

**McGill University**  
**Department of Kinesiology & Physical Education**  
**EDKP 485: Exercise Pathophysiology**  
**Course Outline.v2, Winter 2020**

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## **INSTRUCTOR**

Dennis Jensen, PhD

Currie Memorial Gymnasium, 475 Pine Avenue West, Room A223

Phone: 514-398-4184 ext. 0541

E-mail: [dennis.jensen@mcgill.ca](mailto:dennis.jensen@mcgill.ca)

Office hours: By appointment.

**\*\*After March 30<sup>th</sup>, office hours will be held virtually and by appointment.**

## **LECTURE DAYS, TIME & LOCATION**

Mondays and Wednesdays, 1:05 – 2:25 am, Currie Gymnasium, Room 408/9

**\*\*After March 30<sup>th</sup> due to the extraordinary circumstances of COVID-19, the course will be delivered in an online format. Specifically, lecture slides and assignments will be posted to MyCourses, while lectures will be pre-recorded and posted to MyCourses via YouTube as per the revised lecture schedule on Page 4.**

## **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 COPD, asthma, CAD and CHF.

## **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, namely 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**

PDF copies of original research articles, topical review articles, and textbook chapters relevant to the content covered in lecture will be posted to the EDKP 485 MyCourses site.

## **ADDITIONAL READING 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, 5<sup>th</sup> Edition. Lippincott Williams & Wilkins, New York, NY, USA, 2012.
2. Jones NL. Clinical Exercise Testing, 4<sup>th</sup> Edition. WB Saunders Company, Philadelphia, Pennsylvania, USA, 1997.
3. Ehrman JK, Gordon PM, Visich PS & Keteyian SJ. Clinical Exercise Physiology, 4<sup>th</sup> Edition. Human Kinetics, Windsor, ON, Canada, 2019.
4. ACSM's Advanced Exercise Physiology, 2<sup>nd</sup> Edition. Editors: Farrell PA, Joyner MJ & Caiozzo VJ. Wolters Kluwer, Lippincott Williams & Wilkins, New York, NY, USA, 2012.

## **COURSE EVALUATION**

### **\*\*Due to the extraordinary circumstances of COVID-19:**

1. **There will be no final examination.**
2. **Journal article review assignment #3 and Case study assignment #3 will both be due on or any time before April 15<sup>th</sup>, 2020 at 11:59 pm EST.**
3. **Journal article review assignment #4 and Case study assignment #4 will both be due on or any time before May 1<sup>st</sup>, 2020 at 11:59 pm EST.**
4. **Journal article review assignments will each be worth 7.5% of the final grade in EDKP 485, while case study assignments will each be worth 10% of the final grade in EDKP 485**

<b>Midterm examination (Monday, February 24, in-class).....</b>	<b>30%</b>
• <i>Will cover material from January 08 – February 19</i>	
<b>Journal article review report #1 – COPD.....</b>	<b>7.5%</b>
• <i>Due in lecture on Monday, February 03</i>	
<b>Journal article review report #2 – Asthma.....</b>	<b>7.5%</b>
• <i>Due in lecture on Wednesday, February 19</i>	
<b>Journal article review report #3 – CAD.....</b>	<b>7.5%</b>
• <b><i>Due on or any time before April 15, 2020 at 11:59 pm EST</i></b>	
<b>Journal article review report #4 – CHF.....</b>	<b>7.5%</b>
• <b><i>Due on or any time before May 01, 2020 at 11:59 pm EST</i></b>	
<b>Case study report #1 – Pulmonary Disease.....</b>	<b>10%</b>
• <i>Due in lecture on Wednesday, February 12</i>	
<b>Case study report #2 – Pulmonary Disease.....</b>	<b>10%</b>
• <i>Due in lecture on Wednesday, March 11</i>	
<b>Case study report #3 – Cardiovascular Disease.....</b>	<b>10%</b>
• <b><i>Due on or any time before April 15, 2020 at 11:59 pm EST</i></b>	
<b>Case study report #4 – Cardiovascular Disease.....</b>	<b>10%</b>
• <b><i>Due on or any time before May 01, 2020 at 11:59 pm EST</i></b>	

