# Biotechnology Minor

## Required Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</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 units

- 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 units

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

Select from the following: 5 units

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

Laboratory elective—select from the following: 3-5 units

- 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 units

**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**

- PHIL 339: Biomedical Ethics
- or PHIL 341: Professional Ethics
- or SCM 451: Ethics in the Sciences

**Pharmaceutical Biotechnology**

- CHEM 377: Chemistry of Drugs and Poisons
- CHEM 477: Biochemical Pharmacology

**Plant Biotechnology**

- BOT 323: Plant Pathology

Total units: 28