

*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.*

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### **General course information**

Physiology is the study of how cells work together to form tissues, how tissues work together to form organs, and how organs support the body. This course focuses on the structure and function of the skeletal system, muscular system, integumentary system, neuro-hormonal control, and endocrinology. Emphasis will be to develop an understanding of the integrative nature of the systems discussed.

The study of human physiology is important as it establishes a foundation in the way our body's function. With this understanding we can then build on our knowledge to undertake further study about how the nervous system controls our movements (KIN313, 411), how the body responds to exercise (KIN 235, 335, 438), to injury (KIN 420), and to the environment (KIN 424).

### **Learning outcomes**

By the end of this course, you should be able to:

- Describe the structure and main function of each of the following body systems: the muscular system; central and peripheral nervous system (including the autonomic nervous system).
- Describe the chemical structures and their functions, which are important to maintain living organisms.
- Explain how the functions and regulation of the various systems are integrated in the whole organism.
- Explain how these systems are regulated to control movement, response to exercise, as well as some of the pathological consequences of system failure.

Prerequisite(s): None

Corequisite(s): None

## **Instructor and teaching assistant**

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Nilanga Aki Bandara (aki101@mail.ubc.ca)

### *Course Instructor*

Welcome to KIN 131, my name is Aki (he/him). I am a sessional instructor in the School of Kinesiology, a UBC medical student, and a MKin graduate. I have always maintained a passion for physical activity and health promotion. As a medical student, I see great value in the ability for physical activity to impact the health of people, communities and our society. In terms of my areas of current research, I have a special interest in understanding the challenges that vulnerable populations face when it comes to accessing physical activity-related resources.

I hope you enjoy this course and consider the material you learn as foundational building blocks for your future clinical roles.

Owen Payne (owen.payne@ubc.ca)

### *Teaching Assistant*

My name is Owen (he/him), and I will be your TA for this course. I am an MSc student in the Health and Integrative Physiology Laboratory, here at UBC. My research focuses on the function of the diaphragm, specifically its susceptibility to fatigue during exercise.

Aside from my research, I am a Certified Strength and Conditioning Specialist through the NSCA. I am able to apply this knowledge at the UBC Varsity Gym where I am a graduate assistant.

I have real passion for the content which is taught in this course and I look forward to sharing my knowledge and learning from you.

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## **Learning materials**

Required Textbook: Vander's Human Physiology, 15th Edition

There are two options for the textbook: ISBN:9781264167777 – This gives you online access to the eBook and SmartBook version of the text, along with access to the McGraw-Hill Connect site, which contains some of the required course activities (see Course Assessment section below).

ISBN: 9781264167760 – This gives you all the online access (same as above) + a printed copy (in loose-leaf, binder-ready form)

Note that if you took KIN132 last term, you don't need to purchase the textbook and online access again.

### Course layout

All of your learning activities will be available online here in the Canvas platform, as well as the Connect platform connected to the Vander's textbook.

We will hold 'synchronous' sessions every Monday and Wednesday morning from 9:00 to 12:00 PM in-person. These are live lectures where we will deliver the course content, which will be testable on the weekly quizzes, midterm, and final exam. During these sessions, there will also be ungraded group activities that will help facilitate your learning and understanding of the course content.

If any questions come up during the session, feel free to ask. I do not anticipate that lectures will last the entire three hours each day, and I will stay online for open office hours Wednesdays after class, so feel free to stick around if you have further questions.

The rest of your learning in this course will be 'asynchronous', where you will go through the course content on your own through different materials I assign to you online. These will include textbook (SmartBook) readings, pre-recorded lectures, and quizzes. You will be going, at some extent, at your own pace, but as you will see, there will be deadlines for you to complete each module and I have set this up to support your success in this course.

### Course schedule

Week	Topic	Key Deadlines
<i>Week 1 (week of Jul 4)</i>	1: Introduction to Physiology 2: Introduction to Muscle Physiology 3: Mechanisms of Muscle Contraction	Wed Jul 6 : Practice Quiz #1 Fri Jul 8 : Reading Assignment #1-3

