# Bachelor of Science in Biomedical Engineering

Effective Fall 2018

<table>
<thead>
<tr>
<th>Semester I</th>
<th>Semester II</th>
<th>Semester III</th>
<th>Semester IV</th>
<th>Semester V</th>
<th>Semester VI</th>
<th>Semester VII</th>
<th>Semester VIII</th>
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<tr>
<td>Total Credits: 18</td>
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<tr>
<td>Fall</td>
<td>Spring</td>
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<td>Fall</td>
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<tr>
<td>MAC 2311/2381&lt;sup&gt;1&lt;/sup&gt;</td>
<td>MAC 2312/2282&lt;sup&gt;2&lt;/sup&gt;</td>
<td>MAC 2313/2283&lt;sup&gt;3&lt;/sup&gt;</td>
<td>MAP 2302&lt;sup&gt;1&lt;/sup&gt;</td>
<td>Engineering or Science Elective (3)</td>
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<td>Calculus I (4)</td>
<td>Calculus II (4)</td>
<td>Multivariable Calculus (4)</td>
<td>Diff. Equations (3)</td>
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<td>CHM 1045&lt;sup&gt;1&lt;/sup&gt;</td>
<td>PHY 2048&lt;sup&gt;1&lt;/sup&gt;</td>
<td>PHY 2049&lt;sup&gt;1&lt;/sup&gt;</td>
<td>PHY 2049L&lt;sup&gt;1&lt;/sup&gt;</td>
<td>EIN 3235</td>
<td>BME 2740</td>
<td>BME 3632</td>
<td>Engineering Elective (3)</td>
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<td>Gen. Chem. I (3)</td>
<td>Phys. w/ Calc. I (4)</td>
<td>Phys. w/ Calc. II (4)</td>
<td>Phys. w/ Calc. II Lab (1)</td>
<td>Eval of Eng'g Data (3)</td>
<td>BME Mod. &amp; Sim. (3)</td>
<td>BME Transport (3)</td>
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<td>CHM 1045L&lt;sup&gt;1&lt;/sup&gt;</td>
<td>CHM 1046&lt;sup&gt;1&lt;/sup&gt;</td>
<td>CHM 2210&lt;sup&gt;1&lt;/sup&gt;</td>
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<td>EEL 3110</td>
<td>EEL 3110L</td>
<td>BME 4011</td>
<td>Engineering Elective (3)</td>
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<td>BME 1008C</td>
<td>BME 1046L&lt;sup&gt;1&lt;/sup&gt;</td>
<td>CHM 2210L&lt;sup&gt;1&lt;/sup&gt;</td>
<td>Social Science</td>
<td>BME 3403</td>
<td>BME 3603C</td>
<td>BME 4050L</td>
<td>BME 4930&lt;sup&gt;2&lt;/sup&gt;</td>
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<td>Art</td>
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<td>Writing &amp; Rhet. II (3)</td>
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<td>Group Two (3)</td>
<td>Group One (3)</td>
<td>BME Data Eval. Prin. (3)</td>
<td>Group Two (3)</td>
<td>Biomaterials (3)</td>
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1 Minimum “C” or better in all Common Pre-requisites AND a combined GPA of 2.5 in all Common Pre-requisites are required for graduation

2 Student’s must confirm attendance to ten BME approved seminars throughout the program in order to graduate.

NOTE 1: Any student found to be taking any BME course without its prerequisite or co-requisite will be dropped from the course without a refund.

NOTE 2: Transfer and Change of Major students must have a “C” or better and a combined GPA of 2.5 in the following courses: MAC 2311, CHM 1045/L, BSC 2010/L, and PHY 2048/L. Students must also have at least a 2.5 overall GPA to transfer or change majors to BME.

