

BIOLOGY 2325 - HUMAN ANATOMY

COURSE INFORMATION

Visit the anatomy web sites at <http://miller.biology.utah.edu/courses/2325/> and <http://www.anatomylab.com>. The first site is your primary link to all the information for this course, the handouts, the laboratory manual, the lecture presentations, etc. It also contains information about other courses I teach. The second site contains features that some students might find helpful as they study and learn human anatomy.

Anatomy is an enjoyable topic that is not conceptually difficult, however, from the perspective of time commitment it is rigorous. It requires a considerable amount of memory work coupled with the ability to use the memorized knowledge to solve problems and synthesize answers. Work on the course daily, do not get behind, and you can succeed while having a rewarding learning experience.

LECTURES

This anatomy course incorporates a wide array of pedagogy, from excellent lecture-oriented instruction and pre-lecture movies, to problem-based learning, interactive discussions, and dynamic hands-on collaborative laboratory sessions. Throughout the course students create their own textbook that is specific to the course of study. For this reason, students who attentively participate in lecture sessions have a distinct advantage. All written examinations are based on the material covered in lecture, with all material being equally important and fair game. If for any reason you miss lecture, you should acquire the missed lecture notes from a classmate and read the assigned material from the textbook that accompanies the course.

BOOKS AND SOFTWARE

The anatomy course pack includes the following: (the suggested retail price is \$150.00)

Human Anatomy Lecture Manual, 6th edition by Mark Nielsen — Invaluable outline of all lectures containing the illustrations used in lecture; this course would be very difficult without it.

Human Anatomy Lab Manual and Workbook, 6th edition by Mark Nielsen — This book contains information and exercises to help you succeed in the course. If you use it daily, you will be well prepared for the examinations in the course. It also contains a model of the pelvis/perineum that you will build for points toward your lab score.

Human Anatomy Interactive Atlas by Shawn Miller and Mark Nielsen — this is a downloadable software that is also available for use online. It contains interactive photos of cadavers that will help you prepare for the lab quizzes and the lab practical examinations. It is designed to allow you to interactively quiz yourself as you study anatomy. All laboratory quizzes are visual quizzes based on this software.

Human Anatomy Interactive Flashcard by Mark Nielsen, Jamey Garbett, and Shawn Miller — this is also a downloadable software that is also available for use online. It contains anatomy flashcards that correspond to the material covered in the lectures. This is a valuable tool to help you review and study course material.

Textbook resource pack includes the following: (online from John Wiley for \$110.00)

Principles of Human Anatomy and WileyPlus Web Link, 14th edition by Jerry Tortora and Mark Nielsen. This is the online textbook resource and web link that will contain the weekly homework assignments. The online site called WileyPlus has lots of features to help you learn anatomy.

Real Anatomy by Mark Nielsen and Shawn Miller — This is a web-based program that allows you to dissect a cadaver on your computer. It contains over two thousand images that can be studied, labeled, and rotated. It essentially allows you to take the lab home with you as you study and prepare for lab. Access to this program is through WileyPlus.

Web-based materials: (free)

Human Anatomy Lab Manual, 6th edition by Mark Nielsen — This book is available on the course website and contains all the information you will need as you prepare for the weekly lab quizzes. It will provide optional exercises to use with *Real Anatomy* to help you get the most from your laboratory experience. It will also provide lists of structures you will study in the lab and help you in your preparation for the final practical exam.

Human Anatomy Lecture Presentations by Mark Nielsen and Shawn Miller — The “PowerPoint-like” presentations that you see during lecture are available on the course website. They are Flash-based and will work on your computer and handheld devices (**note: if you use Apple handheld devices, you must get an application that will run Flash content**). You can either preview the lecture slides before you come to class or review the lecture slides as you study for the class.

OTHER MATERIALS

Obtain good quality colored pencils in pure or bright colors (e.g., red, blue, green, etc.). Anatomy is a visual subject and color is used during lecture presentations to label the illustrations on each slide. It will be to your advantage to color-code drawings in the lecture manual. Colored pencils will also be **REQUIRED** for coloring and drawings on examinations; it is your responsibility to have them.

