

McGill University
Department of Kinesiology & Physical Education
EDKP 485: Cardiopulmonary Exercise Pathophysiology (3 credits)
Course Outline, Fall 2022

INSTRUCTOR

Prof. Dennis Jensen, PhD

Office address: Currie Memorial Gymnasium, 475 Pine Avenue West, Room A223

Phone: 514-398-4184 ext. 0541

E-mail: dennis.jensen@mcgill.ca

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

GRADERS

Carson Graham, carson.graham@mail.mcgill.ca

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

LECTURE DAYS, TIME, FORMAT & LOCATION

- Mondays and Wednesdays from 2:35-3:55 pm EST
- Lectures will be held in-person in Room 1080 of the Lorne M. Trottier Building located at 3630 Rue University, Montreal, QC H3A 2B3.
- Refer to “*Course Schedule & Content*” section below for more details.

COURSE DESCRIPTION

Generally speaking, this course will review the exercise pathophysiology of selected respiratory and cardiovascular disease states, including chronic obstructive pulmonary disease (COPD), asthma, 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, CAD and CHF.
2. To better understand the impact of COPD, asthma, CAD and CHF on physiological and perceptual responses to acute exercise.
3. To better understand the effects of therapeutic interventions, specifically exercise training, on physiological and perceptual responses to exercise in COPD, asthma, CAD and CHF.
4. To develop an appreciation for the role of clinical cardiopulmonary exercise testing (CPET) in evaluating the impaired function of various physiological support systems; evaluating a patients’ 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, 4th Edition. Human Kinetics, Windsor, ON, Canada, 2019.
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 (Monday, October 24) <ul style="list-style-type: none">• Will cover material from September 07 to October 19	25%
7. Final examination (During exam period, date TBA) <ul style="list-style-type: none">• Non-cumulative: will cover material from October 26 to December 05	35%
<i>Course Overview Quiz (September 07) – students who get 5/8 on the quiz will get 1% bonus</i>	

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.

No deadline extensions will be granted, although valid exceptions such as illness may be considered and require supporting documentation (e.g., doctor's note). If a student feels there are extenuating and/or extraordinary circumstances beyond their control that prevent them from submitting their report by the deadline, they should advise Prof. Jensen as early as possible so that reasonable and equitable help/accommodations may be considered. **Supplementary assignments for a higher final grade will not be considered.**

EVALUATION COMPONENTS:		
Components 1 & 2	Value: 5% each (10% total)	<p>Submission deadlines: <u>Journal Article Review Assignment 1:</u> No later than 11:59:59 pm EST on Wednesday, September 28th</p> <p><u>Journal Article Review Assignment 2:</u> No later than 11:59:59 pm EST on Wednesday, November 23rd</p>
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 individually. 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 graders reserve the right to deduct marks due to poor perceived effort.</p>	
Components 3, 4 & 5	Value: 10% each (30% total)	<p>Submission deadlines: <u>Case Study 1:</u> No later than 11:59:59 pm EST on Thursday, October 13th</p> <p><u>Case Study 2:</u> No later than 11:59:59 pm EST on Wednesday, November 2nd</p> <p><u>Case Study 3:</u> No later than 11:59:59 pm EST on Monday, December 5th (<i>with no possible exceptions</i>)</p>
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 individually or in a group of no more than 2 students. 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 otherwise announced, lectures will be presented sequentially in-person during the scheduled lecture period (Mondays and Wednesday from 2:35-3:55 pm 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	--	--	Wednesday, August 31	Course introduction (Pre-recorded <i>via</i> Zoom)
2	Monday, September 05	Labour Day (No Class)	Wednesday, September 07	Principles of CPET & Interpretation 1
3	Monday, September 12	Principles of CPET & Interpretation 2	Wednesday, September 14	Principles of CPET & Interpretation 3
4	Monday, September 19	Principles of CPET & Interpretation 4	Wednesday, September 21	Exercise Pathophysiology of COPD 1
5	Monday, September 26	Exercise Pathophysiology of COPD 2	Wednesday, September 28	Exercise Pathophysiology of COPD 3
6	Monday, October 03	Quebec General Election Day (No Class)	Wednesday, October 05	Exercise Pathophysiology of COPD 4
7	Monday, October 10	Thanksgiving (No Class)	Wednesday, October 12	McGill Fall Study Break (No Class)
	Thursday, October 13 (make up for Monday October 10)		Exercise Pathophysiology of Asthma 1	

8	Monday, October 17	Exercise Pathophysiology of Asthma 2	Wednesday, October 19	In Class Review of Case Study 1
9	Monday, October 24	In-class Midterm Examination	Wednesday, October 26	Exercise Pathophysiology of CAD 1
10	Monday, October 31	Exercise Pathophysiology of CAD 2	Wednesday, November 02	Exercise Pathophysiology of CAD 3
11	Monday, November 07	Exercise Pathophysiology of CAD 4	Wednesday, November 09	Exercise Pathophysiology of CAD 5
12	Monday, November 14	Exercise Pathophysiology of CAD 6 (dyslipidemia)	Wednesday, November 16	Exercise Pathophysiology of CAD 7 (hypertension)
13	Monday, November 21	Exercise Pathophysiology of CHF 1	Wednesday, November 23	Exercise Pathophysiology of CHF 2
14	Monday, November 28	Exercise Pathophysiology of CHF 3	Wednesday, November 30	Exercise Pathophysiology of CHF 4
15	Monday, 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

- ✓ 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 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.
- ✓ In the event of extraordinary circumstances beyond the University's control, the content and/or evaluation scheme in this course is subject to change.
- ✓ 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.