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.

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

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<tr>
<th>Other Requirements</th>
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<tr>
<td>Minimum Hours Required Within the Unit:</td>
<td>8</td>
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<td>Minimum GPA:</td>
<td>3.0</td>
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<td>Courses taken “credit/no credit” may not be used toward degree requirements.</td>
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<tr>
<td>Courses, or their equivalents, taken as an undergraduate/prior to admission to this program, may not be counted toward the requirements for this program.</td>
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<tr>
<td>MCB 450 is only available to students who have not already taken 354 or the equivalent.</td>
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1 For additional details and requirements, refer to the MS MCB Program Handbook and the Graduate College Handbook
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.