Anatomy and Cell Biology Courses (ACB)

This is a list of all anatomy and cell biology courses. For more information, see Anatomy and Cell Biology.

**ACB:1199 Human Anatomy and Basic Physiology for Radiation Science** 4 s.h.
Integrative systemic study of the structure and function of the human body; body systems defined and described by their constituent organs; body's most basic cellular level, tissue level, and study of organs which comprise various systems; online course with lectures, assignments, and virtual laboratory study. Requirements: high school biology course.

**ACB:3110 Principles of Human Anatomy** 3 s.h.
Gross and microscopic human anatomy; systemic approach to regional anatomy, with emphasis on clinical relevance; optional tutorial sessions. Offered fall and spring semesters. Requirements: pharmacy, pre-nursing, or associated medical sciences major.

**ACB:3113 Human Anatomy Online** 4 s.h.
Integrative systemic and regional study of the human body's structure. Prerequisites: BIOL:1141.

**ACB:3122 Independent Study in Anatomy and Cell Biology** arr.
Projects arranged with department faculty members.

Microscopy methods for research; all aspects of research, from sample preparation to imaging to data analysis; when to use a particular microscopy procedure; theory, operation, and application of scanning electron microscopy, scanning probe microscopy, laser scanning microscopy, X-ray microanalysis. Requirements: a physical science course. Same as CBE:4156, EES:4156.

**ACB:5108 Human Anatomy** 5 s.h.
Regional dissection, lectures, demonstrations; areas important to physical therapists, particularly the upper and lower extremities. Offered fall semesters. Requirements: physical therapy and rehabilitation science enrollment.

**ACB:5203 Gross Human Anatomy for Graduate Students** 5 s.h.
Regional dissection, lectures, demonstrations, tutorials, discussions, seminars; clinically relevant areas of anatomical radiology, surface anatomy with clinical correlations. Requirements: anatomy and cell biology graduate standing.

**ACB:5206 Graduate Research in Cell and Developmental Biology** arr.
Individual laboratory research training in anatomical sciences.

**ACB:5210 General Histology Online** 3 s.h.
Histology of all tissues of human body starting with basic tissues and working through systems of the body; linked in sequence to the human gross anatomy for graduate students course so students will be learning about related content at the same time in anatomy and histology; online course consisting of recorded lectures, online modules, and extensive use of Virtual Microscope. Requirements: anatomy and cell biology graduate standing.

**ACB:5218 Microscopy for Biomedical Research** arr.
Basic microscopy methods for research including optics, preparation, and analysis of biomedical specimens; light, fluorescence, confocal, transmitting electron, scanning electron, atomic force microscopes, elemental analysis; immunocytochemistry and stereology techniques; individualized laboratory instruction. Prerequisites: BIOL:2723. Same as BIOL:5218, MICR:5218.

**ACB:5220 Advanced Microscopy for Biomedical Research** arr.
Technically advanced microscopy and instrumentation for research; individualized laboratory experience with opportunity to explore applications of microscopy methods. Requirements: for ACB:5220—an introductory microscopy course; for BIOL:5220—ACB:4156 or ACB:5218 or CBE:4156 or EES:4156 or MICR:5218; for MICR:5220—an introductory EM course. Same as BIOL:5220, MICR:5220.

**ACB:5224 Graduate Seminar in Cell and Developmental Biology** 0-1 s.h.
Current research, literature. Requirements: cell and developmental biology graduate standing.

**ACB:6000 Human Anatomy for Advanced Practice** 3 s.h.
Integrated study of interrelationships between anatomic structure and physiological function in health and disease at various points in the lifespan; mechanisms governing and supporting cellular, organ, and system function; internal milieu; relationship of study to clinical assessment of functional integrity of individual organ systems utilizing pertinent objective and subjective data; implications of pathophysiology for anesthesia and implications of anesthesia for pathophysiology; foundation for clinical practicums and courses in nurse anesthesia. Requirements: completion of an undergraduate human anatomy and physiology course and admission to anesthesia nursing program. Same as NURS:6000.

**ACB:6200 Special Topics in Genetics** 1 s.h.
Current research in a selected field of genetics; different topic each year. Companion to a genetics seminar series. Same as GENE:6200.

**ACB:6220 Mechanisms of Cellular Organization** 3 s.h.
Current understanding of basic cell biological processes; key experiments that led to guiding insights; mechanisms that cells use for compartmentalization and how those mechanisms are regulated; biogenesis of major organelles (e.g., mitochondria, peroxisomes, nucleus, secretory/endocytic membrane system); functions of cytoskeleton in cell mobility, organelle motility, and cell division. Prerequisites: BIOL:3130. Same as MCB:6220, MBP:6220.

**ACB:6225 Growth Factor Receptor Signaling** 1 s.h.
Mechanisms of signaling by growth factors; cytokines and related molecules that regulate cell proliferation, development, differentiation, and survival; emphasis on molecular mechanisms of signaling, relevance of these signaling processes to various human diseases. Same as MCB:6225, MBP:6225.

