

Biomedical Engineering

Mission Statement

The mission of the School of Electrical, Computer, and Biomedical Engineering is to serve society as a center for learning and innovation in all major areas of electrical, computer, and biomedical engineering. The School accomplishes its mission by disseminating existing knowledge through teaching, by creating new knowledge through research and publications, and by converting original ideas and concepts into new technologies. Through the integration of education and research, the School creates the academic environment necessary for training innovators and leaders for the future.

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:

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 medicine after graduation.

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

Degree Requirements	Credit Hours
University Core Curriculum Requirements	39
Foundation Skills: CMST 101, ENGL 101, ENGL 102, MATH 150 (3 credits out of 4), UNIV 101	13
CMST 101	3
ENGL 101, ENGL 102	6
MATH 150 (3 credits out of 4)	3
UNIV 101	1
Disciplinary Studies	23
Fine Arts	3
Humanities ¹	6
Social Science ²	6

Degree Requirements	Credit Hours
PHSL 201 (2 credits out of 3 for Human Health)	2
BIOL 211 (3 credits out of 4)	3
PHYS 205A	3
Integrative Studies (Multicultural/Diversity)	3
Requirements for Biomedical Engineering Major	87
Basic Science	9
BIOL 211 (1 credit out of 4)	1
PHYS 205B, PHSL 201 (1 credit out of 3)	4
CHEM 200, CHEM 201	4
Mathematics	11
MATH 150 (1 credit out of 4)	1
MATH 250, MATH 251, MATH 305	10
BME Required Courses	40
BME 101, BME 296, BME 296L, BME 336, BME 337, BME 338, BME 338L, BME 351, BME 355L, BME 438, BME 495A, BME 495B, ECE 222, ECE 235, ECE 235L, ECE 355	
Technical Electives ³	27
TOTAL	126

¹ Recommended Humanities courses: PHIL 104, PHIL 105

² Recommended Social Science courses: PSYC 102, PSYC 302, ECON 240, ECON 241

³ At least 9 credit hours are from courses in the list: BME 341, BME 356 & BME 356L, BME 417, BME 418, BME 419, BME 431, BME 432, BME 435, BME 439, BME 448, BME 453, BME 470, BME 485. The remaining credit hours can be from 3xx-level or 4xx-level courses offered by the school of ECBE. At most 9 credit hours can be from 3xx-level or 4xx-level engineering courses offered by other schools in the college.

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

Degree Requirements	Credit Hours
University Core Curriculum Requirements	39

Degree Requirements	Credit Hours
Foundations Skills	13
CMST 101	3
ENGL 101, ENGL 102	6
MATH 150 (3 credits out of 4)	3
UNIV 101	1
Disciplinary Studies	23
Fine Arts	3
Humanities ¹	6
Social Science ²	6
PHSL 310 (2 credits out of 5 for Human Health)	2
BIOL 211 (3 credit out of 4)	3
PHYS 205A	3
Integrative Studies (Multicultural/Diversity)	3
Requirements for Biomedical Engineering	87
Basic Science	11
PHYS 205B	3
BIOL 211 (1 credit out of 4)	1
PHSL 310 (3 credits out of 5)	3
CHEM 200, CHEM 201	4
Mathematics	11
MATH 150 (1 credit out of 4)	1
MATH 250, MATH 251, MATH 305	10
Required Courses	54
BME 101, BME 296, BME 296L, BME 336, BME 337, BME 338, BME 338L, BME 351, BME 355L, BME 438, BME 495A, BME 495B, ECE 222, ECE	

Degree Requirements	Credit Hours
235, ECE 235L, ECE 355, CHEM 210, CHEM 211, CHEM 340, CHEM 341, CHEM 350, CHEM 351	
Technical Electives ³	11
Total	126

¹ Recommended Humanities courses: PHIL 104, PHIL 105

² Recommended Social Science courses: PSYC 102, PSYC 302, ECON 240, ECON 241

³ At least 9 credit hours are from courses in the list: BME 341, BME 356 & BME 356L, BME 417, BME 418, BME 419, BME 431, BME 432, BME 435, BME 439, BME 448, BME 453, BME 470, BME 485. The remaining credit hours can be from 3xx-level or 4xx-level engineering courses offered by the school of ECBE or other schools in the college.

Capstone Option for Transfer Students

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 the transfer institution's grading policies. The Capstone Option reduces 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.

Pre-engineering in Biomedical Engineering

The Pre-Engineering program in Biomedical Engineering is designed for students who apply to the Biomedical Engineering program with the potential to be successful, but who do not meet admission requirements for the program. The Pre-Biomedical Engineering advisors will develop an individualized program of study aligned with the curricular guide of Biomedical Engineering program offered in the College with the goal of preparing these students to enter a major in Biomedical Engineering. All students must achieve satisfactory math placement, as determined by the College, before being formally admitted to the Biomedical Engineering program. The advisors will consider math placement when developing the individualized program of study. In addition, pre-engineering students are required to enroll in ENGR 111.

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