

# BIO 245: Introduction to Human Anatomy and Physiology

## Spring 2020 Syllabus for Lecture Section 014

Lecture Meeting Location: McKee L0152

Lecture Meeting Time: MWF 2:30PM-3:20PM

**Professor:** Dr. Nicholas Pullen

**Office Location:** Ross Hall 2536 (Research Lab: 1631)

**Office Phone:** 970-351-1843

**email:** [nicholas.pullen@unco.edu](mailto:nicholas.pullen@unco.edu)

### Walk-in Hours for Tutoring and Other Class Questions

Mondays & Wednesdays 8:30-10am

**In-Class Teaching Assistant:** Cara Smith ([cara.smith@unco.edu](mailto:cara.smith@unco.edu)); Ross Hall 2556

**Final Exam: Thursday, May 7<sup>th</sup> 1:30PM-4PM**

### Welcome

I'm happy to join you in BIO 245 – the reason I got into teaching at the college level was precisely because of my experiences with anatomy & physiology (A&P) courses. You're probably here because of an 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 all participating students 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 LearnSmart activities, the Tutoring Center, your lab TAs, the in-class TA, Supplemental Instruction (SI), and of course me! Feel free to stop by my office to chat about A&P; if you don't find me in my office, I am often in my research lab so knock and come talk, and see what we're up to! 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.

### Course Vitals

**Prerequisite:** None

#### Contents (click on the link)

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**Course Description from the [2019-2020 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.

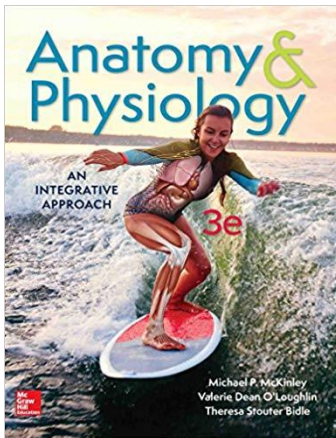
**Course Purpose and Objectives.** This is an entry-level course about the human body and how it survives from day-to-day. The lecture portion will mostly focus on physiological principles, especially systems interactions maintaining homeostasis, while the lab will focus on enhancing anatomical knowledge. There are no prerequisites for this course, so the first couple of weeks will involve some fundamental chemistry, physics, and biology. This course is designed for 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. **BIO 245 does not count toward a biology degree.** For successful completion of BIO 245, students will be able to:

- Define homeostasis and describe how it is different from the concept of 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/Model the roles of feedback mechanisms in physiology by using cellular and gross-level examples.
- Integrate the studied functions of the various systems to model the maintenance of homeostasis, and to interpret physiological data.

## Required Text and Materials

1. *Anatomy & Physiology: An Integrative Approach, 3<sup>rd</sup> ed.* by McKinley, O'Loughlin, and Bidle. (2018) McGraw-Hill Higher Education. ISBN: 978-1259398629.
  - Access to McGraw-Hill **Connect** – this is bundled with any new purchase of a textbook (hardcover, loose-leaf). You may also purchase **Connect** access directly from McGraw-Hill if you prefer using an eBook only.  
**CAUTION:** some rental and used book vendors do NOT include **Connect** access codes.
2. iClicker student remote with 5-year REEF access. Note: your iClicker from another course, like BIO 110, will work. You must use your UNC email for iClicker registration (using the REEF app), which can be done at [this link](#). Once you start the REEF registration process, you search for “**BIO 245 - Dr. Pullen**”.  
**WARNING:** The iClicker/REEF smartphone app is not reliable; therefore, you assume the risk of not having your answers recorded if you choose to use it.



**LEARNSMART** is the homework system. It is bundled with your book. To register for homework online, go to the following address and click the “**register now**” button.

<https://connect.mheducation.com/class/n-pullen-spring-2020-dr-pullen>

**iClicker** is required for participation. To register your account with this course go to <https://app.reef-education.com/#/login>, click the “+” in the top right to search for the university, then “**BIO 245 - Dr. Pullen**”

**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 information and 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 Biomedical Side Reading, Watching, and Listening” 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 a lot of feedback from students that looking over these interesting things helps bring together and apply all the class material after they’ve studied it. 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 pressing 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. Do not 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. You might be surprised to learn that I consider myself a naturally introverted person. I rarely asked questions in class as a student, and to this day I have to work very hard at communicating with and among large groups!

