

McGill University
Department of Kinesiology & Physical Education
EDKP 395: Exercise Physiology
Course Outline, Fall 2018

Co-Instructors

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Teaching Assistants

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Lecture Schedule (see *Page 3* below)

Tuesdays and Thursdays, 10:05 – 11:25 am, Currie Gymnasium, Room 408/9

Laboratory Schedule (see *Page 4* below)

EDKP 395-002 8045: Thursday, 2:35 – 4:25 pm
EDKP 395-003 8046: Friday, 9:05 – 10:55 am
EDKP 395-004 8047: Friday, 11:05 am – 12:55 pm
Location: Currie Gymnasium, Adriano Tassone Teaching Laboratory, Room 304

COURSE DESCRIPTION

This course provides the necessary understanding of the physiological adaptations that occur in the human body in response to exercise. Teaching will be re-enforced through laboratory experiences.

COURSE OBJECTIVES

Upon completion of this course, the student will have:

1. Developed an understanding of the fundamentals of exercise physiology.
2. Developed an understanding of the integrative nature of the human body's response to exercise.
3. Gained practical (or 'hands on') experience conducting experiments in an exercise physiology laboratory setting.
4. Developed their capacity to analyze and interpret the results of exercise physiology laboratory experiments.
5. Developed their scientific reading and writing skills.

RECOMMENDED COURSE TEXT

McArdle WD, Katch FI & Katch VL. Exercise Physiology: Nutrition, Energy, and Human Performance, 8th Edition. Wolters Kluwer, Lippincott Williams & Wilkins, New York, NY, USA, 2015.

Note: A limited number of reserved copies are available at the McGill University Humanities and Social Sciences Library. Please use the following link to check availability:

<https://mcgill.on.worldcat.org/courseReserves/course/id/14006425>

SUPPLEMENTARY COURSE TEXTS

1. ACSM's Advanced Exercise Physiology, 2nd Edition. Editors: Farrell PA, Joyner MJ & Caiozzo VJ. Wolters Kluwer, Lippincott Williams & Wilkins, New York, NY, USA, 2012.
2. Brooks GA, Fahey TD & Baldwin KM. Exercise Physiology: Human Bioenergetics and its Applications, 4th Edition. McGraw Hill, New York, NY, USA, 2005.

Note: Please make arrangements with Dr. Jensen and/or Dr. Usselman if you would like to review either one or both of the supplementary texts.

COURSE EVALUATION

Laboratory assignments (5 assignments each worth 10% of final grade).....	50%
Midterm examination (Tuesday, October 16 th , in class).....	20%
• <i>Will cover material from September 06-October 02, 2018</i>	
Final examination (During exam period, date TBA).....	30%
• <i><u>Non-cumulative:</u> will cover material from October 04-November 29, 2018</i>	

****Students are responsible for all material covered in lectures and labs****

LECTURE SCHEDULE (*subject to change*)

Lecture slides will be posted on the EDKP 395 McCourses site in PowerPoint and PDF formats as far in advance of each lecture as possible, ideally ≥ 12 hours.

Date	Topic	Instructor(s)
September 4	Course introduction	DJ, CU
September 6	Bioenergetics and its control 1	DJ
September 11	Bioenergetics and its control 2	DJ
September 13	Bioenergetics and its control 3	DJ
September 18	Exercise Metabolism 1	CU
September 20	Skeletal muscle: Structure and function 1	DE
September 25	Skeletal muscle: Structure and function 2	DE
September 27	Neural control of human movement 1	CU
October 2	Neural control of human movement 2	CU
October 4	Essential models for understanding cardiovascular and pulmonary responses to exercise 1	DJ
October 9	Essential models for understanding cardiovascular and pulmonary responses to exercise 2	DJ
October 11	Cardiovascular response to exercise 1	CU
October 16	Midterm Examination (in class)	
October 18	Cardiovascular response to exercise 2	CU
October 23	Cardiovascular response to exercise 3	CU
October 25	Cardiovascular response to exercise 4	CU
October 30	Muscle O ₂ delivery response to exercise 1	CU
November 1	Muscle O ₂ delivery response to exercise 2	CU
November 6	Impact of muscle oxygenation on muscle metabolic and contractile function: The O ₂ Conformer and Net Drive Hypotheses 1	DJ
November 8	Impact of muscle oxygenation on muscle metabolic and contractile function: The O ₂ Conformer and Net Drive Hypotheses 2	DJ
November 13	Pulmonary physiology of exercise 1	DJ
November 15	Pulmonary physiology of exercise 2	DJ
November 20	Pulmonary physiology of exercise 3	DJ
November 22	Acid-base balance during exercise	CU
November 27	Thermoregulation during exercise	CU
November 29	(TBD)	

DJ = Dennis Jensen, Ph.D.
 CU = Charlotte Usselman, Ph.D.
 DE = Daren Elkrif, M.Sc.

LABORATORY SCHEDULE

Lab handouts will be posted on the EDKP 395 MyCourses site in PDF format at least 48 hours in advance of each scheduled laboratory.

Data collected during each lab will be compiled by Teaching Assistants and distributed to all students via the EDKP 395 MyCourses site on the dates listed below.

