

Course Outline: EDKP 391: Physiology in Sport and Exercise

General Information

University: McGill (downtown campus)
Course #: EDKP 391
Term: Winter
Year: 2024
Course pre-requisite(s): EDKP 293 (Anatomy and Physiology)
Course schedule: Monday and Wednesday, 1:05 pm – 2:25 pm
Number of credits: 3.0
Course location: Trottier Building – Room 0070

Instructor

Tyler Churchward-Venne, Ph.D.
E-mail: tyler.churchward-venne@mcgill.ca
Phone: (514) 399-9684
Physical office location: Currie Memorial Gymnasium,
475 Pine Avenue West, Room A205
Office hours: Virtual or in-person meetings can be scheduled by appointment via e-mail

Teaching Assistant

Claire Traversa, M.Sc.; Ph.D. student
E-mail: claire.hannaian@mail.mcgill.ca
Office hours: Virtual or in-person meetings can be scheduled by appointment via e-mail

COURSE OVERVIEW

Sport and exercise present a challenge to the body since they perturb homeostasis. Exercise physiology is the study of how bodily functions change/adjust in response to physical activity. The study of sport and exercise physiology requires developing an understanding of how the body responds to both an individual bout of exercise (i.e., the acute exercise response) and repeated bouts of exercise (i.e., the chronic exercise training response). When studying the response to acute exercise, emphasis is placed on the body's immediate response to exercise and how the body recovers from the exercise bout. When studying the chronic exercise training response, emphasis is placed on understanding how the body adapts over time to repeated bouts of exercise. Both the acute and chronic response of the body to exercise are influenced by the type of exercise performed, as well as the intensity and duration/volume of exercise.

INSTRUCTIONAL METHOD

The instructional methods used in this course will encompass lectures, short videos, and group presentations.

SUPPLEMENTARY COURSE MATERIAL

1. Kenny LW, Wilmore JH, & Costill DL. *Physiology of Sport and Exercise*, 8th Edition. Human Kinetics, Champaign IL, USA, 2022.

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/20172451>

LEARNING OUTCOMES

Upon completion of this course, the student will:

1. Have a fundamental understanding of how the human body responds to an acute bout of exercise.
2. Have a fundamental understanding of how the human body adapts to chronic exercise training.
3. Have an appreciation and understanding for how the response to acute and chronic exercise are influenced by factors such as training status, nutrition, sex, and age.
4. Develop better oral communication/presentation skills and an enhanced capacity to work effectively with others on a group assignment.

COURSE CONTENT AND SCHEDULE (*subject to change*)

Date	Description	Readings
January 8	Course introduction	Introduction
January 10	Structure and function of exercising muscle	Chapter 1
January 15	Fuel for exercise: bioenergetics and muscle metabolism	Chapter 2
January 17	Neural control of exercising muscle	Chapter 3
January 22	Hormonal control during exercise	Chapter 4
January 24	Energy expenditure	Chapter 5
January 29	Fatigue, muscle soreness, and muscle cramps	Chapter 6
January 31	Midterm examination #1	
February 5	The cardiovascular system and its control (GL)	Chapter 7
February 7	The respiratory system and its regulation (GL) *DUE DATE*	Chapter 8
February 12	The cardiorespiratory response to acute exercise (GL)	Chapter 9
February 14	Principles of exercise training	Chapter 10
February 19	Adaptations to resistance training	Chapter 11
February 21	Adaptations to aerobic and anaerobic training	Chapter 12
February 26	Prescription of exercise for health and fitness	Chapter 13
February 28	Midterm examination #2	
March 4	Reading week	
March 6	Reading week	
March 11	Training for sport (GL)	Chapter 16
March 13	Nutrition, body composition, and obesity	Chapter 17
March 18	Ergogenic aids in sport (GL)	Chapter 18
March 20	Children and adolescents in sport and exercise	Chapter 19
March 25	Sex differences in sport and exercise (GL) *DUE DATE*	Chapter 21
March 27	***Group presentations***	
April 1	Easter Monday – no class	
April 3	***Group presentations***	
April 8	***Group presentations***	
April 10	***Group presentations***	
April 11	***Group presentations***	
Lectures will be posted on the EDKP 391 myCourses website; GL = Guest Lecture		

COURSE EVALUATION

1. Midterm examination #1 (Wednesday, January 31 st)	25%
• Will cover material from January 8 – January 29 th , 2024	
2. Midterm examination #2 (Wednesday, February 28 th)	25%
• Will cover material from February 5 - February 26, 2024	
3. Group presentations (In class: starting Wednesday, March 27 th)	25%
4. Final examination (During April exam period, date TBA)	25%
• Will cover material from March 11 – April 11, 2024	

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

OPTIONAL READINGS

Optional readings are based on the Supplementary Course Material (Kenny LW, Wilmore JH, & Costill DL. *Physiology of Sport and Exercise*, 8th Edition. Human Kinetics, Champaign IL, USA, 2022) and are designed to complement the information provided in the class lectures.

