

Gross Anatomy (ANAT 411) Spring 2025

Lecture: Recorded (on Canvas); Lab: M/W/F 1:00-4:00 pm, E329

Instructors

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Course Schedule:

| <u>DATE</u> | <u>LECTURE TOPIC</u> | <u>LAB (Grant's Dissector sections)</u> | <u>FACULTY</u> |
|-------------|--|---|----------------|
| | <u>THORAX</u> | <u>Introduction, Ch. 3 (and 2), Grant's Dissector</u> | |
| Jan. 13 | Introduction, nervous system overview | *Course introduction in E301 @ 1:30 pm* (followed by lab orientation - no dissection) | Croft |
| Jan. 15 | Anterior thoracic wall | <ul style="list-style-type: none"> • Introduction • Pectoral region (Ch. 2) • Muscles of the pectoral region (Ch. 2) | Croft |
| Jan. 17 | Pleural cavity and lungs *Nervous system quiz* | <ul style="list-style-type: none"> • Intercostal space and intercostal muscles • Removal of the anterior thoracic wall; the pleural cavities • Lungs | Croft |
| Jan. 20 | MLK Jr. Day (no class) | | |
| Jan. 22 | Heart and mediastinum | <ul style="list-style-type: none"> • Mediastinum • External features of the heart • Internal features of the heart | Croft |
| Jan. 24 | Posterior and superior mediastinum | <ul style="list-style-type: none"> • Superior mediastinum • Posterior mediastinum | Croft |
| Jan. 27 | Review | *Practice practical exam* | Croft |
| Jan. 29 | Thorax Lecture Exam (E321) | Thorax Practical Exam | Croft |
| | <u>ABDOMEN</u> | <u>Ch. 4, Grant's Dissector</u> | |
| Jan. 31 | Inguinal region, spermatic cord, testis | <ul style="list-style-type: none"> • Superficial fascia and muscles of the anterior abdominal wall • Reflection of abdominal wall | Singelyn |
| Feb. 3 | Foregut and organs | <ul style="list-style-type: none"> • Peritoneum and peritoneal cavity • Celiac trunk, stomach, spleen, liver, and gallbladder | Singelyn |
| Feb. 5 | Midgut and hindgut | <ul style="list-style-type: none"> • Superior mesenteric artery and small intestine • Inferior mesenteric artery and large intestine • Duodenum, pancreas, and hepatic portal vein | Singelyn |

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| Feb. 7 | Kidneys and posterior abdominal wall | <ul style="list-style-type: none"> • Removal of the GI tract • Posterior abdominal viscera • Posterior abdominal wall • Diaphragm | Singelyn |
| Feb. 10 | Abdomen Lecture Exam (E321) | Abdomen Practical Exam | Singelyn |
| | <u>PELVIS AND PERINEUM</u> | <u>Ch. 5, Grant's Dissector</u> | |
| Feb. 12 | Pelvic cavity, floor, gluteal region | <ul style="list-style-type: none"> • Anal triangle | Singelyn |
| Feb. 14 | Male/female perineum | <ul style="list-style-type: none"> • Male/female external genitalia and perineum • Male/female urogenital triangle | Singelyn |
| Feb. 17 | Male/female reproductive systems | <ul style="list-style-type: none"> • Male/female pelvic cavity • Urinary bladder, rectum, and anal canal • Internal iliac artery and sacral plexus • Pelvic diaphragm | Singelyn |
| Feb. 19 | Reproductive systems and review | (Complete dissections and review) | Singelyn |
| Feb. 21 | Pelvis/Perineum Exam (E321) | Pelvis/Perineum Exam | Singelyn |
| | <u>UPPER LIMB AND BACK</u> | <u>Ch. 1-2, Grant's Dissector</u> | |
| Feb. 24 | Bones and joints of pectoral girdle; glenohumeral joint; posterior axio-appendicular muscles; scapulohumeral muscles | <ul style="list-style-type: none"> • Introduction (Ch. 1) • Skin and superficial fascia (up to Vertebral Column) • Superficial muscles of the back | Wish-Baratz |
| Feb. 26 | Spine; deep back | <ul style="list-style-type: none"> • Skin and superficial fascia (Vertebral Column onward) • Intermediate and deep back muscles • Suboccipital region • Vertebral canal, spinal cord and meninges | Enterline |
| Feb. 28 | Anterior axio-appendicular muscles; muscles of the arm; axilla; brachial plexus | <ul style="list-style-type: none"> • Axilla (Ch. 2) | Wish-Baratz |
| March 3 | Cubital fossa; bones of forearm and hand; joints of forearm, elbow, and wrist; arteries, veins, and nerves of upper limb | <ul style="list-style-type: none"> • Arm (brachium) and cubital fossa • Scapular region and posterior compartment of the arm | Wish-Baratz |
| March 5 | Anterior and posterior compartments of forearm; bones and joints of hand | <ul style="list-style-type: none"> • Flexor region of the forearm • Extensor region of the forearm and dorsum of the hand | Wish-Baratz |
| March 7 | Fascia of palm; intrinsic muscles of hand | <ul style="list-style-type: none"> • Palm of the hand | Wish-Baratz |
| Mar. 10-14 | Spring Break | | |
| March 17 | Upper Limb Exam (E321) | Upper Limb Exam | Wish-Baratz |
| | <u>LOWER LIMB</u> | <u>Ch. 6, Grant's Dissector</u> | |
| March 19 | Introduction, anterior and medial thigh | <ul style="list-style-type: none"> • Superficial veins and cutaneous nerves • Anterior compartment of the thigh • Medial compartment of the thigh | Simpson |
| March 21 | Gluteal region, post. thigh, popliteal fossa | <ul style="list-style-type: none"> • Gluteal region • Posterior compartment of the thigh and popliteal region | Simpson |
| March 24 | Hip, knee, and leg | <ul style="list-style-type: none"> • Posterior compartment of the leg • Lateral compartment of the leg • Sole of the foot | Simpson |
| March 26 | Ankle, foot, and function | <ul style="list-style-type: none"> • Anterior compartment of the leg, dorsum of foot • Joints of the lower limb | Simpson |
| March 28 | Lower Limb Exam (E321) | Lower Limb Exam | Simpson |

