McGill

PHTH 554 PHYSICAL THERAPY CARDIORESPIRATORY REHABILITATION

Credits: 2

Prerequisites: For students entering the qualifying year of the M.Sc. (A) PT program, knowledge of basic anatomy and cardiorespiratory physiology is required.

For students currently registered in the B.Sc. Rehabilitation Science (major PT) program, successful completion of ANAT 316, PHGY 210, and PHTH440 is required to register for PHTH 554.

Instructors/Coordinators: Jadranka Spahija, PT PhD (lectures)
Hosmer 300
jadranka.spahija@mcgill.ca

Nicholas Bourgeois PT PhD candidate (lectures/labs)
nicholas.bourgeois@mcgill.ca

Other instructors: Natali Mahdavian, PT (lab); Juliette Lord, PT (lab); Marc-Antoine Rouillier, PT (lab); Stephania Palimeris, PT (lab).

Access to the Instructors: Available by email or for meetings (virtual or in-person) by appointment.

Course Description: This first of two courses introduces the principles of cardiorespiratory physical therapy. Students will gain the necessary theoretical knowledge pertaining to the pathophysiology of various medical respiratory conditions as well as the practical skills needed for evaluating and treating such acute and chronic conditions. This course introduces students to the clinical decision-making process involved in the planning, implementation, and progression of a cardiorespiratory physiotherapy treatment program.

Course Structure: The course consists of one 1.5- or 2-hour lecture per week, and a 1.5 hour in-person practical laboratory session, depending on the weekly schedule. A more detailed course schedule is posted on myCourses at the start of term. Students are encouraged to consult myCourses regularly for announcements, course updates and other pertinent information.

McGill University is situated on the traditional territory of the Kanien'kehà:ka, a place which has long served as a site of meeting and exchange amongst nations. We recognize and respect the Kanien'kehà:ka as the traditional custodian of the lands and waters on which we meet today.

Instructional Method: The learning activities will be delivered in-person. Lecture/ lab content and any instructional videos used in the course will be posted on myCourses. Students will be expected to watch all the videos **prior** to their respective labs. Students are also encouraged to use the myCourses Discussion Forum for peer- and instructor support. Note that instructional methods are subject to change based on public health protocols.

A polling system, called Slido may be used at times in this course to enhance student engagement and increase interaction.

- When used, this live-polling system allows the instructor to ask questions and students answer from a personal device (smartphone, tablet, or laptop).
- Students should come to class with their devices charged and connected to the Internet.
- Polling will be available through http://www.mcgill.ca/polling.
- • To participate in a Polling session, you will be provided with a QR code that can be scanned or a Slido code that can be entered here. If you are asked to Login with SSO (Single Sign-On), enter your McGill credentials and follow any Two-Factor Authentication prompts. For more information, please visit the Getting Started for Students section at http://www.mcgill.ca/polling.
- For any technical problems with polling, please contact the IT Service Desk.
- If you do not have a phone, tablet, or laptop to use to respond to polling questions, please contact the instructor immediately in order for appropriate arrangements to be made.
- To maintain a safe and respectful classroom environment, please ensure that any polling and Q & A responses you submit are appropriate and relevant to the question asked. Please note that unless the poll is labelled as anonymous, your responses are identifiable to the instructor. Please see the Code of Student Conduct and Disciplinary Procedures.

Recordings of Sessions: All lecture sessions will be recorded and made available for viewing on myCourses. 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. Please consult me if you have concerns about privacy and we can discuss possible measures that can be taken.

Expectations for Student Participation: Students are expected to attend all weekly in-person or fixed (synchronous) online lectures. Students are also expected to attend all in-person labs and

---

McGill University is situated on the traditional territory of the Kanien'kehà:ka, a place which has long served as a site of meeting and exchange amongst nations. We recognize and respect the Kanien'kehà:ka as the traditional custodian of the lands and waters on which we meet today.

CRWs unless they obtain prior approval from the course coordinators or have a University accepted reason for not participating (see attendance policy below). Attendance will be taken for all in-person labs. During the remote synchronous lab/CRW sessions, video, audio and chat will be used and students are expected to actively participate during all interactive sessions held in the breakout rooms or in the live chat during large group activities. Students will be expected to keep their video turned on during these fixed interactive sessions. Note that sessions held in the breakout rooms cannot be recorded.

