

# BS-MS BIOMEDICAL ENGINEERING

The School of Science and Engineering established the BS-MS program to offer students an opportunity to meet the full requirements of the existing BS and MS degree programs in a shorter time period than the separate degree programs by completing a B.S. degree within four years and then completing an M.S. degree in the fifth year.

- Students admitted to the program will receive the SCE BS-MS Scholarship which will cover the difference between Graduate and Undergraduate tuition rates
- Students are required to maintain full-time undergraduate enrollment (minimum 12 hours/ semester)
- Must be continuously enrolled from BS to MS programs (must enter graduate program the semester following completion of BS degree requirements, summer excepted)
- Students are required to maintain full-time enrollment (minimum 9 hours/semester) in the graduate phase of the program and complete the master's degree within a year of their bachelor's degree completion to continue to receive the BS/MS Scholarship

## Admission Requirements for BS-MS Program:

Students must meet the following requirements to be eligible:

- The GRE will be waived for students who meet the qualifications above and are planning to enroll in the BS/MS program
- Students must indicate their interest and apply to the program no later than the end of their junior year
- Students must complete 30 hours at UMKC prior to admission to the BS/MS program
- Students are expected to follow the recommended curriculum (although deviations are possible) and must maintain a UMKC cumulative GPA of 3.00 or higher

This program offers students an opportunity to meet the full requirements of the existing BS and MS degree programs in a shorter time period than the separate degree programs by completing a B.S. degree in Biomedical Engineering within four years, and then completing an M.S. degree in Biomedical Engineering in their fifth year.

## Requirements for Graduation

### Credit Hour Requirements

The BS and MS program in Biomedical Engineering requires:

- 127 Undergraduate Credit Hours
- 30 Graduate Credit Hours
- 151 Total Credit Hours (6 Elective Hours of Overlap)

For additional details, please contact our Department by e-mail [sse@umkc.edu](mailto:sse@umkc.edu). ([sce@umkc.edu](mailto:sce@umkc.edu))

## 5 Year BS-MS Map

### First Year

| Fall Semester | Credits | Spring Semester                 | Credits   |
|---------------|---------|---------------------------------|-----------|
| MATH 266      |         | 4 MATH 268                      | 3         |
| CHEM 211      |         | 4 PHYSICS 240                   | 5         |
| GEFSE 101     |         | 3 CHEM 212R                     | 4         |
| CHEM 211L     |         | 1 CHEM 212LR                    | 1         |
| ENGLISH 110   |         | 3 COMM-ST 110, 140, 212, or 277 | 3         |
| BMD-ENGR 115  |         | 1                               |           |
|               |         | <b>16</b>                       | <b>16</b> |

### Second Year

| Fall Semester                      | Credits | Spring Semester | Credits |
|------------------------------------|---------|-----------------|---------|
| MATH 250                           |         | 4 MATH 345      | 3       |
| PHYSICS 250                        |         | 5 BMD-ENGR 215  | 1       |
| CIV-ENGR 275 (Satisfies GE CRT-SC) |         | 3 BIOLOGY 202   | 3       |
| BIOLOGY 108                        |         | 3 E&C-ENGR 216  | 4       |

|                                                          |                |                                                                                   |                |   |
|----------------------------------------------------------|----------------|-----------------------------------------------------------------------------------|----------------|---|
| BIOLOGY 108L                                             |                | 1 MEC-ENGR 285                                                                    |                | 3 |
|                                                          |                | GECRT-AH 101, 102, 103, 104, 105,<br>106, 107, 108, 109, 110, 112, 113, or<br>114 |                | 3 |
|                                                          |                | <b>16</b>                                                                         | <b>17</b>      |   |
| <b>Third Year</b>                                        |                |                                                                                   |                |   |
| <b>Fall Semester</b>                                     | <b>Credits</b> | <b>Spring Semester</b>                                                            | <b>Credits</b> |   |
| BIOLOGY 304                                              |                | 3 BMD-ENGR 315                                                                    |                | 3 |
| BIOLOGY 316                                              |                | 3 BMD-ENGR 325                                                                    |                | 3 |
| E&C-ENGR 380                                             |                | 3 E&C-ENGR 276                                                                    |                | 3 |
| E&C-ENGR 381                                             |                | 1 E&C-ENGR 277                                                                    |                | 1 |
| MEC-ENGR 411                                             |                | 3 MEC-ENGR 299                                                                    |                | 3 |
| ENGLISH 225                                              |                | 3 GECRT-SS 101, 102, 104, 105, 106,<br>107, 108, or 111                           |                | 3 |
|                                                          |                | <b>16</b>                                                                         | <b>16</b>      |   |
| <b>Fourth Year</b>                                       |                |                                                                                   |                |   |
| <b>Fall Semester</b>                                     | <b>Credits</b> | <b>Spring Semester</b>                                                            | <b>Credits</b> |   |
| BMD-ENGR 335                                             |                | 3 BMD-ENGR 495WI                                                                  |                | 3 |
| BMD-ENGR 415                                             |                | 3 Biomedical UGRD Elective <sup>^^</sup>                                          |                | 3 |
| MEC-ENGR 406                                             |                | 3 Biomedical UGRD Elective <sup>^^</sup>                                          |                | 3 |
| MEC-ENGR 492 (Satisfies GECUE)                           |                | 3 HISTORY 101, 102, POL-SCI 210,<br>CJC 364, or HONORS 230                        |                | 3 |
| Biomedical UGRD Elective <sup>^^</sup>                   |                | 3 GECDV 201, 202, 203, 204, 205, 206,<br>207, 208, 209, 210, or 211               |                | 3 |
|                                                          |                | <b>15</b>                                                                         | <b>15</b>      |   |
| <b>Fifth Year</b>                                        |                |                                                                                   |                |   |
| <b>Fall Semester</b>                                     | <b>Credits</b> | <b>Spring Semester</b>                                                            | <b>Credits</b> |   |
| BIOLOGY 404, MEDB 5501, or<br>COMP-SCI 5565              |                | 3 Biomedical GRD Elective <sup>^</sup>                                            |                | 3 |
| Biomedical GRD Elective <sup>^</sup>                     |                | 3 Biomedical GRD Elective <sup>^</sup>                                            |                | 3 |
| Biomedical GRD Elective <sup>^</sup>                     |                | 3 Biomedical GRD Elective <sup>^</sup>                                            |                | 3 |
| Biomedical GRD Elective or Thesis<br>Credit <sup>*</sup> |                | 3 Biomedical GRD Elective or Thesis<br>Credit <sup>*</sup>                        |                | 3 |
|                                                          |                | <b>12</b>                                                                         | <b>12</b>      |   |
| <b>Total Credits: 151</b>                                |                |                                                                                   |                |   |

**\*\* NOTE:** 2 undergraduate courses (6 credit hours) counted toward the graduate degree for BS-MS students: E&C-ENGR 380 Signals & Systems & MEC-ENGR 406 Introduction to Biomaterials

<sup>^^</sup> Undergraduate Electives: at least 1 undergraduate elective course must be an engineering elective & only 1 undergraduate elective can be below the 300 level (see undergraduate elective list)

<sup>^</sup> Graduate Electives: Minimum of 9 credit hours of engineering and minimum of 6 credit hours of biology/medical/science (see graduate elective list)

<sup>\*</sup> Coursework Masters: 21 Elective Credits OR Thesis Masters: 15 Elective Credits + 6 Thesis Credits