

**School of Kinesiology
Faculty of Health Sciences
Western University**

**LABORATORY IN EXERCISE PHYSIOLOGY
Kin 3330F
Fall, 2018**

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Office Hours: by appointment (after first meeting with GTAs)

Lecture: SH 3317
M; 8:30-9:30

Laboratory: TBA
M, 2:30-4:30
W, 4:30-6:30
F, 8:30-10:30

GTA: TBA
(information posted on OWL course site when available)

NOTE: All course information including grades, assignment outlines, deadlines, etc. are available via OWL. Check the website regularly for course announcements.

Calendar Description: This course focuses on experiments designed to highlight the physiological response to exercise, and to introduce basic techniques for evaluation and monitoring of these responses.

Course Description: This course introduces techniques used in exercise, research and fitness settings for evaluating and monitoring a person's physiological response to exercise of varying intensities to better understand how the laboratory protocols and techniques can be used to assess underlying physiological and metabolic responses to exercise. Laboratory protocols are designed as "mini-experiments" and students are required to collect and analyse data, and to describe and interpret the data to reflect the underlying "physiology and metabolism" of the response. Certain protocols will be written-up and submitted as a "manuscript-style" report, where data collected in the laboratory are analysed and interpreted, and compared to the published literature. All students are expected to participate in all aspects of each of the laboratory protocols, including participating in actual exercise protocols, and in data collection and analysis. All students are expected to participate in discussions, and to ask and respond to questions during the lecture.

Anti-requisite(s)/Pre-requisite(s)/Co-requisite(s) if applicable:

Kin 2230a/b (formerly Kin 230a/b); Kin 3337a/b (formerly Kin 337a/b);

Priority is given to students enrolled in the BSc Honours Specialization in Kinesiology

You are responsible for ensuring that you have successfully completed all course pre-requisites, and that you have not taken an anti-requisite course (if applicable). Lack of a pre-requisite or the completion of an anti-requisite cannot be used as a basis for appeal. If you are found ineligible for a course, you may be removed from it at any time and you will receive no adjustment to your fees. This decision cannot be appealed.

Course Format:

The lecture is held on Monday from 8:30 a.m. - 9:30 a.m. in FIMS & Nursing Bldg, Room 1270; the laboratory sessions are held on Monday @ 2:30 p.m. – 4:30 p.m., Wednesday @ 4:30 p.m. – 6:30 p.m., and Friday @ 8:30 a.m. - 10:30 p.m. in TH 2108 in each of 12 weeks during the term (unless notified by the course instructor). The schedule of topics covered is listed below.

The lecture will serve as an introduction to each of the laboratory protocols and will provide an overview of the laboratory topic with a discussion of the physiology and theory pertaining to the laboratory, and to answer any questions that arise. All students are expected to attend and participate in the lecture discussions, and to have read relevant material in handouts (posted on the course OWL website), textbooks and suggested readings.

The laboratory protocols are intended to reinforce information covered in previous exercise physiology classes and to introduce new material important to the exercise physiology field and that possibly will be discussed in more detail in advanced courses. A brief overview describing the laboratory protocol will be presented at the beginning of each laboratory session and will emphasize set-up, use and care of equipment. Again, it is essential that students come to the laboratory having read the relevant material (posted on the course OWL website), textbooks, and suggested readings. A short summary session will be held at the end of each lab if time permits. It is anticipated that there will be approximately 75 students enrolled in this course every year, with each laboratory section accommodating only 20-25 students. Students will work together in groups of 4-6, with approximately 4-5 groups per laboratory section. *All students are expected to participate in all aspects of the laboratory, including participating in actual exercise protocols, and in data collection and analysis. All students must arrive in each laboratory session dressed appropriately for exercise. ALL students must actively participate in all components of the daily laboratory activity.* Because of student numbers it will not be possible to attend any of the other laboratory sections.

In order to enhance the learning experience students will be responsible for collecting and analysing their own data as well as data collected on other students. On occasion, individual student data will be collected and used for the laboratory report. For this to happen it will be necessary that each student provide the instructor with all required data as rapidly as possible (usually within 1 week of the laboratory session). The instructor will be responsible for summarizing and posting the class data. **It is important that students check the course OWL on a regular basis for information pertaining to the lecture and laboratory sessions and**

assignments.

