**MICROBIOLOGY, Biotechnology**  
*College of the Environment & Life Sciences (CELS)*

**Department:** Cell and Molecular Biology, 874-2201, http://www.uri.edu/cels/cmb  
**UC Advisor:** Bethany Jenkins, bijenkins@uri.edu, 874-7551  
**Option:** Biotechnology  
**Credits:** 120

**The Major:** Microbiology is an exciting field with challenging frontiers that include genetic engineering, cancer research, cellular mechanisms of infection, basic research in cell and molecular biology, and microbial ecology. Microbiologists today apply new technical approaches such as gene cloning, electron microscopy, and computer technology, to bacteria, viruses, algae, protozoa, fungi, and to animal and plant cells.

**Career Options:** This option or track is specifically designed for students who are interested in working in the biotechnology industry. The track was designed in consultation with workers from the biotechnology industry in New England.

**Transfer out of UC:** Must have completed at least 24 credits, minimum GPA of 2.00, and received permission from the UC major advisor.

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**General Education (36 credits):** All Category MQ (Mathematical & Quantitative Reasoning) and N (Natural Sciences) General Education requirements (9 cr.) are satisfied by courses taken as part of the major. Thus, to satisfy URI’s General Education requirements, CMB students should take COM 100, WRT 104/105 or 106, 6 cr. in Category S (Social Sciences), and only 15 credits of General Education courses from Category A (Fine Arts & Literature), L (Letters), or F (Foreign Language/Culture). See the URI Course Catalog (also on the web at http://www.uri.edu/catalog/catalog.html/index.html) for a listing of all General Education courses.

<table>
<thead>
<tr>
<th>Freshman Year</th>
<th>Sophomore Year</th>
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<tbody>
<tr>
<td>Biology (8 credits)</td>
<td>Organic Chemistry (6 credits)</td>
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<tr>
<td>Language or culture cluster required (6)</td>
<td>Physics (8)</td>
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<tr>
<td>Inorganic Chemistry (8)</td>
<td>Introductory Microbiology (4)</td>
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<tr>
<td>Mathematics (6)</td>
<td>Biotechnology (3)</td>
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<tr>
<td>General Education Requirements (3)</td>
<td>General Education Requirements (6)</td>
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<tr>
<th>Junior Year</th>
<th>Senior Year</th>
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<tr>
<td>Genetics (4 credits)</td>
<td>Advanced Microbiology (5 credits)</td>
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<tr>
<td>Biochemistry (3)</td>
<td>Biotechnology Internship (12)</td>
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<tr>
<td>Immunology (3)</td>
<td>Free Electives (10)</td>
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<tr>
<td>General Education Requirements (6)</td>
<td>General Education Requirements (3)</td>
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<tr>
<td>Cell Biology (3)</td>
<td>mRNA Ribosome (2)</td>
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<tr>
<td>Organic Chem Lab (2)</td>
<td>Molecular Biology (3)</td>
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**Introductory Professional Courses (7 credits):**  
*For more information about the major contact the CMB University College advisor listed above.*
MIC 190  Issues in Biotechnology
MIC 211 or 201 Introductory Microbiology

**Basic Sciences (44 credits)** - 9 credits applicable to General Education:
BCH 311 Introductory Biochemistry
BIO 101  Principles of Biology I
BIO 102  Principles of Biology II
BIO 352  Genetics
CHM 101, 102 General Chemistry I, Lab
CHM 112, 114 General Chemistry II, Lab
CHM 226 Organic Chemistry Lab
CHM 227 Organic Chemistry I
CHM 228 Organic Chemistry II
MTH 111 Pre-calculus
MTH 131 or 141 Applied Calculus or Calculus
PHY 111, 185 General Physics I, Lab
PHY 112, 186 General Physics II, Lab

**Concentration (26 credits):**
BIO 341  Cell Biology
MIC 333 Immunology and Serology
MIC 413, 415 Advanced Microbiology I, Lab
MIC 437 Fundamentals of Molecular Biology
MIC 499 Biotechnology Internship

**Free Electives (16 credits)**
You may take 16 credits of your choice.

* For more information about the major contact the CBM University College advisor listed above.