

## KIN 435: PULMONARY PHYSIOLOGY OF EXERCISE

Fall, 2020

(formerly KIN 475)

UBC's Point Grey Campus is located on the traditional, ancestral, and unceded territory of the xwməθkwəyəm (Musqueam) people. The land it is situated on has always been a place of learning for the Musqueam people, who for millennia have passed on in their culture, history, and traditions from one generation to the next on this site.

**Course Structure:** Fully Online

**Your Instructor:** Bill Sheel, PhD [bill.sheel@ubc.ca](mailto:bill.sheel@ubc.ca)

**Your Teaching Assistant:**

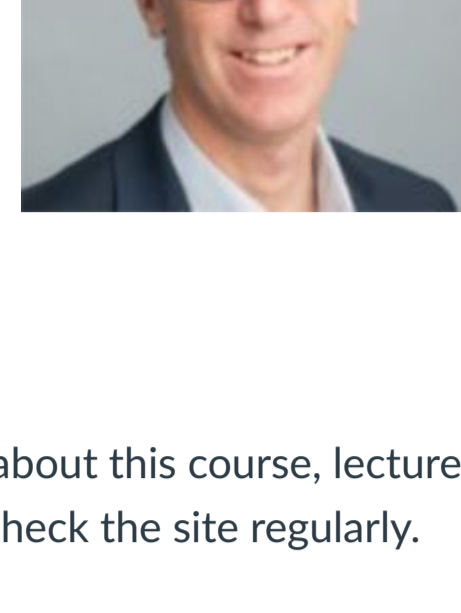
- Kayla Johnston, [kayla.johnston@ubc.ca](mailto:kayla.johnston@ubc.ca)

Please note it may take up to **24-48 hours** to respond to your email during the week. Neither I nor your Teaching Assistant will be checking emails on weekends. Please keep this in mind around quiz and exam time. **Please include KIN 435 in the subject line of emails.**

## Instructor Bio

**BILL SHEEL, PhD, School of Kinesiology**

Dr. Sheel (Bill) completed his education at Canadian institutions (University of New Brunswick, University of British Columbia) followed by postdoctoral training at the University of Wisconsin-Madison. He is currently a Professor in the School of Kinesiology and Adjunct Professor in the Faculty of Medicine at UBC. In addition to teaching undergraduate courses and supervising graduate students he is the Chair of the School's Graduate Program. He performs several editorial duties for scientific journals and is the Chair-Elect for the Canadian Society for Exercise Physiology (CSEP).



### Course Structure

This course includes: lectures, assignments, online discussions, and tutorials. Information about this course, lecture slides, and important reminders will be made available here in the Canvas course. Please check the site regularly. You are responsible for the information posted here.

### Required Textbook

West J.B. Respiratory Physiology – The Essentials. 10<sup>th</sup> Edition.

### Schedule of Topics

Week/Date	Module Content	Learning Materials	Activity
Week 1/Sept 10	Getting started	Getting Started and Course Overview	Orientation
Week 2/Sept 15 & 17	Module 1. Structure, function and ventilation	<ul style="list-style-type: none"> <li>• Textbook – Ch. 1. Structure and function: how the architecture of the lung subserves its function</li> <li>• Textbook – Ch.2. Ventilation: how gas gets to the alveoli</li> </ul>	MODULE 1 QUIZ #1
Week 3/Sept 22 & 24	Module 2. Control of ventilation	<ul style="list-style-type: none"> <li>• Textbook – Ch. 8. Control of ventilation: how gas exchange is regulated</li> </ul>	
Week 4/Sept 29 & Oct 1	Module 2. Control of ventilation	<ul style="list-style-type: none"> <li>• Control of exercise hyperpnea.</li> <li>• Reading: Challenges for future research in exercise physiology as applied to the respiratory system</li> </ul>	MODULE 2 QUIZ #2
Week 5/Oct 6 & 8	Module 3. Pulmonary diffusion, blood flow, ventilation-perfusion	<ul style="list-style-type: none"> <li>• Textbook – Ch.3. Diffusion: how gas gets across the blood-gas barrier</li> <li>• Textbook – Ch.4. Blood flow and metabolism: how the pulmonary circulation removes gas from the lung and alters some metabolites</li> </ul>	
Week 6/Oct 13 & 15	Module 3. Pulmonary diffusion, blood flow, ventilation-perfusion	<ul style="list-style-type: none"> <li>• Textbook – Ch. 5. Ventilation-perfusion relationships: how matching of gas and blood determines gas exchange</li> </ul>	MODULE 3 QUIZ #3
Week 7/Oct 20 & 22	Module 4. Gas transport and lung mechanics & an integrative example	<ul style="list-style-type: none"> <li>• Textbook – Ch. 6. Gas transport by the blood: how gases are moved to the peripheral tissues</li> <li>• Textbook – Ch. 7. Mechanics of breathing: how the lung is supported and moved</li> </ul>	
Week 8/Oct 27 & 29	Module 4. Gas transport and lung mechanics & an integrative example	<ul style="list-style-type: none"> <li>• Textbook – Ch. 7. (continued)</li> <li>• Integrative example. Reading to be distributed</li> </ul>	MODULE 4 QUIZ #4
Week 9/Nov 3 & 5	Module 5. Pulmonary pathophysiology during exercise	<ul style="list-style-type: none"> <li>• Heart failure. Lecture + reading to be distributed</li> </ul>	
Week 10/Nov 10 & 12	Module 5. Pulmonary pathophysiology during exercise	<ul style="list-style-type: none"> <li>• Chronic obstructive pulmonary disease. Lecture + reading to be distributed</li> </ul>	
Week 11/Nov 17 & 19	Module 5. Pulmonary pathophysiology during exercise	<ul style="list-style-type: none"> <li>• Exercise-induced asthma. Lecture + reading to be distributed</li> </ul>	MODULE 5 QUIZ #5
Week 12/Nov 24 & 26	Module 6. The pulmonary physiology of the elite athlete – a comparative physiology approach	<ul style="list-style-type: none"> <li>• Humans. Lecture + reading to be distributed</li> </ul>	
Week 13/Dec 1 & 3	Module 6. The pulmonary physiology of the elite athlete – a comparative physiology approach	<ul style="list-style-type: none"> <li>• Horses and geese. Lecture + reading to be distributed</li> </ul>	MODULE 6 QUIZ #6

