CELL AND MOLECULAR BIOLOGY - 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, jenkins@uri.edu, 874-7551
Option: Biotechnology
Credits: 120

The Major Track: Biotechnology 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.

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>Semester I (Fall)</th>
<th>Semester II (Spring)</th>
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<tbody>
<tr>
<td>URI101 Freshman at URI</td>
<td>BIO102/104 Principles of Biology II</td>
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<tr>
<td>COM100 Communications Fund.</td>
<td>CHM112/114 Chemistry II, Lab</td>
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<tr>
<td>CHM101/102 Chemistry I, Lab</td>
<td>WRT104/105 or 106 Composition</td>
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<tr>
<td>BIO101/103 Principles of Biology I</td>
<td>MTH131 or MTH141 Calculus</td>
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<tr>
<td>MTH111 or MTH131 or MTH141</td>
<td>General Ed. (Cat. S, A, F or L)</td>
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<td>Total credits: 15-16</td>
<td>Total credits: 17-18</td>
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<tr>
<th>Semester III (Fall)</th>
<th>Semester IV (Spring)</th>
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<tr>
<td>MIC211 Introductory Microbiology</td>
<td>CHM228 Organic Chemistry II</td>
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<tr>
<td>Elective</td>
<td>BCH311 Introductory Biochemistry</td>
</tr>
<tr>
<td>CHM227 Organic Chemistry I</td>
<td>PHY112/204 Physics II</td>
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<tr>
<td>PHY111/203 Physics I</td>
<td>PHY186/274 Physics Lab II</td>
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<tr>
<td>PHY185/273 Physics Lab I</td>
<td>General Ed. (Cat. S, A, F or L)</td>
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<tr>
<td>Total credits: 14</td>
<td>BCH190 Issues in Biotechnology</td>
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<td>Total credits: 16</td>
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<tr>
<th>Semester V (Fall)</th>
<th>Semester VI (Spring)</th>
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<tr>
<td>CHM226 Organic Chemistry Lab</td>
<td>Biochemistry Elective</td>
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<tr>
<td>MIC333 Immunology and Serology</td>
<td>BCH352 General Genetics</td>
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<tr>
<td>BIO341 Cell Biology</td>
<td>General Ed. (Cat. S, A, F or L)</td>
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<tr>
<td>General Ed. (Cat. S, A, F or L)</td>
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<tr>
<td>Elective</td>
<td>Elective</td>
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<tr>
<td>Total credits 14</td>
<td>Total credits 16</td>
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* For more information about the major contact the CMB University College advisor listed above.
Semester VII (Fall)
BCH437 Fund Molec Biology 3
MIC413/415 Adv Microbiology I, Lab 5
Elective 3
General Ed. (Cat. S, A, F or L) 3
Total credits 15

Semester VIII (Spring)
BCH499 Biotechnology Internship 12
General Ed. (Cat. S, A, F or L) 3
Total credits 15

Introductory Professional Courses (7 credits):
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 101/103 Principles of Biology I
BIO 102/104 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.
CELL AND MOLECULAR BIOLOGY, 120 CREDITS

Biotechnology Option
College of the Environment & Life Sciences (CELS)
Department of Cell & Molecular Biology

STUDENT__________________________     ADVISOR__________________________

General Education (28 credits +11 Basic Science)
URI101 ___(1)
C: COM 100____(3),     CW: WRT _____(3)
MQ: (3 cr. from Basic Science)
N: (8 cr. from Basic Science)
S: ________(3)     ________(3)

(15 credits from L, A, and F)
L: __________  __________
A: __________  __________
F: __________  __________

Introductory Professional Courses (4 credits)
MIC 211* ______(4)

*MIC 211 is highly recommended but students may substitute it for MIC 201.

Basic Sciences (45 credits)*
BCH 311____(3)
BIO 101/103____(4) BIO 102/104 ____(4)
BIO 352____(4)
CHM 101____(3), 102_____ (1)
CHM 112____(3), 114_____ (1)
CHM 226____(2), 227____(3), 228____(3)
MTH 111____(3), or 132____(3), or 142____(3)
or STA307/308____(3)
MTH 131____(3) or MTH 141____(3)
PHY 111____(3), 185____(1)

ADVISOR__________________________
PHY 112____(3), 186____(1)

*8 credits apply to N category & 3 credits apply to MQ.

Concentration (29 credits)
MIC190____(3)     MIC 333 ____ (3)
MIC 413 ____ (3)     MIC 415 ____ (2)
BIO341____(3)     MIC 499 ____ (12)
BIO437 ____ (3)

Free Electives (14 credits)
Students may take courses of their choice.

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120 credits required

Student Total________

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ADVISING COMMENTS: