

YORK UNIVERSITY
Kinesiology and Health Science
Faculty of Health

EXERCISE PHYSIOLOGY (KINE 4010 3.0)
Fall 2023

INSTRUCTOR:

Dr. David A. Hood, **Course Director**
Rm 302 Farquharson, ext. 66640
E-mail: dhood@yorku.ca (I do *not* use eClass for correspondence)
Virtual Office hours: Mon and Wed: 12:40-1:10 via Zoom link provided on eClass

REQUIRED LECTURE AND LAB MANUAL:

Hard copy Course Kits are on sale at the bookstore. Online orders are subject to shipping or in-store pickup fees. Please visit the [York University Bookstore website](#) for shipping information.

HIGHLY RECOMMENDED TEXTBOOK:

Powers, S.K. et al., Exercise Physiology (11th ed.) Boston: McGraw-Hill, 2021.

Limited numbers of textbooks will be available for purchase at the bookstore. However, you may rent or purchase a hard copy or e-book version of the textbook directly from the publisher. Please visit the [McGraw Hill website](#) for purchasing options. If you do not wish to purchase the textbook, a copy of the current edition is available on reserve in the [York University Libraries](#).

LECTURES:

Section A

MW: Accolade West 109

F: CLH-L

Time: 10:30-11:20

Section B

MW: Accolade West 109

F: CLH-L

Time: 11:30-12:20

LABORATORIES: **Section A:** all labs will be held in room 318A Lumbers

Section B: all labs will be held in room 318B Lumbers

LAB #1 Electromyography during static and dynamic exercise
LAB #2 Determination of maximal oxygen uptake by direct and indirect methods
LAB #3 Substrate metabolism and energy expenditure during exercise
LAB #4 Cardiovascular changes during exercise
LAB #5 Metabolic changes associated with exercise

STUDENT EVALUATION:

Laboratories: 10% [up to 2% per lab, 5 labs in total]
Midterm #1: 25% [**Wednesday Oct. 4**, covers lectures up to Sept. 29, inclusive]
Midterm #2: 25% [**Friday Nov. 10**, covers lectures from Oct. 2 to Nov. 6, inclusive]
Final Exam: 40% [**CUMULATIVE**: covers labs #1-5 and lectures from Nov. 8 to Dec. 4 (30%, 3/4 of exam)
+ all previous lecture material covered in Midterms #1 and 2 (10%, 1/4 of exam)]

TOTAL: 100%

EXAMS:

- 1) The value of missed exams will be added to the final exam. No explanatory notes are necessary in the case of a missed exam, **except for the final exam**. Only legitimate reasons for a make-up final exam will be considered. A poor grade on the final exam does not count as a reason to write a make-up final exam.
- 2) All exams will consist of multiple choice and true/false questions.
- 3) Midterm exams **will be conducted on eClass** during the normal class time, while the Final exam will take place in-person during the December exam period. Start and end times for the midterms will be announced in advance, and time allotted will be carefully calculated based on the number and type of questions asked (**T/F, MC, or MC with calculations**). Students are required to share accommodation needs with the instructor as soon as possible. You are responsible for the quality of the internet service that you use. Poor internet quality, or loss of individual internet service during an exam, will not be accepted as an excuse for poor performance. Please ensure that you take care of the location and internet service prior to starting any exam.

LABORATORIES:

- 1) Each lab is worth 2% of your final grade, for a total of 10% (5 labs x 2% each). The 2% grade is divided evenly between **attendance** (1%) and **participation** (1%). Students who volunteer to be subjects will be automatically awarded 2/2 for that lab, provided they are on time and come prepared with appropriate exercise attire. Non-subjects can still earn a grade of 2/2 if they are present for the full duration of the lab and are actively involved with data collection, equipment operation, etc. Attendance and participation marks will be deducted if you A) arrive late (>15 mins after the lab commences), B) leave early (before your group completes the exercises and cleans their station), and/or C) are not actively engaged in the lab.
- 2) Lab attendance is **mandatory**. If you anticipate missing one of your scheduled labs for **valid** reasons (ex. medical appointment), you may request permission from your TA to attend an alternate lab section on a **one-time only** basis. Please note that a lab may only be made up during the two-week period in which that lab is taking place (i.e. you will not be able to make up lab #1 after Sept 28th), so please reach out to your TA well in advance of your scheduled lab to request permission (two weeks' notice is recommended). Any absences that are not accompanied by a valid excuse, and that have not been brought to your TA's attention within a reasonable timeframe, will result in a grade of zero for that lab. Should you be unable to make up a lab, please make use of the lab resources on eClass for help with understanding and learning the material. You may also reach out to your TA for assistance.
- 3) Students looking to switch lab sections should post a message on the 'Lab switching requests' forum on eClass. If you find someone who agrees to switch with you, **both you and that student** must visit the KINE Undergrad Office (room 341 Bethune College) to confirm your intent to switch. Upon receiving confirmation from both parties, they will place on override in the system to allow you and the other student to transfer between sections in REM. The override will be valid for 24 hours. **The deadline for switching labs is Fri, Sept 15th, 3:00PM; after this time, the Lab switching forum will be closed, and switching will no longer be permitted.**