## Assessment

This course is graded as per UBC's standard grading practices described in the [Academic Calendar](#).

Assessment	Worth
Quiz (5 of 6 will count)	5 X 20% = 100%

## Additional Materials

### Online Communications

In this course, and throughout your program, you are expected to communicate in a respectful and professional manner. You may find it helpful to review [UBC's Distance Learning Communication Online: Netiquette](#) web page.

### Collaborate Ultra

This course may include Blackboard Collaborate Ultra sessions. These web conference sessions will give you opportunities to connect with your instructors and other students in real-time online meetings. Be sure to use these sessions to ask any content related questions that you may have. If you are new to Collaborate Ultra watch this [short orientation video](#).

### Zoom

When invited to attend live session through Zoom, familiarize yourself with the environment in advance by reviewing [UBC's Get to Know Zoom](#) resource. For more how-to instructions, download [this Student Guide](#).

### Faculty Resources

The Faculty of Education has a number of [resources to support learning](#).

\*If your course or program has other learning resources (physical or virtual), inform your students here. Who will students encounter there? Are the staff knowledgeable about this course? \*

## University Policies

UBC provides resources to support student learning and to maintain healthy lifestyles but recognizes that sometimes crises arise and so there are additional resources to access including those for survivors of sexual violence. UBC values respect for the person and ideas of all members of the academic community. Harassment and discrimination are not tolerated nor is suppression of academic freedom. UBC provides appropriate accommodation for students with disabilities and for religious and cultural observances. UBC values academic honesty and students are expected to acknowledge the ideas and generated by others and to uphold the highest academic standards in all of their actions. Details of the policies and how to access support are available from the [UBC Senate Website](#).

## Course Policies

Please make sure you are familiar with the academic policies and procedures.

### Academic Integrity

Students are expected to follow UBC policies for academic integrity and academic misconduct, which includes practices around plagiarism, referencing and citation, and copyright. For more see, UBC's [Learning Commons Academic Integrity resources](#).

### Accessibility

If you have any challenges accessing materials that will impact your success in this course, UBC's Centre for Accessibility can support your needs by providing appropriate accommodations to support you.

- Web: [UBC's Centre for Accessibility website](#)
- Email: [accessibility@ubc.ca](mailto:accessibility@ubc.ca)

### Learning Analytics

Some of the learning technologies used for this course collect data to support the improvement of teaching and learning. This includes the collection of data related to overall class progress to provide personalized feedback, engagement in discussion forums to support the fostering of community within the course, and how resources are being accessed to support improvements to the course design. To learn more about learning analytics at the Faculty of Education and at UBC, see the [What is Learning Analytics?](#) page.

## Version History

Course revision & improvements

Version	Author	Year
1 <sup>st</sup> edition	William Sheel	2020

### Help Resources

- **New to Learning Online?** Review the Faculty of Education's [eLearning Help & Resources](#).
- **Need assistance with research or writing?** The [Education Library Research Help](#) provides useful resources on these topics.
- **Questions about assignments and learning materials?** Ask your instructor.
- **Technical difficulties with this Canvas course?** Use the 'Help' link in the blue left-hand menu.

## **Students Learning Outside of Canada**

During this pandemic, the shift to online learning has greatly altered teaching and studying at UBC, including changes to health and safety considerations. Keep in mind that some UBC courses might cover topics that are censored or considered illegal by non-Canadian governments. This may include, but is not limited to, human rights, representative government, defamation, obscenity, gender or sexuality, and historical or current geopolitical controversies. If you are a student living abroad, you will be subject to the laws of your local jurisdiction, and your local authorities might limit your access to course material or take punitive action against you. UBC is strongly committed to academic freedom, but has no control over foreign authorities (please visit <http://www.calendar.ubc.ca/vancouver/index.cfm?tree=3,33,86,0> for an articulation of the values of the University conveyed in the Senate Statement on Academic Freedom). Thus, we recognize that students will have legitimate reason to exercise caution in studying certain subjects. If you have concerns regarding your personal situation, consider postponing taking a course with manifest risks, until you are back on campus or reach out to your academic advisor to find substitute courses.

For further information and support, please visit: <https://academic.ubc.ca/supportresources/freedom-expression>.