

COURSE OUTLINE		
TERM: Fall 2026	COURSE NO: BIOL 209	
INSTRUCTOR:	COURSE TITLE: Fundamentals of Physiology	
OFFICE: LOCAL: E-MAIL: @capilanou.ca	SECTION NO(S):	CREDITS: 3.0
OFFICE HOURS:		
COURSE WEBSITE:		

Capilano University is named after Chief Joe Capilano (1854–1910), an important leader of the Sk̓wx̓wú7mesh (Squamish) Nation of the Coast Salish Peoples. We respectfully acknowledge that our campuses are located on the unceded territories of the səlilwətaɬ (Tseil-Waututh), shíshálh (Sechelt), Sk̓wx̓wú7mesh (Squamish), and xʷməθkʷəy̓əm (Musqueam) Nations.

COURSE FORMAT

Three hours of class time, plus an additional hour delivered through on-line or other activities for a 15-week semester, which includes two weeks for final exams.

COURSE PREREQUISITES

BIOL 109 (C-) or BIOL 110 (C-); and BIOL 111 (C-)

CALENDAR DESCRIPTION

This course provides a comparative approach to animal and plant physiology. Students will be introduced to the basic physiological principles and integrate biology, physics and chemistry to describe adaptations and physiological mechanisms underlying life. Systems covered will include nervous, endocrine, digestive and communication systems in both animals and plants.

COURSE NOTE

BIOL 209 is an approved Science and Technology course for Cap Core requirements.
 BIOL 209 is an approved Science course.

REQUIRED TEXTS AND/OR RESOURCES

Textbook: Custom text with selected chapters from Reece et al, Campbell Biology 3rd Canadian Edition (Pearson).
 Etext and Mastering Biology are **required**.

The access codes for these digital resources can be purchased via the Capilano University Bookstore or via the bookstore's website <https://books.capilanou.ca/>

Should students prefer to also acquire a print loose-leaf textbook they can order and purchase this additional resource via the Mastering Biology component for an additional \$20.00.

COURSE STUDENT LEARNING OUTCOMES

On successful completion of this course, students will be able to do the following:

- Apply the four physiological principles to physiological mechanisms in both plants and animals

Physiology is integrative

Physiological processes obey the laws of physics and chemistry

Physiological processes are shaped by evolution

Physiological processes are usually regulated

- Compare animal and plant physiological processes and identify the similarities and differences in how each type of organism carries out these processes, and evaluate how these processes allow these organisms to adapt to their environment
- Predict how organisms may respond via physiological processes to changes in their environment
- Evaluate, analyze and critique current literature in plant and animal physiology
- Explain how climate change may affect physiological processes and adaptations in organisms

Students who complete this Science and Technology course will be able to do the following:

- Evaluate scientific information (e.g., distinguish primary and secondary sources, assess credibility and validity of information).
- Demonstrate how a problem, concept, or process can be modelled numerically, graphically or algorithmically.
- Explain how scientific inquiry is based on the investigation of evidence and evolves on new findings.
- Participate in scientific inquiry and communicate the elements of the process, including making careful and systematic observations, developing and testing a hypothesis, analyzing evidence, and interpreting results.

COURSE CONTENT

Topics for detailed discussion will be selected from the textbook chapters listed below.

Weeks	Topics	Chapters
1	Introduction to Physiological Principles ▪ Homeostasis ▪ Phenotype, genotype and environment ▪ Adaptations	32 (partial), 35, 40 (partial)
2	Structure-Function relationships ▪ Surface area to volume ratio ▪ Principle of scaling	40 (partial)

