

# ANATOMY AND NEUROBIOLOGY, MASTER OF SCIENCE (M.S.) WITH A CONCENTRATION IN ANATOMICAL SCIENCE EDUCATION

---

## Program mission

The M.S. in Anatomy and Neurobiology program offers a two-year graduate curriculum of formal instructional activities and research training mentored by the members of the faculty leading to the terminal M.S. degree. The program prepares students for technical careers in neurobiological research laboratories in academic, private and government institutions. The program also provides a strong foundation for students who choose to continue onto doctoral training.

This is a research-oriented degree program comprised of graduate course work and supervised research leading to a master's thesis. The M.S. program involves approximately one year of course work and a research thesis performed under the supervision of a faculty adviser.

## Program goals

1. The program is designed to provide students with the skills required to advance to positions as bioscience researchers, trainers and technicians in a broad spectrum of positions. The structure of the program provides a framework for the progressive development of a mastery of the current state of the subject matter of bioscience, an ability to synthesize this information and apply this foundation to the identification of key areas of investigation/experimentation in bioscience.
2. The program relates the above framework to the development of the ability to design, implement and interpret experimental approaches which address the questions identified.
3. In addition, the program will develop skills in the various means of communicating both the core of bioscience knowledge and the expression of experimental design, results and interpretation to a variety of potential audiences. The program will prepare students to secure positions in their chosen career goals (medical school, doctoral studies, employment in academic or private laboratories).

The following are the learning outcomes specific to the anatomical science education concentration. Students will be able to

- Describe and understand the anatomy (body structure both externally and internally) of the human body with special attention to the peripheral and central nervous system
- Describe and understand the histology (microscopic anatomy of body tissues) of the human body
- Make presentations that convey complex anatomical knowledge in an audience- and venue-appropriate fashion and answer questions effectively
- Design, implement and deliver instruction in anatomy and neurobiology as well as related fields
- Use established and develop innovative pedagogical approaches for learners at various levels

- Perform anatomical dissections required for instruction of pre-professional and professional students in the health sciences

## VCU Graduate Bulletin, VCU Graduate School and general academic policies and regulations for all graduate students in all graduate programs

The VCU Graduate Bulletin website documents the official admission and academic rules and regulations that govern graduate education for all graduate programs at the university. These policies are established by the graduate faculty of the university through their elected representatives to the University Graduate Council.

It is the responsibility of all graduate students, both on- and off-campus, to be familiar with the VCU Graduate Bulletin as well as the Graduate School website (<http://www.graduate.vcu.edu/>) and academic regulations in individual school and department publications and on program websites. However, in all cases, the official policies and procedures of the University Graduate Council, as published on the VCU Graduate Bulletin and Graduate School websites, take precedence over individual program policies and guidelines.

Visit the academic regulations section for additional information on academic regulations for graduate students. (<https://bulletin.vcu.edu/academic-regs/>)

## Degree candidacy requirements

A graduate student admitted to a program or concentration requiring a final research project, work of art, thesis or dissertation, must qualify for continuing master's or doctoral status according to the degree candidacy requirements of the student's graduate program. Admission to degree candidacy, if applicable, is a formal statement by the graduate student's faculty regarding the student's academic achievements and the student's readiness to proceed to the final research phase of the degree program.

Graduate students and program directors should refer to the following degree candidacy policy as published in the VCU Graduate Bulletin for complete information and instructions.

Visit the academic regulations section for additional information on degree candidacy requirements. (<https://bulletin.vcu.edu/academic-regs/grad/candidacy/>)

## Graduation requirements

As graduate students approach the end of their academic programs and the final semester of matriculation, they must make formal application to graduate. No degrees will be conferred until the application to graduate has been finalized.

Graduate students and program directors should refer to the following graduation requirements as published in the Graduate Bulletin for a complete list of instructions and a graduation checklist.