OVERVIEW of the COURSE

This is a Physiology course which specifically deals with how **acute** (1-bout) and **chronic** exercise (repeated acute bouts, i.e. training) affect the major systems of the body (energy metabolism, cardiovascular, respiratory, muscular). The course relies heavily on its prerequisites (Human Physiology I (2011) and II (3012)). It is assumed that **you have a familiarity with basic cell and organ physiology.**

SPECIFIC TOPICS COVERED IN THIS COURSE INCLUDE:

1. Energy sources for exercise and during recovery;
2. Neuroendocrine control of energy metabolism during exercise;
3. Muscle fiber types, the effects of training and fatigue;
4. Principles of aerobic exercise training and its effects;
5. Effects of interval and resistance training;
6. Physical activity and health issues: diabetes;
7. Ergogenic aids;
8. Regulation of ventilation and oxygen transport;
9. Effect of training on the respiratory system;
10. Pulmonary disease and altitude effects;
11. Central and peripheral cardiovascular function;
12. Regulation of heart rate during exercise;
13. Regulation of mean arterial blood pressure and blood flow during exercise;
14. Effect of training on the heart and vascular system.

Lecture, Lab and Exam Schedule: KINE 4010 3.0 (Fall 2023)

WEEK #	<i>Mon</i>	<i>Tues</i>	<i>Wed</i>	<i>Thurs</i>	<i>Fri</i>	<u>NOTES</u>
1			Sept. 6 Introduction		8	NO LABS
2	11		13		15	NO LABS
3	18		20		22	Lab #1 (lab sections 1-10)
4	25		27	last day to enrol with permission	29	Lab #1 (lab sections 11-19)
5	Oct. 2		4 EXAM #1		6	Lab #2 (lab sections 1-10)
6	9		11		13	READING WEEK
7	16		18		20	Lab #2 (lab sections 11-19)
8	23		25		27	Lab #3 (lab sections 1-10)
9	30		Nov. 1		3	Lab #3 (lab sections 11-19)
10	6		8 last day to drop without a grade		10 EXAM #2	Lab #4 (lab sections 1-10)
11	13		15		17	Lab #4 (lab sections 11-19)
12	20		22		24	Lab #5 (lab sections 1-10)
13	27		29		Dec. 1	Lab #5 (lab sections 11-19)
14	4		6 Study Day last day to withdraw and receive a 'W' on transcript			NO LABS

