

# Biomedical Engineering 5 Year Plan of Study for ROTC Students

| First Year         |                                                              |             |                    |                                                                                                                                                                                    |         |
|--------------------|--------------------------------------------------------------|-------------|--------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
| FALL               |                                                              |             | SPRING             |                                                                                                                                                                                    |         |
| Course             | Course Title                                                 | Credits     | Course             | Course Title                                                                                                                                                                       | Credits |
| CHEM 1035          | General Chemistry<br><i>Co: MATH 1025 or MATH 1225</i>       | 3           | ENGE 1216          | Foundations of Engineering (C-)<br><i>Pre: ENGE 1215 (C-)</i>                                                                                                                      | 2       |
| CHEM 1045          | General Chemistry Lab<br><i>Co: CHEM 1035</i>                | 1           | ENGL 1106          | First-Year Writing<br><i>Pre: ENGL 1105</i>                                                                                                                                        | 3       |
| ENGE 1215          | Foundations of Engineering (C-)                              | 2           | MATH 1226          | Calculus of a Single Variable<br><i>Pre: MATH 1225 (C-)</i>                                                                                                                        | 4       |
| MATH 1225          | Calculus of a Single Variable (C-)<br><i>Pre: Math Ready</i> | 4           | PHYS 2305          | Foundations of Physics I w/lab<br><i>Pre: (MATH 1205 or MATH 1205H or MATH 1225) or (MATH 1206 or MATH 1206H or MATH 1226); Co: 2325 or (MATH 1206 or MATH 1206H or MATH 1226)</i> | 4       |
| ENGL 1105          | First-Year Writing<br>ROTC                                   | 3<br>Varies |                    | ROTC                                                                                                                                                                               | Varies  |
| Total Credit Hours |                                                              | 13 - 18     | Total Credit Hours |                                                                                                                                                                                    | 13 - 18 |

| Second Year        |                                                                                                 |         |                    |                                                                                            |         |
|--------------------|-------------------------------------------------------------------------------------------------|---------|--------------------|--------------------------------------------------------------------------------------------|---------|
| FALL               |                                                                                                 |         | SPRING             |                                                                                            |         |
| Course             | Course Title                                                                                    | Credits | Course             | Course Title                                                                               | Credits |
| MATH 2114          | Introduction to Linear Algebra<br><i>Pre: MATH 1225 (B) or MATH 1226</i>                        | 3       | MATH 2214          | Differential Equations<br><i>Pre: 1226, (1114 or 2114 or 2114H or 2405H)</i>               | 3       |
| MATH 2204          | Intro to Multivariable Calculus<br><i>Pre: MATH 1226</i>                                        | 3       | BMES 2104          | Intro to Biomedical Engineering<br><i>Pre: ENGE 1216 or 1414, PHYS 2306; Co: MATH 2214</i> | 3 [S]   |
| ESM 2104           | Statics<br><i>Pre: MATH 1226; Co: MATH 2204 or MATH 2204H or 2406H</i>                          | 3       | ESM 2204           | Mech. of Deformable Bodies<br><i>Pre: (ESM 2104 or 2114), (MATH 2204 or MATH 2204H)</i>    | 3       |
| PHYS 2306          | Foundations of Physics I w/lab<br><i>Pre: (MATH 1206 or MATH 1206H or MATH 1226), PHYS 2305</i> | 4       |                    | Pathways 2                                                                                 | 3       |
|                    | ROTC                                                                                            | Varies  |                    | ROTC                                                                                       | Varies  |
| Total Credit Hours |                                                                                                 | 13 - 17 | Total Credit Hours |                                                                                            | 12 - 16 |

| Third Year         |                                                           |         |                    |                                                                                  |         |
|--------------------|-----------------------------------------------------------|---------|--------------------|----------------------------------------------------------------------------------|---------|
| FALL               |                                                           |         | SPRING             |                                                                                  |         |
| Course             | Course Title                                              | Credits | Course             | Course Title                                                                     | Credits |
| ECE 3054           | Electrical Theory<br><i>Pre: PHYS 2306; Co: MATH 2214</i> | 3       | ESM 2304           | Dynamics<br><i>Pre: (2104 or 2114), (MATH 2204 or MATH 2204H); Co: MATH 2214</i> | 3       |
|                    | CS Programming Elective                                   | 3       | MSE 2034           | Elements of Materials Engineering<br><i>Pre: CHEM 1035; Co: PHYS 2305</i>        | 3       |
| BIOL 1105          | Principles of Biology                                     | 3       |                    | STAT Course                                                                      | 3       |
|                    | Pathways 3/7                                              | 3       |                    | Pathways 6a                                                                      | 3       |
|                    | ROTC                                                      | Varies  |                    | ROTC                                                                             | Varies  |
| Total Credit Hours |                                                           | 12 - 18 | Total Credit Hours |                                                                                  | 12 - 18 |

| Fourth Year            |                                                              |         |                    |                                                          |         |
|------------------------|--------------------------------------------------------------|---------|--------------------|----------------------------------------------------------|---------|
| FALL                   |                                                              |         | SPRING             |                                                          |         |
| Course                 | Course Title                                                 | Credits | Course             | Course Title                                             | Credits |
| BMES 3024              | BME Cellular Lab & Design<br><i>Co: BMES 2104, BIOL 1105</i> | 2 [F]   | BMES 3034          | Bioinstrumentation Lab & Design<br><i>Pre: BMES 2104</i> | 2 [S]   |
| ESM 3234               | Fluid Mechanics I<br><i>Pre: ESM 2304, PHYS 2306</i>         | 3 [F]   | BMES 3184          | Problem Solving in BME<br><i>Pre: BMES 2104</i>          | 3 [S]   |
| BMES 4064<br>BMVS 4064 | Intro to Medical Physiology<br><i>Pre: Junior Standing</i>   | 3 [F]   |                    | BMES Technical Elective                                  | 3       |
|                        | Pathways 2                                                   | 3       |                    | Technical Elective                                       | 3       |
|                        | ROTC                                                         | Varies  |                    | ROTC                                                     | Varies  |
| Total Credit Hours     |                                                              | 11 - 17 | Total Credit Hours |                                                          | 11 - 17 |

| Fifth Year         |                                                   |         |                    |                                                   |         |
|--------------------|---------------------------------------------------|---------|--------------------|---------------------------------------------------|---------|
| FALL               |                                                   |         | SPRING             |                                                   |         |
| Course             | Course Title                                      | Credits | Course             | Course Title                                      | Credits |
| BMES 4015          | BME Senior Design and Project<br><i>Pre: 3024</i> | 3 [F]   | BMES 4016          | BME Senior Design and Project<br><i>Pre: 4015</i> | 3 [S]   |
| BMES 4134          | Global, Societal, & Ethics in BME                 | 3 [F]   |                    | BMES Technical Elective                           | 3       |
|                    | BMES Technical Elective                           | 3       |                    | BMES Technical Elective                           | 3       |
|                    | Technical Elective                                | 3       |                    | Technical Elective                                | 3       |
|                    | Pathways 3                                        | 3       |                    |                                                   |         |
|                    | ROTC                                              | Varies  |                    | ROTC                                              | Varies  |
| Total Credit Hours |                                                   | 15 - 17 | Total Credit Hours |                                                   | 12 - 14 |