### 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, you can use my online booking link to suggest an appointment in my calendar by going here: <https://nicholaspullen.youcanbook.me/>.
- 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 usually do not respond to messages from outside these official channels (such as yahoo or gmail), because they are quarantined as spam. I expect you to check Canvas and email at least once per day. Additionally, everyone is expected to use iClickers as part of classroom participation (5% of your final grade), and access to McGraw-Hill Connect is necessary (10% of your final grade).

**Canvas.** Access your course materials through Canvas by going to [canvas.unco.edu](https://canvas.unco.edu). Lecture notes, links of interest (helpful videos, relevant medical news, etc.), quizzes, homework, grades, and official class-wide announcements are administered through Canvas. Course material is organized into modules that follow the schedule on the [last page of this syllabus](#).

Make sure your Canvas **Announcements** and **Conversations** are set to "**Notify me right away**". This is an account-wide setting accessed by clicking on your account portrait → notifications.

**Lecture Conduct.** UNC policies and recommendations for academic misconduct will be followed. You are expected to complete online quizzes independently. Any public posting of exam or quiz questions is considered cheating and will be investigated rigorously. I expect everyone to work hard, ask questions, and discuss relevant information. Everyone should be respectful of others' civil and sincere participation. Disruptive individuals will be directed to leave the classroom – disruption includes off-task behavior such as texting.

My lecture slides are posted to Canvas ahead of time. I expect you to come to class with these as a hardcopy or on a computer, so you can take notes on top of mine.

I record all lectures using Panopto. These recordings are available through Canvas by clicking the Panopto link on the left menu of course page. 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 my slides, posted publicly (e.g., the Internet) is considered academic misconduct.

**Attendance.** All students are expected to attend all class periods. **There are no make-up clicker or other 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. I generally do not offer incompletes ("I") for BIO 245.

**Out-of-Class Time Commitment.** Per the federal credit hour definition ([click here](#)), 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, independent studying.

**Academic Integrity.** You are expected to practice academic honesty in every aspect of this course. Students who engage in academic misconduct are subject to grading consequences in this course and/or 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 and using banned material while taking exams. The penalty for cheating or plagiarism is a zero for the course.

Explore this resource, produced by UNC Libraries, to learn more about plagiarism:  
<http://libguides.unco.edu/plagiarism>.

**Honor Code.** All members of the University of Northern Colorado community are entrusted with the responsibility to uphold and promote five fundamental values: Honesty, Trust, Respect, Fairness, and Responsibility. These core elements foster an atmosphere, inside and outside of the classroom, which serves as a foundation and guides the UNC community's academic, professional, and personal growth. Endorsement of these core elements by students, faculty, staff, administration, and trustees strengthens the integrity and value of our academic climate.

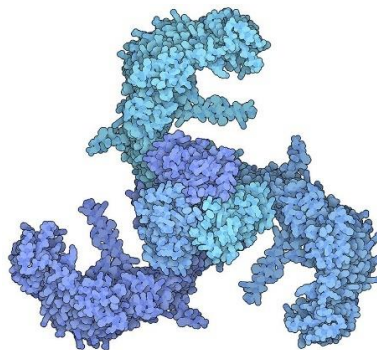
**Disability Resources.** It is the policy and practice of the University of Northern Colorado to create inclusive learning environments. If there are aspects of the instruction or design of this course that present barriers to your inclusion or to an accurate assessment of your achievement (*e.g.*, 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](http://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.

**Counseling Center.** The UNC [Counseling Center](#) is available free of charge and on a walk-in basis for students who wish to discuss personal and/or academic issues with a qualified counseling professional. They are in Cassidy Hall. Phone: (970) 351-2496.



