# BIOCHEMICAL ENGINEERING

## Requirements

To successfully complete a minor in Biochemical Engineering, a student must complete the following:

Four required courses:

| Code | Title | Hours |
|---|---|---|
| BIO 110 | Cell Structure and Function | 4 |
| CHEM 330 | Biochemistry I | 4 |
| CHE 545 | Introduction to Biochemical Engineering | 4 |
| CHE 546 | Bioseparations | 4 |

Elective courses totaling at least 8 credit hours taken from the following list (no more than 4 credit hours of electives chosen for the biochemical engineering minor can be used towards fulfilling the requirements of another minor program):

| Code | Title | Hours |
|---|---|---|
| BIO 210 | Mendelian & Molecular Genetics | 4 |
| BIO 220 | Microbiology | 4 |
| BIO 230 | Cell Biology | 4 |
| BIO 411 | Genetic Engineering | 4 |
| BIO 421 | Applied Microbiology | 4 |
| CHEM 331 | Biochemistry II | 4 |
| CHEM 430 | Advanced Biochemistry | 4 |
| CHEM 433 | Biochemistry Laboratory [1] | 1 |
| CHEM 532 | Biochemical Pharmacology | 4 |
| MA/BE 482 | Biostatistics [2] | 4 |
| BMTH 301 | Introduction to Biomathematics: Continuous Models [2] | 4 |
| BMTH 302 | Introduction to Biomathematics: Discrete Models [2] | 4 |
| BMTH 311 | Systems Biology [2] | 4 |
| BMTH 312 | Bioinformatics [2] | 4 |

1 recommended but not required for students who take CHEM 430 Advanced Biochemistry - note that the CHEM 433 Biochemistry Laboratory course is only 1 credit

2 Only 4 credits of electives towards the minor may come from credits listed or cross-listed as MA or BMTH.

Other appropriate courses, typically biology or chemistry courses at the 400- or 500-level, may be used to fulfill the minor's elective requirements with prior approval of the chemical engineering department head.

The biochemical engineering minor provides students the ability to apply CHE principles to design and model biochemical systems. Applications include bioprocess design (e.g. chemical and pharmaceutical production), drug delivery, pharmacokinetics, genetic engineering, and synthetic biology.