

MOLECULAR & CELLULAR BIOLOGY: HONORS, BSLAS

for the degree of Bachelor of Science in Liberal Arts and Sciences in Molecular & Cellular Biology, Honors Concentration

The Molecular and Cellular Biology Honors Concentration is designed for students whose preparation and interests motivate them to desire a more intensive undergraduate biology experience and to prepare for graduate or professional school. The MCB Honors Concentration is based on the MCB Concentration (<http://catalog.illinois.edu/undergraduate/las/academic-units/molecular-cell-bio/molecular-cellular-biology-concentration/>). Students must satisfy all of the requirements for the MCB concentration in addition to the requirements for the MCB Honors Concentration. Students interested in the MCB Honors Concentration (<https://mcb.illinois.edu/academics/undergraduate-programs/major-molecular-cellular-biology/mcb-honors-concentration/>) should contact the MCB Honors Concentration coordinator (shawna@illinois.edu) during the freshman year for more information.

Undergraduate degree programs in Molecular & Cellular Biology

- Biochemistry, BS (<http://catalog.illinois.edu/undergraduate/las/biochemistry-bs/>)
- Molecular & Cellular Biology, BSLAS (<http://catalog.illinois.edu/undergraduate/las/molecular-cellular-biology-bslas/>)
- Molecular & Cellular Biology Honors Concentration, BSLAS (p. 1)
- Molecular & Cellular Biology + Data Science, BSLAS (<http://catalog.illinois.edu/undergraduate/las/molecular-cellular-biology-data-science-bslas/>)
- Neuroscience, BSLAS (<http://catalog.illinois.edu/undergraduate/las/neuroscience-bslas/>)

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Certain advanced courses may be taken prior to completion of the MCB 250, MCB 252, MCB 354 sequence with permission of an academic advisor. A minimum of 15 hours of 300- or 400-level courses in MCB from the approved list is required.

In addition, undergraduate research (MCB 290, or departmental equivalent) is strongly recommended for students planning to go to graduate school. No more than 10 hours of MCB 290, or departmental equivalent credit may be counted towards the 120 hours required for a degree in MCB.

Students earning a degree in Molecular and Cellular Biology may not also earn a second degree in the Specialized Curriculum in Biochemistry.

Students earning a degree in Molecular and Cellular Biology may not double major in Integrative Biology.

Distinction

Students in MCB can qualify for Distinction via one of the following:

Distinction for Excellence in Research:

To be eligible for graduation with Distinction a student must:

Complete 3 semesters of MCB 290 for 2 credit hours or more each semester. Maintain a minimum cumulative GPA of 3.25 at the end of penultimate semester. Give at least one poster presentation at the Undergraduate Research symposium or other approved venue. Obtain a letter of support from their Principal Investigator.

To be eligible for graduation with High Distinction a student must:

Complete 2 semesters of MCB 290 for 2 credit hours or more each semester. Complete 1 semester of MCB 492 for 3 credit hours or more. Maintain a minimum cumulative GPA of 3.25 at the end of penultimate semester. Give at least one poster presentation at the Undergraduate Research symposium or other approved venue. Obtain a letter of support from their Principal Investigator. Submit a written thesis that is approved by the Distinction Committee.

To be eligible for graduation with Highest Distinction a student must:

Complete 2 semesters of MCB 290 for 2 credit hours or more each semester. Complete 1 semester MCB 492 for 3 credit hours or more. Maintain a minimum cumulative GPA of 3.90 at the end of penultimate semester. Give at least one poster presentation at the Undergraduate Research symposium or other approved venue. Obtain a letter of support from their Principal Investigator. Submit a written thesis that is approved by the Distinction Committee. Distinction for Excellence in Academics:

To be eligible for graduation with Academic Distinction a student must:

Maintain a major GPA of 3.90 or higher in the MCB major (biology, chemistry, physics and math courses for the MCB major) at the end of their penultimate semester.

