

MASTER OF SCIENCE IN ANATOMY (MSA)

MSA 1A01. Anatomy I. (6 Credit Hours)

The gross anatomy course provides an in-depth study of the human body using cadaveric dissection. Additional emphasis is placed on developmental anatomy and normal radiographic anatomy. This course will include the anatomical relationships of the back, thorax, abdomen, pelvis, perineum (reproductive system) and the limbs.

MSA 1A08. Introduction to Anatomy Research. (2 Credit Hours)

This course is designed to provide students with introduction to research opportunities at Des Moines University. Students will complete three five-week laboratory rotations. This course is designed to prepare students to identify thesis committee members.

MSA 1A09. Responsible Compliance & Laboratory Safe. (0.5 Credit Hours)

This course will provide students with laboratory safety and regulatory compliance procedures and policy training. Students will view on-line training modules and participate in laboratory demonstrations.

MSA 1A10. Anatomy Thesis. (0.5-7.5 Credit Hours)

The purpose of these courses is to provide MSA-thesis students the framework to 1) form their thesis advisory committee, 2) write and present their thesis proposal, 3) take part in attending and reflecting on other research presentations, and 4) ultimately write, present, and defend their thesis. The thesis document, presentation, and defense are the culmination of the student's research, as well as their knowledge developed over their entire program.

MSA 1A11. Anatomy Research. (14 Credit Hours)

MSA thesis research under the supervision of a graduate faculty member and thesis committee members.

MSA 1A12. Foundational Sciences I. (8 Credit Hours)

This course provides a description of molecular function, cell biology and histological anatomy, providing the foundations for the basic medical sciences. In the Biochemistry/Genetics domain of the course, molecular structure, metabolic pathways, gene expression and human genetics will receive major emphasis. Case studies of metabolic and genetic disorders are presented to illustrate the implications of biochemistry, molecular biology, and genetic principles for human health. In the Cell/Tissue Biology domain, the course offers a comprehensive study of human cell biology, basic tissue types, and the histology of different tissues, organs, and organ systems. The relationships between typical (nonpathological) histology, gross anatomy, and function are emphasized. Examples of clinical relevance highlight the breakdown of normal microstructure and the resulting its impact on function. The Cell and Tissue Biology section of the course consists of regularly scheduled lectures and self-directed, online lab exercises using orientation videos, lab guides, and high-resolution digital micrographs. high-resolution digital micrographs, and collaborative learning exercises.

MSA 1B02. Anatomy II. (4.5 Credit Hours)

This course for DO, DPM and MSA students provides an in-depth study of the human body by conducting lectures, laboratory/computer demonstrations, and cadaveric dissection. This course combines the anatomical structural relationships of the head, neck, and the central nervous system. Integration of clinically-relevant material and/or clinical case presentations relevant to both board study and clinical practice are included in all lecture topics. Additional emphasis is placed on developmental anatomy and normal radiographic anatomy.

Prerequisite: *Anatomy I required prerequisite*

MSA 2A01. Sem I: Professional Development. (1 Credit Hour)

The fall anatomy seminar course will prepare students for their future careers and applications by teaching them professional development skills. These skills will consist of those activities that will help students get jobs in their chosen career fields, obtain interviews and positions at future professional schools, and generally help the career trajectories of our MSA and MSBS students. Activities will include things like writing a CV, mock interviews, and learning professional presentation skills.

Prerequisites: *MSA 1A01, MSA 1B02, ANAT 1106,*

MSA 2A02. Sem II: Anat & Educational Research. (1 Credit Hour)

This course further enhances students' critical thinking skills by requiring students to find, critically review, present, and discuss peer-reviewed anatomical, clinical, and educational research journal articles in a "round-table discussion" format.

Prerequisite: *MSA 1A01 MSA 1B02*

MSA 2A03. Human Development. (2 Credit Hours)

This is a graduate level human development course. The course will be student driven and presented in a lecture format. The students will be expected to have read the assigned chapters before the corresponding class meeting. Examinations will consist of essay type questions. Students will be required to make an oral presentation on a topic of their choice related to the course material. Student presentations will be graded based on organization, clarity, style of presentation, quality of visual aids and ability to answer questions. The presentations will be open to DMU students and faculty.