Student Learning Objectives: This course will cover essential competencies and milestones related to the domains of Physiotherapy Expertise, Communication, Collaboration, Management, Scholarship, and Professionalism. Upon completion of this course, the student will be able to:

Learning objectives	Milestones
Understand the pathophysiological mechanisms, aetiology and clinical presentation of selected pulmonary conditions;	Foundational Knowledge
Evaluate a patient's cardiopulmonary status by performing a pulmonary physiotherapy assessment (patient interview and objective evaluation);	1.1.6; 1.3.1; 1.3.3; 1.3.4; 1.3.5; 1.3.7
Analyze, interpret and integrate findings from the pulmonary assessment and from other standardized outcome measures, and diagnostic tests to determine if physiotherapy is indicated.	1.4.1; 1.4.5; 1.4.6
Identify the structural impairments, functional deficits and activity limitations of patients with respiratory conditions and considering their personal needs/goals, participation limitations and environmental context;	1.1.3; 1.3.2; 1.4.2
Learning objectives	**Milestones**
Demonstrate basic clinical reasoning and problem-solving skills when establishing goals, appraising all relevant risks and contraindications to treatment and developing a safe and effective treatment plan.	1.2.1; 1.4.1; 1.5.1.; 1.5.2; 1.5.3; 1.5.5; 6.1.2
Establish and safely perform cardiopulmonary treatment interventions for patients who have respiratory conditions, with skill and competence, and be able to justify their intervention plan based on clinical reasoning and knowledge of evidence-based practice.	1.2.2; 1.2.3; 1.5.4; 1.5.5; 1.5.6

McGill University is situated on the traditional territory of the Kanien'kehà:ka, a place which has long served as a site of meeting and exchange amongst nations. We recognize and respect the Kanien'kehà:ka as the traditional custodian of the lands and waters on which we meet today.

Identify the needs and concerns of individual clients to be able to advise and motivate them to adopt behaviors to promote good health, functioning, and participation within the population.	1.1.2; 1.1.3; 1.1.4; 1.1.5; 1.2.4; 1.3.2; 1.7.1
Demonstrate effective and appropriate verbal and written communications during interaction with patients, other health care professionals and peers when appropriate throughout the course.	2.1.1; 2.1.2; 2.1.3; 2.1.4; 2.2.1; 2.3.1; 2.3.2; 2.3.3
Understand the importance of interprofessional practice in the care of medical patients in both the acute and outpatient rehabilitation setting.	3.1.1; 3.1.2; 3.2.1
Recognize when referral to another health care professional is necessary for comprehensive patient care.	3.1.1; 3.2.1
Demonstrate the use of safe and effective techniques during laboratory sessions and practical exam situations.	4.3.1; 4.3.3
Apply skills in literature searching, information retrieval, and critical appraisal to (i) update knowledge of clinical conditions/procedures and (ii) evaluate the effectiveness of physiotherapy treatment techniques.	6.1.1; 6.1.2
Demonstrate a professional and respectful attitude when interacting with peers and other professionals involved in the course.	7.4.1; 7.4.5; 7.4.6

Course Content:

Lectures

- Respiratory system anatomy, physiology, and mechanics
- Control of breathing, ventilation perfusion matching
- Investigative techniques I: Radiography, pulmonary function tests
- Investigative techniques II: Arterial blood gases, hematology, laboratory investigations for renal and hepatic function, blood glucose
- Obstructive pulmonary conditions: COPD, emphysema, chronic bronchitis, asthma, bronchiectasis
- Restrictive pulmonary disease: atelectasis, pleural disease, infectious conditions, pulmonary edema, interstitial lung disease, occupational lung disease
- Chest trauma: Pneumothorax, pulmonary contusions, inhalation burns, aspiration
- Pulmonary medications, supplemental oxygen
- Exercise limitations in chronic respiratory disease, respiratory muscle strength/ endurance
- Treatment of respiratory conditions and pulmonary rehabilitation
- Medications: Respiratory, supplemental oxygen

