

## BIOENGINEERING MINOR

A minor in bioengineering is available to students enrolled in any Whitacre College of Engineering degree program. This minor consists of four required preparatory courses in biology, chemistry, and statistics, one course in a bioengineering core area (biomechanics, biochemical engineering, or bioinstrumentation), and two approved bioengineering elective courses. Students who wish to pursue this minor should see their advisor or the academic dean.



### REQUIRED PREPARATORY COURSES

|  |   |       |
|--|---|-------|
| BIOL 1403  | Biology I   | 4 hrs |
| CHEM 1308 & 1108                                   | Chemistry II & Laboratory   | 4 hrs |
| IE 3341 or CH E 3343                               | Engineering Statistics or Engineering Experimentation                           | 3 hrs |
| CHEM 3305 & CHEM 3105 or<br>BIOL 2401 or BIOL 1404 | Organic Chemistry & Laboratory or<br>Human Anatomy and Physiology or Biology II | 4 hrs |

**Required- 15 Hrs**

### BIOENGINEERING CORE COURSES (MUST COMPLETE 1 OF 3)

|           |                               |       |
|-----------|-------------------------------|-------|
| ME 43XX   | Biomechanics                  | 3 hrs |
| CH E 4363 | Biochemical Engineering       | 3 hrs |
| EE 43XX   | Bioinstrumentation/Biosensors | 3 hrs |

**Required- 3 Hrs**

### BIOENGINEERING ELECTIVES (MUST COMPLETE 2 COURSES)

|           |   |       |
|-----------|---|-------|
| C E 3309  | Environmental Engineering   | 3 hrs |
| CH E 4364 | Chemical Engineering Applications in Biological Systems                   | 3 hrs |
| CH E 4363 | Biochemical Engineering (If not counted as the required Core course)      | 3 hrs |
| CH E 43XX | Bio-separation  | 3 hrs |
| C S 3368  | Artificial Intelligence   | 3 hrs |
| C S 4379  | Concurrent and Parallel Programming                                       | 3 hrs |
| C S 43XX  | Bioinformatics  | 3 hrs |
| E E 4367  | Image Processing  | 3 hrs |
| E E 43XX  | Biomedical Signal Processing (If not counted as the required Core course) | 3 hrs |
| E E 43XX  | Bioinstrumentation/Biosensors   | 3 hrs |
| ENVE 4385 | Microbial Applications in Environmental Engineering                       | 3 hrs |
| ENVE 4399 | Biological Municipal Wastewater Treatment                                 | 3 hrs |
| I E 3361  | Work Design   | 3 hrs |
| I E 4361  | Engineering Design for People   | 3 hrs |
| I E 4362  | Industrial Ergonomics   | 3 hrs |
| I E 4363  | Work and Product Safety Engineering                                       | 3 hrs |
| M E 43XX  | Biofluids   | 3 hrs |
| M E 43XX  | Biomaterials  | 3 hrs |
| M E 43XX  | Biomechanics (If not counted as the required Core course)                 | 3 hrs |
| CHEM 3310 | Molecular Biochemistry  | 3 hrs |
| BIOL 3320 | Cell Biology  | 3 hrs |
| MBIO 3401 | Principles of Microbiology  | 4 hrs |

**Required- 6 Hrs**