

# DUAL-DEGREE BS IN BIOLOGY/MS IN MOLECULAR AND CELL BIOLOGY (4+1)

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The Department of Biological Sciences offers a Dual-Degree BS in Biology and MS in Molecular and Cell Biology. The MS in Molecular and Cell Biology provides an excellent foundation for students intending to pursue studies in professional health care fields and doctoral programs. It also offers a competitive edge for students wishing to pursue a career in biotechnology and biopharmaceutical industries.

Upon satisfactory completion of all of the undergraduate curriculum requirements, students receive a Bachelor of Science in Biology. The requirements and policies for the undergraduate degree are the same as described on the Bachelor of Science in Biology (<http://catalog.qu.edu/arts-sciences/biological-sciences/biology-bs/>) page. Students complete graduate-level biology courses during their senior year; the requirements and policies for the graduate degree are the same as described on the Master of Science in Molecular and Cell Biology (<http://catalog.qu.edu/graduate-studies/arts-sciences/molecular-cell-biology-ms/>) page. A maximum of 9 graduate credits may be used to fulfill both undergraduate and graduate requirements. Students must maintain an overall GPA of 3.0 for all graduate courses. Students earn the MS in Molecular and Cell Biology upon satisfactory completion of all of the graduate curriculum requirements.

## Dual-Degree BS in Biology/MS in Molecular and Cell Biology (4+1) Curriculum

Students who choose to pursue the five-year Master's Degree in Molecular and Cell Biology are required to complete the following courses by the end of their junior year:

Code	Title	Credits
CHE 210 & 210L	Organic Chemistry I and Organic Chemistry I Lab	4
CHE 211 & 211L	Organic Chemistry II and Organic Chemistry II Lab	4
PHY 110 & 110L	General Physics I and General Physics I Lab	4
PHY 111 & 111L	General Physics II and General Physics II Lab	4

A minimum of two Biology Electives in separate elective categories (Molecular and Cellular Biology, Organismal, Physiology, or Experiential Learning).

An elective in Molecular and Cellular Biology is strongly recommended.

### Recommended Curriculum

Students choose courses and follow a curriculum determined in consultation with their adviser. The minimum number of credits required for the undergraduate degree is 120, and the minimum number of credits required for the graduate degree is 34. A maximum of 9 graduate credits may be used to fulfill both undergraduate and graduate requirements. A

sample course plan that fulfills the requirements for the 4+1 program is shown below.

Individual planning will vary based on a number of factors, including, for instance, Advanced Placement and/or transfer credits.

Code	Title	Credits
<b>First Year</b>		
<b>Fall Semester</b>		
BIO 150 & BIO 151L	General Biology for Majors and Molecular and Cell Biology and Genetics Lab	4
CHE 110 & 110L	General Chemistry I and General Chemistry I Lab	4
EN 101	Introduction to Academic Reading and Writing	3
FYS 101	First-Year Seminar	3
MA 140	Pre-Calculus	3
<b>Spring Semester</b>		
BIO 151 & 151L	Molecular and Cell Biology and Genetics and Molecular and Cell Biology and Genetics Lab	4
CHE 111 & 111L	General Chemistry II and General Chemistry II Lab	4
EN 102	Academic Writing and Research	3
UC University Elective		3
MA 141	Calculus of a Single Variable	3
<b>Second Year</b>		
<b>Fall Semester</b>		
BIO 298	Research Methods in Biology	3
BIO 152 & 152L	Ecological and Biological Diversity and Ecological and Biological Diversity Laboratory	4
CHE 210 & 210L	Organic Chemistry I and Organic Chemistry I Lab	4
UC University Elective		3
<b>Spring Semester</b>		
BIO Biology Elective		3
BIO Biology Elective		3
CHE 211 & 211L	Organic Chemistry II and Organic Chemistry II Lab	4
UC University Elective		3
Open Elective		3
<b>Third Year</b>		
<b>Fall Semester</b>		
Biology Elective		3
PHY 110 & 110L	General Physics I and General Physics I Lab	4
UC Elective		3
Open Elective		3
Open Elective		3
<b>Spring Semester</b>		
BIO Biology Elective		3
PHY 111 & 111L	General Physics II and General Physics II Lab	4

UC University Elective		3
UC University Elective		3
Open Elective		3
<b>Fourth Year</b>		
<b>Fall Semester</b>		
BIO 571	Molecular Genetics	4
Graduate Elective		3
UC Capstone		3
Open Elective		3
Open Elective		3
<b>Spring Semester</b>		
BIO 515	Advanced Biochemistry	4
BIO 605	DNA Methods Laboratory	4
UC University Elective		3
UC University Elective		3
<b>Fifth Year</b>		
<b>Fall Semester</b>		
BIO 568	Molecular and Cell Biology	4
BIO 606	Protein Methods Laboratory	4
BIO Graduate Elective		3
<b>Spring Semester</b>		
Graduate Elective		3
Graduate Elective		3
BIO 675	Comp Exam in Molecular and Cell Biology	2

## Admission Requirements: College of Arts and Sciences

The requirements for admission into the undergraduate College of Arts and Sciences programs are the same as those for admission to Quinnipiac University.

Admission to the university is competitive, and applicants are expected to present a strong college prep program in high school. Prospective first-year students are strongly encouraged to file an application as early in the senior year as possible, and arrange to have first quarter grades sent from their high school counselor as soon as they are available.

For detailed admission requirements, including required documents, please visit the Admissions (<http://catalog.qu.edu/general-information/admissions/>) page of this catalog.