INTEGRATED BIOMEDICAL SCIENCES, MS

OVERVIEW

The Master of Science in Integrated Biomedical Sciences (MIBS) program combines technical and pre-professional coursework and research training with a health science focus. By integrating across these areas, the program provides opportunities for sponsored research in preparation for doctoral study and advanced positions in the fields of clinical and academic research.

Students in the program receive:

- Relevant coursework in a rigorous, yet flexible and broad-based curriculum.
- Career development and preparation for doctoral programs, healthcare professions, and the scientific workforce.
- An academic environment that fosters collaboration among students.
- Personalized advising and mentoring from experienced faculty.

The program is thesis-based and all students will complete a minimum 9 hours of research training. Students will match with faculty sponsors following preliminary experiences in BIOL 468 Research Methods and/or research rotations in the first year.

ADMISSION

Applicants should consult the#graduate admission resources#on the Roosevelt University website for information on the application process. The graduate program director and program faculty will evaluate each applicant's individual record of academic achievement, professional experience, and self-assessment. Weakness in one or more areas of preparation will not preclude a positive admission decision.#Admissions decisions are at the discretion of the graduate program director and department chair.

APPLICATION MATERIALS

REQUIRED DOCUMENTS

- Graduate application:#Application#to the College of Science, Health and Pharmacy at Roosevelt University.
- Transcript(s):#Unofficial transcripts from all undergraduate and graduate institutions attended. International applicants must submit official transcripts, and all applicants must have official transcripts on file before starting graduate studies.
- Proof of English language proficiency#(for international students):#See the University#English Language Proficiency requirement#for details. Applicants can receive an admissions decision if this requirement is not met.
- Resume/Curriculum vita:#A detailed account of academic and extracurricular experiences. Include employment, teaching, leadership, and research experiences.
- Evidence of prior preparation: Documentation of relevant scholarly and creative work, such as academic research (theoretical or practical), term papers, undergraduate or graduate theses, educational materials, conference presentations, or other work products.

OPTIONAL DOCUMENTS

- Letter of intent:#A brief (one-page) personal statement which outlines personal and professional goals.
- Letter of recommendation:#Referees may include professors, academic advisors, employment supervisors, or others familiar with the applicant's preparation for graduate study.
- Official test score:#Official scores in one of the graduate admissions tests (such as GRE, MCAT, DAT) that are no more than three years old.

PREREQUISITES

Applicants to the MS Integrated Biomedical Sciences program must hold a bachelor's degree with a minimum cumulative GPA of 2.8 (4.0 scale) and should have completed the minimum academic requirements described below for college credit.

- Mathematics - two courses, including at least one semester of calculus or statistics
- Chemistry - three courses, including two courses in general (inorganic) chemistry and one course in organic chemistry
- Physics - two courses, including coverage of classical mechanics, oscillations & waves, thermodynamics, electricity and magnetism
- Biology - three courses, including coverage of evolutionary biology & genetics, ecology, cellular & molecular biology, physiology and biochemistry

Students lacking prerequisite coursework may be admitted provisionally until outstanding courses have been completed satisfactorily (grade of B- or better). None of the prerequisite courses may be used toward fulfillment of the requirements for the master's degree.

CREDIT POLICIES

Graduate transfer credit (up to 9 credit hours) may be applied to the MS Integrated Biomedical Sciences degree within one semester of admission.#Credits from a previously earned degree are not transferable.#Exceptions to specific course requirements may be granted to students who have previously completed graduate coursework in a related area and who maintain good academic standing after one semester of study at Roosevelt. All transfer credits and exceptions must be approved by the graduate program director or department chair.

ADVISING

New students must consult with a graduate student advisor upon admission to the program. Each graduate student is required to meet with an advisor at least once each semester to select appropriate courses for the following semester.

REQUIREMENTS

The Master of Science degree in Integrated Biomedical Sciences requires a minimum of 36 credit hours, at least 27 of which must be completed at Roosevelt University. The degree includes a minimum of 9 credit hours in research training, scaffolded over at least three semesters. A master's thesis is integral to the curriculum but may be substituted with research and independent study credits with approval of the program director.

Each student will develop an academic plan in consultation with an advisor and select a degree elective pathway. These serve as serve as collections of elective courses in Biology, Biochemistry and Pharmacy, research themes and areas of complementarity with other graduate programs. Students will match with faculty sponsors following preliminary experiences in BIOL 468 Research Methods and/or research rotations in the first year.

Students retain the same course requirements as when they first enroll, as long as they are continuously enrolled in the program.#No more than two grades of C (not C-) may be applied toward the 36 hours used for the degree. A graduate course can only be repeated once; no more than two courses can be repeated.

INTERDISCIPLINARY AND REQUIRED COURSEWORK

BIOL 4XX Foundations of Biomedical Sciences, BIOL 468 RESEARCH METHODS, BIOL 443 CLINICAL BIOETHICS AND MEDICAL LITERATURE, BIOL 418 BIOSTATISTICS or BIOL 4XX One Health, BCHM 493 BIOCHEMISTRY SEMINAR and BIOL 4XX Journal Club are required courses to be taken in the first or second years. Elective courses totaling up to 14 credit hours in BIOL, BCHM and/or CHEM may be chosen to meet full-time study requirements and to proceed along designated degree tracks. The remaining credit hours will be devoted to research and individualized study as described below.

