

# ANATOMY AND REGENERATIVE BIOLOGY (ANAT)

## Explanation of Course Numbers

- Courses in the 1000s are primarily introductory undergraduate courses
- Those in the 2000s to 4000s are upper-division undergraduate courses that can also be taken for graduate credit with permission and additional work
- Those in the 6000s and 8000s are for master's, doctoral, and professional-level students
- The 6000s are open to advanced undergraduate students with approval of the instructor and the dean or advising office

### **ANAT 2130. Human Embryology. 3 Credits.**

Development of the basic organ systems; molecular control of development, congenital birth defects, and assisted reproductive technologies.

### **ANAT 2150. Human Microscopic Anatomy. 3 Credits.**

Normal histological structure of cells, tissues, and organs. Structural-functional correlates; the relationship between histological structure-function and the etiology of disease states.

### **ANAT 2160. Human Functional Neuroanatomy. 3 Credits.**

The central and peripheral nervous systems; diseases and injuries with impact on the normal structural-functional relationship.

### **ANAT 2181. Human Gross Anatomy. 3 Credits.**

Structure and function of the musculoskeletal system; regional organization, structure, and function of the major organ systems; structural organization of the head and neck. Same as BISC 2581.

### **ANAT 6130. Clinically Oriented Human Embryology. 3 Credits.**

The mechanisms of human embryology with clinical correlations of embryological development. Developmental control mechanisms and development of basic organ systems. Molecular control of development. Assisted reproductive technologies. Congenital birth defects. Demonstration labs and online animations for clinical correlates. Restricted to students in the graduate certificate in anatomical and translational sciences program. Recommended background: Introductory course in biology.

### **ANAT 6150. Clinically Oriented Human Microscopic Anatomy. 3 Credits.**

The normal histological structure of cells, tissues, and organs of the human body with emphasis on clinical relevance; structural/functional correlates at both the light and electron microscopic levels; alterations in normal histology through disease or injury and the etiology of various disease states; integration of histological concepts with clinical correlates. Restricted to students in either the Graduate Certificate in Anatomical and Translational Sciences (GCATS) or Special Master's in Anatomical and Translational Sciences (M-ATS) program. Prerequisites: BISC 1115 and BISC 1125; and BISC 2202.

### **ANAT 6160. Clinically Oriented Human Functional Neuroanatomy. 3 Credits.**

Structure/function relationships of the human central and peripheral nervous systems and clinical correlations of diseases or injuries whose occurrence or expression has an abnormal impact on the normal structure/function relationship. Integration of neuroanatomy concepts with contemporary clinical neuroscience. Demonstrations of human brain material in the anatomy lab. Students must have completed an introductory course in biology for science or non-science majors prior to enrollment. Restricted to students in the graduate certificate in anatomical and translational sciences program.

### **ANAT 6181. Clinically Oriented Human Gross Anatomy. 3 Credits.**

Structural organization of the human body and the relationship of the organization to regional and systems-related functions. Clinical implications and how disease or injury affects normal anatomical structure/function relationships. Clinical cases match the topic of each lecture. Online manual uses content from the department's NetAnatomy website. Demonstrations in the gross anatomy laboratory. Students must have completed an introductory course in biology for science or non-science majors prior to enrollment. Restricted to students in the graduate certificate in anatomical and translational sciences program.

### **ANAT 6182. Fundamentals of Regenerative Biology and Systems Physiology. 4 Credits.**

This course is similar to BMSC 8212 but with additional time to introduce techniques of confocal laser scanning microscopy and laser-based quantitative and functional cell analyses. Topics include genetic control mechanisms, cell signaling pathways, and tissue regeneration and repair. Introduction of concepts on the functions and regulation of organ systems complement the learning objectives of human gross anatomy and microscopic anatomy. Students must have completed an introductory course in biology for science or non-science majors prior to enrollment. Restricted to students in the graduate certificate in anatomical and translational sciences program.

**ANAT 6203. Human Developmental Anatomy. 1 Credit.**

**ANAT 6204. Neuroanatomy. 2 Credits.**

**ANAT 6212. Neurobiology. 3 Credits.**

Same as Idis 212.

**ANAT 6213. Microscopic Anatomy. 4 Credits.**

Required for medical students.

