McGill University
Department of Kinesiology & Physical Education
EDKP 395: Exercise Physiology
Course Outline, Fall 2020

Instructor

Charlotte Usselman, Ph.D. charlotte.usselman@mcgill.ca
Currie Memorial Gymnasium
475 Pine Avenue West, Room A204

Office hours: Thursdays, 11:35 – 12:35pm

Teaching Assistants

Danielle Berbrier, B.Sc. danielle.berbrier@mail.mcgill.ca
Yasmine Coovadia, M.Sc. yasmine.coovadia@mail.mcgill.ca
Kaveh Gaynor-Sodeifi, B.Sc. kaveh.gaynor-sodeifi@mail.mcgill.ca

Office hours: Mondays and Thursdays, 11:35am – 12:55pm *in the week preceding lab report deadlines only*

TEAM Undergraduate Peer Mentors

Hawk Andiqwar (U3) hawk.andiqwar@mail.mcgill.ca
Fiona Howse (U3) fiona.howse@mail.mcgill.ca
Zahra Jadavji (U3) zahra.jadavji@mail.mcgill.ca
Sabrina Yusuf (U3) sabrina.yusuf@mail.mcgill.ca

Lecture Schedule (see *Page 3* below)

Tuesdays and Thursdays, 08:35am – 09:55am

EDKP 395 will include both synchronous & asynchronous delivery of material. See schedule below for list of synchronous delivery. Zoom links for all synchronous activities, including Instructor and TA office hours, will be circulated via MyCourses.

Note that all synchronous lectures will be recorded and posted to MyCourses within 48hrs following delivery.

Laboratory Schedule (see *Page 4* below)

Due to restrictions related to the global pandemic, there will be no in-person data collection for labs. Laboratory handouts, video recordings, and data will be posted online at least 2 weeks prior to each lab report deadline.

COURSE OVERVIEW

Examination of the physiological responses of the neuromuscular, metabolic, endocrine, and circulatory and respiratory systems to acute and chronic exercise.

INSTRUCTOR MESSAGE REGARDING REMOTE DELIVERY

This course will use a remote delivery format for the Fall semester. The remote learning context presents new challenges for all involved, and student engagement is of particular concern. This course is designed to consider the challenges that students may be

experiencing due to the pandemic and is committed to providing a supportive learning environment. Please visit the following links related the remote delivery of this course: Student-specific Guidelines for Remote Teaching and Learning and Remote Learning Resources.

Please read the Guidelines on Remote Teaching and Learning [https://www.mcgill.ca/tls/instructors/class-disruption/strategies/guidelines-remote] and the course outline for this course in myCourses. You will be notified through a 'pop-up' box in Zoom if a lecture or portion of a class is being recorded. By remaining in sessions that are recorded, you agree to the recording, and you understand that your image, voice, and name may be disclosed to classmates. You also understand that recordings will be made available in myCourses to students registered in the course.

COURSE OBJECTIVES

By the end of this course students will have developed an understanding of the fundamentals of exercise physiology, including the integrative nature of the human body's response to exercise. Also, students will have developed an understanding of the practical components involved in exercise physiology research, and will have developed their capacity to analyze and interpret the results of exercise physiology experiments and peer-reviewed publications. Finally, students will have developed their scientific reading, writing, and presentation skills.

SUPPLEMENTARY COURSE TEXTS

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

A limited number of reserved copies of McArdle, Katch & Katch 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

COURSE EVALUATION

Laboratory assignments …… **45%**
- Lab 1 …… 15%
- Lab 2 …… 15%
- Lab 3 …… 15%

Journal club …… **15%**
Unit tests (5% each) …… **20%**
Take-home final exam …… **20%**

