Acknowledgement of Indigenous Peoples and Traditional Territories: York University recognizes that many Indigenous nations have longstanding relationships with the territories upon which our campuses are located that precede the establishment of York University. We acknowledge our presence on the traditional territories of the Mississaugas of Credit First Nation, the Huron-Wendat, the Haudenosaunee Confederacy and the Métis Nation of Ontario

York University
Faculty of Health
SCHOOL OF KINESIOLOGY AND HEALTH SCIENCE

Course: HH/KINE 3030 3.0 Introduction to Biomechanical Analysis of Human Movement
Course Webpage:
Course: HH/KINE3030 M & N - Biomechanics of Human Movement (Winter 2022-2023) (yorku.ca)
Term: Winter 2023

Prerequisite / Co-requisite: HH/KINE 2031 3.00 Human Anatomy

**** Please note that this is a course that will use in person teaching and learning for lectures and labs. All times in the course outline or elsewhere related to this course are in local Toronto time. ****

Course Instructor: Dr. Anne Moore, biomech@yorku.ca (416) 736-2100 ext. 40498, Sherman 2024
TA lab schedule and contact information is available on eClass

Office Hours will be run weekly through zoom and information will be posted on eClass

Course Description

Human Movement will be investigated with reference to the laws of physics (mechanics) and anatomical concepts applied to joint motion and muscular action.

The course involves 2 classes per week. The first part of class will be lecture in format. The live lectures will not be directly recorded but lecture recordings will be available on eclass covering the lecture portion of the class. The second part of the class will be tutorial format. The lectures are supplemented by required readings and practice questions from the textbook which are listed on eClass. Any questions on the material taught can be asked of the professor during the weekly tutorial sessions. The concepts taught are practiced in a laboratory component. This is an applied course and the purpose of the practice questions and laboratory component is for students to develop a clearer understanding of how an understanding of biomechanics can help them work in various fields involving human movement.

Course Objectives

1. To provide an understanding that all human movement (normal gait, pathological gait, sport, dance, occupational tasks etc.) takes place in a framework of known mechanical principles interacting with human anatomy and muscle physiology.

2. To teach a basic and valid framework of the mechanics of human motion on which students can build. This includes calculating *and interpreting* basic kinematic and kinetic measures used to describe human motion.

3. To expose students to the relevance and usefulness of these principles as applied to different aspects of human movement (health, sport, work etc.).

Specific learning outcomes
-To be able to describe and calculate human movement in an anatomical and mechanical framework including linear and angular measures of position, velocity, and acceleration
-To identify and analyse the common internal and external forces acting on a human during movement
-To apply the theory of how muscles work in a mechanical system as a cause of motion to determine which muscle would be acting during slow exercises and calculate how much muscle force or torque would be required
-To apply theory of angular momentum and projectile motion to predict what would happen while a human is in the air
-To apply concepts of equilibrium and centre of gravity to maintaining stability.

Course Organization and Support

Time and Location
Lectures Section M: TR 8:30-10:00 CLH L Section N: T ACW 109 R CLH L 10:00-11:30
Labs as scheduled

Technical requirements for taking the course:
Several platforms will be used in this course (e.g., Eclass, Zoom, etc.) through which students will interact with the course materials, the course director, TA, as well as with one another. Please review the syllabus to determine how the class meets (in whole or in part), and how office hours will be conducted.
Students shall note the following:

- Zoom is hosted on servers in the U.S. This includes recordings done through Zoom.
- If you have privacy concerns about your data, provide only your first name or a nickname when you join a session.
- The system is configured in a way that all participants are automatically notified when a session is being recorded. In other words, a session cannot be recorded without you knowing about it.

Technology requirements and FAQs for eClass can be found **here -** https://lthelp.yorku.ca/95440-student-faq

A way to determine Internet connection and speed: there are online tests, such as Speedtest, https://www.speedtest.net/ that can be run.

An expected timeline is provided on eClass. It is important to keep to the timeline provided as the material builds on itself and later parts of the course expect that you have mastered earlier parts of the course.

