

MASTER OF SCIENCE IN ANATOMY

THESIS TRACK

The thesis track of Des Moines University's Master of Science in Anatomy (M.S.A.) Program provides students with extensive knowledge in the anatomical sciences and the ability to apply, advance and present that knowledge. Excellent faculty and facilities, one-to-one mentorship, and a focus on students' goals and success are big advantages.

The program's Thesis Track provides advanced training in the four disciplines of anatomy: gross anatomy, cell and tissue biology, neuroanatomy, and human development. It is designed to be completed in 24 months, but students can take up to five years to complete the degree on a part-time basis.

The M.S.A. program also offers a teaching track, designed to prepare students for entry into medical and allied medical professional programs, careers in academic teaching, or further study in graduate programs. For more information on the teaching track, visit www.dmu.edu/msa.

Learn from and work with world-class faculty

The M.S.A. thesis track is an exciting opportunity for students to work closely with members of one of the Midwest's largest faculty in anatomy, biological anthropology, paleontology, and evolutionary biology. These experts have made groundbreaking discoveries in anatomy around the world. They organize and lead forensic investigations and paleontological digs, publish renowned research articles and textbooks and present at national conferences.

Students in the thesis track learn from all of these experts, but they select one faculty member as a primary mentor/advisor and principal investigator. *Applicants are highly encouraged to contact the faculty member they are interested in working with prior to applying:* www.dmu.edu/msa

A path with purpose

The M.S.A. thesis track is designed to prepare students for a research-based

career in comparative and evolutionary anatomy. Students in the track complete courses to train in anatomical sciences and scientific writing, to research scientific topics and to become proficient scholars in their respective fields. This track is specifically geared toward individuals wanting to matriculate into Ph.D. programs, such as those related to paleontology, biological anthropology, or evolutionary biology.

The thesis track is not recommended for individuals wanting to pursue a clinical or anatomical-education degree, nor is this track available as a dual-degree program for current DMU osteopathic or podiatric medical students.

Engaging and in-depth: M.S.A. thesis track curriculum

The thesis track curriculum is designed to immerse students in independent study of evolutionary and comparative anatomy, while honing their research and presentation skills.

MASTER OF SCIENCE IN ANATOMY-THESIS TRACK ACADEMIC YEARS 2020-2022														
		FALL TERM					SPRING TERM					SUMMER TERM		
		AUG	SEPT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	
YEAR 1	FALL 1 – 9.5 credits total Gross Anatomy 1 (MSA 1A01) – 5.5 credits Introduction to Anatomical Research (MSA 1A08) – 2 credits Responsible Conduct in Biomedical Research (MBS 1B03) – 1 credit Responsible Compliance and Lab Safety (MSA 1A09) – 0.5 credits Thesis (MSA 1A10) – 0.5 credits						SPRING 1 – 9.5 credits total Gross Anatomy 2 (MSA 1A02) – 3 credits Statistics (MPH 650) – 3 credits Special Topics in Evolutionary Anatomy (MSA 2A17) – 1 credit Thesis (MSA 1A10) – 2 credits Research (MSA 1A11) – 0.5 credits							SUMMER 1 – 5 credits total Research (MSA 1A11) includes field work – 4 credits Thesis (MSA 1A10) – 1 credit
	FALL 2 – 9.5 credits total Musculoskeletal Cell & Tissue (MSA 2A16) – 2 credits Anatomy Seminar 1: Prof Development (MSA 2A01) – 1 credit Thesis (MSA 1A10) – 2 credits Research (MSA 1A11) – 4.5 credits						SPRING 2 – 9 credits total Anatomy Seminar 2: Journal Review (MSA 2A02) – 1 credit Elective – 1 credit (or can be replaced with Research) Thesis (MSA 1A10) – 3 credits Research (MSA 1A11) – 4 credits							

Meet DMU's M.S.A. thesis track faculty



Associate Professor Lauren Butaric, Ph.D., recipient of the DMU Faculty Organization's inaugural Paul E. Emmans Outstanding Faculty Teacher Award, focuses her research on craniofacial variation, particularly the internal structures of the skull.

"With my background in biological anthropology, I have long asked questions of how and why we vary as a species based on our evolutionary history. Now, as part of a medical campus, I'm starting to see my own questions evolve. Being able to apply my research questions to the medical-legal fields—whether it is clinical or forensic in nature—ensures that I am always learning something new."

