Applied Human Physiology and Anatomy
BIOL 2853/2850L

Instructor: Matt Hazel (he/him)

Office: Biology Building (MAH) #331
Office hours: contact me to setup an appointment
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Lecture (in person): MWF, HSH 10, 8:30-9:20am
Lab: HSH 049
FA01 – Wed 1-3:50pm
FA02 – Thurs 1-3:50pm
FA03 – Fri 1-3:50pm

Evaluation	Percentage	Date
Daily Quizzes	10%	Every Lecture
Unit Quizzes	15% (10 quizzes worth 1.5% each)	Various Times
Midterms	30% (2 midterms worth 15% each)	Oct 21st and Nov 18th
Labs	30% (2 lab exams worth 15% each)	Weeks of Oct 4th + Nov 29th
Final	15%	TBD

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 a systematic approach to the structure and function of the major systems in the human body. This semester we will begin by examining the various tissues found in the human body, and then begin to look at whole organ systems, including the integumentary, nervous, skeletal and muscular systems.

Prerequisite(s): Biol 1113/1123 or Biol 1813/1853 – completed with minimum grade of C-

Course Materials & Requirements:

Required Text:

- There is no required textbook for this course. All material for tests and examinations will be taken directly from lecture notes and the lab manual. I have included a link to a free textbook from OpenStax for reference on the course Moodle page.

Course Requirements:

- Access to the course Moodle page
- A tablet or Laptop with internet access for quizzes and examinations.

Course Structure

Lecture material will be presented in 50-minute time slots.

Lectures will take place **Monday, Wednesday and Friday from 8:30-9:20am in HSH 10.**

Labs will take place weekly and will begin the week of September 8th.

Attendance at labs is mandatory and you are required to pass the lab portion in order to pass the course.

Student Learning Outcomes

- Identify the major regions of the body.
- Understand and use proper anatomical directional terminology.
- Understand the hierarchical nature of the human body.
- Understand the inner workings of a cell and the different types of tissue.
- Identify the major anatomical features and the basic physiology of the integumentary, nervous, skeletal and muscular systems.

How to Meet the Learning Outcomes

- Attend lectures on a regular basis, take notes, and ask for clarification when something is unclear.
- Pay attention in labs, and use your time wisely with the hands on models and microscope slides.
- This is an intensive class with a lot of material being covered in a short period of time. It's imperative that you study and review on a regular basis and ask for assistance when needed. I am always willing to meet with students to better answer their questions.

Part 2: Topic Outline/Schedule

- **Lecture Set #1:** Regions of the Body and Directional Terms
- **Lecture Set #2:** Tissues
- **Lecture Set #3:** The Integument System
- **Lecture Set #4:** Nervous Tissue and Action Potentials
- **Lecture Set #5:** Structures of CNS and PNS
- **Lecture Set #6:** Special Senses
- **Lecture Set #7:** Bone Tissue and Development
- **Lecture Set #8:** The Axial & Appendicular Skeleton
- **Lecture Set #9:** Muscle Tissue and the Contraction Cycle
- **Lecture Set #10:** Muscle Identification and Actions

All Lecture Sets will be available on Moodle in advance.

- **NOTE: In consultation with the class, the instructor reserves the right to amend the above course plan with reasonable notice to you.**

Labs: Topic Outline and Schedule:

- Labs will run most weeks and will be held in HSH 049. Labs will begin on Wednesday September 9th, and the rest of the lab schedule will be discussed that day. The lab schedule will also be posted to the lab Moodle page

- Attendance in labs is mandatory. If you have to miss a scheduled lab due to a valid reason, you MUST contact me prior to your lab date and I will try to accommodate you into another lab time. There will be no opportunities to make up missed lab material and you will be responsible for learning that material on your own. Missing 3 labs without a valid excuse will result in failure of the lab section and ultimately failure of the course.

- **You must pass the lab portion in order to pass the course.**

- You are not required to bring any additional material to the labs other than a computer or tablet. However, we will be doing several dissections of fresh and preserved organs, so you may wish to wear a protective lab coat on those days. Gloves will be provided.

- There will be two lab exams, each worth 15%. The first exam will cover labs 2 and 3 and will be held the week of October 4th during your normal lab period. The second exam will cover the remaining labs and will be held during the week of November 29th.

Topics covered:

- Lab #1 – Introduction to Labs
- Lab #2 – Histology of Tissues and the Integument
- Lab #3 – Gross Anatomy of Nervous System – Brain and Eye
- Lab #4 – Skeletal System – Axial Skeleton
- Lab #5 – Skeletal System – Appendicular Skeleton
- Lab #6 – Muscular System – Muscle Identification and Actions
- Lab #7 – Muscular System – Muscle Identification and Actions
- Lab #8 - Muscular System – Histology and Physiology

Part 3: Assessment and Grading

Daily Quizzes:

- A short quiz will be given before the start of each lecture. The quizzes will be available on the course Moodle page. The quizzes will open at 6am and remain open until class begins at 8:30am. They will test directly on lecture material from the previous class and will consist of 5 multiple choice questions. These are open book quizzes and I encourage you to work with a friend. Marks will be given simply for attempting the questions and additional marks will be given for correct answers. There will be no opportunities to make up missed quizzes regardless of the reason. However, your three lowest quiz scores will automatically be dropped.

