

BME 201–Quantitative Human Physiology

Term – Summer 2019 (201905)

Instructor

Dr. Carmen Sima
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Office Hours

Days: Thursday
Time: 17:00 - 18:00
Location: EOW 431

Course Objectives:

Physiology is the science of the function of living systems. This course discusses anatomical, physiological, and pathophysiological features of the main systems of the human body. In addition, it provides information on the function of these systems from both medical and engineering perspectives.

Learning Outcomes: Upon completion of this course, students will be able to:

1. Describe the structure (anatomy) of the major human organs and systems
2. Understand the function (physiology) of the major human organs and systems
3. Identify the interactions between different human organs and systems
4. Interpret the relationship between various physiological measures
5. Discuss the significance of the measured physiological parameters
6. Analyze different physiological control mechanisms
7. Discuss various mathematical models of physiological processes
8. Apply engineering principles to the medical field

Syllabus:

Organization of the nervous system; Cardiovascular function and blood composition; Regulation of blood flow and arterial pressure; Mechanics of breathing; Gas exchange in the lungs; Control of ventilation; Body fluid compartments and functional anatomy of the urinary system; Acid-base balance; Overview of the endocrine system.

A-Section(s): A01 / CRN 30049

Days: Tuesday and Thursday

Time: 6:30pm – 7:50pm

Location: Eng. Comp. Sci. Building (ECS) 104

Dates: May 6 - August 2, 2019

B-Section(s): B01 / CRN: 30050

Days: Monday

Time: 4:00pm – 6:50pm

Location: McKinnon Building (MCK) 171

Dates: May 27, Jun 10, Jun 24, Jul 15, 2019

B-Section(s): B03 / CRN: 30051

Days: Wednesday

Time: 1:00pm – 3:50pm

Location: McKinnon Building (MCK) 171

Dates: May 29, Jun 12, Jun 26, Jul 17, 2019

B-Section(s): B05 / CRN: 30052

Days: Wednesday

Time: 4:00pm – 6:50pm

Location: McKinnon Building (MCK) 171

Dates: May 29, Jun 12, Jun 26, Jul 17, 2019

T-Section(s): T01 / CRN: 30053

Days: Monday

Time: 3:00p.m.-3:50p.m.

Location: Eng. Comp. Sci. Building (ECS) 108

Dates: May 6 - August 2, 2019

Required Text

Title:

Author:

Publisher:

Year:

Optional Text

Title: Quantitative human physiology: An introduction (2nd Ed)

Author: Joseph Feher

Publisher: Academic Press

Year: 2016

References:

Title: Medical Physiology

Author: Guyton, AC and Hall, JE

Publisher: Elsevier Saunders

Year: 2006

Assessment:

Assignment: 20%

Labs 20%

Midterms 48%

Student Presentation 6%

Group work 6%

Date: June 24, 2019

TBD

Dates: May 28, June 18, July 9, July 30, 2019

Date: August 1

Date: August 1

Note: Failure to complete all laboratory requirements will result in a grade of N being awarded for the course.

The final grade obtained from the above marking scheme for the purpose of GPA calculation will be based on the percentage-to-grade point conversion table as listed in the current Undergraduate Calendar.

<https://web.uvic.ca/calendar2019-05/undergrad/info/regulations/grading.html>

There will be no supplemental examination for this course.

Note to students: Students who have issues with the conduct of the course should discuss them with the instructor first. If these discussions do not resolve the issue, then students should feel free to contact the Chair of the Department by email or the Chair's Assistant to set up an appointment.

Accommodation of Religious Observance:

<https://web.uvic.ca/calendar2019-05/undergrad/info/regulations/religious-observanc.html>

Policy on Inclusivity and Diversity:

<https://web.uvic.ca/calendar2019-05/general/policies.html>

Standards of Professional Behaviour: You are advised to read the Faculty of Engineering document Standards for Professional Behaviour, which contains important information regarding conduct in courses, labs, and in the general use of facilities.

<https://www.uvic.ca/engineering/assets/docs/professional-behaviour.pdf>

Cheating, plagiarism and other forms of academic fraud are taken very seriously by both the University and the Department. You should consult the entry in the current Undergraduate Calendar for the UVic policy on academic integrity.

<https://web.uvic.ca/calendar2019-05/undergrad/info/regulations/academic-integrity.html>

Equality: This course aims to provide equal opportunities and access for all students to enjoy the benefits and privileges of the class and its curriculum and to meet the syllabus requirements. Reasonable and appropriate accommodation will be made available to students with documented disabilities (physical, mental, learning) in order to give them the opportunity to successfully meet the essential requirements of the course. The accommodation will not alter academic standards or learning outcomes, although the student may be allowed to demonstrate knowledge and skills in a different way. It is not necessary for you to reveal your disability and/or confidential medical information to the course instructor. If you believe that you may require accommodation, the course instructor can provide you with information about confidential resources on campus that can assist you in arranging for appropriate accommodation. Alternatively, you may want to contact the Centre for Accessible Learning located in the Campus Services Building.

The University of Victoria is committed to promoting, providing, and protecting a positive, and supportive and safe learning and working environment for all its members.

Course Lecture Notes: Unless otherwise noted, all course materials supplied to students in this course have been prepared by the instructor and are intended for use in this course only. These materials are NOT to be re-circulated digitally, whether by email or by uploading or copying to websites, or to others not enrolled in this course. Violation of this policy may in some cases constitute a breach of academic integrity as defined in the UVic Calendar.

Sexualized Violence Prevention and Response at UVic

UVic takes sexualized violence seriously, and has raised the bar for what is considered acceptable behaviour. We encourage students to learn more about how the university defines sexualized violence and its overall approach by visiting www.uvic.ca/svp. If you or someone you know has been impacted by sexualized violence and needs information, advice, and/or support please contact the sexualized violence resource office in Equity and Human Rights (EQHR). Whether or not you have been directly impacted, if you want to take part in the important prevention work taking place on campus, you can also reach out:

Where: Sexualized violence resource office in EQHR; Sedgewick C119

Phone: 250.721.8021

Email: svpcoordinator@uvic.ca

Web: www.uvic.ca/svp