BIO 245: Introduction to Human Anatomy and Physiology

Spring 2023 Syllabus for Lecture Section 011
Lecture Meeting Time & Location: MWF 11:15AM-12:05PM in Michener L0110

Professor: Dr. Nicholas Pullen
Office Location: Ross Hall 2536 (Research Lab: 1631)
Office Phone: 970-351-1843
email: Nicholas.Pullen@unco.edu

Drop-in Hours for Tutoring and Other Class Questions
Mondays & Fridays 9:30-11am
In person at my office (Ross 2536)

In-Class Teaching Assistant: Fariha Tasnim (Fariha.Tasnim@unco.edu)
Fariha's Office Hours: Mondays & Wednesdays 1pm-2pm

Final Exam: TUESDAY, May 2nd 8-10:30AM (link)

Welcome
My name is Dr. Nicholas Pullen (link), and I'm happy to join you in BIO 245 – the reason I got into teaching at the university level was precisely because of my experiences with anatomy & physiology (A&P). You're probably here because of interest in a health profession and/or because this class is a major requirement. You might be anxious because this is your first biology class in a while. Please know that my goal is to foster an inclusive, positive learning environment where everyone can take away useful information about the human body and apply it to whatever interests brought you here. There are a variety of A&P support resources I hope you will use to your advantage, these include: the online Connect activities (and eBook), the Tutoring Center, your lab TAs, the in-class TA, and of course me!

Finally, please make sure to thoroughly review this syllabus, and consider it our contract for learning in this class. Make sure to always keep the schedule handy. Below is a table of contents for quick navigation.

Contents (click on the link)

Course Vitals
Prerequisite: None

Course Description from the 2022-2023 UNC Catalog. Stress regulatory mechanisms that maintain normal body function and broad general biological principles as they apply to structure and function. Course fee required.

Course Purpose and Objectives. This is an entry-level course about the human body and how you survive from day-to-day. The lecture portion will mostly focus on physiological principles, especially systems interactions maintaining homeostasis, while the lab will focus on enhancing anatomical knowledge. There are no prerequisites for this course, so the first couple of weeks will involve some fundamental chemistry, physics, and biology. BIO 245 is designed for undergraduate health science majors, such as pre-nursing, sport & exercise science, dietetics,

audiology, among others. This course is the prerequisite for BIO 246, which is a more in-depth examination of human physiology. For successful completion of BIO 245, students will be able to:

- Define homeostasis and describe how it is different from the concept of chemical equilibrium.
- Describe the major organizational levels of the human body.
- Identify gross anatomical and histological structures of the integumentary, musculoskeletal, nervous, endocrine, cardiovascular, digestive, renal, urogenital, respiratory, and immune systems.
- Use foundational chemical and physical principles to explain processes in cellular physiology.
- Demonstrate and model the roles of feedback mechanisms in physiology by using cellular and gross anatomic examples.
- Integrate the studied functions of the various systems to model the maintenance of homeostasis, and to interpret physiological data.

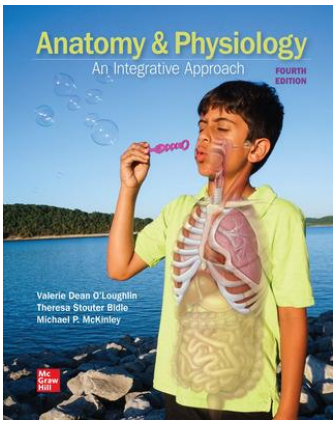
Required Materials

Required Text: *Anatomy & Physiology: An Integrative Approach, 4th edition* by O'Loughlin, Bidle, and McKinley. (2022) with ***Connect***. Ways to get your materials, do **one** of the following **options**:

1. Buy directly from McGraw-Hill by starting the registration process at this **link**. There is a two-week free trial option available during registration. **This is the way I recommend.**
2. Buy one of the options from the UNC bookstore. A printed text is **not** required for this class, you really only need to buy *Connect* access (which includes the eBook and APR programs).

CAUTION: if you want a printed textbook, you should buy it **NEW**, since this is the only way to get a bundled *Connect* code. Otherwise, you might end up paying double to get Connect access.

Required Participation: A subscription to the *iClicker Student* app **link**. We no long require a physical iClicker device, however it will work if you already have one and wish to use it. You can join the iClicker course at this **link**.