Useful links describing computing information, resources and help for students:

Computing for Students Website	https://student.computing.yorku.ca/
Student Guide to eLearning at York University	http://elearning-guide.apps01.yorku.ca/
Zoom@YorkU User Reference Guide	http://staff.computing.yorku.ca/wp-content/uploads/sites/3/2012/02/Zoom@YorkU-User-Reference-Guide.pdf
Zoom@YorkU Best Practices	https://staff.computing.yorku.ca/wp-content/uploads/sites/3/2020/03/Zoom@YorkU-Best-Practicesv2.pdf

COURSE TEXT / READINGS

Textbook: Hall, S. Basic Biomechanics, 9th Edition (either print version or online smartbook)
Please see the York University Bookstore webpage (https://bookstore.yorku.ca) for ordering e-books and for the information about free shipping of course books/kits to students with a Canadian address.

eClass: Introduction to Biomechanical Analysis of Human Movement
Includes: Course Outline, Labs, lecture recordings, lecture slides

Grading, Assignment Submission, Lateness Penalties and Missed Tests

Evaluation

Midterm Exam #1 **Thursday February 9, 2023** 20%
Midterm Exam # 2 **Thursday March 16, 2023** 20%
Laboratories 4 marks attendance, 8 submitted for grading @2% each) 20%
Final Exam: during final exam period (3 hours) 40%

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 - https://calendars.students.yorku.ca/2021-2022/grades-and-grading-schemes
Final course grades may be adjusted to conform to Program or Faculty grades distribution profiles.

Labs and Lab Assignments:

• the purpose of these labs is to provide the student with a 'hands-on' application of the major theories discussed during lecture
• attendance in your scheduled lab is expected and you will receive attendance grades up to 4% of your final grade.
• you MUST hand in your lab assignment on-line on eclass on or before the day it is due (1 week following your lab).
• if you do not hand in your lab assignment, your assignment WILL NOT be marked and you will receive a mark of zero (0); if you hand in your assignment late, you will lose 50% if it is handed in during the first week that it is late, and 100% after that, i.e., you have one week to

hand in late assignments or you will receive a mark of zero (0)
• exceptions to the lateness penalty for valid reasons such as illness, compassionate grounds, etc., may be considered by the Course Instructor but will require supporting documentation
• Eight lab assignments will be handed in and are worth 2% each of your FINAL GRADE; you are strongly encouraged to complete all of the lab assignments and to hand them in on time on eclass; in total, the lab assignments account for 16% of your final grade
• your TA's name is indicated on eClass
•All students are required to take the laboratory, there is no exception for people who previously have taken the course.

Missed Tests:
If you miss the midterm or final for a legitimate reason (i.e. illness), you are expected to email the instructor (biomech@yorku.ca) and attach the Faculty of Health Missed Test Documentation (https://www.yorku.ca/health/academic-resources/missed-test-form/) within 7 calendar days of the test to be considered for a deferred test. No further supporting documentation is required. One makeup midterm will be scheduled and if missed the weight of a missed midterm will be added to the final. If you miss the final an exam deferral form is required.

Academic Honesty And Integrity:
Students are expected to maintain the highest standards of academic integrity related to issues such as cheating, enabling cheating, plagiarism, authentic documentation, etc. Breaches of academic integrity will not be tolerated.

The School of Kinesiology and Health Science takes academic dishonesty very seriously and will abide by York University's Senate Policy of 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 assistance, in part or whole, on assignments and tests. Students are expected to act in accordance with the Senate Policy of 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: https://secretariat-policies.info.yorku.ca/policies/academic-honesty-senate-policy-on/.

To familiarize yourself with the meaning of academic integrity by completing SPARK's Academic Integrity module at the beginning of the course. Breaches of academic integrity range from cheating (i.e., the improper crediting of another's work, the representation of another's ideas as your own, etc.) to aiding and abetting (helping someone else to cheat). All breaches in this course will be reported to the appropriate university authorities, and can be punishable according to the Senate Policy on Academic Honesty.

To promote academic integrity in this course, students will be normally required to submit selected written assignments to Turnitin (via the course Moodle) for a review of textual similarity and the detection of possible plagiarism. In so doing, students will allow their material to be included as source documents in the Turnitin.com reference database, where they will be used only for the purpose of detecting plagiarism. The terms that apply to the University's use of the Turnitin service are described on the Turnitin.com website.

Intellectual Property Notice: These course materials (course lecture recordings, lecture notes, quiz and labs) are designed for use as part of the (HH/KINE 3030) course at York

University and are the intellectual property of the instructor unless otherwise stated. Third party copyrighted materials (such as book chapters, journal articles, music, videos, etc.) have either been licensed for use in this course or fall under an exception or limitation in Canadian Copyright law.

- Copying this material for distribution (e.g. uploading material to a commercial third-party website) may lead to a charge of misconduct under York's *Code of Student Rights and Responsibilities* and the Senate Policy on *Academic Honesty* and/or legal consequences for violation of copyright law if copyright law has been violated.

