

ANATOMY

Degree Requirements

Master of Science (M.S.)

Requirements listed here are in addition to Graduate Council policies listed under GCAC-600 Research Degree Policies. (<https://gradschool.psu.edu/graduate-education-policies/>)

The Anatomy program actively recruits students to earn the academic degree of Master of Science. To receive the M.S. degree in Anatomy, at least 30 credits are required (400-, 500-, 600-, or 700-level) with a minimum of 18 credits from courses at the 500 and 600 level courses combined. The first-year fall curriculum provides 12 credits of the necessary core material that encompasses human gross anatomy, human embryology, and human microscopic anatomy (histology) for the anatomy degree. In addition, the Fall curriculum includes a one-credit colloquium which introduces the student to professionalism, scientific communication, and addresses manuscript evaluation and writing, as well as scientific methodology and techniques that will be discussed in subsequent coursework. The professionalism elements reinforce ethics courses but focus on regulatory issues of animal or patient use and research.

Code	Title	Credits
Required Courses		
ANAT 503	Gross Anatomy	6
ANAT 512	Human Embryology and Teratology	2
ANAT 505	Histology and Embryology I	2
ANAT 506	Histology and Embryology II	2
ANAT 590	Colloquium (1 credit assigned an "R" grade)	1
1 semester of a Biomedical Ethics course		1
Electives		
Elective Course Work ¹		10
Culminating Experience		
ANAT 600	Thesis Research	6
Total Credits		30

¹ NEURO 511 is highly recommended as an elective, but is optional.

Students must complete original laboratory research that culminates in a thesis. The thesis must be accepted by the advisers and/or committee members, the head of the graduate program, and the Graduate School, and the student must pass a thesis defense.

Doctor of Philosophy (Ph.D.)

Requirements listed here are in addition to Graduate Council policies listed under GCAC-600 Research Degree Policies. (<https://gradschool.psu.edu/graduate-education-policies/>)

The first-year Fall curriculum provides 12 credits of the necessary core material that encompasses human gross anatomy, human embryology, and human microscopic anatomy (histology) for the anatomy degree. In addition, the Fall curriculum includes a one-credit colloquium which introduces the student to professionalism, scientific communication, and addresses manuscript evaluation and writing, as well as scientific methodology and techniques that will be discussed in subsequent coursework. The professionalism elements reinforce ethics courses but focus on regulatory issues of animal or patient use and research. The

first-year Spring curriculum includes one 3-credit course focusing on neuroanatomical studies. Additional courses in Ethics, Statistics, and electives may be selected.

In addition, during the first year, students complete three research rotations that expose them to the wide range of research interests of The Pennsylvania State University Graduate Faculty from both basic and clinical science departments at the College of Medicine in Hershey. These rotations serve to inform the students with regard to choosing a thesis or dissertation adviser and forming a Ph.D. committee. In addition students are advised to take ethics, statistics and electives. The doctoral students also complete their Qualifying Examination which involves an oral presentation and a written examination on anatomical coursework following the Spring semester of the first year. In the Fall of the second year, the students register for 3 credits of Supervised Teaching that allows them to have a full complement of experiences in lecturing, dissecting, preparation of exams, and tutoring students. In addition, the requirements involve a 3-credit BMS course on Biomedical Sciences (BMS-502) that encompasses didactic and interactive course work on principles of cell and systems biology.

In addition, each student must complete research rotations, as well as elective courses (at least one course) that may include statistics or other electives. Each student for the Ph.D. degree must fulfill written and spoken English communication requirements that are satisfied by preparing written and oral reports describing the laboratory rotations during the first year, as well as successful completion of the Qualifying Examination.

Code	Title	Credits
Required Courses		
<i>Fall Semester</i>		
ANAT 503	Gross Anatomy	6
ANAT 505	Histology and Embryology I	2
ANAT 506	Histology and Embryology II	2
ANAT 512	Human Embryology and Teratology	2
ANAT 590	Colloquium (1 credit assigned an "R" grade)	1
<i>Spring Semester</i>		
NEURO 511	Neurobiology II	3
PHS 500	Research Ethics for Clinical Investigators	1
ANAT 596	Individual Studies	1-3
<i>Second Year</i>		
BMS 502	Cell and Systems Biology	3
ANAT 602	Supervised Experience in College Teaching	2-3
Electives		
Elective courses (including statistics and ethics if not otherwise completed) that are selected in consultation with the student's dissertation adviser and Ph.D. committee		
Total Credits		23-26

At the end of the first year, continuation in the program is determined by performance in course work, laboratory rotations, and the ANAT graduate program Qualifying Examination. Students join their research laboratory by July 31 of the first year.

The Ph.D. committee is formed upon entry into the dissertation laboratory, and must comply with the Graduate Council Ph.D. committee requirements (<http://gradschool.psu.edu/graduate-education-policies/gcac/gcac-600/phd-dissertation-committee-formation/>). The

committee must include three Anatomy graduate program faculty, with at least *two* faculty members in the major field.

Ph.D. students must pass a written Comprehensive Examination in the format of a grant application prior to the end of the fifth semester of enrollment. As part of this examination, the student also gives an oral presentation of this proposal to the candidate's Ph.D. committee.

It is expected that the Ph.D. candidate will have at least one paper, as the first-author, submitted for publication in a major peer-reviewed scientific journal prior to the final oral examination (the dissertation defense). The dissertation must be prepared and defended by each Ph.D. candidate. The dissertation must be accepted by the entire Ph.D. committee, the head of the graduate program, and the Graduate School.