Applied Human Biology I
BIOL 1853 FA01/1850L FA01, 02, 03 and 04

Instructor (Lectures and Labs):
Dr. Wasundara Fernando (she/her/hers)

Hear my name

Office: BIO 310
Office hours: Monday 1:00 – 3:00 pm
E-mail: wasundara.fernando@acadiau.ca

Lecture: Huggins Science Hall, HSH 010
MWF 9:30 –10:20 am (in person)

Lab: PAT 308
FA01 Wednesday 1:00 – 3:50 pm
FA02 Friday 1:00 – 3:50 pm
FA03 Wednesday 1:00 – 3:50 pm
FA04 Friday 1:00 – 3:50 pm

	Evaluation	Percentage	Date
Lecture (65%)	Quizzes	10%	Weekly
	Test 1	15%	Oct 2
	Test 2	15%	Oct 30
	Final (Cumulative)	25%	December exam period
Labs (35%)	Flowcharts	4%	Before 1:00 pm on each lab day
	Lab assignments	20%	Before 3:50 pm on each lab day
	Lab exam	11%	Nov 27 (FA02/04) and Dec 2 (FA01/03)

Office hours are reserved for you to come and talk to me, ask questions, share stories, discuss your study plans or simply say hi. I am here to assist you! If the time listed above does not fit with your schedule, please email me to set up an appointment.

Part 1: Course Information

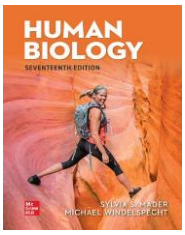
Course Description

The human body is an incredibly complex machine that works through the intricate coordination of different systems at the cellular, tissue and organ levels. The focus of this course is to provide an introduction to the structure and function of the major systems in the human body. This semester we will begin at the microscopic level by looking at cell structure and tissue. We will then move on to look at whole organ systems, with detailed examinations of the cardiovascular, respiratory, digestive, urinary, lymphatic, immune and integumentary systems.

Prerequisite(s)

There are no prerequisite(s) for this course.

Course Materials & Requirements



- Recommended textbook: Human Biology by Sylvia Mader and Michael Windelspecht (17th Ed), McGraw-Hill Education.
- Earlier editions and used textbooks should also work. The textbook is recommended (not required) and will provide further reading if you are interested in it. All material for tests and examinations will be taken directly from lecture notes and other reading material provided to you during lectures and labs.
- Lectures and labs for this course have separate Moodle pages.
- A tablet or laptop with internet access for quizzes and examinations. This is mandatory as all examinations will take place in class but online. Phones cannot be used for examinations.
- Vaughan Memorial Library's Biology LibGuide

Course Structure

Lecture:

- Lectures will be in person and lecture material will be presented in 50 min lecture slots. I will not be recording or live-streaming lectures, and students are expected to attend all lectures in-person.
- Lectures will take place in HSH 010 - MWF 9:30 am - 10:20 am.
- Lecture slides will be made available on the lecture Moodle page.

Lab:

- Biweekly labs will be in person in the Patterson building in room PAT 308.
- Labs will begin in the week of September 14, 2026.
- Materials for the scheduled labs will be posted on the lab Moodle page.

Learning Outcomes

This course establishes the foundation and knowledge required for several upper year courses. Lectures and labs are integrated and together, will help you:

1. Understand the hierarchical nature of the human body.
2. Understand the inner workings of a cell and the different types of tissue.
3. Identify the major regions of the human body.
4. Understand and use proper anatomical directional terminology.
5. Describe the major anatomical features and the basic physiology of the cardiovascular, respiratory, digestive, urinary, lymphatic, immune and integumentary systems.

How to meet the Learning Outcomes?

1. Attend lectures on a regular basis, take notes, and ask for clarification when something is unclear. Study on a regular basis.
2. Keep up with the weekly quizzes- they are designed to help you review and keep up to date. Use mini-review questions to review your knowledge on each topic.
3. The lecture evaluation will be via online quizzes, two tests, and one final exam.
4. Please ask questions in class, but if you'd prefer, email or come and meet me during my office hours or set up an appointment if the office hours do not work for you.
5. Attendance in labs is mandatory. Laboratory evaluation includes flow charts, lab reports and assignments, and lab exams.

Part 2: Course Plan

The instructor reserves the right to amend the course plan with reasonable notice, and in consultation with the class.

