BIOMEDICAL ENGINEERING, B.S. TO BIOMEDICAL ENGINEERING, M.S. ACCELERATED PROGRAM

The accelerated B.S. to M.S. program (ABM) in biomedical engineering enables top students to earn both a bachelor's and a master's degree in a five-year period. This accelerated path provides the technical depth and specialization needed for expanded career opportunities, increased responsibilities, and preparation for doctoral studies.

For additional information, see the catalog entries for the following programs:

Biomedical Engineering, B.S. (https://catalog.slu.edu/colleges-schools/science-engineering/biomedical/biomedical-engineering-bs/)

Biomedical Engineering, M.S. (https://catalog.slu.edu/colleges-schools/science-engineering/biomedical/biomedical-engineering-ms/)

Requirements

Admission Requirements

To apply to the Accelerated BS-MS in Biomedical Engineering (BME) program, undergraduate students in the BME department must have an overall cumulative GPA of 3.25 or higher after completing their fifth semester of study or 75 credit hours of coursework.

The application should be submitted in the fall semester of the junior year.

Students selecting the thesis option must first seek approval from their tentative research advisor before applying.

For non-thesis BS-MS students, the application includes a Statement of Purpose and a Program of Study. For thesis BS-MS students, the application also includes a plan for integrating the Senior Project with the Thesis project - to be written in collaboration with the tentative research advisor, along with a Statement of Purpose and a Program of Study.

Program Requirements

If admitted, students are permitted to register for a maximum of 15 credit hours per semester during their spring of junior year and both semesters senior year. Students may apply a maximum of 15 credits of graduate coursework (5000-level and above) taken during the accelerated program toward both their B.S. and M.S. degrees.

Students must satisfy the B.S. and M.S. degree requirements separately, with the exception that a maximum of 15 credit hours of qualifying coursework (5000-level) taken to satisfy B.S. requirements can also be used to fulfill 15 credit hours of the M.S. degree requirements. Up to 6 additional credits of qualifying coursework (4000- or 5000-level) completed while a senior, but that are not required for earning the B.S. degree, can be used towards the M.S. degree.

Undergraduate Program Requirement	Met by Graduate Course
Advanced BME Electives	15 credits BME 5000-level or above courses

Both thesis and non-thesis M.S. options are available to students in the accelerated BS-MS program, with distinct requirements detailed below:

Thesis Option

Students in the accelerated BS-MS program should select a research advisor for the thesis option before applying to the accelerated program. Students who choose the thesis option are encouraged to start their research at the beginning of their junior year but must start their research by the summer between junior and senior year. A delay in starting the thesis research may result in a corresponding delay in finishing the M.S. portion of the accelerated BS-MS degree program.

Thesis BS-MS students should take BME 5010 Research Analysis (2 cr) during their senior year and BME 5040 Technical Communication in the Discipline (1 cr) during the spring semester of their M.S. year.

Non-Thesis Option

For students opting for the non-thesis M.S. option, the primary requirement is selecting a graduate mentor during the junior year. Students who wish to gain independent research experience under the non-thesis option could choose to take 3 credits (both maximum and minimum) of BME 5960 Master's Project (1-3 cr) during the first semester of their master's year. Students must obtain permission/acceptance from a research advisor to enroll in the course.

Timeline and Completion

Students in the accelerated BS-MS program are expected to complete their M.S. degree within three semesters, plus a summer in residence, as a graduate student. For the thesis option, the oral thesis proposal should be taken within 6 months of completion of BME 4960 Senior Project II (3 cr) and at least one full semester before the thesis defense. The M.S. thesis is expected to be defended within 12 months after passing the oral thesis proposal.

Roadmap

This roadmap is just one example of a semester-by-semester plan of study for this program. There are other plans students can and do take. The plan of study for each particular student is established in consultation with each student's academic advisor; *this roadmap does not replace academic advising appointments.*

Roadmap notes:

- This Roadmap assumes full-time enrollment unless otherwise noted.
- Courses/Milestones marked with an "!" are critical and must be completed in the semester listed in the Roadmap to ensure a timely graduation.
- Course availability and sequencing are subject to change.

Thesis Option

Course	Title	Credits
Year Three		
Spring		
BME 3840	Junior Lab	1
BME 3150	Biomedical Instrumentation	3

CORE 1700	Ultimate Questions: Philosophy	3
BME-Related Elective		3
5000-level BME Foundational courses *		6
	Credits	**16**
Year Four		
Fall		
BME 4950	Senior Project I	3
CORE 1600	Ultimate Questions: Theology	3
BME-Related elective		3
5000-level BME Foundational course *		3
5000-level BME Foundational course or elective *		3
	Credits	**15**
Spring		
BME 4960	Senior Project II	3
CORE 3600	Ways of Thinking: Social and Behavioral Sciences	3
BME-Related elective		3
5000-level BME Foundational course or elective *		3
Core course		3
Graduate Seminar		0
B.S. degree conferral		
	Credits	**15**
Year Five		
Fall		
BME 5010	Research Analysis	2
BME 5990	Thesis Research	3
BME Graduate Elective		3
Graduate Seminar		0
	Credits	**8**
Spring		
BME 5040	Technical Communication in the Discipline	1
BME 5990	Thesis Research	3
BME Graduate Elective		3
Graduate Seminar		0
	Credits	**7**
	Total Credits	**61**

* Counting for both the B.S. and M.S. degrees

Non-Thesis Option

Course	Title	Credits
Year Three		
Spring		
BME 3840	Junior Lab	1
BME 3150	Biomedical Instrumentation	3
CORE 1700	Ultimate Questions: Philosophy	3
BME-Related elective		3
5000-level BME Foundational courses *		6
	Credits	**16**
Year Four		
Fall		
BME 4950	Senior Project I	3
CORE 1600	Ultimate Questions: Theology	3
BME-Related elective		3
5000-level BME Foundational course *		3
5000-level BME Foundational course or elective *		3
	Credits	**15**
Spring		
BME 4960	Senior Project II	3
CORE 3600	Ways of Thinking: Social and Behavioral Sciences	3
BME-Related elective		3
CORE course		3
5000-level BME Foundational course or elective *		3
Graduate Seminar		0
B.S. degree conferral		
	Credits	**15**
Year Five		
Fall		
5000-level BME graduate electives		9
Graduate Seminar		0
	Credits	**9**
Spring		
5000-level BME graduate electives		6
Graduate Seminar		0
	Credits	**6**
	Total Credits	**61**

* Counting for both the B.S. and M.S. degrees

Contact Us

For more information about biomedical engineering programs, please contact:

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