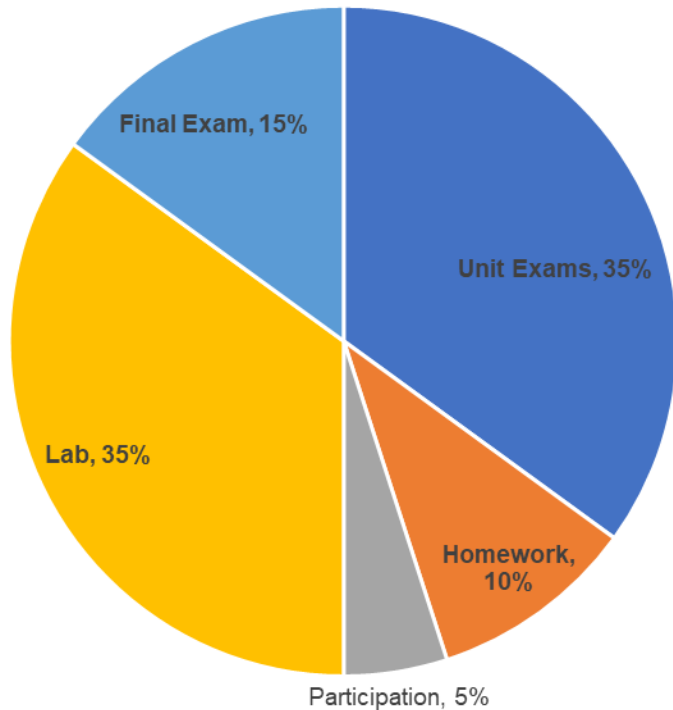
*Recently characterized Piezo1, a membrane protein channel responsible for initiating mechanical sensations like touch and hearing.*

## 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 +/- grades.

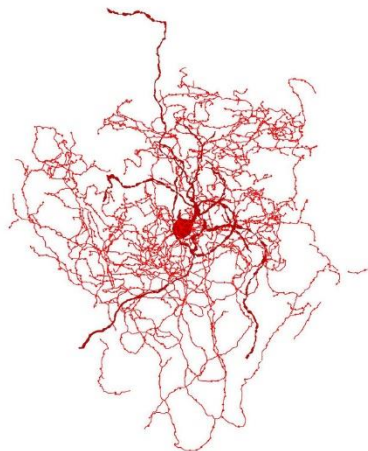
Assignment Weights



Overall % Range	Assigned Letter Grade
$\geq 90\%$	A
$\geq 80\%, < 90\%$	B
$\geq 70\%, < 80\%$	C
$\geq 60\%, < 70\%$	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%.



Rosehip neuron – recently discovered and thought to be unique to humans

## Graded Assignments (% weight of overall)

**Unit Exams (35%).** There will be four unit exams. The first three will take place during normal 50-minute class meetings (dates on schedule), and the last one will be given alongside the final exam. Unit exams are multiple choice, matching, and occasionally some identification. The questions are based on the lectures since the last exam, and are a mix of multiple choice, matching, and identification. On exam days you are required to bring your photo ID. There are no make-up exams except for the specific reasons, with proof, listed below\*. **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 your exams! You may **NOT** attend another BIO 245 section (Dr. Han's) in-class exam.

\*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 (official orders as proof)
- NCAA athletic participation (official communication from athletics as proof) **NOTE:** club sports are not excused
- Jury duty (notice of call with specified dates of attendance)
- 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 a failing (F) grade for the entire course, regardless of Overall Course %. The final exam is Thursday, May 7<sup>th</sup> 1:30PM-4PM. You may **NOT** attend another BIO 245 section (Dr. Han's) final exam.

**Homework (10%).** This is where **Connect** comes in: regular homework through LearnSmart (a **Connect** program) will be assigned. Each assignment will be due BEFORE the scheduled lecture on that topic and cannot be made-up once the assignment closes. LearnSmart 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 basic information we discuss in class to more complex problems. Additionally, each question will ask you to rate your confidence in your answer – please respond to this thoughtfully and honestly, because it helps us gauge areas where we need to focus more or better. If I feel there is need for additional assessment, I may assign quizzes through Canvas after class that you will do as homework; for example, during the first week of classes there will be a required homework quiz about this syllabus.

**Participation (5%).** Student engagement and formative assessment is measured with clicker questions every day. Almost every day you will also be asked to do independent and group work on paper to turn in to the in-class TA. **You are not graded for correctness, unless it is obvious that no reasonable attempt was made to answer the question.** Since these things happen during class there is no way to make-up these points. Operating another student's iClicker is considered academic misconduct. You are expected to have your clicker registered by the end of the second week of classes. You must use your UNC email for iClicker registration (using the REEF app), which can be done at [this link](#). Click the "+" in the top right to search for the university, then "**BIO 245 - Dr. Pullen**". **WARNING:** The iClicker/REEF smartphone app is not reliable; therefore, you assume the risk of not having your answers recorded if you choose to use it.