Office Hours

Beginning the second week of class I will hold office hours directly after class to answer any questions you might have regarding lecture material. I will also be available by appointment if you are unable to attend regular office hours. Additionally, each TA will hold weekly office hour in the anatomy lab. I encourage you to take advantage of office hours to get your questions answered and to study anatomy. **DON'T BE AFRAID TO ASK QUESTIONS!**

EXAMS

All exams count toward your final grade in this class, this means that you **WILL NOT** be able to drop any of the exams. The following statement appears in the course information box for BIOL 2325, Section 001 in the Summer 2019 Class Schedule:

Due to the accelerated pace of this course in the summer semester it is necessary to require that students take the lecture exams, lab exams, final lab practical and final written exam as scheduled on the syllabus. All midterm exams will be administered during regular class time in JTB 310. Please refer to courses.biology.utah.edu/miller/2325/ for midterm exam dates. The final practical exams will be administered during regular lab times on August 1. The final written exam will be administered from 3:00 to 5:00 PM on August 2 in JTB 310.

So, it should have been understood **BEFORE** you registered for this class that all **exams must be taken on the day and time they are scheduled.**

The two midterm exams will cover specific parts of the course; the final exam is a little different. Not only will it cover the material since the third midterm exam but it will also have a comprehensive component to it, making it a more significant exam in terms of its point value (see exam breakdown below). In addition, there will be weekly quizzes in the lab as well as midterm and final comprehensive lab practical examinations (see laboratory schedule). The point distributions are as follows:

Midterm 1	100 points
Midterm 2	100 points
Final Exam	125 points: Approximately 85 points from the material covered during lecture after the exam 2 and approximately 40 points from the material covered during lecture prior to the third exam.
Homework	150 points (~12.5 points each week)
Laboratory	150 points (see below for point breakdown)

This testing format provides for an equal evaluation of all parts of the course, with no emphasis being placed more strongly in one area over another.

EVALUATION OF STUDENT PERFORMANCE

To earn a C- or better in this course, you must earn a cumulative average of 50% or more. Grading breakdown is as follows:

16%	Midterm 1 - 100 points
16%	Midterm 2 - 100 points
20%	Final Exam - 125 points
24%	Homework - 150 points
24%	Laboratory Grade - 150 points:
	10 lab quizzes @ 5 points each = 50 points
	Pelvic model = 6 points
	Bone practical exams during lab sessions (two, 7 points exams, see lab schedule) = 14 points total
	Midterm practical exam (see lab schedule) = 10 points total
	Final practical examination (see lab schedule) = 70 points

The grading breakdown, based on the 625 points possible, is as follows:

90.0—100%	A	70.0—77.4%	C+
88.5—89.9%	A-	60.0—69.9%	C
84.5—88.4%	B+	50.0—59.9%	C-
80.0—84.4%	B	45.0—49.9%	D
77.5—79.9%	B-	0.00—44.9%	E

All grades are final. There will not be any opportunities to change your grade after you have completed the course. If you have been accepted into a professional program and your entry depends on passing this course, then you must achieve the necessary grade. Under no condition will make-up work or exam re-takes be given.

COURSE CONTENT ACCOMMODATIONS POLICY

I do not grant content accommodation requests as the course content fulfills legitimate pedagogical goals.

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EXPECTED LEARNING OUTCOMES

The undergraduate Biology programs at the University of Utah provide students the knowledge base, skills, and resources needed to prepare them for careers in the Biological Sciences, or for enrollment and success in post-graduate education opportunities in numerous graduate or professional schools such as, biology, medicine, dental, veterinary, pharmacy, nursing, physical therapy, occupational therapy, and physician assistant programs. Within the department of biology, the human anatomy course is specifically designed to serve the needs of students in biology, and from many other departments on campus, as they prepare for futures in medical, dental, allied health, exercise sports science, and athletic training careers. In fact, it is designed for the educated person who is interested in becoming more knowledgeable about their most important possession — their own body.

SPECIFIC LEARNING OUTCOMES

- **Structure and Function**

Students will be able to think critically about structure-function relationships as they build a strong foundation knowledge of the structure of the human body.

- **Developmental and Evolutionary Patterns**

Students will be able to apply developmental and evolutionary patterns to simplify the learning of anatomical structure and use these patterns to critically analyze the structure-function relationships of the human body.

- **Transmission, Flow, and Interpretation of Anatomical Information**

Students will be able to utilize the extensive language of anatomy to explain the important structural relationships and functional significance of the human body in biological and medical contexts.

- **Body Systems**

Students will be able to explain how the hierarchical organization of the human form, from cells, to tissues, to organs, to body systems account for the structural and functional features at all levels of organization and function in the human body.

