Biology - Graduate Programs

PROGRAM OBJECTIVE

The Master of Science (M.S.) in Biology is designed to prepare students to pursue careers in research, science education, industry, and government. Courses are taught by award-winning, nationally recognized research and teaching faculty and cover a range of essential topics in contemporary biology. The UTA Biology Department offers two distinct Master of Science in Biology programs: the Master of Science with Thesis option (MST), and the fully online Master of Science without a thesis, or “non-thesis,” option (MSNT).

The Doctor of Philosophy (Ph.D.) in Quantitative Biology is designed to train students to apply sophisticated quantitative techniques to solving basic and applied problems in biology. Students in this program will attain substantially greater quantitative skills than in traditional doctoral programs in the biological sciences, providing them with a competitive advantage in business, industry, government, and academia.

MASTER OF SCIENCE NON-THESIS OPTION (MSNT)

The Master of Science in Biology Non-Thesis option is **100% online and asynchronous**. The non-thesis option is intended to meet the needs of students looking to advance in their careers in private and government sectors, biology teachers wishing to expand their knowledge or be qualified to teach dual credit, or those seeking additional preparation for professional or health science programs. The requirements include a capstone course (BIOL 5392) and 27 additional hours of 5000 level Biology courses*. Students have the flexibility to choose from a range of courses that align with their career and educational goals.

COURSES

Required		
BIOL 5392	MASTER'S NON-THESIS CAPSTONE	3
Select 9 from the following		27
BIOL 5303	MICROBIOMES: HEALTH AND THE ENVIRONMENT	
BIOL 5304	VIROLOGY	
BIOL 5307	NEUROBIOLOGY	
BIOL 5309	IMMUNOLOGY	
BIOL 5321	ADVANCED PROBLEM SOLVING IN BIOLOGY	
BIOL 5335	ESSENTIALS OF GENOMICS	
BIOL 5340	BIOINFORMATICS	
BIOL 5341	HISTOLOGY	
BIOL 5349	COOPERATIVE PROGRAM IN BIOLOGY	
BIOL 5353	FUNDAMENTAL MEDICAL MYCOLOGY	
BIOL 5354	LIMNOLOGY	
BIOL 5355	TOXICOLOGY	
BIOL 5359	MEDICAL MOLECULAR BIOLOGY	
BIOL 5366	ADVANCED ORGANISMAL PHYSIOLOGY	
Total Required Hours		30

MASTER OF SCIENCE THESIS OPTION (MST)

The Master of Science in Biology Thesis option is a campus-based Master’s program intended to prepare students for careers in research, government agency, and industry. MST students obtain skills such as data collection and analysis, evaluation of primary literature, and contemporary laboratory techniques. MST students conduct research leading to a thesis in one of the five concentrations: Cell Biology, Genetics and Genomics, Ecology and Evolution, Bioinformatics, or Microbiology. All MST students complete a master’s thesis and 30 credit-hours of 5000 level Biology courses*, including the required courses listed below.

Required		
BIOL 5314	BIOMETRY	3
BIOL 5340	BIOINFORMATICS	3
BIOL 5698	THESIS	6
Select 1 from the following		3
BIOL 5370	THESIS RESEARCH IN CELL BIOLOGY	
BIOL 5371	THESIS RESEARCH IN ECOLOGY AND EVOLUTION	
BIOL 5372	THESIS RESEARCH IN BIOINFORMATICS	

BIOL 5373	THESIS RESEARCH IN MICROBIOLOGY	
BIOL 5374	THESIS RESEARCH IN GENETICS AND GENOMICS	
Select 5 from the following		
BIOL 5303	MICROBIOMES: HEALTH AND THE ENVIRONMENT	
BIOL 5304	VIROLOGY	
BIOL 5307	NEUROBIOLOGY	
BIOL 5309	IMMUNOLOGY	
BIOL 5311	EVOLUTION	
BIOL 5317	BACTERIAL PATHOGENESIS	
BIOL 5319	HUMAN GENETICS	
BIOL 5321	ADVANCED PROBLEM SOLVING IN BIOLOGY	
BIOL 5335	ESSENTIALS OF GENOMICS	
BIOL 5336	MOLECULAR EVOLUTION	
BIOL 5342	DEVELOPMENTAL BIOLOGY IN HEALTH AND DISEASE	
BIOL 5353	FUNDAMENTAL MEDICAL MYCOLOGY	
BIOL 5354	LIMNOLOGY	
BIOL 5355	TOXICOLOGY	
BIOL 5359	MEDICAL MOLECULAR BIOLOGY	
BIOL 5366	ADVANCED ORGANISMAL PHYSIOLOGY	
Total Required Hours		30

*Subject to written approval by the Graduate Advisor and within the limitations stated in the General Graduate School Regulations, a MS student may take up to nine hours of coursework from courses listed under Biology at the 3000 or 4000 levels. Coursework may be taken in other areas to support the student's program subject to graduate advisor approval.

