

# ANATOMICAL SCIENCES AND NEUROBIOLOGY (MS)

## Master of Science in Anatomical Science and Neurobiology

Unit: School of Medicine (<http://louisville.edu/medicine/>) (GM)

Department: Anatomical Science and Neurobiology (<https://louisville.edu/medicine/departments/anatomy/>)

Program Webpage (<https://louisville.edu/medicine/departments/anatomy/graduateprograms/>)

Academic Plan Code(s): ASNBMS

## Program Information

The Department of Anatomical Sciences and Neurobiology (ASNB) Master of Science (MS) program is available to qualified individuals possessing a bachelor's degree from an accredited college or university. No specific undergraduate major is required, although some science background is required. Anatomical Sciences and Neurobiology has two program options available for students interested in earning the MS Degree:

The MS degree is offered to students interested in conducting original research and planning to continue their training and education in Anatomy and Neurobiology. This program option is available to all students accepted into the MS Program.

The MS degree program requires full-time study and it is expected that while participating in these programs, students will devote full-time effort toward completion of the degree requirements.

## Admission Requirements

All students wishing to apply must submit an application to the Graduate School, Graduate Admissions with the following required documents:

1. A formal application (<https://graduate.louisville.edu/admission/apply/>) submitted to the Graduate School.
2. Application fee.
3. A minimum of two letters of recommendation.
4. Official transcripts of all college work.
5. A brief statement of purpose describing your interests and career goals.
6. All international applicants whose native language is not English must submit Test of English as a Foreign Language (TOEFL/IELTS/Duolingo) scores. Students holding a bachelor's or advanced degree from an accredited institution in the United States are exempt from this requirement.

Optional document:

- Official scores on the Graduate record Examination (GRE) Test
- Official scores on the Medical College Admission Test (MCAT)

Review of applications begins in December and continues until all positions are filled. Admission into the program is competitive and applicants are encouraged to submit the applications early.

Program candidates are only admitted in the Fall semester. graduate program orientation begins August 1 (Although note that some Fall semester classes begin as early as mid-July).

## Program Requirements

### Coursework Requirements for the MS Degree

Students should familiarize themselves with the general requirements for the master's degree as stated in the current University of Louisville Graduate Catalog. Briefly, a minimum of 30 credit hours is required for the master's degree, of which 15 credit hours must be in courses of the major subject area, the program is typically completed within a two year period. The statute of limitation for obtaining a Master's degree is six years from admission to the program.

At least one-half of the credits counted toward the degree must be 600-level courses or above. This does not include nine (9) credit hours of research. The department has the following additional requirements:

Code	Title	Hours
<b>Coursework</b>		
Students will successfully complete at least two of the following courses within the department:		
ASNB 601	Gross Anatomy	6.5
ASNB 602	Fundamentals of Neuroscience	4
ASNB 605	Human Embryology	3
ASNB 617	Seminar on Developmental Neurobiology <sup>1</sup>	3
ASNB 614	Molecular Neuroscience <sup>1</sup>	4
ASNB 666	Synaptic Organization of the Central Nervous System <sup>1</sup>	3
ASNB 630	Origin of Mammalian Sensory Systems and Comparative Neurobiology	4
ASNB 671	General and Oral Histology	5
ASNB 606	Anatomy Seminar (taken each semester prior to candidacy)	1/semester
Electives (see notes below)		varies
<b>Minimum Total Credit Hours</b>		<b>30</b>

<sup>1</sup> Offered on a rotational basis

### Seminar

Anatomy Seminar (ASNB 606, one (1) credit hour) must be taken for credit each semester prior to candidacy.

### Electives

Additional courses (electives) within Anatomical Sciences and Neurobiology program or graduate level courses in other departments may be taken to achieve the minimum requirement of 30 credit hours. The student should consult with his/her advisor on the selection of the appropriate electives.

## Additional Information for the MS Degree

### Research Hours

Research credit hours may be taken as Laboratory Rotation (ASNB 618), which is graded on a pass/fail basis, prior to choosing a mentor. Once a mentor is chosen, research hours are taken as Original Investigation (ASNB 619), in which students earn a letter grade.

### Original Research

Students will conduct this required research under the direction of a member or joint/associate member of the departmental faculty (hereafter

known as the thesis advisor). Faculty reserve the right to decline accepting a student.

During the first year of enrollment, students are required to visit the laboratories of potential advisors to become acquainted with the faculty and the research opportunities available. Selection of an advisor and the initiation of a research project should be concluded prior to the end of the first year, at which time a written agreement, signed by both the student and thesis advisor, will be filed with the Graduate Program Director.

## Candidacy

After completion of all requirements (as outlined above), students enter Master's Candidacy and must register for and maintain candidacy (MAST 600) until the successful defense of his/her thesis. This registration must be maintained year round (Fall, Spring and Summer semesters) until the degree is awarded. Once a student registers for MAST 600, he/she may not register for additional courses.

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## Thesis

By its nature, original research does not always achieve results within a specific period of time. Therefore, no specific time can be given for the successful completion of this degree. However, most MS students complete their degree in two years and must complete the degree requirements for the degree within six years of their admission to the MS program. Note that students are advised to complete the majority of their course work in the first year so that adequate time is allotted in the second year to complete their research and thesis. Specifically, students will be required to engage full-time in research for the equivalent of two academic semesters and maintain steady and satisfactory progress. Faculty advisors submit Graduate Student Progress Reports biannually to the Anatomical Sciences and Neurobiology graduate Program Committee for review.

## Reading Committee

The composition requirements of, and specific deadlines related to, the Reading Committee appear in the Graduate Catalog. Briefly, the Reading Committee is composed of the student's advisor and two other faculty, one of which is from a different department. All three must be members of the graduate faculty. This committee should be established shortly after the student and her/his advisor agree on a specific research project. To avoid unnecessary delays the student should regularly consult with her/his thesis advisor and committee members concerning the direction and progress of the research project. Once in Master's candidacy, the student should meet with their committee at least once per semester.

## Thesis Defense

The MS candidate will focus exclusively on completing their research projects and writing a thesis describing the results of their experiments. It is expected that the thesis should contain data sufficient for approximately one publishable manuscript. Upon completion of the thesis, the student will distribute a copy to each committee member. The committee will have two weeks to read the thesis and give approval to schedule a defense date or recommend changes that must be completed prior to scheduling a defense date. Once the thesis is approved by the committee, the student will schedule a thesis defense. The Graduate School requires that an announcement of the defense be posted at least two weeks prior to the scheduled date. The defense will consist of an oral presentation (approximately 30 minutes in length) of the research completed during the student's graduate training. Non-committee members in the audience will then ask questions. The general audience

will then be dismissed and the student will defend his/her thesis before the committee. Completion of the MS degree will be determined by majority vote of the committee.