Graduation Requirements

Minimum hours required for graduation: 120 hours.

Minimum hours required major and supporting course work: 67-71, including 21 hours of 300-/400- level courses. Twelve hours of 300- and 400-level courses in the major must be taken on this campus.

University Requirements

The university and residency requirements can be found in the Student Code (<https://studentcode.illinois.edu/article3/part8/3-801/>) (§ 3-801) and in the Academic Catalog (<http://catalog.illinois.edu/general-information/degree-general-education-requirements/>).

General Education Requirements

Follows the campus General Education (Gen Ed) requirements (<https://courses.illinois.edu/gened/DEFAULT/DEFAULT/>). Some Gen Ed requirements may be met by courses required and/or electives in the program.

Code	Title	Hours
	Composition I	4-6
	Advanced Composition	3
	Humanities & the Arts (6 hours)	6

Natural Sciences & Technology (6 hours)	6
fulfilled by MCB 150, IB 150, CHEM 102 or CHEM 202, CHEM 104 or CHEM 204, PHYS 101 or PHYS 211, PHYS 102 or PHYS 212	
Social & Behavioral Sciences (6 hours)	6
Cultural Studies: Non-Western Cultures (1 course)	3
Cultural Studies: US Minority Cultures (1 course)	3
Cultural Studies: Western/Comparative Cultures (1 course)	3
Quantitative Reasoning (2 courses, at least one course must be Quantitative Reasoning I)	6-10
fulfilled by MATH 220 or MATH 221 & MATH 231 or STAT 212	
Language Requirement (Completion of the fourth semester or equivalent of a language other than English is required)	0-20

Major Requirements

Code	Title	Hours
MATH 220 or MATH 221	Calculus Calculus I	4-5
MATH 231 or STAT 212	Calculus II Biostatistics	3
Select one group of courses:		8-10
CHEM 102 & CHEM 103 & CHEM 104 & CHEM 105	General Chemistry I and General Chemistry Lab I and General Chemistry II and General Chemistry Lab II	
CHEM 202 & CHEM 203 & CHEM 204 & CHEM 205	Accelerated Chemistry I and Accelerated Chemistry Lab I and Accelerated Chemistry II and Accelerated Chemistry Lab II	
CHEM 232	Elementary Organic Chemistry I	4
CHEM 233	Elementary Organic Chem Lab I	2
Select one group of courses:		10-12
PHYS 101 & PHYS 102	College Physics: Mech & Heat and College Physics: E&M & Modern	
PHYS 211 & PHYS 212 & PHYS 213 & PHYS 214	University Physics: Mechanics and University Physics: Elec & Mag and Univ Physics: Thermal Physics and Univ Physics: Quantum Physics	
IB 150	Organismal & Evolutionary Biol	4
MCB 150	Molecular & Cellular Basis of Life	4
MCB 250	Molecular Genetics	3
MCB 251	Exp Techniqs in Molecular Biol	2
MCB 252	Cells, Tissues & Development	3
MCB 253	Exp Techniqs in Cellular Biol	2
MCB 354	Biochem & Phys Basis of Life	3
At least four additional courses at the 300- to 400-level from the Approved List of Advanced Courses for MCB Majors are also required, including one lab course. (http://mcb.illinois.edu/undergrad/courses/advanced/)		15-16

Code	Title	Hours
Complete 5 honors discussion sections in consecutive order:		
MCB 297	MCB Honors Discussion (Section A)	1
MCB 297	MCB Honors Discussion (Section B)	1
MCB 297	MCB Honors Discussion (Section C)	1

MCB 298	MCB Honors Lab Discussion (Section A)	1
MCB 298	MCB Honors Lab Discussion (Section B)	1

Complete 4 or more additional MCB Honors Option courses¹

¹ Students must consult the Honors Coordinator about MCB Honors Option courses. Only MCB 290 may be repeated, to a maximum of twice, although continuing 290 beyond two semesters is encouraged.

