

Western University
School of Kinesiology

KIN 2241B – Biomechanics

COURSE OUTLINE – 2016-17

**CALENDAR
DESCRIPTION**

An introduction to qualitative and quantitatively analyzing the mechanics of human movement in sport, exercise, dance, the workplace, activities of daily life and adaptations made due to injury or disability. An emphasis is placed on understanding and identifying the physical principles that influence movement patterns and performance.

**COURSE
INFORMATION**

Instructor: Professor Thomas Jenkyn, PhD, PEng
Room: SEB2051
Tel: 519-661-2111 x88339
Email: tjenkyn@uwo.ca

Lectures: M, W, F 10:30-11:30 (TC 141)

**SPECIFIC
OBJECTIVES**

Upon successful completion of this course, the student will have an understanding of the physical principles that influence the biomechanics of human movement in sport, exercise, dance, the workplace and activities of daily life. Specifically they will understand how to analyze the kinematics of the segments of the body and the kinetics that result from that motion. Students will be able to analyze the forces, moments of force, work, power and energy of various common activities. Students will also be introduced to how these physical principles affect the internal loading of the tissues of the body. Emphasis will be placed on coaching to improve sporting performance and interventions to improve injury recovery and functional optimization with disability.

CONTACT HOURS

3 one-hour lectures per week, half course

**RECOMMENDED
TEXT**

Biomechanics: A qualitative approach for studying human movement, ISBN 0-205-18651-3, Kreighbaum E, Barthels KM. 4th Edition in SI Units, Allyn and Bacon, Boston 1996

**EXAMINATIONS
AND QUIZZES**

Ten written assignments
Four take-home laboratory assignments
One 2-hour midterm closed book exam
One 3-hour final closed book exam

EVALUATION

The overall course grade is computed as follows:

Written assignments

10%

Short written answers to at least three questions from the end of each chapter of the textbook. There will be about ten (10) assignments in total, although this is subject to change based on course schedule. The due dates are also subject to change. All assignments are handed in at the beginning of lecture.

Assignment 1: Due Friday, January 13th at 10:30am

Assignment 2: Due Friday, January 20th at 10:30am

Assignment 3: Due Friday, January 27th at 10:30am

Assignment 4: Due Friday, February 3rd at 10:30am

Assignment 5: Due Friday, February 10th at 10:30am
Assignment 6: Due Friday, February 17th at 10:30am
Assignment 7: Due Monday, February 27th at 10:30am
Assignment 8: Due Friday, March 17th at 10:30am
Assignment 9: Due Friday, March 24th at 10:30am
Assignment 10: Due Monday, April 3rd at 10:30am

Laboratory assignments**20%**

Lab assignments are done by the student alone or with an informal group. The lab involves a prescribed physical activity that is performed by the student. The student then analyzes the biomechanics of the activity on the basis of their experience and their understanding of the course material. The assignment takes the form of a multi-page report. The due dates are subject to change. All labs are handed in at the beginning of lecture.

Lab 1: Due Wednesday, January 25th at 10:30am
Lab 2: Due Wednesday, February 15th at 10:30am
Lab 3: Due Wednesday, March 8th at 10:30am
Lab 4: Due Wednesday, March 29th at 10:30am

Mid-term Test**20%**

The midterm exam will be scheduled in the last week of October or the first week of November and is worth 30% of the course mark.

Final Examination**50%**

The final exam will be scheduled during the final exam period. If a minimum mark of 50% is not obtained on the final examination, the student cannot receive a final mark greater than 48%.

ENGLISH

In accordance with Senate and Faculty Policy, students may be penalized up to 10% of the marks on all assignments, tests and examinations for improper use of English. Additionally, poorly written work, with the exception of final examinations, may be returned without grading. If resubmission of the work is permitted, it may be graded with marks deducted for poor English and/or late submission.

ATTENDANCE

Any student, who, in the opinion of the instructor, is absent too frequently from class or laboratory periods in any course, will be reported to the Dean (after due warning has been given). On the recommendation of the Department concerned, and with the permission of the Dean, the student will be debarred from taking the regular examination in the course.

SSD

Please contact the course instructor if you require material in an alternate format or if any other arrangements can make this course more accessible to you. You may also wish to contact Services for Students with Disabilities (SSD) at 661-2111 x 82147 for any specific question regarding an accommodation.

CHEATING

University policy states that cheating, including plagiarism, is a scholastic offense. The commission of a scholastic offence is attended by academic penalties, which might include expulsion from the program. If you are caught cheating, there will be no second warning.

NOTE

The above topics and outline are subject to adjustments and changes as needed. Students who have failed a previous course (ie.<50%) must repeat all components of the course. No special permissions will be granted enabling a student to retain

laboratory, assignment or test marks from previous years. Previously completed assignments and laboratories cannot be resubmitted for grading by the student in subsequent years.