Student Code of Conduct:
Students and instructors are expected to maintain a professional relationship characterized by courtesy and mutual respect and to refrain from actions disruptive to such a relationship. Moreover, it is the responsibility of the instructor to maintain an appropriate academic environment, and the responsibility of the student to cooperate in that endeavour. Students must conduct themselves in accordance with York University's Student Code of Conduct. This includes all aspects of the course, including online environments. A statement of the policy and procedures involving disruptive and/or harassing behaviour by students in academic situations in available at: https://oscr.students.yorku.ca/student-conduct.

Student Code of Rights and Responsibilities:
This code is intended to be educative and promote accountability among students toward their peers and other members of the York community. This code identifies those behaviours that are disruptive to the educational purposes of the University, make the campus less safe, diminish the dignity of individuals and groups, and the enjoyment of their rights. It applies specifically to students because the behaviours of non-student members of the University community are held to comparable standards of account by provincial laws, University policies, and their unions' collective agreements. Information about how to address a concern or a complaint regarding a faculty or staff member can be found at: http://oscr.students.yorku.ca/.

Test Banks:
The offering for sale of, buying of, and attempting to sell or buy test banks (banks of test questions and/or answers), or any course specific test questions/answers is not permitted in the Faculty of Health. Any student found to be doing this may be considered to have breached the Senate Policy on Academic Honesty. In particular, buying and attempting to sell banks of test questions and/or answers may be considered as "Cheating in an attempt to gain an improper advantage in an academic evaluation" (article 2.1.1 from the Senate Policy) and/or "encouraging, enabling or causing others" (article 2.1.10 from the Senate Policy) to cheat.

Test and examinations are to be taken by the student and no one else. It is the expectation of the instructors that only specified course materials may be used. Websites should not be accessed while you are taking a test – doing so may result in the immediate closing of the online test and instructors will not re-open a test in this situation.

Accessibility:
York University provides services for students with accessibility concerns (including physical, medical, learning, and psychiatric), who require accommodation related to teaching and evaluation methods/materials. It is the student's responsibility to register with Student Accessibility Services as early as possible to ensure that appropriate academic accommodation can be provided with advance notice. You are encouraged to email a copy of your accommodation letter to your instructors as early as possible in the semester, and to schedule

a time early in the term to meet with your instructor to discuss your accommodation needs. Failure to make these arrangements may jeopardize your opportunity to receive academic accommodations. Requiring accommodation does not relieve students from following course policies. Student Accessibility Services can be accessed here: https://accessibility.students.yorku.ca/.

Other Resources

Library Help: If you having trouble with library content, please go to the York Library website and click on "Chat Is Online", https://www.library.yorku.ca/web/.

Learning Commons: Your York home for study help and workshops, http://learningcommons.yorku.ca/.

IMPORTANT COURSE INFORMATION FOR STUDENTS

All students are expected to familiarize themselves with the following information, available on the Senate Committee on Academic Standards, Curriculum & Pedagogy webpage (see Reports, Initiatives, Documents) - https://secretariat.info.yorku.ca/files/CourseInformationForStudentsAugust2012-.pdf

- Senate Policy on Academic Honesty and the 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

Calumet and Stong Colleges' Student Success Programming:

Calumet and Stong Colleges aim to support the success of Faculty of Health students through a variety of **free programs** throughout their university career:

- Orientation helps new students transition into university, discover campus resources, and establish social and academic networks.
- Peer Mentoring connects well-trained upper-year students with first year and transfer students to help them transition into university.
- Course Representative Program supports the academic success and resourcefulness of students in core program courses through in-class announcements.
- Peer-Assisted Study Sessions (PASS) involve upper-level academically successful and well-trained students who facilitate study sessions in courses that are historically challenging.
- Peer Tutoring offers one-on-one academic support by well-trained Peer Tutors.
- Please connect with your Course Director about any specific academic resources for this class.
- Calumet and Stong Colleges also support students' Health & Wellness, leadership and professional skills development, student/community engagement and wellbeing, Career Exploration, Indigenous Circle, awards and recognition, and provide opportunities to students to work or volunteer.
- For additional resources/information about Calumet and Stong Colleges' Student Success Programs, please consult our websites (Calumet College; Stong College), email scchelp@yorku.ca, and/or follow us on Instagram (Calumet College; Stong College), Facebook (Calumet College; Stong College) and LinkedIn.

- Are you receiving our weekly email (Subject: “Calumet and Stong Colleges - Upcoming events”)? If not, please check your Inbox and Junk folders, and if it’s not there then please contact ccscadmn@yorku.ca, and request to be added to the listserv. Also, make sure to add your ‘preferred email’ to your Passport York personal profile to make sure you receive important news and information.