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Sample Sequence

This sample sequence is intended to be used only as a guide for degree completion. All students should work individually with their academic advisors to decide the actual course selection and sequence that works best for them based on their academic preparation and goals. Enrichment programming such as study abroad, minors, internships, and so on may impact the structure of this four-year plan. Course availability is not guaranteed during the semester indicated in the sample sequence.

Students must fulfill their Language Other Than English requirement by successfully completing a fourth level of a language other than English. See the corresponding section on the Degree and General Education Requirements page (<http://catalog.illinois.edu/general-information/degree-general-education-requirements/>).

First Year

First Semester	Hours
Free Elective course	1
MCB 150	4
CHEM 102 or 202	3
CHEM 103 or 203	1
MATH 220 or 221 (or Composition I)	5
Total Hours	14

Total Hours 14**First Year**

Second Semester	Hours
IB 150	4
CHEM 104 or 204	3
CHEM 105 or 205	1
General Education course	3
Composition I or MATH 220 or MATH 221	4
Total Hours	15

Total Hours 15**Second Year**

First Semester	Hours
MCB 250	3
MCB 251	2
CHEM 232	4
MCB 297 (Section A)	1
MCB 298 (Section A)	1

General Education course	4
	15

Total Hours 15**Second Year**

Second Semester	Hours
MCB 252	3
MCB 253	2
STAT 212	3
CHEM 233	2
MCB 297 (Section B)	1
MCB 298 (Section B)	1
Language Other Than English (3rd level)	4
	16

Total Hours 16**Third Year**

First Semester	Hours
MCB 354	3
MCB 297 (Section C)	1
PHYS 101 or 211	5
General Education course	3
Language Other Than English (4th level)	4
	16

Total Hours 16**Third Year**

Second Semester	Hours
Advanced MCB course	3
PHYS 101 or 212	5
General Education course	3
General Education course	3
	14

Total Hours 14**Fourth Year**

First Semester	Hours
Advanced MCB course	3
Advanced MCB Lab course	2
MCB 292 (or approved MCB Honors Elective)	2
Free Elective course or PHYS 213	2
Free Elective course or PHYS 214	2
General Education course	3
	14

Total Hours 14**Fourth Year**

Second Semester	Hours
Advanced MCB course	4
Advanced MCB course	3
General Education course	3

General Education course	3
MCB 492	3
	16

Total Hours 16**Total Hours: 120**

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Upon successful completion of the Molecular & Cellular Biology undergraduate honors curriculum, students will be able to:

1. Understand and appreciate the diversity of life as it evolved over time by processes of mutation, selection and genetic change.
2. Illustrate that fundamental structural units define the function of all living things.
3. Explain that the growth, development, and behavior of organisms are activated through the expression of genetic information in context.
4. Summarize that biological systems grow and change by processes based upon chemical transformation pathways and are governed by the laws of physics.
5. Illustrate that living systems are interconnected and interacting across scales of space and time.
6. Design a scientific process and employ the scientific method, demonstrating that biology is evidence based and grounded in the formal practices of observation, experimentation, and hypothesis testing.
7. Execute quantitative analysis to interpret biological data.
8. Construct and utilize predictive models to study and describe complex biological systems.
9. Apply concepts from other sciences in order to interpret biological phenomena.
10. Communicate biological concepts and understanding to members of a diverse scientific community as well as to the general public.
11. Identify social and historical dimensions of biological investigation.

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School of Molecular & Cellular Biology (<https://mcb.illinois.edu/undergrad/>)

School Faculty (<https://mcb.illinois.edu/people/>)

undergrad@mcb.illinois.edu

MCB advising (<https://mcb.illinois.edu/academics/undergraduate-programs/school-mcb-center-advising/>)

advising@mcb.illinois.edu

College of Liberal Arts and Sciences (<https://las.illinois.edu/>)

Overview of College Admissions & Requirements: Liberal Arts & Sciences (<http://catalog.illinois.edu/schools/las/academic-units/>)