Lecture:

Date	Topic
Section 1: Chemical and Molecular Foundations of Life	
Sep 9 – 11	Introduction to BIOL 1853; The Characteristics of Life
Sep 14 – 18	Atoms and Molecules of Life; Lipids and Carbohydrates; Nucleic Acids Proteins
Section 2: Organization of the Human Body	
Sep 21 – 25	Organization and Structure of the Cell; Biomembranes
Sep 28 – Oct 2	Cellular Metabolism; Tissues and Organ Systems; ***Sep 30: National Day for Truth and Reconciliation – No classes;*** **Oct 2 - Test 1**
Oct 5 – 9	Epithelial Tissue; Connective Tissue; Muscular and Nervous Tissues
Section 3: Maintenance of the Human Body	
Oct 12 – 16	***Oct 12: Thanksgiving Day; Oct 13-16: Fall study break - No classes.***
Oct 19 – 23	The Cardiovascular System I – Heart; The Cardiovascular System II – Blood Vessels;
Oct 26 – 30	The Cardiovascular System III – Cardiovascular Pathways and Disorders; **Oct 30 - Test 2**
Nov 2 – 6	The Respiratory System I – Structure; The Respiratory System II – Gas Exchange
Nov 9 – 13	The Digestive System I – Structure and Function; The Digestive System II – Accessory Organs; ***Nov 11: Remembrance Day – No classes.***
Nov 16 – 20	Nov 16: Self-review in class activity; The Urinary System I – Structure; The Urinary System II – Function
Nov 23 – 27	The Lymphatic and Immune Systems
Nov 30 – Dec 4	Blood cells; The Biology of Infectious Diseases (Guest lecture – Dr. Melanie Coombs)
Dec 7 – 9	The Integumentary System; Course Review

Lab:

Please check your schedule on Self Service or Moodle to confirm your lab section.

Section	Day and Time
FA01	Wednesday 1:00 – 3:50 pm
FA02	Friday 1:00 – 3:50 pm
FA03	Wednesday 1:00 – 3:50 pm
FA04	Friday 1:00 – 3:50 pm

This is the schedule of the lab exercises for this semester.

Labs	Dates				Topic
	FA 01	FA 02	FA 03	FA 04	
Lab 1	Sep 16	Sep 18	Sep 23	Sep 25	Introduction to BIOL 1850L labs
Lab 2	Oct 7	Oct 9	Oct 21	Oct 23	Histology - Tissues
Lab 3	Oct 28	Oct 30	Nov 4	Nov 6	Cardiovascular System
Lab 4	Nov 18	Nov 13	Nov 25	Nov 20	Respiratory, Digestive, Urinary and Integumentary Systems
Lab exams	Dec 2 1:00 pm	-	-	-	Lab exam – FA 01
	-	Nov 27 1:00 pm	-	-	Lab exam – FA 02
	-	-	Dec 2 2:30 pm	-	Lab exam – FA 03
	-	-	-	Nov 27 2:30 pm	Lab exam – FA 04

Part 3: Assessment and Grading

Evaluation		Percentage	Date
Lecture (65%)	Quizzes	10%	Weekly
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Labs (35%)	Flowcharts	4%	Before 1:00 pm on each lab day
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Lecture (65% of final grade):

1. ***Weekly quizzes (10%)*** - Weekly quizzes integrate lecture and reading material. Quizzes will be made available to you on Moodle (online) at the beginning of the relevant week. The number of attempts is unlimited, and the quizzes can be completed at any time within the next two weeks. They will not be re-opened once they are closed.
2. ***Test 1 and 2 (15% each)*** – The in-class tests will be written in the lecture time and classroom unless you are registered with the Accessibility Services. If you have to miss a test, you need to contact me before the test. Missed tests without a valid reason will result in 0%. Make-up tests will not be provided. Both tests are closed book exams.
3. ***Final Exam (25%)*** - This cumulative exam is based on lecture material. Material from guest lectures will be on the final exam. The exam will be written in the December exam period. It is a closed book exam.
4. If you are registered with Accessibility Services, appropriate accommodation will be made for in-class tests and the final exam.

Lab (35% of final grade):

You are required to pass the lab to pass the course. Labs are mandatory, you cannot hand in any assigned work without attending the lab.