Wondering why you should choose UTA Biology for your Master's degree? Or which degree option would be best for you? See the Department of Biology (https://www.uta.edu/academics/schools-colleges/science/departments/biology/graduate-programs/masters-program/) website and the FAQ for answers to these and other common questions about the UTA Biology Master of Science programs.

ADMISSION REQUIREMENTS

The following are minimal requirements for entrance into the Master of Science Non-Thesis and Master of Science Thesis programs.

a. A bachelor's degree in biology or a bachelor's degree in a related discipline with at least 12 hours of advanced level coursework (junior or senior level courses) in biology.
b. A minimum undergraduate GPA of 3.0 on a 4.0 scale, as calculated by the Graduate School. Applicants' GPA in the Sciences will also be considered.
c. International students whose home country's native language is not English must provide a score on the Test of Spoken English (TSE) of at least 45, a minimum score of 23 on the Speaking portion of the TOEFL iBT exam, or a minimum score of 7 on the Speaking portion of the IELTS exam. See the following website for complete details: https://www.uta.edu/admissions/apply/international-graduate
d. OPTIONAL: GRE. Students may submit GRE scores, although they are not a requirement for admission.

HOW TO APPLY

First, read the general instructions for applying to the graduate program and download the checklists available on the Office of Admissions webpage: https://www.uta.edu/admissions/apply/graduate (https://www.uta.edu/admissions/apply/graduate/)

The list below contains additional information required by the Biology Department.

Department of Biology Required Materials

For the MSNT and MST programs you will need to submit the application and your official transcripts through the UTA Office of Admissions. https://www.uta.edu/admissions/apply/graduate (https://www.uta.edu/admissions/apply/graduate/).

There are no additional materials required to apply to either program.

Questions can be addressed to askbiology@uta.edu.

DOCTOR OF PHILOSOPHY IN QUANTITATIVE BIOLOGY

Students interested in pursuing the Ph.D. in Quantitative Biology in the Biology Department may apply for the B.S. - Ph.D. Track or the Ph.D. program directly, depending on their background.

B.S. to Ph.D.

This track is for students who possess a bachelor's degree in biology, or a bachelor's degree in some other discipline with at least 12 hours of advanced level coursework (junior or senior level courses) in biology. This is the Ph.D. track designed for students with a B.S and without master's degree, which tends to be the majority of applicants.

Ph.D.

This track is for students who have a master's degree in biology, or at least 30 hours of graduate level coursework in biology. A minimum undergraduate GPA of 3.0 (4.0 scale), as calculated by the Graduate School, is expected. An applicant's GPA in science courses will be taken into consideration. If an applicant has a master's degree, the GPA from their master's degree will also be considered. For applicants with up to 30 hours of graduate coursework but no master's degree, the GPA from those hours will be also be taken into consideration.

ADMISSION

Decisions are based on consideration of all the information listed below and are not based on any single criterion alone.

a. A Bachelor's degree in Biology or a Bachelor's degree in some other discipline with at least 12 hours of advanced level coursework (junior or senior level courses) in Biology.
b. A minimum undergraduate GPA of 3.0 on a 4.0 scale, as calculated by the Graduate School. Applicants overall GPA in the Sciences and within Biology are also considered.
c. Favorable letters of recommendation from at least three individuals able to assess the applicant's potential for success in graduate school.
d. Letter of Intent (see below)
e. Department Questionnaire (see below)
f. International students whose home country's native language is not English must provide a score on the Test of Spoken English (TSE) of at least 45, a minimum score of 23 on the Speaking portion of the TOEFL iBT exam or a minimum score of 7 on the Speaking portion of the IELTS exam.

Denial of Admission

A candidate may be denied admission if they have less than satisfactory performance on a majority of the admission criteria listed above.

