ANATOMY

Learning Outcomes

Master of Science (M.S.)

1. **KNOW:** Anatomy master's degree graduates will demonstrate a) a broad base of knowledge in the anatomical sciences including human gross anatomy, human microscopic anatomy (histology), and human development, b) a broad base of biological knowledge required to understand the molecular, cellular, and organismal processes related to biomedical sciences; c) a broad understanding of experimental approaches used to investigate biomedical problems; d) in-depth knowledge within their specific areas of research interests, and e) the highest standards of research ethics.
2. **CREATE:** Anatomy master's degree graduates will creatively synthesize theory and literature to generate questions, ideas, or hypotheses addressing current problems in human health and disease, and will devise critical experimental approaches to test these ideas and hypotheses.
3. **APPLY:** Anatomy master's degree graduates will perform hypothesis-driven, original research that addresses current problems in biomedical sciences - often related to their mentor's primary research.
4. **COMMUNICATE**: Anatomy master's degree graduates will perform independent and original research studies that address current problems in biomedical sciences leading to rigorous and reproducible experimental outcomes.
5. **CRITICAL THINKING:** Anatomy master's degree graduates will critically evaluate experimental approaches and results of their own research and the research of others.
6. **PRACTICE:** Anatomy master's degree graduates will conduct all activities in research practices and interactions with medical professionals with the highest level of ethics and integrity.
7. **APPLY:** Anatomy master's degree graduates will capitalize on their knowledge and research skills to obtain placement in professional schools, to continue their education in alternative careers, and/or to obtain careers in biomedical research or anatomical teaching.

Doctor of Philosophy (Ph.D.)

1. **Know:** Anatomy graduates will demonstrate a) a broad base of knowledge in the anatomical sciences including human gross anatomy, human microscopic anatomy (histology), and human development, b) a broad base of biological knowledge required to understand the molecular, cellular, and organismal processes related to biomedical sciences; c) a broad understanding of experimental approaches used to investigate biomedical problems; d) in-depth knowledge within their specific areas of research interests, and e) the highest standards of research ethics.
2. **Create:** Anatomy graduates will synthesize material in the anatomical sciences to formulate didactic lectures, flipped-classrooms, problem-based learning modules, and team-based learning. Students will creatively organize material for classroom and laboratory (cadaver prosections) presentations. Graduates will creatively synthesize theory and literature to generate questions, ideas, or hypotheses addressing current problems in human health and disease, and will devise critical experimental approaches to test these ideas and hypotheses.
3. **Apply:** Anatomy graduates will demonstrate their anatomical knowledge by providing lectures to first and second year medical students and physician assistant students, as well as upper-class medical students and residents. Graduates will be involved in hands-on training of medical and PA students in cadaver-based laboratory settings including (i) assisting in preparation of laboratory and written examinations, (ii) identification of structures for laboratory practical exams, and (iii) preparing and grading written exams. Graduates will perform independent and original research studies that address current problems in biomedical sciences leading to rigorous and reproducible experimental outcomes.
4. **Critical thinking:** Anatomy graduates will be required to interpret a large body of knowledge and condense material to provide important components to medical and physician assistant students. In terms of research, graduates will critically evaluate experimental approaches and results of their own research and the research of others.
5. **Communicate:** Anatomy graduates will convey knowledge on the subjects of human gross anatomy, embryology and microscopic anatomy (histology) and neuroanatomy to a variety of audiences including undergraduate students (Brain Bee), medical students, physician assistant students, as well as to graduate medical students in residency programs at Penn State Hershey. In terms of research activities, graduates will convey ideas, experimental approaches, and results in clear, concise, well-organized papers, posters, proposals, oral presentations, and discussions.
6. **Professional practice:** Anatomy graduates will begin interactions with other professionals within 2 years of matriculation, as they are included in teams of faculty involved in medical education oversight and curriculum design and review. In terms of research, graduates will collaborate in a collegial and ethical manner with other professionals within their field or with diverse scientific backgrounds.
7. **Career development:** Anatomy graduates will pursue academic teaching positions at undergraduate school, graduate schools with allied health science centers, and professional medical universities with programs in a variety of medical health fields. Graduates will participate in, and attend, professional career seminars at the College of Medicine, Career Day activities, and maintain a yearly IDP (individual development plan). In many cases for university employment, both teaching and research expertise are required.