 23	Tendon and Muscle Biology	Grol
12	Mar 30	Student Debate #5 (IVD Development) Student Debate #6 (if required)	Séguin (Grol)
13	Apr 6	Musculoskeletal Mechanobiology	Séguin



7. Participation and Engagement



- Students are expected to participate and engage with lecture content as much as possible
- Students are expected to read all debate papers before class and participate in the class discussion following presentations
- 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
Online quizzes	Multiple choice / short answer	15%	throughout term
Midterm test	Short and long answer	30%	Mar 2, 2022
Debate presentations	Oral Presentation	15%	throughout term
Final exam	Short and long answer	40%	TBD

The midterm test and final exam will consist of short answer questions based on lecture materials, any information posted on OWL, and any assigned readings as well as one long-answer essay format question. The final exam is cumulative, but with emphasis on the material taught after the midterm.

Online quizzes will be posted on OWL following each debate, and remain open for 1 week. Questions will be based on the debate papers, including relevant methodologies, results, and overall discussion of the debate topic. Quizzes will be open book, but must be completed by each student individually. Quiz answers will be graded as submitted written assignments and assessed for textual similarity. Detection of plagiarism will result in a grade of 0.



The structure and objectives of the in-class debates are posted on OWL.

In the case of a student absence on the day on their schedule debate presentation, students will be expected to prepare a 3-4 page (~1,500 word) "News and Views" style report on the 2 assigned scientific journal papers (i.e. both sides of the debate). Examples of such "News and Views" reports can be found at: <https://www.nature.com/nature/articles?type=news-and-views&year=2019>. This "make-up" assignment will be due 1 week after schedule debate presentation.

- All assignments are due at 11:55 pm EST unless otherwise specified
- Written assignments will be submitted to Turnitin (statement in policies below)
- Rubrics will be used to evaluate assessments and will be posted with the instructions
- A student may not receive the same grade as their group members if it is determined that the distribution of work was not equal
- 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

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:

- Late assessments without self-reported absences or accommodation will be subject to a late penalty 10 %/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)
- One make-up test will be scheduled within 48-72 h of the midterm OR the weight of the missed test will be transferred to the final exam (only with permission of course coordinator).
- 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 OWL or email
- Emails will be monitored daily; students will receive a response in 24 – 48 hours
- This course will use OWL forum 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 in-person or remotely using zoom
- Office hours will be scheduled as requested and booked
- Office hours can be either individual or group

11. Resources



- All resources will be posted in OWL
- NO required textbook
- NO required study guide

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

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. Take notes as you go through the lesson material. Keeping handwritten notes or even notes on a regular Word document will help you learn more effectively than just reading or watching the videos.
4. Connect with others. Try forming an online study group and try meeting on a weekly basis for study and peer support.
5. Do not be afraid to ask questions. If you are struggling with a topic, bring it up in class, check the online discussion boards or contact your instructor(s) and or TA.
6. 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. Academic Counselling will be operating virtually this year and can be contacted at scibmsac@uwo.ca.

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](#).

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.

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

[Appeal Procedures](#)

[Registrarial Services](#)

[Student Development Services](#)

[Student Health Services](#)