

McGill University
Department of Kinesiology & Physical Education
EDKP 485: Cardiopulmonary Exercise Pathophysiology (3 credits)
Course Outline, Fall 2023

INSTRUCTOR

Prof. Dennis Jensen, PhD

Office address: Currie Memorial Gymnasium, Department of Kinesiology and Physical Education, 475 Pine Avenue West, Room A223

Phone: 514-398-4184 ext. 0541

E-mail: dennis.jensen@mcgill.ca

Office hours: By appointment only. Held in-person or virtually *via* Zoom. Contact Prof. Jensen by email for appointment

GRADER

Isaac Boamah-Frimpong, MSc candidate in Exercise Physiology (Supervisor: Prof. Jensen)

Email: isaac.boamah-frimpong@mail.mcgill.ca

Office hours: As a grader, Isaac is not responsible for holding office hours; however, students can email Isaac to request clarification on any assignment(s) they graded. Any contentious issues/disputes concerning the grading of an assignment and/or disrespectful interaction with Isaac will be managed by Prof. Jensen.

LECTURE DAYS, TIME, FORMAT & LOCATION

- Tuesdays and Thursdays from 10:05 – 11:25 am EST
- Lectures will be held in-person in Room 205 of the Birks Building located at 3520 rue University.
- Refer to “*Course Schedule & Content*” section below for more details.

COURSE DESCRIPTION

Generally speaking, this course will review the exercise pathophysiology of selected cardiopulmonary disease states, including chronic obstructive pulmonary disease (COPD), asthma, obesity, coronary artery disease (CAD), and chronic heart failure (CHF). More specifically, this course will focus on the integrated physiological and perceptual responses to acute and chronic exercise in each of these chronic health conditions.

COURSE OBJECTIVES

1. To better understand the essential elements of the underlying pathophysiology of COPD, asthma, obesity, CAD and CHF.
2. To better understand the impact of COPD, asthma, obesity, CAD, and CHF on physiological and perceptual responses to acute exercise.
3. To better understand the impact of therapeutic interventions, specifically exercise training, on physiological and perceptual responses to exercise in COPD, asthma, obesity, CAD, and CHF.
4. To develop an appreciation for the role of clinical cardiopulmonary exercise testing (CPET) in evaluating the degree of dysfunction of various physiological support systems; evaluating an individual’s response to therapy; etc.
5. To expose students to a systematic approach to analyze and interpret CPET results.
6. To provide students with an opportunity to review and critique research articles in the field of clinical exercise physiology.

READINGS & RESOURCES

- There is no required textbook(s) for this course, although a list of potentially helpful textbook resources is provided below.
- Copies of original research articles, topical review articles, and/or textbook chapters relevant to the content covered in lecture will be posted to the EDKP 485 *MyCourses* site.
- To help prepare their assignments, students may be required to search and access additional scientific material from the library, through the McGill library website, through PubMed (<http://www.ncbi.nlm.nih.gov/pubmed/>) and/or Google Scholar (<https://scholar.google.ca/>).

***Students are encouraged to contact Prof. Jensen about how to gain electronic access to the textbook resources listed above, including copies of research articles not available online via the McGill library website, PubMed and/or Google Scholar.*

Textbook resources (not required & listed in the order of importance to the lecture content):

1. Wasserman K, Hansen JE, Sue DY, Stringer WW, Sietsma KE, Sun XG & Whipp BJ. Principles of Exercise Testing and Interpretation: Including Pathophysiology and Clinical Applications, 5th Edition. Lippincott Williams & Wilkins, New York, NY, USA, 2012.
2. Jones NL. Clinical Exercise Testing, 4th Edition. WB Saunders Company, Philadelphia, Pennsylvania, USA, 1997.
3. Ehrman JK, Gordon PM, Visich PS & Keteyian SJ. Clinical Exercise Physiology, 5th Edition. Human Kinetics, Windsor, ON, Canada, 2022.
4. ACSM's Advanced Exercise Physiology, 2nd Edition. Editors: Farrell PA, Joyner MJ & Caiozzo VJ. Wolters Kluwer, Lippincott Williams & Wilkins, New York, NY, USA, 2012.

