

# Biological Systems Engineering (BSE) – Students Graduating in 2023

128 credits required

|  |  |  |  |  |   |  |   |
|--|--|--|--|--|---|--|---|
| <b>Fall<br/>1<sup>st</sup> Year<br/>16 credits</b>   | <b>Chem 1035 (3)</b><br>General Chemistry  | <b>Chem 1045 (1)</b><br>General Chemistry Lab  | <b>MATH 1225 (4)</b><br>Calculus for Science   | <b>ENGE 1215 (2)</b><br>Foundations of Engineering   | <b>ENGL 1105 (3)</b><br>First-Year Writing                                  | <b>Pathways (3)</b>  |   |
| <b>Spring<br/>1<sup>st</sup> Year<br/>16 credits</b> | <b>CHEM 1036 (3)</b><br>General Chemistry<br>Pre: CHEM 1035  | <b>PHYS 2305 (4)</b><br>Foundations of Physics<br>Pre: MATH 1225<br>Co: MATH 1226                  | <b>MATH 1226 (4)</b><br>Calculus for Science<br>Pre: MATH 1225                             | <b>ENGL 1106 (3)</b><br>First-Year Writing<br>Pre: ENGL 1105   | <b>ENGE 1216 (2)</b><br>Exploration of Engineering Design<br>Pre: ENGE 1215 |  |   |
| <b>Fall<br/>2<sup>nd</sup> Year<br/>17 credits</b>   | <b>MATH 2114 (3)</b><br>Intro to Linear Algebra<br>Pre: Math 1225 (min. grade B) or<br>MATH 1226 (min. grade P)  | <b>MATH 2204 (3)</b><br>Multivariable Calculus<br>Pre: Math 1226<br>(min. grade P)                 | <b>ESM 2104 (3)</b><br>Statics<br>Pre: MATH 1226<br>(min. grade P)                         | <b>BIOL 1105 (3)</b><br>Principles of Biology<br>Fall, Summer 1  | <b>Pathways (3)</b>   |  | <b>BSE 2004 (2)</b><br>Intro to BSE<br>Pre: ENGE 1215<br>Fall, Spring |
| <b>Spring<br/>2<sup>nd</sup> Year<br/>15 credits</b> | <b>MATH 2214 (3)</b><br>Differential Equations<br>Pre: MATH 2114 & 1226  | <b>ESM 2304 (3)</b><br>Dynamics<br>Pre: ESM 2104, MATH 2204<br>Co: MATH 2214                       | <b>BIOL 1106 (3)</b><br>Principles of Biology<br>Spring, Summer                            | <b>BSE 3144 (2)</b><br>Engineering Analysis for<br>Biological Systems<br>Co: MATH 2214<br>Spring Only          |   | <b>PHYS 2306 (4)</b><br>Foundations of Physics<br>Pre: MATH 1226,<br>PHYS 2305 |   |
| <b>Fall<br/>3<sup>rd</sup> Year<br/>15 credits</b>   | <b>ESM 3024 (3)</b><br>Intro Fluid Mechanics<br>Pre: ESM 2304<br>Fall Only                                       | <b>STAT 3704 (2)</b><br>Statistics for Engineering<br>Applications<br>Pre: MATH 2204               | <b>BSE 3134 (1)</b><br>BSE Seminar<br>Pre: BSE 2004<br>Fall Only                           | <b>BSE 3154 (3)</b><br>Thermodynamics of Biol Systems<br>Pre: MATH 2204, ESM 2304<br>Co: ESM 3024<br>Fall Only |   | <b>BSE Elective<br/>OR<br/>Technical<br/>Elective (3)</b>                      | <b>CHEM<br/>elective<br/>(3)</b>                                      |
| <b>Spring<br/>3<sup>rd</sup> Year<br/>17 credits</b> | <b>BIOL 2604 (3)</b><br>General Microbiology<br>Pre: BIOL 1105, 1106, CHEM<br>1035, 1036<br>Fall, Spring, Summer | <b>BSE 3504 (3)</b><br>Transport Processes in BSE<br>Pre: BSE 3154, ESM 3024<br>Spring Only        | <b>BSE Elective (3)</b><br>BSE 3334: NPS Assessment <u>OR</u><br>BSE 3524: Unit Operations |  | <b>ISE 2014 (2)</b><br>Engineering Economy                                  | <b>BSE Elective<br/>OR<br/>Technical Elective<br/>(3)</b>                      | <b>Pathways (3)</b>   |
| <b>Fall<br/>4<sup>th</sup> Year<br/>17 credits</b>   | <b>BSE Elective (3)</b>  | <b>BSE 4125 (2)</b><br>Comprehensive Design Project<br>Pre: BSE 3334 OR<br>Pre: BSE 3524 Fall Only |  | <b>Engineering Topics<br/>Elective (3)</b>   | <b>BSE Elective (3)</b>   | <b>Technical Elective<br/>(3)</b>  | <b>Pathways (3)</b>   |
| <b>Spring<br/>4<sup>th</sup> Year<br/>15 credits</b> | <b>BSE 4126 (3)</b><br>Comprehensive Design Project<br>Pre: BSE 4125<br>Spring Only                              |  | <b>Engineering Topics<br/>Elective (3)</b>   | <b>Engineering Topics<br/>Elective (3)</b>   | <b>Pathways (3)</b>   |  | <b>Pathways (3)</b>   |