### For Reference Only!

Total Credits for Major: 128

Check Catalog for complete details

Please see the other side for co-reqs & Pre-reqs for each course

### Other Requirements (Must be completed for graduation):

<table>
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<th>FLENT/FLEX</th>
<th>9 Summer Credit Hours</th>
<th>UCC</th>
<th>2.5 Prerequisite GPA</th>
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<td>GRW1</td>
<td>GRW2</td>
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Civics Literacy: _____

Revised: Oct. 2018
THE COURSES MUST BE COMPLETED WITH COMBINED GPA OF A 2.5

MAC 2311 Calculus I (4)
   Prereqs: MAC 1147 OR MAC 1140 & MAC 1114
MAC 2312 Calculus II (4)
   Prereq: MAC 2311
MAC 2313 Multivariable Calculus (4)
   Prereq: MAC 2312
MAP 2302 Differential Equations (3)
   Prereq: MAC 2312
BSC 2010 General Biology I (3)
BSC 2010L General Biology I Lab (1)
PHY 2048 Physics with Calculus I (4)
   Prereq: MAC 2311
   Coreq: PHY 2048L
PHY 2048L Physics with Calculus I Lab (1)
   Coreq: PHY 2048
PHY 2049 Physics with Calculus II (4)
   Prereqs: PHY 2048 & MAC 2312
PHY 2049L Physics with Calculus II Lab (1)
   Coreq: PHY 2049
CHM 1045 General Chemistry I (3)
   Coreq: CHM 1045L
CHM 1045L General Chemistry I Lab (1)
   Coreq: CHM 1045
CHM 1046 General Chemistry II (3)
   Prereqs: CHM 1045 & CHM 1045L
   Coreq: CHM 1046L
CHM 1046L General Chemistry II Lab (1)
   Coreq: CHM 1046
CHM 2210 Organic Chemistry I (4)
   Prereqs: CHM 1046 & CHM 1046L
   Coreq: CHM 2210L
CHM 2210L Organic Chemistry I Lab (1)
   Coreq: CHM 2210

* ONLY GRADE “C” OR BETTER WILL BE ACCEPTED FOR THE ABOVE COURSES

GRADE OF “D” OR BETTER WILL BE ACCEPTED FOR BELOW COURSES

BME 1008C Introduction to BME (2)
BME 1054L BME Computing (1)
BME 2740 BME Modeling and Simulation (3)
   Prereqs: BSC 2010 & BME 1054L
   Coreqs: MAP 2302 & BME 1008C
EIN 3325 Evaluation of Engineering Data I (3)
   Prereq: MAC 2312
STA 3033 Probability and Statistics (3)
   Prereq: MAC 2312
BME 3721 BME Data Evaluation Principles (3)
   Prereq: STA 3033 OR EIN 3325
BME 3403 Engineering Analysis of Bio Sys I (3)
   Prereqs: BME 2740, PHY 2049 & CHM 2210
BME 3404 Engineering Analysis of Bio Sys II (3)
   Prereq: BME 3403
EGM 3503 Applied Mechanics (4)
   Prereqs: MAC 2312 & PHY 2049
EEL 3110 Circuit Analysis (3)
   Prereqs: MAC 2312, PHY 2049, & BME 1008C
   Coreqs: MAP 2302, EEL 3110L
EEL 3110L Circuit Lab (1)
   Prereq: PHY 2049L
   Coreq: EEL 3110
BME 3632 BME Transport (3)
   Prereqs: BME 2740, EGM 3503, CHM 1046, MAP 2302, PHY 2049 & MAC 2313
BME 4503C Medical Instrumentation (4)
   Prereq: EEL 3110
BME 4011 Clinical Rotations for BME (1)
   Prereq: BME 3403
BME 4100 Biomaterials (3)
   Prereq: EGM 3503
   Coreq: BME 3404
BME 4050L BME Lab I (1) (FALL ONLY)
   Prereqs: BME 3632, BME 3721 & EEL 3110
   Coreq: BME 4100
BME 4051L BME Lab II (1) (SPRING ONLY)
   Prereqs: BME 3632, BME 3721 & EEL 3110
   Coreq: BME 4100
BME 4880 Design Project Organization (1)
   Prereqs: BME 3404 & BME 4503C
   Coreq: BME 4800
BME 4800 Design of BME Systems and Devices (3)
   Prereqs: BME 3721 & BME 4011
   Coreq: BME 3632
BME 4908 Senior Design Project (3)
   Prereq: BME 4880, BME 4800
BME 4930 Undergraduate Seminar (0)