Weeks	Topics	Chapters
3-4	Nutrition ▪ The digestive system (animals) ▪ Photosynthesis (plants) ▪ Soil and plant nutrition	41 10 37
5-6	Transport ▪ Circulatory system and respiratory system (animals) ▪ Water and sugar transport in plants	42 36
7-10	Response to the environment ▪ Nervous system and muscles (animals) ▪ Electrical signalling in plants ▪ Endocrine system (animals) ▪ Plant hormones	48, 49, 50 39, 45
11	Reproduction ▪ Strategies in aquatic and terrestrial animals ▪ Reproduction in vascular plants	46 38
12	Ion and water balance • Osmoregulation • Excretory systems (animals) • Solute accumulation, ion influx and efflux (plants)	44
13	Climate change ▪ Response to climate change in plants and animals	No readings
14-15	Final Exam Period	

EVALUATION PROFILE

Mid-Term Exam 1	15%
Mid-Term Exam 2	15%
Research article writing assignment	20%
Weekly discussion group assignments	20%
Weekly critical thinking assignments	10%
Final Exam (Cumulative)	20%
TOTAL	100%

A graded assessment will be returned to students prior to the withdrawal date.

Specific dates and details regarding the Evaluation Component will be provided by the instructor.

Exams include multiple choice, short answer and essay-type questions. All material presented in class, assigned readings and assignments are testable. The final exam will be cumulative.

GRADING PROFILE

A+ = 90-100	B+ = 77-79	C+ = 67-69	D = 50-59
A = 85-89	B = 73-76	C = 63-66	F = 0-49
A- = 80-84	B- = 70-72	C- = 60-62	

Incomplete Grades

Grades of Incomplete "I" are assigned only in exceptional circumstances when a student requests extra time to complete their coursework. Such agreements are made only at the request of the student, who is responsible to determine from the instructor the outstanding requirements of the course.

Late Assignments

Assignments are due at the beginning of the class on the due date listed. If you anticipate handing in an assignment late, please consult with your instructor beforehand.

Missed Exams/Quizzes/Labs etc.

Make-up work is given at the discretion of the instructor. Normally, a score of zero will be given for a missed exam, test, quiz, lab, etc. In certain exceptional situations, the student will be permitted to write a make-up test, defer the lab to a later date or to replace the score by other marks (see below). The date and timing of any make-up option is at the discretion of the instructor. It may not be possible to reschedule certain labs, tests or other activities.

A score of zero may be avoided when the student meets all of the following conditions:

1. Circumstances are beyond the control of the student which resulted in the exam, test, quiz, lab, etc. to be missed. Such circumstances include serious illness or injury or severe personal crises. They do not include forgetting about the test, lack of preparation for the test, or work-related or social obligations.
2. The student has notified the instructor (or the School of STEM office staff, if the instructor is not available) about the missed exam, test, quiz, lab, etc. Such notification must occur in advance or, at the latest, on the day of the exam, test, quiz, lab, etc.
3. Evidence of the circumstances may be requested. Proper medical documentation of illness or injury may be required from a doctor.
4. The student has been fully participating in the course up until the circumstances that prevented the writing of the exam, test, quiz, lab, etc. Fully participating means regularly attending labs and lectures and turning in assignments in the course.

Accommodations can be made to honour community needs and traditional practices.

Attendance

Students are expected to attend all classes and associated activities.

English Usage

Students are expected to proofread all written work for any grammatical, spelling and stylistic errors. Instructors may deduct marks for incorrect grammar and spelling in written assignments.

Electronic Devices

Students may use electronic devices during class for note-taking, calculations and in-class research.

On-line Communication

Outside of the classroom, instructors will (if necessary) communicate with students using either their official Capilano University email or eLearn; please check both regularly. Official communication between Capilano University and students is delivered to students' Capilano University email addresses only.

UNIVERSITY OPERATIONAL DETAILS**Tools for Success**

Many services are available to support student success for Capilano University students. A central navigation point for all services can be found at: <https://www.capilanou.ca/student-services/>

Capilano University Security: download the [CapU Mobile Safety App](#)

Policy Statement (S2009-06)

Capilano University has policies on Academic Appeals (including appeal of final grade), Student Conduct, Academic Integrity, Academic Probation and other educational issues. These and other policies are available on the University website.

