

# MOLECULAR, CELLULAR, BIOMEDICAL SCIENCES (MCBS)

## Degree Offered: Ph.D., M.S.

*Programs are offered in Durham.*

The Department of Molecular, Cellular, and Biomedical Sciences offers a Doctor of Philosophy (Ph.D.) degree in Molecular and Evolutionary Systems Biology (MESB); a Master of Science (M.S.) degree in Bioinformatics; a Master of Science (M.S.) degree in Molecular and Cellular Biotechnology (MCBT); and accelerated master's programs (B.S./M.S.) in Bioinformatics and MCBT. Graduate students in Molecular and Evolutionary Systems Biology are typically supported by teaching or research assistantships, as well as by competitive internal and external fellowship programs. For more information about the program, including admission and degree requirements, please contact the Department of Molecular, Cellular, and Biomedical Sciences at [mcbs.dept@unh.edu](mailto:mcbs.dept@unh.edu).

### Distinctive Features of the Programs

The overarching goal of the **Ph.D. in Molecular and Evolutionary Systems Biology (MESB)** program is to train a new generation of interdisciplinary researchers with expertise that spans molecular to evolutionary biology.

The Graduate Program in Molecular and Evolutionary Systems Biology offers:

- Outstanding research training in many cutting-edge research areas in molecular and cellular biology, bioinformatics, genetics and genomics, molecular evolution and ecology, neurobiology, and more.
- Weekly seminar series that includes both distinguished invited speakers and graduate student research presentations.
- Opportunities to gain experience teaching and mentoring undergraduate students in the biological sciences.
- A strong track record for graduates attaining successful careers in academia, biomedical research institutes, biotechnology and pharmaceutical companies, and state and federal governmental agencies.

Our professional **M.S. in Bioinformatics** and **M.S. in Molecular and Cellular Biotechnology (MCBT)** programs equip you with the knowledge, skills, abilities, and industry contacts required to take your chosen career in data-rich fields including agriculture and the environment, biotechnology, pharmaceutical, or biomanufacturing industries to the next level.

- Core and elective courses in genetics, biochemistry, molecular and cellular biology of immediate relevance to working professionals.
- Provide students with the specialized knowledge and skills needed to successfully enter or advance their careers in a range of bioscience industries.
- Founded on the existing academic rigor of the thesis-based graduate programs offered in the department.
- Offer experiential learning opportunities in several bioinformatics- and biotechnology-relevant Centers: the Hubbard Center for Genome Studies (HCGS), the University Instrumentation Center (UIC), the Center of Integrated Biomedical and Bioengineering Research (CIBBR), the NH Center for Multiscale Modeling and Manufacturing

of Biomaterials (NH BioMade), and the Biomanufacturing Innovation Center (BIC).

### Admission Requirements

**MESB Ph.D.** program applicants should possess a background in basic sciences appropriate for advanced study in the proposed area of specialization (for example, courses in biology, chemistry, organic chemistry, biochemistry, genetics, microbiology and/or physics). The student's committee may require certain undergraduate courses as part of the graduate program if additional competencies would be beneficial to the student. Applicants must submit a personal statement and three letters of recommendation. The personal statement should specify the applicant's research interests and 2-3 potential faculty mentors by name. International applicants must submit current TOEFL scores in addition to the items listed above.

**Bioinformatics M.S.** program applicants will be expected to meet the following prerequisites:

- GPA > 3.0 in prior academic programs, and/or strong relevant work experience.
- Required prerequisite courses: introductory biology (two semesters), genetics, organic chemistry.
- Strongly recommended prerequisite courses: genetics, cell biology, math/statistics.
- Demonstration of English proficiency for non-native, English-speaking applicants (i.e., TOEFL score).

Applicants must submit three letters of recommendation, and a personal statement specifying the applicant's professional development and career plan.

Please note that no departmental financial aid (i.e., teaching assistantships or research assistantships) is available to students admitted into this program. Information regarding tuition and fees is located [here](#). Information about other types of financial aid is located [here](#).

**MCBT M.S.** program applicants will be expected to meet the following prerequisites:

- GPA > 3.0 in prior academic programs, and/or strong relevant work experience.
- Required prerequisite courses: introductory biology (two semesters), genetics, organic chemistry.
- Strongly recommended prerequisite courses: microbiology, cell biology, math/statistics, biochemistry.
- Demonstration of English proficiency for non-native, English-speaking applicants (i.e., TOEFL score).

Applicants must submit three letters of recommendation, and a personal statement specifying the applicant's professional development and career plan.

Please note that no departmental financial aid (i.e., teaching assistantships or research assistantships) is available to students admitted into this program. Information regarding tuition and fees is located [here](#). Information about other types of financial aid is located [here](#).

### Accelerated Master's Admission Requirements for UNH Seniors

Accelerated master's admission is designed for highly motivated and qualified UNH students seeking additional training to further their career goals as a researcher in the life sciences. This program is an optimal way for qualified undergraduate students to begin earning graduate credits during their senior year. Students in most programs are able to take up to 12 credits that will count for both undergraduate and graduate credit, allowing them to maximize their time on campus and the return on their educational investment as they seek to increase their marketability after graduation.

Admission to the accelerated master's is highly competitive. Students wishing to pursue this option must have a grade point average greater than 3.2 at the time of application. A faculty advisor must be identified during the junior year and the approval of the advisor must be obtained. Prior to the first semester of the senior year, the student must formally apply to the Graduate School and receive admission to the Accelerated Master's Bioinformatics Graduate Program or the Accelerated Master's MCBT Graduate Program.

<https://colsa.unh.edu/molecular-cellular-biomedical-sciences>

## Programs

- [Bioinformatics \(M.S.\)](#)
- [Molecular and Cellular Biotechnology \(M.S.\)](#)
- [Molecular and Evolutionary Systems Biology \(Ph.D.\)](#)

## Faculty

[Molecular, Cellular, Biomedical Sciences Department Faculty](#)