Practical sessions

- Surface anatomy and palpation
- Respiratory assessment I: History taking, symptom assessment, vitals
- Respiratory assessment II: Inspection, palpation, mediate percussion, voice sounds, diaphragm excursion and chest expansion
- Respiratory assessment III: Auscultation, pulse oximetry
- Treatment I: Positioning (dyspnea, V/Q); Breathing exercises: pursed lips breathing, lateral costal expansion, segmental expansion, diaphragm breathing; Energy conservation, relaxation techniques, trunk mobility exercises
- Treatment II: Secretion clearance: ACBT/ huffing/ coughing maneuvers/PEP/ Flutter, Acapella, Vest and other devices
- Treatment III: Postural drainage, percussion, vibration, rib springing

Course Materials:

- Student will need to have access to a computer and internet to be able to view and download content from myCourses, to complete the online quizzes and assignments, and to participate in the remote fixed zoom sessions and live polling.
- **Required text:** (can be purchased on-line or through the McGill bookstore)**:**
  Reid, W.D., Chung, F. and Hill K. (2014). Cardiopulmonary physical therapy: Management and case studies, (2nd ed.). Thorofare, NJ: Slack Inc. Additional required readings may be posted on MyCourses.
- **Reference texts:**
  DeTurk, W.E., Cahalin, L.P. (2018*). Cardiovascular and pulmonary physical therapy: An evidence-based approach, (*3rd ed). New York: McGraw-Hill.
  Frownfelter, D. & Dean, E. (2012). *Cardiovascular and pulmonary physical therapy: Evidence and practice*, (5th ed.). St. Louis: Mosby.
  Hillegass, E.A. (2017). Essentials of cardiopulmonary physical therapy, (4th ed). St. Louis, Missouri: Elsevier)
  Hough, A. (2018) Hough's Cardiorespiratory Care: an evidence-based, prblem-solving approach (5th ed.), Elsivier Ltd.
  Main E. and Denehy, L. (2016) Cardiorespiratory physiotherapy: Adults and Paediatrics (5th ed.), Elsivier Ltd.
  West, J.B. (2011). *Respiratory physiology: The essentials*, (9th ed.). Baltimore: Williams & Wilkins.
  West, J.B. (2017). *Pulmonary pathophysiology: The essentials,* (9th ed.). Baltimore: Williams & Wilkins.

McGill University is situated on the traditional territory of the Kanien'kehà:ka, a place which has long served as a site of meeting and exchange amongst nations. We recognize and respect the Kanien'kehà:ka as the traditional custodian of the lands and waters on which we meet today.

- **Required equipment:** A stethoscope and a watch with a second hand. Stethoscopes can be purchased at the McGill Bookstore or at Dufort & Lavigne Ltée.

Student Assignment and Evaluation: Students are evaluated by their performance in two components:

Assignment/Evaluation	Value	Due Date	Milestones Assessed
1)Theoretical knowledge: • Assignment #1 (Group report)	10%	Oct. 26th	2.2.1; 2.2.3; 2.3.2; 3.3.1; 3.3.2; 3.3.3.; 3.3.5; 6.1.1; 6.1.2; 6.2.3;
• Assignment #2 (Group report)	10%	Nov. 17th	2.2.1; 2.2.3; 2.3.2; 3.3.1; 3.3.2; 3.3.3; 3.3.5; 6.1.1; 6.1.2; 6.2.3; 6.5.3
• On-line quizzes on myCourses (5) (Individual)	10%	Week of Sept 6th,Spet 20th, Oct 11th, Nov 15th, Nov 29th	1.2.1; 1.2.3; 1.3.7; 1.4.1; 1.4.2; 1.4.5; 1.4.6; 1.5.1; 1.5.2; 6.1.1.; 6.1.2; 6.2.2; 6.2.4
• Pre-lab assignments (5) (Individual)	5%	Sept 15th,Sept 22nd,Sept 29th, Oct 27th, Nov 24th	1.3.7; 1.4.1; 1.4.2; 1.5.2; 2.2.1; 6.2.3; 6.2.4
• In-person final written exam	35%	TBD	1.2.1; 1.2.1; 1.2.3; 1.3.1; 1.3.3; 1.3.4; 1.3.5; 1.3.6; 1.3.7; 1.4.1; 1.4.2; 1.4.5; 1.4.6; 1.5.1; 1.5.2; 1.5.3; 1.5.4; 1.5.5; 1.5.6; 1.5.7; 1.6.1;
2) Practical skills: • Final Objective Structures Clinical Examination (OSCE)	30%	Dec. 18th	1.1.2; 1.1.5; 1.1.6; 1.2.1; 1,2,2; 1.2.3; 1.2.4; 1.3.1; 1.3.4; 1.4.1; 1.5.3; 1.5.4; 1.5.5; 1.5.6; 2.1.1; 2.1.2; 2.3.2; 4.3.3; 7.4.1; 7.4.5; 7.4.6