Visit the academic regulations section for additional information on graduation requirements. (<https://bulletin.vcu.edu/academic-regs/grad/graduation-info/>)

## Other information

School of Medicine graduate program policies

The School of Medicine provides policies applicable to all programs administratively housed in the school. Information on **master's programs** is available elsewhere in this chapter of the Graduate Bulletin.

Apply online today. (<https://www.vcu.edu/admissions/apply/graduate/>)

## Admission requirements

Degree:	Semester(s) of entry:	Deadline dates:	Test requirements:
M.S.	Fall (preferred)	Applications received by Jul 1 given priority consideration	TOEFL if international
	Summer	Applications received by Jan 1 given priority consideration	

## Special requirements

In addition to the general admission requirements of the VCU Graduate School (<https://bulletin.vcu.edu/graduate/study/admission-graduate-study/admission-requirements/>), successful applicants will typically have the following credentials:

1. Baccalaureate degree or its equivalent at the time of enrollment with a minimum overall GPA of 3.2
2. Test of English as a Foreign Language examination with a minimum score of 100 (IBT), 250 (CBT) or 600 (PBT), or 6.5 on the IELTS for foreign applicants who do not use English as their native language

Although there are no absolute course requirements for admission, fundamental knowledge of general and organic chemistry and biology are considered necessary to pursue advanced studies, and upper-level courses in molecular and cellular biology are desirable. Previous research experience or demonstration of a serious interest in a research-oriented career is also desirable. A personal statement describing the applicant's research experience and interests, as well as letters of reference from previous supervisors, are necessary and helpful in determining an applicant's suitability for this curriculum. Official transcripts of all graduate and undergraduate records must be mailed from the college or university registrar.

## Degree requirements

In addition to general VCU Graduate School graduation requirements (<https://bulletin.vcu.edu/academic-regs/grad/graduation-info/>), students must complete a minimum of 37 graduate credit hours. A minimum cumulative GPA of 3.0 must be maintained. Students must receive a minimum grade of B for all required courses.

Usually two years of study are necessary to complete the requirements.

## Course requirements

Course	Title	Hours
<b>Required core courses</b>		
ANAT 610	Systems Neuroscience	4
ANAT 690	Anatomy and Neurobiology Seminar <sup>1</sup>	4
BIOC 503	Biochemistry, Cell and Molecular Biology	5
IBMS 600	Laboratory Safety	1

NEUS 609	Cellular and Molecular Neuroscience	4
OVPR 601	Scientific Integrity	1
<b>Required additional courses</b>		
ADLT 670	Curriculum Design in Health Professions Education	3
ADLT 671	Theory and Practice of Adult Learning for Health Professions Educators	3
ADLT 672	Instructional Strategies for Teaching in Health Professions	3
ANAT 609	Human Gross Anatomy	3
ANAT 611	Histology	4
<b>Electives <sup>2</sup></b>		<b>2</b>
<b>Total Hours</b>		<b>37</b>

<sup>1</sup>Taken four times for four credits total.

<sup>2</sup>Electives taken with program approval.

**The minimum total of graduate credit hours required for this degree is 37.**

Students who complete the requirements for this degree will receive a Master of Science in Anatomy and Neurobiology.

## Typical plan of study

Many students often end up taking more than the minimum number of hours required for a degree program. The total number of hours may vary depending upon the program, nature of research being conducted by a study or in the enrollment or funding status of the student. Students should refer to their program websites and talk with their graduate program directors or advisers for information about typical plans of study and registration requirements.

### Contact

Raymond J. Colello, Ph.D.  
Associate professor and graduate program director  
rcolello@vcu.edu  
(804) 828-2262

### Additional contact

Sharon Toussaint  
Executive secretary  
stoussaint@vcu.edu  
(804) 828-9623

**Program website:** [anatomy.vcu.edu \(http://www.anatomy.vcu.edu/\)](http://www.anatomy.vcu.edu/)