**ANAT 6215. Anatomy for Health Sciences Students. 3 Credits.**

A gross anatomy course that includes examination of prosected cadavers. Sessions on how to conduct a physical examination of a particular body region are preceded immediately by lectures on the same region.

**ANAT 6216. Cellular Anatomy and Histology. 2 Credits.**

**ANAT 6221. Spec Topics-Stem Cell Biology. 1-3 Credits.**

**ANAT 6222. Spec Topics-Stem Cell Biology. 1-3 Credits.**

**ANAT 6223. Special Topics in Regenerative Medicine. 2 Credits.**

Students attend seminars given by invited lecturers to present their research findings and breakthroughs on topics of regenerative medicine. Seminars can be sponsored by the Department of Anatomy and Regenerative Biology, the Stem Cell Interest Group Journal and Data Club, the Molecular Medicine Graduate Program (MMED 8214), and the GW Institute for Neuroscience. Restricted to Graduate Certificate in Anatomical and Translational Sciences only. Prerequisites: Introductory Biology for Science or non-Science Majors.

**ANAT 6249. Intro to Anatomical Research. 1 Credit.**

**ANAT 6252. Human Variation. 1 Credit.**

**ANAT 6253. Developmental Neurobiology. 3 Credits.**

**ANAT 6260. Developmental Genetics. 2 Credits.**

**ANAT 6262. Gross Anat-Upper/Lower Extrem. 2 Credits.**

**ANAT 6264. Gross Anatomy of Head and Neck. 2 Credits.**

**ANAT 6266. Gross Anatomy-Thorax & Abdomen. 2 Credits.**

**ANAT 6268. Gr Anat-Pelvis/Perineum/Low Ex. 2 Credits.**

**ANAT 6275. Advanced Studies in Translational Sciences. 3 Credits.**

Student research opportunities in laboratories conducting translational research. Application of fundamental concepts learned in didactic courses. Development of versatility with new technologies. Students spend the equivalent of three full days per week in a research laboratory during the semester. The course director must approve all laboratory assignments prior to initiating research studies in a laboratory. Students must have completed an introductory course in biology for science or non-science majors prior to enrollment. Restricted to students in the graduate certificate in anatomical and translational sciences program.

**ANAT 6276. Advanced Studies in Anatomy. 1 Credit.**

Detailed study of an anatomic topic tailored to the needs of the individual student. Restricted to graduate students who are in the Graduate Certificate in Anatomical and Translational Sciences program or who have permission of the program director and medical students.

**ANAT 6277. Special Topics in Neurobiology. 1-3 Credits.**

**ANAT 6279. Applied Regional Anatomy. 1-5 Credits.**

Regional dissection, guided readings.

**ANAT 6284. Applied Surface Anatomy and Radiology. 5 Credits.**

**ANAT 6288. Surface Anatomy and Radiology. 1 Credit.**

**ANAT 6291. Special Projects in Anatomy. 1-12 Credits.**

Independent study on any aspect of gross anatomy.

**ANAT 6292. Projects in Anatomical Sciences. 2 Credits.**

Various imaging techniques and approaches to visualize normal anatomy toward development and application of skills in teamwork, presentation, and discussion. Literature searches. ANAT 6181 may be taken as a corequisite. Restricted to students in the graduate certificate in anatomical and translational sciences program. Prerequisite: ANAT 6181.

**ANAT 6295. Research. 1-12 Credits.**

**ANAT 8120. Graduate Human Gross Anatomy. 4 Credits.**

An in-depth introduction to human gross anatomy with cadaveric dissection. The structural organization of the human body, including its regional and systems-related functions. The relationship between normal human anatomical variation in structure and function and how disease and/or injury affect these relationships. Permission of the instructor required prior to enrollment. Recommended background: Prior coursework in the biological sciences or anthropology.

**ANAT 8501. Didactic Anatomy. 3 Credits.**

Development of a didactic program to include human developmental anatomy, microscopic anatomy, gross anatomy, and/or neuroanatomy. May also include interdepartmental study.

**ANAT 8800. Summer Remedial: Gross Anatomy. 6 Credits.**

**ANAT 8802. Summer Remedial: Human Developmental Anatomy. 1 Credit.**