Lauren.Butaric@dmu.edu



Associate Professor Rachel Dunn, Ph.D., in 2015 she was part of a team of researchers in Gujarat, India, that found fossils of some of the most primitive primates yet discovered. Her research seeks

to uncover how patterns in mammalian morphology and diversity reflect changing climates during the Eocene Epoch, a time in which most modern mammal groups evolved.

"My passion for research stems from a deep curiosity about the world and a love of exploration and discovery. As a paleontologist, I am able to literally uncover new fossil organisms and describe novel evolutionary patterns that inform our understanding of the complex relationship between ecology and biodiversity throughout the history of our planet."

Rachel.Dunn@dmu.edu



Associate Professor Heather Garvin, Ph.D., D-ABFA, is among approximately 100 board-certified forensic anthropologists in the nation and the only one in Iowa. Outside of forensics she worked

with a team of scientists from around the world to identify a new human ancestor, *Homo naledi*, discovered in a remote chamber of the Rising Star cave system near Johannesburg, South Africa.

"As a biological anthropologist, I've conducted research in human skeletal variation as far back as fossil hominins. A lot of my time outside the classroom is spent on conducting forensic anthropological casework and conducting research to enhance forensic anthropological methods. I find the casework to be particularly gratifying, as there are immediate consequences to the work by bringing closure (and sometimes justice) to families."

HGarvin@dmu.edu



Associate Professor Julie Meachen, Ph.D., in 2014 secured the first National Science Foundation grant awarded to a DMU faculty member to support her research in Natural Trap Cave, an 85-foot-

deep sinkhole in Wyoming that trapped prehistoric animals during the Pleistocene Epoch—commonly referred to as the Ice Age—and amazingly preserved their fossils in its cool and clammy cavern. She is also interested in the evolution of the dog family (Canidae) in North America and is working with others on these questions.

"In our department, we all work together on projects. For my own research, I work on the world-renowned fossil site Natural Trap Cave. Students who join my research program have the opportunity to get experience in both field work and in museum collections on this exciting site."

Julie.Meachen@dmu.edu



Associate Professor Muhammad Spocter, Ph.D., is a broadly trained biological anthropologist who investigates the neuroanatomical features that underlie the evolution and behavior of

large-brained social species. He is also engaged in collaborative research on behavioral laterality in apes and maintains close links with the Des Moines-based Ape Cognition and Conservation Initiative.

"My research is dedicated to the study of comparative neuroanatomy and the evolutionary origins of the human brain. I am passionate about engaging with the community and, as a first-generation college student, my research seeks to deliberately involve students from under-represented STEM groups in the scientific process and ignite their interest in brain evolution."

Muhammad.Spocter@dmu.edu



Assistant Professor Sarah Werning, Ph.D., is an evolutionary biologist and paleontologist who uses modern and fossil bone tissue to reconstruct the life history and physiology of living and extinct vertebrates, especially reptiles.

"Bone is the only direct record of cells and metabolism most extinct animals left behind. Modern species are like 'Rosetta Stones' that help us understand and interpret the biological and environmental influences on bone growth and microscopic appearance in fossils. Studying a diverse range of vertebrates (everything from dinosaurs to marsupials)—has really driven home how atypical human bone tissue is."

Sarah.Werning@dmu.edu

M.S.A. Thesis Track

HOW TO APPLY:

Applicants are highly encouraged to contact the specific faculty member they are interested in working with prior to applying. Visit the M.S.A. faculty webpage: www.dmu.edu/msa/faculty-and-staff. Applications to the M.S.A. thesis track program are only accepted through the DMU website.

ADMISSION REQUIREMENTS:

Students applying must have a strong background in science, with experience in evolution, biology, paleontology, and/or biological anthropology. Specific preferred courses largely depend on the faculty mentor the applicant wants to work with and the mentor's research program, but courses could include evolutionary biology, genetics, human osteology, comparative anatomy, chemistry, sedimentary geology, statistics, etc.

Other admission requirements:

- ✓ **Bachelor's degree** from a regionally accredited college or university
- ✓ **GRE OPTIONAL (Not Required)**
- ✓ **Three letters of recommendation**
- ✓ **Transcripts** of all universities and colleges attended
- ✓ Applicants who are not native English speakers must submit their scores on the Test of English as a Foreign Language (TOEFL) or other evidence of English proficiency. A minimum TOEFL score of 550 points on the paper-based exam or 79 on the Internet-based exam is required.

Competitive candidates for admission will be invited to DMU to tour the facilities, meet faculty and graduate students and have a formal interview. Zoom/Skype interviews are also available.

07/2020

For more information, visit WWW.DMU.EDU/ADMISSION
515-271-1499 // DMUAdmit@dmu.edu // www.dmu.edu

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