MSA 2A04. Teaching in Anatomy I & II. (4 Credit Hours)

This course will allow dual-degree students to participate in laboratory and/or lecture instruction in one or more of the courses offered by the anatomy department.

Prerequisites: *MSA 1A01, MSA 1B02, ANAT 1104, FDSC 1101*

MSA 2A07. Research. (1-6 Credit Hours)

Research under the supervision of a graduate faculty member.

Prerequisite: *Consent of Instructor*

MSA 2A11. Tools for Teaching. (1 Credit Hour)

This course will cover course design and revision, crafting a syllabus, application of adult learning principles to the design of presentations, effective use of learning psychology in the effective design and delivery of presentations, educational methods, execution of adult learning principles, and assessing student learning outcomes.

MSA 2A14. Teaching in Anatomy I. (2 Credit Hours)

This course will allow primary degree students to participate in laboratory and/or lecture instruction in one or more of the courses offered by the anatomy department.

Prerequisites: *MSA 1A01, MSA 1B02, FDSC 1101*

MSA 2A16. Musculoskeletal Cell & Tissue Biology. (2 Credit Hours)

This course entails the study of human cell biology and basic tissue types, with a focus on the musculoskeletal system. The relationships between typical (nonpathological) histology, gross anatomy, and function are emphasized. Examples of clinical relevance highlight the breakdown of normal microstructure and its impact on function. The course consists of regularly-scheduled lectures and self-directed lab exercises using high-resolution digital slides.

MSA 2A17. Special Topics in Evolutionary Anatomy. (1 Credit Hour)

The course is designed to provide students with information on one or more major topics in evolutionary/functional anatomy, anthropology, evolutionary biology, or geology (e.g., human evolution, process of fossilization, animal biomechanics). During this course the faculty will be able to guide students through the scientific process using a relevant body of literature. Through didactic instruction, faculty-guided review followed by student-led discussion and/or written reports, students will be able to critically analyze primary literature and present salient points of the papers.

MSA 2A18. Advanced Dissections in Anatomy I. (1 Credit Hour)

The course will allow students to dissect the head and neck, back, thorax or abdomen of the human cadaver to further their knowledge of these anatomical regions. Students, under supervision by the faculty, will prepare prosections of specific areas of the human cadaver, which will be presented to the first year D.O./D.P.M. class in the form of an oral presentation. Students will be assessed by the quality of their dissection and presentation.

Prerequisite: MSA 1A01 MSA 1B02

MSA 2A24. Teaching in Anatomy II. (2 Credit Hours)

This course will allow primary degree students to participate in laboratory and/or lecture instruction in one or more of the courses offered by the anatomy department.

Prerequisites: MSA 1A01, MSA 1B02, FDSC 1101

MSA 2A28. Advanced Dissections in Anatomy II. (1 Credit Hour)

The course will allow students to dissect either the pelvis, perineum or upper and lower limbs of the human cadaver to further their knowledge of these anatomical regions. Students, under supervision by the faculty, will prepare prosections of specific areas of the human cadaver, which will be presented to the first year DO/DPM class in the form of an oral presentation. Students will be assessed by the quality of their dissection and presentation.

Prerequisites: MSA 1A01, MSA 1B02, MSA 2A18

MSA 2A29. Capstone Experience. (2 Credit Hours)

This course provides the opportunity for students to synthesize, apply, and actively convey the anatomical knowledge they have acquired throughout the MSA Program. Through supervised study, this course culminates in both a comprehensive written research paper and oral presentation on a topic of clinical or evolutionary significance. Students use a "molecules to organs" framework that integrates developmental, histological, gross anatomical, and neuroanatomical information, in order to understand the structural and functional changes underlying a particular pathology/disease or evolutionary event. Additionally, students improve skills such as literature review and critique, academic writing, and lecturing/oral presentation. This is a required course for graduation for MSA Teaching track and MSA dual degree students.