

BS Molecular & Cellular Biology (Fall 2024 & Later)

Minimum 120 credits required for Bachelor's degree

Foundational Core (27-29 Credits)

Grade

FYWS-125 ¹	First Year Seminar	
MA _____	Foundational Core Math course	
Choose 1 course from each area *		
² Natural/Physical Science		
Literature		
History	HI-100,102,110, or 115	
Arts/Design/Comm.		
Philosophy		
Theology/Relig		
Social/Behavioral Science		

Human Journey Seminars: Great Books in CIT (6 Credits)

CIT 201	CIT Seminar I	
CIT 202	CIT Seminar II	

Liberal Arts Explorations (LAE) (12 Credits Total)

Student must complete 4 courses from at least 2 different subjects and one course in each area.

(see list on Registrar's Website - checksheets)

Humanistic Inquiry (3 credits)		
Social and Global Awareness (3 credits)		
Scientific Literacy (3 credits)		
LAE in any area (3 credits)		

* See list of courses.

¹(Requires Grade C or higher)

²Science/Natural Science courses includes

approved Math and Computer Science courses. Students are required to take at least one course in Biology, Chemistry, or Physics in the Foundational or Liberal Arts Exploration Core. CS and MA courses may be used as a Science/Natural Science in either the Foundational Core **or** as a requirement in the LAE Core but not in both categories.

Note: MA 006 and ESL courses **will not** count towards the 120 credit graduation requirement.

Approved Study Abroad courses may be used to satisfy requirements for the foundational core or a Liberal Arts Exploration

A maximum of 8 Applied Music credits may be applied towards graduation

Required Curriculum for Degree in Major

Molecular & Cellular Biology major (39 credits)

Grade

BI 111	Concepts in Biology I	
BI 112	Concepts in Biology II	
BI 113	Concepts in Biology I Laboratory	
BI 114	Concepts in Biology II Laboratory	
BI 201	Genetics & Evolution	
BI 202	Ecology & Evolution	
BI 203	Genetics & Evolution Laboratory	
BI 204	Ecology & Evolution Laboratory	
BI 399	Senior Seminar	

Molecular & Cellular Core

BI 311/313	Cell Biology	
BI 320 or	Applied Molecular Genetics	
BI 355	Molecular Biology	
BI 390 or	Supervised Research (3 credits) or	
BI 360	Internship (3 credits)	

Three additional Biology courses, at least two of which are in the Molecular/Cellular areas of Biology. One of the Biology courses must include a lab.

200/300		
200/300		
200/300+Lab		

Required Supporting courses

Grade

CH 151	General Chemistry I	
CH 152	General Chemistry II	
CH 153	General Chemistry Laboratory I	
CH 154	General Chemistry Laboratory II	
CH 221/223	Organic Chemistry I with Lab	
CH 222/224	Organic Chemistry II with Lab	
CH 341/343	Biochemistry I with Lab	
MA 131	Statistics	
MA 140 or 151	PreCalculus or Calculus	
PY	Physics 100 level with Lab	

General Electives (number of credits vary)

Grade

Checksheet Key

T	Course transferred & requirement satisfied
W	Requirement waived
TW	Course transferred & requirement waived

SACRED HEART UNIVERSITY COLLEGE OF ARTS & SCIENCES BS Molecular & Cellular Biology (Fall 2024 & Later)

The Molecular & Cellular Biology major combines a rigorous grounding in the foundational principles of biological science at all scales of organization from molecules to ecosystems with significant coursework in cell biology, genetics, molecular biology, and related areas of the biological sciences. The curriculum requires students to participate in "real world" experiences through applied lab work in courses, independent research projects, and/or internships with outside partner organizations. A capable faculty and small class size foster student-faculty relationships which benefit the intellectual development of students.

The Molecular & Cellular Biology major provides the intellectual and cutting-edge technical skills necessary for a wide range of productive careers in a rapidly changing world. The program is ideal for students preparing for graduate or professional training in the biomedical sciences (e.g., college/university-level education and research, doctors, dentists, veterinarians, technology transfer, technical writing) or employment in the pharmaceutical and biotechnology industries (e.g., staff scientists in research and development, quality control, management).

Students majoring in Molecular & Cellular Biology are required to complete 39 credits in Biology: 18 credits in the Biology core and 21 credits in the Molecular & Cellular core. 31 credits are also required in the supporting areas of Chemistry, Mathematics, and Physics.

SUGGESTED FOUR YEAR SEQUENCE OF STUDY:

YEAR 1	SEMESTER 1	YEAR 1	SEMESTER 2
XX	First Year Writing Seminar or Elective (Foundational Core)	FYWS 125 or XX	First Year Writing Seminar or Elective (Foundational Core)
BI 111/BI 113	Concepts in Biology I with Laboratory	BI112/BI114	Concepts in Biology II with Laboratory
CH 151/153	General Chemistry I with Laboratory	CH 152/154	General Chemistry II with Laboratory
MA140 or 151	PreCalculus or Calculus Elective (Foundational Core)	MA 131	Statistics Elective (Foundational Core)

YEAR 2	SEMESTER 3	YEAR 2	SEMESTER 4
BI202/204	Ecology & Evolution with Laboratory	BI201/203	Genetics & Evolution with Laboratory
CH 221/223	Organic Chemistry I with Lab	CH 222/224	Organic Chemistry II with Lab
CIT 201	Human Journey CIT I Elective (Foundational Core) Elective (Foundational Core)	CIT 202	Human Journey CIT II Elective (Foundational Core) LAE Elective

YEAR 3	SEMESTER 5	YEAR 3	SEMESTER 6
BI 311/313	Cell Biology with lab	BI ____	Molecular elective
CH 341/343	Biochemistry I with lab	BI ____	Biology elective
BI 390 or BI 360	Research or Internship LAE Elective LAE Elective		LAE Elective Elective (Free) Elective (Free)

YEAR 4	SEMESTER 7	YEAR 4	SEMESTER 8
BI 320	Applied Molecular Genetics	BI ____	Molecular elective with lab
PY 1XX	Physics With Lab Elective (Free) Elective (Free) Elective (Free)	BI 399	Senior Seminar Elective (Free) Elective (Free) Elective (Free)

Note: Students must average 15 or more credits/semester to graduate on an 8 semester schedule.