BIOLOGY - MEDICAL IMAGING SCIENCE SPECIALIZATION, B.S.

The Bachelor of Science joint-degree program in Medical Imaging Science with Rutgers University School of Health Professions qualifies students for certification examinations leading to professional licensure. Degree options exist for Cardiac Sonography, Diagnostic Medial Sonography, and Vascular Sonography. Sonographers provide vital data to physicians and other practitioners to assist in the diagnosis, monitoring, and treatment of disease and maintenance of health. Medical Laboratory Scientists employ complex instrumentation and procedures to perform their duties. Students interested in this field should have a strong interest in science, have the capacity to learn technical skills, work accurately and reliably when under pressure, and effectively communicate with others. Students must apply for acceptance to Rutgers University School of Health Professions by January 15 of the same year prior to their beginning a clinical program in the following autumn. Acceptance to the joint-degree program in Medical Imaging Science requires a minimum CGPA of 2.85.

Course List

CODE	TITLE	CREDITS
Required Biology Courses:		24
BIOL 130	Principles Biology I	4
BIOL 131	Principles Biology II	4
BIOL 230	Cell Biology	4
BIOL 236	Principles of Anatomy & Physiology I	4
BIOL 237	Principles of Anatomy & Physiology II	4
BIOL 303	Microbiology	4
Elective Biology Courses: [1]		8
Select Biology courses numbered higher than BIOL 230.		
Required Chemistry Courses: [2]		14
CHEM 105	General Chemistry I Lecture	3
CHEM 1105	General Chemistry Recitation/Laboratory	2
CHEM 106	General Chemistry II Lecture	3
CHEM 1106	General Chemistry II Recitation/Laboratory	2
CHEM 207	Organic Chemistry I	3
CHEM 2207	Organic Chemistry I Laboratory	1
CHEM 307	Biochemistry I	4
Required Physics Course:		3
PHYS 101	Basic Concepts of Physics	3
Required Math and Computer Science Courses: [3,4]		10
MATH 175	Enhanced Precalculus	4
INTD 180	Computer Tools For Science & Mathematic Majors	3
MATH 140 or PSYC 230	Statistics I Statistics for Social Sciences	3
Total Credits of 120 Minimum:		59

1. Elective courses are selected from Biology courses numbered higher than BIOL 230. At least 4 credits must be selected from BIOL courses numbered higher than 300 and at least 3 credits must be selected from BIOL courses numbered higher than 300. A minimum cumulative grade point average (CGPA) of 2.0 in BIOL 130 and BIOL 131 must be attained in order to enroll in advanced courses. Both BIOL 204 and BIOL 237 must be successfully completed in order to earn credit toward Biology Department requirements.
2. CHEM 105/CHEM 1105 and CHEM 106/CHEM 1106 are prerequisites for all 300- and 400-level Biology courses. CHEM 207 and CHEM 208 are recommended prerequisites for many 300- and 400-level Biology courses. Students are advised to complete at least CHEM 105/CHEM 1105 and CHEM 106/CHEM 1106 prior to beginning the junior year.
3. Some courses are part of the General Education program and may be used to simultaneously satisfy a General Education Mode of Inquiry requirement.
4. A minimum grade of "C" must be earned in each Chemistry, Physics and Mathematics course to satisfy Biology degree requirements.

CODE	TITLE	CREDITS
Course	**Title**	**Credits**
Freshman		
Semester 1		
ENGL 101 or ESL 101	English Composition I or English Composition I for English as a Second Language Students	4-6
BIOL 130	Principles Biology I	4
MATH 175	Enhanced Precalculus [1]	4
General Education Tier I Course		3
	Credits	15-17
Semester 2		
ENGL 102 or ESL 102	English Composition II or English Composition II for English as a Second Language Students	4-6
BIOL 131	Principles Biology II	4
MATH 140 or PSYC 230	Statistics I [1] or Statistics for Social Sciences	3
General Education Tier I Course		
	Credits	11-13
Sophomore		
Semester 1		
BIOL 230	Cell Biology	4
BIOL 236	Principles of Anatomy & Physiology I [1]	4
CHEM 105	General Chemistry I Lecture	3
CHEM 1105	General Chemistry Recitation/Laboratory	2
General Education Tier II Course		3
	Credits	16
Semester 2		
BIOL 237	Principles of Anatomy & Physiology II	4
BIOL 303	Microbiology	4
CHEM 106	General Chemistry II Lecture	3
CHEM 1106	General Chemistry II Recitation/Laboratory	2

General Education Tier II Course		3
	Credits	16
Junior		
Semester 1		
Biology Elective 2XX (above BIOL 230)		4
CHEM 207	Organic Chemistry I	3
CHEM 2207	Organic Chemistry I Laboratory	1
INTD 180	Computer Tools For Science & Mathematic Majors [1]	3
General Education Tier II Course		3
	Credits	14
Semester 2		
Biology Elective 2XX (above BIOL 230)		4
General Education Tier II Course		3
General Education Tier II Course		3
General Education Tier II Course		3
General Education Tier III Course		3
	Credits	16
Senior		
Semester 1		
Clinical Courses Taken at Rutgers School of Health Professions		16
	Credits	16
Semester 2		
Clinical Courses Taken at Rutgers School of Health Professions		16
	Credits	16
	Total Credits	120-124

[1] Courses are part of the General Education program and may be used to simultaneously satisfy a General Education Mode of Inquiry requirement.

Student Learning Outcomes

Upon completion of the Biology Medical Imaging Science program, students will be able to:

1. Demonstrate knowledge of the factual and theoretical basis of biology including mechanisms on the molecular, cellular, organismal, and systems levels.
2. Demonstrate understanding of scientific inquiry and explain how scientific knowledge is discovered and validated.
3. Apply quantitative knowledge and reasoning to describe or explain phenomena in them natural world.
4. Demonstrate knowledge of basic principles of chemistry and their application to understanding living systems.
5. Demonstrate preparedness to enter the Professional work force.