Molecular and Cellular Pharmacology MS Degree in Biomedical Science

Program Director
Robert Watson, PhD
Assistant Professor
Department of Pharmacological Sciences

Introduction

The Molecular and Cellular Pharmacology MS track provides a sound scientific foundation for students pursuing careers in the academic, pharmaceutical, and government sectors. In addition, the MS degree provides an opportunity for students to complement and enhance their academic backgrounds in preparation for advanced training in PhD programs and a variety of health-related schools (medical, dental, and veterinary, among others).

With a strong research component, a major goal of the MS program is to develop advanced technical and problem-solving skills through direct engagement in the process of scientific discovery. Research opportunities include the therapeutics of cancer and infectious diseases, cardiovascular and endocrine pharmacology, neuropharmacology, and drug design. Coursework in the program complements the research component and aims to provide depth and breadth of knowledge in pharmacology, biochemistry, molecular genetics, cell biology, immunology, computational biology, and neuropharmacology.

Successful Completion of the MS Degree Will:

- Help prepare students for careers in the academic, pharmaceutical, and government sectors.
- Provide students with a solid scientific foundation for advanced studies leading to the PhD, MD, and other professional degrees.

Degree Requirements

The Molecular and Cellular Pharmacology MS track requires a total of 42 credits and is completed in two years. Students must achieve a 3.0 overall grade point average and complete a thesis to receive the MS degree.

To meet the needs and goals of a diverse student population, the program is divided into research-based and literature-based paths.

- The research-based path requires a minimum of 24 approved course credits, 18 research credits, and a thesis. Entry into the research path requires permission from a faculty sponsor and completion of an independent research project in the sponsor's laboratory. This path is intended for students who plan to enter careers in the academic, pharmaceutical, or government sectors, or who plan to pursue advanced degrees such as the PhD.
- The literature-based path requires a minimum of 30 approved course credits, 12 research credits, and a thesis. At least 8 credits of research must be performed in a laboratory. The thesis is based on the critical evaluation of current scientific literature. This path is intended for students who plan to pursue advanced professional degrees (MD, DVM, DDS, etc).

The Program Director will serve as your advisor and will meet with you prior to registration to discuss course requirements and to provide guidance in identifying a lab for your research activities.

Admission

Students accepted into the MS program will have strong scientific backgrounds with an average of B or better in their undergraduate coursework. Research experience is a strong positive factor but is not a requirement for admission. Graduate Record Exam (GRE) scores are also not required, but a strong performance on the GRE will reflect positively. Admission to the program is competitive and based on available space within the department.

Application Requirements:

- Online application and personal statement
- Official academic transcripts
- Three letters of recommendation

- Graduate Record Exam (GRE) scores (optional)
- TOEFL scores (foreign applicants only)

How to Apply

All candidates for admission to the Molecular and Cellular Pharmacology MS Degree in Biomedical Science should apply online through the Graduate School's website (https://www.grad.stonybrook.edu/ProspectiveStudents/app_info.shtml).

When to Apply

Applications should be submitted between September 1st and January 15th. Applications can be submitted after January 15th with permission from the Department, but no later than April 15th to be considered for fall semester admission.

Sample Course of Study for the Molecular and Cellular Pharmacology MS Degree in Biomedical Science

Year 1 Fall	Credits	Year 1 Spring	Credits
HBH 501 Principles of Pharmacology	4	HBH 502 Advanced Pharmacology	4
HBH 590 Seminar	1	MCB 656 Cell Biology	4
MCB 520 Graduate Biochemistry	3	HBH 599 Research Rotation	4
HBH 599 Research Rotation	4		
Total	**12**	**Total**	**12**

Year 2 Fall	Credits	Year 2 Spring	Credits
MCB 503 Molecular genetics	3	GRD 500 Integrity in Science	1
HBH 590 Seminar	1	HBH 590 Seminar	1
*Elective	0-3	HBH 506 Pharmacology Colloquium	2
*HBH599 Thesis Research	2-5	*Elective	0-3
		*HBH 599 Thesis Research	2-5
Total	**9**	**Total**	**9**

Total Course Credits	**24-30**
Total Credits	**42**

Electives

MCB 657 Principles of Development (Fall, 3 credits)
HBH 553 Signal Transduction (Spring, odd years, 3 credits)
HBH 655 Neuropharmacology (Spring, even years, 3 credits)
CHE 541 Biomolecular Structure and Analysis (Fall, 3 credits)

*Students who are pursuing the research-based path and who have a faculty sponsor at the beginning of year 2 will enroll in 5 research credits; students who are pursuing the literature-based path will enroll in one elective course plus 2 research credits.