**Laboratory (35%).** 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, and then the head lab TA if necessary, Amanda Bevan ([amanda.bevan@unco.edu](mailto:amanda.bevan@unco.edu)).

## Tentative Course Schedule

Exam dates will not change, topics may be adjusted and will be announced if so.

Note that the final exam falls on a Thursday. We will meet in the same room (McKee L0152).

Week	Day		Topic	Chapter	Lab
1	M	13-Jan	Introduction to A&P	1	Introduction, Syllabus, Anatomical Terms, Microscope, Cells, Body movements
	W	15-Jan	Fundamental chemistry & physics	2	
	F	17-Jan	Basic cell biology		
2	M	20-Jan	MLK Day-NO CLASS	4	<b>NO LABS</b>
	W	22-Jan	Transport across cell membranes	4	
	F	24-Jan	Tissue organization	5	
3	M	27-Jan	Integumentary system	6	Tissue and Integumentary system
	W	29-Jan	Integumentary system	6	
	F	31-Jan	Skeletal system	7	
4	M	3-Feb	Skeletal system	7	Skull and Axial Skeleton
	W	5-Feb	Case study		
	F	7-Feb	<b>Unit Exam 1: Chapters 1,2,4,5,6</b>		
5	M	10-Feb	Muscle tissue	10	<b>PRACTICAL 1</b> Appendicular skeleton and Joints
	W	12-Feb	Muscle tissue	10	
	F	14-Feb	Muscle tissue	10	
6	M	17-Feb	Nervous tissue	12	Muscle Tissue, Muscles of the head and neck
	W	19-Feb	Nervous tissue	12	
	F	21-Feb	CNS structure & function	13	
7	M	24-Feb	CNS structure & function	13	Muscles of the trunk, upper and lower limbs
	W	26-Feb	Case study		
	F	28-Feb	<b>Unit Exam 2: Chapter 7, 10,12,13</b>		
8	M	2-Mar	Spinal cord and nerves	14	<b>PRACTICAL 2</b> Special senses
	W	4-Mar	Autonomic Nervous System	15	
	F	6-Mar	Senses-general and special	16	
9	M	9-Mar	Senses-general and special	16	Cranial Nerves, Nervous tissue, nervous system
	W	11-Mar	Endocrine system	17	
	F	13-Mar	Endocrine system	17	

## Tentative Course Schedule – Continued

Week	Day	Topic	Chapter	Lab
10	M	16-Mar	Spring Break	NO LABS
	W	18-Mar		
	F	20-Mar		
11	M	23-Mar	Heart	Heart, Pulse, Blood, blood vessels and circulatory system
	W	25-Mar	Heart	
	F	27-Mar	Blood and vessels	
12	M	30-Mar	Case study	PRACTICAL 3 Respiration
	W	1-Apr	Lymphatic system	
	F	3-Apr	Lymphatic system	
13	M	6-Apr	Unit Exam 3: Chapter 14-21	NO LABS
	W	8-Apr	Immune system	
	F	10-Apr	Immune system	
14	M	13-Apr	Immune system	Renal and Digestive Systems
	W	15-Apr	Respiratory system	
	F	17-Apr	Respiratory system-case study	
15	M	20-Apr	Urinary system	Reproductive Systems
	W	22-Apr	Urinary system	
	F	24-Apr	Case study	
16	M	27-Apr	Digestive System	PRACTICAL 4
	W	29-Apr	Digestive System	
	F	1-May	buffer time	
17	R	7-May	FINAL EXAM THURSDAY, May 7 <sup>th</sup> *1:30pm-4pm. Location: McKee L0152	FINALS WEEK (NO LABS)

\*Final exam will be TWO different parts, each will be graded separately:

Part 1: Questions from Chapters 22,23,24 and 26, count as **Unit 4**

Part 2: Questions from previous Chapters from Units 1-3, count as **Final comprehensive exam**