

School of Kinesiology
Faculty of Health Sciences
Western University
Kinesiology 2230b
Winter 2019
Introductory Exercise Physiology

Lecturer: Glen Belfry PhD

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lab session for a **legitimate** (see below) reason, you must notify the lab coordinator **in advance**. Appropriate dress (gym wear) **is required** during these labs.

Lab Schedule:

Each lab is run for 2 weeks. You attend one lab every 2 weeks.

Week 1 of each lab; sections 2-4-6-8-10-12

Week 2 of each lab; sections 3-5-7-9-11-13

Labs begin the week of January 14 (Week 1) or January 21 (Week 2)

LAB TOPICS

Lab 1: Enzyme kinetics

Lab 2: Static lung volumes and ventilatory response to incremental exercise.

Lab 3: Oxygen uptake and carbon dioxide response to incremental exercise.

Lab 4: Muscle contractile properties

Evaluation: Evaluation of the student's progress in this course will be assessed via 2 mid-term exams, a laboratory exam and a **COMPREHENSIVE** final exam. Lecture examinations will be of the multiple choice type, whereas the laboratory exam will consist of short answers and calculative questions requiring data manipulation and evaluation.

Examination	Value%	Date	Room(s) TBA
Lecture Mid-term #1	20	Thursday, February 7,	5:30-6:45 P.M.
Lecture Mid-term #2	20	Thursday, March 21,	5:30-6:45 P.M.
Laboratory Exam	20	Thursday, April 4,	5:30-7:30 P.M.
Laboratory Quizzes	5		
Final Comprehensive Exam	35	TBA	

2. VENTILATION DURING EXERCISE

- a. Lung structure and function
- b. Mechanics of ventilation
- c. Static lung volumes
- d. Gas pressures and exchange
- e. Gas transport in the blood
- f. Ventilatory control
- g. Ventilation during exercise
- h. Ventilation as a limiting factor to exercise

- Learning Objectives
To be able to:
- 1. Outline lung structure and its relation to function.
 - 2. Outline how lung volume is altered and understand those factors which influence maximal capacity.
 - 3. Identify the static lung volumes and understand their relationship to dynamic ventilation.
 - 4. Explain how gas pressure acts as the driving force for gas exchange.
 - 5. Explain how gas (O₂ and CO₂) is transported in the blood and the significance of the oxyhemoglobin curve.
 - 6. Outline the manner in which control may be exerted over the ventilatory system.
 - 7. Identify what happens to ventilation during exercise.
 - 8. Discuss why or why not, ventilation may be a limiting factor to exercise.
 - 9. Outline how acid-base status is maintained.
 - 10. Recognize the influence of physical training on respiratory adaptations.

3. CARDIOVASCULAR FUNCTION DURING EXERCISE

- a. Cardiac structure and function
- b. The circulatory system
- c. Cardiac output
- d. Relation between cardiac performance and oxygen uptake
- e. Blood pressure and exercise
- f. Distribution of blood flow
- g. Cardiac control

- Learning Objectives
To be able to:
- 1. Discuss the relationship between cardiac structure and function.
 - 2. Outline the manner in which blood is circulated to our bodies as well as the function of various subsections of the circulatory system.

3. Indicate the influence of exercise on blood pressure and the determination of mean arterial pressure.
4. Discuss the intrinsic and extrinsic regulation of the cardiac cycle.
5. Discuss those factors controlling blood flow distribution.
6. Outline the factors affecting cardiac output and the influence of

TRAINING ADAPTATIONS TO EXERCISE

a. Physiological responses to training

- Learning Objectives
- To be able to:
1. Identify the major cardiovascular, respiratory and muscular adaptations that occur with different forms of training.
 2. Identify the cellular changes of anaerobic and aerobic systems that occur with different forms of training.
 3. Discuss the influence of initial fitness, frequency, duration, intensity, and mode of training on adaptation.

- Note:**
1. All lectures will be posted on WebCT in Power Point format.
 2. During the course of the semester we will attempt to cover the material indicated. It is possible that we might not complete the suggested material, or that additional material may be added.
 3. Lectures will be developed with the text as primary source, but additional material will be commonly included, therefore attendance at lectures is recommended.
 4. The learning objectives associated with each section are designed to assist the student in focusing their reading and effort. The topics to be discussed cannot be considered exclusive however, and the student is responsible for all material covered.
 5. Laboratory sections have been determined well in advance. Legitimate excuses for missing or re-scheduling labs include illness, compassionate circumstances, etc. Extended vacations, extra work, etc. do not qualify.
 6. Exam periods have been 1 0 0 1 12.0241ced. ~~BT~~ 1 0 0 1 193.46 47QBT1 0 0 1 496.18 440.47nent

Course/University Policies

1. **Lateness/Absences:** Assignments are due at the beginning of class on the assigned due date and will not be accepted late, except under medical or other compassionate circumstances. Electronic submission of assignments will not be accepted (unless otherwise specified) under any circumstances. Submitting a late assignment without appropriate documentation will result in a zero (0) grade. Appropriate documentation for assignments worth less than 10% should be submitted to the Undergraduate office. A missed mid-term examination without appropriate documentation will result in a zero (0) grade. The course policy is not to allow make-ups for scheduled midterms, presentations or final exams, nor to assign a grade of Incomplete without acceptable and verifiable medical (or equivalent compassionate) reasons. Acceptable reasons might include hospital stays, serious illness, family emergencies (like serious accidents or illness, death) or similar circumstances.

2. **Written documentation:** 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 any request for accommodation shall be submitted directly, as soon as possible, to the appropriate *Academic Counselling Office* of the student's Faculty/School of registration not to the instructor, with a request for relief specifying the nature of the accommodation being requested. This documentation should be obtained at the time of the initial consultation with the physician or walk-in clinic. 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.

See <https://studentservices.uwo.ca/secure/index.cfm> for specific policy and forms relating to

Plagiarism is a major academic offence (see Scholastic Offence Policy in the Western Academic Calendar). All required papers might 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.

5. **Formatting** (*as recommended by the course instructor*): example- APA style is the approved style of writing for all assignments produced for this course. Please refer to Western University Library webpage for information on citation style and format or consult the APA publication manual: Publication manual of the American Psychological Association (6th ed.). (2009). Washington, DC: American Psychological Association.

6. According to the **Examination Conflict policy**

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 -- <http://www.shs.uwo.ca/student/studenthealthservices.html>
3. Registrar's Office -- <http://www.registrar.uwo.ca/>
4. Ombuds Office -- <http://www.uwo.ca/ombuds/>