*The course is considered PASS or FAIL

**Students must enroll for the course

ENGINEERING ELECTIVES

BME 4562 Biomedical Optics (3) (Fall Only)
   Prereqs: PHY 2049 & BME 3403
BME 4531 Medical Imaging (3) (Spring Only)
   Prereqs: PHY 2049 & BME 2740
BME 4422 Biophysics of Neural Comp. (3) (Fall Only)
   Prereqs: EEL 3110 & EEL 3110L
EEL 3135 Signals & Systems (3) (Varies by Dept.)
   Prereq: MAP 2302
EEE 4510 Intro to Digital Syst. (3) (Varies by Dept.)
   Prereq: EEL 3135
EEL 3657 Control Systems I (3) (Varies by Dept.)
   Prereqs: EEL 3110 & EEL 3135
BME 4211 Orthopedic Biom. (3) (Spring Only)
   Prereq: BME 4100
BME 4260 Eng. Hemodynamics (3) (Spring Only)
   Prereqs: BME 3632 & BME 3404
EGM 3365 Materials in Eng. (3) (Varies by Dept.)
   Prereqs: CHM 1045, MAC 2311 & PHY 2048
EGM 3311 Analysis of Eng. Sys. (3) (Varies by Dept.)
   Prereqs: MAC 2312 & BME 2740
EML 3036 Sim. Soft. of Eng. Sys. (3) (Varies by Dept.)
   Prereqs: EGM 3503 & BME 2740
EML 4804 Intro. to Mechatronics (3) (Varies by Dept.)
   Prereqs: EEL 3110 or EEL 3110L
BME 4311 Molecular Engineering (3) (Fall Only)
   Prereq: BME 3403
BME 4332 Cell and Tissue Eng. (3) (Fall Only)
   Prereqs: MAC 2313, BME 3632 & BME 4100
BME 4331 Artificial Organs (3) (Spring Only)
   Prereq: BME 4332
BME 4230 Biomech of Cardio. Syst (3) (Spring Only)
   Prereq: BME 3632, BME 3404, BME 4100

SCIENCE ELECTIVES (ALLOWED 3 MAX)

CHM 2211 Organic Chemistry II (3) (Varies by Dept.)
   Prereq: CHM 2210
   Coreq: CHM 2211L
CHM 3120 Analytic Chemistry (3) (Varies by Dept.)
   Prereqs: CHM 1046 & CHM 1046L
   Coreq: CHM 3120L
BCH 3033 General Biochemistry (3) (Varies by Dept.)
   Prereqs: CHM 2211 & BSC 2010
CHM 4304 Biological Chemistry I (3) (Varies by Dept.)
   Prereqs: CHM 2211 & CHM 2211L
CHM 4307 Biological Chem. II (3) (Varies by Dept.)
   Prereq: CHM 4304
PCB 3063 Genetics (3) (Varies by Dept.)
   Prereq: BSC 2010
PCB 4023 Cell Biology (3) (Varies by Dept.)
   Prereqs: PCB 3063 & CHM 1046
PCB 4233 Immunology (3) (Varies by Dept.)
   Prereq: PCB 3063
MCM 3200 General Microbiology (3) (Varies by Dept.)
   Prereqs: CHM 2210, CHM 2211, BSC 2010 &
   BSC 2011
ZOO 3753 Histology (3) (Varies by Dept.)
   Prereqs: BSC 2010, CHM 2210 & CHM 2211