Quinnipiac
UNIVERSITY

5-year BS/MS (4+1) in Molecular and Cell Biology

Program Description:
The Department of Biological Sciences offers a combined five-year Bachelor's/Master's Degree in Molecular and Cell Biology. Upon satisfactory completion of all of the undergraduate curriculum requirements, students receive a Bachelor of Science in Biology. Students complete graduate-level biology courses during their senior year. A maximum of 9 (graduate-level) 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.

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.

Requirements:
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:

- CHE 210/L - Organic Chemistry I and Organic Chemistry I Lab
- CHE 211/L - Organic Chemistry II and Organic Chemistry II Lab
- PHY 110/L - General Physics I and General Physics I Lab
- PHY 111/L - General Physics II and General Physics II Lab
- A minimum of two Biology Electives in separate elective categories (Organismal, Physiology, Experiential Learning, or Molecular and Cellular Biology). An elective in Molecular and Cellular Biology is strongly recommended.

MCB Core Classes:
- BIO571 - Molecular Genetics (4 cr.)
- BIO568 - Molecular and Cell Biology (4 cr.)
- BIO515 - Advanced Biochemistry (4 cr.)
- BIO605 - DNA Methods Laboratory (4 cr.)
- BIO606 - Protein Methods Laboratory (4 cr.)
- BIO675 - Comprehensive Exam (2 cr.)

Applications are due **March 30th** of your **junior year**.

More information:
- *MCB Masters: http://cas360.qu.edu/MCB*
- *4+1 Program: https://tinyurl.com/5yearMCB*

Contact:
- Dr. Alex de Lencastre (adelencastre@qu.edu), MCB Program Director.
- Dr. Tom Torello (tom.torello@qu.edu), 4+1 Bio/MCB Academic Advisor

Biology Curriculum

for 5-year BS/MS program (typical)

Fall

First Year		
COURSE #	COURSE DESCRIPTION	CREDITS
BIO 150/L	General Biology for Majors	4
CHE 110/L	General Chemistry I	4
FYS 101	First Year Seminar	3
EN 101	Intro to Academic Reading and Writing	3
	Open Elective	2
		16

Second Year		
COURSE #	COURSE DESCRIPTION	CREDITS
BIO 252/L	Ecological and Biological Diversity	4
CHE 210/L	Organic Chemistry I	4
MA 141	Calculus	4
	Language 101 Level	3
	Open Elective	2
		17

Third Year		
COURSE #	COURSE DESCRIPTION	CREDITS
PHY 110/L	General Physics I	4
	Biology Elective 1	3
	University Curriculum (UC) Course	3
	University Curriculum (UC) Course	3
	Open Elective	3
		16

Fourth Year		
COURSE #	COURSE DESCRIPTION	CREDITS
BIO 571	**Molecular Genetics**	4
	Graduate Elective	3
	Biology Elective 3	3
CAS 420	CAS Integrative Capstone	3
	Open Elective	2
		15

Fifth Year		
COURSE #	COURSE DESCRIPTION	CREDITS
	BIO 568	4
	BIO 606	4
	Graduate Elective	3
		11

Spring

First Year		
COURSE #	COURSE DESCRIPTION	CREDITS
BIO 151/L	Molecular and Cell Biology and Genetics	4
CHE 111/L	General Chemistry II	4
MA 140	Pre-Calculus	3
EN 102	Academic Writing and Research	3
	Open Elective	2
		16

Second Year		
COURSE #	COURSE DESCRIPTION	CREDITS
BIO 298	Research Methods in Biology	3
CHE 211/L	Organic Chemistry II	4
	Language 102 Level	3
	University Curriculum (UC) Course	3
	Open Elective	3
		16

Third Year		
COURSE #	COURSE DESCRIPTION	CREDITS
PHY 111/L	General Physics II	4
	Biology Elective 2	3
	University Curriculum (UC) Course	3
	University Curriculum (UC) Course	3
	Open Elective	3
		16

Fourth Year		
COURSE #	COURSE DESCRIPTION	CREDITS
	BIO 515	4
	BIO 605	4
	Biology Elective 4 (Experiential Learning)	3
	Open Elective	3
	Open Elective	1
		15

Fifth Year		
COURSE #	COURSE DESCRIPTION	CREDITS
	Graduate Elective	3
	Graduate Elective	3
	BIO 675	2
		8

Milestones

Earn 30 credits

Discuss 5-year program with advisor and Program Coordinator in Year 2.

Formal application / admisson to 5-year program in Year 3.

Bachelor's degree awarded May, Year 4.

Master's degree awarded May, Year 5.

120 TOTAL CREDITS REQUIRED FOR UNDERGRADUATE DEGREE"
34 TOTAL GRADUATE CREDIT HOURS

1. Initial placement in the English and mathematics courses is determined by placement exam and an evaluation of high school units presented. Students intending to pursue graduate or professional studies (medicine, dentistry, osteopathy or veterinary medicine) are advised to complete at least one semester of calculus. A minimum of MA 141 is required for the Bachelor of Science degree in Biology.
2. Students may take either BIO 252 and 252L or BIO 298 in either order or concurrently.
3. Graduate full-time status: ≥9 credits; graduate part-time status: 5-8 credits.
4. BA: Earn 120 credits and a GPA of 2.00 or higher.
5. MS: Earn a minimum of 34 graduate credits with graduate GPA of 3.00 or higher.
6. A minimum of 18 graduate credits must be completed after UG degree conferral.