

# B.S. IN BIOSYSTEMS ENGINEERING

## CATALOG YEAR 2021-2022

Below is the *advised sequence* of courses for this degree program and prerequisites as of 12/18/20.

The official degree requirements and prerequisites found in the University General Catalog and the prerequisites are subject to change.

| COURSE NUMBER AND TITLE  | UNITS | PREREQUISITES   |
|--|-------|---|
| <b>1<sup>ST</sup> SEMESTER</b>   |       |   |
| MATH 122A/B or MATH 125 Calculus I with Applications   | 5/3   | Appropriate Math Placement  |
| CHEM 151 General Chemistry I or CHEM 161/163   | 4     | Appropriate Math Placement  |
| ENGL 101 or 107 or 109H First-Year Composition   | 3     |   |
| ENGR 102A/B Introduction to Engineering or ENGR 102  | 3     | <u>ENGR102A</u> : MATH 112; <u>ENGR102B</u> : Concurrently enrolled or completion of MATH 122B or 125; FR & SOPH Status |
| Tier I General Education   | 3     |   |
| Semester Total   |       | <b>18/16</b>  |
| <b>2<sup>ND</sup> SEMESTER</b>   |       |   |
| MATH 129 Calculus II   | 3     | MATH 122B or 125 C or better  |
| CHEM 152 General Chemistry II or CHEM 162/164  | 4     | CHEM 151 or 161/163   |
| PHYS 141 Introductory Mechanics or PHYS 161H   | 4     | MATH 122B or 125 or appropriate Math Placement  |
| ENGL 102 or ENGL 108 First-Year Composition  | 3     | ENGL 101 or ENGL 107  |
| Tier I General Education   | 3     |   |
| Semester Total   |       | <b>17</b>   |
| <b>3<sup>RD</sup> SEMESTER</b>   |       |   |
| CE 214 Statics   | 3     | PHYS 141 or 161H; MATH 129  |
| BE 284 Biosystems Thermal Engineering (Fall only)  | 3     | MATH 129; PHYS 141  |
| BE 201 Introduction to Biosystems Engineering  | 2     | MATH 122B or 125  |
| MATH 223 Vector Calculus   | 4     | MATH 129 with C or better   |
| MCB 181R/L Introductory Biology I OR PLS 240 Plant Bio   | 4     | Appropriate Math Placement  |
| Semester Total   |       | <b>16</b>   |
| <b>4<sup>TH</sup> SEMESTER</b>   |       |   |
| BE 205 Engineering Analytic Computer Skills (Spring only)  | 3     |   |
| MATH 254 Intro to Ordinary Differential Equations  | 3     | MATH 129 or 223 with C or better  |
| PHYS 241 Introductory Electricity and Magnetism or PHYS 261H   | 4     | For PHYS 241 or 261H: PHYS 141 or 161H; MATH 129 or appropriate Math Placement Level                                    |
| ECOL 182R/L Introductory Biology II or<br>MIC 205 A/L General Microbiology or<br>PSIO 201 Human Anatomy and Physiology | 4     | ECOL182R/L & MIC 205: Appropriate Math Placement  |
| Tier 1 General Education   | 3     |   |
| Semester Total   |       | <b>17</b>   |

| COURSE NUMBER AND TITLE  | UNITS     |
|--|-----------|
| <b>CURRENT PREREQUISITES FOR UPPER DIVISION COURSES CAN BE FOUND IN THE UA GENERAL CATALOG</b>             |           |
| <b>ADVANCED STANDING IS REQUIRED FOR 3XX AND 4XX COURSES (SEE ADVISOR FOR REQUIREMENTS)</b>                |           |
| <b>5<sup>TH</sup> SEMESTER</b>   |           |
| CE 218 Mechanics of Fluids or<br>AME 331 Introduction to Fluid Mechanics                                   | 3         |
| SIE 265 Engineering Management I   | 3         |
| BE 221 Introduction to Computer Aided Design or<br>BE 220 Engineering Graphics and Design with Auto Cad    | 3         |
| Technical Elective – See major advisor for course approval   | 3         |
| BE 493 Internship  | 1         |
| SIE 305 Engineering Probability and Statistics or<br>AREC 239 Introduction to Statistics and Data Analysis | 3         |
| Semester Total   | <b>16</b> |
| <b>6<sup>TH</sup> SEMESTER</b>   |           |
| BE 423 Biosystems Analysis and Design  | 3         |
| BE Design Elective – See major advisor for course approval   | 3         |
| BE Technical Elective – See major advisor for course approval  | 3         |
| ALC 422 or ENGL 308 or ENV5 408 Technical Writing  | 3         |
| Tier I General Education   | 3         |
| Semester Total   | <b>15</b> |
| <b>7<sup>TH</sup> SEMESTER</b>   |           |
| BE 496A Seminar in Engineering Careers and Professionalism   | 1         |
| ENGR 498A Cross-disciplinary Design (Fall Only) or BE 498A –<br>Senior Status                              | 3         |
| BE 447 Sensors and Controls  | 3         |
| BE Design Elective – See major advisor for course approval   | 3         |
| AME 324A Mechanical Behavior of Engineering Materials  | 3         |
| Tier II General Education  | 3         |
| Semester Total   | <b>16</b> |
| <b>8<sup>TH</sup> SEMESTER</b>   |           |
| ENGR 498B Cross-disciplinary Design (Spring Only) or BE 498B –<br>Senior Status                            | 3         |
| Technical Elective – See major advisor for course approval   | 3         |
| Technical Elective – See major advisor for course approval   | 3         |
| BE Design Elective – See major advisor for course approval   | 3         |
| Tier II General Education  | 3         |
| Semester Total   | <b>15</b> |

Tier I and II General Education Courses must meet University general education requirements. One course must be recognized by the university as meeting the Diversity Requirement.