

## Biomedical Engineering

### Educational Objectives

The fundamental goal of the undergraduate program in Biomedical Engineering is to offer a high-quality education, designed to achieve the following specific educational objectives.

Within a few years of graduation, Biomedical Engineering graduates are expected to attain:

1. Increasing responsibility beyond that in their entry-level description in job functions within Biomedical Engineering or related employment, and/or
2. Successful progress within graduate degree programs in Biomedical Engineering or other professional degrees such as other Engineering, Medicine, Business or Law, and
3. Continued successful professional development and adaptation to evolving technologies within their chosen field.

The program also offers a Pre-Medical specialization for students who wish to pursue a degree in development, to systems analysis, automation, manufacturing, customer service and support, marketing and sales.

The SIU Capstone Option is available to students who have earned an Associate in Engineering Sciences (AES) degree with a minimum cumulative 2.0/4.0 GPA on all accredited coursework prior to the completion of the AES, as calculated by SIU. The Capstone Option reduced the University Core Curriculum requirements from 39 to 30 hours, therefore reducing the time to degree completion. Students interested in the Capstone Option should contact the College of Engineering, Computing, Technology, and Mathematics Advisement Office to develop a personal coursework pathway to degree completion.

### Bachelor of Science (B.S) in Biomedical Engineering Degree Requirements

Degree Requirements	Credit Hours
University Core Curriculum Requirements	39
Foundation Skills	13
CMST 101	3
ENGL 101, ENGL 102	6
MATH 150 (4)	3
UNIV 101	1
Disciplinary Studies	23
Fine Arts	3
BIOL 211 (4)	2

Degree Requirements	Credit Hours
Humanities <sup>1</sup>	6
PHYS 205A	3
PHYS 205B	3
Social Science <sup>2</sup>	6
Integrative Studies (Multicultural/Diversity)	3
<b>Requirements for Biomedical Engineering Major</b>	<b>87</b>
Basic Science: PHYS 205A (3), PHYS 205B (3), PHYS 255A (1), PHYS 255B (1), BIOL 211-2 (4), PHSL 201 (3)	7
Mathematics: MATH 150 (4), MATH 250 (4), MATH 251 (3), MATH 305 (3)	11
BME Required Courses: BME 101 (3), ECE 222 (3), ECE 235 (3), ECE 235L (1), ECE 296 (2), ECE 296L (2), BME 337 (3), BME 338 (2), BME 338L (2), ECE 355 (3), ECE 355L (1), ECE 315 (4), ECE 327 (4), BME 495A (3), BME 495B (3)	39
Technical Electives <sup>3</sup>	24
General Technical Electives <sup>4</sup>	6
<b>TOTAL</b>	<b>126</b>

<sup>1</sup> Recommended courses: PHIL 104 (3), PHIL 105 (3)

<sup>2</sup> Recommended courses: PSYC 102 (3), PSYC 302 (3), ECON 240 (3), ECON 241 (3)

<sup>3</sup> At least 5 courses from: BME 356, BME 356L, BME 417, BME 418, BME 485, BME 435, ECE 438, ECE 467, ECE 494, ECE 498. Other eligible Technical Electives: ECE 458, ECE 468, ECE 469, ECE 475, and at most 5 credit hours from the following: PHSL 301, PHSL 310, CHEM 210, CHEM 211, CHEM 340, CHEM 341, CHEM 350, CHEM 351, CHEM 442, CHEM 443.

<sup>4</sup> Program approved ECE, Mathematics, Physics, Physiology, or Computer Science Courses.

### **B.S. Biomedical Engineering - Pre-Medical Specialization Degree Requirements**

Degree Requirements	Credit Hours
University Core Curriculum Requirements	39
Foundations Skills: CMST 101, ENGL 101, ENGL 102, MATH 150 (4), UNIV 101	13

Degree Requirements	Credit Hours
Disciplinary Studies: Fine Arts-3, BIOL 211 (4), Humanities-6, PHYS 205A (3), PHYS 205B (3), Social Science-6 <sup>1</sup>	25
Integrative Studies (Multicultural/Diversity)	3
Requirements for Biomedical Engineering with a Pre-Medical Specialization	87
Basic Science: PHYS 205A (3), PHYS 205B (3), PHYS 255A (1), PHYS 255B (1), BIOL 211(4), CHEM 200, CHEM 201 (4)	8
Mathematics: MATH 150 (4), MATH 250 (4), MATH 251 (3), MATH 305 (3)	11
Required Courses: BME 101 (3), ECE 222 (3), ECE 235 (3), ECE 235L (1), ECE 296 (2), ECE 296L (2), BME 337 (3), BME 338 (2), BME 338L (2), ECE 355 (3), ECE 355L (1), BME 435 (3), PHSL 301 (4), CHEM 210, CHEM 211 (4), CHEM 340, CHEM 341 (5), CHEM 350, CHEM 351 (5), BME 495A (3), BME 495B (3) <sup>2</sup>	52
Technical Electives <sup>3</sup>	10
General Technical Electives <sup>4</sup>	6
Total <sup>5</sup>	126

<sup>1</sup> Recommended Humanities courses: PHIL 105-3, PHIL 104-3 Recommended Social Science courses: PSYC 102-3, PSYC 302-3, ECON 240-3, ECON 241-3

<sup>2</sup> PHSL 301 (4) may be substituted by PHSL 310 (5)

<sup>3</sup> For Technical Electives choose from: BME 356, BME 356L, BME 417, BME 418, ECE 356, ECE 356L, ECE 438, ECE 467, ECE 475, ECE 494, ECE 498, BME 485

<sup>4</sup> Program approved ECE, Mathematics, Physics, Physiology, or Computer Science Courses.

<sup>5</sup> CHEM 442, CHEM 443 (5) are recommended for MCAT preparation

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**Catalog Year Statement:**

Students starting their collegiate training during the period of time covered by this catalog (see bottom of this page) are subject to the curricular requirements as specified herein. The requirements herein will extend for a seven calendar-year period from the date of entry for baccalaureate programs and three years for associate programs. Should the University change the course requirements contained herein subsequently, students are assured that necessary adjustments will be made so that no additional time is required of them.