COURSE EVALUATION

COMPONENT	WEIGHT
1. Journal Article Review Assignment 1 - COPD	5%
2. Journal Article Review Assignment 2 - CHF	5%
3. Case Study Report 1 – Pulmonary Disease	10%
4. Case Study Report 2 – Cardiovascular Disease	10%
5. Case Study Report 3 – Cardiovascular Disease	10%
6. In-class Midterm examination (Thursday, October 26) covering material from September 05 to October 19	25%
7. Final examination (During exam period; date TBA): non-cumulative covering material from October 31 to December 05	35%

Unless instructed otherwise, **assignments must be submitted electronically via the Assignments tab/tool on the EDKP 485 *MyCourses* site by the dates and times listed in the green cells of the “EVALUATION COMPONENTS” table below.** Assignments can be submitted in any file format, so long as they can be opened with most computer operating systems. However, the preferred format for submission of all assignments is .DOCX because it allows for editing with track changes.

Deadlines: No extensions will be granted, although valid exceptions such as illness may be considered by Prof. Jensen and may require supporting documentation (e.g., doctor's note). If students feel there is a problem, they should advise Prof. Jensen as early in the semester as possible when there may be time to provide help/accommodation. Supplementary assignments for a higher final grade will not be considered.

EVALUATION COMPONENTS:		
Components 1 & 2	Value: 5% each (10% total)	Submission deadlines: <u>Journal Article Review Assignment 1:</u> No later than 11:59:59 pm EST on Thursday, September 28 <u>Journal Article Review Assignment 2:</u> No later than 11:59:59 pm EST on Thursday, November 23
Journal Article Review Assignments 1 & 2	<p>The purpose of the journal article review assignment is for students to read, critically evaluate, and summarize the results of an original research article on some aspect of exercise pathophysiology in people with COPD or CHF. The articles are pre-selected by Prof. Jensen and supplement the material covered in lecture.</p> <p>Assignments must be written <u>individually</u>. Students are expected to read the article; summarize the rationale for the study, including its working hypothesis; summarize the main findings of the study; identify the strengths and critique the weaknesses of the study; and identify the clinical implication(s) of the study.</p> <p>Reports must be 1 single-spaced page in length and organized according to instructions provided by Prof. Jensen.</p> <p>Reports will be marked on a Pass/Fail basis. Please note, however, that Prof. Jensen and his grader reserve the right to deduct marks due to poor perceived effort.</p>	
Components 3, 4 & 5	Value: 10% each (30% total)	Submission deadlines: <u>Case Study 1:</u> No later than 11:59:59 pm EST on Thursday, October 12 <u>Case Study 2:</u> No later than 11:59:59 pm EST on Thursday, November 09 <u>Case Study 3:</u> No later than 11:59:59 pm EST on Monday, December 05 (<i>with no possible exceptions</i>)
Case Study Assignments 1, 2 & 3	<p>It is likely that, as part of their future professional responsibilities, many students will need to apply the knowledge gained in EDKP 485 to the interpretation of cardiopulmonary exercise tests results from an individual person or clinical case. With this in mind, the purpose of the case study assignments is for students to apply the theoretical knowledge acquired in EDKP 485 to the interpretation of clinical cardiopulmonary exercise test responses from an individual case referred for clinical evaluation.</p> <p>Reports must be written <u>individually or in a group of no more than 2 students</u>. Both students in the group are expected to</p>	

	<p>contribute equally to the work. Each group of 2 students will write and submit one case study report and one grade will be awarded per group.</p> <p>Students will be provided with selected clinical findings and cardiopulmonary exercise test data/information on a single patient (or “case”) with pulmonary disease (report 1) or cardiovascular disease (reports 2 and 3). Students are expected to employ the systematic approach taught in class to analyze and interpret the clinical and exercise test results provided; and write a Case Study Report that is ≤2 single-spaced pages according to the instructions provided by Prof. Jensen.</p>
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COURSE SCHEDULE & CONTENT

- The topics outlined in the table below are subject to change as the course dictates with prior notification. Students will be notified of such changes *via* email and/or an announcement posted to the EDKP 485 *MyCourses* site with as much advance notice as possible.
- Unless indicated or announced otherwise, lectures will be presented sequentially in-person during the scheduled lecture period (Tuesday and Thursday from 10:05 – 11:25 am EST).
- Lecture slides will be posted in .PPTX and .PDF formats to the EDKP 485 *MyCourses* site as far in advance of each scheduled class as possible.
- With few exceptions, lectures will be audio and video recorded. Unless problems arise, lecture recordings will be posted to the EDKP 485 *MyCourses* site within 24 hours from the end of each scheduled class.

