

HUMAN ANATOMY

Gross Anatomy is one of the main foundations upon which modern medicine is based. Your study of this fascinating subject will provide a solid basis upon which you will be able to build your medical education. The process of dissection is unique to gross anatomy and is one of the more active learning experiences you will encounter in medical school. Dissection will enable you to be an active participant in your learning process as well as become a skilled observer. Clinical correlations will help you apply to your knowledge and to understand its relevance in patient care.

THE CADAVER

Medical students are afforded the advantage and the privilege of learning about the structure of the human body through careful dissection and examination of its organs and organ systems. The cadaver is incomparably your best teacher of Human Anatomy. Upstate Medical University has a very active Anatomical Gift Program to which cadavers are donated for the purpose of educating future physicians. The willingness of our donors to entrust themselves to our care implies that faculty, staff and students treat and care for the cadaver properly. Strict professional decorum must be maintained in the Gross Anatomy Laboratory at all times. Any display of disrespect for the cadaver is inexcusable and will not be tolerated. This includes the taking of photographs of the cadaver or parts of the cadaver. Such behavior will be treated as a violation of the Standards of Medical Student Professional Behavior, and will result in a Fail Grade.

The act of donation implies permission to use a cadaver for dissection. However, it may be helpful and/or necessary for the entering student to recognize and acknowledge his or her normal feelings of discomfort and anxiety in the presence of death. Your faculty has experienced similar feelings during their own education and teaching experiences. Coping with these emotions is an integral part of your professional development. We strongly encourage you to discuss with the faculty any concerns you may have regarding any aspect of this course, including dissection, on a confidential basis.

COURSE GOALS

The educational goals of the Human Anatomy course are to provide the students with an opportunity to:

1. Identify and understand the anatomical organization of the human body and to appreciate the interrelationship of organs and organ systems.
2. Learn how the major organ systems of the human body develop.
3. Correlate the relationship between organ structure and function.
4. Study the range of structural variation from normal to pathologic and the role development plays in this process.
5. Develop an understanding of the principals of radiologic imaging and the ability to recognize anatomical structures in a variety of common imaging modalities.
6. Develop the facility to utilize anatomical information as a basis for clinical reasoning and clinical problem solving.

The Human Anatomy course is designed to facilitate the development of active life long learning skills such as:

1. Proficiency dissecting and careful and accurate observational skills
2. The ability to interact and to work effectively and responsibly as a member of a team
3. Effective small group teaching skills
4. The appreciation of the role that the cadaver plays in medical education as well as a respect for the art and the science of medicine
5. Application of anatomical and imaging data to solve clinical problems

ORGANIZATION OF THE COURSE

The faculty teaching the Human Anatomy course has worked hard developing a clinically relevant course so that you will be able to obtain an understanding and appreciation for the anatomical basis of clinical medicine. The course emphasizes regional anatomy. Dissection and other activities are designed to enable you to master basic human anatomy. Lectures concerning the development of major organ systems will help you appreciate the significance of development in achieving adult form and the developmental basis of morphologic structure. There is not sufficient time to lecture on all topics. Lectures are supplemented with notes, and readings are assigned. Clinical correlation presentations and web or Blackboard-based case studies will give you an opportunity to focus on the application of anatomical information to clinical problems.

The integration of a substantive amount of radiology within the context of each section of the course will offer an opportunity to visualize important relationships learned in the laboratory and to understand the usefulness and importance of this closely related clinical discipline. Images are available for study on our course website along with radiological case studies posted on either the website or Blackboard. These will help facilitate your learning of radiological anatomy and the application of your knowledge to actual clinical problems. The images presented during lectures and those on the course website will be included in each examination.

The integration of development with Gross Anatomy is key to understanding the interrelationships between and among organs and organ systems, as well as underlying principles that govern the organization of the human body. Some of the observed variations are normal while others represent pathological or diseased states. Students are expected to comment upon any developmental and/or pathological abnormalities, correlating these variations with changes that are a result of aging or chronic disease.