Course Recommended, Required and Supplementary Textbooks:

Course Laboratory Manual – individual laboratory protocols will be posted on the Kin 3330 course OWL

Textbook assigned in Kin 2230 (or any other suitable textbook in Exercise Physiology)

Learning Objectives:

Upon completion of this course students will be able to:

1. have a better understanding of the physiological and metabolic responses i) associated with non-steady-state and steady-state exercise, and ii) at different intensities and domains of exercise
2. understand and be competent at using specific laboratory equipment and techniques for measuring and monitoring the physiological and metabolic responses to exercise
3. understand the underlying physiological and metabolic principles underlying standard testing procedures
4. collect and analyse data in a laboratory setting, and interpret these data to help understand the underlying “physiology and metabolic” processes
5. communicating scientific information in a written report – i.e., describe and report data and findings collected in a laboratory setting and explain and compare these responses using information (i.e., data, ideas) from the published literature

Course Evaluation:

Theory Exam: 35% (set in examination period by Registrar’s Office)

Laboratory Major Reports: 50% (2 major laboratory reports @ 25% each)
- Lab report #1 due TBA (usually in TBD)
- Lab report #2 due TBA (usually in TBD)

Laboratory Assignments: 10% (assignment @ 5% each – questions posted on OWL)
5% (completed and approved data sheets and calculations)

Course & University Policies

1. **Assignment Deadlines:** Laboratory reports are to be handed in the Coca-Cola laboratory (or as specified in lecture) on the assigned due date (to coincide with the start of the laboratory, or as specified in lecture). Assignments *must* be handed in *at the start* of your assigned laboratory section on the due date (or as specified in lecture). Electronic submission of assignments will not be accepted (unless otherwise specified) under any circumstances. Assignments will not be accepted late, except under medical or other compassionate circumstances. Submitting an assignment late without appropriate documentation will result in a zero (0) grade. Appropriate documentation for missed/late assignments must be submitted to the course instructor and to the Kinesiology Undergraduate office.

2. **Written documentation (Illness, Medical/Non-Medical):**

https://www.uwo.ca/univsec/pdf/academic_policies/appeals/accommodation_illness.pdf

The University recognizes that a student’s ability to meet his/her academic responsibilities may,

on occasion, be impaired by medical illness. Illness may be acute (short term), or it may be chronic (long term), or chronic with acute episodes. The University further recognizes that medical situations are deeply personal and respects the need for privacy and confidentiality in these matters. However, in order to ensure fairness and consistency for all students, academic accommodation for work representing 10% or more of the student's overall grade in the course shall be granted only in those cases where there is documentation indicating that the student was seriously affected by illness and could not reasonably be expected to meet his/her academic responsibilities.

A UWO Student Medical Certificate (SMC) is required where a student is seeking academic accommodation. This documentation should be obtained at the time of the initial consultation with the physician or walk-in clinic. An SMC can be downloaded under the Medical Documentation heading of the following website:

http://www.uwo.ca/univsec/pdf/academic_policies/appeals/medicalform.pdf

Documentation is required for non-medical absences where the course work missed is more than 10% of the overall grade. Students may contact their Faculty Academic Counselling Office for what documentation is needed.

Whenever possible, students who require academic accommodation should provide notification and documentation in advance of due dates, examinations, etc. stating specific reasons and dates. Students must follow up with their professors and their Academic Counselling office in a timely manner. Documentation for medical requests for accommodation must be submitted within two (2) business days after the end date on the documentation, to the appropriate Academic Counselling Office of the student's Faculty of registration. For KIN students, you may go to the School of Kinesiology in 3M Centre room 2225 **NOT** to the instructor. It will be the Academic Counselling office that will determine if accommodation is warranted.*

An "Accommodation Consideration Request Form" found online or in the Kinesiology Undergraduate Office" for ALL accommodation requests must be submitted into the appropriate Academic Counselling office of the student's Faculty/School of registration. These documents will be retained in the student's file, and will be held in confidence in accordance with the University's Official Student Record Information Privacy Policy.