SB SMARTBOOK McGraw-Hill Education

iClicker

Required Technology: While this is an in-person class, you need a stable internet connection and device on which to do your homework and iClicker. UNC has numerous freely available computer labs as well as laptops for checkout at the library. I recommend using Google Chrome for Canvas and *Connect*.

Supplemental Material. In the Canvas Units (Modules) I post videos, essays, news, and other resources of interest that are related to the topics we cover but are **NOT** required reading for BIO 245. These are just for your consideration if you are interested and have the spare time, and so they are always marked "**FYI:**" in their page names. Additionally, on Saturday mornings I send a Canvas Announcement with a list of what I considered "Interesting Side Reading/Stuff" for the previous week. I send these to you to demonstrate how the topics we talk about in class relate to everyday life. Again, you are not required to open any of these resources (I will never ask you a question about them on an exam), but I have gotten feedback that looking over these interesting media helps bring together and apply all the class material. Plus, a lot of it is entertaining!

What should I do to be successful in this course?

- Study often. I recommend studying/reading in time increments that don't cause mental overload, and on average you should be working on BIO 245 at least an hour every day (including weekends!), some days you might need more. You can break up this time if it works for you – reward yourself for a good study period, and then get back to it. If you wait until a few days before the exam to start studying, you will be overwhelmed by the amount of material and less likely to be successful.
- Work individually and in groups. It's an excellent idea to study in groups, since it helps bring together information from different perspectives. The UNC Libraries, Tutoring Center, and even the School of Biological Sciences have resources and spaces built to support studying. It's just as important to have some solo study time too. I especially recommend checking out some of the study spaces we have in Ross Hall since you can be nearby your GTAs and professors if you have a question.
- Be engaged and ask questions. I want you to ask questions in class if something is not clear or you want to know more. I will often ask questions of the class, and I want you to feel free to answer. Don't worry about being right! And, **if you're uncomfortable asking questions in class, that's okay!** Always feel free to ask me in person away from the crowd and through email.

What should I do if I need help?

- I have open office hours set aside in my week that are dedicated to tutoring BIO 245 students on a walk-in basis. If those times don't work for you, we can setup an alternate appointment.
- Talk with your lab GTA and the in-class GTA. Remember that they are also part of the BIO 245 teaching team!
- Take advantage of the tutoring center and SI, both described under **Tutorial Services** below.

Course Conduct

General Technology Expectations. Messages sent to your Bears email account or posted through Canvas are considered official communication. ***I strive to respond to questions within 24-hours, and I expect the same of you.*** I expect you to check Canvas and email at least once per day. Additionally, everyone is expected to have access to Canvas, *Connect*, and iClicker since these are all necessary for completing coursework.

Canvas. Access your course materials through Canvas by going to canvas.unco.edu. Lecture notes, links of interest (helpful videos, relevant medical news, etc.), quizzes, homework, grades, and official class-wide announcements are all done through Canvas. Course material is organized into modules that follow the schedule on the last page of this syllabus. I expect you to complete online quizzes independently. Any public posting of quiz questions is considered cheating and will be investigated.

Lecture Conduct. I expect everyone to work hard, ask questions, and discuss relevant information. Everyone should be respectful of others' sincere participation. Disruptive individuals will be directed to leave the classroom, which includes off-task behavior. It is okay, and even expected, that you will use a device such as a smartphone, tablet, or laptop to participate in lecture – but you should be on task with BIO 245. Exams are taken in class.

My lecture slides are posted to Canvas ahead of time. I expect you to come to class with these for notetaking. You may make personal recordings of class for your use only, as long as you notify me and the in-class TA.
Please note that lectures (including slides) are my intellectual property, and I allow you to use them as a limited license for your personal use. Recordings or slides posted publicly (*e.g.*, the Internet) is academic misconduct.

Attendance. All students are expected to attend all class periods. **There are no make-up participation points. There are no make-up exams.**
If you come to realize that you will need to be absent from classes for a lengthy period of time, for example for medical reasons, then you should communicate with the offices of the Dean of Students and Registrar regarding options for withdrawal, particularly if it is a sensitive reason. I generally do not offer incompletes ("I") for BIO 245.

Out-of-Class Time Commitment. Per the credit hour definition (link), each week students are expected to do two hours of out-of-class work per credit-hour. Since this course is worth four-credit hours, that means you should expect to spend at least eight-hours per week working on BIO 245 in addition to lecture time.
Translation: you should expect that studying for BIO 245 will occupy a significant amount of your time, it's more than just showing up to class, it's also: reading, homework, quizzes, labwork, and independent studying.