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| | HEAD AND NECK | <u>Ch. 7, Grant's Dissector</u> | |
| March 31 | Overview and skull | • Cranial osteology *Small group rooms* | Croft |
| April 2 | Cranial nerves | *Cranial Osteology Quiz* (no lab) | Croft |
| April 4 | Face, scalp, vasculature | • Face • Parotid region | Croft |
| April 7 | Cranial cavity | • Scalp • Interior of the skull • Removal of the brain • Dural inholdings and dural venous sinuses • Cranial fossae | Newcomer |
| April 9 | Orbit and eye | • Orbit | Croft |
| April 11 | Organization of the neck | • Introduction • Anterior triangle of the neck • Thyroid and parathyroid glands *Group Practical* | Croft |
| April 14 | Laryngeal region | • Root of the neck | Newcomer |
| April 16 | Ear | • Ear | Croft |
| April 18 | Oral region | • Temporal region | Croft |
| April 21 | Nasopharynx | • Disarticulation of the head • Pharynx *Do one or the other, not both* | Newcomer |
| April 23 | Head autonomics | (complete previous dissections; otology fellow demonstration) | Croft |
| April 25 | Review | (review) *Group Practical* | Croft |
| April 28 | Head and Neck Exam (E321) | Head and Neck Exam | Croft |

Course Description

ANAT 411 is an in-depth, cadaver dissection-based course that covers all aspects of human gross anatomy. The course is modeled after a traditional medical school gross anatomy curriculum and is divided into six stand-alone sections: thorax, abdomen, pelvis and perineum, upper limb and back, lower limb, and head and neck. By the end of the course, students will have a detailed understanding of the gross anatomy of the entire human body.

Class Format

The typical class format is a one-hour framing lecture and a three-hour dissection lab, though this may vary from section to section to some extent. This is a team-taught course, and each professor has a different teaching style and preferences for resources.

Most lectures will be pre-recorded and posted to Canvas by 9 am on the day they are scheduled (some may be posted earlier). Students should plan to watch the lecture video(s) prior to lab in the afternoon. Lecture outlines and/or PowerPoint slides will be posted to Canvas. Lectures generally review concepts important for understanding the anatomy that will be seen in the dissection lab the same day. Significant clinical correlations are also discussed.

Students are assigned to a specific table for dissection, and these assignments will change during the course of the semester. There are generally four students per lab group, though in some cases there may be three or five. Labs are relatively unstructured, and lab groups are allowed to work at their own pace to complete the day's dissections using Grant's Dissector as a guide. Prior to each lab, the teaching assistants prepare at least one prosection so students can visualize the structures that should be exposed and identified. During lab,

teaching assistants and faculty rotate among lab groups to facilitate dissections and to help identify key structures.

Note: On the first day of class, the lecture content will be pre-recorded, but we will have a course introduction in E301 at *1:30 pm*. We will review the syllabus and other course procedures, introduce course faculty and TAs, and give you a chance to ask any questions you have about the course. It will be followed by an orientation to the lab and lab procedures.