<p><i>Week 2 (week of Jul 11)</i></p>	<p>4: Muscle Fiber Types and Muscle Metabolism 5: Mechanics of Contraction and Control of Muscle Tension</p>	<p>Wed Jul 13 : Quiz #2 (Topics 2-3) Fri Jul 15 : Reading Assignment #4-5</p>
<p><i>Week 3 (week of Jul 18)</i></p>	<p>6: Intro to Neurophysiology, Resting Membrane Potential <b>Midterm Exam</b></p>	<p>Mon Jul 18 : Quiz #3 (Topics 4-5) Wed Jul 20 : Midterm Exam Fri Jul 22 : Reading Assignment #6</p>
<p><i>Week 4 (week of Jul 25)</i></p>	<p>7: Nerve Signalling and Synaptic Activity 8: Sensory Receptors, Spinal Cord, Reflex Pathways</p>	<p>Wed Jul 27 : Quiz #4 (Topic 6) Fri Jul 29 : Reading Assignment #7-8</p>
<p><i>Week 5 (week of Aug 1)</i></p>	<p>9: CNS Protection; Sub-Cortical Areas</p>	<p>Wed Aug 3 : Quiz #5 (Topics 7-8) Fri Aug 5 : Reading Assignment #9-10</p>
<p><i>Week 6 (week of Aug 8)</i></p>	<p>10: The Cerebrum and Ascending/Descending Pathways 11: Autonomic Nervous System 12: Adaptations to Training</p>	<p>Wed Aug 10 : Quiz #6 (Topics 9-10) Fri Aug 12: Reading Assignment #11-12</p>

	<b>Final Exam</b>	To be determined
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### Assessment and grading

<b>Assessment</b>	<b>% of Course Grade</b>
Participation (via reading assignments)	10%
Quizzes	30%
Midterm Exam	25%
Final Exam	35%

There will be **6 Quizzes** held throughout the term. Quizzes will always be held during the scheduled class time and cover the previous week's topics. The quiz will only be available during your scheduled class time, from and consist of different styles of questions (e.g. multiple choice, short-answer, labelling, fill-in-the-blanks, multiple answer, and true/false questions).

The **midterm exam** will be in week three, covering the first half of the course content.

The **final exam** will be cumulative, and scheduled during the UBC Final Exam period. The final exam schedule is determined by the Registrar's office, so please do not make any other commitments that could interfere with your final exams until the final exam schedule comes out.

### Grading Practices

**Graded work** in this course constitutes the quizzes, midterm, final exam, and course participation. Students must complete the quizzes, midterm, and final exam on the scheduled dates. Course participation marks are awarded for work that is submitted on time. Students who miss any of these evaluations due to unauthorized absence will receive a grade of zero. Students who cannot complete the graded work due to an **authorized absence** will write a make-up test on a date to be determined in consultation with the instructor.

**Authorized Absences:** Students who know in advance that they will be unavoidably absent should appeal for special accommodation from the instructor as early in the term as possible to determine how any missed graded work will be completed. The School of Kinesiology will not normally consider special accommodation without timely notification. **A minimum of two weeks notification is expected and documentation will be required.**

Where prior notification of absence from graded work is not possible (e.g. due to unforeseen illness or family crisis), students should contact the instructor as soon as possible upon their return to class. Supportive documentation, submitted to the Undergraduate Advising Centre, will be requested.

Students who miss the final examination **MUST** apply to the Undergraduate Advising Office at the earliest possible date to request consideration for Academic Concession. Students will be asked to complete an Academic Concession Form and provide supportive documentation. Academic Concession is a privilege, not a right, and can be granted only by the Undergraduate Advising Office.

Students who plan to be absent from graded work for varsity athletics, family obligations, or other similar commitments, cannot assume they will be accommodated, and should discuss their commitments with the instructor before the official course drop date.

The University accommodates students with disabilities who have registered with Access & Diversity. Students whose attendance or academic performance may be severely affected by medical, emotional, or other disabilities should consult with the instructor at least 2 weeks before scheduled tests or exams to discuss any special accommodations that might be needed in order to complete course requirements. Supportive documentation from either Access & Diversity or a physician will be required by the Undergraduate Advising Office.

The University accommodates students whose religious obligations conflict with attendance or scheduled tests and examinations. Any accommodations should be communicated to the course instructor, preferably in the first week of class.

### **Communication expectations**

In this course, and throughout your program, you are expected to communicate in a respectful and professional manner with your fellow learners, teaching assistants, and instructors.

Please ensure you review and are familiar with the [Student Guidelines for Respectful Online Conduct](#) from the UBC Equity & Inclusion Office. You may also find it helpful to review [UBC's Distance Learning Communication Online: Netiquette](#) web page.

If you experience any issues, please do reach out to me for support.