## BIOTECHNOLOGY MINOR

### Required Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
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</thead>
<tbody>
<tr>
<td>BIO/CHEM 202</td>
<td>Orientation to Biotechnology</td>
<td>2</td>
</tr>
</tbody>
</table>

Select from the following: 4-5

- BIO 161: Introduction to Cell and Molecular Biology
- BOT 121: General Botany
- MCRO 221: Microbiology
- MCRO 224: General Microbiology I

Select from the following: 3-5

- BIO 303: Survey of Genetics
- BIO 351: Principles of Genetics
- CHEM 373: Molecular Biology

Select from the following: 5

- CHEM 313: Survey of Biochemistry and Biotechnology
- CHEM 371: Biochemical Principles

Laboratory elective—select from the following: 3-5

- ASCI 403: Applied Biotechnology in Animal Science
- BIO/CHEM 475: Molecular Biology Laboratory
- CHEM 474: Protein Techniques Laboratory

### Approved Electives

Select from the following: 6-11

#### Animal Biotechnology

- ASCI 403: Applied Biotechnology in Animal Science
- ASCI 440: Immunology and Diseases of Animals
- ASCI 503: Advanced Molecular Techniques in Animal Science
- DSCI 330: Artificial Insemination and Embryo Biotechnology

#### Bioinformatics

- BIO/CHEM 441: Bioinformatics Applications
- CSC 448: Bioinformatics Algorithms

#### Cell and Molecular Biology/Microbial Biotechnology

- BIO 426: Immunology
- BIO 452: Cell Biology
- BIO/CHEM 475: Molecular Biology Laboratory
- BIO 476: Gene Expression Laboratory
- CHEM 474: Protein Techniques Laboratory
- CHEM 528: Nutritional Biochemistry
- MCRO 225: General Microbiology II
- MCRO 320: Emerging Infectious Diseases
- MCRO 402: General Virology
- MCRO 433: Microbial Biotechnology

#### Engineering-related Biotechnology

- BRAE 448: Bioconversion
- ENGR 581: Biochemical Engineering

### Ethics

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<tr>
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<tbody>
<tr>
<td>PHIL 339</td>
<td>Biomedical Ethics</td>
</tr>
<tr>
<td>or PHIL 341</td>
<td>Professional Ethics</td>
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<tr>
<td>or SCM 451</td>
<td>Ethics in the Sciences</td>
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### Pharmaceutical Biotechnology

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<tbody>
<tr>
<td>CHEM 377</td>
<td>Chemistry of Drugs and Poisons</td>
</tr>
<tr>
<td>CHEM 477</td>
<td>Biochemical Pharmacology</td>
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### Plant Biotechnology

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<tbody>
<tr>
<td>BOT 323</td>
<td>Plant Pathology</td>
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Total units: 28