



School of Health and Exercise Sciences

HES 454 Course Outline 2024 Clinical Exercise Physiology – Applications in Chronic Conditions: Respiratory Disease

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Office Hours: By appointment
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Course Description

Official Calendar: Common respiratory diseases of the adult, including acute and chronic disorders. Respiratory diagnostics, therapeutics, and exercise interventions applied to these disorders. Credit will be granted for HES 454 [3-0-0]

Prerequisite: HES 305.

Course Format

Interactive lectures consisting of topic presentation and discussion, evaluations of understanding via questioning and problem solving, group discussions and clinical case studies.

Specific Description

This course is designed to provide a comprehensive overview of the essentials of respiratory physiology and present examples of pathophysiology including acute and chronic disorders. Students will also be introduced to more advanced topics associated with exercise limitations in health and disease, respiratory diagnostics and exercise prescription for patients with chronic respiratory conditions.

Learning Outcomes

By the end of this course students will be able to:

- Clearly understand the fundamentals of respiratory physiology.
- Apply physiological concepts to better understand how the respiratory system is altered with pathology.
- Understand and appropriately prescribe exercise to specifically alter the pathophysiology of respiratory disease and improve health outcomes for those with respiratory conditions.

Evaluation Components and Grading

Take-Home Assignments and In-Class PFT Assignment	50%
Mid-Term Exam	20%
Final Exam	30%

(1) Weekly Assignments (50%)

Six take-home assignments will be handed out on the Thursday of the weeks identified in the tentative course schedule and on the assignments page in Canvas. These take-home assignments will involve answering applied questions related to the topics covered in class. You will have one week to complete each assignment and they should be **submitted online before the class on the date stated**. The first 4 assignments are worth 5% each. The final two assignments are slightly larger pieces of work and are worth 10% (Assignment #5) and 15% (Assignment #6) each.



There will also be one in-class assignment worth 5% performed during the lecture on February 12th 2024 where you will have 15 minutes during class to interpret a pulmonary function test provided to you.

(2) Midterm examination (20%)

This exam will be written during class time on Wednesday 14th February will be 80 min in duration. The format will be short-answer questions. More details will be given in class before the exam.

(3) Final examination (30%)

This examination will be written on the time designated by the University. It will be a 2.5-hour exam and will cover all course material **not** covered in the midterm.

Required Readings

John B. West, MD, PhD. and Andrew M. Luks M.D. West's Respiratory Physiology - The Essentials. Wolters Kluwer, 11th Edition, 2020.

Other Suggested Texts:

John B. West, MD, PhD. Pulmonary Pathophysiology: The Essentials. Wolters Kluwer, 9th Edition, 2017.

Additional readings to supplement material may be presented throughout the class on specific topics not covered in the textbook. Additional readings can also be suggested on request for clarification of specific topics.

Online Resources: Lectures by Prof. John West associated with these textbooks are also available online on the UC San Diego website: <https://pulmonary.ucsd.edu/research/labs-centers/west/video-lectures.html>

Lecture Materials:

Required readings for future topics will be announced in class and put on Canvas at the end of the previous module. Lecture notes I will try and post on Friday and Tuesday afternoon. For each week's lecture recordings, I will post at the end of each week. Providing lecture notes and recordings is a privilege and is not a requirement of teaching at UBC-O. As such, please be respectful if on occasion I am late, otherwise I will withdraw this privilege for all students.

Final Examinations

The examination period for Term 2 is Apr 15th-26th. Except in the case of examination clashes and hardships (three or more formal examinations scheduled within a 24-hour period) or unforeseen events, students will be permitted to apply for our-of-time final examinations only if they are representing the University, the province or the country in a competition or performance; serving the Canadian military observing a religious rite; working to support themselves or their family; or caring for a family member. Unforeseen events include (but may not be limited to) the following: ill health or other personal challenges that arise during a term and changes in the requirements of an ongoing job. Further information can be found under Policies and Regulation in the *Okanagan Academic Calendar* <http://www.calendar.ubc.ca/okanagan/index.cmf?tree=3,48,0,0>



Academic Integrity

The academic enterprise is founded on honesty, civility, and integrity. As members of this enterprise, all students are expected to know, understand and follow the codes of conduct regarding academic integrity. At the most basic level, this means submitting only original work done by you and acknowledging all sources of information or ideas and attributing them to others as required. This also means you should not cheat, copy, or mislead others about what is your work. Violations of academic integrity (i.e., misconduct) lead to the breakdown of the academic enterprise, and therefore serious consequences arise and harsh sanctions are imposed. For example, incidences of plagiarism or cheating may result in a mark of zero on the assignment or exam and more serious consequences may apply if the matter is referred to the President’s Advisory Committee on Student Discipline. Careful records are kept in order to monitor and prevent recurrences.