1. Labs are every other week unless indicated otherwise on Moodle.
2. Please refer to the lab schedule posted on the lab Moodle page to make sure you attend the correct lab days. You must also bring a computer or tablet to each lab.
3. We will be doing several dissections of fresh and preserved organs, so wear a protective lab coat on those days.
4. ***Flowcharts (4%)*** – A flowchart is due on the lab day before 1:00 pm. You will need to submit an individually prepared flowchart for each lab and will be graded for a total of 4%.
5. ***Lab assignments (20%)*** – A lab assignment need to be completed for each lab. Before leaving each lab, you will be required to submit your assignment in pdf format to the lab Moodle page before 3:50 pm. Confirm your submission with your teaching assistant before leaving each lab.
6. ***Lab exam (11%)*** – Lab skills will be assessed at the end of all the labs for a total of 10%. Labs are generally completed in groups but to grasp lab concepts and perfect technical skills each student must contribute to all experiments and practice lab techniques.

*****No additional assignments will be offered to compensate for poor performance on quizzes/tests/exams.**

Part 4: Course Policies

Studies have shown that students who take notes by hand (rather than typing on a computer) perform significantly better in their ability to retain information. While you are permitted to use laptops or tablets to take notes in lecture, please limit their use to classroom material only. Using them for other purposes (i.e. social media) will negatively impact on your ability to learn, and it is distracting to myself and other students. If your use of electronic devices becomes a distraction to me or other students or if you continue to show distracting behavior (i.e. talking) during lectures/labs, you will be asked to leave the classroom.

You are expected to remain seated until the end of each class (10:20 am). If you must leave the classroom before 10:20 am, please do so without disturbing other students.

Lectures and labs will be delivered in person. In the event of a campus closure (e.g., due to weather) or a change in the public health situation, the lectures and labs will be cancelled. You will be notified via e-mail and Moodle in the event of such change.

Lecture:

Students are expected to attend all classes sessions in person.

Make-up tests for either absence, or poor performance, will not be provided as an option. In the event that you have a valid excuse for missing either of the tests, the weight from the missed test will be distributed to the final exam. If you are going to miss a test, it is your responsibility to let me know before the exam. Missed test(s) without a valid excuse will result in a mark of zero. University policies on missing classes, etc. can be found here:

https://registrar.acadiau.ca/RecordsandOtherRequests.html

Lab:

All labs are in person. If for any reason you are unable to attend your regular lab session, notify me before the lab reschedule into an available lab slot. Some labs are full. Grades for missed labs will not be re-allocated and redistributed to a different evaluation component unless a valid excuse has been provided.

It is your responsibility to bring printed copies of each lab handout/flowchart on lab day. You are responsible for uploading the flowcharts and lab reports/assignments for each lab before the deadline.

Part 5: University Policies

University policies are available in the Acadia University Academic Calendar or through the Registrar's website: https://registrar.acadiau.ca/welcometotheregistrarsoffice.html

Equity, Diversity and Inclusion

Acadia University is committed to becoming a culturally safe and anti-oppressive community. This can only be achieved where there are simultaneous efforts to eliminate all forms of discrimination and harassment from our campus community, including the

elimination of all discrimination, harassment and violence based on one's identity, including but not limited to, gender, race, class, ethnicity, sexual orientation, disability, gender identity, gender expression, and Indigeneity. The policy against harassment and discrimination, and resources for students who believe they may have experienced, or witnessed, discrimination or harassment, are available here: https://www2.acadiau.ca/student-life/equity-judicial/equity.html

Last Drop Day

Last day to drop a course and receive a "W". Please check the Acadia University calendar dates, which are available here: https://registrar.acadiau.ca/AcademicCalendars.html

Inform Your Instructor of Accommodations

Acadia University is dedicated to improving access to campus life for all students with disabilities. While we attempt to ensure that all courses are accessible, we recognize that there are barriers that need to be addressed on an individual basis. Students who require accommodations to complete coursework or otherwise fully participate in class should contact Accessible Learning Services directly as soon as possible: https://www2.acadiau.ca/student-life/accessiblelearning.html. Acadia's Policy for Students with Disabilities can be found here: https://senate.acadiau.ca/tl_files/sites/senate/Senate%20Policies/Jan%202015%20Revised%20Policy%20Regarding%20Support%20for%20Students%20with%20Disabilities.pdf

The Use of Animals in Teaching and Research

The use of animals in teaching and research at Acadia University is done in accordance with guidelines on the care and use of animals published by the Canadian Council on Animal Care (CCAC). For more information on the CCAC, please visit their website at http://www.ccac.ca