*** The content and/or evaluation scheme in this course is subject to change.**

McGill University is situated on the traditional territory of the Kanien'kehà:ka, a place which has long served as a site of meeting and exchange amongst nations. We recognize and respect the Kanien'kehà:ka as the traditional custodian of the lands and waters on which we meet today.

Special Requirements for Course Completion and Program Continuation: For U3 students, in order to pass the course, a grade of at least C+ (60%) must be obtained as a total course mark. For QY students, in order to pass the course, a grade of at least B- (65%) must be obtained as a total course mark. Please refer to the appropriate sections in both undergraduate and graduate calendars on University regulations regarding final and supplemental examinations.

This course falls under the regulations concerning theoretical and practical evaluation as well as individual and group evaluation. Please refer to the section on marks in the Rules and Regulations for Student Evaluation and Promotion.

Attendance: Attendance at all labs and clinical reasoning workshops is mandatory. Students who have missed more than 10% of laboratory or small group sessions, or who miss any required professional workshop or seminar, without prior approval, will have 10%of the total mark of the course removed.

Plagiarism/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" (Approved by Senate on 29 January 2003) (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 procédures disciplinaires » (Énoncé approuvé par le Sénat le 29 janvier 2003) (pour de plus amples renseignements, veuillez consulter le guide pour l'honnêteté académique de McGill guide pour l'honnêteté académique de McGill.)* »

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 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.

McGill University is situated on the traditional territory of the Kanien'kehà:ka, a place which has long served as a site of meeting and exchange amongst nations. We recognize and respect the Kanien'kehà:ka as the traditional custodian of the lands and waters on which we meet today.

Consequences of Not Completing Assignments as Requested: An individual who does not complete a required assignment and does not have a university recognized reason for deferral will receive a 0 in that portion of the evaluation. Assignments submitted late will be graded but will receive a deduction of 5% per day, including weekends.

Dress Code: Students are expected to demonstrate professional behaviour and wear appropriate attire at all times, in accordance with clinical sites specific regulations. Students are required to wear comfortable shorts or pants and a T-shirt or tank top for in-person practical laboratory sessions.

Technology in Class: Your respectful attentive presence is expected, therefore while you are permitted to use your laptop in class, it is understood that you will not be using your laptop or cell phone for social purposes during class time (e.g., texting, emailing, chats, messaging, scrolling through social media, online shopping, etc). Your cell phone should be on silent during class time and phone calls should only take place during the break or after class.

Student Accessibility: We endeavor to provide an inclusive learning environment. If you require an adapted learning environment (for in class and during exams), please contact the Student Accessibility and Achievement Office as soon as possible so arrangements can be made. You may also contact your instructor(s) if you wish but are not obliged to do so.

Mercury course evaluations: Mercury 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.

Land recognition: McGill University is on land which 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.

Inclusive learning environment: 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 me and/or Student Accessibility and Achievement.

McGill University is situated on the traditional territory of the Kanien'kehà:ka, a place which has long served as a site of meeting and exchange amongst nations. We recognize and respect the Kanien'kehà:ka as the traditional custodian of the lands and waters on which we meet today.

Respect: The University is committed to maintaining teaching and learning spaces that are respectful and inclusive for all. To this end, offensive, violent, or harmful language arising in course contexts may be cause for disciplinary action.

Wellness: Many 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.

Workload management skills: 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.

Additional policies governing academic issues which affect students can be found in the Academic Rights and Responsibilities.

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

McGill University is situated on the traditional territory of the Kanien'kehà:ka, a place which has long served as a site of meeting and exchange amongst nations. We recognize and respect the Kanien'kehà:ka as the traditional custodian of the lands and waters on which we meet today.