Emphasis - Bioinformatics

B.S.B.E. in Biomedical Engineering

Description

This Bachelor of Science in Biomedical Engineering (BME) degree program will prepare engineering students at the University of Mississippi to capably apply advanced mathematics, science, and engineering to solve the problems at the interface of engineering, biology, and medicine. Moreover, the curriculum will prepare graduates with the ability to make measurements on and interpret data from living systems, addressing the problems associated with the interaction between living and non-living materials and systems.

The graduates of the program will be able to pursue (i) employment in biomedical or related industries (ii) graduate studies in biomedical engineering or related discipline, and (iii) pursue professional careers in medicine, dentistry, pharmacy, or patent law.

Minimum Total Credit Hours: 127

General Education Requirements

The general education requirements of the program are consistent with The University of Mississippi's tradition of educating engineering leaders through the school's strong interaction with the university's liberal arts programs. Further, these requirements are established to fulfill the school's published mission of preparing "students with a broad-based education" intended to develop "leadership skills" and "communication skills." The core/general education requirements for the School of Engineering include WRIT 101, WRIT 102; Math 261-262; and a minimum of 8 credit hours of laboratory science courses as specified by each department. In addition, 18 credit hours, as described below, must be taken. Students should check with their department to learn the specific course requirements for an individual program. Fifteen Credits of Liberal Arts – Students must complete at least 15 semester hours consisting of social/behavioral sciences, humanities, and fine arts course work. At least 6 credit hours must be in the social/behavioral sciences, and at least 9 credit hours must be in combined humanities and fine arts courses with at least 3 semester hours from each of these areas. For the purpose of these requirements, social/behavioral sciences will include anthropology, economics, political science, psychology, and sociology; humanities will include classics, literature, history, modern languages, philosophy, religion, African American Studies, Gender Studies, and Southern Studies; and fine arts will include courses in the history, appreciation, and criticism of art, dance, music, and theatre arts. (Courses emphasizing the enhancement of skills and performance are not acceptable.) Honors courses may be used to meet these requirements as appropriate. An additional 3 hours of are required in Econ 310: Engineering Economy (3 Hrs.)

Course Requirements

Additional requirements for all Biomedical Engineering Tracks include:

Sem Hours	Category	Courses
9	Math	Math 263, 264 and 353
24	Natural (laboratory) Sciences	Chem 105, 106, 115, 116, 221, 225; Bisc 160, 161; and Phys 211, 212,221, 222
36	Biomedical Engineering Core	Csci 251, Ch E 307,Ch E 308, El E 313,El E 314, BME 461, BME 462, Engr 310, Engr 360, El E 331, Engr 400, BME 200, BME 322, BME 333, BME 444, BME 461, and BME 461

In addition to the major course requirements, students must complete the requirements for an emphasis area, each with its own specific requirements.

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Course Requirements

BISC 162, 163, 336; CSCI 343, 475, and 6 hours of CSCI Elected Courses**; 3 Hours of an engineering technical elective; and 6 hours of track approved electives.

** Choose two of the following CSCI 447 - Immersive Media CSCI 345 - Information Storage and Retrieval CSCI 547 - Digital Image Processing CSCI 443 - Advanced Data Science CSCI 444 - Information Visualization

Degree Requirements

The academic regulations for this degree program, as entered in the University of Mississippi Catalog, are in effect for the current or selected academic year and semester. The University of Mississippi reserves the right to 1) change or withdraw courses; 2) change rules for registration, instruction, and graduation; and 3) change other regulations affecting the student body at any time.

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General Education

REQUIREMENT	HOURS	DESCRIPTION
First Year Writing I	3	Successfully complete Hon 101, Writ 100, or Writ 101 with a passing grade.
First Year Writing II	3	Successfully complete one of the following courses with a passing grade: Writ 102, Liba 102, Hon 102.
Math 262	3	Complete Math 262 with a passing grade.
Math 261	3	Complete Math 261 with a passing grade.
6-8 hrs science	6	Complete 6 hours of laboratory science.
2 science labs	8	Successfully complete at least two science laboratory courses.

REQUIREMENT	HOURS	DESCRIPTION
3 hrs social sciences	3	Complete 3 hours of social sciences choosing from the following; economics, anthropology, political science, psychology, and sociology.
3 hrs humanities	3	Complete 3 hrs of humanities choosing from course work in classics, literature, history, modern language, philosophy, religion, Southern studies, African American Studies, Gender Studies, and Southern Studies.
3 hrs fine arts	3	Student must successfully complete 3 hours in the fine arts. The course may be chosen from art history, art appreciation, and criticism of art, dance, music, and theatre arts. Courses emphasizing the enhancement of skills and performance are not acceptable.
3 hrs fine arts/humanities	3	Complete 3 additional hours in any of the humanities or fine arts categories defined by the School of Engineering general education requirements.
Econ 310	3	Successfully complete Econ 310 with a passing grade.

Major Requirements

REQUIREMENT	HOURS	DESCRIPTION
Math 263	3	Complete Math 263 with a passing grade.
Math 264	3	Complete Math 264 with a passing grade.
Math 353	3	Complete Math 353 with a passing grade.
Chem 105	3	Complete Chem 105 with a passing grade.
Chem 106	3	Complete Chem 106 with a passing grade.
Chem 115	1	Complete Chem 115 with a passing grade.
Chem 221	3	Complete Chem 221 with a passing grade.
Chem 225	1	Complete Chem 225 with a passing grade.
Bisc 160	3	Complete Bisc 160 with a passing grade.
Bisc 161	1	Complete Bisc 161 with a passing grade.
Phys 212	3	Complete Phys 212 with a passing grade.
Phys 221	1	Complete Phys 221 with a passing grade.
Phys 222	1	Complete Phys 222 with a passing grade.
Csci 251	3	Complete Csci 251 with a passing grade.
Ch E 307	2	Complete Ch E 307 with a passing grade.
Ch E 308	2	Complete Ch E 308 with a passing grade.
BME 313	3	Complete BME 313 with a passing grade.
BME 314	1	Complete BME 314 with a passing grade.
El E 331	3	Complete El E 331 with a passing grade.
Engr 310	3	Complete Engr 310 with a passing grade.
Engr 360	3	Complete Engr 360 with a passing grade.
Engr 400	1	Complete Engr 400 with a passing grade.
BME 200	2	Complete BME 200 with a passing grade.
BME 462	2	Complete BME 462 with a passing grade.
BME 461	2	Complete BME 461 with a passing grade.
BME 444	3	Complete BME 444 with a passing grade.
BME 333	3	Complete BME 333 with a passing grade.
BME 222	3	Complete BME 222 with a passing grade.

Emphasis - Bioinformatics

REQUIREMENT	HOURS	DESCRIPTION
Bisc 162	3	Complete Bisc 162 with a passing grade.
Bisc 163	1	Complete Bisc 163 with a passing grade.
Bisc 336	4	Complete Bisc 336 with a passing grade.
Csci 343	3	Complete Csci 343 with a passing grade.
Csci 475	3	Complete Csci 475 with a passing grade.
6 hrs Csci elective	6	Complete 6 hrs from the following with a passing grade: Csci 345, CSci 356, Csci 443, Csci 444, Csci 447, or Csci 547.
6 hrs engineering electives	6	Complete 6 hours of engineering electives with a passing grade.
9 hrs emphasis electives	9	Complete 9 hours of emphasis electives with a passing grade.