

HUMAN ANATOMY AND CELL SCIENCE, PH.D.

Degree Requirements

Students are required to take Biomedical Trainee Skills (IMED 7410) plus a minimum of 9 credit hours of approved coursework at the 7000 level. Students must then complete a thesis.

Attendance at the departmental seminar program is mandatory for all graduate students.

Expected Time to Graduate: 4-5 years

Progression Chart

Course	Title	Hours
Year 1		
GRAD 7300	Research Integrity Tutorial	0
GRAD 7500	Academic Integrity Tutorial	0
IMED 7410	Biomedical Trainee Skills	3
Approved coursework designated 7000 level, including at least one 3 CH course from the following: ¹		9
ANAT 7322	Ultrastructural Anatomy of the Cell	
ANAT 7380	Human Developmental Anatomy (Embryology)	
ANAT 7392	Human Neuroanatomy	
ANAT 7468	Human Histology: Basic Tissues and Organ Systems	
ANAT 7478	Human Gross Anatomy: Musculoskeletal	
ANAT 7480	Human Gross Anatomy: Trunk (Thorax, Abdomen, Pelvis)	
ANAT 7482	Human Gross Anatomy: Head and Neck	
Hours		12
Years 2-3		
GRAD 8010	Doctoral Candidacy Examination	0
Thesis Proposal ²		
Hours		0
Years 3-4		
GRAD 8000	Doctoral Thesis ³	0
Hours		0
Total Hours		12

¹ The coursework required for an individual student will be specified in consultation with the student's faculty advisor, and will depend upon the student's background. Additional elective coursework at the 7000 level may be completed through other U of M departments/faculties, or include any of the following ANAT / IMED elective courses taught by HACS faculty:

- ANAT 7012 Advanced Brain Imaging Methods
- ANAT 7014 Functional Human Anatomy
- ANAT 7320 Introduction to Scanning and Transmission Electron Microscopy
- ANAT 7330 Readings in Anatomy
- ANAT 7400 Morphological Techniques
- IMED 7004 Human Brain Imaging Methods

- IMED 7112 Fundamental Cellular Neurobiology
- IMED 7114 Fundamental Neural Development and Plasticity
- IMED 7302 Advanced Molecular Imaging

² The thesis proposal should be completed within two years of entering the program.

³ Prior to submission of their thesis for examination, the student normally will be expected to have presented their research at scientific meetings; and, contributed to a manuscript that is submitted, in press, or published.