#### **4 x CASE STUDY REPORTS each worth 10% ⇒ 40% of final mark**

- ✓ Briefly, students will be provided with selected clinical findings and cardiopulmonary exercise test data/information on a single patient (or “case”) with pulmonary disease (reports 1 and 2) or cardiovascular disease (reports 3 and 4). Case study reports must be written **individually or in a group of no more than 2 students**. Students will 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 in the assignment handout.
- ✓ **\*\*Method of submission: After March 30<sup>th</sup>, case study assignments should be submitted to Prof. Jensen via email ([dennis.jensen@mcgill.ca](mailto:dennis.jensen@mcgill.ca)) by the abovementioned submission deadlines. Prof. Jensen will confirm receipt via reply email. Once the assignments have been graded, they will be scanned to PDF and returned to each student (or group) by email, with grades posted to MyCourses.**

#### **4 x JOURNAL ARTICLE REVIEW REPORTS each worth 7.5% ⇒ 30% of final mark**

- ✓ Briefly, students will be provided with an original research article (pre-selected by Prof. Jensen) on some aspect of exercise physiology for each of the pathophysiological disease states covered in class: COPD; asthma; CAD; and CHF. 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. Reports must be **1 single-spaced page** and organized according to the instructions provided by Prof. Jensen in the assignment handout. **Reports must also be written individually**. 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.
- ✓ **\*\*Method of submission: After March 30<sup>th</sup>, journal article review assignments should be submitted to Prof. Jensen via email ([dennis.jensen@mcgill.ca](mailto:dennis.jensen@mcgill.ca)) by the abovementioned submission deadlines. Prof. Jensen will confirm receipt via reply email. Once the assignments have been graded, they will be scanned to PDF and returned to each student by email, with grades posted to MyCourses.**

#### **PLEASE NOTE**

- ✓ Each group of 2 students will write and submit **ONE** case study report and **ONE** grade will be awarded per group.
- ✓ Unless specified otherwise, all case study reports and journal article review reports are **due in lecture** on the dates outlined on Page 2 above.
- ✓ Any report submitted after the deadline will be considered 1 day late. **Late reports will be penalized 1% of the total percentage value of each report per day and will not be accepted after more than 5 days.** For example, a report submitted 1 day late would be worth 4% of the final grade in EDKP 485, while a report submitted 4 days late would be worth 1% of the final grade in EDKP 485.
- ✓ Students are responsible for keeping back-up copies of all written work.
- ✓ Computer data storage problems **will not be accepted** as an excuse for late laboratory reports.

## LECTURE SCHEDULE (*\*subject to change\**)

\*Lecture slides will be posted on the EDKP 485 MyCourses site in .PPTX and .PDF formats as far in advance of each lecture as possible.

\*With few exceptions, lectures will be video and audio recorded. Unless problems arise, lecture recordings will be posted to YouTube (with links added to the EDKP 485 MyCourses site) within 24 hours from the end of class.

**\*\*Notwithstanding the extraordinary circumstances of COVID-19, all course material originally scheduled to be delivered will be delivered, as per the revised lecture scheduled below.**

Date	Topic
January 06	Introduction to EDKP 485
January 08, 13, 15, 20 & 22	Principles of CPET & interpretation 1, 2, 3, 4 & 5
January 27, 29 & February 03, 05 & 10	Exercise pathophysiology of COPD 1, 2, 3, 4 & 5
February 12 & 17	Exercise pathophysiology of Asthma 1 & 2
February 19	In-class review of Case Study Report #1
<b>February 24</b>	<b>In-class Midterm Examination (30% of final grade)</b>
February 26	Exercise pathophysiology of CAD 1
March 02 & 04	McGill Study Break (No Class)
March 09 & 11	Exercise pathophysiology of CAD 2 & 3
<b>March 16, 18, 23 &amp; 25</b>	<b>University closure due to extraordinary circumstances of COVID-19</b>
<b>March 30 - ONLINE</b>	<b>Exercise Pathophysiology of CAD 4 &amp; 5</b>
<b>April 01 - ONLINE</b>	<b>Exercise Pathophysiology of CAD 6 (dyslipidemia) and 7 (hypertension)</b>
<b>April 06 - ONLINE</b>	<b>Exercise Pathophysiology of CHF 1 &amp; 2</b>
<b>April 08 - ONLINE</b>	<b>Exercise Pathophysiology of CHF 3 &amp; 4</b>

## 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/](http://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/](http://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.