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

LECTURE SCHEDULE *(*subject to change*)*			
Date	**Topic**	**Instructor**	**Delivery (default is *asynchronous*)**
Sep. 3	**Course introduction**	CU	Synchronous
Sep. 8	Bioenergetics and its control 1	CU	
Sep. 10	Bioenergetics and its control 2	CU	
Sep. 15	Exercise metabolism **+ TA presentation re: do's and don'ts of lab reports**	CU	Synchronous (TA presentation only)
Sep. 17	Skeletal muscle: Structure and function 1	Daren Elkrief, M.Sc.	
Sep. 22	Skeletal muscle: Structure and function 2		
Sep. 24	**Unit test 1:** Bioenergetics and its control, Exercise metabolism, Skeletal muscle structure and function		
Sep. 29	Neural control of human movement 1 **+ Journal club "draft day"**	CU	Synchronous (draft only)
Oct. 1	Neural control of human movement 2 **+ TEAM sample journal club presentation**	CU	Synchronous (sample journal club presentation only)
Oct. 6	**Unit test 2:** Neural control of human movement		
Oct. 8	Cardiovascular response to exercise 1	CU	
Oct. 13	Cardiovascular response to exercise 2	CU	
Oct. 15	Cardiovascular response to exercise 3	CU	
Oct. 20	Cardiovascular response to exercise 4	CU	
Oct. 22	**Journal Clubs:** Cardiovascular response to exercise	Student presentations	Synchronous (presenting groups only)
Oct. 27	Muscle O2 delivery response to exercise 1	CU	
Oct. 29	Muscle O2 delivery response to exercise 2	CU	
Nov. 3	**Journal Clubs:** Muscle O2 delivery response to exercise	Student presentations	Synchronous (presenting groups only)
Nov. 5	**Unit test 3:** Cardiovascular response to exercise, Muscle O2 delivery response to exercise		
Nov. 10	Thermoregulation during exercise	CU	
Nov. 12	**Journal Clubs:** Thermoregulation during exercise	Student presentations	Synchronous (presenting groups only)
Nov. 17	Pulmonary physiology of exercise 1	Dr. Dennis Jensen	
Nov. 19	Pulmonary physiology of exercise 2		
Nov. 24	Pulmonary physiology of exercise 3		
Nov. 26	**Journal Clubs:** Pulmonary physiology of exercise	Student presentations	Synchronous (presenting groups only)
Dec. 1	Acid-base balance during exercise	CU	
Dec. 3	**Unit test 4:** Thermoregulation during exercise, Pulmonary physiology of exercise, Acid-base balance during exercise		

LABORATORY SCHEDULE		
Topic	**Data Available**	**Due Date**
Laboratory 1: The Wingate Anaerobic Cycling Test	Sep. 7	Sep. 21
Laboratory 2: Measurement of Exercise Tolerance (V'O2max): The Symptom-Limited Incremental Cardiopulmonary Cycle Exercise Test	Oct. 5	Oct. 19
Laboratory 3: Skeletal Muscle Function: Force-Velocity and Force-Power Relationships	Nov. 2	Nov. 16

*Lab assignments are due on the dates indicated by **no later than 4:30 pm EST.**

LABORATORY POLICIES, PROCEDURES AND METHODS OF EVALUATION

- ✓ Laboratory reports may be written **individually, in pairs, or as a group of <u>up to 3</u> students**.
- ✓ Students are expected to consult the following documents when preparing their lab reports:
    1. Universal Lab Report Grading Criteria (as posted on MyCourses), **and**
    2. Lab-specific criteria, as outlined within each lab handout.
- ✓ There is a Sample Lab Report posted on MyCourses to demonstrate the qualities of an "excellent" lab report (in line with the Universal Grading Criteria).
- ✓ 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** 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 Dr. Usselman as soon as possible and may be asked to provide supporting documentation (e.g., doctors note), when necessary and appropriate.
- ✓ Following dissemination of lab report grades, should a student wish to argue their grade, it is their responsibility to provide detailed, written evidence for their argument, including specific reference to the grading criteria and to the pertinent sections of their lab report. Written arguments should be emailed to the grading TA within 72 hrs of receiving their grade.

JOURNAL CLUB POLICIES, PROCEDURES AND METHODS OF EVALUATION

Material covered in each of the journal club presentations may be covered on the unit tests. The papers selected for journal clubs summarize seminal work within exercise physiology; the findings of these papers have either formed part of our fundamental understanding of exercise physiology, or represent controversial topics which continue to be studied today. All students in the class are required to read the journal club article(s) to be presented in class beforehand.

- ✓ Journal clubs will be completed **as a group of 5-8 students**.
- ✓ A "draft" of articles (each of which coincides with a presentation date) will take place at the beginning of class on September 29th. **At least 1 group member must attend class via Zoom that day, otherwise your group will be auto-assigned an article.**
- ✓ A sample journal club presentation (with handout) will be done by the TEAM Peer Mentors prior to the commencement of student presentations.
- ✓ Journal clubs consist of an in-class presentation (max. 15 min) as well as a handout (max. 1 page), both of which will summarize the key findings of the article, as well as rationale, methods, and strengths/limitations of the study design.

(Please refer to EDKP 395 Journal Club Instructions doc for more detailed information on procedures and methods of evaluation.)

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.
- ✓ Note that to support academic integrity, your assignments may be submitted to text-matching or other appropriate software (e.g., formula-, equation-, and graph-matching).
- ✓ © Instructor-generated course materials (e.g., handouts, notes, summaries, exam questions) are protected by law and may not be copied or distributed in any form or in any medium without explicit permission of the instructor. Note that infringements of copyright can be subject to follow up by the University under the Code of Student Conduct and Disciplinary Procedures.
- ✓ 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. Usselman and the *Office for Students with Disabilities*, 514-398-6009.
- ✓ McGill University is on land which has long served as a site of meeting and exchange amongst Indigenous peoples, including the Haudenosaunee and Anishinabeg nations. We acknowledge and thank the diverse Indigenous people whose footsteps have marked this territory on which peoples of the world now gather.
- ✓ 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.
- ✓ In the event of extraordinary circumstances beyond the University's control, the content and/or evaluation scheme in this course is subject to change.