Learning Resources:

Textbook: The recommended text is *Moore's Clinically Oriented Anatomy* (by Moore, Dalley, and Agur). A digital version of the 9th edition can be accessed on campus via [this link](#). Off campus, it is necessary to use the CWRU VPN client or login via CWRU single sign-on for access; instructions for using VPN are available [here](#). You can use a different textbook if you prefer. All required reading materials will be available on Canvas.

Atlas: An atlas is highly recommended, but any atlas is suitable. Some students prefer Netter's Atlas of Human Anatomy, whereas others prefer the Thieme atlas or Grant's. There are also photographic atlases of human anatomy. You will likely want to have one at home you can use for studying. They are also very useful in lab, but you will not want to use your home version in the lab or vice versa. A limited number of used atlases will be available for use in lab. Students can consider sharing the cost of a lab atlas among the members of their dissection group.

Dissector: Dissections follow *Grant's Dissector* (by Detton and Tank). A digital version of the 16th Edition can be accessed on campus via [this link](#). Some used copies of older editions will likely be available in lab. The most important structures to learn are generally those listed in Grant's Dissector in bold font.

Cadavers: Cadavers are invaluable educational resources and must be treated with the utmost respect at all times. They are donated to CWRU's [Anatomical Gift Program](#) to be used for education and research. If you know someone who has donated their body to CWRU in the past 2-3 years, please inform the course director. For details about criteria for accepted cadavers, review the slides from the Anatomical Gift Program presentation on Canvas. No photography is permitted in the cadaver lab.

Lab Supplies

You should obtain the following equipment before the first lab:

Gloves: Be sure to purchase nitrile (non-latex) gloves. Latex can cause an allergic reaction and does not hold up well against formaldehyde. Purchase whatever thickness you prefer. You will find that dissection is difficult if your gloves are too large, so be sure to purchase the correct size.

Shoes: Purchase an inexpensive pair that you can use exclusively in lab. You should get something that you will be comfortable standing in for several hours that has good traction and that does not have large holes (in case of spills).

Scrubs: Students registered for the course will be able to obtain scrubs free of charge in E430. Soiled scrubs must be returned to the same room. Students are not permitted to use their own scrubs, as soiled scrubs should not be removed from SOM facilities.

Goggles or other protective eyewear can be used but is not required.

If you would like to use a respirator in lab, one can be purchased through CWRU.

Lab Safety

Please be very careful with scalpels and other sharp tools to avoid injury. Do not try to balance these on the cadaver or leave them where they might accidentally injure someone. Keep track of their location at all time, and put them in a tray when you are not using them.

If you feel lightheaded or queasy at any time during lab, you should immediately find a place to sit down; you do not want to risk fainting and injuring yourself in a fall.

Lockers

You will be assigned a hallway locker on the fourth floor of Robbins where you can store items during and between labs. These lockers have built-in combination locks, so you cannot use your own. If you took ANAT 301/401 (Multimodal Human Anatomy) in the fall, you will be assigned the same locker.

Assessment and Grading

MS in Applied Anatomy students must take the course for a letter grade. Medical and graduate students may take the course pass/fail with permission of the course director. Undergraduates may take the course pass/fail if they have earned an A or B in ANAT 301/401 (Multimodal Human Anatomy) or BIOL 346 (Human Anatomy). Grade cutoffs for pass/fail are noted below. Students are not permitted to audit the course or take it as a fellowship course.

You will receive a separate score for each section of the course; there is no cumulative final exam at the end of the course. Each section of the course contributes to the final grade as follows: Thorax: 15%; Abdomen: 12.5%; Pelvis and perineum: 12.5%; Upper limb and back: 15%; Lower limb: 15%; Head and neck: 30%.

Each section will have a final lecture exam and a final lab exam; the two components will contribute equally to a student's score for that section of the course. The format of the lecture exam will vary by section according to the preferences of the faculty member(s) teaching that section. Lab exams are practical exams in which students rotate among stations every 75 seconds; at each station, two tagged structures must be identified. Most of the stations are cadaver-based, but models, cross-sections, x-rays, CT scans, bones, and other learning resources may also be used. In some sections of the course, quizzes may contribute to a student's lecture and/or lab score. Additional details for each section of the course will be provided by the faculty member(s) in charge of that section. Extra credit is not offered.

Letter grades are generally assigned as follows: A, 90-100%; B, 80-89%; C, 70-79%; D, 60-69%, F, 59% and below. These are not strict cutoffs; they may be adjusted down slightly depending on overall class performance and your trajectory in the course (e.g., a strong finish). The passing score for a medical or graduate student is 80%. The passing score for an undergraduate is 75%.

Course-specific policies

You are expected to be present for all labs and to participate in dissection. This is not simply a learning issue, it is a professionalism issue. If you will not be present for a lab, you should let your lab members know in advance (if possible) and arrange a time to contribute to the dissection in another way and/or review the material that was missed. You will have a very difficult time doing well in the course if you miss multiple labs.