Academic Integrity. You are expected to practice academic honesty in every aspect of this course. Upon matriculation at UNC, all students contractually agreed to principles of integrity (the BEAR Code; link). Those who engage in academic misconduct are subject to grading consequences and university disciplinary procedures through the Office of Community Standards and Conflict Resolution. Academic misconduct includes, but is not limited to, copying someone else's work, using banned material while taking exams, and posting or using other's intellectual property (lecture notes, recordings) without permission or in ways that are not explicitly allowed. The grade penalty for academic misconduct is a zero for the course.

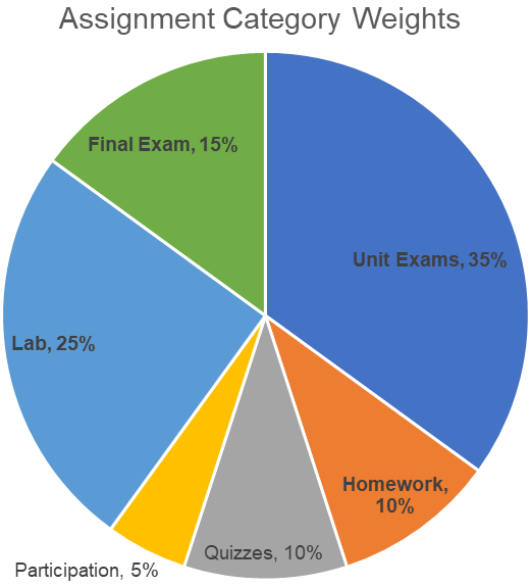
Disability Resources. It is the policy and practice of the University of Northern Colorado to create inclusive learning environments. If there are aspects of the instruction or design of this course that present barriers to your inclusion or to an accurate assessment of your achievement (*e.g.,* time-limited exams, inaccessible web content, use of videos without captions), please communicate this with me and contact Disability Resource Center (DRC) to request accommodations.
Office: (970) 351-2289, Michener Library L-80.
Students can learn more here: www.unco.edu/disability-resource-center

Tutorial Services. UNC maintains a substantial tutoring center offering a variety of FREE support formats including scheduled one-on-one tutoring, group tutoring, drop-in tutoring, Supplemental Instruction, evening hours, Sunday hours, and occasional late-night gatherings where snacks are provided! BIO 245 gets a lot of support from the UNC tutoring center with several trained, qualified tutors who were very recently students in this class. Their main office is Michener Library L149. Phone: (970) 351-1904.

Assessment

Determining Your Letter Grade

The pie chart below shows how each assignment category is **weighted**. The Overall % that you earn from those assignments is used to assign a Letter Grade. The table below shows the ranges for each letter. BIO 245 follows a basic 10% range for each letter. **There are no +/- letter grades.**



Overall % Range	Assigned Letter Grade
≥90%	A
≥80%, <90%	B
≥70%, <80%	C
≥60%, <70%	D
< 60%	F

Important Grading Policies

- +/- grades are not assigned for BIO 245.
- I do not curve individual assignments/exams, but I reserve the right to curve whole final percentages at the end of the semester if necessary.
- I do not round percentages for this course. For example, if your final percentage is 89.9%, then you will be assigned a "B" if the "A" cutoff is 90%.

Graded Assignments (% weight of overall)

Unit Exams (35%). There will be four in-class unit exams. Unit exams are multiple choice and sometimes matching. The questions are based on the lectures since the last exam. There are no make-up exams*. **I will DROP your lowest unit exam grade** to accommodate unforeseen absences for other reasons. But you should always try to make it you all of your exams!

*There are only four very specific reasons for a make-up exam; proof and arrangement of make-up ahead of time are required:

- Military duty
- NCAA athletic participation. **NOTE**: club sports are not excused
- Jury duty
- Death/ emergency of an immediate family member or guardian

Final Exam (15%). The types of questions on this exam are like unit exams. However, the final exam is comprehensive – it covers lecture material for the entire semester. There is no make-up final exam. If you do not take the final exam you are automatically assigned an F grade for the entire course, regardless of Overall Course %. The final exam is Friday, May 6th 8-10:30AM.

