



Course: HH/KINE 4470 3.0 – Muscle and Joint Biomechanics

Course Webpage: <http://moodle.yorku.ca/>

Term: Summer-2 (S2) 2017

Prerequisite / Co-requisite: HH/KINE 3030 3.0 – Biomechanics of Human Movement

Course Instructor

Instructor: Brian Nairn
2020 Sherman Health Science Research Centre
Office Hours: By appointment
Email: nairn1@yorku.ca
TAs: TBA

Time and Location

Lectures: Monday & Wednesday, 9:30 am – 12:30 pm, SC 218
Labs: Wednesday, 12:30 pm – 2:30 pm, SC101A

Expanded Course Description

Organization of the Course: The purpose of this course is to provide a deeper understanding of quantitative biomechanical principles. Analytical and computational techniques involving multisegmental, dynamics analyses of human movement are examined. Topics include (but not limited to): kinematics, kinetics, anthropometry, muscle and tissue mechanics, rigid-link modelling, and electromyography. The course mainly involves formal lectures given by the professor with a laboratory component that will provide a hands-on learning experience for the students. Students will be expected to come to class prepared to take notes on the important concepts from the readings that will be highlighted and discussed during lecture. Evaluations will be in the form of oral and written assignments, the laboratory component, and formal examinations.

Course Learning Objectives: The course is designed to provide students with the knowledge of a variety of advanced biomechanical techniques and theory applied to human systems. By the end of the semester, students will:

1. Understand the different biomechanical techniques used to evaluate production of human movement at the joint and muscle levels

2. Calculate a static rigid-link model.
3. Understand the potential applications of biomechanics research.
4. Continue to develop pertinent written and oral skills.

Suggested Readings

Whiting WC, Zernicke RF. Biomechanics of Musculoskeletal Injury, 2nd Edition. Windsor, Human Kinetics; 2008. (@ Scott)

Winter DA. Biomechanics and motor control of human movement, 3rd or 4th Edition. Toronto, John Wiley & Sons, Inc; 2004/2009. (@ Steacie)

Robertson DGE. Research methods in biomechanics. Human Kinetics; 2004. (@ Steacie)

Evaluation

In-class Assignment	10%	In-class, Wednesday July 26 th , 2017
Lab Assignments	20%	Due dates provided: Lab 1 & 2: 5% ea; Lab 3: 10%
Midterm	30%	In-class, Wednesday July 10 th , 2017
Final Examination	40%	TBA

*Final course grades may be adjusted to conform to Program or Faculty grades distribution profiles.

Midterm and Final Exam

- Numerical scores will be assigned for each exam and the overall letter grades will be assigned based on the descriptions found in the York University Undergraduate Calendar.
- The exams will be on the information covered in lecture and laboratory. The format may include short answer, fill-in-the-blank, and multiple choice style questions. The exams are cumulative however the focus will be on material not previously tested.
- Students are expected to maintain the highest standards of academic integrity related to issues such as cheating, etc. Breaches of Academic Integrity will not be tolerated.
- All electronic devices are prohibited. If you bring such items on an exam day, you will be required to leave them in your bag at the front of the room. If you are found with such a device in your possession the instructor will have to assume it was used for cheating and you will receive a mark of zero.
- You will be expected to remove or turn all peaked hats backwards. You will be expected to not alter your clothing (i.e. push up sleeves, roll down sleeves, etc.), or look extensively at your clothing (i.e. shoes, pant legs, etc.) during the exam. You will be expected to take all labels off of see-through bottles. You will be expected to have all materials required to write the exam on your desk and will not be permitted to search through your bag or pencil case for additional materials. You will not be permitted to share any materials with other students.

- Expect that all tissues and tissue packages will be inspected, as will any materials on your desk (i.e. pens, calculators, erasers, fluid/food containers, etc). If there is any suspicious behaviour (i.e. repeated looking at shoes, pockets, sleeves, etc) you will be asked to show these items to the instructor.
- Once you leave the exam room you are not permitted to return until the conclusion of the exam. The only exception is to use the washroom, and you will be chaperoned to and from the washroom.
- You will be allowed to view your midterms, either in class or at a scheduled time, but you will not be permitted to take the exam with you. Failure to return your exam will result in a mark of zero for that exam. There are no exceptions. If you wish additional time to view your exam you may schedule an appointment to do so. You are not permitted to make a copy whole or in part of any exam.

Policies

Grading:

The grading scheme for the course conforms to the 9-point grading system used in undergraduate programs at York (e.g., A+ = 9, A = 8, B+ = 7, C+ = 5, etc.). Assignments and tests will bear either a letter grade designation or a corresponding number grade (e.g. A+ = 90 to 100, A = 80 to 90, B+ = 75 to 79, etc.)

