THE UNIVERSITY of MISSISSIPPI

B.S.B.E. in Biomedical Engineering

Overview

Degree Requirements

Description

The Bachelor of Science in Biomedical Engineering (B.S.B.E.) 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 nonliving 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 disciplines, and (iii) pursue professional careers in medicine, dentistry, pharmacy, or patent law.

Program Educational Objectives

Following graduation and during the first several postgraduate years, biomedical engineering baccalaureate degree holders from the University of Mississippi will possess skill sets to accomplish the following:

1. Meet evolving expectations of future employers in the biomedical engineering workplace as well as other professional careers
2. Exhibit a systematic approach to problem solving in their professional practice including quantitative and analytical skills weighted with considerations towards a sustainable future.
3. Continue their professional development by pursuing advanced studies in medicine and other professional fields if desired.

Student Outcomes

Biomedical engineering students at the University of Mississippi should demonstrate the attainment of the following student outcomes:

1. An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2. An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
3. An ability to communicate effectively with a range of audiences
4. An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgements, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
5. An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
6. An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
7. An ability to acquire and apply new knowledge as needed, using appropriate learning strategies

Minimum Total Credit Hours: 126
General Education Requirements

Fifteen Credits of Liberal Arts:

Students must complete at least 15 semester hours consisting of social/behavioral sciences, humanities, modern or ancient languages, and fine arts course work. At least 6 credit hours must be in the social/behavioral sciences (including Econ 310), and at least 9 credit hours must be in humanities, modern or ancient languages, and fine arts courses with at least 3 semester hours from humanities and at least 3 semester hours from fine arts.

For the purpose of these requirements:

Social/behavioral sciences

will include anthropology (Anth), economics (Econ), political science (Pol), psychology (Psy), sociology (Soc), Liba 203, Liba 313, and either Hon 101 or Hon 102 (if not being used to fulfill composition requirements).

Humanities

will include African American studies (Aas 201, 202), classics (Clc), environmental studies (Envs 101), gender studies (G St 201, 202), history (Hst), Liba 202, 312, 305, literature (Eng 103, 220-226), philosophy (Phil), religion (Rel), Southern studies 100-level, and either Hon 101 or 102 (if not being used to fulfill composition requirements).

Modern or ancient language courses

will include courses in Ancient Greek (Gr), Arabic (Arab), Chinese (Chin), French (Fr), German (Germ), Italian (Ital), Japanese (Japn), Korean (Kor), Latin (Lat), Portuguese (Port), Russian (Russ), Spanish (Span), and Swahili (Swa).

Fine arts

will include courses in art history (AH), Danc 200, Liba 130, Liba 204, Liba 314, Mus 101, Mus 102, Mus 103, Mus 104, Mus 105, Thea 201, and Thea 202.

Three credits of additional general education course work:

Students must complete an additional 3 semester hours of course work beyond the 15 hours required above. These additional 3 hours are to be composed of any additional fine arts, humanities, modern languages, or social science course work (as defined above) or any combination of credits from the courses listed below: AS 301, AS 302, Bus 250, Bus 271, Edld 110, Edld 111, Edld 120, Edld 220, Engr 400, Mgmt 371, GB 370, Msl 102, Nsc 211, Spch 102, Spch 105

Course Requirements

Specific requirements for the B.S.B.E. include Writ 100, Writ 101, or Hon 101; Writ 102, Liba 102, or Hon 102; Math 261-264, Math 353; Chem 105, 106, 115, 116, 221, 222, 225, 226; Phys 211, 212, 221, 222; Bisc 160, 161, 162, 163; Csci 251; Engr 360, 400; El E 331; Ch E 307, 308; BME 200, 222, 313, 314, 333, 370, 444, 461, 462.

Other Academic Requirements

Students in the Department of Biomedical Engineering who consider independent research as part of their educational experience may use up to 3 hours of Engr 300 or above course or independent research course housed in chemistry, biology or physics as an emphasis elective in the biomolecular and bioinformatics emphases.

Specializations

- Emphasis - Biodevices
- Emphasis - Bioinformatics
- Emphasis - Biomolecular
- Emphasis - Pre Med