BIOL 2035 Human Physiology Survey Syllabus – Summer 2025

Instructor: Dr. Sean Madorin

Contact Information: wsmador1@lakeheadu.ca

Textbook and Resources: I decided to go with the resource below. I really like the way the author presents physiology, connects different systems together and attempts to create a structure that shows how systems interact and influence one another. The version below can be purchased as an e-version and can be rented as well for a smaller amount.

- Silverthorn, D.U. Human Physiology – An Integrated Approach (8th ed.). Pearson. 2019. ISBN: 9780134605197

Throughout the course, I may direct you to other resources for more information, or for an activity to help you connect to the material.

Course Delivery: This is an online course that is to be delivered in a largely asynchronous manner; that is, you can move along at your own pace for most of the course. The evaluation scheme for the course is comprised of three exams (75% of the final grade in total), quizzes (15% of the final grade) and discussion board postings (10% of the final grade of the course). The quizzes and discussion boards can be done when it is convenient for you but the exams will be available at a set date and time (see the proposed delivery plan below). It is best to do the relevant quizzes and discussion boards before the exam relating to those topics.

Asking Questions: Hopefully my presentation of the material in this course will be clear and will make sense to you but if it doesn't make sense to you, please make sure that you ask questions of me and of your colleagues in the course. If you don't have questions about the course material but have other questions, please share them with me through email or as a discussion board posting. I love physiology and will do my best to find you an answer!

My plan is to set up a zoom meeting every week to answer any questions that you might have about course content or connections to the world. If you have questions that can't wait, please email me and I am happy to set up a private meeting.

Meeting with me: In the not online world, I keep my door open for drop-in visits and try to address questions or concerns as soon as I can. If you would like to meet individually to discuss any questions or concerns, please contact me by email and I will get back to you as soon as I can to connect.

Proposed Schedule

I have posted a spreadsheet with a more detailed plan of content. My plan is to deliver most content through screencasts and to have you do activities to help you make sense of the material and connect it to your experiences. I try to limit the screencasts to about 10 minutes in length.

The course description includes the nervous system, skeletomuscular system, cardiovascular system, respiratory system and renal system as core pieces of content. I have included a couple of introductory sections as well on physiology, homeostasis and some cellular functions that are necessary to better appreciate how these body systems function. As organisms, we are able to sense elements of our environment (both internal and external), process that information (integrate), and then respond

appropriately to that information. Our organ systems, organs and cells perform these same functions (sensation, integration and response) so that we can function as a coordinated whole. When our systems function properly, we maintain a steady state despite changes to conditions in the internal and external environment; this process is termed homeostasis.

This course is by no means an exhaustive dive into how these systems work separately and together but should serve as in-depth introduction to them.

The text is pretty concise in explaining content and the figures are excellent for demonstrating how particular processes work. Most of what is in my screen casts should connect with the material in the text. The organization of the text is a little bit different from what I have on my screen casts but it should match up pretty well.

Evaluation Scheme

Test 1 – 25%

Test 2 – 25%

Test 3 – 25%

Quizzes – 15%

Discussion Board postings (minimum of 5 posts) – 10%

The exams are non-cumulative but the integrative sections in Unit 5 (Control of Muscle Activity) and Unit 9 (Regulation of Fluid and Electrolyte Balance) will require to apply some knowledge from previous units. As indicated above, exams will be written on set dates at set times. Quizzes will be open to complete when you have done each unit or part unit. Discussion boards will sometimes be set up as questions to answer with respect to content of a unit or may be set up for you to ask questions about a particular system.

Evaluation Format

Exams – approximately 80% of the midterms and final exams will be MCQ; the remainder will be Short Answer questions.

Quizzes – 15 multiple choice questions (MCQ)

Discussion Boards – minimum of 5 posts with meaningful contribution to the topic

Strategies for Success

There is a lot of material in this course and the course only runs for 6 weeks, from July 2 through August 13. Most of you are probably working in addition to doing this course so time management will be important for being successful.

1. Plan out a schedule for when you will complete each unit. I will post each two week chunk at the same time so that you can work ahead if you like. I may also post more than two weeks of material at the same time. As there is a lot of material, spreading it out over the full two weeks

and giving yourself time to study for each quiz or midterm, or to post will help you to retain the material after the evaluations and will help you to do your best.

2. Ask questions as they come up and definitely before the midterms! Sometimes when working through material, there is one little piece of information that is missing that unlocks your understanding of a concept or idea. Asking questions of me or your colleagues in the course may be what you need to get over that hurdle.
3. Do the activities as described for each unit including at home experiments. I wrote the slides during COVID so there is an occasional reference to bubbles. There are no risks to any of these experiments and they will help you to better understand the organization organs systems and how they carry out their functions.
4. I don't want to encourage you to go deep into rabbit holes but if you are curious about something in the content, do some research on it and post about what you have learned. Be curious but don't lose sight of the timelines for working through the material.
5. As this course is done online and evaluated online, there is opportunity to use resources that you would otherwise not have access to during an in-person test or quiz. It is an academic misconduct to use any unauthorized resources when performing an evaluation of any sort in this course. These unauthorized resources can include large language models (ChatGPT and similar bots), open textbooks, notes, colleagues etc. The purpose of any evaluation tool is to attempt to determine the degree to which students can appreciate and, ideally, apply content from a course to their lives, their work, their world view etc. Resources that take you to the outcome without the work to get to the outcome do not help you to learn the content or to apply it to your life. Have a read through this article from Time magazine (June 2025). The pre-publication referenced in Time is available here and here. It focuses on writing skills but makes a point about recall of material when LLMs are the primary tool for creating submissions for evaluation. The result is by no means definitive given the small sample size and its focus on one particular task to assess the value of LLMs in learning. I should like to note as well that the value of any LLM is connected to your ability to verify the accuracy of the content that is created by these models. LLMs can be valuable for some tasks – generating practice questions, generating outlines for creating notes etc but use it wisely.
6. Studying – all that said in the above paragraph, you should be connecting with your colleagues in the course to study together, ask each other questions, prepare for evaluations etc. The collaboration between classmates is valuable and one of the things that are disappearing from courses, particularly online courses like this. Do your best to connect with your classmates. The first discussion board will ask you to share a little bit about yourself to the group.