RESEARCH AND THESIS OPPORTUNITIES

As a program aimed to prepare students for careers in research or PhD programs, all students in MS Integrated Biomedical Science must complete a minimum of 9 credit hours of research training by enrolling in 3 credits of research rotations (BIOL#492#RESEARCH IN BIOLOGY), the regularly scheduled 3 credit Research Methods course (BIOL#468 RESEARCH METHODS), and at least 3 credits of BIOL 485 THESIS. It is recommended that#BIOL#492#RESEARCH IN BIOLOGY#be taken for 3 credit hours in a single semester, but it may be taken in increments to total 3 credit hours.

Following the initial research experiences, qualified students will continue toward a master's thesis by enrolling in 3 - 6 additional credit hours of BIOL#485#THESIS. Students opting out of a thesis must obtain program director approval. Research that was performed in BIOL 492 RESEARCH IN BIOLOGY may be eligible to contribute towards the thesis, subject to thesis committee approval. Thesis proposal and public defense are required for successful completion of thesis credits.

REQUIRED AND RECOMMENDED COURSES

The coursework for the degree in Integrated Biomedical Science will be chosen from the lists below, from other scheduled courses in BIOL, CHEM, BCHM or PHAR, or through individualized registration as described above.

Code	Title	Credit Hours
BIOMEDICAL SCIENCES CORE		
BIOL 4XX	(Foundations Biomed Sci)	3
BIOL 468	RESEARCH METHODS	3
BIOL 443	CLINICAL BIOETHICS AND MEDICAL LITERATURE	3
BIOL 4XX or BIOL 418	(One Health) BIOSTATISTICS	3
BCHM 493	BIOCHEMISTRY SEMINAR	1
BIOL 4XX	(Journal Club)	2
Research		
BIOL 492	RESEARCH IN BIOLOGY	3
BIOL 485	THESIS	9
Elective		**9**
Total Credit Hours		**36**

Code	Title	Credit Hours
MIBS ELECTIVE PATHWAY		
Cancer Biology		
BIOL 450	CANCER BIOLOGY	3
BIOL 404	HISTOLOGY & ULTRASTRUCTURE	3
BIOL 463	INTRODUCTION TO GENOME ANALYSIS	3
BIOL 467	IMMUNOLOGY	5
PHAR 5XX	(CANCER METABOLISM)	3
Immunology & Infection		
BIOL 425	VIROLOGY	3
BIOL 460	MICROBIOLOGY	2,3
BIOL 467	IMMUNOLOGY	5
PHAR 512	CLINICAL MICROBIOLOGY & IMMUNOLOGY	4
Cellular & Molecular Biology		
BIOL 458	CELL BIOLOGY	3
BIOL 453	MOLECULAR BIOLOGY	3
BIOL 456	DEVELOPMENTAL BIOLOGY	3
BIOL 451	GENERAL GENETICS	5
BCHM 430 or PHAR 530	PRINCIPLES OF DRUG ACTION Foundational Science III	3
Physiology		
BIOL 401	HUMAN CADAVER ANATOMY	4
BIOL 430	PHYSIOLOGY: MECHANISMS AND DISORDERS	3
BIOL 431	ADVANCED PHYSIOLOGY LAB	3
BIOL 456	DEVELOPMENTAL BIOLOGY	3
PHAR 514	FOUNDATIONAL SCIENCE II	3
Biochemistry		
BCHM 410 or PHAR 510	PHARMACEUTICAL BIOCHEMISTRY I BIOCHEMISTRY I	4
BCHM 420	PHYSICAL CHEMISTRY FOR BIOSCIENCE	3
BCHM 444	BIOINORGANIC CHEMISTRY	3
BCHM 456	EXP. MTHDS BIOCHEM & BIOTECH	3
Drug Development		
BCHM 430 or PHARM 530 OR CHEM 452	PRINCIPLES OF DRUG ACTION	3
PHAR 520	PHARMACEUTICS I: DRUG DELIVERY	4
PHAR 554	DRUG LITERATURE EVALUATION	5
PHAR 557	DRUG DEVELOPMENT PROCESS	3

The degree map is a#general#guide to each term on the academic pathway to the MS Integrated Biomedical Science degree. It is based on the most current scheduling information and assumes full-time study (although part-time study is allowed in this program). This degree map is reviewed annually and updated as schedules change.

Please note: always work closely with your academic advisor and MS thesis advisor to understand curriculum requirements and scheduling, as each student's academic plan will look different.

Year 1

Fall	Credit Hours	Spring	Credit Hours
BIOL 4XX (Foundations Biomed Sci)	3	BIOL 443	3
BIOL 418 or BIOL 4XX (ONE HE	3	BIOL 492	3
BIOL 468	3	BIOL 4XX (Elective)	3
	9		**9**

Year 2

Fall	Credit Hours	Spring	Credit Hours
BIOL 485	4	BIOL 485	5
BCHM 493	1	BIOL 4XX (Journal Club)	1
BIOL 4XX (Journal Club)	1	BIOL 4XX (Elective)	3
BIOL 4XX (Elective)	3		
	9		**9**

Total Credit Hours 36