



Master of Science Degree in Applied Anatomy
Joint Degree Program (MD/MS) for Medical Students
Case Western Reserve University School of Medicine



The Master of Science in Applied Anatomy can be obtained in this program by medical students seeking advanced training in the anatomical sciences. The core curriculum integrates aspects of modern molecular biochemistry, cell biology, and physiology into the traditional aspects of anatomical structure and nomenclature of cells, tissues, and organs. The elective courses allow curriculum flexibility for students to emphasize their diverse individual interests in specific areas of research and health care. The program can be undertaken and completed concurrently with the medical curriculum, particularly if the student enters the graduate program during the first year of medical school. The Master of Science in Applied Anatomy provides an excellent preparation for individuals pursuing careers involving a rigorous understanding of the anatomical sciences.

Acceptance into the Master of Science in Applied Anatomy program requires that the student be in good academic standing in the medical curriculum at the time of matriculation into the program, and a letter of approval from their respective Associate ('Society') Dean of Student Affairs. The Graduate Executive Council of the Department of Anatomy coordinates and reviews the graduate program of study for individual students.

The MS degree program requires a minimum of 30 graduate course credits (no additional tuition is required for enrolled medical students). Required courses include 21 credits from the Anatomical Sciences Core curriculum plus a surgical anatomy course* in spring of the fourth year. The remaining credits are elective courses selected by students to fulfill their individual interests and goals. A research thesis is not required (Plan B), although research experience may be obtained as elective coursework ANAT 499: Independent Study with individual faculty members. The thesis-based (Plan A) master of science program requires a minimum of 6 credits of ANAT 651: Thesis MS for preparation then defense of a master of science thesis.

Comprehensive written and oral exams covering the basic scientific principles presented in the curriculum must be passed after successful completion of the coursework comprising the Anatomical Sciences Core Curriculum.

ANATOMICAL SCIENCES --- CORE CURRICULUM : MD/MS

ANAT 412/3	Histology & Ultrastructure/Laboratory (Fall)	ANAT 411	Gross Anatomy (Spring)
ANAT 414/5	Neurological Anatomy/Laboratory (Fall)	ANAT 491	Embryology (Spring)
ANAT 497/8	Scientific Presentations Seminar (Fall & Spring)	ANAT 513*	Surgical Anatomy: Thorax & Abdomen (Spring - 4 th year)
		ANAT 516*	Surgical Anatomy: Head & Neck (Spring - 4 th year)

SELECTED ELECTIVES

ANAT 420	Forensic Pathology (Fall)	ANAT 424	Neural Integrative & Regulatory Mechanisms (Spring)
ANAT 431	Statistical Methods (Fall)	ANAT 477	Human Osteology (Spring)
ANAT 435	Morphometrics of Biological Shapes (Fall)	ANAT 483	Evolutionary Anatomy (Spring)
ANAT 475	Human Evolution: The Fossil Evidence (Fall)	ANAT 523	Histopathology of Organ Systems (Spring)
ANAT 484	Development & Evolution: Vertebrate Skull (Fall)	ANAT 530	Basic Facial Reconstruction (Summer)
ANAT 499	Independent Study (Fall/Spring/Summer)	ANAT 610	Oxygen and Physiological Function (Spring)
ANAT 503	Readings and Discussions (Fall/Spring/Summer)	ANAT 651	Thesis MS (Fall/Spring/Summer)

*Partial requirements for degree include a minimum of 30 credits of coursework



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RECOMMENDED MD/MS PROGRAM OF STUDY SCHEDULES

Schedule I --- 'Condensed'		Schedule II --- 'Stretched'	
MD I:			
Fall			
None		ANAT 412 (<i>Histo'</i>)	4
		ANAT 413 (<i>Histo' lab</i>)	2 (=6/6)
<u>Apply to MS program:</u> Department of Anatomy; School of Graduate Studies			
Spring			
ANAT 411	6	ANAT 411 (<i>Gross'</i>)	6
ANAT 491	3	ANAT 497 (<i>Seminar'</i>)	1
ANAT 497	1 (=10/10)	Elective	(≥7/13)
	(=semester/ total credits)		
Summer [Begin MS thesis work - continuous enrollment in ANAT 651 for Thesis MS (<i>Plan A only</i>)]			
MD II:			
Fall [Continuous enrollment in ANAT 651 for Thesis MS (<i>Plan A</i>)]			
ANAT 412	4	ANAT 414 (<i>Neuro'</i>)	3
ANAT 413	2	ANAT 415 (<i>Neuro' lab</i>)	1
ANAT 414	3	ANAT 498 (<i>Seminar</i>)	1
ANAT 415	1	Elective	(≥5/18)
ANAT 498	1 (=11/21)		
Spring			
Elective	(≥5/26)	ANAT 491 (<i>Embryo'</i>)	3
		Elective	(≥3/21)

[Comprehensive written and oral exams (May/June)]

MD III: [Continuous enrollment in ANAT 651 for Thesis MS (<i>Plan A only</i>)]			
Fall / Spring			
None		None	
MD IV: [Continuous enrollment in ANAT 651 (≥6 credits total) for Thesis MS --- <u>Defend MS thesis</u> (<i>Plan A only</i>)]			
Fall / Spring			
Surgical Anatomy	4 (≥4/ ≥30)	[Required for <u>all MD/MS</u> schedules]	