Unit Quizzes:

- Unit quizzes will be available on Moodle once the lecture material has been covered in class. These are open book quizzes which students can do in their own time. There are 10 lecture sets, so there will be 10 unit quizzes (each worth 1.5%). These are timed tests (50 mins) and students can attempt them as many as 3 times and only the highest grade will count. **Each quiz will require the same password in order to start the attempt. Simply type the word "ready" when prompted**. Unit quizzes will remain open for one week. All attempts must be completed within that week. Extensions for missed quizzes will not be granted regardless of the reason. **UNIT QUIZZES MUST BE COMPLETED ON YOUR OWN, THIS IS NOT A TEAM SPORT! If students are caught collaborating on unit quizzes, a mark of zero will be given and students may face further disciplinary action.**

Midterms:

- Midterms will be conducted in class during the scheduled lecture period. These midterms will be online exams through the course Moodle page, so you MUST bring an internet capable laptop or tablet with you to class, and don't forget to have it fully charged. You will not be permitted to take the exam using a cell phone and there will not be paper copies available.

- In the event that you have a *valid* excuse for missing a midterm, you must contact me in advance or within 24 hours of missing the exam. In this scenario, accommodations may be granted, or the weight from the missed midterm may be added to the value of your final exam. This accommodation will only be granted once. Failure to write a second midterm will result in a mark of zero. Missed midterms without a valid excuse, or failure to contact me within 24 hours, will result in a mark of zero.

Final Exam:

- This will be held during the regular exam period and the date will be determined later by the Registrar's Office. Both the Midterms and the Final exam will **not** be cumulative.

Part 4: Course Policies

Students are expected to attend all class sessions as listed above. 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 your ability to learn, and it is distracting to myself and others. If your use of electronic devices becomes a distraction to myself or others, you will either be asked to put your device away or to leave the classroom.

Students are also prohibited from using a Virtual Private Network (VPN) while taking any of the daily quizzes, unit quizzes or midterms/exams for this course. Students caught using a VPN will receive a mark of zero for that assignment and may face further disciplinary action.

Cell phone use is not permitted in class. If you must make/take a call, please leave the room.

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, religion, 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

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. In the case of personal use by students with disabilities, the instructor's consent shall not be unreasonably withheld.**

Part 6: Program Learning Outcomes

Foundations of knowledge		**Course specific examples**	**Proficiency** 1-Introduction 2-Reinforcement 3-Proficient
Scientific method, inquiry and hypothesis testing	Find, understand and apply information from the literature; understand how to use the scientific method to examine problems from different perspectives	Conduct a lab experiment on urine output (effects of different diuretics). Must create a hypothesis, graph the results and discuss way to improve accuracy of the experiment.	1
Historical concepts and contributions by important figures	Explain foundational concepts in biology, Two-eyed Seeing, and ethical implications of scientific discoveries	Some historical figures are introduced as well as discussions on recent scientific developments as they pertain to the human body.	1
Biodiversity and ecology	Understand the genetic, taxonomic and ecosystem levels of biodiversity; focus on SW Nova including the Acadian Forest and Bay of Fundy ecosystems		
Genetics and evolution	Understand the chemical basis of heredity, genetics and genomics; integrate concepts across disciplines to understand evolution	Structure of DNA/RNA is introduced as well as protein synthesis. Human evolution is also discussed.	1
Human and environmental health	Understand form and function in health and disease within a One Health framework, integrating human and environmental health	The entire course is focused on the human body and health.	1
Lab and field skills			
Experimental design	Gain experience in applying the scientific method	Lab experiment on urine production	1
Safety	Work safely and productively in lab and field settings	Basic lab safety skills/protocols	1
Lab skills	Gain experience with basic and advanced lab techniques and understand their application in research, health science and industry	Basic dissection and observation of fresh and preserved organs	1
Field skills	Gain experience in basic and advanced field skills and understand their application in ecology, conservation biology and environmental change		
Data acquisition, analysis and interpretations	Collect data, present results both qualitatively and quantitatively, and interpret outcomes in light of the literature	Must graph the results of urine experiments	1
Statistical analysis	Use R and or other programs to analyze biological data	Use of Excel for graphs, Powerpoint for all lab assignments, histologyguide.org for tissue/cell observations, anatomy.tv for human body observations	1
Professional skills			
Ethical practices	Demonstrate ethical conduct, apply principles of academic integrity and understand the principles of EDI in science	Introduce the importance of professionalism and proper communication.	1
Collaboration and group work	Work effectively in groups within and across disciplines	Encouraged to work with partner/small groups for all lab activities	1
Critical thinking	Analyze and evaluate information to make science-based decisions	MS word, Excel, Powerpoint, histologyguide.org, anatomy.tv, Moodle	1
Computer proficiency	Use common and discipline- specific software	Acorn	1
Scientific communication	Communicate science effectively to both scientific and general audiences		