(For a full description of York grading system see the York University Undergraduate Calendar - http://calendars.registrar.yorku.ca/pdfs/ug2004cal/calug04_5_acadinfo.pdf).

It is the student's responsibility to review returned material to ensure that the marks earned are accurate. Any appeal for grade revision (a) must be received by the instructor within 7 calendar days of the date the work was returned to the class; (b) must be made in writing; and (c) must explicitly state why you believe the mark is in error. Grade disputes after this 7 calendar-day period will not be considered. Individual short answer questions of an exam will not be re-marked. However, you may request that all of the short answer questions are re-marked. An appealed grade may increase, decrease, or remain unchanged.

Assignment Submission:

Proper academic performance depends on students doing their work not only well, but on time. Accordingly, assignments for this course must be received on the due date specified for the assignment. **Hard/paper copies of assignments are to be submitted by 9:30 am** (beginning of class) on the day the assignment is due. **If you are late to class, so is your assignment.** Hard copies of assignments can be submitted early, in my mailbox in the KINE office (341 Bethune); if submitting to my mailbox, have one of the secretaries time and date stamp your assignment when submitting. Please email me in advance if you are submitting your assignment at the office.

Lateness Penalty:

Assignments received later than the due date will be penalized by 50% for the first day (including weekends) that the assignment is late, followed by 25% for each additional day. The first 50% will be deducted if the assignment is not submitted by the beginning of class (1:30 p.m.), and an additional 25% will be deducted for each 24 hour increment the assignment is late. Exceptions to the lateness penalty for valid reasons such as illness, compassionate grounds, etc., may be entertained by the Course Instructor but will require supporting documentation (e.g., a doctor's letter) that must be verifiable.

Missed Tests:

If you know in advance that you will not be able to write an exam on the scheduled date you must notify the instructor in writing at least 7 calendar days prior to the scheduled exam date. For unforeseen events, if the instructor is provided acceptable and verifiable medical (or equivalent compassionate) reasons within 72 hours after the missed exam time, a makeup midterm **MAY** be able to be written if offered. Otherwise the missed midterm percentage will be allocated to the final exam. Further extensions or accommodation will require students to submit a formal petition to the Faculty.

Email Policy:

All electronic communication with the course instructor must be through your York University preferred email address and contain the course code in the subject line (KINE 4470). Emails are a form of communication and the spelling, grammar, and tone will reflect your communication skills. Students may address the course instructor as Prof. Nairn. Write emails using professional language that would be acceptable in a workplace to manager. Emails in inappropriate form/language (ex. text messaging language – c u l8r) will not be read or returned. Emails will only be responded to during work hours, 9 am to 5 pm, Monday through Friday, to ensure equal access is provided for all students in the course.

Plagiarism and Academic Integrity

Students are expected to maintain the highest standards of academic integrity related to issues such as cheating, plagiarism, etc. Breaches of academic integrity will not be tolerated.

The School of Kinesiology & Health Science takes academic dishonesty very seriously and will abide by York University's Senate Policy on Academic Honesty to adjudicate all cases. Students are expected to make efforts to discourage any and all (un)intentional breaches from their course work. Students are expected to act in accordance with the Senate Policy on Academic Honesty and are responsible for familiarizing themselves with these guidelines. Breaches of academic integrity will be handled under the disciplinary proceedings as outlined in <http://www.yorku.ca/secretariat/policies/document.php?document=69>.

IMPORTANT COURSE INFORMATION FOR STUDENTS

All students are expected to familiarize themselves with not only the above information but also the following information, which is available on the Senate Committee on Curriculum & Academic Standards webpage (see Reports, Initiatives, Documents) - http://www.yorku.ca/secretariat/senate_cte_main_pages/ccas.htm

- York's Academic Honesty Policy and Procedures/Academic Integrity Website
- Ethics Review Process for research involving human participants
- Course requirement accommodation for students with disabilities, including physical, medical, systemic, learning and psychiatric disabilities
- Student Conduct Standards
- Religious Observance Accommodation

Classroom Policy

The following should be clearly understood by all students:

1. The instructor will not be available to answer questions 24 hours prior to midterm, presentations, and the final exam.
2. Class begins at 9:30 am and ends at 12:30 pm. In the event that you must arrive late or

leave early, please enter/exit the classroom with a MINIMUM disturbance to the class.

3. Cellular phones, pagers, text-messaging devices, and laptops are disruptive if the sound/ring is on. If you must bring any of these types of devices with you to class ensure the sound is turned off.
4. You are expected to pay attention and treat the instructor and other students with respect. If you are found to be disruptive you will be asked to leave the class and will forfeit any right to marks or opportunities offered during that class (i.e. attendance mark).
5. Persons that are not registered in the course are NOT permitted to participate in any aspect of the course (i.e. not attend lectures, labs, and exams).