

Course ID:	Course Title:	Winter 2024
Kin 385	Biomechanics	Prerequisite: ZOO 261 and ZOO 263 (PHY 111 is recommended)
		Credits: 3

Class Information		Instructor Information		Important Dates	
Delivery:	IN-PERSON	Instructor:	Dr. Mehdi Dehghany, PhD	First day of classes:	Monday, January 08
Lecture Days and time: Wednesday 5:00-6:15 pm Friday 9:45-11:00 am		Email:	Mehdi.dehghany@ambrose.edu	Last day to add/drop, or change to audit:	Sunday, January 21
		Google meet link:	https://meet.google.com/phc-xrwq-yyb	Last day to request revised final exam:	Monday, March 04
Room:	L2100	Office:	---	Last day to withdraw from course:	Thursday, March 28
Lab/ Tutorial:	Friday 11:30 am-2:30 pm	Office Hours:	Friday from 11:00 to 11:30 am noon, only by appointment	Last day to apply for coursework extension:	Tuesday, April 02
Final Exam:	April 17 th 2024 9am – 12 noon	No classes on: Feb 20-24: Reading week		Last day of classes:	Friday, Apr 12

Course Description

This course will cover the biomechanical properties of tissues and organs and will discuss the effects of these properties on function. Methods for the analysis of deformational mechanics will be introduced as they apply to biological tissues including bone, muscle, and connective tissues. Analysis of movement will also be discussed at a biomechanical level.

Expected Learning Outcomes

It is the aim of the course that students acquire the following skills:

1. To gain an understanding of the principles of physics and mechanics as they apply to body movement and function.
2. To learn the biomechanical properties of various body tissues and the effects of these properties on function and the mechanical design of various animals
3. To learn methods for the analysis of deformational mechanics as they apply to biological tissues including bone, muscle, and connective tissues.
4. To analyze body movements at a biomechanical level.
5. To further develop their presentation skills – both written and oral

Textbooks

#1: Biomechanics of sport and exercise, by Peter M. McGinnis, State University of New York, College at Cortland, third edition 2013.

and

#2: Fundamental of Biomechanics, by Nihat Ozkaya, Dawn Leger, David Goldsheyder, Margareta Nordin, Published by Springer, Fourth edition 2017.

Course Schedule (Based on Text Book#1)

External Biomechanics: Chapters 1 - 3 of the textbook#1 + motion analyses of human body

In this section of the course, Motion of body caused by external forces are explained. Concept of static and kinetic equilibrium as well as human body in non-equilibrium are studied. In addition, vector analyses of movements are presented.

External Biomechanics: Chapters 5 - 8 of the textbook#1 plus analyses of sport rotational movements and Fluid mechanics

Further torques are discussed as the cause of rotational motions. Angular kinematics and kinetics pertaining to human body movements are explained. In addition, principles of fluid mechanics as a point of entry to study the effect of water and air on human body are discussed.

Internal Biomechanics: Chapters 9 – 11 of the textbook#1. Internal forces of among body segments are studied. The skeletal and muscular systems are explained in details.

Requirements:

Lab (7 lab reports to be handed in on papers)	21%
Midterm One (In-person on Friday, March 1 st)	15%
Midterm Two (In-person on Friday March 29 th)	20%
Project (Building an anatomical model to lift an object)	9%
Final Exam (In-person on Wednesday, April 17 th , 9 am to 12 noon)	35%

Attendance:

In-person sessions are mandatory to attend.

Grade Summary:

The available letters for course grades are as follows:

<u>Letter Grade</u>	<u>Description</u>								
A+	Excellent	95-100	A+	82-85.9	B+	70-73.9	C+	58-61.9	D+
A		90-94.9	A	78-81.9	B	66-69.9	C	54-57.9	D
A-		86-89.9	A-	74-77.9	B-	62-65.9	C-	0-54	F (Fail)
B+	Good								
B									
B-									
C+	Satisfactory								
C									
C-									
D+	Minimal Pass								
D									
F		Failure							

Because of the nature of the Alpha 4.00 system, there can be no uniform University-wide conversion scale. The relationship between raw scores (e.g. percentages) and the resultant letter grade will depend on the nature of the course and the instructor's assessment of the level of each class, compared to similar classes taught previously.

Please note that final grades will be available on student registration system. Printed grade sheets are not mailed out.

Ambrose University Academic Policies:

Communication

All students have received an Ambrose e-mail account upon registration. It is the student's responsibility to check this account regularly as the Ambrose email system will be the professor's instrument for notifying students of important matters (cancelled class sessions, extensions, requested appointments, etc.) between class sessions. If students do not wish to use their Ambrose accounts, they will need to forward all messages from the Ambrose account to another personal account.

Registration

During the **Registration Revision Period** students may enter a course without permission, change the designation of any class from credit to audit and /or voluntary withdraw from a course without financial or academic penalty or record. Courses should be added or dropped on the student portal by the deadline date; please consult the List of Important Dates. After that date, the original status remains and the student is responsible for related fees.