Lab section	Lab #1	Lab #2	Lab #3	Lab #4	Lab #5
01 8:30-10:30	Tues, Sept 19th	Tues, Oct 3rd	Tues, Oct 24th	Tues, Nov 7th	Tues, Nov 21st
02 10:30-12:30	Tues, Sept 19th	Tues, Oct 3rd	Tues, Oct 24th	Tues, Nov 7th	Tues, Nov 21st
03 12:30-2:30	Tues, Sept 19th	Tues, Oct 3rd	Tues, Oct 24th	Tues, Nov 7th	Tues, Nov 21st
04 2:30-4:30	Tues, Sept 19th	Tues, Oct 3rd	Tues, Oct 24th	Tues, Nov 7th	Tues, Nov 21st
05 12:30-2:30	Wed, Sept 20th	Wed, Oct 4th	Wed, Oct 25th	Wed, Nov 8th	Wed, Nov 22nd
06 2:30-4:30	Wed, Sept 20th	Wed, Oct 4th	Wed, Oct 25th	Wed, Nov 8th	Wed, Nov 22nd
07 8:30-10:30	Thurs, Sept 21st	Thurs, Oct 5th	Thurs, Oct 26th	Thurs, Nov 9th	Thurs, Nov 23rd
08 10:30-12:30	Thurs, Sept 21st	Thurs, Oct 5th	Thurs, Oct 26th	Thurs, Nov 9th	Thurs, Nov 23rd
09 12:30-2:30	Thurs, Sept 21st	Thurs, Oct 5th	Thurs, Oct 26th	Thurs, Nov 9th	Thurs, Nov 23rd
10 2:30-4:30	Thurs, Sept 21st	Thurs, Oct 5th	Thurs, Oct 26th	Thurs, Nov 9th	Thurs, Nov 23rd
11 8:30-10:30	Tues, Sept 26th	Tues, Oct 17th	Tues, Oct 31st	Tues, Nov 14th	Tues, Nov 28th
12 10:30-12:30	Tues, Sept 26th	Tues, Oct 17th	Tues, Oct 31st	Tues, Nov 14th	Tues, Nov 28th
13 12:30-2:30	Tues, Sept 26th	Tues, Oct 17th	Tues, Oct 31st	Tues, Nov 14th	Tues, Nov 28th
14 2:30-4:30	Tues, Sept 26th	Tues, Oct 17th	Tues, Oct 31st	Tues, Nov 14th	Tues, Nov 28th
15 12:30-2:30	Wed, Sept 27th	Wed, Oct 18th	Wed, Nov 1st	Wed, Nov 15th	Wed, Nov 29th
16 2:30-4:30	Wed, Sept 27th	Wed, Oct 18th	Wed, Nov 1st	Wed, Nov 15th	Wed, Nov 29th
17 8:30-10:30	Thurs, Sept 28th	Thurs, Oct 19th	Thurs, Nov 2nd	Thurs, Nov 16th	Thurs, Nov 30th
18 10:30-12:30	Thurs, Sept 28th	Thurs, Oct 19th	Thurs, Nov 2nd	Thurs, Nov 16th	Thurs, Nov 30th
19 12:30-2:30	Thurs, Sept 28th	Thurs, Oct 19th	Thurs, Nov 2nd	Thurs, Nov 16th	Thurs, Nov 30th

Section A → All labs held in room **318A** Lumbers

Section B → All labs held in room **318B** Lumbers

Time	Monday	Tuesday	Wednesday	Thursday	Friday
9:30 - 10:00					
10:00 - 10:30					
10:30 - 11:00					
11:00 - 11:30					
11:30 - 12:00					
12:00 - 12:30					

Course section → HH KINE 4010 3.00
 Section B Term F
 Laboratory 08 [Keele: LUM 318]
 Lab section →

**This student is enrolled in Sec B, Lab 08;
 ∴ their first lab is on Thurs, Sept 21st from
 10:30AM-12:30PM in room 318B Lumbers.
 (room 318 is labelled 318B for clarity)**

CHECK YOUR TIMETABLE for the section in which you are enrolled to ensure you attend lab in the correct room and during the correct week.

LEARNING EXPECTATIONS:

Upon the successful completion of this course, students will be able to:

- Understand the differences between acute exercise effects, and chronic exercise adaptations;
- Converse in an educated manner about muscle, muscle metabolism, the cardiovascular and respiratory systems, and how they function during exercise;
- Demonstrate knowledge of physiological concepts related to exercise and training;
- Recognize certain myths associated with exercise;
- Understand the difficulties, limitations and benefits associated with collecting data from human subjects in an exercise physiology laboratory;
- Appreciate the benefits of exercise and regular physical activity from a whole body, health perspective.

Course Policies

Academic Integrity: In this course, we strive to maintain academic integrity to the highest extent possible. 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."

Audio-visual recordings: Each live recording will be made available to students via eClass. Please note: 1) the recordings are used for educational purposes only and as a means for enhancing accessibility; 2) you do not have permission to duplicate, copy and/or distribute the recordings outside of the class (these acts can violate not only copyright laws but also [FIPPA](#) and intellectual property rights); and 3) all recordings will be destroyed after the end of classes.