

BIOL 4610 Introduction to Pharmacology Syllabus – Summer 2026

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Textbook and Resources: There are not a lot of textbook resources available that balance cost with meaningful content. As such, I will use a variety of resources and share them with you unit by unit basis. My goal is to find good resources that will support your learning and connection 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 pharmacology and will do my best to find you an answer!

I am happy 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 am not entirely sure what the course description says as this course code is often used to debut newly proposed courses. My plan is to provide some background on concepts of pharmacology, some common receptor systems (as most drug action is all about the receptor rather than the drug), and then some material on a variety of drug classes of the central nervous system and the cardiovascular system. I have included a couple of review sections on neurons, cardiac myocyte function and blood pressure regulation. (For those of you that are also taking BIOL 2035, these sections will either serve as a first or second look at some overlapping material between the courses). For some units, there is also some content on disease processes that can be addressed with the meds from those units.

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. There is a lot of material and much of it depends on having some background in physiology. I have left unit 11 open for now for any drugs that you would like to be included in the course that are not already there.

There are a few different ways to approach the delivery of pharmacology including focusing on the chemistry of drugs – I will not be doing this. I will present some drug structures, mostly from the point of view of inferring drug properties based on their structure to better understand why they are able to be distributed through the body to create actions on receptors. Instead, my focus will be on the connection between the underlying physiology (how a system is supposed to work under normal conditions), pathophysiology (how a disease process upsets normal function) and pharmacology (how drugs can offset the disease process changes to the system and / or how they can be used to meet a therapeutic goal). I have chosen to present a few different drug classes and explore how they are used to benefit patients. Within those drug classes, I have chosen some representative drugs to illustrate a few different mechanisms of action and the challenges that come with drug design particularly when a drug is not perfect (most drugs are not perfect!).

Evaluation Scheme

Test 1 – 25%

Test 2 – 25%

Test 3 – 25%

Quizzes – 15%

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

The midterms are non-cumulative but may require you to apply some knowledge from previous units. For example, many of the cardiovascular drugs bring about their effects by interacting with the autonomic nervous system. 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. 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.
4. 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.
5. 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.