GROUP PRESENTATION – LINKING THEORY TO PRACTICE

The goal of this group assignment is to link information learned in this course (theory) to the practice of teaching/education in a professional context. Students will form groups of 3-4 (depending on the total number of students in the course) and select a topic from the course content outlined in the table above. The idea with the group presentations is to link content on a topic covered in the course (e.g., Adaptations to resistance training) to the practice of teaching/education in order to help solidify the practical relevance and application of the material. Group presentations will be delivered in person during regularly scheduled class time towards the end of the course. Each presentation should be 15 minutes in duration and will be followed by a 5-minute question period. By **February 7, 2024 at 5:00 PM EST**, each group must send the TA (Claire Traversa) via e-mail 1) the names of their group presentation members, and 2) the topic from the course syllabus they wish to present on (i.e., linking theory to teaching/education practice). The TA will either confirm the topic choice or request a change if too many groups select the same topic. A copy of the finalized presentation should be e-mailed to the TA as a PowerPoint file (pptx. file) by **March 25, 2024 at 5:00 PM EST**. The presentation should be appropriately balanced in both breadth and depth. It should provide sufficient and relevant detail, without extraneous information, within the allocated amount of time. The presentation should include the following information:

- Title of the presentation and names of presenters
- Important background information on the topic
- One or more examples of how the topic/material covered in class can be applied in a practical teaching/education setting

*** A grading rubric for the group presentation will be supplied**

Each group member is expected to contribute to presentation, both in terms of its development and delivery. Below are some presentation tips to consider that may be useful:

- Practice your presentation
- Speak in a clear voice and pay attention to pace (presenters tend to speak too fast)
- Minimize use of text on your slides

- Any included text should be large and easy for people to read
- Emphasize figures and diagrams (a picture is worth a thousand words)
- Focus on clarity of the presentation
- A good rule of thumb is 1 slide per minute of presentation time

SUMMARY OF IMPORTANT SUBMISSION DATES

*****February 7, 2024 by 5:00 PM EST:** Send the TA via e-mail 1) the names of your group presentation members, and 2) the topic from the course syllabus you wish to present on (i.e., linking theory to teaching/education practice).

*****March 25, 2024 by 5:00 PM EST:** Send the TA via e-mail a copy of the finalized group presentation as a PowerPoint file (pptx. file). No changes to the group presentation are allowed after this date.

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. This does not apply to courses in which acquiring proficiency in a language is one of the objectives.”

« 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). »

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 [McGill’s guide to academic honesty](#) 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 guide pour l’honnêteté académique de McGill). »

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.
- ✓ Work submitted for evaluation as part of this course may be checked with text matching software within myCourses.
- ✓ © 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. Churchward-Venne 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.
« L'Université McGill est sur un emplacement qui a longtemps servi de lieu de rencontre et d'échange entre les peuples autochtones, y compris les nations Haudenosaunee et Anishinabeg. Nous reconnaissons et remercions les divers peuples autochtones dont les pas ont marqué ce territoire sur lequel les peuples du monde entier se réunissent maintenant. »
- ✓ [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.
- ✓ Additional policies governing academic issues which affect students can be found in the McGill Charter of Students' Rights (see [document](#)).
- ✓ McGill has policies on sustainability, paper use and other initiatives to promote a culture of sustainability at McGill. (See the [Office of Sustainability](#).)
- ✓ The use of MC2 devices must, in all cases, respect policies and regulations of the University, including in particular the following:
 - The Code of Student Conduct and Disciplinary Procedures;
 - The Policy Concerning the Rights of Students with Disabilities;
 - The Policy on the Responsible Use of McGill IT Resources.
- ✓ No audio or video recording of any kind is allowed in class without the explicit permission of the instructor.
- ✓ Mobile computing and communication devices are permitted in class insofar as their use does not disrupt the teaching and learning process.