

Anatomical Science

Anatomical Sciences M.S. provides specialized education courses to train students to teach at the college level and thereby help to meet a rapidly growing need for anatomists in multiple health-care focused programs. Students will be exposed to some of the latest innovations in anatomical sciences education, including 3D-anatomy via the use of ultrasound with standardized patients, radiologic anatomy, using CT scans of cadavers, plastinated specimens, and the use of virtual microscopy in histology education.

Master of Science in Anatomical Science

Requirements	Hours
Education Core	
TLHE 600 Theory of Learning	3
TLHE 610 Interdisciplinary Teaching	3
TLHE 620 Assessment of Teaching and Learning	3
TLHE 640 Teaching Practicum ¹	3
Anatomy Core	
ANSC 601 Human Gross Anatomy & 601L and Human Gross Anatomy Lab	5
ANSC 602 Gross Anatomy Supplement (Must be taken twice)	1
ANSC 618 Histology of Mammalian Organ Systems	3
ANSC 655 Neuroscience	3
ANSC 656 Human Embryology	2
ANSC 657 Medical Imaging	1
Journal Club Requirement	2
Research Requirement	3
Electives ²	
Total Hours	32

¹ TLHE 600, TLHE 610, & TLHE 620 are pre-requisites for TLHE 640

² Registering for additional electives for this program is optional.

Courses

ANSC 601. Human Gross Anatomy. 4 Hours.

Course provides a comprehensive survey of the gross anatomy of the human along with functional and applied anatomy as it relates to common clinical findings.

ANSC 601L. Human Gross Anatomy Lab. 1 Hour.

Lab component of Human Gross Anatomy.

ANSC 602. Gross Anatomy Supplement. 1 Hour.

This course provides students with a step-by-step guide to beginning an education-based research project. Students will create their own anatomy education research project following the topics in the course. Topics include: ethics of research, IRB documents, writing a research question and hypothesis, designing a survey, identifying a sample population, reviewing existing literature, appropriate use of statistical tests, and more.

ANSC 618. Histology of Mammalian Organ Systems. 3 Hours.

This course will cover the specialized cell biology and microscopic anatomy for each of the mammalian organ systems, as well as consider current research with regards to each system. The objective is to understand how cells organize into tissues and organ systems and how these systems function in the body, as well as appreciate the microscopic appearance of cells, tissues and organs.

ANSC 655. Neuroscience. 3 Hours.

Have you every wanted to know where the amygdala sits in the brain, or how the brainstem connects to the thalamus and basal ganglia? Would you like to know about processing in the spinal cord, and how this information is sent to and from the cortex? This course will show you how to find any structure in the nervous system, and how these regions interact to control body movements, give rise to sensory perception, generate emotions and experiences, make decisions, and create personality. Each week will use interactive didactic sessions, anatomical drawing exercises, real brain lab experiences, radiographic imaging, and small group medical case discussions, to break down the brain into manageable components, to see how its outer coverings, blood supply, gray and white matter are structurally and functionally organized to make you who you are. This course may be beneficial for students considering careers in the medical, dental or optometry fields, along with those wanting to pursue graduate research in neuroscience. Students without a general neuroscience background may consider taking NBL 230 or PY 253 (recommended but not required).

ANSC 656. Human Embryology. 2 Hours.

This course uses didactic lectures, lab exercises and student presentations to help students gain an understanding of the major events in human development from gastrulation to birth. Individual units focus on the developmental processes of specific organ systems. The course uses an anatomical focus to describe the morphological characteristics of the developing embryo/fetus. The biochemical and molecular biology of development are only briefly discussed. morphology and anatomy are also related to clinical presentation of birth defects. Offered summer terms.

ANSC 657. Medical Imaging. 1 Hour.

Students will learn to obtain and interpret ultrasound images by practicing techniques on classmates and reading existing ultrasound images. Other radiograph images (X-ray, MRI) will also be used to help students understand planar anatomy and its relationship to 3D anatomy. Students will learn the basics of the technology behind the different medical techniques to provide a fuller understanding of image interpretation.

ANSC 695. Teaching Practicum. 3 Hours.

Students will act as supplemental instructors in a variety of anatomy lab courses, complete their own (or in teams) whole-body prosection, and prepare and present 2-3 hours of new lecture content for anatomy.

ANSC 696. Research Project. 1-6 Hour.

Students will develop an original research project primarily in medical education, but other research areas such as clinical anatomy, histology, etc. can be pursued. Students will be evaluated on their ability to formulate an anatomically relevant research question, review the existing literature, and communicate their findings via a poster or oral presentation to department. (Spring and Summer, on campus).

ANSC 697. Special Topics: Anatomy. 2 Hours.

Students will read and discuss current literature in anatomy education.