GROSS ANATOMY LABORATORY

Your class will be studying anatomy in our state of the art laboratory. The **dissection laboratory** is divided into five sections. Four of these sections will be used for dissection. The 5th area will be utilized for the demonstration of prosections and other materials to help facilitate student learning. There will be at least one faculty and one teaching assistant assigned to each of the sections in the dissecting lab to assist with dissection and to answer questions. Six students will be assigned randomly to a cadaver. The table number of your dissecting group will be posted on the bulletin board outside of the lab. At the beginning of the first laboratory session, you will be given a brief presentation regarding the proper handling and treatment of your cadaver. Plastic embedded cross sections and the corresponding CT and MRI images will be displayed within the gross anatomy laboratory and on either Blackboard or the course website. The plastic embedded sections and

images are labeled to help you identify and appreciate these structures and facilitate your learning. Digital images of important anatomical variations and organ pathology found in your cadavers will be posted on either Blackboard or the course website.

The laboratory facility includes **male and female changing rooms**. Lockers in these rooms have been assigned to all students registered in the Human Anatomy course. ***Each student must provide his/her own lock for his/her assigned locker***, and is responsible for cleaning out the locker at the end of the course. Anything remaining in the locker room at the end of the course (including the lock and contents of the locker) becomes the property of SUNY Upstate Medical University. Do not leave any personal items unattended outside of your locker. Environmental Services cleans the area on a regular basis, and any items found on the floor or benches in the locker rooms will be discarded. Clothing worn for laboratory should not be worn outside the laboratory. Wearing scrubs is strongly recommended. You must provide and maintain your own scrubs. Your dissection clothing should remain in your lockers. You may find it useful to have a laboratory coat or apron. Examination gloves must be worn during dissection. The gloves will be provided.

Please note: All lockers furnished by SUNY Upstate Medical University are the sole property of SUNY Upstate Medical University, and may be checked at any time at the discretion of the Chairman of the Department of Cell and Developmental Biology, or by any other person designated by the Campus President. SUNY Upstate Medical University assumes no responsibility for any lost or stolen items. Use of the lockers is at your own risk.

LABORATORY REGULATIONS

All cadavers used in this course are willed to the Upstate Medical University through our Anatomical Gift Program. These individuals have donated their bodies so that you, future physicians, can have the opportunity to learn through dissection of a human cadaver. Upon receipt, each cadaver is tested for HIV and embalmed to ensure proper preservation. Only those cadavers found to be HIV negative are used. To ensure maximum student safety, the following universal precautions are to be observed in the laboratory.

1. No food nor drink is allowed in the gross anatomy laboratory.
2. Taking pictures of cadavers or parts of cadavers is **strictly prohibited**. Therefore, no cell phones, cameras, or any type of image capturing device is permitted in the gross anatomy laboratory.
3. All students must wear scrubs or other suitable clothing when working in the dissecting laboratory. **You must wear long pants, a shirt, socks, and shoes. No shorts or sandals are allowed.** Clothing worn in the laboratory should not be worn outside the laboratory.
4. Dissecting gloves must be worn at all times. At no time should any student touch a cadaver without wearing suitable gloves. **Gloves will be provided.**
5. Eye protection must be worn by anyone using any type of saw.
6. Dull or broken scalpel blades must be deposited in the proper receptacles. These receptacles are positioned throughout the laboratory.
7. Please report any cuts or injuries immediately to the course coordinator or Mr. Jaeger or a faculty member.
8. There are First Aid Kits and Eyewashes in each of the sections of the laboratory.

In addition, we ask that you adhere to the following procedures to keep the laboratory as clean and safe to work in as possible:

1. The covers of the cadaver tables are heavy and difficult to handle. Please leave the tables open at all times.
2. Place all skin, hair, removed organs, or other materials in the plastic bag that is placed by Mr. Jaeger at each table. Our staff will empty this bag periodically and store its contents until the cadaver is ready for cremation. All materials will be cremated with the cadaver. Please remove all dissected material that may have fallen to the floor and place this material your table's plastic bag. *Contact Mr. Jaeger or one of our staff if your plastic waste bag is full.*
3. Wipe up any fluid that may spill on the floor with paper towels. Fluid can make the floor slippery so please make sure the floor around your cadaver is clean and dry.
4. Wrap your cadaver and moisten it with the wetting fluid at the end of each dissection. Close the bag that the cadaver is stored in.
5. Students are encouraged to study from cadavers at other tables. Please make sure to wrap and moisten the cadaver when you are done.
6. Visiting the laboratory by anyone who is **not** registered in your class is discouraged. No person under the age of 21 will be allowed in the laboratory. Please contact one of the faculty or Mr. Jaeger for permission if you want to bring a family member into the laboratory.