Only faculty, teaching assistants, and students enrolled in ANAT 411 are allowed in the lab unless special arrangements have been made beforehand with the course director. Permission is only granted for compelling educational reasons or for research, so you should not plan to bring your friend, significant other, or a prospective student to lab.

Lecture quizzes and exams will be administered during a prescribed interval. In general, you may take a quiz in advance if necessary, but quizzes and exams may not be taken late except in extraordinary circumstances. If such circumstances arise (e.g., serious illness or death of an immediate family member) you must provide documentation to the faculty member in charge of that section of the course. If you need to take a quiz in advance, contact the faculty member responsible for that particular section of the course (if different from the course director). Practical exams require a great deal of time to set up, so these must be taken on the day and time they are offered. In the event of an emergency, a modified version of the practical exam will be given.

We are committed to making it possible for students in CWRU University (MD) Program to take this course and will adjust schedules as necessary to accommodate MD curricular commitments. We have moved lab time up to 1:00 pm to minimize overlap with CP1 on Wednesdays from 3-5 pm, but some exams may still fall on a Wednesday. If you are a MS1, you should use your scheduled absences for such days so you can be present for the exam. If that is not possible, contact the course director so that accommodations can be made.

Diversity and Inclusion

It is the intent that all students, regardless of their background and perspective, be well-served by this class. Further, we intend to present material that is respectful of diversity (gender identity, sexuality, disability, age, socioeconomic status, ethnicity, race, nationality, religion, and culture) and deliver it in a way that respects these differences. We expect that all students, instructors, and guests will help foster an atmosphere of respect, trust, and safety in the classroom.

Students should reach out to an instructor with any suggestions for how to make class content or environment more inclusive or to report a specific incident. If you are not comfortable reaching out to an instructor, you can contact the School of Medicine Graduate Education Office (som-geo@case.edu) or the Office of Inclusion, Diversity and Equal Opportunity (OIDEO) (oideo@case.edu).

More information about CWRU's policies and resources is available on [OIDEO's website](#).

Disability Accommodations

In accordance with federal law, if you have a documented disability, you may be eligible to request accommodations from Disability Resources. In order to be considered for accommodations you must first register with the Disability Resources office. Please contact their office to register at 216-368-5230 or get [more information on how to begin the process](#). Please keep in mind that accommodations are not retroactive.

Mental Health Resources

CWRU is committed to supporting and advancing the mental health and well-being of our students. During the course of your academic career, you may experience personal challenges that represent barriers in learning. While some stress is to be expected in the higher education experience, it can be compounded by unexpected setbacks or life changes outside the classroom. You should contact an instructor about any issue that could affect your education and contact support services on campus that have staff stand ready to assist you:

- [University Health and Counseling Services](#) (UHandCS)
 - Counseling Services and 24/7 on-call counselor 216/368-5872
 - [Health Services](#) and 24/7 Nurse on call 216/368-2450

- Dean of Students Office: 216/368-1527, <https://case.edu/studentlife/dean/>
- CWRU Police Dispatch
 - 216/368-3333 (emergency)
 - 216/368-3300 (non-emergency)

Academic Integrity

The university's research, scholarship, teaching, and community service are central to its mission. To achieve that mission, it is critical that the highest standards of academic integrity are articulated to all members of the university community: faculty, students, and staff. All members of the community are expected to interact professionally in those endeavors which promote and facilitate the university's common mission. Adherence to professional Codes of Ethical Conduct can and do play a central role in the matter.

Students, faculty and administrators share responsibility for the determination and preservation of standards of academic integrity. Each must adhere to their own personal code of integrity and must be prepared to educate others about the importance of academic integrity, to take reasonable precaution to discourage violations of academic integrity, and to adjudicate violations.

Students are expected to uphold standards of academic integrity by taking reasonable precaution in the academic arena. Reasonable precaution involves implementing measures that reduce the opportunities for academic misconduct but do not inhibit inquiry, create disruption or distraction in the testing environment, or create an atmosphere of mistrust. The vitality of academic integrity is dependent upon the willingness of community members to confront instances of suspected wrongdoing.

Faculties have specific responsibility to address suspected or reported violations as indicated below. All other members of the academic community are expected to report directly and confidentially their suspicion of violation to a faculty member or a dean or to approach suspected violators and to remind them of their obligation to uphold standards of academic integrity. To the extent possible, the identity of individuals reporting academic misconduct will be kept confidential.

You can download the full text of the Academic Integrity Standards and Policies [here](#).

To report academic misconduct, [submit an Academic Integrity Violation Report](#) Report and supporting evidence to the Senior Associate Dean, Lynmarie Hamel (lxh5@case.edu).