https://www.uwo.ca/fhs/kin/undergrad/files/accommodation_request.pdf

3. **Grades:** Where possible assignment objectives and rubrics will be posted on OWL. Assignments will be returned to students. The final examination will not be returned but students are able to view their exams by making an appointment with the GTA. Should you have a concern regarding the grade you received on an assignment or final examination or feel that it is unfair in any way, you must wait 24 hours from the receipt of the assignment to approach the instructor or TA. In doing so, please make an appointment and prepare in writing, with evidence, why you feel your grade is inappropriate. However, be aware that in requesting a grade reassessment, the entire assignment or examination could be re-evaluated and your grade could go up/down/or stay the same. Note that calculations errors (which do occur!) should be brought to the attention of the GTA immediately. **At least 15% of course grades will be posted by the last day to drop a course.**

Course grade expectations:

A+	90-100	<i>One could scarcely expect better from a student at this</i>
A	80-89	<i>Superior work that is clearly above average</i>
B	70-79	<i>Good work, meeting all requirements and eminently</i>
C	60-69	<i>Competent work, meeting requirements</i>
D	50-59	<i>Fair work, minimally acceptable.</i>
F	below 50	<i>Fail</i>

4. **Attendance and Performance in Laboratory:** Students are required to work in groups of 4-6. All students are expected to contribute equally to all aspects of each of the laboratory assignments. Failure to exercise and to participate fully in all laboratory (and tutorial) work will impact on the learning experience and performance of not only the student but all other students within the group, and also will impact on the grading of student/group assignments. As a consequence it is important that students attend and participate in each of the laboratory classes (and related lecture). **Therefore, attendance will be taken and if no good reason is presented for missing a class, a 2% deduction from the final grade will be assessed for each laboratory class (in whole or in part) missed. Also, student participation will be monitored by the laboratory leader and GTAs and if, throughout the term, you fail to actively participate in laboratory activities, a 5% deduction from the final grade will be assessed.**

5. **Scholastic offences:** They are taken seriously and students are directed to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offence, at the following Web site:

http://www.uwo.ca/univsec/handbook/appeals/scholastic_discipline_undergrad.pdf.

A) Students must write their essays and assignments in their own words. Whenever students take an idea, or a passage from another author, they must acknowledge their debt both by using quotation marks where appropriate and by proper referencing such as footnotes or citations. Plagiarism is a major academic offence (see Scholastic Offence Policy in the Western Academic Calendar). All required papers may be subject to submission for textual similarity review to the commercial plagiarism detection software under license to the University for the detection of plagiarism. All papers submitted for such checking will be included as source documents in the reference database for the purpose of detecting plagiarism of papers subsequently submitted to the system. Use of the service is subject to the licensing agreement, currently between Western University and Turnitin.com (<http://www.turnitin.com>)

B) Computer marked multiple-choice tests and/or exams may be subject to submission for similarity review by software that will check for unusual coincidences in answer patterns that may indicate cheating.

Plagiarism and the copying of other students' work are taken to be a serious offences. In addition to this Web site, information on plagiarism is provided at the end of the lab manual. Note that anyone caught plagiarising and/or copying will receive "zero" on the report or assignment.

6. **Examination Conflict Policy:** Please see the Office of the Registrar policy on Exam Conflict and Multiple Exam Situations www.registrar.uwo.ca/examinations/exam_schedule.html

7. **Classroom Behaviour:** Class will begin promptly at the time specified in this syllabus. In the event that you must arrive late, please enter the classroom with a minimal disturbance to the class. The course instructor or GTAs reserve the right to lock the classroom door and deny entrance if lateness becomes a common occurrence. Excessive talking during class time is disruptive, disrespectful, and will not be tolerated. Students engaging in such behaviour may be asked to leave the room. Cellular phones, pagers, and text-messaging devices are disruptive when they ring in class. If you must bring these with you, please place them on silent mode or turn them off during class. Failure to do so may result in your being asked to leave.

