



Master of Science in Molecular and Cellular Biology

- This Master’s degree program is directed toward students who want advanced preparation for professional school or future careers in industry, government, or academia.
- The purpose of this degree program is to provide an educational option for advanced study in the field of molecular and cellular biology without requiring a research thesis component.
- This master’s degree program is intended to be terminal and does not lead to entry into our School of MCB Ph.D. programs (BIOC, CDB, MICR, MIP, and BIOP).
- For further information or guidance, please contact Melissa Michael at mmichae@illinois.edu or see program advisors in 127 Burrill Hall.

To maintain active status in the program, students must register for a minimum of 12 credit hours in 400- or 500-level MCB courses per semester.

A course-based master’s degree requires a minimum of two full-time semesters.

Core Curriculum Hours Required	12-14
One 3- or 4-hour 400-level course from each of 4 disciplinary areas ¹	
Area 1: Biochemistry	
Area 2: Cell & Developmental Biology	
Area 3: Microbiology	
Area 4: Molecular & Integrative Physiology	
Elective Hours Required	6-8
Courses to be chosen from the MS in MCB approved list of courses ¹	
Minimum 500-level Hours Required	12
Courses to be chosen from the MS in MCB approved list of courses ¹	
Total Hours Required	32

Other Requirements¹

Minimum Hours Required Within the Unit:	8
Minimum GPA:	3.0
Courses taken “credit/no credit” may not be used toward degree requirements.	
Courses, or their equivalents, taken as an undergraduate/prior to admission to this program, may not be counted toward the requirements for this program.	
MCB 450 is only available to students who have not already taken 354 or the equivalent.	

¹ For additional details and requirements, refer to the MS MCB Program Handbook and the Graduate College Handbook	
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Master of Science Degree in MCB (Course-based MS Program)

MS MCB List of Approved Courses*

Required courses (12-14 hr.)

One 3- or 4-credit hour course from each area is required. Remaining elective hours (6-8 hours) may also be filled from this list.

Area 1: Biochemistry

- MCB 406: Gene Expression and Regulation (3 hr.)
- MCB 446: Physical Biochemistry (3 hr.)
- MCB 450: Introductory Biochemistry (3 hr.)
- BIOC 440 sxn B: Physical Chemistry Principles (4 hr.)
- BIOC 455: Techniques in Biochemistry and Biotechnology (4 hr.)*

Area 2: Cell & Developmental Biology

- MCB 400: Cancer Cell Biology (3 hr.)
- MCB 410: Developmental Biology (4 hr.)
- MCB 458: Basic Human Pathology (3 hr.)
- MCB 471: Advanced Cell Biology (3 hr.)

Area 3: Microbiology

- MCB 421: Microbial Genetics (3 hr.)
- MCB 424: Microbiology Biochemistry (3 hr.)
- MCB 426: Bacterial Pathogenesis (3 hr.)
- MCB 428: Microbial Pathogens Laboratory (2 hr.)*
- MCB 429: Cellular Microbiology and Disease (3 hr.)
- MCB 431: Microbial Physiology (3 hr.)
- MCB 432: Computing in Molecular Biology (3 hr.)
- MCB 435: Evolution of Infectious Disease (3 hr.)
- MCB 436: Global Biosecurity (1 hr.)
- MCB 493 sxn EGD: Special Topics in MCB (Exploring Genomic Data) (1 hr.)
- MCB 493 sxn VIR: Special Topics in MCB (Viral Pathogenesis & Evolution) (3 hr.)

Area 4: Molecular & Integrative Physiology

- MCB 401: Cell and Membrane Physiology (3 hr.)
- MCB 402: Systems & Integrative Physiology (3 hr.)
- MCB 413: Endocrinology (3 hr.)
- MCB 461: Cell and Molecular Neuroscience (3 hr.)
- MCB 462: Integrative Neuroscience (3 hr.)
- MCB 465: Human Metabolic Disease (3 hr.)
- MCB 493 sxn APL: Special Topics in MCB (Advanced Physiology Lab) (2 hr.)*
- MCB 493 sxn FIP: Special Topics in MCB (Frontiers in Physiology) (2 hr.)

Electives at the 500-level:

A minimum of 12 hours at the 500-level is required.

- MCB 501: Advanced Biochemistry (4 hr.)
- MCB 502: Advanced Molecular Genetics (4 hr.)
- MCB 513: Survey of Neurobiology (1 hr.)
- MCB 521: Advanced Microbial Genetics (1 hr.)
- MCB 526: Advanced Bacterial Pathogenesis (1 hr.)
- MCB 529 sxn LJS: Special Topics in CDB (Genomic Biology Workshop) (2 hr.)
- MCB 529 sxn THD: Special Topics in CDB (Topics in Health & Disease) (2 hr.)
- MCB 529 sxn VM: Special Topics in CDB (Viruses of Microbes) (1 hr.)
- MCB 532: Advance Microbial Physiology (1 hr.)
- MCB 534: Advanced Microbial Metabolism (1 hr.)
- MCB 539: Advanced Cellular Microbiology (1 hr.)
- MCB 553: Enzyme Reaction Mechanisms (3 or 4 hr.)
- MCB 555: Analysis of Biochemical Literature (2 hr.)

*Other courses may be available. See MCB Instructional Program Office (127 Burrill Hall) for review of request.