Fellowships and Scholarships

Award of scholarships or fellowships will be based on consideration of the same criteria utilized in admission decisions. To be eligible, candidates must be new students coming to UT Arlington in the Fall semester, must have a GPA of 3.0 in their last 60 undergraduate credit hours plus any graduate credit hours as calculated by the Graduate School, and must be enrolled in a minimum of 6 hours of coursework in both long semesters to retain their fellowships.

DEGREE REQUIREMENTS

The degree of Doctor of Philosophy in Quantitative Biology requires distinguished attainment both in scholarship and in research. In addition to meeting the minimum requirements of a planned course of study, the ultimate basis for conferring the degree must be the demonstrated ability to do independent and creative work and the exhibition of a profound grasp of the subject matter within the field.

General Course Requirements: All students are required to complete 15 hours of coursework, 2 hours of seminar, and additional hours of research.

Other requirements: Each student will make three research presentations that are open to the entire department. These may include the proposal defense, a research progress report, and the dissertation defense.

COURSES

Required		
BIOL 5340	BIOINFORMATICS	3
BIOL 5314	BIOMETRY	3
Required to take twice		2
BIOL 5101	SPECIAL TOPICS IN BIOLOGY	
Choose 2 from the following		6
BIOL 6301	ESSENTIAL TOPICS IN GENOMICS	
BIOL 6302	MICROBIOLOGY, MOLECULAR AND CELLULAR BIOLOGY	
BIOL 6303	ADVANCED EVOLUTION AND ECOLOGY	

Choose 1 from the following		3
BIOL 5304	VIROLOGY	
BIOL 5342	DEVELOPMENTAL BIOLOGY IN HEALTH AND DISEASE	
BIOL 5336	MOLECULAR EVOLUTION	
BIOL 5309	IMMUNOLOGY	
BIOL 5311	EVOLUTION	
BIOL 5317	BACTERIAL PATHOGENESIS	
BIOL 5319	HUMAN GENETICS	
BIOL 5354	LIMNOLOGY	

Research Courses	
BIOL 5301	LABORATORY ROTATION
BIOL 6391	ADVANCED RESEARCH
BIOL 6691	ADVANCED RESEARCH
BIOL 6999	DISSERTATION
BIOL 7399	DOCTORAL DEGREE COMPLETION

HOW TO APPLY

First, read the general instructions for applying to the graduate program and download the checklists available on the Office of Admissions webpage: www.uta.edu/admissions/graduate/apply (https://www.uta.edu/admissions/graduate/apply/)

International applicants have specific requirements, and a separate admissions checklist, available here: https://www.uta.edu/admissions/apply/international-graduate (https://www.uta.edu/admissions/apply/international-graduate/)

Additionally, the Department requests that applicants fill out the following questionnaire as part of the application package: https://common.forms.uta.edu/view.php?id=2034157
Students are accepted into our Ph.D. program as either **direct admit** or **rotation** students.

Direct admit

To qualify as a direct admit, an applicant must secure the support of a faculty member before applying, mention their faculty support in their letter of intent, and ask that their faculty member reach out to the chair of the admissions committee (see the Department of Biology (https://www.uta.edu/academics/schools-colleges/science/departments/biology/graduate-programs/phd-program/) website for details and contact information).

To secure the support of a faculty member before applying, begin by visiting our Biology faculty page: https://www.uta.edu/academics/schools-colleges/science/departments/biology/faculty (https://www.uta.edu/academics/schools-colleges/science/departments/biology/faculty-research/faculty/)- research/faculty (https://www.uta.edu/academics/schools-colleges/science/departments/biology/faculty-research/faculty/), review the research focuses of the labs, and contact individual faculty members to discuss your research interests. Explain how your interests align with their lab and inquire if they would consider having you join their lab as a new Ph.D. student.

Rotation Program

Applicants would choose this option if they are unsure which area of research interests them. Please indicate your interest in the rotation program in your letter of intent. Applicants admitted into the program will perform three rotations in three separate labs. At the end of the rotation period, applicants are placed in a home lab under the guidance of a Rotation Program Committee. Applicants will select their rotation labs only after being admitted into the Ph.D. program. Please note that applications to the rotation program are only considered for the Fall semester. For more information about the rotation program, please contact the chair of the Rotation Program Committee (see the Department of Biology (https://www.uta.edu/academics/schools-colleges/science/departments/biology/graduate-programs/phd-program/) website for details and contact information).

APPLICATIONS REVIEW SCHEDULE

For fall admission, applications must be submitted no later than December 1.

For spring admission, applications must be submitted no later than September 1.

Rotation students are only admitted for fall entry.