Academic Integrity (S2017-05)

Any instance of academic dishonesty or breach of the standards of academic integrity is serious and students will be held accountable for their actions, whether acting alone or in a group. See policy and procedures S2017-05 Academic Integrity for more information:

<https://www.capilanou.ca/about-capu/governance/policies/>

Violations of academic integrity, including dishonesty in assignments, examinations, or other academic performances, are prohibited and will be handled in accordance with the Student Academic Integrity Procedures.

Academic dishonesty is any act that breaches one or more of the principles of academic integrity. Acts of academic dishonesty may include but are not limited to the following types:

Cheating: Using or providing unauthorized aids, assistance or materials while preparing or completing assessments, or when completing practical work (in clinical, practicum, or lab settings), including but not limited to the following:

- Copying or attempting to copy the work of another during an assessment;

- Communicating work to another student during an examination;
- Using unauthorized aids, notes, or electronic devices or means during an examination;
- Unauthorized possession of an assessment or answer key; and/or,
- Submitting of a substantially similar assessment by two or more students, except in the case where such submission is specifically authorized by the instructor.

Fraud: Creation or use of falsified documents.

Misuse or misrepresentation of sources: Presenting source material in such a way as to distort its original purpose or implication(s); misattributing words, ideas, etc. to someone other than the original source; misrepresenting or manipulating research findings or data; and/or suppressing aspects of findings or data in order to present conclusions in a light other than the research, taken as a whole, would support.

Plagiarism: Presenting or submitting, as one's own work, the research, words, ideas, artistic imagery, arguments, calculations, illustrations, or diagrams of another person or persons without explicit or accurate citation or credit.

Self-Plagiarism: Submitting one's own work for credit in more than one course without the permission of the instructors, or re-submitting work, in whole or in part, for which credit has already been granted without permission of the instructors.

Prohibited Conduct: The following are examples of other conduct specifically prohibited:

- Taking unauthorized possession of the work of another student (for example, intercepting and removing such work from a photocopier or printer, or collecting the graded work of another student from a stack of papers);
- Falsifying one's own and/or other students' attendance in a course;
- Impersonating or allowing the impersonation of an individual;
- Modifying a graded assessment then submitting it for re-grading; or,
- Assisting or attempting to assist another person to commit any breach of academic integrity.

Sexual Violence and Misconduct

All Members of the University Community have the right to work, teach and study in an environment that is free from all forms of sexual violence and misconduct. Policy B401 defines sexual assault as follows:

Sexual assault is any form of sexual contact that occurs without ongoing and freely given consent, including the threat of sexual contact without consent. Sexual assault can be committed by a stranger, someone known to the survivor or an intimate partner.

Safety and security at the University are a priority and any form of sexual violence and misconduct will not be tolerated or condoned. The University expects all Students and Members of the University Community to abide by all laws and University policies, including B.401 Sexual Violence Policy and

B.401.1 Sexual Violence Procedure (found on Policy page <https://www.capilanou.ca/about-capu/governance/policies/>)

Emergencies: Students are expected to familiarise themselves with the emergency policies where appropriate and the emergency procedures posted on the wall of the classroom.

DEPARTMENT OR PROGRAM OPERATIONAL DETAILS

PROFESSIONALISM

Students should be able to demonstrate a professional attitude and behaviour: reliability, respect for and cooperation with colleagues, willingness to work calmly and courteously, respect for equipment and systems, and constructive response to criticism. The use of cellphones for non-academic purposes during lecture sessions is prohibited. Students using cell phones inappropriately could be asked to leave the lecture hall by the instructor.

EXPECTATIONS OF STUDENTS

For success in this course, students are expected to attend all lectures; come prepared to address topics presented; and complete assigned text book readings. For every one hour of lecture material presented, students should expect to spend at least two hours reviewing material and engaging with the study tools provided.