



# KINE 4470

## Muscle and Joint Biomechanics

### Fall 2013

#### **COURSE INSTRUCTOR**

Instructor: Dr. Janessa Drake  
2030 Sherman Health Science Research Centre  
Office Hour: TBA  
Email: [spine@yorku.ca](mailto:spine@yorku.ca)  
Marker/Grader: Corinne Babiolakis ([cbabio@yorku.ca](mailto:cbabio@yorku.ca))

#### **COURSE INFORMATION**

Lectures: Monday/Wednesday, 11:30 pm – 1:00 pm, VH 1152A  
Webpage: <https://moodle.yorku.ca>  
Email Hour: Thursdays, 9am-10am

#### **PREREQUISITE / CO-REQUISITE**

HH/KINE 3030 3.0 – Biomechanics of Human Movement

#### **EXPANDED COURSE DESCRIPTION**

A deeper understanding of quantitative biomechanical principles is gained and applied to human motion covering occupational, clinical and leisure settings. Analytical and computational techniques involving multisegmental, dynamic analyses of human activity are examined through lectures and laboratories. Factors including kinematics, kinetics, anthropometry, muscle mechanics, muscle architecture, and electromyography are studied.

The course involves formal lectures given by the Professor. Lectures may be supplemented by labs, videos, and guest speakers where appropriate. Suggested readings, including selected textbooks (available on reserve), supplement the information provided in lecture. Additional journal articles may be assigned. Students are expected to come to class/laboratory prepared, to take notes, and participate. Students are also expected to take notes on the important concepts from the readings that are assigned and/or discussed during lecture.

## **COURSE LEARNING OBJECTIVES**

1. Understand the quantitative biomechanical principles used to evaluate the production of human motion at the joint and muscle levels.
2. Understand a number of factors that affect the total joint moments.
3. To gain an appreciation of the problems encountered in the acquisition, reduction, and interpretation of data generated during investigations.
4. To gain an appreciation of the potential applications of biomechanical research.

## **SUGGESTED READINGS (Copies on Reserve)**

Hamill J, Knutzen KM. Biomechanical Basis of Human Movement, 3<sup>rd</sup> Edition, Baltimore, Lippincott, Williams, & Wilkins; 2009. (@Scott)

Nordin M, Frankel BH. Basic Biomechanics of the Musculoskeletal System, 4<sup>th</sup> Edition, New York, Lippincott, Williams, & Wilkins; 2012. (@ Steacie)

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

Winter DA. Biomechanics and motor control of human movement, 4<sup>th</sup> Edition. Toronto, John Wiley & Sons, Inc; 2009. (@ Steacie)

## **COURSE EVALUATION**

Academic Integrity Tutorial*	Bonus*	Due 23 <sup>rd</sup> September 2013.
Midterm	30%	In-class 9 <sup>th</sup> October 2013
Lab Assignments	20%	Due dates given in class, 5% each
Final Exam	50%	TBA

\*Students can earn up to 3 bonus marks on the final exam by submitting a copy of the "Score Results" that is displayed upon completion of the online Academic Integrity Tutorial. Students must earn at least an 8/10 for the quiz to be accepted. Bonus marks are assigned as follows: 1 bonus mark for 8/10, up to 3 marks for 10/10). Students may take the quiz as many times as required to obtain this minimum. Students must submit the "Score Results" by the beginning of the class on the 23<sup>rd</sup> of September 2013 to be eligible to receive any bonus marks. The quiz link is posted on the course Moodle site and here: [http://www.yorku.ca/tutorial/academic\\_integrity/index.html](http://www.yorku.ca/tutorial/academic_integrity/index.html).

The Course Instructor will NOT be available to answer questions or provide clarification 24 hours prior to the deadline of an assignment, the midterm, and the final exam regardless if such inquiries are made in-person, by telephone, email, or any other communication forms.

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

## **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, etc.). Marked materials 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](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 questions or sections of an exam or assignment will not be re-marked, however you may request the ENTIRE document be re-marked, where your overall mark may INCREASE, DECREASE, or REMAIN THE SAME.

### **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. Hard/paper copies of assignments are to be submitted by 11:30 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 for Assignments:**

Assignments received later than the due date will be penalized by 50% for the first calendar 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 (11:30 am), 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 acceptable supporting documentation (e.g., medical or equivalent compassionate documentation) that must be verifiable, and the Course Instructor must be notified within 72 hours after the missed deadline. Alternate arrangements are not automatic, but MAY be made at the discretion of the Course Instructor.

**Missed Exam:**

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. Alternate arrangements are not automatic, but MAY be made at the discretion of the Course Instructor. Further extensions or accommodation will require students to submit a formal petition to the Faculty.

**Email and Voicemail 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 Dr. Drake. Write emails using professional language that would be acceptable in a workplace to a manager. Emails in inappropriate form/language (ex. text messaging language – c u l8r, disrespectful, etc.) will not be read or returned. Depending on the level of clarification and/or number of questions per email (1-2 questions is appropriate), and frequency of emails, at the Course Instructors discretion, emails may not be answered and a meeting with the student will be arranged. 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. The Course Instructor also has an assigned email hour on Thursday 9am-10am, when emails will be responded to immediately (dependent on demand). The Course Instructor will not respond to emails to answer questions or provide clarification within 24 hours before any deadline or exam time.

**Plagiarism and Academic Integrity:**

Students are expected to maintain the highest standards of academic integrity related to issues such as cheating, plagiarism, authentic documentation, etc. Breaches of academic integrity will not be tolerated. Students are required to complete the online Academic Integrity (repeating if necessary until earning an 8/10) to complete this course.

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 complete their own work without significant assistance, in part or whole, on assignments and exams. 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](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