Master of Science in Bioinformatics (M.S.) Advising Sheet

The Master of Science in Bioinformatics (M.S.) produces highly trained students who are prepared to immediately contribute in the pharmaceutical, biotechnology, and biomedical fields. Bioinformatics is a multidisciplinary field of study that focuses on the use of computational information tools in the investigation and analysis of biological, biomedical, and biochemical systems. The goal of the field is to use information generated in the lab or clinic for future applications, research, and development.

The M.S. in Bioinformatics at Rowan University provides hands-on experience so students can perform novel research. This includes advanced training in theory and laboratory settings to allow students to diversify into other biomedical research fields. This program includes the following 3 focus areas: Biological Sciences, Biochemistry, Computer Science.

Curriculum
The M.S. in Bioinformatics program consists of 30 semester hours (s.h.). Both a thesis and a non-thesis track are available.

Coursework
The following courses make up the M.S. in Bioinformatics program.

Required Courses: 12 semester hours (s.h.)
Restricted Electives: 3–18 semester hours (s.h.)
   ● Choose 3–6 s.h. (thesis track) or 18 s.h. (non-thesis track) of restricted elective courses.
Thesis Coursework: 12-15 semester hours (s.h.)
   ● Thesis students select 12-15 semester hours, in consultation with their academic advisor.
   ● Non-thesis students select 0 semester hours.

Required Courses

Course Number	Title	Credit hours
BINF 05555	Bioinformatics: Advanced Biological Applications	3
BINF 07595	Bioinformatics: Advanced Biochemical Applications	3
CS 01541	Bioinformatics: Advanced Computational Aspects	3
BINF 07500	Bioinformatics Seminar	3

Restricted Electives

Department of Chemistry & Biochemistry

Course number	Course title	Credit hours
CHEM 07531	Special Topics in Biochemistry	3
CHEM 07570	Organic Spectroscopy	3
CHEM 07568	Medicinal Chemistry	3
CHEM 07557	Chemical Biology	3
CHEM 07560	Advanced Biochemistry Lecture	3
CHEM 09510	Instrumental Analysis	4
CHEM 07592	Advanced Pharmaceutical Chemistry	3
CHEM 08505	Advanced Biophysical Chemistry	3
CHEM 07590	General Aspects of Pharmacology	3
CHEM 08510	Advanced Survey of Molecular Modeling Methods	3

Department of Molecular & Cellular Biosciences

Course number	Course title	Credit hours
MCB 01538	Graduate Immunology	4
MCB 01506	Graduate Translation Cell Biology	3
MCB 01521	Graduate Cell Culture Techniques	4
MCB 01550	Graduate Molecular Genetics	4
MCB 01507	Advanced Molecular Microbiology	4
MCB 01508	Advanced Topics in Molecular & Cellular Biosciences	3
MCB 01514	Infectious Agents	3
BINF 05560	Advanced Programming for Molecular Biology	3

Department of Computer Science

Course number	Course title	Credit hours
CS 45530	Advanced Data Systems: Theory and Programming	3
CS 07570	Information Visualization	3
CS 07556	Machine Learning	3
CS 02505	Data Mining I	3
DA 02510	Visual Analytics	3
CS 02605	Data Mining II	3
CS 03505	Data Quality and Web/Text Mining	3
CS 01501	Essentials of Computer Science	3

Thesis Coursework

Course Number	Title	Semester hours
BINF 07501	MS Thesis Research 1	3
BINF 07502	MS Thesis Research 2	3
BINF 07503	MS Thesis Research 3	3
BINF 07504	MS Thesis Research 4	3
BINF 07505	MS Thesis Research 5	3