**ACB:6226 Cell Cycle Control** 1 s.h.
Cell cycle regulation, DNA damage-dependent cell cycle regulation, redox-dependent cell cycle regulation, cellular senescence. Same as MCB:6226, MBP:6226.
ACB:6227 Cell Fate Decisions 1 s.h.
Cellular fate decisions, including signal integration, terminal
differentiation in development, mechanisms of embryonic
stem cell gene regulation/cellular reprogramming, cell death
paradigms, and cell death in development and cancer. Same
as MCB:6227, MPB:6227.

ACB:6237 Critical Thinking in Biochemistry and
Molecular Biology 1 s.h.
How nucleic acids, proteins, lipids, and carbohydrates interact
to influence the function of cells and tissues; how molecules
drive signaling pathways and cellular processes essential for
biological functions; based on research publications.

ACB:6238 Critical Thinking in Genetics 1 s.h.
Current topics in molecular and classical genetics; emphasis
on genetic underpinnings of disease; based on primary
research publications.

ACB:6239 Critical Thinking in Cell Biology 1 s.h.
Understanding subcellular organization and intercellular
communication; emphasis on critical thinking and primary
research publications.

ACB:6248 Critical Thinking in Development 1 s.h.
Current topics in molecular basis of vertebrate
development; based on primary research publications.

ACB:6249 Critical Thinking in Cellular Physiology 1 s.h.
Control of physiological systems at the cellular level;
emphasis on regulation by molecular signaling pathways;
literature-based.

ACB:6252 Functional Neuroanatomy arr.
Basic principles of neuroanatomy and neurophysiology;
emphasis on human central nervous system; laboratory
emphasis on anatomical study of spinal cord and brain.
Offered spring semesters. Requirements: physical therapy and
rehabilitation science enrollment or graduate standing. Same
as PTRS:6253.

ACB:6265 Neuroscience Seminar 0-1 s.h.
Research presentations. Offered fall and spring semesters.
Same as BIOL:6265, MPB:6265, NSCI:6265, PSY:6265.

ACB:7001 Teaching and Learning in the Anatomical
Sciences 2 s.h.
Strategies involved in anatomical sciences education; these
include interactive lecturing, dissection, peer teaching/learning, plastination, virtual microscopy, simulation, and case
presentation, as well as assessment techniques; online course
delivered through recorded lectures and online modules.
Requirements: anatomy and cell biology graduate standing.

ACB:7227 Anatomic Study for Teaching 2-3 s.h.
Experience completing a detailed dissection of a region of
the human body; opportunity to create models depicting
anatomical concepts. Requirements: enrollment in teaching
certificate program or anatomy and cell biology graduate
program.

ACB:8101 Medical Gross Human Anatomy 5 s.h.
Complete dissection of the body with regional emphasis
stress and pathogenic relationships to the living system; clinically relevant
areas of radiologic imaging, surface anatomy, embryology,
and clinical correlations; anatomical knowledge through
lectures, small group work, independent activities. Offered fall
semesters. Requirements: M.D. or M.P.A.S. enrollment.

ACB:8120 Human Gross Anatomy for Dental
Students 6 s.h.
Exploration of gross anatomy of human body including thorax,
abdomen, upper limb; extensive focus on head, neck, and
neuroanatomy; regional and systemic approaches; course
sequence and assessment blended with general histology for
dental students; cadaveric dissections closely followed lecture
sequence; emphasis on correlations to dental practice. Offered
spring semesters. Requirements: D.D.S. enrollment.

ACB:8121 General Histology for Dental Students 4 s.h.
Microscopic study of cells, fundamental tissues, organ
systems; emphasis on tooth-related structures. Offered spring
semesters. Requirements: D.D.S. enrollment or anatomy and
cell biology graduate standing.

ACB:8250 Integrated Gross Human Anatomy, General
and Oral Histology for Dental Students (GRISTO) 10 s.h.
Integrated study of morphology of human body at microscopic
and macroscopic levels; covers breadth and depth of
traditional professional-level anatomy and histology courses;
focus on structures of head and neck, oral cavity, and in-depth
study of nervous system; combination of traditional
lectures, cadaver laboratory dissection, virtual histology
laboratories, and supported self-regulated learning strategies.
Requirements: D.D.S. program enrollment.

ACB:8401 Advanced Human Anatomy arr.
Regional dissection of the body with emphasis on systems
relevant to student's specialty interests; discussion, reading,
clinically relevant imaging, embryology. Offered spring
semesters. Requirements: fourth-year M.D. enrollment or
graduate standing.

ACB:8402 Teaching Elective in Regional
Anatomy 2-4 s.h.
Expand knowledge and experience in medical education;
investigate educational pedagogy in a laboratory setting
coupled with self-directed learning of anatomical content
relevant to professional development; prepare, design, and
implement four teaching interactions with MI/D1/PA1
students; design a classroom exercise (e.g., interactive
lecture, learning activity, computer-based study module) that
helps bridge the basic science content with clinical procedure.
Requirements: M.D. standing and enrollment in teaching track
distinction.

ACB:8498 Special Study On Campus arr.
Anatomy on campus; individually arranged. Requirements:
M.D. enrollment.