Commitment to Integrity

It is standard practice in Biology to check exams and assignments for cheating and plagiarism. Cheating in the class and/or lab, including plagiarism, will not be tolerated. Please read the appropriate sections of the current Acadia University Academic Calendar: https://registrar.acadiau.ca/AcademicCalendars.html

Information on copy-write and course content from Acadia University is available through the Vaughan Memorial Library: http://libguides.acadiau.ca/c.php?g=433650&p=5027078

The spoken and written course content (including the syllabus, handouts, lectures, presentations, labs, assignments, quizzes, tests, and exams) are the intellectual property of the instructor and may only be copied for personal use. Sharing these materials or uploading them where they may be accessed by others is a violation of copyright. If you wish to make audio, video, or photographic recordings in class, you must first obtain the consent of the instructor and of any other persons (e.g., guest speakers, other students) who may be captured in such recordings. The instructor's consent shall not be unreasonably withheld.

Use of artificial intelligence tools by students to assist with their learning is allowed only if: prior permission has been given by the course professor/instructor, and the student properly credits/cites how the AI technology was used in their work. AI must be used in an ethical and responsible manner as a positive learning tool. AI may not be used in ways that violate Acadia's Academic Integrity Policy. Students are reminded that plagiarism, or other forms of cheating, are both types of academic dishonesty.

Share the Air Policy

In consideration of the difficulties that exposure to scented products causes individuals with sensitivities and allergies, all students, faculty, staff, employees of any companies working on university property, visitors, and guests of Acadia University, or of members of the University community are asked to refrain from wearing scented personal care products such as perfumes / aftershave, lotions, hair spray and deodorant. In addition, users of tobacco and cannabis are asked to be aware that odours associated with product use may impact individuals with sensitivities and allergies. Acadia University in consultation with its contracted cleaning staff, have agreed to use products that do not leave residual odors that may cause difficulties for individuals with sensitivities and allergies. https://hr.acadiau.ca/employment/university-policies.html

Part 6: Program Learning Outcomes

The Biology Department maps Program Learning Outcomes (PLOs) in each course throughout our program in order to align content and skills across courses. As BIOL 1853 is a first-year course, PLOs here will be Introduced; in upper-level courses, some of these will be Reinforced or indicated as Proficient as you develop advanced skills in upper-level courses. All PLOs do not apply to all courses but represent the entire program.

Foundations of knowledge		**Course specific examples**	**Proficiency** 1-Introduction 2-Reinforcement 3-Proficient
Scientific method, inquiry and hypothesis testing	Find, understand, explain and apply information from the literature; understand how to use the scientific method to examine problems from different perspectives.	Explain the scientific process and the scientific method, data analysis and presentation, scientific writing, and use of citations.	1
Chemical and molecular foundation of life	Explain the chemical and molecular building blocks of life.	Review macromolecules and learn scientific process.	1

Organization of the human Body	Describe the structure and organization of cells, tissues and organ systems.	Introduce the structure and function of the cell. Explain the organization of tissues and types of tissues.	1
Maintenance of the human Body	Explain how the human body is maintained, and the main components/organ systems involved in human body maintenance.	Explain the structure and functions of cardiovascular, respiratory, digestive, urinary, lymphatic, immune and integumentary systems.	1
Lab and field skills			
Experimental design	Gain experience in applying the scientific method.	Learn about hypothesis testing and conduct a simple experiment and analyze shared data.	1
Safety	Work safely and productively in lab settings.	Basic lab and field skills, independent and group work.	1
Lab skills	Gain experience with basic and advanced lab techniques and understand their application in research, health science and industry	Learn basic lab skills including microscopy, pipetting, and dissecting.	1
Data acquisition, analysis and interpretations	Collect data, present results both qualitatively and quantitatively, and interpret outcomes in light of the literature	Generate images of various tissues and organs and identify specific microscopic and macroscopic structures in them.	1
Professional skills			
Ethical practices	Demonstrate ethical conduct, apply principles of academic integrity, and understand the principles of EDI in science	Ethical practices and accountability in both independent and group work.	1
Collaboration and group work	Work effectively in groups within and across disciplines	Small group work in the lab, within discipline.	1

Critical thinking	Analyze and evaluate information to make science-based decisions	Lecture and lab, in practical work and assessments.	1
Computer proficiency	Use common and discipline-specific software	MS Word, Excel, PowerPoint and also Moodle.	1
Scientific communication	Communicate science effectively to both scientific and general audiences	Iterative writing of lab reports, with opportunity for feedback and developing skills.	1