Students intending to withdraw from a course after the Registration Revision Period must apply to the Office of the Registrar by submitting a "Request to Withdraw from a Course" form or by sending an email to the Registrar's Office by the **Withdrawal Deadline**; please consult the List of Important Dates on the my.ambrose.edu website. Students will not receive a tuition refund for courses from which they withdraw after the Registration Revision period. A grade of "W" will appear on their transcript.

Students wishing to withdraw from a course, but who fail to do so by the applicable date, will receive the grade earned in accordance with the course syllabus. A student obliged to withdraw from a course after the Withdrawal Deadline because of health or other reasons may apply to the Registrar for special consideration.

Exam Scheduling

Students, who find a conflict in their exam schedule must submit a Revised Examination Request form to the

Registrar's Office by the deadline date; please consult the List of Important Dates. Requests will be considered for the following reasons only: 1) the scheduled final examination slot conflicts with another exam; 2) the student has three final exams within three consecutive exam time blocks; 3) the scheduled final exam slot conflicts with an exam at another institution; 4) extenuating circumstances. Travel is not considered a valid excuse for re-scheduling or missing a final exam.

Electronic Etiquette

Students are expected to treat their instructor, guest speakers, and fellow students with respect. It is disruptive to the learning goals of a course or seminar and disrespectful to fellow students and the instructor to use electronics for purposes unrelated to the course during a class session. Turn off all cell phones and other electronic devices during class. Laptops should be used for class-related purposes only. Do not use iPods, MP3 players, or headphones. Do not text, read, or send personal emails, go on Facebook or other social networks, search the internet, or play computer games during class. Some professors will not allow the use of any electronic devices in class. The professor has the right to disallow the student to use a laptop in future lectures and/or to ask a student to withdraw from the session if s/he does not comply with this policy. Repeat offenders will be directed to the Dean. If you are expecting communication due to an emergency, please speak with the professor before the class begins.

Academic Policies

It is the responsibility of all students to become familiar with and adhere to academic policies as stated in the Academic Calendar. Personal information (information about an individual that may be used to identify that individual) may be required as part of taking this class. Any information collected will only be used and disclosed for the purpose for which the collection was intended. For further information contact the Privacy Compliance Officer at privacy@ambrose.edu.

Extensions

Although extensions to coursework in the semester are at the discretion of the instructor, students may not turn in coursework for evaluation after the last day of the scheduled final examination period unless they have received permission for a course Extension from the Registrar's Office. Requests for course extensions or alternative examination time must be submitted to the Registrar's Office by the deadline date; please consult the List of Important Dates. Course extensions are only granted for serious issues that arise "due to circumstances beyond the student's control."

Appeal of Grade

An appeal for change of grade on any course work must be made to the course instructor within one week of receiving notification of the grade. An appeal for change of final grade must be submitted to the Registrar's Office in writing and providing the basis for appeal within 30 days of receiving notification of the final grade, providing the basis for appeal. A review fee of \$50.00 must accompany the appeal. If the appeal is sustained, the fee will be refunded.

Academic Integrity

We are committed to fostering personal integrity and will not overlook breaches of integrity such as plagiarism and cheating. Academic dishonesty is taken seriously at Ambrose University as it undermines our academic standards and affects the integrity of each member of our learning community. Any attempt to obtain credit for academic work through fraudulent, deceptive, or dishonest means is academic dishonesty. Plagiarism involves presenting someone else's ideas, words, or work as one's own. Plagiarism is fraud and theft, but plagiarism can also occur by accident when a student fails or forgets to acknowledge to another person's ideas or words. Plagiarism and cheating can result in a failing grade for an assignment, for the course, or immediate dismissal from the university. Students are expected to be familiar with the policies in the current Academic Calendar that deal with plagiarism, cheating, and the penalties and procedures for dealing with these matters. All cases of academic dishonesty are reported to the Academic Dean and become part of the student's permanent record.

Mental Health Support

All of us need a support system. We encourage students to build mental health supports and to reach out when help is needed.

On Campus:

- Counselling Services: ambrose.edu/counselling
- Peer Supportive Listening: One-to-one support in Student Life office. Hours posted at ambrose.edu/wellness.
- For immediate crisis support, there are staff on campus who are trained in Suicide Intervention and Mental Health First Aid. See ambrose.edu/crisissupport for a list of staff members.

Off Campus:

- Distress Centre - 403-266-4357
- Sheldon Chumir Health Care Centre - 403-955-6200
- Emergency - 911

Sexual Violence Support

All staff, faculty, and Residence student leaders have received *Sexual Violence Response to Disclosure* training. We will support you and help you find the resources you need. There is a website with on and off campus supports – ambrose.edu/sexual-violence-response-and-awareness.

Off Campus:

- Clinic: Sheldon Chumir Health Centre - 403-955-6200
- Calgary Communities Against Sexual Abuse - 403-237-5888

Note: Students are strongly advised to retain this syllabus for their records.