- **Ability to Apply Scientific Reasoning**

Students will be able to apply critical thinking skills using the problem solving skills of science to diagnose and solve anatomical problems related to the structure and function of the human body.

- **Real World Application**

Students will not only be prepared to enter the medical, dental, allied healthcare, exercise science, and athletic training professions with the critical knowledge base of one of the most important tools they can have in their toolbox — human anatomy, but they will be prepared to better communicate with healthcare professionals about their own body and health and better understand their body as they deal with it on a daily basis for the remainder of their life.

ADDITIONAL IMPORTANT INFORMATION

The following information provides students with a variety of important resources and facts about the course and the university in general:

Americans with Disabilities Act

The University of Utah seeks to provide equal access to its programs, services, and activities for people with disabilities. If you will need accommodations in this class, reasonable prior notice needs to be given to the Center for Disability Services, 162 Olpin Union Building, (801) 581-5020. CDS will work with you and the instructor to make arrangements for accommodations. All written information in this course can be made available in an alternative format with prior notification to the Center for Disability Services.

Addressing Sexual Misconduct

Title IX makes it clear that violence and harassment based on sex and gender (which includes sexual orientation and gender identity/expression) is a civil rights offense subject to the same kinds of accountability and the same kinds of support applied to offenses against other protected categories such as race, national origin, color, religion, age, status as a person with a disability, veteran's status or genetic information. If you or someone you know has been harassed or assaulted, you are encouraged to report it to the Title IX Coordinator in the Office of Equal Opportunity and Affirmative Action, 135 Park Building, 801-581-8365, or the Office of the Dean of Students, 270 Union Building, 801-581-7066. For support and confidential consultation, contact the Center for Student Wellness, 426 SSB, 801-581-7776. To report to the police, contact the Department of Public Safety, 801-585-2677(COPS).

Wellness Statement

Personal concerns such as stress, anxiety, relationship difficulties, depression, cross-cultural differences, etc., can interfere with a student's ability to succeed and thrive at the University of Utah. For helpful resources contact the Center for Student Wellness at www.wellness.utah.edu or 801-581-7776.

Veterans Center

If you are a student veteran, the University of Utah has a Veterans Support Center located in Room 161 in the Olpin Union Building. Hours: M-F 8-5pm. Please visit their website for more information about what support they offer, a list of ongoing events and links to outside resources: <http://veteranscenter.utah.edu/>. Please also let me know if you need any additional support in this class for any reason.

LGBT Resource Center

If you are a member of the LGBT community, I want you to know that my classroom is a safe zone. Additionally, the University of Utah has an LGBT Resource Center on campus. They are located in Room 409 in the Olpin Union Building. Hours: M-F 8-5pm. You can visit their website to find more information about the support they can offer, a list of events through the center and links to additional resources: <http://lgbt.utah.edu/>. Please also let me know if there is any additional support you need in this class.

English as an Additional/Second Language

If you are an English language learner, please be aware of several resources on campus that will support you with your language and writing development. These resources include: the Writing Center (<http://writingcenter.utah.edu/>); the Writing Program (<http://writing-program.utah.edu/>); the English Language Institute (<http://continue.utah.edu/eli/>). Please let me know if there is any additional support you would like to discuss for this class.

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SUMMER TERM 2019

Schedule of Lectures and Exams

Lecture time and place: M, W, F – 11:30 AM to 1:30 PM in JTB 310 (James Talmage Building).

Note to students: Print this schedule and keep it with you. The * indicates that the laboratory will begin with a quiz.
You are responsible for all dates, times and places in this schedule.

- May 13 Introduction to Course
15 Histology
16 *No Laboratory Sessions the First Week - View Online Lab Introduction*
17 Integument

20 Osteology; Arthrology
22 Myology; Cardiovascular System
*23 *Lab 1 - see lab schedule for details*
24 Cardiovascular System

27 MEMORIAL DAY - NO CLASS
29 Cardiovascular System; Urinary System
*30 *Lab 2 - see lab schedule for details*
31 Respiratory system; Digestive System
- June 3 Digestive System
5 Nervous System
*6 *Lab 3 - see lab schedule for details*
7 **EXAM 1 - JTB 310, bring your colored pencils!**

10 Nervous System
12 Patterns of Organization - Body Wall; Anatomy of the Thorax
*13 *Lab 4 - see lab schedule for details*
14 Anatomy of the Thorax