8. **Electronic Device Usage:**

During Lectures and Tutorials: Although you are welcome to use a computer during lecture and tutorial periods, you are expected to use the computer for scholastic purposes only, and refrain from engaging in any activities that may distract other students from learning. From time to time, your professor may ask the class to turn off all computers, to facilitate learning or discussion of the material presented in a particular class. **Unless explicitly noted otherwise, you may not make audio or video recordings of lectures – nor may you edit, re-use, distribute, or re-broadcast any of the material posted to the course website.**

During Exams - Unless you have medical accommodations that require you to do so, or explicit permission from the instructor of the course, you may not use any of the following electronic devices during ANY of the tests, quizzes, midterms, examinations, or other in-class evaluations: cellphones, smart phones, smart watches, smart glasses, audio players or recorders of any sort, video cameras, video games, DVD players, televisions, laptop/notebook/netbook computers, flashlights or laser pointers.

9. **Health and Wellness:** As part of a successful undergraduate experience at Western, we encourage you to make your health and wellness a priority. Western provides several on-campus health-related services to help you achieve optimum health and engage in healthy living while pursuing your degree. For example, to support physical activity, all students receive membership in Western's Campus Recreation Centre as part of their registration fees. Numerous cultural events are offered throughout the year. Please check out the Faculty of Music web page (<http://www.music.uwo.ca/>), or the McIntosh Gallery <http://www.mcintoshgallery.ca/>

Further information regarding health and wellness-related services available to students may be found at <http://www.health.uwo.ca/>.

Students who are in emotional/mental distress should refer to Mental Health@Western (<http://www.health.uwo.ca/>) for a complete list of options about how to obtain help.

STUDENT CODE OF CONDUCT

The purpose of the Code of Student Conduct is to define the general standard of conduct expected of students registered at Western University, provide examples of behaviour that constitutes a breach of this standard of conduct, provide examples of sanctions that may be imposed, and set out the disciplinary procedures that the University will follow. For more information, visit <http://www.uwo.ca/univsec/board/code.pdf>

ENGLISH PROFICIENCY FOR THE ASSIGNMENT OF GRADES

Visit the website <http://www.uwo.ca/univsec/handbook/exam/english.pdf>

SUPPORT SERVICES

There are various support services around campus and these include, but are not limited to:

1. Student Development Centre -- <http://www.sdc.uwo.ca/ssd/>
2. Student Health & Wellness -- <http://www.health.uwo.ca>
3. Registrar's Office -- <http://www.registrar.uwo.ca/>
4. Ombuds Office -- <http://www.uwo.ca/ombuds/>

TENTATIVE Laboratory Schedule (2018-2019)
(tentative schedule only – topics and dates subject to change)

<u>Weeks:</u>	<u>Lab #</u>	<u>Topic</u>
Sept 10 - Sept 14	1	Introduction to the PowerLab Data Acquisition System and Measuring Pulmonary Gas Exchange
Sept 17 - Sept 21 Sept 24 - Sept 28 Oct 1 – Oct 5	2	Project Lab #1: Physiological Responses to Incremental Exercise: assessing the Lactate Threshold, Respiratory Compensation Threshold and Maximal O ₂ Uptake using different protocols (Lab report due - TBA)
Oct 8 – Oct 12		No classes scheduled - Week off for Thanksgiving & Fall Break
Oct 15 - Oct 19	3	Mechanical and Exercise Efficiency #1
Oct 22 - Oct 26	4	Anaerobic Energy Systems
Oct 29 - Nov 2 Nov 5 - Nov 9 Nov 12 - Nov 16	5	Project Lab #2: Critical Power (CP) & “Anaerobic Work Capacity” (W’): assessing CP and W’ using different protocols (Lab report due - TBA)
Nov 19 - Nov 23 Nov 26 - Nov 30	6	Understanding Physiological Responses to Constant-Load Exercise and Exercise Intensity Domains: Why Should We Care?
Dec 3 - Dec 7		Review classes (final day of class for the fall term - Dec 7)

Because of time constraints imposed by the academic term, it will not be possible for all students to “exercise” in every Laboratory protocol – especially in Project Lab Protocols. However, all students are required to attend and participate in the laboratory during each week of the academic term. Also all students will be required to submit a written report (for Project Lab Protocols) for marking. Students are expected to “volunteer” to participate as subjects and exercise in the various protocols even though they may not be selected. Volunteering to participate in Project Lab Protocols is especially important as data from these protocols will be collected and used for the major reports that will be handed in for marking.