Week	Date	Topic	Date	Topic
1	--	--	Thursday, August 31	Course introduction
2	Tuesday, September 05	Principles of CPET & Interpretation 1	Thursday, September 07	Principles of CPET & Interpretation 2
3	Tuesday, September 12	Principles of CPET & Interpretation 3 (**Virtual or Pre-recorded via Zoom**)	Thursday, September 14	Principles of CPET & Interpretation 4
4	Tuesday, September 19	Principles of CPET & Interpretation 5	Thursday, September 21	Exercise Pathophysiology of COPD 1
5	Tuesday, September 26	Exercise Pathophysiology of COPD 2	Thursday, September 28	Exercise Pathophysiology of COPD 3
6	Tuesday, October 03	Exercise Pathophysiology of COPD 4	Thursday, October 05	Exercise Pathophysiology of Asthma 1
7	Tuesday, October 10	McGill Fall Study Break (No Class)	Thursday, October 12	Exercise Pathophysiology of Asthma 2 (**Virtual or Pre-recorded via Zoom**)

8	Tuesday, October 17	Exercise Pathophysiology of Obesity 1	Thursday, October 19	Exercise Pathophysiology of Obesity 2 <i>(**Virtual or Pre-recorded via Zoom**)</i>
9	Tuesday, October 24	In Class Review of Case Study 1	Thursday, October 26	In-class Midterm Examination
10	Tuesday, October 31	Exercise Pathophysiology of CAD 1	Thursday, November 02	Exercise Pathophysiology of CAD 2
11	Tuesday, November 07	Exercise Pathophysiology of CAD 3	Thursday, November 09	Exercise Pathophysiology of CAD 4 <i>(**Virtual or Pre-recorded via Zoom**)</i>
12	Tuesday, November 14	Exercise Pathophysiology of CAD 5	Thursday, November 16	Exercise Pathophysiology of CAD 6
13	Tuesday, November 21	Exercise Pathophysiology of CHF 1	Thursday, November 23	Exercise Pathophysiology of CHF 2
14	Tuesday, November 28	Exercise Pathophysiology of CHF 3	Thursday, November 30	Exercise Pathophysiology of CHF 4
15	Tuesday, December 05	Exercise Pathophysiology of CHF 5	--	--

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

- ✓ Please do not hesitate to contact me if you would like me to refer to you by a different name than the name indicated in your student record or to inform me of your preferred pronouns.
- ✓ Students may face mental health challenges that can impact not only their academic success but also their ability to thrive in our campus community. Please reach out for support when you need it; [wellness resources](#) are available on campus, off campus, and online.
- ✓ If you are feeling overwhelmed by your academic work and/or would like to further develop your time and workload management skills, don't hesitate to seek support from [Student Services](#).
- ✓ If you have difficulty affording food or if you lack a safe and stable place to live, and believe that these circumstances may affect your performance in this course, I encourage you to contact the [Dean of Students](#), who can connect you with support services.
- ✓ Consult resources from [Teaching and Learning Services \(TLS\)](#) on topics such as time management, study strategies, group work, exam prep, and more. For further individualized support check out the programs and resources from [Student Accessibility & Achievement](#).
- ✓ In the event of extraordinary circumstances beyond the University's control, the content and/or evaluation scheme in this course is subject to change.
- ✓ 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 examination.
- ✓ Additional policies governing academic issues that affect students can be found in the [McGill Charter of Students' Rights](#).
- ✓ 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 Prof. Jensen and the [Office for Student Accessibility and Achievement](#), 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.
- ✓ Instructor generated course materials (e.g., lecture notes, handouts, summaries, exam questions, etc.) 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.
- ✓ 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.