17 Anatomy of the Abdomen
19 Anatomy of the Abdomen; Reproductive Systems
*20 *Lab 5 - see lab schedule for details*
21 Reproductive Systems; Anatomy of the Pelvis and Perineum

24 Anatomy of Pelvis and Perineum
26 Anatomy of the Back; Patterns of Organization - Limbs
*27 *Lab 6 - see lab schedule for details*
28 Anatomy of the Superior Limb - Brachial Plexus
- July 1 Anatomy of the Superior Limb - Scapular and Shoulder Muscles
*2 *Lab 7 - see lab schedule for details*
3 Anatomy of the Superior Limb - Brachial Muscles, Topography, and Vasculature
5 **EXAM 2 - JTB 310, bring your colored pencils!**

- 8 Anatomy of the Superior Limb - Vasculature, Antebrachial and Hand Muscles
- 10 Anatomy of the Inferior Limb - Innervation; Hip Muscles, Medial Thigh Muscles, and Gait
- *11 *Lab 8 - see lab schedule for details*
- 12 Anatomy of the Inferior Limb - Thigh Muscles, Vasculature, and Leg Muscles

- 15 Anatomy of the Inferior Limb - Leg Muscles, Foot Muscles
- 17 Patterns of Organization - Head and Neck, Neck Muscles
- *18 *Lab 9 - see lab schedule for details*
- 19 Anatomy of the Head and Neck - Somitic Muscles, and Pharyngeal Arch Muscles

- 22 Anatomy of the Head and Neck - Anatomy of the Mouth
- 24 **PIONEER DAY - NO CLASS**
- *25 *Lab 10 - see lab schedule for details*
- 26 Anatomy of the Head and Neck - Anatomy of the Eye

- 29 Anatomy of the Head and Neck - Anatomy of the Ear
- 31 Anatomy of the Head and Neck - The Cranial Nerves
- Aug. **1** ***FINAL PRACTICAL EXAM - see lab schedule for details***

- 2** **FINAL COMPREHENSIVE WRITTEN EXAM, bring your colored pencils!**
From 3:00-5:00 PM in JTB 310 (same room as all other written exams)

Instructor: Shawn Miller, Ph.D.
Email: smiller@biology.utah.edu
Telephone: 801-585-3400
Office: SB 88 (They are moving me this summer sometime so my office location will change)
Office Hours: M,W,F in anatomy lab or my office from 1:45 to 2:45 PM or by appointment.

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SUMMER TERM 2019

Schedule of Laboratories

Laboratory sections: Thursday (and Tuesday, July 2) – 10:00-12:00, 12:30-2:30, 3:00-5:00, 5:30-7:30

Laboratory location: South Biology, Room B03

Note to students: Laboratories 1-10 begin with a quiz. You will use the Laboratory Manual (on the course website) and the Interactive Atlas (also on the course website) to prepare for the weekly quizzes. Additional information is available in the laboratory introduction online. Practical quizzes and exams must be taken on the day for which they are scheduled. **There will be no exceptions to this policy** due to the logistics associated with setting up and proctoring practical quizzes and exams. Please print this schedule and keep it with you. **You are responsible for all the dates, times and places.**

May	16	NO LAB SESSIONS THIS WEEK - Read through laboratory introduction on course website
	23	Laboratory 1: Appendicular Skeleton
	30	Laboratory 2: Introduction to Soft Tissues, Cardiovascular System
June	6	Laboratory 3: Urinary, Respiratory, and Digestive Systems
	13	Laboratory 4: Axial Skeleton, and Nervous System
	20	Laboratory 5: Anatomy of the Thorax and Abdomen, Abdominal Vasculature
	27	Laboratory 6: Genital Systems, Pelvis/Perineum, and Epaxial muscles Turn in Pelvis model (6 points) Midterm Practical Exam (10 points)
July	2*	Laboratory 7: Anatomy of the Superior Limb Superior Limb Bone Practical Quiz (7 points)
	11	Laboratory 8: Anatomy of the Superior Limb
	18	Laboratory 9: Anatomy of the Inferior Limb Inferior Limb Bone Practical Quiz (7 points)
	20	Saturday open lab sessions – times to be announced
	25	Laboratory 10: Anatomy of the Inferior Limb (lab session will begin at it's usual time)
	27	Saturday open lab sessions – times to be announced
Aug.	1	Final Comprehensive Practical Exam: All students must take the final comprehensive practical exam on this day during the laboratory section for which they are registered.

***Lab 7 moved to Tuesday because Independence Day is on Thursday.**