Date	Topic	Data Available	Due Date
September 13/14	Laboratory 1: Measurement of Maximal Aerobic Working Capacity: The Symptom-Limited Incremental Cardiopulmonary Cycle Exercise Test	September 17	September 28
September 27/28	Laboratory 2: Measurement of Anaerobic Energy Transfer: The Wingate Test	October 1	October 12
October 18/19	Laboratory 3: Skeletal Muscle Function	October 22	November 2
November 1/2	Laboratory 4: Blood Pressure Regulation during Exercise: Physiological Mechanisms	November 5	November 16
November 22/23	Laboratory 5: Control of Ventilation during Exercise: Lessons from Dead Space Loading	November 26	December 7

*Lab assignments are due on the dates indicated by **no later than 4:30 pm EST via email to edkp395@gmail.com with a copy to your Teaching Assistant(s).**

LABORATORY POLICIES, PROCEDURES AND METHODS OF EVALUATION

Material covered in each of the 5 laboratory experiments may be covered on the final exam. These laboratories are designed to build upon the knowledge gained in the lectures and are interactive in nature, which requires that each student reads the laboratory handout and is familiar with the objectives and procedures before each class.

(Please refer to EDKP 395 Lab Manual for more detailed information on Laboratory Policies, Procedures and Methods of Evaluation)

ATTENDANCE

Student attendance at each laboratory is **mandatory**. To this end, your *unexcused or unauthorized* absence from a scheduled laboratory will result in a **loss of 5% from your final mark in EDKP 395**. Students who plan to be absent for varsity athletics, family obligations or similar commitments must communicate with Dr. Jensen and/or Dr. Usselman as far in advance of the conflict as possible. In the event that a student cannot attend a scheduled laboratory due to circumstances beyond their control (e.g., personal or family health issue, etc.), then they are expected to communicate with Dr. Jensen and/or Dr. Usselman as soon as possible and may be asked to provide supporting documentation (e.g., doctors note), when necessary and appropriate. There will be no make-up labs for unexcused or unauthorized absences.

PUNCTUALITY

Your *unexcused or unauthorized* lateness to a scheduled laboratory will result in a loss of marks. To this end, you will be penalized 1% of your final mark in EDKP 395 for arriving 15-30 minutes late, 2% for arriving >30 and ≤60 minutes late, 3% for arriving >60 and ≤90 minutes late and 4% for arriving within the last 20 minutes of the scheduled laboratory. In the event that a student is late due to circumstances beyond their control (e.g., sickness), then they must speak to Drs. Jensen, Usselman and/or their Teaching Assistant(s) as soon after the scheduled laboratory as possible to explain the circumstances.

OTHER

- ✓ Unless you have *prior permission* from Drs. Jensen, Usselman and/or the Teaching Assistant(s) to switch lab sections, **you are expected to attend the laboratory section for which you are registered**. This has important implications for tracking attendance, punctuality, etc. as outlined above.
- ✓ Laboratory reports must be written **individually or as a group of 2 students**.
- ✓ Experimental data required to complete each lab report will be compiled by the Teaching Assistants into a Microsoft Excel spreadsheet and posted on the EDKP 395 MyCourses site by no later than 4:30 pm on the dates outlined in the table on Page 3 above. Students will be notified via email when the data are available.
- ✓ Reports are due on the dates outlined in the table on Page 3 above. *Unexcused or unauthorized* late reports will be **penalized 10% per day** (equivalent to 1% of the final mark in EDKP 395) and will not be accepted after more than 10 days past the due date, including weekends. In the event that a student cannot submit their report on time due to circumstances beyond their control (e.g., personal or family health issue, etc.), then they must speak to Drs. Jensen, Usselman and/or their Teaching Assistant as soon as possible and may be asked to provide supporting documentation (e.g., doctors note), when necessary and appropriate.

- ✓ Students are responsible for keeping back-up copies of all written work for this class. Computer data storage problems **will not be accepted** as an excuse for late laboratory reports.

ACADEMIC INTEGRITY

“McGill University values academic integrity. Therefore, all students must understand the meaning and consequences of cheating, plagiarism and other academic offences under the Code of Student Conduct and Disciplinary Procedures” (see www.mcgill.ca/students/srr/honest/ for more information).

« L'université McGill attache une haute importance à l'honnêteté académique. Il incombe par conséquent à tous les étudiants de comprendre ce que l'on entend par tricherie, plagiat et autres infractions académiques, ainsi que les conséquences que peuvent avoir de telles actions, selon le Code de conduite de l'étudiant et des procédures disciplinaires (pour de plus amples renseignements, veuillez consulter le site www.mcgill.ca/students/srr/honest/). »

LANGUAGE OF SUBMISSION

“In accord with McGill University’s Charter of Students’ Rights, students in this course have the right to submit in English or in French any written work that is to be graded.”

« Conformément à la Charte des droits de l'étudiant de l'Université McGill, chaque étudiant a le droit de soumettre en français ou en anglais tout travail écrit devant être noté (sauf dans le cas des cours dont l'un des objets est la maîtrise d'une langue). »

ADDITIONAL STATEMENTS

- ✓ The [University Student Assessment Policy](#) exists to ensure fair and equitable academic assessment for all students and to protect students from excessive workloads. All students and instructors are encouraged to review this Policy, which addresses multiple aspects and methods of student assessment, e.g. the timing of evaluation due dates and weighting of final examinations.
- ✓ As the instructor of this course I endeavor to provide an inclusive learning environment. However, if you experience barriers to learning in this course, do not hesitate to discuss them with Dr. Jensen and the [Office for Students with Disabilities](#), 514-398-6009.
- ✓ [End-of-course evaluations](#) are one of the ways that McGill works towards maintaining and improving the quality of courses and the student’s learning experience. You will be notified by e-mail when the evaluations are available. Please note that a minimum number of responses must be received for results to be available to students.
- ✓ Mobile computing and communication devices are permitted in class insofar as their use does not disrupt the teaching and learning process.
- ✓ In the event of extraordinary circumstances beyond the University’s control, the content and/or evaluation scheme in this course is subject to change.