A more detailed description of academic integrity, including the University’s policies and procedures, may be found in the Academic Calendar at

<http://okanagan.students.ubc.ca/calendar/index.cmf?tree=3,54,111,0>

Grading Practices

Faculties, departments, and schools reserve the right to scale grades in order to maintain equity among sections and conformity to university, faculty, department or school norms. Students should therefore note that the faculty, department, or school might change an unofficial grade given by an instructor. Grades are not official until they appear on a student’s academic record.

<http://www.calendar.ubc.ca/okanagan/index.cmf?tree=3,41,90,1014>

Tentative Course Schedule

Week Starting	Topic	Assignment
Jan 8 th	Introduction to Respiratory Disease	
Jan 15 th	Structure and Function of the Pulmonary System	
Jan 22 nd	Alveolar Ventilation and Dead Space	TH#1–Due Jan 31 st
Jan 29 th	Lung Mechanics and Work of Breathing	TH#2–Due Feb 7 th
Feb 5 th	Pulmonary Function Testing	
Feb 12 th	Pulmonary Function Testing and Midterm Exam (February 14 th)	In Class - Feb 12 th
Feb 19 th	Mid-Term Break	
Feb 26 th	Gas Exchange	TH#3–Due Mar 6 th
Mar 4 th	Gas Transport	
Mar 11 th	Control of Breathing and Acid Base Balance	TH#4–Due Mar 20 th
March 18 th	Pulmonary Circulation	
March 25 th	Pulmonary Limitations to Exercise in Health and Disease	TH#5–Due Apr 3 rd
April 1 st	Exercise Prescription for Individuals with Respiratory Disease	TH#6–Due Apr 10 th
April 8 th	Exercise Prescription for Individuals with Respiratory Disease	

TH = Take home assignment. Assignments will be handed out on Wednesday of the week identified and are due on the date stated i.e. TH#1 will be available Wednesday Jan 24th and should be handed in before class on Wednesday Jan 31st.



Student Service Resources

UBC Okanagan Disability Resource Centre

The Disability Resource Centre ensures educational equity for students with disabilities and chronic medical conditions. If you are disabled, have an injury or illness and require academic accommodations to meet the course objectives, please contact Earllene Roberts, the Diversity Advisor for the Disability Resource Centre located in the University Centre building (UNC 214).

UNC 214 250.807.9263
email: earllene.roberts@ubc.ca
Web: www.students.ok.ubc.ca/drc

UBC Okanagan Equity and Inclusion Office

Through leadership, vision, and collaborative action, the Equity & Inclusion Office (EIO) develops action strategies in support of efforts to embed equity and inclusion in the daily operations across the campus. The EIO provides education and training from cultivating respectful, inclusive spaces and communities to understanding unconscious/implicit bias and its operation within in campus environments. UBC Policy 3 prohibits discrimination and harassment on the basis of BC's Human Rights Code. If you require assistance related to an issue of equity, educational programs, discrimination or harassment please contact the EIO.

UNC 216 250.807.9291
email: equity.ubco@ubc.ca
Web: www.equity.ok.ubc.ca

Health & Wellness

At UBC Okanagan health services to students are provided by Health and Wellness. Nurses, physicians and counsellors provide health care and counselling related to physical health, emotional/mental health and sexual/reproductive health concerns. As well, health promotion, education and research activities are provided to the campus community. If you require assistance with your health, please contact Health and Wellness for more information or to book an appointment.

UNC 337 250.807.9270
email: healthwellness.okanagan@ubc.ca
Web: www.students.ok.ubc.ca/health-wellness

Student Learning Hub

The Student Learning Hub (LIB 237) is your go-to resource for free math, science, writing, and language learning support. The Hub welcomes undergraduate students from all disciplines and year levels to access a range of supports that include **tutoring in math, sciences, languages, and writing, as well as help with study skills and learning strategies**. For more information, please visit the Hub's website (<https://students.ok.ubc.ca/student-learning-hub/>) or call 250-807-9185.

SAFEWALK

Don't want to walk alone at night? Not too sure how to get somewhere on campus? Call Safewalk at 250-807-8076.

For more information, see: www.security.ok.ubc.ca