LABORATORY ACCESS

The laboratory has a card swipe access security system. While the laboratory will be open during normal class hours, access to the laboratory during non-class hours requires use of your SUNY Upstate Medical University ID card. Only those students currently enrolled in the Human Anatomy course will be programmed into the system. The procedure will be reviewed on the first day of class. If you have any problems with access to the laboratory, report them to Mr. Jaeger (4-8582).

CLINICAL REASONING AND PROBLEM SOLVING

An important goal of this course is to enable the student to learn how to engage in clinical reasoning and clinical problem solving utilizing anatomical information. We have developed two activities to facilitate these processes:

1. Case Studies:
Actual case studies are posted on our Blackboard site. These case studies are derived, with permission, from patients in University Hospital or one of our affiliates, from records of people who have donated to our Anatomical Gift Program, or from students or individuals who have given us permission to use their medical history for case studies. These cases are chosen because they pose a clinical problem with an anatomical basis. In addition, these cases often combine physical diagnosis and imaging data. We suggest that student should review each case prior to class discussion and be able to complete the activities presented in each case. Questions based upon cases and the activities contained therein will asked on the written portion of each examination.
2. Topographical and Surface Anatomy:

Physical diagnosis is the clinical derivative of topographical anatomy. We have developed a number of activities to help you understand the anatomical basis of physical diagnosis. Surface anatomy will be included in a number of the lectures presented. PowerPoint presentations concerning the topographical anatomy of the thorax, abdomen, neck, and limbs are posted on our Blackboard site. Questions addressing your mastery of topographical anatomy will be asked on written and practical examinations.

EVALUATION PROCEDURES

Grades used to evaluate student learning in Human Anatomy are consistent with the Upstate Medical University's grading policies and system. Grades are dependent upon student performance on examinations.

Examinations – There will be a total of 4 examinations given in this course. The first examination will be given after completion of the Thorax portion of the course. This examination will be a practical exam with 2⁰ (second order) questions. There will be **no written questions** as part of this exam and **only** this exam.

The next 3 examinations are unit examinations that will be given after the completion of the Abdomen and Pelvis, Limbs, and Head and Neck units. Each of these three unit examinations will have ***both a written component and a practical component***. The written component will contain Multiple Choice Questions (MCQ) that will evaluate mastery of the information presented in lectures, case studies, radiology lectures and images posted on Blackboard and the course website, and topographical anatomy. The practical examinations will consist of the identification of tagged dissected specimens from prosections, normal and anatomic variations found in your cadavers, bones, and plastic embedded sections. The practical examinations will contain 2⁰ (second order) questions. For these items, you will have to answer a function/developmental question concerning the tagged structure. For example, a nerve could be tagged. Instead of asking you to identify the nerve, we could ask you to identify the functional components in that nerve or what symptoms would result from a lesion of that nerve. The number of written and practical items on each exam will be proportional to the number of lectures and laboratory periods in each unit.

There will be 4 examinations given following the completion of each of the following units:

- **The Thorax Examination** will include *only a practical component*, consisting of identification items including 2⁰ questions.
- **The Abdomen and Pelvis Examination** will contain both written and practical components. The practical will contain identification items including 2⁰ questions derived **primarily** from structures in the abdomen and pelvis. The written exam will include MCQ based upon the information presented in the lectures, case studies, images, and topographical anatomy covering the thorax, abdomen and pelvis.
- **The Limbs Examination** will contain three components: a laboratory practical, a written component, and a standardized patient encounter. The practical will contain identification items including 2⁰ questions. The written exam will include MCQ based upon the information presented in the lectures, case studies, images, and topographical anatomy covering the limbs. The standardized patient encounter will assess your ability to apply the

information you've learned by conducting a focused joint examination.

- **The Head and Neck Examination** will contain a practical and a written component. The practical will contain identification items including 2⁰ questions. The written exam will include MCQ based upon the information presented in the lectures, case studies, images, and topographical anatomy covering the cranial cavity and cranial nerves

Exam Protocol

The protocol is patterned after that of the National Board of Medical Examiners.