Homework (10%). This is where *Connect* comes in: regular homework called SmartBook will be assigned. Each assignment will be due **BEFORE** the scheduled lecture on that topic and cannot be made-up once the assignment closes. SmartBook uses the eBook version of the text to guide your progress, it helps you read ahead. I expect that a lot of the content will be new to you, so you can repeat questions, and then only your best score is recorded. Some of the questions will go much farther in-depth, and that's okay because that helps you apply some of the information we discuss in class to more complex problems.

Quizzes (10%). Between exams there will be quizzes to help you practice. These are taken in Canvas. Quiz questions are typically more difficult than exam questions. They are open note, and you will have multiple attempts. However, I expect you to do these quizzes independently.

Participation/Attendance (5%). Engagement and formative assessment are measured with iClicker questions every day. **You are not graded for correctness, unless it is obvious that no reasonable attempt was made to answer a question**. Since these things happen during class there is no way to make-up these points. Therefore, we allow for up to 15% of these points to be missed without penalty. Occasionally, you may also be asked to do brief written work in class, which may (or may not) be used as extra credit toward exams.

Laboratory (25%). This course has a laboratory component, which you should be registered for with a graduate teaching assistant (GTA) as your lab instructor. The lab focuses on anatomy and histology content relevant to the physiology we cover in lecture. Since you do not receive a separate letter grade for lab, the director of BIO 245 labs reports your percentage to me at the end of the semester, and I include it as a part of your Overall Course %. All questions about lab (content, grades, syllabus, expectations, etc.) should be directed to your lab GTA first.

Tentative Course Schedule

Week		Date	Topic	Quiz/Chapter
1	M	9-Jan	Intro to A&P	1
	W	11-Jan	Fundamental chemistry and physics	2
	F	13-Jan	Basic cell biology	4
2	M	16-Jan	MLK day-NO CLASS	
	W	18-Jan	Transport across cell membranes	4
	F	20-Jan	Tissue organization	Quiz 1 due 22-Jan 5
3	M	23-Jan	Integumentary system	6
	W	25-Jan	Integumentary system	6
	F	27-Jan	Bone Physiology	Quiz 2 due 29-Jan 7
4	M	30-Jan	Bones Physiology	7
	W	1-Feb	Buffer time[1]	
	F	3-Feb	Unit Exam 1[2]	
5	M	6-Feb	Muscle tissue	10
	W	8-Feb	Muscle fiber physiology	10
	F	10-Feb	Muscle fiber physiology	Quiz 3 due 12-Feb 10
6	M	13-Feb	Nervous tissue	12
	W	15-Feb	Nervous tissue	12
	F	17-Feb	Central Nervous System structure & function	Quiz 4 due 19-Feb 13
7	M	20-Feb	Central Nervous System structure & function	13
	W	22-Feb	Buffer time	
	F	24-Feb	Unit Exam 2	
8	M	27-Feb	Spinal cord and nerves	14
	W	1-Mar	Autonomic Nervous System	15
	F	3-Mar	Sensory systems	Quiz 5 due 5-Mar 16
9	M	6-Mar	Sensory systems	16
	W	8-Mar	Endocrine system	17
	F	10-Mar	Endocrine system	17
10	M	13-Mar	Spring Break	
	W	15-Mar		
	F	17-Mar		
11	M	20-Mar	Heart	Quiz 6 due 19-Mar 19
	W	22-Mar	Heart	19
	F	24-Mar	Unit Exam 3	
12	M	27-Mar	Blood and Vessels	18,20
	W	29-Mar	Lymphatics	21
	F	31-Mar	Immune system	Quiz 7 due 2-Apr 22
13	M	3-Apr	Immune system	22
	W	5-Apr	Immune system	22
	F	7-Apr	Respiratory system	Quiz 8 due 9-Apr 23
14	M	10-Apr	Respiratory system	23
	W	12-Apr	Urinary system	24
	F	14-Apr	Urinary system	Quiz 9 due 16-Apr 24
15	M	17-Apr	Urinary system	24
	W	19-Apr	Buffer time	
	F	21-Apr	Unit Exam 4	
16	M	24-Apr	Digestive System	26
	W	26-Apr	Digestive System	26
	F	28-Apr	Buffer time	
17	T	2-May	FINAL EXAM May 2, TUESDAY, 8-10:30am	Comprehensive

1. Buffer time will be used to cover unfinished lecture content, review session, or case studies

2. Unit exam dates will NOT change but content might be adjusted depending on the lectures covered