1. Bring several #2 pencils to the exam. A drink/snack is permitted during the exam.
2. The following are **NOT** allowed in the examination: study notes, book bags, cell phones, iPods, calculators, cameras, programmable watches, pagers, laptop computers, or recording devices of any kind. Students found in violation will lose 10% of the exam points, and will be asked to put the item(s) in their locker. No extra time will be given.
3. Hats, except for religious observance, or hooded sweatshirts will **NOT** be worn during the exam.
4. Bathroom use during the exam is discouraged. Use the bathroom before the exam. If necessary, a proctor will escort individual students to the bathroom.
5. Students must budget their time carefully to allow completion of answer sheets. Students will **NOT** be allowed to complete their ParScore form once time has expired.
6. Students will not congregate for discussion outside the exam room or the 8th floor vestibule after exiting.

Exam Weighting

The unit examinations will be weighted as follows:

A.	Thorax =	15%
B.	Abdomen and Pelvis =	30%
C.	Limbs =	30%
D.	Head and Neck =	25%
TOTAL =		100%

Grading Format:

Pass- A grade of **Pass** will be guaranteed if the student achieves a minimum of **70%**.

Honors - To be eligible for an **Honors** grade, a student must accumulate a sufficient number of total points to be in the top 10% of the class.

High Pass - To be eligible for a **High Pass** grade, a student must accumulate a sufficient number of total points to be in the top 20% of the class.

Deficiency - A student whose final average is below 70% will fail the course.

PROFESSIONAL BEHAVIOR

Attendance in the College of Medicine is a privilege and not a right. So, too, is the opportunity to dissect a human body. Upon acceptance into the College of Medicine, the student enters the Profession of Medicine and has, in effect, been singularly entrusted with the future of medical care and with proper provision of services to mankind. The Profession of Medicine is one of honor and dignity. In our society physicians are entrusted with the health, life and well being of human beings. Professional behavior embodies a code of conduct based upon integrity, honor and dignity that govern a student's behavior. Explicit and implied components of the Student Code of Conduct are explained in the Student Handbook under "Student Code of Conduct and Judicial Policies". Students are expected to abide by this code while matriculated in this College. Behavior that violates this Code will not be condoned. Examples of inappropriate conduct include, but are not limited to, academic dishonesty, disruptive behavior in class, and improper, insensitive approaches to classmates, faculty, staff or other health professionals, and disrespectful treatment of cadavers. Such behavior will result in referral to the judicial process and could also result in failure of the Human Anatomy course.

EXCUSED ABSENCES

The Department of Cell and Developmental Biology follows the Holiday Policy recently adopted by the Educational Policies Committee. This policy is stated in its entirety in the Student Handbook. Students should inform the course coordinator if he/she is planning to miss class due to the observance of a religious holiday. If this occurs on the day of an examination or other required work, an equivalent but not necessarily the exact same experience will be offered to you. No student will be penalized for religious observation. If you miss an exam or a required activity due to illness and/or personal reasons, you should inform the Course Coordinator as soon as possible. You also should be prepared to present proper documentation in order to be eligible to make up the work.

TUTORIALS

Faculty will conduct formal tutorials for those students whose performance is below the passing level. These tutorials are open only to those students having difficulty with this course. They involve active participation on the part of the student and are conducted in a small group format. The course coordinator will inform students about participation in tutorial sessions. Students whose performance is below the passing level are strongly encouraged to participate.

All students are encouraged to contact any faculty member if they feel they need extra help. Faculty members are very willing to work with students. Faculty office numbers, telephone numbers, and email addresses are included in this publication.

GROSS ANATOMY ONLINE RESOURCES

Blackboard will serve as your gateway to the online resources for Human Anatomy. Students should check Blackboard and their local email on a regular basis. Announcements (such as schedule

changes, exam information, etc.) will be posted there, and links to lecture PowerPoint presentations will be provided. Also on Blackboard, you will find actual Case Studies that build on your knowledge of Gross Anatomy, and demonstration videos to aid in your dissection.

A website is also maintained for Human Anatomy:

<http://www.upstate.edu/cdb/grossanat/>

This site may be reached from the Upstate Medical University website, or from a link provided in Blackboard. The Human Anatomy website provides students and outsiders the general format of the course, as well as support in the learning of the discipline. You will find cross-sectional anatomy and radiological images for each section of the course. Pathological findings from the dissection lab are also posted. Thanks to the generosity of the University of Chicago, we also have digital dissection videos that may assist you in preparing for or reviewing dissection assignments. Currently these videos are accessible only from computers connected to the SUNY Upstate Medical University network.